Cultural Productivity and Short-Term Financial Commitment

Abstract

How does entrepreneurs' ancestry affect their firm's performance? Based on surnames, we classify entrepreneurs in Europe and Asia into ethnic groups. For each group, we estimate the expected productivity and capital structure, controlling for size, country, and industry. Then we verify whether these ethnic effects predict firms' productivity in a multi-ethnic country overseas, Brazil. This approach accounts for differences in institutions and human capital supply, discrimination, and selection into entrepreneurship. Our results reveal a one-to-one relationship between ethnic productivity in Brazil and abroad. Cultural influence on capital structure explains 40-60% of this relationship. In particular, the higher the propensity to raise short-term loans, the higher the performance. This finding is consistent with the disciplinary role of frequent debt repayments. To further test this hypothesis, we explore a credit expansion policy that encouraged entrepreneurs to extend debt maturity. Although this policy targeted highly productive groups, the beneficiaries presented lower performance than comparable firms.

Keywords: Productivity, Ancestry, Management Culture, Financing Decisions

JEL codes: G32, L26, M14, O16, Z13

1 Introduction

This paper estimates the effect of entrepreneurs' culture, inherited from ancestors, on their firms' productivity, and attempts to explain it through ethnic preferences on capital structure.[1]

It has been increasingly convincing that culture affects economic outcomes in many ways (Guiso, Sapienza, and Zingales, 2006). More broadly, historical shifts in the cultural background appear to influence countries' current economic development (Putterman and Weil, 2010; Tabellini, 2010; Easterly and Levine, 2016). Within countries, regional differences in income levels are also determined by the origins of early immigrants (Sequeira, Nunn, and Qian, 2019; Fulford, Petkov, and Schiantarelli, 2020). These ancestral effects are often linked to macro factors, such as human capital supply, technology diffusion, and institutional development (Hornung, 2014; Rocha, Ferraz, and Soares, 2017; Droller, 2017). As a micro factor, however, it is still hard to find credible evidence on the direct impact of entrepreneurs' culture on their own productivity.

Amongst a variety of cultural differences that could affect firm productivity (e.g., Hilary and Hui, 2009; Guiso, Sapienza, and Zingales, 2015; Liu, 2016), inherent financing arrangements have,

[1] According to Alesina and Giuliano (2015), the omnipresent definition of culture in empirical economic papers is that from Guiso, Sapienza, and Zingales (2006, p. 23): "customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation." That means, an ethnic group shares cultural traits that distinguish them from others. While the exact delineation of ethnicity remains challenging for anthropologists and other scientists, our simplified definition coincides with current national boundaries or an aggregation thereof.

in theory, a nontrivial effect. On the one hand, a preference for short-term loans is a signal of confidence that lowers borrowing costs in exchange for short-term commitments (Myers, 1977; Landier and Thesmar, 2008; Graham, Harvey, and Puri, 2013). On the other hand, other sources of capital, such as trade credit and long-term debt provide more operating flexibility but entail higher financing costs (Diamond, 1991; Petersen and Rajan, 1997; Cuñat, 2006). Given that ethnic groups present distinct financing policies (e.g., Bedendo, Garcia-Appendini, and Siming, 2020), cultural norms and practices should make entrepreneurs more willing to either put themselves on a short leash or give away larger stakes. By interfering in operating decisions in the short run, inherited financing preferences should also affect firms' long-term performance.

From an empirical standpoint, identifying and explaining the cultural effect on individual performance is challenging. By comparing firms across regions, it is hard to distinguish cultural decisions from institutional development (Alesina and Giuliano, 2015; Karolyi, 2016). By comparing firms within a region, one cannot fully separate the influence of their culture from opportunities and discrimination (Cornell and Welch, 1996; Fisman, Paravisini, and Vig, 2017). Furthermore, the business habits of an ethnic group, such as management practices and financing decisions, could rather be the result of its intrinsic performance (Stigler, 1976; Flannery, 1986). When firms are created, the quality of business ideas and their financing decisions are practically set in stone (Lemmon, Roberts, and Zender, 2008; Kaplan, Sensoy, and Strömberg, 2009), so it is difficult to tell what comes first.[2]

In this paper, we apply a novel two-step approach to control for institutional differences, discrimination, and opportunities faced by different groups. First, using machine learning, we classify into ethnic groups the names of top managers and controlling owners for private firms in Europe and Asia. Controlling for country-industry-year effects, we estimate the expected productivity and capital structure of each ethnicity. At this step, identifying ethnic effects would still be problematic if groups were sorted based on their country-specific performance.[3] Moreover, those estimates do not tell us whether the capital structure is either a cause or a consequence of productivity.

We deal with these issues in the second step, when we estimate the relationship between the

[2]Without doubt, exogenous variations in credit supply help us understand the relationship between financing sources and productivity (e.g., Krishnan, Nandy, and Puri, 2015; Campello and Larrain, 2016). However, they provide a limited understanding of the heterogeneity among firms subject to the same constraints.

[3]See Rothstein (2010) and Eeckhout and Kircher (2011).

productivity of ethnic groups in Brazil and overseas. With this "out-of-sample" estimation, we verify not only whether productivity is culturally connected across the Atlantic but also what sort of cultural behavior explains such connection. This step follows Fernandez's (2011) 'epidemiological approach' by comparing distinct cultures under a common institutional framework. Furthermore, we mitigate the impact of distinct opportunities given to ethnic groups by tying the cultural effect to the behavior of these groups overseas. Our main assumption is that ethnic effects abroad, albeit biased, are independent of firms' idiosyncratic productivity in Brazil. Under this condition, we identify exogenous determinants of ethnicities' observable practices (e.g., capital structure) and unobservable characteristics related to performance (i.e., the ethnic productivity itself), so we can separate their effects on Brazilian firms.

The main upside of studying Brazil is the multi-ethnic composition of its population. Its wide range of cultural backgrounds is mostly due to the mass immigration waves from several countries until the early twentieth century (Naritomi, Soares, and Assunção, 2012). Nowadays, about 65% of the population declares either an European or Asian origin as their first or second main ancestry, with the most common responses being Portuguese (22%), Italian (10.5%), Spaniard (8%), German (6%), and Japanese (2%) (Petruccelli, 2000). Still, the current share of immigrants and foreigners is lower than 0.3% in the population and 1.5% among business owners. Therefore, this country provides a unique setting to verify a cultural link unrelated to entrepreneurs' native language and nationality.[4] Instead, this link should result from the ancestral traits that have been passed down through generations.[5]

Our findings reveal that the elasticity of firms' productivity in Brazil to ethnic productivity overseas is around one. In addition to assessing their average productivity across industries, we also calculate the industry-specific performance of ethnic groups. In this case, the elasticity of local productivity to industry-specific effects is about 0.2. Thus, the performances of Brazilian entrepreneurs and distant relatives abroad are culturally connected, but mostly due to general skills that stand out across industries. Moreover, we do not find evidence that ethnic groups are

[4]We also exclude from our sample firms controlled by a foreign shareholder.

[5]These traits may be transmitted either culturally or biologically (Spolaore and Wacziarg, 2013). For instance, Cronqvist and Siegel (2014, 2015) show that genetic differences explain a great part of the variation in individuals' savings and investments. On the other hand, Lindquist, Sol, and Van Praag (2015) find that nurture is more important than nature in explaining the inter-generational transmission of entrepreneurial activity. Likewise, Black et al. (2019) show that nurture is also more important than nature for the transmission of investment skills.

positively sorted into industries based on specific skills.

Both elasticities, to the mean and industry-specific ethnic productivity, are also found to increase with the size of private firms. One explanation is that cultural effects are more pronounced in older firms because their output is more predictable. Another nonexclusive explanation, corroborated by our findings, is that highly productive entrepreneurs are the most influenced by their cultural legacy. For public firms, the elasticity to the mean ethnic performance is insignificant, but the elasticity to industry-specific performance is around one. Hence, with spread ownership, firms appear to respond less to entrepreneurs' general business background and more to the industry know-how of their culture.

The ethnic link with productivity overseas is found regardless of how we assess ethnic performance — i.e., using either total factor productivity (TFP) or labor productivity. Furthermore, the link becomes slightly stronger if we weight observations based on the local influence of their ancestors. Such influence is measured by classifying street names into ethnic groups, and the result suggests that the ethnic link is driven by the cultural traces left by early immigrants. Despite that, our findings are unlikely to be explained by the broader impacts that these immigrants had on current human capital supply, infrastructure, and financial development.[6] In our estimates, we control for these spillover effects by comparing ethnic groups within municipalities.

To understand the cultural practices behind the effect on productivity, we regress firm performance in Brazil on the expected capital structure of ethnic groups abroad. Our definition of capital structure takes into account the debt heterogeneity in terms of sources and maturity. Namely, we look at trade credit, short-term loans, other accounts payable, and long-term debt, as well as cash holdings and fixed assets. We find that the propensity to accumulate these items explains 60% of the ethnic link with productivity overseas. This result persists even after controlling for measures of financial constraints, suggesting that the explanation is through financing preferences on the demand side. Further, we also control for the management scores calculated by Bloom and Van Reenen (2007, 2010). While preferences on capital structure still explain at least 40% of the relationship with productivity abroad, inherent management practices explain the rest.

Among the financing decisions taken by ethnic groups, raising short-term loans has a positive

[6]See Guiso, Sapienza, and Zingales (2004b) and D'Acunto, Prokopczuk, and Weber (2018) on the influence of culture on financial development.

and robust relationship with productivity, whereas raising long-term debt, as well as trade credit, has a negative relationship. It is worth stressing that these results are found even after controlling for proxies of financial constraints and unobservable characteristics related to cultural performance. Even so, different types of behavior may explain the correlation between debt structure and productivity. For example, more optimistic and less risk-averse entrepreneurs, who favor short-term loans, are naturally more productive.[7] Also, by opting for frequent debt repayments, entrepreneurs seek more control over short-term outcomes to keep their firms financially stable. To identify the form of cultural behavior driving those relationships, we include the Hofstede six dimensions of national culture as covariates in our regressions.[8] Out of these dimensions, uncertainty avoidance and long-term orientation explain only part of the correlation between preferred debt maturity and productivity.[9] However, individualism and competitiveness are found to explain it entirely. That is, self-reliance — or not counting on others to achieve success — seems to be the cultural trait that connects debt maturity to long-term performance.

Still, to explore how preferences on debt maturity can cause cultural productivity, we investigate a credit expansion policy that offered subsidized long-term loans to a great number of firms in Brazil. Since these loans' interests were lower than the market rate, highly productive groups were encouraged to extend their debt maturity. Our results show that the policy indeed targeted these groups, and the amount of subsidized loans weakened the relationship of productivity with cultural preferences and skills. Therefore, the deviation of entrepreneurs' decisions from their inherited propensity to shorten debt maturity is associated with a lower productivity, suggesting that more operating flexibility makes entrepreneurs less concerned about improving their firm's efficiency.[10]

The contribution of the present paper is threefold. First, it shows that entrepreneurs' ancestry affects their firms' productivity. In this regard, our study is broadly related to the literature on the

[7] See, for instance, Hirshleifer, Low, and Teoh (2012) on the relationship between confidence and innovation.

[8] The Hofstede indicators of cultural values are broadly applied to explain management and investment decisions (e.g., Chui, Titman, and Wei, 2010; Eun, Wang, and Xiao, 2015; Shao, Kwok, and Zhang, 2013; Pan, Siegel, and Wang, 2017). The six dimensions are individualism (vs. collectivism), power distance (acceptance of inequality in power), masculinity (toughness vs. tenderness), uncertainty avoidance (vs. tolerance for uncertainty and ambiguity), long-term orientation (pragmatic vs. normative approach towards the future), and indulgence (vs. restraint) (Hofstede, Hofstede, and Minkov, 2010). Given Hofstede's (2001) definition of 'masculinity,' we choose to rename this dimension 'competitiveness.'

[9] According to Falk et al. (2018), these two Hofstede dimensions are significantly correlated with individual preferences.

[10] An alternative but complementary explanation is that subsidized loans extend the life of inefficient firms within ethnic groups, lowering their overall productivity (Caballero, Hoshi, and Kashyap, 2008; Acharya et al., 2019).

long-term effects of immigration on economic development (Putterman and Weil, 2010; Easterly and Levine, 2016; Fulford, Petkov, and Schiantarelli, 2020). Some studies indicate that these effects are related to knowledge spillovers from immigrants to natives (Hornung, 2014; Murard and Sakalli, 2018; Sequeira, Nunn, and Qian, 2019) and competitive advantages in the industrialization process (Fourie and von Fintel, 2014; Droller, 2017; Rocha, Ferraz, and Soares, 2017). Our paper adds to this literature by revealing that differences in productivity across ancestral groups persist even at the individual level.

This finding is consistent with the evidence that cultural norms brought by immigrants persist over generations despite the institutions (Fernández and Fogli, 2009; Alesina, Giuliano, and Nunn, 2013; Grosjean, 2014; Giuliano and Tabellini, 2020).[11] In terms of business decisions, our study is closely related to three other papers. Burchardi, Chaney, and Hassan (2018) find that local ancestry influences firms' foreign investments; Liu (2016) finds that the ancestry of company insiders determines corporate misconduct; and Nguyen, Hagendorff, and Eshraghi (2018) observe that CEOs' ancestral values affect the performance of banks under competitive pressure.[12] Complementing this literature, we show how inherited business practices affect firm productivity.

Our third contribution is to present evidence of how financing decisions relate to long-term performance. In this matter, Robb and Robinson (2012) show that outside debt has a positive relationship with startups' future growth. Yet their findings do not tell whether the variation in outside debt is determined by supply or demand. On the demand side, for instance, Landier and Thesmar (2008) point out that entrepreneurs' beliefs affect their debt structure.[13] On the supply side, Krishnan, Nandy, and Puri (2015) show that access to bank credit boosts firm productivity.[14] In terms of contract design, Campello and Larrain (2016) find that the improved ability to issue secured debt increases firms' profitability and employment.[15] Moreover, Nini, Smith, and Sufi (2012) and Spyridopoulos (2020) show that stricter debt conditions improve firms' operating performance.

[11] See Fernandez (2011) and Spolaore and Wacziarg (2013) for a review.

[12] Many other studies examine the direct relationship between cultural traits and corporate outcomes at country level (e.g., Shane, 1993; Chui, Lloyd, and Kwok, 2002; Stulz and Williamson, 2003; Shao, Kwok, and Guedhami, 2010; Gorodnichenko and Roland, 2011; Li et al., 2011; Ahern, Daminelli, and Fracassi, 2015; El Ghoul and Zheng, 2016; Griffin et al., 2017) and firm level (e.g., Li et al., 2013; Guiso, Sapienza, and Zingales, 2015; Braguinsky and Mityakov, 2015; Frijns, Dodd, and Cimerova, 2016; Delis et al., 2017; Chen et al., 2017; Pan, Siegel, and Wang, 2017; Giannetti and Zhao, 2019; Hu, Lian, and Zhou, 2019).

[13] See also Bertrand and Schoar (2003), Malmendier, Tate, and Yan (2011), and Graham, Harvey, and Puri (2013) on managers' preferences over capital structure.

[14] See also Guiso, Sapienza, and Zingales (2004a) and Kerr and Nanda (2009).

[15] See also Aretz, Campello, and Marchica (2020).

These findings suggest that access to stricter contracts allows entrepreneurs to signal their quality and commitment ex-ante and forces them to improve operating efficiency ex-post (Harris and Raviv, 1990). By using a exogenous instrument for financing decisions on the demand side, our paper confirms that stricter financial commitments lead to higher productivity. As a result, credit policies that lessen firms' need for short-term loans tend to slow the long-run economic growth.

The remainder of the paper is organized as follows. Section 2 describes all the data sources, construction of variables, and classification of entrepreneurs into ethnic groups. Section 3 explains our econometric approach. Section 4 contains descriptive results of ethnic effects in the Eurasian sample. Section 5 presents results for the cultural effects on firm productivity in Brazil and discusses potential mechanisms. Section 6 concludes the paper.

2 Data

Our main data source is Orbis from Bureau van Dijk (BvD), the largest cross-country firm-level database that includes financial statements and ownership. For countries where firms must report to the national business register, Orbis comprises the same information as the local statistical offices. According to Kalemli-Ozcan et al. (2015), this is the case for most European countries. For firms in Brazil, we match Orbis with two other data sources. The first is the Annual Social Information Report (*Relação Anual de Informações Sociais*, RAIS), which contains information on firms' employment. The second is the Brazilian Development Bank (BNDES), which provides information on subsidized business loans.

This section describes all the data preparation in details, and Table A1 of the Online Appendix presents the descriptive statistics of the constructed variables. For the classification of entrepreneurs into ethnic groups, we apply the NamSor diaspora API tool. The use of other data sources, such as the Hofstede dimensions of national culture, registry of addresses in Brazil, and the World Management Survey, as described in the Online Appendix.

2.1 Firm-Level Data in Europe and Asia

From the Orbis online platform, we downloaded financial variables in the global standard format and ownership data for all countries in Europe and Asia, plus Egypt.[16] In Europe, we collected information only from privately held firms. In Asia and Egypt, we considered all companies with available data, regardless of their ownership status. For all countries, we also excluded branches, firms with a foreign controlling shareholder or more than five companies in their corporate group, state-owned enterprises, non-profit organizations, and firms whose main activity was one of the following: agriculture (two-digit NACE Rev. 2 code between 01 and 03), mining (05-09), public utility (35-39), financial services and real estate (64-68), public administration (84 and 99), and household services (97-98).

Given the data volume that had to be collected from the Orbis online interface, we downloaded only two years of financial statements: 2012 and 2015. Then we construct the following variables: years since incorporation (Age), log total assets ($Size$), log number of employees (l), log number of fixed assets (k), fixed assets over total assets (K/A), cash and cash equivalent over total assets ($Cash/A$), current liabilities plus long-term debt over total assets ($Debt/A$), current liabilities over total assets (STD/A), trade credit over total assets ($Credit/A$), short-term loans over total assets ($Loans/A$), earnings before interest and taxes over total assets ($EBIT/A$), the three-year growth rate in fixed assets ($Growth$), and a dummy whether the firm reports operations after three years ($Survival$). The first four variables, Age, $Size$, l, and k, are used as control variables in our regressions. $EBIT/A$ is used to calculate the growth and survival sensitivities to earnings. The other variables are dependent outcomes.

To avoid any issue with extreme values, we trim the values of $EBIT/A$ above the 97.5th and below the 2.5th percentile in our sample, $Growth$ above the 95th percentile, and the other ratios above the 99th percentile and below zero. We also exclude firm-year observations with a negative value for operating revenue, total assets, fixed assets, current liabilities, cash, or non-current liabilities, firms whose the amount of cash, fixed assets, or their sum was larger than total assets, and firms whose the amount of short-term loans, trade credit, or their sum was larger than total current liabilities.

[16] All the data was downloaded in May 2018.

As the main outcomes in our study, we construct three measures of firm productivity: log ratio of operating revenue over number of employees (*LaborProd*), log ratio of operating revenue over weighted factors (*TFPRev*), and log ratio of value added over weighted factors (*TFPVA*). The value added is calculated as the sum of operating earnings (EBIT) and cost of employees. Following Gal (2013), we impute the cost of employees when missing using the number of employees and the average labor cost per worker for each industry-country-year group. The factor weights in TFP measures are the elasticities of a Cobb-Douglas production function, where the inputs are the number of employees and fixed assets. We neither include materials nor consider tangible fixed assets because these variables would restrict our sample even more. The elasticities are estimated using a constrained linear regression for each industry, controlling for country-year fixed effects. We constrain the coefficients for capital and labor so that the production function has constant returns to scale. However, unconstrained coefficients yield very similar results.

According to Syverson (2011), revenue-based TPF is the most accurate among the three productivity measures because it is unaffected by the intensity of the excluded factors. However, labor productivity (*LaborProd*) is the most commonly used since TFP measures demand more data. Still, studies that compare revenue-based TPF and labor productivity often obtain similar results (e.g., Syverson, 2004; Bloom et al., 2014). The identification of value-added TFP requires further non-trivial assumptions, such as gross output is proportional to intermediate inputs (Basu and Fernald, 1997; Ackerberg, Caves, and Frazer, 2015). Thus, we present results with value-added TFP for completeness, but we put less weight on their interpretation.

To have enough observations for each industry within countries, ethnic groups, and years, we classify firms into 12 broad industries: manufacture of food, textiles, clothing, wood and related (two-digit NACE Rev. 2 code between 10 and 18); manufacture of petroleum, chemicals, and pharmaceuticals (19-23), manufacture of metals (24-25); manufacture of machinery, vehicles, and equipment (26-33); construction (41-43); wholesale and motor vehicle retail (45-46); retail, except motor vehicles (47); transportation and storage (49-53); hospitality (55-56); information and communication (58-63); professional services (69-82); and other services (85-96).

2.2 Firm-Level Data in Brazil

For Brazil, we apply the same filters as above — i.e., excluding branches, firms with a foreign controlling shareholder or more than five companies in their corporate group, state-owned enterprises, non-profit organizations, and firms whose main activity was agriculture, mining, public utility, financial services and real estate, public administration, or household services. However, we downloaded information for both privately held and publicly traded companies.

On the one hand, private firms do not report their financial statements. Thus, from Orbis, we construct financial variables, as above, only for public firms in 2014, 2015, and 2016. In Brazil, any firm that wants to issue shares or bonds to the public must be registered at the Securities and Exchange Commission (*Comissão de Valores Mobiliários*, CVM), who requires the annual disclosure of financial statements. Still, about 97% of these public firms are not listed in any stock exchange and are, in practice, privately held (see Table A1 of the Online Appendix).

On the other hand, Orbis also contains the operating revenue of all the Brazilian firms that reported operations in 2016. To calculate the labor productivity (*LaborProd*) of firms in our sample, we combine this variable with the number of employees, obtained from RAIS. All the Brazilian firms are legally required to annually report on RAIS every worker employed in the previous year, with information about salary, hours worked, number of weeks employed, and occupation. With these data, we calculate the number of full-time equivalent workers per firm in 2014-2016. Namely, it is the sum of workers weighted by their hours worked per week over 40 times their weeks employed over 52 (Alvarez et al., 2018). The firms on RAIS are matched with the ones on Orbis using the National Registry of Legal Entities number (*Cadastro Nacional da Pessoa Jurídica*, CNPJ). Firms without a match on either database are excluded from our sample.

Another sample restriction is applied based on revenue. By means of Federal law 123/2006, micro enterprises are entitled to several benefits, such as flexible labor regulations, fewer bureaucratic obligations, preferential treatment in public procurement, and generous tax deductions. Since one of the criteria for a micro enterprise is to have gross annual revenue below 360,000 BRL, firms tend to bunch at this amount. In our sample, about 30% of firms report operating revenue of either 98 or 110 thousand USD, which are the dollar values of that cutoff on two most common closing dates (see Figure A2 of the Online Appendix). To verify whether these modes interfere in our results, we

estimate our model twice, including and excluding firms at these modes.

For all public and private firms, we calculate the amount of outstanding subsidized loans. This information stems from the universe of loans originated at BNDES, except for microcredit, in 2002-2016. These loans were subsidized as their base rate were the official long-term interest rate (*Taxa de Juros de Longo Prazo*, TJLP) in Brazil and their spread was regulated (around 2-3%). Although the TJLP had been historically lower than the yield paid by public debt, it was the rate BNDES paid investors.[17] In line with the BNDES mission to finance long-term projects, the maturity of its loans was, on average, 60 months, which is considerably longer than the 37 months provided on average by commercial banks in Brazil (Grimaldi and Madeira, 2016).

For public firms, whose total assets are available, we construct the ratio of subsidized loans outstanding over total assets ($SubLoan/A$) in 2014-2016. This ratio is trimmed if greater than one. For all firms with number of employees available, we construct the log ratio of subsidized loans outstanding over the number of employees ($SubLoan/L$) in 2016. The log transformation automatically excludes firms with no subsidized loan reported. This exclusion is both convenient and necessary because many private firms received only micro-loans from BNDES, which we cannot observe. Thus, we can investigate the distribution of subsidized loans only at the intensive margin, but not at the extensive margin.

2.3 Classification of Names into Ethnic Groups

2.3.1 Classification Worldwide, Excluding Brazil

To classify firms into ethnic groups, we downloaded from Orbis the full names of the domestic ultimate owner (DUO) and the first current director or manager (DM) that appears on the database. If DUO is another company, we exclude its name. To check the consistency of the classification, the names are not only from firms in our sample but also from firms in North, Central, and South Americas, Asia, and Africa. In total, we classify the names of 3,041,263 managers and business owners worldwide, excluding Brazil.

[17] In 2016, about 50% of BNDES operations were funded by the National Treasury, 30% by the workers' fund of compulsory contributions (*Fundo de Amparo ao Trabalhador*, FAT, *Programa de Integração Social*, PIS, and *Programa de Formação do Patrimônio do Servidor Público*, PASEP), and 3.5% by other state-controlled funds. Source: www.bndes.gov.br. In 2018, the TJLP was replaced by the Long-Term Rate (*Taxa de Long Prazo*, TLP), which is set under different parameters.

The classification was performed by the NamSor diaspora API tool. Using first and last names and country of residence, this tool guesses an individual's diaspora with a Naive Bayes classification. The algorithm is trained with data from social media and local demographics and refined with deep-learning, also covering behavioral, semantic, and geographic information.[18] Unlike other studies applying this tool (e.g., Drechsler, Bachmann, and Engelen, 2019; Nagle and Teodoridis, 2020), we attempt to find individuals' diaspora instead of country of origin. The classification for country of origin is more suitable to identify immigrants, but not their descendants. According to Monasterio (2017), for instance, surnames like Bosch, Chen, Mohamed, and Singh are currently among the 500 most common in Spain.

The NamSor tool returns a score from 0 to 100 indicating the accuracy of the classification. However, this score is not an equally good indicator for all diaspora groups. In general, the accuracy of onomastic algorithms vary by group and country of residence. To identify miss-classifications, we manually checked the API output by diaspora and country of residence from the highest to the lowest score. The lower the score, the higher the chance of finding similar names in multiple diaspora groups. These names with inaccurate classification are then excluded, leaving us with 2,617,332 classified names.

For firms in which both DUO and DM names were classified (less than 8% of classified firms), we kept the one with the higher score. We also kept in our sample firms in which neither DUO nor DM were classified (about 22% of the final sample). For each country and industry, these firms are the reference group.

Since some groups are either too small in our data or inaccurately classified by NamSor, we aggregated them based on linguistic or geographic proximity. For the linguistic proximity, we applied network analysis based on surnames that appear in multiple original diasporas.[19] For instance, Icelander names are similar to Swedish, Bangladeshis are similar to other Islamic groups, and Belarusians are close to Ukrainians. See Figure A1 of the Online Appendix. For groups that were still small and inaccurate after the linguistic-based aggregation, we further aggregate them based on ge-

[18] We do not have more details on how the algorithm works because it is confidential.

[19] Following Caldarelli et al. (2012), the similarity between two diasporas, d and d', is quantified as

$$S_{dd'} = \frac{2N_{dd'}}{N_d + N_{d'}} \cdot 100,$$

where $N_{dd'}$ is equal to the frequency of names that appear in both d and d', and N_d is the total number of names in diaspora d.

ographic approximation. For example, Southern African names were merged with Muslim African names. After that, we ended up with 36 ethnic groups. See Table A2 of the Online Appendix.

2.3.2 Classification of Surnames in Brazil

For firms in Brazil, we started the classification with the NamSor diaspora API tool. However, we primarily used only the last names of DUOs. The last names of the DM was used only if the DUO was missing or invalid. We did not use their full names for the classification because, nowadays, most Brazilians have an Iberian or even a "pseudo-English" first name, regardless of their ancestry (Thonus, 1992). Since we are interested in entrepreneurs' ancestry, the classification was based solely on their surnames (Waters, 1989; Chibnik, 1991).

Still, the NamSor tool tends to overpredict Portuguese names in Brazil. Then, the second step was to verify how the same last name was classified in other countries. Accordingly, Portuguese names, as well as low-score names, were re-classified in case they predominantly appear in a single diaspora group abroad. The third step was to compare the classification given by the NamSor algorithm with the one given by Monasterio's (2017) algorithm. The latter was developed specifically for the Brazilian context, using several historical data sets of immigrants as inputs.[20] The downside is that only six groups can be distinguished: Iberian (Spaniards and Portuguese), Italian, German, Japanese, Eastern European, and Syrian-Lebanese. For the first four groups, 69-85% of the classified names coincide with the NamSor classification. The last two groups present a lower correspondence because they have a much lower historical presence among immigrants in Brazil.

3 Econometric Approach

Our empirical strategy consists of two steps. First, we estimate the effect of ethnic groups on productivity, as well as other firm-level variables, using a sample of privately held companies in Europe and Asia. Then, to validate these effects, we estimate their relationship with firm productivity in an overseas country: Brazil. This section describes both steps and discusses their identification issues.

[20] Monasterio (2017) applies fuzzy matching of names from historical data sets and a machine learning algorithm, as proposed by Cavnar and Trenkle (1994), for the remaining unmatched observations.

3.1 Fixed Effect Model

Let w_{idt} be either the productivity or a financial ratio of firm i owned by ethnic group d in year t. To estimate the ethnic effect on w_{idt}, we apply a two-way fixed-effect model (TWFE) (Abowd, Kramarz, and Margolis, 1999), which has the following form:

$$w_{idt} = \alpha_d + \upsilon^d_{K(i,d)} + \gamma^t_{JC(i,d)} + \kappa^{dt}_{JC(i,d)} + X'_{idt}\theta + \varepsilon_{idt}, \tag{1}$$

where γ^t_{jc} represents all time-variant determinants commonly attributed to sub-industry j in country c, κ^{dt}_{jc} is the effect of ethnicity d that is specific to sub-industry j in country c in year t, $JC(i,d)$ is an index functions indicating the sub-industry and country of firm i, X'_{idt} is a vector of observed controls (e.g., firm size), and ε_{idt} is the error term capturing other time-varying, firm-specific factors. Our main interest is in parameters α_d and υ^d_k. The former represents the mean ethnic effect that fully captures time-, industry-, and country-invariant attributes of group d. The latter is the industry-specific effect of ethnic group d, where $K(i,d)$ is an index function indicating the industry of firm i.[21]

Equation (1) is estimated using a multi-step procedure, where κ^{dt}_{jc} is assumed to be orthogonal to α_d, υ^d_k, and γ^t_{jc}. Also, υ^d_k is orthogonal to α_d, yet not to γ^t_{jc}. Namely, if a group is more productivity than others across most of the industries, then this difference should appear in α_d, instead of υ^d_k. For the estimates, standard errors are clustered by firm and sub-industry in each country and year, applying the multiway clustering estimator of Cameron, Gelbach, and Miller (2011).

The identification of ethnic effects stems from immigrants and their descendants. If an ethnic group were almost entirely found in a country with a few immigrants, the estimates for both country and ethnic effects would be biased. Abowd et al. (2004) and Andrews et al. (2008) call it the limited mobility bias. Since the number of ethnic groups is relatively small in our sample, the number of "movers" is large enough to prevent such bias. The same is true for the identification of υ^d_k. See Tables A3 and A4 of the Online Appendix.

A more critical identification problem is the potentially endogenous distribution of ethnic groups across countries (Rothstein, 2010; Eeckhout and Kircher, 2011). As long as the distribution is based on mean and industry-specific ethnic effects and time-variant country-industry effects, estimates are

[21] In all the estimates, we control for sub-industries using the 2-digit NACE Rev. 2 classification. However, given the near absence of a few ethnic groups in some sub-industries, we estimate industry-specific ethnic effects for 12 broader industries, see Section 2.1.

unbiased. That is, the model allows ethnic groups to sort into countries and industries. However, the identification would be compromised if groups were sorted based on their country-specific effect. Hypothetically, an ethnic group could be more (or less) productive in their home country, where they are predominant and most frequently found.[22] Then, its mean effect, α_d, would be overestimated (underestimated) and, as a result, the country effects, γ^t_{kc}, would be underestimated (overestimated), biasing the effect of other ethnicities found in that country. These biased ethnic estimates would in turn affect the estimates for other countries and ethnic groups.

To address this potential bias, we present below an "out-of-sample" estimation for ethnic effects. In this model, the estimated parameters from equation (1) are used as predictors for firm productivity in a country out of the original sample. But first, to reduce the error variance of these predictors, we apply the following empirical Bayes shrinkage (Morris, 1983):

$$\tilde{\alpha}_d = \frac{\hat{\sigma}^2_\alpha}{\hat{\sigma}^2_\alpha + \hat{\lambda}_d} \hat{\alpha}_d \tag{2}$$

where $\tilde{\alpha}_d$ is the shrunken estimate for group d, $\hat{\alpha}_d$ is the unshrunken estimate, $\hat{\sigma}^2_\alpha$ is the empirical variance of ethnic effects, and $\hat{\lambda}_d$ is the estimated error variance of $\hat{\alpha}_d$. The same transformation is also applied to $\hat{\upsilon}^d_k$. The purpose of the shrinkage is to reduce the attenuation bias when estimates are used as regressors (e.g., Kane and Staiger, 2008; Chetty, Friedman, and Rockoff, 2014; Koedel, Mihaly, and Rockoff, 2015).

3.2 Overseas Relationship

If the estimated ethnic effects in equation (1) truly result from cultural practices passed down through generations, then they should predict firm performance in a multi-ethnic country such as Brazil. Accordingly, we estimate the relationship between the productivity of a Brazilian firm owned by ethnic group d, y_{id}, and the estimated effect of this group abroad, $\tilde{\alpha}_d$ and $\tilde{\upsilon}^d_k$:

$$y_{id} = \beta_1 \tilde{\alpha}_d + \beta_2 \tilde{\upsilon}^d_{K(i,d)} + \mu^d_{K(i,d)} + X'_{id}\vartheta + \eta_{J(i,d)} + \nu_{R(i,d)} + \zeta_{id}, \tag{3}$$

where μ^d_k represents the industry-ethnicity unobserved attributes that are unrelated to $\tilde{\alpha}_d$ and $\tilde{\upsilon}^d_k$, η_j is the sub-industry effect, ν_r is the municipality effect, $R(i,d)$ is an index function indicating the municipality of firm i, and ζ_{id} is the error term capturing other firm-specific factors. The error

[22] For example, Mironov (2015) provides evidence that culturally corrupt CEOs have a positive effect on the performance of companies in an institutionally corrupt country.

terms are clustered by ethnic group, sub-industry, and municipality using Cameron, Gelbach, and Miller's (2011) multiway estimator.

Even if both predictors, $\tilde{\alpha}_d$ and $\tilde{v}_k^d$, were biased, their biases come from productivity levels in other countries and should not be correlated with firm performance in Brazil. Thus, if anything, β_1 or β_2 will be underestimated due to a measurement error. As long as we find that β_1 or β_2 is greater than zero, culturally inherited practices matter for firms in Brazil. It is worth stressing, though, that the evidence is specific for this country.

Another identification issue is that the origin of immigrants has also determined other dimensions of economic development in Brazil, such as local institutions and human capital supply (e.g., Naritomi, Soares, and Assunção, 2012; Rocha, Ferraz, and Soares, 2017). For this reason, it is essential to include fixed effects for municipalities, ν_r, to control for other local consequences that immigration had. This way, we compare firms in the same settlement, subject to the same institutions, infrastructure, and human capital supply.

Although the current percentage of immigrants in Brazil is very low, the country received many waves of immigrants in the 19th and 20th centuries. While the descendants of more recent waves are probably more in touch with their roots, earlier waves may have left a deeper mark in today's municipalities. Since we cannot trace the family tree of every business owner, we instead use the ethnicity of street names as a proxy to identify earlier groups in the settlement. To verify whether these groups have a long-lasting relationship with their distant relatives abroad, we also estimate equation (3) under a counterfactual distribution of groups. In this exercise, we reweight the observations by the percentage of local street names with the same ethnicity (Barsky et al., 2002; Firpo, Fortin, and Lemieux, 2018).

In equation (3), $\tilde{\alpha}_d$ and $\tilde{v}_k^d$ may represent not only the ethnicity's performance overseas but also its effects on a variety of outcomes. For outcomes such as leverage and cash savings, the ethnic effects are considered exogenous proxies for entrepreneurs' decision making. Therefore, we can use them to verify, for instance, how the demand for distinct forms of credit affects firm productivity.

4 Estimated Ethnic Effects

4.1 Productivity

We start our analysis by verifying how heterogeneous the ethnic effects on productivity are. To do so, we estimate equation (1) using three different measures of productivity: labor productivity (*LaborProd*), revenue-based TFP (*TFPRev*), and value-added TFP (*TFPVA*). Figure 1 presents the estimates for the mean ethnic effect, α_d, in the Eurasian sample, after the Bayes shrinkage. The estimates vary considerably, with some groups being at least 10% less productive than the average and others 10% more. Even for a group that is very close to the average, such as Italians, we find that it is significantly different from most of the other groups. Tables A5-A7 of the Online Appendix confirm that most of the (unshrunken) pairwise differences between ethnicities are statistically significant.

FIGURE 1 ABOUT HERE

As regards the productivity measure, labor productivity and revenue-based TFP yield very similar results. With the value-added TFP, however, we find some inconsistencies, most likely because the sample is different.[23] Moreover, Basu and Fernald (1997) and Ackerberg, Caves, and Frazer (2015) argue that value-added production functions are not suitable to generally identify productivity. Despite that, most groups that are above (below) average based on revenue are also above (below) average based on value added. The top-left of Table 1 confirms that the ethnic effects on different measures of productivity are highly correlated.

To visualize the magnitude of ethnic effects, we calculate its aggregate contribution to each country's productivity — i.e., the average of ethnic effects among firms weighted by firms' inputs (capital and labor).[24] Figure 2 shows the contribution of both mean ethnic effects (darker bars) and industry-specific effects (lighter bars). These contributions result not only from the most predominant group in each country but also from the presence of other groups.

FIGURE 2 ABOUT HERE

[23] In some countries, such as Russia, firms do not report either the cost of employees or EBIT, required to calculate the value added. In others, such as Germany, they do not report the operating revenue.

[24] One may also interpret the aggregate contribution as the difference between aggregate productivity and aggregate productivity deducting ethnic effects.

In almost every country, the industry-specific effects slightly compensate for the mean effects. That is, in countries with less productive groups, their allocation into industries raises the aggregate productivity. Still, the impact of such allocation is too small compared to the contribution of mean effects. Countries like Poland (PL) and the Czech Republic (CZ) are at least 5% more productive because of ethnic effects. On the other hand, countries like Bulgaria (BG) and Spain (ES) are at least 5% less productive.

In the top-right of Table 1, we observe that the correlation between mean effect and total (mean plus industry-specific) effect on productivity is about 0.58 for revenue-based measures and 0.76 for the value-added TFP. These coefficients imply that the variance of mean effects explains 34% and 58% of the variance of total effects, respectively. In other words, industry-specific effects explain 66% and 42% of the total effects on productivity, respectively.

Table 1 About Here

4.2 Other Outcomes

Table 1 also presents the correlation between the effects on productivity and the effects on other financial variables, as well as industry prevalence. We find that ethnic productivity has a negative correlation with the mean effect on cash savings ($Cash/A$) and a positive correlation with the mean effect on short-term debt (STD/A), particularly short-term loans ($Loans/A$). For industry-specific effects, we find a positive correlation of productivity with trade credit ($Credit/A$) and a negative correlation with tangibility (K/A).

These correlations provide some clues about the effect of financial decisions on productivity. One problem with simple correlations, among many, is that the inherent capital structure of an ethnicity could be the result, instead of the cause, of its intrinsic productivity. Accordingly, we apply the overseas prediction to disentangle potential mechanisms.

Another problem is that the estimated effects on financial variables may depend on the distinct credit conditions faced by each group (Blanchflower, Levine, and Zimmerman, 2003; Fisman, Paravisini, and Vig, 2017). Although it sounds implausible that credit markets worldwide consistently discriminate against the same groups, we still try to control for those conditions henceforth. To do so, we calculate two proxies for financial constraints: survival sensitivity to earnings (*SurvivalSens*)

and growth sensitivity to earnings (*GrowthSens*).

Inspired by Fazzari, Hubbard, and Petersen (1988, 2000), these proxies represent how much current operating earnings (EBIT over total assets) are related to survival probability and fixed asset growth, respectively, for the next three years.[25] If a group is more financially constrained, then the future of its firms relies more on their transient performance.[26] As shown in Table 1, growth sensitivity has a strong negative correlation with productivity. For survival sensitivity, only the correlation with *TFPVA* is negative, as the other coefficients are positive but close to zero.

In the bottom part of Table 1, we observe that the most productive groups are found in professional services, information services, manufacture of machinery and equipment, and manufacture of chemicals and pharmaceuticals. The least productive are found in wholesale and retail. Nevertheless, we also find a low correlation between an ethnicity's total productivity and industry prevalence (*IndPrev*), which is the excess presence of a firm's ethnicity in its industry. These findings suggest that ethnic groups sort into industries based on their overall productivity instead of industry-specific skills.

5 Cultural Relationship Between Firms Overseas

In this section, we verify whether culture matters by estimating the relationship between firm performance in Brazil and ethnic effects on productivity in Eurasia. In addition, we use the estimated ethnic effects on other variables to explore the mechanisms of such relationship. The additional estimates for capital structure and management practices should work as a proxy for the decision-making of entrepreneurs in different ethnic groups. Finally, we investigate what happens with the relationship overseas if entrepreneurs are encouraged to deviate from their inherited capital structure.

[25] Unlike many studies (e.g. Hoshi, Kashyap, and Scharfstein, 1991; Almeida and Campello, 2007; Gan, 2007), we use EBIT instead of cash flow because the latter is rarely reported by firms in Orbis.

[26] Many studies criticize the use of investment-cash flow sensitivity as a measure of financial constraints (e.g., Kaplan and Zingales, 1997; Gomes, 2001; Alti, 2003; Chen and Chen, 2012). One of the main arguments is that investment opportunities are correlated with earnings and often incorrectly measured (Erickson and Whited, 2000). In our case, controlling for investment opportunities should not be an issue because we are not interested in the earnings sensitivity of industries, but in the sensitivity that is particularly attributed to each ethnic group.

5.1 Labor Productivity

Table 2 presents the estimated relationship between labor productivity of firms in Brazil and ethnic productivity overseas. The first specification, in column (1), reveals a one-to-one link between *LaborProd* and the mean ethnic effect on the same variable abroad. In this specification, we control for municipality fixed effects, as in equation (3), and exclude firms bunched at the cutoff of a major tax break, as explained in Section 2.2. If we include all firms, as in column (2), the relationship becomes weaker, but the coefficient is still significant and close to one. The result is also similar when we control for state fixed effects, in column (3), or replace the mean effect on *LaborProd* by the mean effect on *TFPRev*, in column (4). In column (5), we apply the mean effect on *TFPVA* as a predictor. The estimated coefficient is smaller, but it is still highly significant. Following Basu and Fernald (1997), though, we give less attention to value-added as a performance measure and focus the further analyses on *LaborProd*.

TABLE 2 ABOUT HERE

In columns (6), (7), and (8) of Table 2, we add the ethnic industry-specific effects. As these effects are orthogonal to the mean effects (see Section 3.1), they do not change the previously found relationship. Still, they indicate that industry-specific skills matter but have a minor role. A 1% increase in the industry-specific productivity of an ethnicity corresponds to a 0.2% increase in the productivity of firms in Brazil.

To verify whether the relationship in performance has deeper roots, we also estimate it under a counterfactual distribution of groups based on local street names. Table A8 of the Online Appendix shows that the resulting relationship is slightly stronger. On the one hand, giving more weight to groups that match street names should reduce the attenuation bias. On the other hand, the result suggests the existence of deeply rooted local factors that reinforce the cultural productivity.

Figure 3 illustrates the estimated coefficient in column (1) of Table 2. It shows how far each ethnic group in Brazil is from the estimated relationship. Indeed, many groups are close to the linear fit, particularly those who have a better representation in the country, such as Portuguese, German, Italian, Japanese, and French. Figure A3 of the Online Appendix shows that the relationship

remains the same even if we exclude the largest group of firms — i.e., Portuguese-owned retailers.

FIGURE 3 ABOUT HERE

In Table 3, we split the regressions by firm size and ownership status. Results indicate that the bigger the private firm, the stronger the relationship with ethnic effects overseas. We observe a strengthening relationship not only with the mean ethnic effect but also with the industry-specific effect. A possible interpretation is that smaller firms face higher uncertainties, so their performance is less predictable (Ballantine, Cleveland, and Koeller, 1993; Dhawan, 2001).

TABLE 3 ABOUT HERE

For publicly held companies, however, the performance is not significantly related to the mean ethnic effect. This is consistent with the evidence that founder managers exerts a lesser influence in public and mature firms (e.g., Ling, Zhao, and Baron, 2007; Kaplan, Sensoy, and Strömberg, 2009; Gao, Harford, and Li, 2017). Nonetheless, the performance of public firms still has a one-to-one relationship with the industry-specific effect of the owner's ethnic group. That is, with reduced agency problems, overall inherited skills matter less, but industry know-how still plays a significant role.[27]

5.2 Mechanisms

To investigate the channels that make productivity levels in Brazil and overseas connected, we re-run regressions (1) and (6) of Table 2 controlling for other ethnic characteristics. We separate these characteristics into three blocks: mean financing decisions, industry-specific decisions, and management practices. Except for management practices, these ethnic characteristics are estimated as in equation (1). In addition to their effects on the expected performance in Brazil, we further estimate the effects on the distribution of firms' productivity.

[27] See Gomes (2000) on the effect of ownership status on agency problems. See also Nelson (2003) on the persistence of founder's influence in public firms and Custódio and Metzger (2013, 2014) on the effect of industry expertise on corporate policy.

5.2.1 Financing Decisions

Table 4 presents the regressions of labor productivity in Brazil on ethnic capital structure estimated abroad. These regressions also include the ethnic effect on labor productivity itself for two reasons. First, we verify how the relationship in productivity changes once we add more characteristics. Second, the ethnic effect on labor productivity itself controls for other cultural characteristics related to performance, not in the regression. Across many ethnic groups, if inherited performance comes before financing decisions, the latter should not influence firm productivity, as we control for the former. Otherwise, given the inherited productivity, ethnic effects on capital structure should exogenously represent the entrepreneur's financing preferences.

TABLE 4 ABOUT HERE

In column (1) of Table 4, we observe that the ethnic propensities to invest in current assets (instead of fixed assets, K/A), hoard cash ($Cash/A$), and raise leverage ($Debt/A$) are positively associated with productivity. Also, a higher participation in the same industry abroad ($IndPrev$) implies a lower domestic performance.

Despite their significance, these covariates alone do not seem to explain the overseas link in $LaborProd$. Distinguishing short-term debt (STD/A) from total debt ($Debt/A$), in column (2), weakens this link a little. When we control for the mean effects on the type of short-term debt ($Credit/A$ and $Loans/A$) and tangibility (K/A), in column (4), then the link in $LaborProd$ decreases by almost 60%. After controlling for the measures of financial constraints ($SurvivalSens$ and $GrowthSens$), in columns (5) and (6), and industry-specific effects, in column (6), estimates observed in column (4) remain very similar. Therefore, capital structure decisions that ethnic groups generally make seem to explain most of the cultural link in productivity across the Atlantic.

Although the effect of the propensity to hoard cash disappears, the others look robust. Interestingly, different forms of raising debt have distinct effects on performance. While the propensities to raise trade credit ($Credit/A$) and long-term debt ($Debt/A$ given STD/A) reduce productivity, the propensities to raise short-term loans ($Loans/A$) and other accounts payable (STD/A given $Credit/A$ and $Loans/A$) — e.g., notes and wages — increase it.

An explanation is that trade credit and long-term debt offer the firm more room to smooth liquidity shocks in exchange for higher interests (Petersen and Rajan, 1997; Cuñat, 2006; Landier

and Thesmar, 2008; Custódio, Ferreira, and Laureano, 2013).[28] This ability should mitigate inefficiencies created by the refinancing risk (Harford, Klasa, and Maxwell, 2014), such as excessive liquidation (Diamond, 1991, 1993), fire sales (Pulvino, 1998; Brunnermeier and Yogo, 2009), and underinvestment (Almeida et al., 2012; Campello, Graham, and Harvey, 2010). On the other hand, short-term loans should reduce agency problems and discipline managers by enforcing frequent repayments to creditors (Jensen and Meckling, 1976; Myers, 1977; Hart and Moore, 1995, 1998), particularly under weak governance rules (Stulz, 2000; Billett, King, and Mauer, 2007; Qian and Strahan, 2007; Bae and Goyal, 2009). Our evidence is consistent with the latter. The higher willingness of an ethnic groups to raise short-term loans, the higher their firms' performance. This result corroborates the descriptive findings in the US, where outside debt is related to future startup growth (Robb and Robinson, 2012).

As we control for industry-specific effects on productivity and capital structure, in column (6) of Table 4, the coefficient of *IndPrev* becomes insignificant. Thus, the prevalence of an ethnic group in the industry does not influence its firms' performance directly. Yet its industry know-how (industry-specific effect on *LaborProd*) still matters, with the same magnitude as in Table 2, even after controlling for industry-specific financing decisions. Furthermore, we find again that the ethnic preference for loans and other short-term liabilities increases performance. Unlike the mean ethnic effect, though, the propensity to be a trade debtor (with high $Credit/A$ and high K/A) increases the industry-specific performance.

As in the previous part, we re-estimate the relationship between ethnic capital structure and performance under a counterfactual distribution based on local street names. Table A9 of the Online Appendix confirms that some estimated coefficients of capital structure are robust. Namely, the mean ethnic effects on loans and other accounts payable and the industry-specific effect on trade credit still matter. However, the ethnic financing decisions explain less (between 32% and 54%) the overseas link in productivity than before.

[28] See also Murfin and Njoroge (2015), Barrot (2016), Breza and Liberman (2017), and Amberg et al. (2020) on the role of trade credit.

5.2.2 Management Practices

While financing decisions explain 60% of the overseas relationship in performance, other management practices may explain the 40% remaining. To verify that, we use the publicly available WMS data to estimate ethnic effects on management practices. Since we cannot identify firms' owners with these data, we simplify our model and take the country's average as a proxy for the effect of its predominant ethnicity. Despite the bias, any connection of this proxy with firm performance in Brazil should be driven by a cultural link.

Table 5 present the results. As we cannot identify the effects for all the ethnic groups, the sample size is a little smaller than in the previous part. Still, we observe the one-to-one relationship in productivity in column (1). Controlling for Bloom and Van Reenen's (2010) management score, in column (2), does not change the result. However, if we break this score into its three components — i.e., incentives, monitoring, and targeting —, as in column (3), the productivity link drops to 0.389.[29] That is, management practices adopted in the ethnicity's home country also seem to explain 60% of the link overseas. After we add all the observed ethnic effects on management practices and capital structure, in column (6), the productivity link gets close to zero.

TABLE 5 ABOUT HERE

Although management practices explain the other half of the productivity link, controlling for them does not change much the relationship between ethnic financing decisions and performance. In column (6) of Table 5, we still observe that the ethnic preference for loans and other short-term liabilities, apart from trade credit, increases performance.

If we weight observations based on local street names (Table A10 of the Online Appendix), then about 40% of the productivity link remains unexplained. Thus, there are still unobserved cultural factors driving the performance of local groups with highly influential ancestors.

5.2.3 Distributional Effects on Productivity

Firms are created for different purposes. While some entrepreneurs desire to grow their business and innovate, many others have modest goals (Hurst and Pugsley, 2011). Accordingly, entrepreneurs'

[29] From the original components in Bloom and Van Reenen (2007), we exclude the one related to operations because it is exclusive for manufacturing.

culture may increase their firms' performance in three ways. First, it could make the high flyers even more productive. Second, it could create a cushion, making the less productive firms better. Finally, it could affect all firms, regardless of how productive they are. To verify such heterogeneity, we estimate the relationship between performance and ethnic effects using quantile regressions, a la Koenker and Bassett (1978).

Figure 4 shows the estimated coefficient of the mean ethnic effect on *LaborProd* for different quantiles of productivity in Brazil. The left-hand graph comes from regressions where no other ethnic effect is included as a covariate. It reveals that the productivity link with firms overseas is stronger at the top of the distribution, so inherited culture plays a more important role among high flyers.

FIGURE 4 ABOUT HERE

In the right-hand graph, the regressions include all the mean effects on capital structure and management practices. Then we observe that the effect in the upper tail nearly disappears. That is, the observed ethnic characteristics should explain the cultural influence on the productivity of high flyers. At the lower tail, though, the link in productivity becomes negative. It means that unobserved features that make an ethnicity more productive also make the least productive even worse. Overall, both graphs in Figure 4 suggest that the higher the expected performance of a group, the higher the inequality among its firms.

Figure 5 presents the coefficients for ethnic characteristics, included in the regressions that generated the right-hand graph of Figure 4. The productivity link in the upper tail is explained by two characteristics. The first is the propensity to raise short-term loans ($Loans/A$). Again, the coefficients corroborate the idea that groups who prefer frequent repayments to creditors are more focused on the performance of their firms. The second is the propensity to reward employees based on performance (*Incentives*).

FIGURE 5 ABOUT HERE

We also observe that preferences for accumulating fixed assets (K/A), cash ($Cash/A$), and trade credit debt ($Credit/A$) shift down the overall productivity. In contrast, the propensity to adopt reasonable and consistent targets (*Targeting*) and raise short-term liabilities (STD/A), apart from trade credit, shift the overall productivity up. Finally, two characteristics present a particularly

significant effect on less productive firms: propensities to raise long-term debt ($Debt/A$) and consistently track performance ($Monitoring$). While the latter works a cushion, raising the performance at the bottom, the former removes this cushion.

5.3 Financing Decisions and Subsidized Credit

In this part, we verify whether the financing decisions taken by ethnic groups in Brazil coincide with the ones taken abroad. If entrepreneurs deviate from an inherited practice, we also take the opportunity to verify the consequence of this deviation on performance. In particular, we investigate a specific scenario in which entrepreneurs are discouraged to raise short-term loans due to a government driven expansion of long-term loans in Brazil.

The expansion of credit supply at subsidized rates started in 2003, and intensified after the financial crisis in 2008, lasting at least until 2016 — see the top graph of Figure 6. The main vehicle of this policy was the Brazilian biggest development bank (BNDES), funded by the National Treasury and state-controlled funds. Between 2008 and 2014, BNDES received about 216 billion USD and conceded loans to firms either directly or indirectly via private and state-owned banks. To understand the magnitude of the subsidy, note that in 2016, the two-year treasury bond paid between 11% and 16.5% p.a., while most loans originated at BNDES charged the TJLP (7.5% p.a.) plus a 2-3% spread. According to Caldeira, Moura, and Santos (2018), once the Central Bank implemented a contractionary monetary policy in 2014-2016, the high amount of subsidized loans outstanding helped to invert the yield curve — see the bottom graph of Figure 6.

FIGURE 6 ABOUT HERE

Table 7 presents the relationship between capital structure of Brazilian firms in 2014-2016 and mean ethnic effects overseas. Since privately held firms do not disclose their balance sheets, we use information only from publicly traded firms. However, the vast majority of firms in this sample are not listed in a stock exchange. For tangibility (K/A), cash savings ($Cash/A$), and trade credit ($Credit/A$), we observe a positive and significant relationship with the ethnic effect on the same variable abroad. Similar coefficients are found when we control for all the other ethnic effects —

see Table A11 of the Online Appendix.

TABLE 7 ABOUT HERE

Whereas short-term debt (STD/A) shows no relationship with the effect abroad, short-term loans ($Loans/A$) presents a negative relationship. However, this puzzling result is explained by the subsidized long-term loans ($SubLoan/A$). This form of debt exhibits a positive and significant relationship with long-term debt ($Debt/A$), short-term loans ($Loans/A$), and other accounts payable (STD/A) overseas. The last column in Table 7 suggests that more disciplined groups, who would take short-term loans if they were cheaper, end up taking the subsidized loans instead.

It could be that short-term loans have no disciplinary role, and their relationship with productivity is because optimistic entrepreneurs prefer this form of debt (Landier and Thesmar, 2008). If so, the subsidized loans should not change the cultural link with productivity overseas. In other words, ethnic groups who prefer short-term loans would still exhibit higher productivity even after taking a cheaper long-term loan. Using the full sample of firms disclosed by BNDES that appear on Orbis, we test this hypothesis in Table 8.[30]

TABLE 8 ABOUT HERE

The first column of Table 8 shows that the credit expansion policy targeted the most productive ethnic groups. That is, the higher the expected performance of the group, the higher the amount of subsidized credit taken ($SubLoan/L$). Column (2) confirms that larger amounts were withdrawn by groups who would prefer short-term loans ($Loans/A$) and other liabilities (STD/A) instead of long-term debt ($Debt/A$) and trade credit ($Credit/A$).

In the last two columns, we verify how the relationship between performance ($LaborProd$) and ethnic effects overseas change after we interact them with the amount of subsidized credit received ($SubLoan/L$). Both regressions reject the null hypothesis that short-term loans do not matter. As shown in column (3), the higher the amount of subsidized credit, the lower the relationship between ethnic productivity and actual performance. In column (4), we confirm that the amount of subsidized loans weakens the relationship between firm performance and propensities to raise long-term debt ($Debt/A$), short-term loans ($Loans/A$), and other short-term liabilities (STD/A),

[30] For firms that are not found in BNDES records, we cannot retrace how much subsidized credit they received.

except for trade credit. These results suggest that not only financing decisions matter but also that institutional aspects of capital markets affect the cultural influence on performance.

The endogeneity of $SubLoan/L$ in the last two regressions could challenge our interpretation. However, it would require that banks select firms (or firms are self-selected) based on a sophisticated mechanism where the more productive firms withdraw larger amounts, but the more productive within ethnic groups take less. The first column of Table 8 suggests that the selection bias is positive, so the coefficient of $SubLoan/L$ on $LaborProd$, as well as the interaction coefficients, should provide an upper bound for the causal effect.

6 Conclusion

This paper is one of a few to examine the cultural effect on firm productivity using entrepreneurs' ancestry. To control for institutional differences, opportunities faced by distinct groups, and other confounding factors, we propose a two-step approach. In the first step, we classify the entrepreneurs' names in Europe and Asia into ethnic groups and estimate the expected productivity of each group, controlling for country and industry effects. Since different countries may provide different opportunities for a given ethnic group, our estimates for ethnic effects at this step are not necessarily unbiased. However, other than attenuating estimates, their bias should not be carried over to the second step, when we estimate the relationship between ethnic productivity in Brazil and overseas. We focus on Brazil because its population is diverse in terms of ancestry, but it presents an insignificant percentage of immigrants nowadays. Thus, the present approach allows us to separate long-lasting cultural characteristics from those related to nationalities and languages.

Our findings reveal that the productivity of ethnic groups in Brazil has a one-to-one relationship with the average productivity of these groups overseas. Such cultural effect is present not only in small firms but also in large private companies. In public companies, the performance does not respond to the overall productivity of ethnic groups abroad. Instead, it presents a one-to-one relationship with the industry-specific performance of ethnic groups. Therefore, while the productivity of private firms is sensitive to cultural skills that stand out across industries, the productivity of public firms is sensitive to the industry know-how of their culture.

Since we control for local attributes, such as human capital supply, institutions, and infrastruc-

ture, our results indicate that the productivity link between distant relatives across the Atlantic is determined by entrepreneurs' cultural practices. Indeed, we find that 40-60% of the cultural effect on productivity is explained by preferences on capital structure. The remaining part of the link is explained by management practices adopted at the country of origin.

A key factor that raises ethnic groups' productivity is the preference for short-term loans over long-term debt and trade credit. A preference that we find to be related to a self-reliance culture, where individuals do not expect help from others to achieve success. These findings imply that the tendency for stricter financial commitments is an entrepreneurial virtue that should receive more attention policywise. In this regard, we show that credit expansion policies that offer long-term subsidized loans can have adverse effects on self-disciplined entrepreneurs. By lessening the need for short-term loans, this type of policy mitigates their disciplinary role, reducing the performance of highly productive groups.

It is worth stressing that our evidence is specific for firms in Brazil. Other countries may be less affected by the inter-generational transmission of cultural practices, depending on how immigrants and descendants adapt to a variety of local conditions. Moreover, the ancestral background should matter not only for financing decisions but also for many other socioeconomic outcomes. For example, entrepreneurs' ancestry might be a determinant of educational attainment, which should affect their managerial skills. Regardless of the reasons for differences in financing practices across ethnic groups, our results consistently show that they matter for long-run firm performance.

References

Abowd, John M., Francis Kramarz, Paul Lengermann, and Sebastien Perez-Duarte (2004). "Are Good Workers Employed by Good Firms? A test of a simple assortative mating model for France and the United States," Working Paper, CREST, Paris.

Abowd, John M., Francis Kramarz, and David N. Margolis (1999). "High Wage Workers and High Wage Firms," *Econometrica*, 67 (2): 251–333.

Acharya, Viral V, Tim Eisert, Christian Eufinger, and Christian Hirsch (2019). "Whatever It Takes: The Real Effects of Unconventional Monetary Policy," *Review of Financial Studies*, 32 (9): 3366–3411.

Ackerberg, Daniel A, Kevin Caves, and Garth Frazer (2015). "Identification Properties of Recent Production Function Estimators," *Econometrica*, 83 (6): 2411–2451.

Ahern, Kenneth R., Daniele Daminelli, and Cesare Fracassi (2015). "Lost in translation? The effect of cultural values on mergers around the world," *Journal of Financial Economics*, 117 (1): 165–189.

Alesina, Alberto and Paola Giuliano (2015). "Culture and Institutions," *Journal of Economic Literature*, 53 (4): 898–944.

Alesina, Alberto, Paola Giuliano, and Nathan Nunn (2013). "On the Origins of Gender Roles: Women and the Plough," *Quarterly Journal of Economics*, 128 (2): 469–530.

Almeida, H. and M. Campello (2007). "Financial constraints, asset tangibility, and corporate investment," *Review of Financial Studies*, 20 (5): 1429–1460.

Almeida, Heitor, Murillo Campello, Bruno Laranjeira, and Scott Weisbenner (2012). "Corporate Debt Maturity and the Real Effects of the 2007 Credit Crisis," *Critical Finance Review*, 1 (1): 3–58.

Alti, Aydoğan (2003). "How Sensitive Is Investment to Cash Flow When Financing Is Frictionless?," *Journal of Finance*, 58 (2): 707–722.

Alvarez, Jorge, Felipe Benguria, Niklas Engbom, and Christian Moser (2018). "Firms and the Decline in Earnings Inequality in Brazil," *American Economic Journal: Macroeconomics*, 10 (1): 149–89.

Amberg, Niklas, Tor Jacobson, Erik von Schedvin, and Robert Townsend (2020). "Curbing Shocks to Corporate Liquidity: The Role of Trade Credit," *Journal of Political Economy*, forthcoming.

Andrews, MJ, L. Gill, T. Schank, and R. Upward (2008). "High wage workers and low wage firms: negative assortative matching or limited mobility bias?" *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 171 (3): 673–697.

Aretz, Kevin, Murillo Campello, and Maria-Teresa Marchica (2020). "Access to Collateral and the Democratization of Credit: France's Reform of the Napoleonic Security Code," *Journal of Finance*, 75 (1): 45–90.

Bae, Kee-Hong and Vidhan K. Goyal (2009). "Creditor Rights, Enforcement, and Bank Loans," *Journal of Finance*, 64 (2): 823–860.

Ballantine, John W., Frederick W. Cleveland, and C. Timothy Koeller (1993). "Profitability, uncertainty, and firm size," *Small Business Economics*, 5 (2): 87–100.

Barrot, Jean-Noel (2016). "Trade Credit and Industry Dynamics: Evidence from Trucking Firms," *Journal of Finance*, 71 (5): 1975–2016.

Barsky, Robert, John Bound, Kerwin Kofi Charles, and Joseph P. Lupton (2002). "Accounting for the Black-White Wealth Gap: A Nonparametric Approach," *Journal of the American Statistical Association*, 97 (459): 663–673.

Basu, Susanto and John G Fernald (1997). "Returns to Scale in US Production: Estimates and Implications," *Journal of Political Economy*, 105 (2): 249–283.

Bedendo, Mascia, Emilia Garcia-Appendini, and Linus Siming (2020). "Cultural Preferences and Firm Financing Choices," *Journal of Financial and Quantitative Analysis*, 55 (3): p. 897–930.

Bertrand, Marianne and Antoinette Schoar (2003). "Managing with Style: The Effect of Managers on Firm Policies," *Quarterly Journal of Economics*, 118 (4): 1169–1208.

Billett, Matthew T., Tao-Hsien Dolly King, and David C. Mauer (2007). "Growth Opportunities and the Choice of Leverage, Debt Maturity, and Covenants," *Journal of Finance*, 62 (2): 697–730.

Black, Sandra E, Paul J Devereux, Petter Lundborg, and Kaveh Majlesi (2019). "Poor Little Rich Kids? The Role of Nature versus Nurture in Wealth and Other Economic Outcomes and Behaviours," *Review of Economic Studies*, 87 (4): 1683–1725.

Blanchflower, David G., Phillip B. Levine, and David J. Zimmerman (2003). "Discrimination in the Small-Business Credit Market," *Review of Economics and Statistics*, 85 (4): 930–943.

Bloom, Nicholas, Renata Lemos, Raffaella Sadun, Daniela Scur, and John Van Reenen (2014). "JEEA-FBBVA Lecture 2013: The New Empirical Economics of Management," *Journal of the European Economic Association*, 12 (4): 835–876.

Bloom, Nicholas and John Van Reenen (2007). "Measuring and Explaining Management Practices Across Firms and Countries," *Quarterly Journal of Economics*, 122 (4): 1351–1408.

Bloom, Nicholas and John Van Reenen (2010). "Why Do Management Practices Differ across Firms and Countries?," *Journal of Economic Perspectives*, 24 (1): 203–224.

Braguinsky, Serguey and Sergey Mityakov (2015). "Foreign corporations and the culture of transparency: Evidence from Russian administrative data," *Journal of Financial Economics*, 117 (1): 139–164.

Breza, Emily and Andres Liberman (2017). "Financial Contracting and Organizational Form: Evidence from the Regulation of Trade Credit," *Journal of Finance*, 72 (1): 291–324.

Brunnermeier, Markus K. and Motohiro Yogo (2009). "A Note on Liquidity Risk Management," *American Economic Review*, 99 (2): 578–583.

Burchardi, Konrad B, Thomas Chaney, and Tarek A Hassan (2018). "Migrants, Ancestors, and Foreign Investments," *Review of Economic Studies*, 86 (4): 1448–1486.

Caballero, Ricardo J., Takeo Hoshi, and Anil K. Kashyap (2008). "Zombie Lending and Depressed Restructuring in Japan," *American Economic Review*, 98 (5): 1943–1977.

Caldarelli, Guido, Matthieu Cristelli, Andrea Gabrielli, Luciano Pietronero, Antonio Scala, and Andrea Tacchella (2012). "A network analysis of countries' export flows: firm grounds for the building blocks of the economy," *PloS one*, 7 (10): p. e47278.

Caldeira, João F, Guilherme V Moura, and André AP Santos (2018). "Yield curve forecast combinations based on bond portfolio performance," *Journal of Forecasting*, 37 (1): 64–82.

Cameron, A. Colin, Jonah B. Gelbach, and Douglas L. Miller (2011). "Robust Inference With Multiway Clustering," *Journal of Business & Economic Statistics*, 29 (2): 238–249.

Campello, Murillo, John R. Graham, and Campbell R. Harvey (2010). "The real effects of financial constraints: Evidence from a financial crisis," *Journal of Financial Economics*, 97 (3): 470–487.

Campello, Murillo and Mauricio Larrain (2016). "Enlarging the Contracting Space: Collateral Menus, Access to Credit, and Economic Activity," *Review of Financial Studies*, 29 (2): 349–383.

Cavnar, William B and John M Trenkle (1994). "N-gram-based text categorization," in *Proceedings of SDAIR-94, 3rd annual symposium on document analysis and information retrieval*, v. 48113: 161–175, Citeseer.

Chen, Huafeng (Jason) and Shaojun (Jenny) Chen (2012). "Investment-cash flow sensitivity cannot be a good measure of financial constraints: Evidence from the time series," *Journal of Financial Economics*, 103 (2): 393–410.

Chen, Shimin, Henrik Cronqvist, Serene Ni, and Frank Zhang (2017). "Languages and corporate savings behavior," *Journal of Corporate Finance*, 46: 320–341.

Chetty, Raj, John N. Friedman, and Jonah E. Rockoff (2014). "Measuring the Impacts of Teachers I: Evaluating Bias in Teacher Value-Added Estimates," *American Economic Review*, 104 (9): 2593–2632.

Chibnik, Michael (1991). "Quasi-ethnic groups in Amazonia," *Ethnology*, 30 (2): 167–182.

Chui, Andy C. W., Alison E. Lloyd, and Chuck C. Y. Kwok (2002). "The Determination of Capital Structure: Is National Culture a Missing Piece to the Puzzle?," *Journal of International Business Studies*, 33 (1): 99–127.

Chui, Andy C. W., Sheridan Titman, and K. C. John Wei (2010). "Individualism and Momentum around the World," *Journal of Finance*, 65 (1): 361–392.

Cornell, Bradford and Ivo Welch (1996). "Culture, Information, and Screening Discrimination," *Journal of Political Economy*, 104 (3): 542–571.

Cronqvist, Henrik and Stephan Siegel (2014). "The genetics of investment biases," *Journal of Financial Economics*, 113 (2): 215–234.

Cronqvist, Henrik and Stephan Siegel (2015). "The Origins of Savings Behavior," *Journal of Political Economy*, 123 (1): 123–169.

Custódio, Cláudia, Miguel A. Ferreira, and Luís Laureano (2013). "Why are US firms using more short-term debt?" *Journal of Financial Economics*, 108 (1): 182–212.

Custódio, Cláudia and Daniel Metzger (2013). "How Do CEOs Matter? The Effect of Industry Expertise on Acquisition Returns," *Review of Financial Studies*, 26 (8): 2008–2047.

Custódio, Cláudia and Daniel Metzger (2014). "Financial expert CEOs: CEO's work experience and firm's financial policies," *Journal of Financial Economics*, 114 (1): 125–154.

Cuñat, Vicente (2006). "Trade Credit: Suppliers as Debt Collectors and Insurance Providers," *Review of Financial Studies*, 20 (2): 491–527.

D'Acunto, Francesco, Marcel Prokopczuk, and Michael Weber (2018). "Historical Antisemitism, Ethnic Specialization, and Financial Development," *Review of Economic Studies*, 86 (3): 1170–1206.

Delis, Manthos D., Chrysovalantis Gaganis, Iftekhar Hasan, and Fotios Pasiouras (2017). "The Effect of Board Directors from Countries with Different Genetic Diversity Levels on Corporate Performance," *Management Science*, 63 (1): 231–249.

Dhawan, Rajeev (2001). "Firm size and productivity differential: theory and evidence from a panel of US firms," *Journal of Economic Behavior & Organization*, 44 (3): 269–293.

Diamond, Douglas W. (1991). "Debt Maturity Structure and Liquidity Risk," *Quarterly Journal of Economics*, 106 (3): 709–737.

Diamond, Douglas W. (1993). "Seniority and maturity of debt contracts," *Journal of Financial Economics*, 33 (3): 341–368.

Drechsler, Jana, Jan-Thomas Bachmann, and Andreas Engelen (2019). "The effect of immigrants in the founding team on the international attention of new ventures," *Journal of International Entrepreneurship*, 17 (3): 305–333.

Droller, Federico (2017). "Migration, Population Composition and Long Run Economic Development: Evidence from Settlements in the Pampas," *Economic Journal*, 128 (614): 2321–2352.

Easterly, William and Ross Levine (2016). "The European origins of economic development," *Journal of Economic Growth*, 21 (3): 225–257.

Eeckhout, Jan and Philipp Kircher (2011). "Identifying Sorting—In Theory," *Review of Economic Studies*, 78 (3): 872–906.

El Ghoul, Sadok and Xiaolan Zheng (2016). "Trade credit provision and national culture," *Journal of Corporate Finance*, 41: 475–501.

Erickson, Timothy and Toni M. Whited (2000). "Measurement Error and the Relationship between Investment and q," *Journal of Political Economy*, 108 (5): 1027–1057.

Eun, Cheol S., Lingling Wang, and Steven C. Xiao (2015). "Culture and R^2," *Journal of Financial Economics*, 115 (2): 283–303.

Falk, Armin, Anke Becker, Thomas Dohmen, Benjamin Enke, David Huffman, and Uwe Sunde (2018). "Global Evidence on Economic Preferences," *Quarterly Journal of Economics*, 133 (4): 1645–1692.

Fazzari, Steven M., R. Glenn Hubbard, and Bruce C. Petersen (1988). "Financing Constraints and Corporate Investment," *Brookings Papers on Economic Activity*, 1988 (1): 141–195.

Fazzari, Steven M., R. Glenn Hubbard, and Bruce C. Petersen (2000). "Investment-Cash Flow Sensitivities are Useful: A Comment on Kaplan and Zingales," *Quarterly Journal of Economics*, 115 (2): 695–705.

Fernandez, Raquel (2011). "Does Culture Matter?" in Jess Benhabib, Alberto Bisin, and Matthew O. Jackson (eds.), *Handbook of Social Economics*, v. 1, North-Holland, ch. 11, 481–510.

Fernández, Raquel and Alessandra Fogli (2009). "Culture: An Empirical Investigation of Beliefs, Work, and Fertility," *American Economic Journal: Macroeconomics*, 1 (1): 146–177.

Firpo, Sergio P., Nicole M. Fortin, and Thomas Lemieux (2018). "Decomposing Wage Distributions Using Recentered Influence Function Regressions," *Econometrics*, 6 (2): 1–40.

Fisman, Raymond, Daniel Paravisini, and Vikrant Vig (2017). "Cultural Proximity and Loan Outcomes," *American Economic Review*, 107 (2): 457–492.

Flannery, Mark J. (1986). "Asymmetric Information and Risky Debt Maturity Choice," *Journal of Finance*, 41 (1): 19–37.

Fourie, Johan and Dieter von Fintel (2014). "Settler skills and colonial development: the Huguenot wine-makers in eighteenth-century Dutch South Africa," *Economic History Review*, 67 (4): 932–963.

Frijns, Bart, Olga Dodd, and Helena Cimerova (2016). "The impact of cultural diversity in corporate boards on firm performance," *Journal of Corporate Finance*, 41: 521–541.

Fulford, Scott L., Ivan Petkov, and Fabio Schiantarelli (2020). "Does it matter where you came from? Ancestry composition and economic performance of US counties, 1850–2010," *Journal of Economic Growth*, 25 (3): 341–380.

Gal, Peter N (2013). "Measuring total factor productivity at the firm level using OECD-ORBIS," Working Paper 1049, OECD Economics Department.

Gan, Jie (2007). "Collateral, debt capacity, and corporate investment: Evidence from a natural experiment," *Journal of Financial Economics*, 85 (3): 709–734.

Gao, Huasheng, Jarrad Harford, and Kai Li (2017). "CEO Turnover–Performance Sensitivity in Private Firms," *Journal of Financial and Quantitative Analysis*, 52 (2): 583–611.

Giannetti, Mariassunta and Mengxin Zhao (2019). "Board Ancestral Diversity and Firm-Performance Volatility," *Journal of Financial and Quantitative Analysis*, 54 (3): 1117–1155.

Giuliano, Paola and Marco Tabellini (2020). "The Seeds of Ideology: Historical Immigration and Political Preferences in the United States," Working Paper 27238, National Bureau of Economic Research.

Gomes, Armando (2000). "Going Public without Governance: Managerial Reputation Effects," *Journal of Finance*, 55 (2): 615–646.

Gomes, Joao F. (2001). "Financing Investment," *American Economic Review*, 91 (5): 1263–1285.

Gorodnichenko, Yuriy and Gerard Roland (2011). "Individualism, innovation, and long-run growth," *Proceedings of the National Academy of Sciences*, 108 (Supplement 4): 21316–21319.

Graham, John R., Campbell R. Harvey, and Manju Puri (2013). "Managerial attitudes and corporate actions," *Journal of Financial Economics*, 109 (1): 103–121.

Griffin, Dale, Omrane Guedhami, Chuck C. Y. Kwok, Kai Li, and Liang Shao (2017). "National culture: The missing country-level determinant of corporate governance," *Journal of International Business Studies*, 48 (6): 740–762.

Grimaldi, Daniel da Silva and Rodrigo Ferreira Madeira (2016). "Financiamento de longo prazo e bancos públicos: uma análise dos repasses do BNDES Finame no período 2005–2015," *Revista do BNDES*, 46: 5–38.

Grosjean, Pauline (2014). "A History of Violence: The Culture of Honor and Homicide in the US South," *Journal of the European Economic Association*, 12 (5): 1285–1316.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales (2004a). "Does Local Financial Development Matter?," *Quarterly Journal of Economics*, 119 (3): 929–969.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales (2004b). "The Role of Social Capital in Financial Development," *American Economic Review*, 94 (3): 526–556.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales (2006). "Does Culture Affect Economic Outcomes?," *Journal of Economic Perspectives*, 20 (2): 23–48.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales (2015). "The value of corporate culture," *Journal of Financial Economics*, 117 (1): 60–76.

Harford, Jarrad, Sandy Klasa, and William F. Maxwell (2014). "Refinancing Risk and Cash Holdings," *Journal of Finance*, 69 (3): 975–1012.

Harris, Milton and Artur Raviv (1990). "Capital Structure and the Informational Role of Debt," *Journal of Finance*, 45 (2): 321–349.

Hart, Oliver and John Moore (1995). "Debt and Seniority: An Analysis of the Role of Hard Claims in Constraining Management," *American Economic Review*, 85 (3): 567–585.

Hart, Oliver and John Moore (1998). "Default and Renegotiation: A Dynamic Model of Debt," *Quarterly Journal of Economics*, 113 (1): 1–41.

Hilary, Gilles and Kai Wai Hui (2009). "Does religion matter in corporate decision making in America?," *Journal of Financial Economics*, 93 (3): 455–473.

Hirshleifer, David, Angie Low, and Siew Hong Teoh (2012). "Are Overconfident CEOs Better Innovators?," *Journal of Finance*, 67 (4): 1457–1498.

Hofstede, Geert (2001). *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations*, Sage Publications, Thousand Oaks, CA, 2nd edition.

Hofstede, Geert, Gert Jan Hofstede, and Michael Minkov (2010). *Cultures and Organizations: Software of the Mind*, McGraw-Hill, New York, 3rd edition, 550 pp.

Hornung, Erik (2014). "Immigration and the Diffusion of Technology: The Huguenot Diaspora in Prussia," *American Economic Review*, 104 (1): 84–122.

Hoshi, Takeo, Anil Kashyap, and David Scharfstein (1991). "Corporate Structure, Liquidity, and Investment: Evidence from Japanese Industrial Groups," *Quarterly Journal of Economics*, 106 (1): 33–60.

Hu, Huajing, Yili Lian, and Wencang Zhou (2019). "Do Local Protestant Values Affect Corporate Cash Holdings?," *Journal of Business Ethics*, 154 (1): 147–166.

Hurst, Erik and Benjamin Wild Pugsley (2011). "What Do Small Businesses Do?," *Brookings Papers on Economic Activity*, 2011 (Fall): 73–118.

Jensen, Michael C. and William H. Meckling (1976). "Theory of the firm: Managerial behavior, agency costs and ownership structure," *Journal of Financial Economics*, 3 (4): 305–360.

Kalemli-Ozcan, Sebnem, Bent Sorensen, Carolina Villegas-Sanchez, Vadym Volosovych, and Sevcan Yesiltas (2015). "How to Construct Nationally Representative Firm Level Data from the Orbis Global Database: New Facts and Aggregate Implications," Working Paper 21558, National Bureau of Economic Research.

Kane, Thomas J and Douglas O Staiger (2008). "Estimating Teacher Impacts on Student Achievement: An Experimental Evaluation," Working Paper 14607, National Bureau of Economic Research.

Kaplan, Steven N., Berk A. Sensoy, and Per Strömberg (2009). "Should Investors Bet on the Jockey or the Horse? Evidence from the Evolution of Firms from Early Business Plans to Public Companies," *Journal of Finance*, 64 (1): 75–115.

Kaplan, Steven N. and Luigi Zingales (1997). "Do Investment-Cash Flow Sensitivities Provide Useful Measures of Financing Constraints?," *Quarterly Journal of Economics*, 112 (1): 169–215.

Karolyi, G. Andrew (2016). "The gravity of culture for finance," *Journal of Corporate Finance*, 41: 610–625.

Kerr, William R. and Ramana Nanda (2009). "Democratizing entry: Banking deregulations, financing constraints, and entrepreneurship," *Journal of Financial Economics*, 94 (1): 124–149.

Koedel, Cory, Kata Mihaly, and Jonah E. Rockoff (2015). "Value-added modeling: A review," *Economics of Education Review*, 47 (1): 180–195.

Koenker, Roger and Gilbert Bassett (1978). "Regression Quantiles," *Econometrica*, 46 (1): 33–50.

Krishnan, Karthik, Debarshi K. Nandy, and Manju Puri (2015). "Does Financing Spur Small Business Productivity? Evidence from a Natural Experiment," *Review of Financial Studies*, 28 (6): 1768–1809.

Landier, Augustin and David Thesmar (2008). "Financial Contracting with Optimistic Entrepreneurs," *Review of Financial Studies*, 22 (1): 117–150.

Lemmon, Michael L., Michael R. Roberts, and Jaime F. Zender (2008). "Back to the Beginning: Persistence and the Cross-Section of Corporate Capital Structure," *Journal of Finance*, 63 (4): 1575–1608.

Li, Kai, Dale Griffin, Heng Yue, and Longkai Zhao (2011). "National culture and capital structure decisions: Evidence from foreign joint ventures in China," *Journal of International Business Studies*, 42 (4): 477–503.

Li, Kai, Dale Griffin, Heng Yue, and Longkai Zhao (2013). "How does culture influence corporate risk-taking?" *Journal of Corporate Finance*, 23: 1–22.

Lindquist, Matthew J, Joeri Sol, and Mirjam Van Praag (2015). "Why Do Entrepreneurial Parents have Entrepreneurial Children?," *Journal of Labor Economics*, 33 (2): 269–296.

Ling, Yan, Hao Zhao, and Robert A. Baron (2007). "Influence of Founder-CEOs' Personal Values on Firm Performance: Moderating Effects of Firm Age and Size," *Journal of Management*, 33 (5): 673–696.

Liu, Xiaoding (2016). "Corruption culture and corporate misconduct," *Journal of Financial Economics*, 122 (2): 307–327.

Malmendier, Ulrike, Geoffrey Tate, and Jon Yan (2011). "Overconfidence and Early-Life Experiences: The Effect of Managerial Traits on Corporate Financial Policies," *Journal of Finance*, 66 (5): 1687–1733.

Mironov, Maxim (2015). "Should one hire a corrupt CEO in a corrupt country?," *Journal of Financial Economics*, 117 (1): 29–42.

Monasterio, Leonardo (2017). "Surnames and ancestry in Brazil," *PloS one*, 12 (5): p. e0176890.

Morris, Carl N. (1983). "Parametric Empirical Bayes Inference: Theory and Applications," *Journal of the American Statistical Association*, 78 (381): 47–55.

Murard, Elie and Seyhun Orcan Sakalli (2018). "Mass Refugee Inflow and Long-Run Prosperity: Lessons from the Greek Population Resettlement," IZA Discussion Papers 11613, Institute of Labor Economics (IZA).

Murfin, Justin and Ken Njoroge (2015). "The Implicit Costs of Trade Credit Borrowing by Large Firms," *Review of Financial Studies*, 28 (1): 112–145.

Myers, Stewart C. (1977). "Determinants of corporate borrowing," *Journal of Financial Economics*, 5 (2): 147–175.

Nagle, Frank and Florenta Teodoridis (2020). "Jack of all trades and master of knowledge: The role of diversification in new distant knowledge integration," *Strategic Management Journal*, 41 (1): 55–85.

Naritomi, Joana, Rodrigo R Soares, and Juliano J Assunção (2012). "Institutional Development and Colonial Heritage within Brazil," *Journal of Economic History*, 72 (2): 393–422.

Nelson, Teresa (2003). "The persistence of founder influence: management, ownership, and performance effects at initial public offering," *Strategic Management Journal*, 24 (8): 707–724.

Nguyen, Duc Duy, Jens Hagendorff, and Arman Eshraghi (2018). "Does a CEO's Cultural Heritage Affect Performance under Competitive Pressure?," *Review of Financial Studies*, 31 (1): 97–141.

Nini, Greg, David C. Smith, and Amir Sufi (2012). "Creditor Control Rights, Corporate Governance, and Firm Value," *Review of Financial Studies*, 25 (6): 1713–1761.

Pan, Yihui, Stephan Siegel, and Tracy Yue Wang (2017). "Corporate Risk Culture," *Journal of Financial and Quantitative Analysis*, 52 (6): 2327–2367.

Petersen, Mitchell A. and Raghuram G. Rajan (1997). "Trade Credit: Theories and Evidence," *Review of Financial Studies*, 10 (3): 661–691.

Petruccelli, José Luis (2000). "A Cor Denominada: um estudo do suplemento da PME de julho/98," Texto para Discussão 3, Instituto Brasileiro de Geografia e Estatística, Rio de Janeiro.

Pulvino, Todd C. (1998). "Do Asset Fire Sales Exist? An Empirical Investigation of Commercial Aircraft Transactions," *Journal of Finance*, 53 (3): 939–978.

Putterman, Louis and David N. Weil (2010). "Post-1500 Population Flows and The Long-Run Determinants of Economic Growth and Inequality," *Quarterly Journal of Economics*, 125 (4): 1627–1682.

Qian, Jun and Philip E. Strahan (2007). "How Laws and Institutions Shape Financial Contracts: The Case of Bank Loans," *Journal of Finance*, 62 (6): 2803–2834.

Robb, Alicia M. and David T. Robinson (2012). "The Capital Structure Decisions of New Firms," *Review of Financial Studies*, 27 (1): 153–179.

Rocha, Rudi, Claudio Ferraz, and Rodrigo R. Soares (2017). "Human Capital Persistence and Development," *American Economic Journal: Applied Economics*, 9 (4): 105–36.

Rothstein, Jesse (2010). "Teacher Quality in Educational Production: Tracking, Decay, and Student Achievement," *Quarterly Journal of Economics*, 125 (1): 175–214.

Sequeira, Sandra, Nathan Nunn, and Nancy Qian (2019). "Immigrants and the Making of America," *Review of Economic Studies*, 87 (1): 382–419.

Shane, Scott (1993). "Cultural influences on national rates of innovation," *Journal of Business Venturing*, 8 (1): 59–73.

Shao, Liang, Chuck C Y Kwok, and Ran Zhang (2013). "National culture and corporate investment," *Journal of International Business Studies*, 44 (7): 745–763.

Shao, Liang, Chuck CY Kwok, and Omrane Guedhami (2010). "National culture and dividend policy," *Journal of International Business Studies*, 41 (8): 1391–1414.

Spolaore, Enrico and Romain Wacziarg (2013). "How Deep Are the Roots of Economic Development?," *Journal of Economic Literature*, 51 (2): 325–369.

Spyridopoulos, Ioannis (2020). "Tough Love: The Effects of Debt Contract Design on Firms' Performance," *Review of Corporate Finance Studies*, 9 (1): 44–80.

Stigler, George J. (1976). "The Xistence of X-Efficiency," *American Economic Review*, 66 (1): 213–216.

Stulz, René M. (2000). "Financial Structure, Corporate Finance and Economic Growth," *International Review of Finance*, 1 (1): 11–38.

Stulz, René M. and Rohan Williamson (2003). "Culture, openness, and finance," *Journal of Financial Economics*, 70 (3): 313–349.

Syverson, Chad (2004). "Market Structure and Productivity: A Concrete Example," *Journal of Political Economy*, 112 (6): 1181–1222.

Syverson, Chad (2011). "What Determines Productivity?," *Journal of Economic Literature*, 49 (2): 326–65.

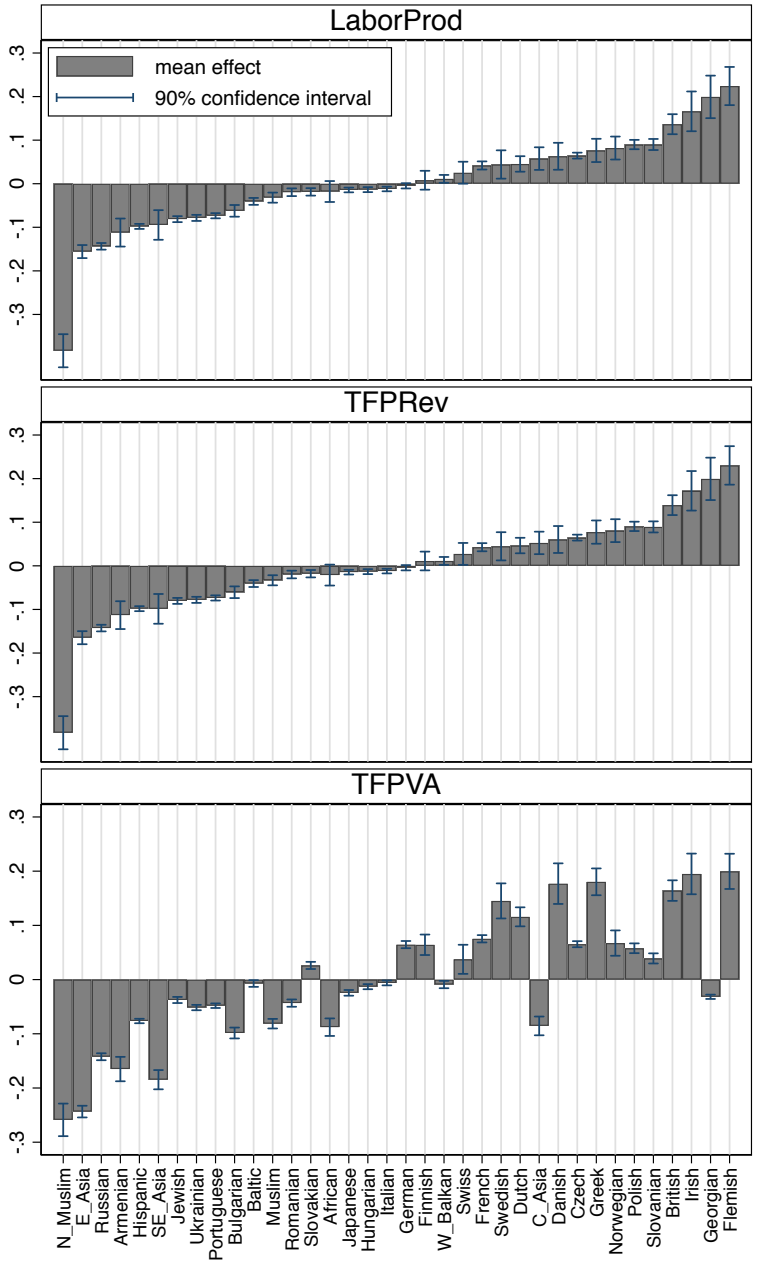
Tabellini, Guido (2010). "Culture and Institutions: Economic Development in the Regions of Europe," *Journal of the European Economic Association*, 8 (4): 677–716.

Thonus, Terese (1992). "Anderson, Maicon, and Thyago: "English" names in Brazil," *American Speech*, 67 (2): 175–189.

Torres, Ernani Teixeira, Filho (2018). "O BNDES em uma Encruzilhada: Como Evitar sua Desmontagem,"Technical report, IEDI.

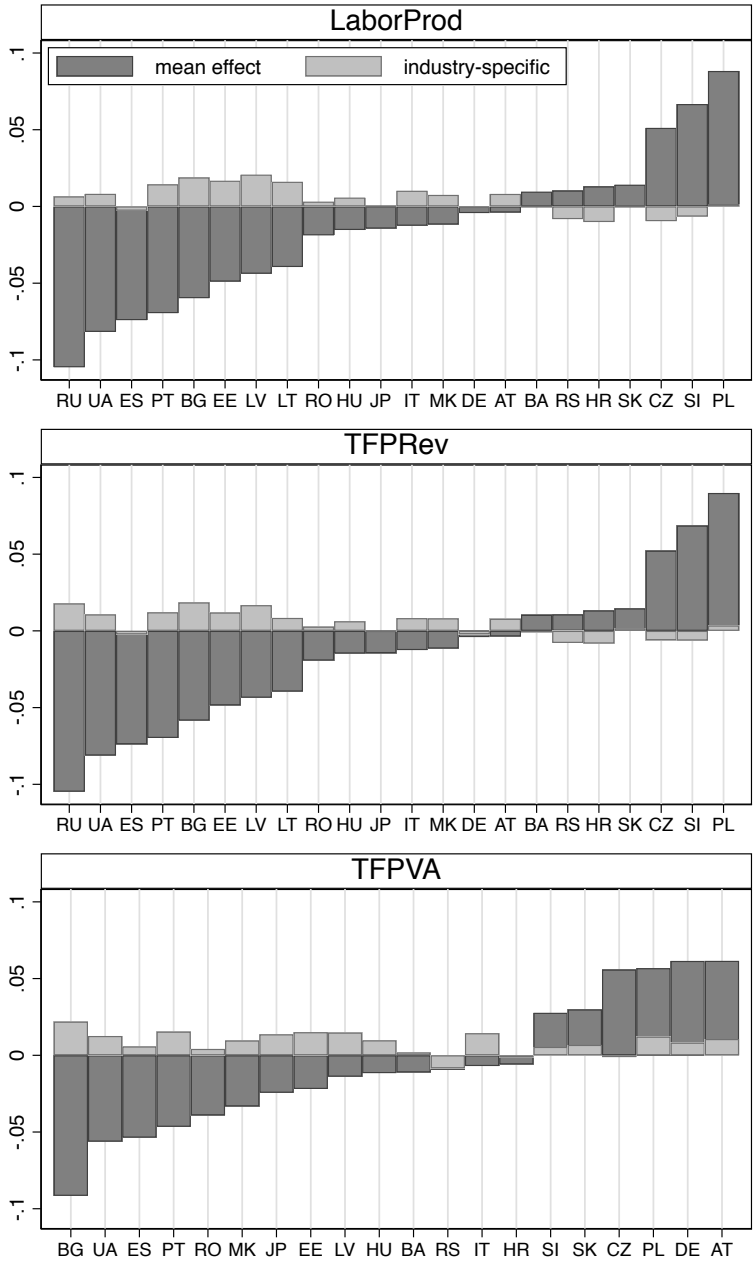
Waters, Mary C (1989). "The everyday use of surname to determine ethnic ancestry," *Qualitative Sociology*, 12 (3): 303–324.

Figure 1: Mean Effect of Ethnic Groups on Productivity



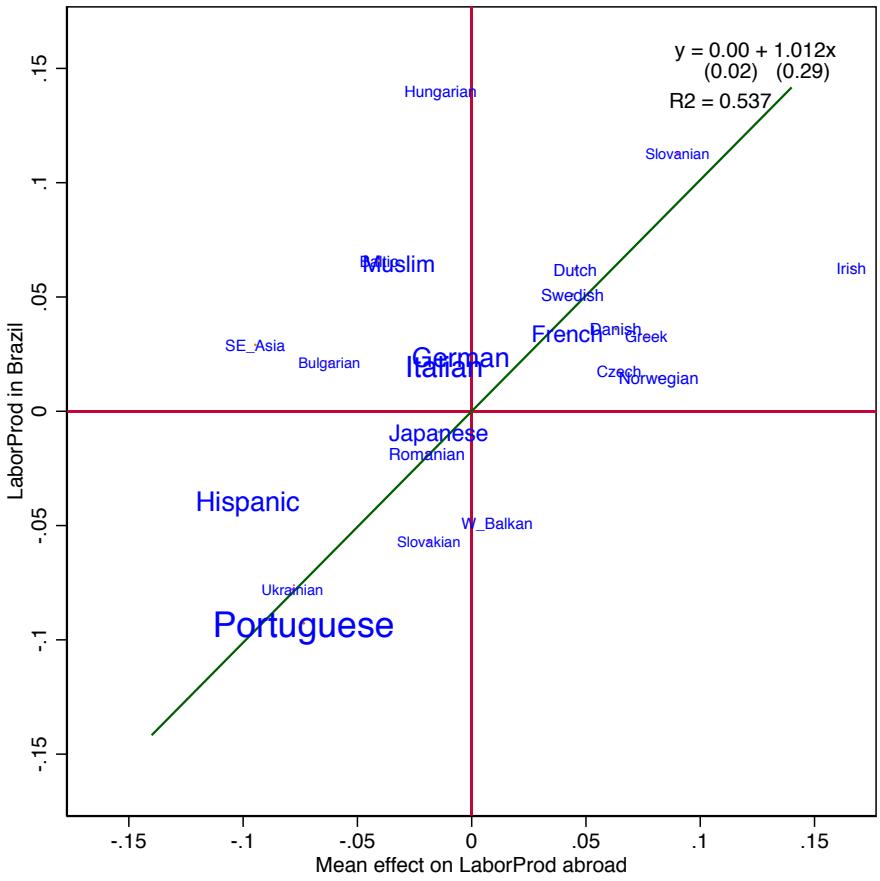
This figure presents the estimates for the mean ethnic effect as in equation (1), after the Bayes shrinkage in equation (2). Estimates are obtained controlling for industry-country-year effects, firm's age, log number of employees, and log number of fixed assets. The horizontal axis represents the ethnic groups, defined as in Table A2 of the Appendix. The vertical axis represents the difference from the overall mean in productivity. Each graph uses a different productivity measure — i.e., log ratio of revenue over employees (*LaborProd*), log ratio of revenue over weighted factors (*TFPRev*), and log ratio of value added over weighted factors (*TFPVA*). Sample includes firms in Europe, Asia, and Egypt, as described in Section 2.1.

Figure 2: Effect of Ethnic Groups on Aggregate Productivity per Country



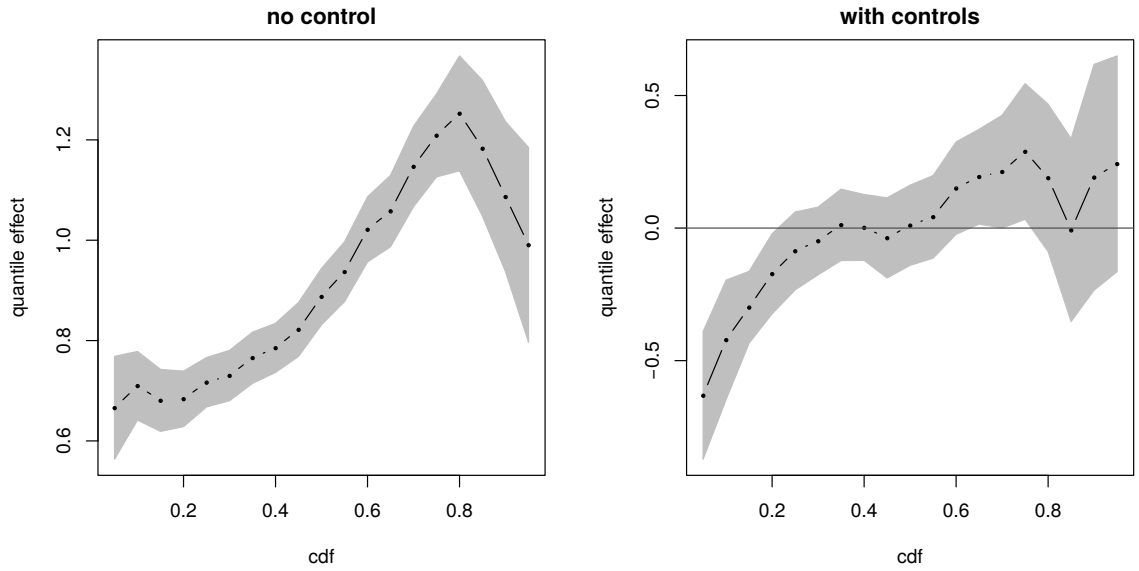
This figure presents the aggregated effect of the ethnic composition in each country's productivity. The mean and industry-specific effects of ethnic groups come from the estimation of equation (1), after the Bayes shrinkage in equation (2). These estimates are obtained controlling for industry-country-year effects, firm's age, log number of employees, and log number of fixed assets. The aggregation considers the ethnicity of all entrepreneurs in each country, weighted by their firms' inputs (capital and labor). Countries in the horizontal axis are represented by their alpha-2 ISO code. The vertical axis represents the ratio between aggregate ethnic effect and the overall mean in productivity. Each graph uses a different productivity measure — i.e., revenue over employees (*LaborProd*), revenue over weighted factors (*TFPRev*), and value added over weighted factors (*TFPVA*). Sample includes firms in Europe, Asia, and Egypt, as described in Section 2.1. Countries with less than 500 firms with reported productivity are excluded from these graphs.

Figure 3: Relationship between Labor Productivity in Brazil and Ethnic Effect on Labor Productivity Overseas, Aggregated by Ethnic Group



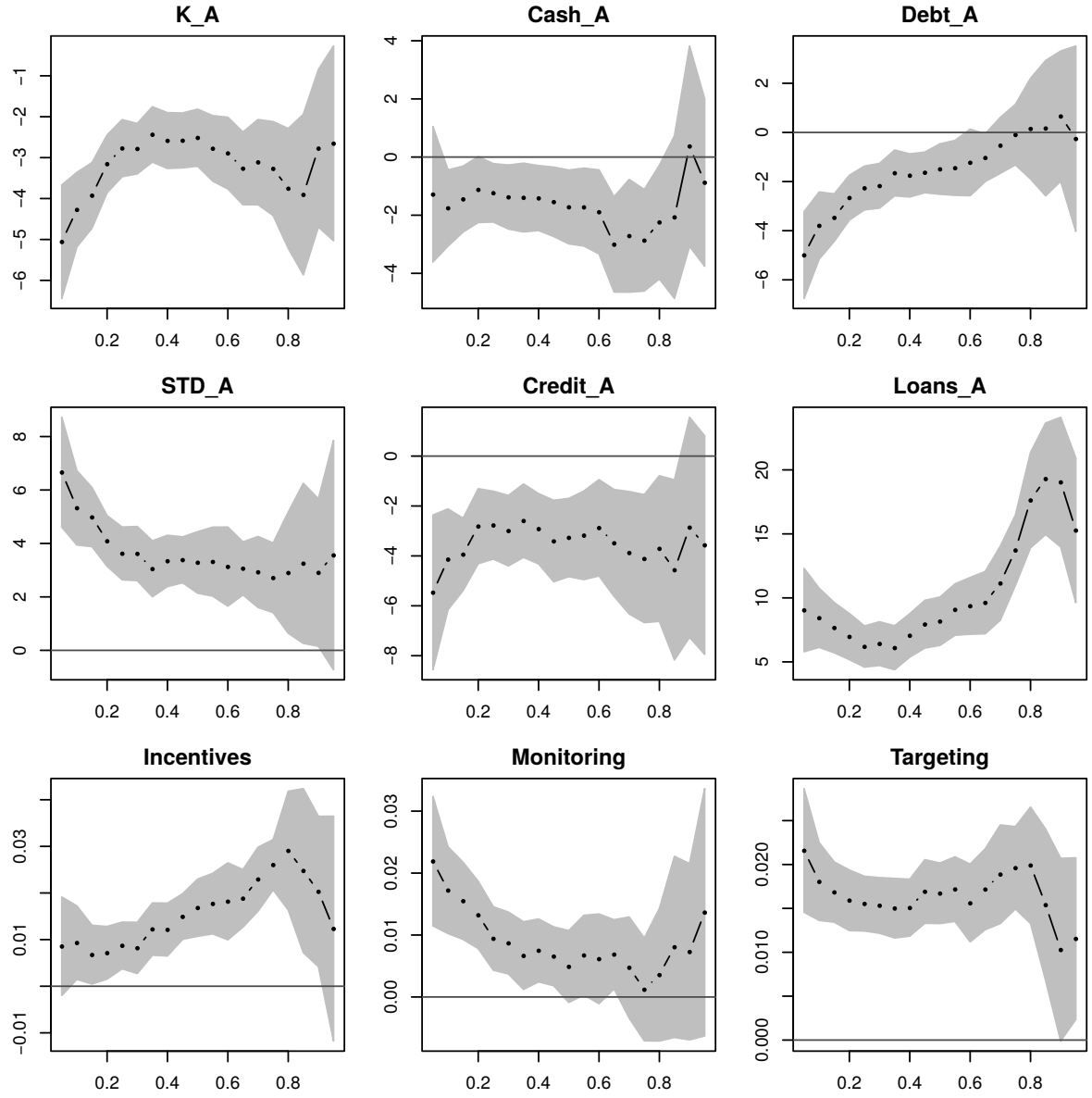
This figure presents the relationship between the mean log ratio of revenue over employees (*LaborProd*) in Brazil and in Eurasia across ethnic groups. The mean productivity of ethnic groups in Eurasia (horizontal axis) comes from the estimation of equation (1), after the Bayes shrinkage in equation (2). These estimates are obtained controlling for industry-country-year effects, firm's age, log number of employees, and log number of fixed assets. The mean productivity of ethnic groups in Brazil (vertical axis) comes from the estimation of equation (3), which controls for sub-industry (two-digit NACE Rev. 2), municipality, age, and log number of employees. The plot represents the sum of two terms of this equation: $\beta_1 \tilde{\alpha}_d + \zeta_{id}$. The size of each group's name roughly corresponds to their sample size. The linear fit, along with equation and R-squared, is calculated using group observations weighted by their sample size. Robust standard errors are in parenthesis.

Figure 4: Relationship between Quantiles of Labor Productivity in Brazil and Ethnic Effect on Labor Productivity Overseas



This figure presents the slope coefficient of the mean ethnic productivity in Eurasia (vertical axis) for different conditional quantiles of firm productivity in Brazil (horizontal axis). Productivity is measured as the log ratio of revenue over employees (*LaborProd*). Coefficients are estimated using quantile regressions with the same specification as in equation (3). That is, they control for sub-industry (two-digit NACE Rev. 2), municipality, age, and log number of employees. Graphs are generated by different sets of quantile regressions. For the left-hand graph, regressions include no ethnic covariate other than the mean productivity abroad (*LaborProd*). For the right-hand graph, regressions include mean ethnic effects on capital structure (K/A, $Cash/A$, $Debt/A$, STD/A, $Credit/A$, and $Loans/A$), financial constraints (*SurvivalSens* and *GrowthSens*), industry prevalence (*IndPrev*), and management practices (*Incentives*, *Monitoring*, and *Targeting*). Shaded areas represent robust confidence interval at 95% level.

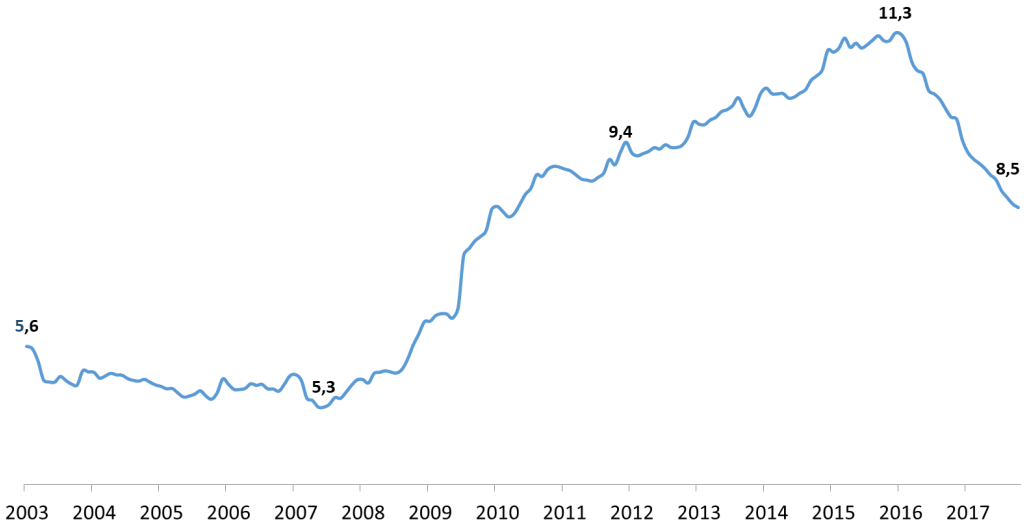
Figure 5: Relationship between Quantiles of Labor Productivity in Brazil and Ethnic Effects on Capital Structure



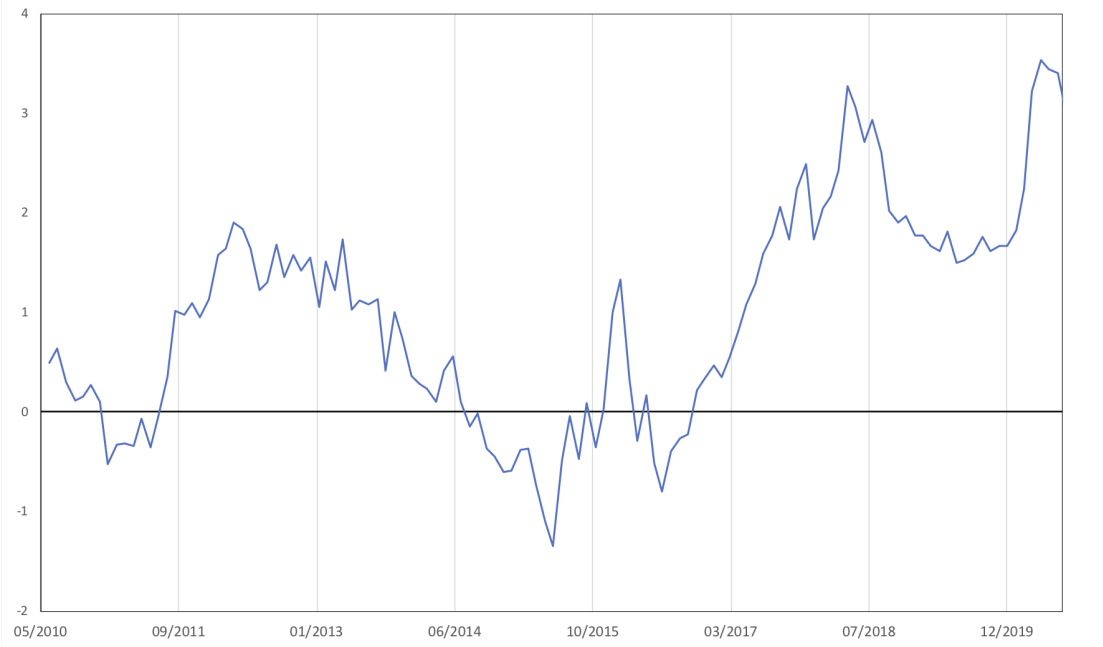
This figure presents the slope coefficient of the mean ethnic effects in Eurasia (vertical axis) for different conditional quantiles of firm productivity in Brazil (horizontal axis). Productivity is measured as the log ratio of revenue over employees (*LaborProd*). Coefficients are estimated using quantile regressions with the same specification as in equation (3). That is, they control for sub-industry (two-digit NACE Rev. 2), municipality, age, and log number of employees. All the graphs are generated by the same set of quantile regressions. Each graph exhibits the quantile coefficients for a different ethnic effect related to capital structure (K/A, $Cash/A$, $Debt/A$, STD/A, $Credit/A$, and $Loans/A$) and management practices (*Incentives*, *Monitoring*, and *Targeting*). Regressions also control for ethnic effects on productivity (*LaborProd*), financial constraints (*SurvivalSens* and *GrowthSens*), and industry prevalence (*IndPrev*). Shaded areas represent robust confidence interval at 95% level.

Figure 6: Supply of Subsidized Credit and Term Spread in Brazil

(a) BNDES Outstanding Credit over GDP (%) in 2003-2018



(b) 10-2 Year Treasury Yield Spread (p.p.) in 2010-2019



Graph (a) shows the ratio (in %) between outstanding credit originated at BNDES over the GDP in Brazil for each month from January 2003 to December 2018. Source: extracted from Torres (2018). Graph (b) shows the difference (in percentage points, p.p.) between the ten-year treasury bond yield and the two-year yield for each month from May 2010 to June 2020. Source: own calculation using data from www.worldgovernmentbonds.com.

Table 1: Correlation between Ethnic Effects on Productivity, Capital Structure, and Industry Prevalence

	Mean productivity			Mean + industry specific		
	LaborProd	TFPRev	TFPVA	LaborProd	TFPRev	TFPVA
Mean productivity						
LaborProd				0.584	0.588	0.654
TFPRev	1.000			0.583	0.587	0.656
TFPVA	0.860	0.863		0.495	0.500	0.759
Mean + industry spec.						
TFPRev				0.999		
TFPVA				0.770	0.779	
Mean financials						
K/A	-0.158	-0.148	0.092	-0.114	-0.108	0.067
Cash/A	-0.333	-0.331	-0.292	-0.197	-0.198	-0.232
Debt/A	0.152	0.143	-0.107	0.122	0.117	-0.055
STD/A	0.238	0.228	0.054	0.163	0.159	0.057
Credit/A	0.094	0.084	-0.100	0.080	0.074	-0.056
Loans/A	0.341	0.349	0.383	0.203	0.210	0.298
SurvivalSens	0.041	0.045	-0.135	0.001	0.005	-0.107
GrowthSens	-0.513	-0.514	-0.409	-0.277	-0.280	-0.300
Industry specific						
IndPrev				-0.053	-0.054	0.018
K/A				-0.336	-0.328	-0.204
Cash/A				0.143	0.151	0.270
Debt/A				-0.014	-0.020	-0.065
STD/A				0.109	0.101	-0.020
Credit/A				0.332	0.322	0.106
Loans/A				0.065	0.063	0.007
Industry prevalence						
Food, textiles, wood	-0.025	-0.023	0.278	0.002	0.003	0.226
Chemicals & pharma.	0.180	0.188	0.336	0.118	0.123	0.269
Basic metals	-0.009	-0.005	0.175	0.020	0.023	0.157
Machinery	0.217	0.224	0.462	0.134	0.139	0.362
Construction	0.066	0.072	0.153	0.018	0.023	0.115
Wholesale	-0.297	-0.307	-0.445	-0.152	-0.159	-0.336
Retail	-0.269	-0.276	-0.421	-0.150	-0.156	-0.324
Transportation	0.010	0.014	-0.037	-0.024	-0.022	-0.041
Hospitality	0.027	0.019	-0.193	0.009	0.005	-0.161
Information	0.362	0.369	0.595	0.203	0.209	0.454
Professional serv.	0.404	0.413	0.539	0.232	0.240	0.419
Other services	0.102	0.110	0.176	0.048	0.053	0.127
N. of observations	36	36	36	432	432	432

This table shows the correlation between ethnic effects on productivity, financial variables, and industry prevalence. Ethnic effects are estimated as in equation (1) and shrunk as in equation (2). All regressions include industry-country-year effects and firm's age. Regressions on productivity also include log number of employees and log number of fixed assets. Regressions on financial variables also include log of total assets. Regressions on *Survival* and *Growth* also include financial variables. The first three columns present the correlations only between mean ethnic effects. The last three columns present the correlations between mean effects and mean plus industry-specific effects.

Table 2: Relationship between Labor Productivity in Brazil and Ethnic Effects Overseas

	LaborProd							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mean effect on								
LaborProd	1.012***	0.814***	0.982***			1.047***		
	(0.116)	(0.102)	(0.120)			(0.115)		
TFPRev				0.991***			1.025***	
				(0.114)			(0.113)	
TFPVA					0.567***			0.565***
					(0.085)			(0.085)
Industry-specific effect on								
LaborProd						0.218***		
						(0.026)		
TFPRev							0.219***	
							(0.026)	
TFPVA								-0.022
								(0.025)
N. of employees & age	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sub-industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipality fixed effect	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
State fixed effect	No	No	Yes	No	No	No	No	No
Revenue mode excluded	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
N. of clusters 1 (ethnicity)	31	31	31	31	31	31	31	31
N. of clusters 2 (sub-industry)	67	67	67	67	67	67	67	67
N. of clusters 3 (municipality)	4,767	5,055	5,191	4,767	4,767	4,767	4,767	4,767
N. of observations	518,501	843,125	518,925	518,501	518,501	518,501	518,501	518,501

This table presents the regressions of the log ratio of revenue over employees (*LaborProd*) in Brazil on ethnic effects in Eurasia, as in equation (3). The ethnic effects in Eurasia are calculated as in equations (1) and (2) for three different productivity measures: revenue over employees (*LaborProd*), revenue over weighted factors (*TFPRev*), and value added over weighted factors (*TFPVA*). The estimation of mean (α_d) and industry-specific (υ_k^d) ethnic effects in equation (1) controls for industry-country-year effects, firm's age, log number of employees, and log number of fixed assets. These effects are matched to firms in Brazil based on their industry (k) and entrepreneur's ethnic group (d). All regressions in columns (1)-(8) control for the log number of employees, age, sub-industry (two-digit NACE Rev. 2), and either municipality or state fixed effects. All regressions, except for the one in column (2), exclude firms at the revenue mode — see Figure A2 of the Appendix. Robust standard errors in parenthesis are clustered by ethnic group, sub-industry, and municipality. ***, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively.

Table 3: Relationship between Labor Productivity in Brazil and Ethnic Effects Overseas, by Size and Ownership Status

	Private						
	Number of employees						
	1	2-5	6-20	21-50	51-200	> 200	Public
Mean effect on							
LaborProd	0.712***	0.929***	1.017***	1.527***	1.848***	2.238***	-0.243
	(0.076)	(0.126)	(0.121)	(0.215)	(0.267)	(0.630)	(0.552)
Industry-specific effect on							
LaborProd	0.146***	0.128***	0.148***	0.622***	0.538***	1.131**	1.050***
	(0.043)	(0.017)	(0.046)	(0.050)	(0.097)	(0.411)	(0.367)
N. of employees & age	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sub-industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipality fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N. of clusters 1 (ethnicity)	31	31	31	31	29	22	24
N. of clusters 2 (sub-industry)	67	67	65	65	65	57	61
N. of clusters 3 (municipality)	3,438	3,993	3,163	1,668	982	260	225
N. of observations	103,775	202,368	154,637	36,655	13,023	1,962	1,959

This table presents the regressions of the log ratio of revenue over employees (*LaborProd*) in Brazil on ethnic effects in Eurasia, as in equation (3), for different sub-samples. Sub-samples are defined based on ownership status (private or public) and, only for private firms, number of employees. The ethnic effects in Eurasia are calculated as in equations (1) and (2). The estimation of mean (α_d) and industry-specific (υ_k^d) ethnic effects in equation (1) controls for industry-country-year effects, firm's age, log number of employees, and log number of fixed assets. These effects are matched to firms in Brazil based on their industry (k) and entrepreneur's ethnic group (d). All regressions control for the log number of employees, age, sub-industry (two-digit NACE Rev. 2), and municipality fixed effects. The sample excludes firms at the revenue mode — see Figure A2 of the Appendix. Robust standard errors in parenthesis are clustered by ethnic group, sub-industry, and municipality. ***, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively.

Table 4: Relationship between Labor Productivity in Brazil and Ethnic Effects on Capital Structure

	LaborProd					
	(1)	(2)	(3)	(4)	(5)	(6)
Mean effect on						
LaborProd	1.067***	0.970***	0.810***	0.442***	0.423***	0.503***
	(0.119)	(0.102)	(0.084)	(0.075)	(0.076)	(0.080)
K/A	-2.273***	-1.561***		-2.979***	-2.887***	-2.447***
	(0.186)	(0.134)		(0.193)	(0.177)	(0.185)
Cash/A	-4.022***	-3.009***		-0.018	-0.377	-0.149
	(0.417)	(0.292)		(0.416)	(0.464)	(0.482)
Debt/A	0.321**	-1.880***	-2.363***	-2.814***	-2.574***	-2.280***
	(0.126)	(0.436)	(0.475)	(0.496)	(0.449)	(0.454)
STD/A		2.287***	3.443***	4.239***	3.930***	3.728***
		(0.470)	(0.560)	(0.593)	(0.526)	(0.531)
Credit/A			1.648***	-1.532***	-1.136***	-1.069***
			(0.288)	(0.418)	(0.370)	(0.366)
Loans/A			6.141***	12.356***	12.487***	12.154***
			(0.749)	(0.985)	(1.014)	(1.018)
SurvivalSens					-0.180***	-0.188***
					(0.064)	(0.061)
GrowthSens					-0.081	-0.053
					(0.054)	(0.053)
Industry-specific effect on						
IndPrev	-0.168**	-0.187**	0.198***	-0.175**	-0.181**	0.017
	(0.069)	(0.069)	(0.057)	(0.075)	(0.077)	(0.060)
LaborProd						0.223***
						(0.016)
K/A						0.737***
						(0.194)
Cash/A						0.111
						(0.147)
Debt/A						-0.063
						(0.071)
STD/A						0.533***
						(0.104)
Credit/A						0.600***
						(0.213)
Loans/A						2.221***
						(0.555)
N. of employees & age	Yes	Yes	Yes	Yes	Yes	Yes
Sub-industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Municipality fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
N. of clusters 1 (ethnicity)	31	31	31	31	31	31
N. of clusters 2 (sub-industry)	67	67	67	67	67	67
N. of clusters 3 (municipality)	4,767	4,767	4,767	4,767	4,767	4,767
N. of observations	518,501	518,501	518,501	518,501	518,501	518,501

This table presents the regressions of the log ratio of revenue over employees (*LaborProd*) in Brazil on ethnic effects in Eurasia, as in equation (3). The ethnic effects in Eurasia are calculated as in equations (1) and (2). The estimation of mean (α_d) and industry-specific (υ_k^d) ethnic effects in equation (1) controls for industry-country-year effects, and firm's age. For ethnic effects on *LaborProd*, we also control for log number of employees and log number of fixed assets. For ethnic effects on financial variables, we also control for log of total assets. For *SurvivalSens* and *GrowthSens*, we also control for financial variables. These effects are matched to firms in Brazil based on their industry (k) and entrepreneur's ethnic group (d). All regressions control for the log number of employees, age, sub-industry (two-digit NACE Rev. 2), and municipality fixed effects. The sample excludes firms at the revenue mode — see Figure A2 of the Appendix. Robust standard errors in parenthesis are clustered by ethnic group, sub-industry, and municipality. ***, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively.

Table 5: Relationship between Labor Productivity in Brazil and Ethnic Effects on Capital Structure and Management Practices

	LaborProd					
	(1)	(2)	(3)	(4)	(5)	(6)
Mean effect on						
LaborProd	1.013***	1.002***	0.389***	0.333***	0.183***	-0.099
	(0.116)	(0.098)	(0.050)	(0.070)	(0.053)	(0.060)
Management		0.010			0.358***	
		(0.030)			(0.052)	
Incentives			0.029***			0.020***
			(0.004)			(0.004)
Monitoring			-0.013***			0.007***
			(0.002)			(0.002)
Targeting			0.014***			0.018***
			(0.002)			(0.002)
K/A				-3.642***	-3.343***	-2.997***
				(0.294)	(0.285)	(0.249)
Cash/A				-0.312	1.062	-1.208*
				(0.568)	(0.628)	(0.683)
Debt/A				-2.656***	-0.860**	-1.592***
				(0.514)	(0.371)	(0.277)
STD/A				4.488***	3.087***	3.751***
				(0.663)	(0.542)	(0.418)
Credit/A				-2.913***	-0.069	-3.702***
				(0.629)	(0.641)	(0.675)
Loans/A				15.352***	13.125***	11.356***
				(1.483)	(1.272)	(1.207)
SurvivalSens				-0.230***	-0.416***	-0.761***
				(0.070)	(0.084)	(0.107)
GrowthSens				0.102*	0.146**	0.064
				(0.057)	(0.058)	(0.066)
Industry-specific effect on						
IndPrev				-0.214**	-0.280***	-0.324***
				(0.076)	(0.078)	(0.081)
N. of employees & age	Yes	Yes	Yes	Yes	Yes	Yes
Sub-industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Municipality fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
N. of clusters 1 (ethnicity)	20	20	20	20	20	20
N. of clusters 2 (sub-industry)	67	67	67	67	67	67
N. of clusters 3 (municipality)	4,764	4,764	4,764	4,764	4,764	4,764
N. of observations	515,434	515,434	515,434	515,434	515,434	515,434

This table presents the regressions of the log ratio of revenue over employees (*LaborProd*) in Brazil on ethnic effects in Eurasia, as in equation (3). Except for management practices, the ethnic effects in Eurasia are calculated as in equations (1) and (2), which controls for industry-country-year effects, and firm's age. For ethnic effects on *LaborProd*, we also control for log number of employees and log number of fixed assets. For ethnic effects on financial variables, we also control for log of total assets. For *SurvivalSens* and *GrowthSens*, we also control for financial variables. For management practices (*Management*, *Incentives*, *Monitoring*, and *Targeting*), the first-stage regressions consider that all firms in a country belong to the same ethnic group. These regressions control only for the number of employees and sub-industry fixed effects (two-digit SIC). All regressions in the second stage control for the log number of employees, age, sub-industry (two-digit NACE Rev. 2), and municipality fixed effects. The sample excludes firms at the revenue mode — see Figure A2 of the Appendix. Robust standard errors in parenthesis are clustered by ethnic group, sub-industry, and municipality. ***, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively.

Table 6: Relationship between Labor Productivity in Brazil and Ethnic Effects on Capital Structure and Cultural Traits

	LaborProd							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mean effect on								
LaborProd	0.446***	0.247***	0.148**	0.251***	-0.023	0.101	0.245***	0.105
	(0.077)	(0.070)	(0.055)	(0.060)	(0.064)	(0.061)	(0.063)	(0.062)
Cultural traits								
Power distance		0.000			0.003***			
		(0.000)			(0.000)			
Indulgence		0.003***			0.001			
		(0.000)			(0.000)			
Long-term orientation			0.002***		0.002***			
			(0.000)		(0.000)			
Uncertainty avoidance				-0.003***	-0.003***			
				(0.000)	(0.000)			
Individualism						0.003***		0.002***
						(0.000)		(0.000)
Competitiveness							0.003***	0.001***
							(0.000)	(0.000)
K/A	-2.920***	-4.899***	-1.874***	-0.864***	0.096	-1.655***	-0.792**	-1.165***
	(0.182)	(0.305)	(0.195)	(0.231)	(0.238)	(0.155)	(0.288)	(0.281)
Cash/A	-0.577	-3.047***	-2.363***	-0.747	0.409	-4.553***	-4.355***	-5.042***
	(0.509)	(0.589)	(0.526)	(0.561)	(0.366)	(0.666)	(0.669)	(0.702)
Debt/A	-2.560***	-2.071***	-1.413***	-0.925***	-3.401***	-1.347***	0.454	-0.525
	(0.447)	(0.247)	(0.380)	(0.292)	(0.448)	(0.378)	(0.332)	(0.390)
STD/A	3.875***	3.682***	2.650***	0.724***	3.404***	1.693***	-0.010	0.770**
	(0.518)	(0.363)	(0.431)	(0.214)	(0.367)	(0.372)	(0.312)	(0.374)
Credit/A	-1.192***	-3.346***	-3.045***	2.399***	-1.002*	-1.553***	-0.981**	-1.397***
	(0.378)	(0.602)	(0.415)	(0.493)	(0.498)	(0.387)	(0.384)	(0.404)
Loans/A	12.134***	16.634***	4.995***	3.896***	4.531***	-6.484***	-2.320*	-7.608***
	(1.011)	(0.938)	(0.674)	(0.617)	(0.827)	(1.043)	(1.167)	(1.256)
SurvivalSens	-0.171**	0.077	-0.367***	0.147***	0.151*	0.133**	-0.961***	-0.219**
	(0.064)	(0.080)	(0.074)	(0.052)	(0.082)	(0.054)	(0.122)	(0.102)
GrowthSens	-0.069	0.130**	-0.011	0.010	0.013	0.024	-0.055	0.009
	(0.054)	(0.059)	(0.054)	(0.053)	(0.052)	(0.052)	(0.054)	(0.051)
Industry-specific effect on								
IndPrev	-0.181**	-0.245**	-0.309***	-0.298***	-0.319***	-0.312***	-0.264***	-0.313***
	(0.078)	(0.094)	(0.086)	(0.094)	(0.083)	(0.088)	(0.092)	(0.092)
N. of employees & age	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Sub-industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Municipality fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
N. of clusters 1 (ethnicity)	29	29	29	29	29	29	29	29
N. of clusters 2 (sub-industry)	67	67	67	67	67	67	67	67
N. of clusters 3 (municipality)	4,767	4,767	4,767	4,767	4,767	4,767	4,767	4,767
N. of observations	518,256	518,256	518,256	518,256	518,256	518,256	518,256	518,256

This table presents the regressions of the log ratio of revenue over employees (*LaborProd*) in Brazil on ethnic effects in Eurasia, as in equation (3). Except for cultural traits, the ethnic effects in Eurasia are calculated as in equations (1) and (2), which controls for industry-country-year effects, and firm's age. For ethnic effects on *LaborProd*, we also control for log number of employees and log number of fixed assets. For ethnic effects on financial variables, we also control for log of total assets. For *SurvivalSens* and *GrowthSens*, we also control for financial variables. For cultural traits, we consider the mean Hofstede scores for each country in Europe and Asia where the ethnic group is predominant. All regressions control for the log number of employees, age, sub-industry (two-digit NACE Rev. 2), and municipality fixed effects. The sample excludes firms at the revenue mode — see Figure A2 of the Appendix. Robust standard errors in parenthesis are clustered by ethnic group, sub-industry, and municipality. ***, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively.

Table 7: Relationship between Capital Structure in Brazil and Ethnic Effects Overseas

	Dependent variable						
	K/A	Cash/A	Debt/A	STD/A	Credit/A	Loans/A	SubLoan/A
Mean effect on							
K/A	1.602***						
	(0.305)						
Cash/A		0.529***					
		(0.119)					
Debt/A			0.123				0.202*
			(0.228)				(0.107)
STD/A				0.004			0.181***
				(0.142)			(0.060)
Credit/A					0.613***		
					(0.217)		
Loans/A						-0.996**	2.520***
						(0.409)	(0.680)
SurvivalSens	0.038	0.115	0.048	-0.083	-0.072*	0.033	-0.184***
	(0.139)	(0.069)	(0.190)	(0.057)	(0.037)	(0.055)	(0.029)
GrowthSens	-0.132*	0.052**	0.043	0.057	-0.020	0.068***	0.053**
	(0.071)	(0.023)	(0.073)	(0.067)	(0.019)	(0.007)	(0.020)
Firm size & age	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sub-industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N. of clusters 1 (ethnicity)	25	25	25	25	25	25	25
N. of clusters 2 (sub-industry)	61	61	60	61	61	61	61
N. of clusters 3 (municipality)	626	623	604	623	626	623	625
N. of observations	7,943	7,807	6,994	7,875	7,868	7,849	7,884

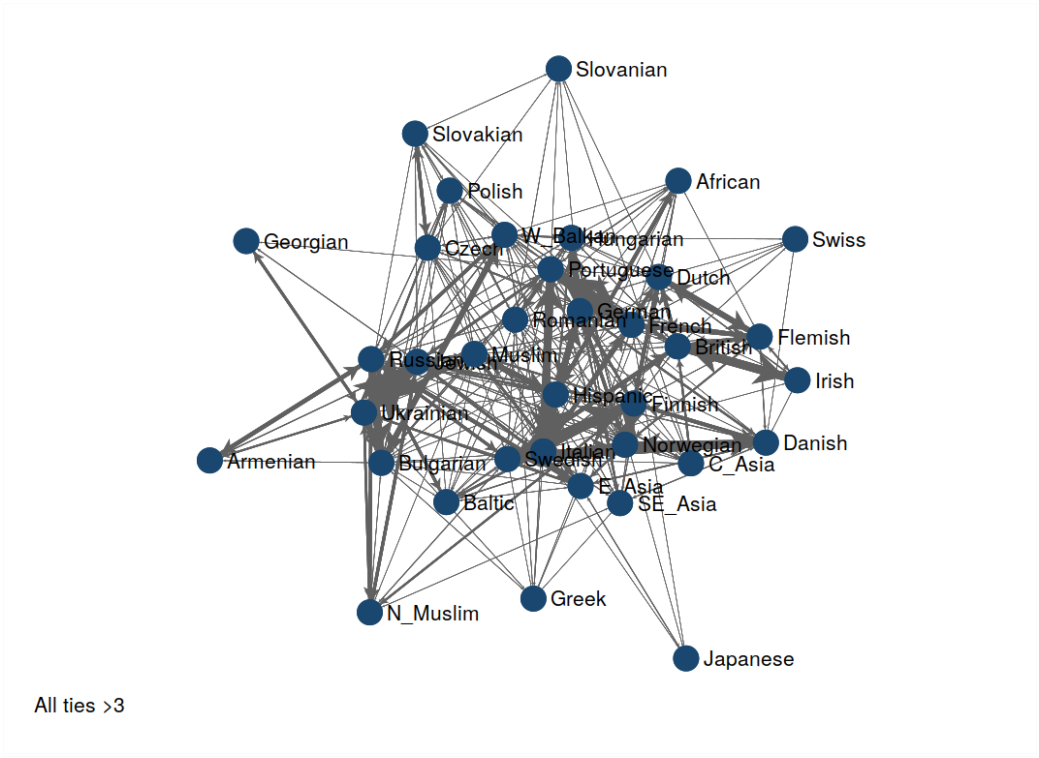
This table presents the regressions of financial variables in Brazil on ethnic effects in Eurasia, as in equation (3). The ethnic effects in Eurasia are calculated as in equations (1) and (2), which controls for industry-country-year effects, firm's age, and log of total assets. For *SurvivalSens* and *GrowthSens*, we also control for financial variables. All regressions control for the log of total assets, age, sub-industry (two-digit NACE Rev. 2), and year dummies. The sample in Brazil includes only public firms in 2014-2016. Robust standard errors in parenthesis are clustered by ethnic group, sub-industry, and municipality. ***, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively.

Table 8: Relationship between Subsidized Loans, Productivity in Brazil, and Ethnic Effects Overseas

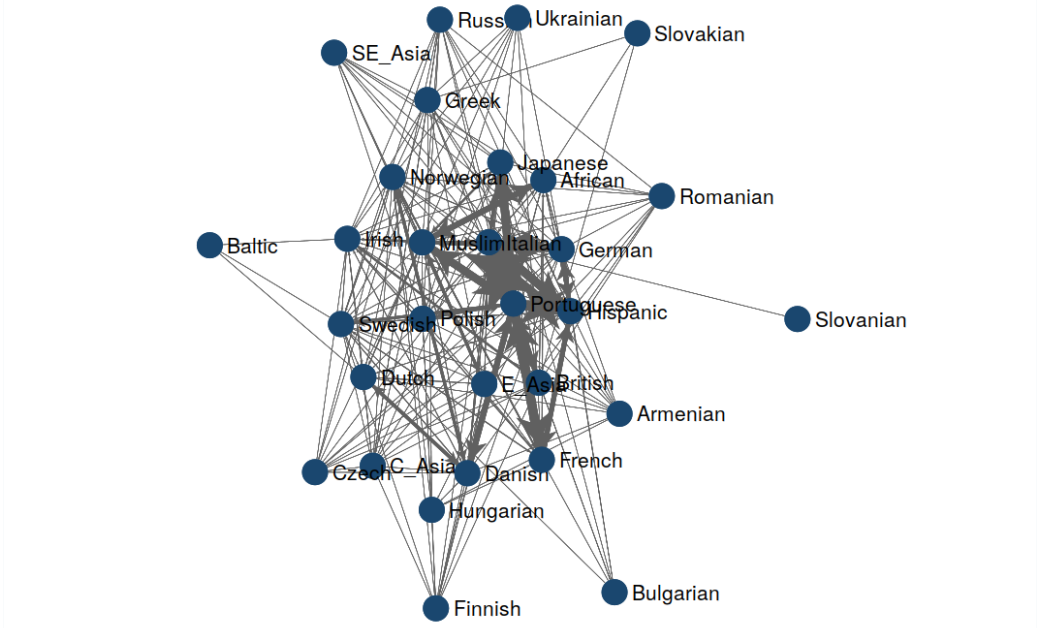
	Dependent variable			
	SubLoan/L		LaborProd	
	(1)	(2)	(3)	(4)
Mean effect on				
LaborProd	0.788***		1.793***	
	(0.130)		(0.269)	
K/A		-2.605***		-2.798
		(0.848)		(2.265)
Cash/A		0.188		4.181
		(1.723)		(3.907)
Debt/A		-4.188***		-5.430***
		(0.508)		(0.782)
STD/A		4.960***		8.305***
		(0.423)		(0.914)
Credit/A		-4.542***		-6.079*
		(1.491)		(3.121)
Loans/A		7.129**		22.027***
		(3.000)		(4.603)
Industry-specific effect on				
LaborProd	0.231*		0.982***	
	(0.116)		(0.306)	
SubLoan/L			0.232***	0.240***
			(0.023)	(0.022)
Interaction with mean effect				
LaborProd × SubLoan/L			-0.310***	
			(0.112)	
K/A × SubLoan/L				-0.372
				(0.942)
Cash/A × SubLoan/L				-2.662*
				(1.511)
Debt/A × SubLoan/L				1.379***
				(0.345)
STD/A × SubLoan/L				-1.603***
				(0.232)
Credit/A × SubLoan/L				-0.003
				(1.406)
Loans/A × SubLoan/L				-4.057***
				(0.943)
Interaction with industry-specific effect				
LaborProd × SubLoan/L			-0.379***	
			(0.132)	
N. of employees & age	Yes	Yes	Yes	Yes
Sub-industry fixed effect	Yes	Yes	Yes	Yes
Municipality fixed effect	Yes	Yes	Yes	Yes
N. of clusters 1 (ethnicity)	31	31	31	31
N. of clusters 2 (sub-industry)	64	64	64	64
N. of clusters 3 (municipality)	2,506	2,506	2,506	2,506
N. of observations	42,827	42,827	42,827	42,827

This table presents the regressions of the log ratio of subsidized loans over employees ($SubLoan/L$) and the log ratio of revenue over employees ($LaborProd$) in Brazil on ethnic effects in Eurasia, as in equation (3). The ethnic effects in Eurasia are calculated as in equations (1) and (2). The estimation of mean (α_d) and industry-specific (υ_k^d) ethnic effects in equation (1) controls for industry-country-year effects, and firm's age. For ethnic effects on $LaborProd$, we also control for log number of employees and log number of fixed assets. For ethnic effects on financial variables, we also control for log of total assets. All regressions control for the log number of employees, age, sub-industry (two-digit NACE Rev. 2), and municipality fixed effects. Robust standard errors in parenthesis are clustered by ethnic group, sub-industry, and municipality. ***, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively.

Figure A1: Network graph of name similarities

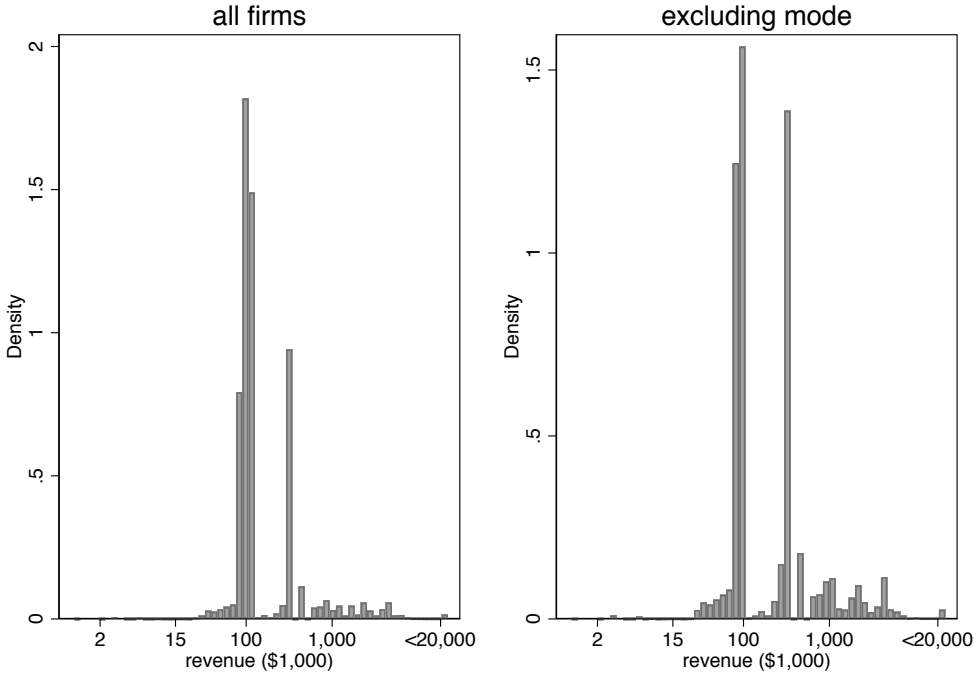


All ties >3



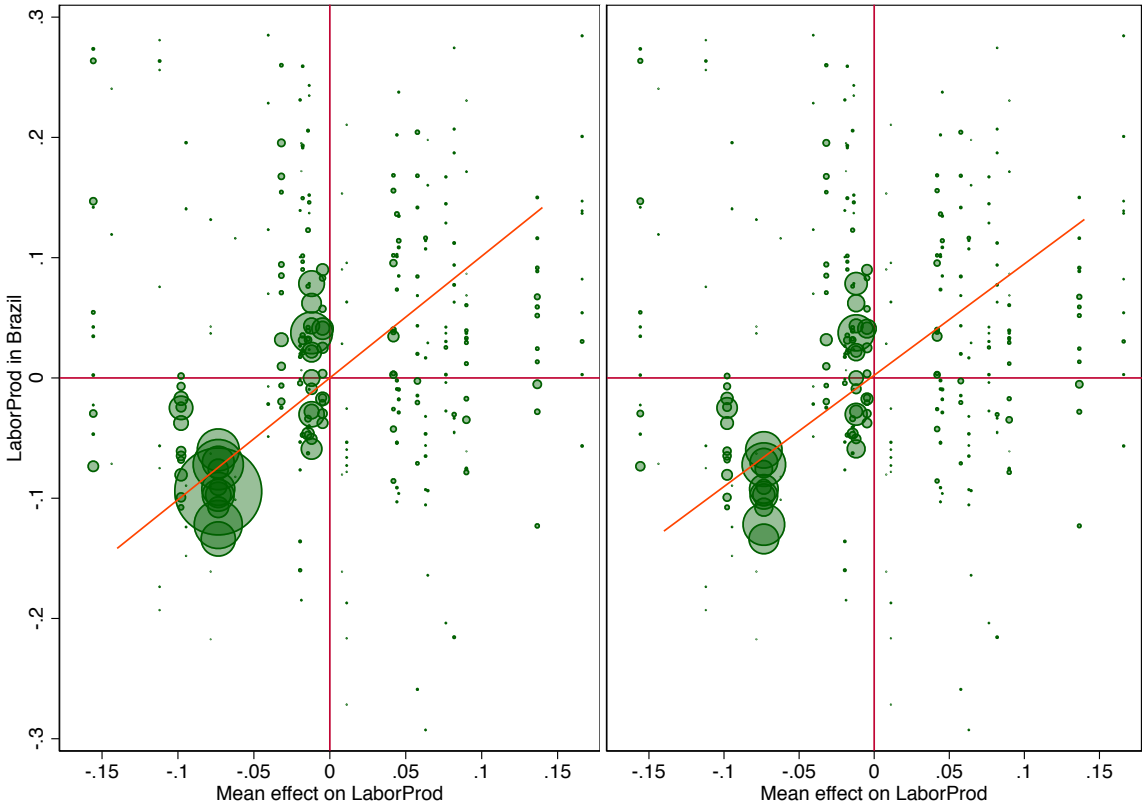
All ties

Figure A2: Distribution of Firms' Revenue in Brazil



This figure presents the distribution of firms' operating revenues in 2016. The sample for the left-hand graph applies only the restrictions described in Section 2.2. The sample for the right-hand graph also excludes firms with operating revenue equal to one of the two first modes: 98 and 110 thousand USD. These graphs have different scales.

Figure A3: Relationship between Labor Productivity in Brazil and Ethnic Effect on Labor Productivity Overseas, Aggregated by Ethnic Group and Industry



This figure presents the relationship between the mean log ratio of revenue over employees (*LaborProd*) in Brazil and in Eurasia across ethnic groups. The left-hand graph includes all combinations of ethnicities and industries, and right-hand graph excludes the group of Portuguese in the retail industry. The mean productivity of ethnic groups in Eurasia (horizontal axis) comes from the estimation of equation (1), after the Bayes shrinkage in equation (2). These estimates are obtained controlling for industry-country-year effects, firm's age, log number of employees, and log number of fixed assets. The mean productivity of ethnic groups per industry in Brazil (vertical axis) comes from the estimation of equation (3), which controls for sub-industry (two-digit NACE Rev. 2), municipality, age, and log number of employees. The plot represents the sum of three terms of this equation: $\beta_1 \tilde{\alpha}_d + \mu_k^d + \zeta_{id}$. The size of each marker corresponds to the group's sample size.

Table A1: Summary Statistics

	Europe and Asia			Brazil					
				Private			Public		
	n. of obs.	mean	s.d.	n. of obs.	mean	s.d.	n. of obs.	mean	s.d.
Age	2690117	14.1	13.8	516381	11.5	10.4	7946	25.8	17.0
Size	2717152	5.35	2.09				7945	9.96	1.98
l (employees)	2558020	1.51	1.19	516381	1.50	1.17	7946	4.35	1.85
k (capital)	2330393	4.05	2.22				7906	8.97	2.39
LaborProd	2474712	4.24	1.48	516381	3.75	1.25	7946	5.27	1.90
TFPRev	2425024	3.84	1.30				3145	2.51	1.48
TFPVA	2098395	2.48	1.13				3131	6.49	1.25
K/A	2716977	0.27	0.27				7945	0.49	0.28
Cash/A	2626667	0.20	0.24				7808	0.11	0.15
Debt/A	2410118	0.70	0.64				6995	0.46	0.30
STD/A	2694426	0.55	0.60				7877	0.33	0.24
Credit/A	2455956	0.17	0.23				7870	0.10	0.13
Loans/A	2454080	0.05	0.13				7851	0.07	0.12
EBIT/A	2502853	-0.00	3.29				7941	0.11	6.71
Subloan/A							7886	0.05	0.13
Subloan/L				42782	2.34	1.48	971	2.51	2.43
Survival	1276885	0.82	0.38						
Growth	847778	-0.01	0.86						
Listed							7946	0.03	0.16
Industry									
Food, textiles, wood	2717152	0.05	0.22	516381	0.06	0.24	7946	0.15	0.36
Chemicals & pharma.	2717152	0.05	0.22	516381	0.02	0.15	7946	0.09	0.29
Basic Metals	2717152	0.02	0.14	516381	0.02	0.13	7946	0.05	0.21
Machinery	2717152	0.19	0.39	516381	0.04	0.19	7946	0.09	0.29
Construction	2717152	0.03	0.18	516381	0.05	0.22	7946	0.10	0.30
Wholesale	2717152	0.05	0.22	516381	0.12	0.32	7946	0.12	0.33
Retail	2717152	0.04	0.20	516381	0.36	0.48	7946	0.03	0.18
Transportation	2717152	0.15	0.36	516381	0.05	0.23	7946	0.11	0.31
Hospitality	2717152	0.06	0.24	516381	0.09	0.28	7946	0.03	0.18
Information	2717152	0.18	0.38	516381	0.02	0.14	7946	0.10	0.30
Professional serv.	2717152	0.06	0.23	516381	0.12	0.33	7946	0.10	0.30
Other services	2717152	0.12	0.32	516381	0.05	0.21	7946	0.02	0.15

Table A2: Aggregation of Ethnic Groups in Europe and Asia

Group	Original	N. of obs.	mean score	Group	Original	N. of obs.	mean score
African	Algerian	383	14.5	Muslim	Afghan	66	12.1
African	Beninese	11	30.8	Muslim	Bahrani	7	24.9
African	Cameroonian	11	13.0	Muslim	Bangladeshi	452	24.8
African	Congolese	12	19.1	Muslim	Brunei	7	2.7
African	Ethiopian	138	11.5	Muslim	Egyptian	988	20.7
African	Gabon	3	9.8	Muslim	Emirati	25	11.0
African	Ghanaian	10	45.3	Muslim	Indonesian	52	11.8
African	Guinean	7	40.2	Muslim	Iranian	1,000	27.0
African	Ivoirien	1	20.8	Muslim	Iraqi	240	9.3
African	Kenyan	2	39.3	Muslim	Jordanian	96	14.2
African	Malagasy	1	68.1	Muslim	Lebanese	438	17.9
African	Mali	9	39.8	Muslim	Oman	5	14.2
African	Mauritanian	44	12.0	Muslim	Pakistanese	1,138	29.0
African	Moroccan	570	16.5	Muslim	Palestinian	545	8.5
African	Nigerian	10	40.8	Muslim	Saudi	211	9.5
African	Rwandese	3	28.0	Muslim	Somalia	85	32.6
African	Senegalese	20	56.2	Muslim	Sudanese	21	31.2
African	Tunisian	252	21.0	Muslim	Syrian	140	13.6
Armenian	Armenian	554	26.9	Muslim	Turkish	5,109	35.8
Baltic	Estonian	15,140	31.0	N_Muslim	Azerbaijani	424	26.8
Baltic	Latvian	42,341	52.5	N_Muslim	Kazakh	145	10.5
Baltic	Lithuanian	5,911	51.1	N_Muslim	Kyrgyz	55	3.2
British	British	1,572	16.8	N_Muslim	Tajik	13	11.4
Bulgarian	Bulgarian	38,523	39.6	N_Muslim	Turkmen	49	6.2
C_Asia	Indian	1,304	38.1	N_Muslim	Uzbek	276	18.8
C_Asia	Mongolese	35	69.2	Norwegian	Norwegian	993	8.6
C_Asia	Nepalese	30	40.7	Polish	Polish	20,336	29.4
C_Asia	Sri Lankan	21	32.0	Portuguese	Portuguese	223,283	59.2
Czech	Czech	72,011	25.3	Romanian	Moldova	2,787	13.6
Danish	Danish	549	25.5	Romanian	Romanian	57,503	34.6
Dutch	Dutch	2,177	12.5	Russian	Russian	76,033	8.5
E_Asia	Chinese	8,519	37.9	SE_Asia	Cambodian	4	40.4
E_Asia	Korean	455	30.5	SE_Asia	Laos	3	22.7
E_Asia	Malays	249	11.1	SE_Asia	Thai	26	16.1
Finnish	Finnish	1,729	14.3	SE_Asia	Vietnamese	1,316	61.3
Flemish	Flemish	219	23.9	Slovakian	Slovakian	23,891	12.2
French	French	11,685	11.9	Slovanian	Slovanian	6,614	25.7
Georgian	Georgian	434	34.9	Swedish	Icelander	5	24.2
German	Austrian	28,307	14.5	Swedish	Swedish	545	14.7
German	German	100,564	15.5	Swiss	Swiss	967	8.7
Greek	Greek	1,342	45.3	Ukrainian	Belarussian	135	8.5
Hispanic	Hispanic	123,565	21.9	Ukrainian	Ukrainian	105,211	9.9
Hungarian	Hungarian	125,889	36.1	W_Balkan	Albanian	3,677	24.3
Irish	Irish	274	18.5	W_Balkan	Bosniak	958	19.8
Italian	Italian	328,598	46.0	W_Balkan	Croat	9,952	18.9
Japanese	Japanese	196,337	84.7	W_Balkan	Macedonian	462	20.7
Jewish	Jewish	87,499	10.3	W_Balkan	Montenegrin	2,280	9.6
				W_Balkan	Serbian	11,681	20.0

Table A3: Number of Observations per Country and Most Predominant Ethnicity

	Most predominant	N. of observations per ethnicity		
Country	ethnicity	total	predom.	others
Austria	German	36481	27569	8912
Bosnia and Herzegovina	W_Balkan	2211	1313	898
Brazil	Portuguese	518925	337691	181234
Bulgaria	Bulgarian	67673	56420	11253
Croatia	W_Balkan	19969	15887	4082
Czechia	Czech	130991	75444	55547
Egypt	Muslim	54	34	20
Estonia	Baltic	70659	26447	44212
Germany	German	257683	180052	77631
Hungary	Hungarian	345533	190561	154972
Iran	Muslim	388	338	50
Iraq	Muslim	64	41	23
Israel	Jewish	693	125	568
Italy	Italian	664575	529555	135020
Japan	Japanese	377635	273376	104259
Jordan	Muslim	64	50	14
Kazakhstan	Russian	1360	526	834
Latvia	Baltic	109462	66971	42491
Lithuania	Baltic	8686	7250	1436
Montenegro	W_Balkan	335	299	36
Oman	Muslim	47	21	26
Palestine	Muslim	22	15	7
Poland	Polish	23491	18978	4513
Portugal	Portuguese	350533	303024	47509
Macedonia	W_Balkan	14562	5095	9467
Romania	Romanian	120579	90136	30443
Russian	Russian	220655	74492	146163
Saudi Arabia	Muslim	35	31	4
Serbia	W_Balkan	14155	11507	2648
Slovakia	Slovakian	132772	33722	99050
Slovenia	Slovanian	14387	8138	6249
Spain	Hispanic	394725	211578	183147
Ukraine	Ukrainian	292698	138458	154240

Table A4: Number of Observations and Movers per Ethnic Group

			Industry with	
Ethnicity	N. of obs.	Movers	Least movers	Most movers
African	2256	2256	34	561
Armenian	849	849	19	198
Baltic	101212	544	5	156
British	2548	2548	23	641
Bulgarian	60538	4118	44	836
C_Asia	2179	2179	15	732
Czech	111594	36150	416	9178
Danish	939	939	13	216
Dutch	3773	3773	76	748
E_Asia	13812	13812	36	5166
Finnish	2851	2851	28	653
Flemish	359	359	7	82
French	20206	20206	491	4401
Georgian	568	568	5	199
German	231900	24279	443	4948
Greek	2054	2054	35	519
Hispanic	213971	2393	31	409
Hungarian	214038	23477	348	4668
Irish	442	442	7	99
Italian	559537	29982	662	6735
Japanese	273646	270	1	71
Jewish	128858	128733	2204	36213
Muslim	16812	16282	242	4012
N_Muslim	1435	1390	14	385
Norwegian	1617	1617	11	432
Polish	30835	11857	216	2320
Portuguese	381282	78258	1797	17235
Romanian	96590	6454	74	1579
Russian	109756	35264	701	9706
SE_Asia	2099	2099	2	1080
Slovakian	37325	3603	55	692
Slovenian	11232	3094	62	616
Swedish	880	880	8	213
Swiss	1692	1692	34	329
Ukrainian	162828	24370	436	6482
W_Balkan	45548	11447	110	2906

Table A5: Differences in Mean Effect on Labor Productivity between Ethnic Groups

	African	Armenian	Baltic	British	Bulgarian	C_Asia	Czech	Danish	Dutch	E_Asia	Finnish	Flemish	French	Georgian	German	Greek	Hispanic	Hungarian
Armenian	-0.10***																	
Baltic	-0.02	0.07***																
British	0.16***	0.25***	0.18***															
Bulgarian	-0.04***	0.05**	-0.02**	-0.20***														
C_Asia	0.08***	0.17***	0.10***	-0.08***	0.12***													
Czech	0.08***	0.18***	0.11***	-0.07***	0.13***	0.01												
Danish	0.08***	0.18***	0.11***	-0.07***	0.13***	0.01	0.00											
Dutch	0.06***	0.16***	0.09***	-0.09***	0.11***	-0.01	-0.02	-0.02										
E_Asia	-0.14***	-0.04*	-0.12***	-0.30***	-0.09***	-0.22***	-0.22***	-0.22***	-0.20***									
Finnish	0.03	0.12***	0.05***	-0.13***	0.07***	-0.05**	-0.06***	-0.06**	-0.04**	0.16***								
Flemish	0.26***	0.35***	0.28***	0.10***	0.30***	0.18***	0.17***	0.17***	0.19***	0.39***	0.23***							
French	0.06***	0.16***	0.08***	-0.10***	0.10***	-0.02	-0.02***	-0.02	-0.00	0.20***	0.03**	-0.20***						
Georgian	0.23***	0.33***	0.26***	0.08**	0.28***	0.16***	0.15***	0.15***	0.17***	0.37***	0.21***	-0.02	0.17***					
German	0.01	0.11***	0.04***	-0.14***	0.06***	-0.06***	-0.07***	-0.07***	-0.05***	0.15***	-0.01	-0.24***	-0.05***	-0.22***				
Greek	0.10***	0.19***	0.12***	-0.06***	0.14***	0.02	0.01	0.01	0.03	0.23***	0.07***	-0.16***	0.04**	-0.14***	0.08***			
Hispanic	-0.08***	0.02	-0.06***	-0.24***	-0.04***	-0.16***	-0.16***	-0.16***	-0.14***	0.06***	-0.11***	-0.34***	-0.14***	-0.31***	-0.09***	-0.18***		
Hungarian	0.00	0.10***	0.03***	-0.15***	0.05***	-0.07***	-0.08***	-0.08***	-0.06***	0.14***	-0.02	-0.25***	-0.06***	-0.23***	-0.01**	-0.09***	0.08***	
Irish	0.20***	0.29***	0.22***	0.04	0.24***	0.12***	0.11***	0.11***	0.13***	0.33***	0.17***	-0.06	0.14***	-0.04	0.18***	0.10***	0.28***	0.19***
Italian	0.01	0.10***	0.03***	-0.15***	0.05***	-0.07***	-0.08***	-0.08***	-0.06***	0.14***	-0.02	-0.25***	-0.05***	-0.23***	-0.01**	-0.09***	0.09***	0.00
Japanese	0.00	0.10***	0.03***	-0.15***	0.05***	-0.07***	-0.08***	-0.08***	-0.06***	0.14***	-0.02	-0.25***	-0.06***	-0.23***	-0.01***	-0.09***	0.08***	-0.00
Jewish	-0.06***	0.03	-0.04***	-0.22***	-0.02**	-0.14***	-0.15***	-0.15***	-0.13***	0.08***	-0.09***	-0.32***	-0.12***	-0.30***	-0.08***	-0.16***	0.02***	-0.07***
Muslim	-0.01	0.08***	0.01	-0.17***	0.03***	-0.09***	-0.10***	-0.10***	-0.08***	0.12***	-0.04***	-0.27***	-0.07***	-0.25***	-0.03***	-0.11***	0.07***	-0.02**
N_Muslim	-0.38***	-0.28***	-0.36***	-0.54***	-0.34***	-0.46***	-0.46***	-0.46***	-0.45***	-0.24***	-0.41***	-0.64***	-0.44***	-0.61***	-0.40***	-0.48***	-0.30***	-0.39***
Norwegian	0.10***	0.20***	0.12***	-0.06**	0.15***	0.02	0.02	0.02	0.04*	0.24***	0.08***	-0.15***	0.04**	-0.13***	0.09***	0.01	0.18***	0.10***
Polish	0.11***	0.21***	0.13***	-0.05***	0.15***	0.03*	0.03***	0.03	0.04***	0.25***	0.08***	-0.15***	0.05***	-0.12***	0.09***	0.01	0.19***	0.10***
Portuguese	-0.06***	0.04**	-0.03***	-0.21***	-0.01	-0.13***	-0.14***	-0.14***	-0.12***	0.08***	-0.08***	-0.31***	-0.12***	-0.29***	-0.07***	-0.15***	0.02***	-0.06***
Romanian	-0.00	0.10***	0.02***	-0.16***	0.04***	-0.08***	-0.08***	-0.08***	-0.07***	0.14***	-0.03*	-0.26***	-0.06***	-0.23***	-0.01**	-0.10***	0.08***	-0.01
Russian	-0.13***	-0.03	-0.10***	-0.28***	-0.08***	-0.20***	-0.21***	-0.21***	-0.19***	0.01	-0.15***	-0.38***	-0.19***	-0.36***	-0.14***	-0.22***	-0.05***	-0.13***
SE_Asia	-0.08***	0.02	-0.06**	-0.24***	-0.04	-0.16***	-0.16***	-0.16***	-0.14***	0.06**	-0.11***	-0.34***	-0.14***	-0.31***	-0.09***	-0.18***	0.00	-0.08***
Slovakian	-0.00	0.10***	0.02***	-0.16***	0.04***	-0.08***	-0.08***	-0.08***	-0.06***	0.14***	-0.03*	-0.26***	-0.06***	-0.23***	-0.01***	-0.10***	0.08***	-0.01
Slovanian	0.11***	0.21***	0.13***	-0.05***	0.15***	0.03*	0.03***	0.03	0.04***	0.25***	0.08***	-0.15***	0.05***	-0.12***	0.10***	0.01	0.19***	0.10***
Swedish	0.06**	0.16***	0.09***	-0.09***	0.11***	-0.01	-0.02	-0.02	-0.00	0.20***	0.04	-0.19***	0.00	-0.17***	0.05**	-0.03	0.14***	0.06***
Swiss	0.04**	0.14***	0.07***	-0.11***	0.09***	-0.03	-0.04**	-0.04	-0.02	0.18***	0.02	-0.21***	-0.02	-0.19***	0.03*	-0.05**	0.12***	0.04**
Ukrainian	-0.06***	0.04*	-0.04***	-0.22***	-0.02*	-0.14***	-0.14***	-0.14***	-0.12***	0.08***	-0.09***	-0.32***	-0.12***	-0.29***	-0.07***	-0.16***	0.02***	-0.06***
W_Balkan	0.03*	0.13***	0.05***	-0.13***	0.07***	-0.05***	-0.05***	-0.05***	-0.03***	0.17***	0.00	-0.23***	-0.03***	-0.20***	0.02***	-0.07***	0.11***	0.02***

continuing on the next page

Table A5 – continued from previous page

	Irish	Italian	Japanese	Jewish	Muslim	N_Muslim	Norwegian	Polish	Portuguese	Romanian	Russian	SE_Asia	Slovakian	Slovanian	Swedish	Swiss	Ukrainian
Italian	-0.19***																
Japanese	-0.19***	-0.00															
Jewish	-0.26***	-0.07***	-0.07***														
Muslim	-0.21***	-0.02**	-0.02**	0.05***													
N_Muslim	-0.58***	-0.39***	-0.39***	-0.32***	-0.37***												
Norwegian	-0.09***	0.10***	0.10***	0.16***	0.12***	0.48***											
Polish	-0.09***	0.10***	0.10***	0.17***	0.12***	0.49***	0.01										
Portuguese	-0.25***	-0.06***	-0.06***	0.01*	-0.04***	0.33***	-0.16***	-0.16***									
Romanian	-0.20***	-0.01	-0.01	0.06***	0.01	0.38***	-0.10***	-0.11***	0.05***								
Russian	-0.32***	-0.13***	-0.13***	-0.06***	-0.11***	0.26***	-0.23***	-0.23***	-0.07***	-0.12***							
SE_Asia	-0.27***	-0.09***	-0.08***	-0.02	-0.07***	0.30***	-0.18***	-0.19***	-0.02	-0.08***	0.05**						
Slovakian	-0.20***	-0.01	-0.00	0.06***	0.01	0.38***	-0.10***	-0.11***	0.05***	0.00	0.13***	0.08***					
Slovanian	-0.09***	0.10***	0.10***	0.17***	0.12***	0.49***	0.01	0.00	0.16***	0.11***	0.23***	0.19***	0.11***				
Swedish	-0.13***	0.06***	0.06***	0.13***	0.08***	0.45***	-0.04	-0.04**	0.12***	0.07***	0.19***	0.14***	0.06***	-0.04**			
Swiss	-0.15***	0.04**	0.04**	0.11***	0.06***	0.43***	-0.06**	-0.06***	0.10***	0.05***	0.17***	0.12***	0.04***	-0.06***	-0.02		
Ukrainian	-0.26***	-0.07***	-0.06***	0.00	-0.05***	0.32***	-0.16***	-0.17***	-0.00	-0.06***	0.07***	0.02	-0.06***	-0.17***	-0.12***	-0.10***	
W_Balkan	-0.17***	0.02***	0.03***	0.09***	0.04***	0.41***	-0.07***	-0.08***	0.08***	0.03***	0.16***	0.11***	0.03***	-0.08***	-0.03	-0.01	0.09***

Table A6: Differences in Mean Effect on Revenue-Based TFP between Ethnic Groups

	African	Armenian	Baltic	British	Bulgarian	C_Asia	Czech	Danish	Dutch	E_Asia	Finnish	Flemish	French	Georgian	German	Greek	Hispanic	Hungarian
Armenian	-0.09***																	
Baltic	-0.02	0.08***																
British	0.16***	0.26***	0.18***															
Bulgarian	-0.04**	0.06**	-0.02**	-0.20***														
C_Asia	0.08***	0.17***	0.09***	-0.09***	0.11***													
Czech	0.09***	0.18***	0.11***	-0.08***	0.13***	0.01												
Danish	0.08***	0.18***	0.10***	-0.08***	0.12***	0.01	-0.00											
Dutch	0.07***	0.16***	0.09***	-0.09***	0.11***	-0.01	-0.02	-0.02										
E_Asia	-0.14***	-0.05**	-0.13***	-0.31***	-0.11***	-0.22***	-0.23***	-0.23***	-0.21***									
Finnish	0.03	0.13***	0.05***	-0.13***	0.07***	-0.04**	-0.05***	-0.05**	-0.04**	0.18***								
Flemish	0.27***	0.36***	0.28***	0.10***	0.30***	0.19***	0.18***	0.18***	0.20***	0.41***	0.23***							
French	0.06***	0.16***	0.08***	-0.10***	0.10***	-0.01	-0.02***	-0.02	-0.00	0.21***	0.03**	-0.20***						
Georgian	0.24***	0.33***	0.26***	0.07**	0.28***	0.16***	0.15***	0.15***	0.17***	0.38***	0.20***	-0.03	0.17***					
German	0.02	0.11***	0.04***	-0.15***	0.06***	-0.06***	-0.07***	-0.07***	-0.05***	0.16***	-0.02	-0.25***	-0.05***	-0.22***				
Greek	0.10***	0.20***	0.12***	-0.06***	0.14***	0.03	0.01	0.02	0.03	0.24***	0.07***	-0.17***	0.04**	-0.14***	0.08***			
Hispanic	-0.08***	0.02	-0.06***	-0.24***	-0.04***	-0.15***	-0.16***	-0.16***	-0.15***	0.07***	-0.11***	-0.34***	-0.14***	-0.31***	-0.09***	-0.18***		
Hungarian	0.01	0.10***	0.03***	-0.15***	0.05***	-0.07***	-0.08***	-0.08***	-0.06***	0.15***	-0.02*	-0.26***	-0.06***	-0.23***	-0.01***	-0.09***	0.08***	
Irish	0.20***	0.30***	0.22***	0.04	0.24***	0.13***	0.12***	0.12***	0.14***	0.35***	0.17***	-0.06	0.14***	-0.03	0.19***	0.10***	0.28***	0.20***
Italian	0.01	0.10***	0.03***	-0.15***	0.05***	-0.07***	-0.08***	-0.07***	-0.06***	0.15***	-0.02*	-0.26***	-0.05***	-0.23***	-0.01**	-0.09***	0.09***	0.00
Japanese	0.01	0.10***	0.03***	-0.16***	0.05***	-0.07***	-0.08***	-0.08***	-0.06***	0.15***	-0.03*	-0.26***	-0.06***	-0.23***	-0.01***	-0.09***	0.08***	-0.00
Jewish	-0.06***	0.04*	-0.04***	-0.22***	-0.02**	-0.13***	-0.15***	-0.14***	-0.13***	0.09***	-0.09***	-0.32***	-0.12***	-0.29***	-0.08***	-0.16***	0.02***	-0.07***
Muslim	-0.01	0.08***	0.01	-0.17***	0.03**	-0.09***	-0.10***	-0.10***	-0.08***	0.13***	-0.04***	-0.28***	-0.08***	-0.25***	-0.03***	-0.11***	0.07***	-0.02**
N_Muslim	-0.38***	-0.28***	-0.36***	-0.54***	-0.34***	-0.45***	-0.46***	-0.46***	-0.45***	-0.23***	-0.41***	-0.64***	-0.44***	-0.61***	-0.39***	-0.48***	-0.30***	-0.39***
Norwegian	0.10***	0.20***	0.12***	-0.06***	0.14***	0.03	0.02	0.02	0.04*	0.25***	0.07***	-0.16***	0.04**	-0.13***	0.09***	0.00	0.18***	0.10***
Polish	0.11***	0.21***	0.13***	-0.05***	0.15***	0.04**	0.03***	0.03	0.04***	0.26***	0.08***	-0.15***	0.05***	-0.12***	0.10***	0.01	0.19***	0.10***
Portuguese	-0.05***	0.04**	-0.03***	-0.21***	-0.01	-0.13***	-0.14***	-0.14***	-0.12***	0.09***	-0.08***	-0.32***	-0.12***	-0.29***	-0.07***	-0.15***	0.02***	-0.06***
Romanian	0.00	0.10***	0.02***	-0.16***	0.04***	-0.07***	-0.08***	-0.08***	-0.07***	0.15***	-0.03**	-0.26***	-0.06***	-0.23***	-0.02***	-0.10***	0.08***	-0.01
Russian	-0.12***	-0.03	-0.10***	-0.28***	-0.08***	-0.20***	-0.21***	-0.20***	-0.19***	0.02**	-0.15***	-0.39***	-0.19***	-0.36***	-0.14***	-0.22***	-0.04***	-0.13***
SE_Asia	-0.08***	0.01	-0.06***	-0.24***	-0.04*	-0.16***	-0.17***	-0.16***	-0.15***	0.06***	-0.11***	-0.35***	-0.14***	-0.32***	-0.10***	-0.18***	-0.00	-0.09***
Slovakian	0.00	0.10***	0.02***	-0.16***	0.04***	-0.07***	-0.08***	-0.08***	-0.07***	0.15***	-0.03**	-0.26***	-0.06***	-0.23***	-0.01**	-0.10***	0.08***	-0.00
Slovanian	0.11***	0.21***	0.13***	-0.05***	0.15***	0.04**	0.02***	0.03	0.04***	0.26***	0.08***	-0.15***	0.05***	-0.12***	0.09***	0.01	0.19***	0.10***
Swedish	0.07***	0.16***	0.09***	-0.10***	0.11***	-0.01	-0.02	-0.02	-0.00	0.21***	0.03	-0.20***	0.00	-0.17***	0.05**	-0.03	0.14***	0.06***
Swiss	0.05**	0.14***	0.07***	-0.11***	0.09***	-0.03	-0.04**	-0.03	-0.02	0.19***	0.02	-0.22***	-0.01	-0.19***	0.03**	-0.05**	0.13***	0.04***
Ukrainian	-0.06***	0.04*	-0.04***	-0.22***	-0.02**	-0.13***	-0.14***	-0.14***	-0.13***	0.09***	-0.09***	-0.32***	-0.12***	-0.29***	-0.07***	-0.16***	0.02***	-0.06***
W_Balkan	0.03**	0.13***	0.05***	-0.13***	0.07***	-0.04**	-0.05***	-0.05**	-0.04***	0.18***	0.00	-0.23***	-0.03***	-0.20***	0.02**	-0.07***	0.11***	0.02***

continuing on the next page

Table A6 – continued from previous page

	Irish	Italian	Japanese	Jewish	Muslim	N_Muslim	Norwegian	Polish	Portuguese	Romanian	Russian	SE_Asia	Slovakian	Slovanian	Swedish	Swiss	Ukrainian
Italian	-0.19***																
Japanese	-0.20***	-0.00															
Jewish	-0.26***	-0.07***	-0.07***														
Muslim	-0.22***	-0.02***	-0.02**	0.05***													
N_Muslim	-0.58***	-0.39***	-0.38***	-0.32***	-0.37***												
Norwegian	-0.10***	0.09***	0.10***	0.16***	0.12***	0.48***											
Polish	-0.09***	0.10***	0.11***	0.17***	0.12***	0.49***	0.01										
Portuguese	-0.26***	-0.06***	-0.06***	0.01	-0.04***	0.33***	-0.16***	-0.16***									
Romanian	-0.20***	-0.01	-0.01	0.06***	0.01*	0.38***	-0.10***	-0.11***	0.05***								
Russian	-0.33***	-0.13***	-0.13***	-0.06***	-0.11***	0.26***	-0.23***	-0.23***	-0.07***	-0.12***							
SE_Asia	-0.28***	-0.09***	-0.09***	-0.02	-0.07***	0.30***	-0.18***	-0.19***	-0.03	-0.08***	0.04*						
Slovakian	-0.20***	-0.01	-0.00	0.06***	0.02*	0.38***	-0.10***	-0.11***	0.06***	0.00	0.12***	0.08***					
Slovanian	-0.09***	0.10***	0.10***	0.17***	0.12***	0.49***	0.01	-0.00	0.16***	0.11***	0.23***	0.19***	0.11***				
Swedish	-0.14***	0.06***	0.06***	0.13***	0.08***	0.45***	-0.04	-0.04**	0.12***	0.07***	0.19***	0.15***	0.06***	-0.04**			
Swiss	-0.16***	0.04**	0.04***	0.11***	0.06***	0.43***	-0.05**	-0.06***	0.10***	0.05***	0.17***	0.13***	0.05***	-0.06***	-0.02		
Ukrainian	-0.26***	-0.07***	-0.06***	0.00	-0.04***	0.32***	-0.16***	-0.17***	-0.00	-0.06***	0.06***	0.02	-0.06***	-0.17***	-0.12***	-0.11***	
W_Balkan	-0.17***	0.02***	0.03***	0.09***	0.04***	0.41***	-0.07***	-0.08***	0.08***	0.03***	0.15***	0.11***	0.03***	-0.08***	-0.03	-0.02	0.09***

Table A7: Differences in Mean Effect on Value-Added TFP between Ethnic Groups

	African	Armenian	Baltic	British	Bulgarian	C_Asia	Czech	Danish	Dutch	E_Asia	Finnish	Flemish	French	Georgian	German	Greek	Hispanic	Hungarian
Armenian	-0.08***																	
Baltic	0.08***	0.16***																
British	0.25***	0.33***	0.17***															
Bulgarian	-0.01	0.07***	-0.09***	-0.26***														
C_Asia	0.00	0.08***	-0.08***	-0.25***	0.01													
Czech	0.15***	0.23***	0.07***	-0.10***	0.16***	0.15***												
Danish	0.27***	0.35***	0.19***	0.02	0.28***	0.27***	0.12***											
Dutch	0.21***	0.28***	0.12***	-0.05***	0.22***	0.20***	0.05***	-0.07**										
E_Asia	-0.16***	-0.08***	-0.24***	-0.41***	-0.15***	-0.16***	-0.31***	-0.43***	-0.36***									
Finnish	0.15***	0.23***	0.07***	-0.10***	0.16***	0.15***	-0.00	-0.12***	-0.05***	0.31***								
Flemish	0.29***	0.37***	0.21***	0.04*	0.30***	0.29***	0.14***	0.02	0.09***	0.45***	0.14***							
French	0.16***	0.24***	0.08***	-0.09***	0.17***	0.16***	0.01**	-0.11***	-0.04***	0.32***	0.01	-0.13***						
Georgian	0.06***	0.14***	-0.02***	-0.20***	0.07***	0.05***	-0.10***	-0.22***	-0.15***	0.21***	-0.10***	-0.24***	-0.11***					
German	0.15***	0.23***	0.07***	-0.10***	0.16***	0.15***	-0.00	-0.12***	-0.05***	0.31***	-0.00	-0.14***	-0.01**	0.10***				
Greek	0.27***	0.35***	0.19***	0.02	0.28***	0.27***	0.12***	-0.00	0.07***	0.43***	0.12***	-0.02	0.11***	0.21***	0.12***			
Hispanic	0.01	0.09***	-0.07***	-0.24***	0.02***	0.01	-0.14***	-0.26***	-0.19***	0.17***	-0.14***	-0.28***	-0.15***	-0.04***	-0.14***	-0.26***		
Hungarian	0.08***	0.15***	-0.01*	-0.18***	0.09***	0.07***	-0.08***	-0.20***	-0.13***	0.23***	-0.08***	-0.22***	-0.09***	0.02***	-0.08***	-0.20***	0.06***	
Irish	0.29***	0.37***	0.21***	0.04	0.30***	0.29***	0.14***	0.02	0.09***	0.45***	0.14***	-0.00	0.13***	0.23***	0.14***	0.02	0.28***	0.22***
Italian	0.08***	0.16***	0.00	-0.17***	0.09***	0.08***	-0.07***	-0.19***	-0.12***	0.24***	-0.07***	-0.21***	-0.08***	0.03***	-0.07***	-0.19***	0.07***	0.01***
Japanese	0.06***	0.14***	-0.02***	-0.19***	0.07***	0.06***	-0.09***	-0.21***	-0.14***	0.22***	-0.09***	-0.23***	-0.10***	0.01**	-0.09***	-0.21***	0.05***	-0.01***
Jewish	0.05***	0.13***	-0.03***	-0.20***	0.06***	0.05***	-0.10***	-0.22***	-0.15***	0.21***	-0.10***	-0.24***	-0.11***	-0.01*	-0.10***	-0.22***	0.04***	-0.02***
Muslim	0.01	0.09***	-0.07***	-0.25***	0.02**	0.00	-0.15***	-0.27***	-0.20***	0.16***	-0.15***	-0.29***	-0.16***	-0.05***	-0.15***	-0.26***	-0.01	-0.07***
N_Muslim	-0.18***	-0.10***	-0.26***	-0.43***	-0.17***	-0.18***	-0.33***	-0.45***	-0.38***	-0.02	-0.33***	-0.47***	-0.34***	-0.23***	-0.33***	-0.45***	-0.19***	-0.25***
Norwegian	0.16***	0.24***	0.08***	-0.10***	0.17***	0.15***	0.00	-0.12***	-0.05***	0.31***	0.00	-0.14***	-0.01	0.10***	0.00	-0.11***	0.14***	0.08***
Polish	0.15***	0.23***	0.07***	-0.11***	0.16***	0.14***	-0.01	-0.13***	-0.06***	0.30***	-0.01	-0.15***	-0.02***	0.09***	-0.01	-0.13***	0.13***	0.07***
Portuguese	0.04***	0.12***	-0.04***	-0.21***	0.05***	0.04***	-0.11***	-0.23***	-0.16***	0.20***	-0.11***	-0.25***	-0.12***	-0.02***	-0.11***	-0.23***	0.03***	-0.04***
Romanian	0.04***	0.12***	-0.04***	-0.21***	0.06***	0.04***	-0.11***	-0.23***	-0.16***	0.20***	-0.11***	-0.25***	-0.12***	-0.01***	-0.11***	-0.23***	0.03***	-0.03***
Russian	-0.05***	0.02*	-0.14***	-0.31***	-0.04***	-0.06***	-0.21***	-0.33***	-0.26***	0.10***	-0.21***	-0.35***	-0.22***	-0.11***	-0.21***	-0.33***	-0.07***	-0.13***
SE_Asia	-0.10***	-0.02	-0.18***	-0.35***	-0.09***	-0.10***	-0.25***	-0.37***	-0.30***	0.06***	-0.25***	-0.39***	-0.26***	-0.15***	-0.25***	-0.37***	-0.11***	-0.17***
Slovakian	0.11***	0.19***	0.03***	-0.14***	0.12***	0.11***	-0.04***	-0.16***	-0.09***	0.27***	-0.04***	-0.18***	-0.05***	0.06***	-0.04***	-0.16***	0.10***	0.04***
Slovanian	0.13***	0.21***	0.05***	-0.13***	0.14***	0.13***	-0.03***	-0.14***	-0.08***	0.28***	-0.03**	-0.17***	-0.04***	0.07***	-0.03***	-0.14***	0.12***	0.05***
Swedish	0.24***	0.32***	0.16***	-0.02	0.25***	0.24***	0.08***	-0.03	0.03	0.39***	0.08***	-0.06*	0.07***	0.18***	0.08***	-0.03	0.23***	0.16***
Swiss	0.13***	0.21***	0.05***	-0.13***	0.14***	0.12***	-0.03	-0.15***	-0.08***	0.28***	-0.03	-0.17***	-0.04**	0.07***	-0.03	-0.15***	0.11***	0.05***
Ukrainian	0.04***	0.12***	-0.04***	-0.22***	0.05***	0.03***	-0.12***	-0.24***	-0.17***	0.19***	-0.12***	-0.26***	-0.13***	-0.02***	-0.12***	-0.23***	0.02***	-0.04***
W_Balkan	0.08***	0.16***	-0.00	-0.17***	0.09***	0.08***	-0.07***	-0.19***	-0.13***	0.24***	-0.07***	-0.21***	-0.08***	0.02***	-0.07***	-0.19***	0.07***	0.00

continuing on the next page

Table A7 – continued from previous page

	Irish	Italian	Japanese	Jewish	Muslim	N_Muslim	Norwegian	Polish	Portuguese	Romanian	Russian	SE_Asia	Slovakian	Slovanian	Swedish	Swiss	Ukrainian
Italian	-0.21***																
Japanese	-0.23***	-0.02***															
Jewish	-0.24***	-0.03***	-0.01***														
Muslim	-0.28***	-0.08***	-0.06***	-0.04***													
N_Muslim	-0.47***	-0.26***	-0.24***	-0.23***	-0.18***												
Norwegian	-0.13***	0.07***	0.09***	0.11***	0.15***	0.33***											
Polish	-0.14***	0.06***	0.08***	0.10***	0.14***	0.32***	-0.01										
Portuguese	-0.25***	-0.04***	-0.02***	-0.01***	0.03***	0.22***	-0.12***	-0.11***									
Romanian	-0.25***	-0.04***	-0.02***	-0.01	0.04***	0.22***	-0.11***	-0.10***	0.00								
Russian	-0.34***	-0.14***	-0.12***	-0.10***	-0.06***	0.12***	-0.21***	-0.20***	-0.09***	-0.10***							
SE_Asia	-0.39***	-0.18***	-0.16***	-0.15***	-0.10***	0.08***	-0.25***	-0.24***	-0.14***	-0.14***	-0.04***						
Slovakian	-0.18***	0.03***	0.05***	0.06***	0.11***	0.29***	-0.04***	-0.03***	0.07***	0.07***	0.17***	0.21***					
Slovanian	-0.16***	0.05***	0.06***	0.08***	0.12***	0.30***	-0.03*	-0.02**	0.09***	0.08***	0.18***	0.23***	0.01**				
Swedish	-0.05*	0.16***	0.17***	0.19***	0.23***	0.41***	0.08***	0.09***	0.20***	0.19***	0.29***	0.34***	0.12***	0.11***			
Swiss	-0.16***	0.04***	0.06***	0.08***	0.12***	0.30***	-0.03	-0.02	0.09***	0.08***	0.18***	0.22***	0.01	-0.00	-0.11***		
Ukrainian	-0.25***	-0.05***	-0.03***	-0.01***	0.03***	0.21***	-0.12***	-0.11***	-0.00	-0.01*	0.09***	0.13***	-0.08***	-0.09***	-0.20***	-0.09***	
W_Balkan	-0.21***	-0.00	0.02***	0.03***	0.07***	0.26***	-0.08***	-0.07***	0.04***	0.03***	0.13***	0.18***	-0.04***	-0.05***	-0.16***	-0.05***	0.04***

Table A8: Relationship between Labor Productivity in Brazil and Ethnic Effects Overseas, Weighted by Street Names

	LaborProd							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mean effect on								
LaborProd	1.116***	0.918***	1.274***			1.147***		
	(0.110)	(0.107)	(0.122)			(0.105)		
TFPRev				1.102***			1.133***	
				(0.108)			(0.104)	
TFPVA					0.713***			0.723***
					(0.094)			(0.089)
Industry-specific effect on								
LaborProd						0.254***		
						(0.046)		
TFPRev							0.252***	
							(0.047)	
TFPVA								0.102
								(0.073)
N. of employees & age	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sub-industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipality fixed effect	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
State fixed effect	No	No	Yes	No	No	No	No	No
Revenue mode excluded	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
N. of clusters 1 (ethnicity)	31	31	31	31	31	31	31	31
N. of clusters 2 (sub-industry)	67	67	67	67	67	67	67	67
N. of clusters 3 (municipality)	4,684	4,989	5,128	4,684	4,684	4,684	4,684	4,684
N. of observations	509,164	828,162	509,608	509,164	509,164	509,164	509,164	509,164

This table presents the regressions of the log ratio of revenue over employees (*LaborProd*) in Brazil on ethnic effects in Eurasia, as in equation (3). The ethnic effects in Eurasia are calculated as in equations (1) and (2) for three different productivity measures: revenue over employees (*LaborProd*), revenue over weighted factors (*TFPRev*), and value added over weighted factors (*TFPVA*). The estimation of mean (α_d) and industry-specific (υ_k^d) ethnic effects in equation (1) controls for industry-country-year effects, firm's age, log number of employees, and log number of fixed assets. These effects are matched to firms in Brazil based on their industry (k) and entrepreneur's ethnic group (d). All regressions in columns (1)-(8) control for the log number of employees, age, sub-industry (two-digit NACE Rev. 2), and either municipality or state fixed effects. All regressions, except for the one in column (2), exclude firms at the revenue mode — see Figure A2 of the Appendix. Robust standard errors in parenthesis are clustered by ethnic group, sub-industry, and municipality. ***, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively.

Table A9: Relationship between Labor Productivity in Brazil and Ethnic Effects on Capital Structure, Weighted by Street Names

	LaborProd					
	(1)	(2)	(3)	(4)	(5)	(6)
Mean effect on						
LaborProd	1.154***	1.081***	0.920***	0.532***	0.746***	0.790***
	(0.118)	(0.109)	(0.112)	(0.115)	(0.114)	(0.118)
K/A	-2.151***	-1.938***		-3.167***	-2.630***	-2.048***
	(0.194)	(0.226)		(0.249)	(0.274)	(0.273)
Cash/A	-4.713***	-4.088***		0.124	0.204	0.634
	(0.635)	(0.658)		(0.785)	(0.853)	(0.857)
Debt/A	0.590***	-0.752	-1.084*	-2.063***	-0.751	-0.425
	(0.130)	(0.491)	(0.547)	(0.606)	(0.668)	(0.680)
STD/A		1.298***	2.143***	3.452***	2.523***	2.380***
		(0.410)	(0.530)	(0.589)	(0.604)	(0.605)
Credit/A			2.524***	-0.492	0.655	0.510
			(0.556)	(0.485)	(0.468)	(0.458)
Loans/A			7.959***	12.995***	14.178***	14.340***
			(1.025)	(1.383)	(1.427)	(1.394)
SurvivalSens					-0.559***	-0.582***
					(0.079)	(0.087)
GrowthSens					0.184	0.222*
					(0.129)	(0.127)
Industry-specific effect on						
IndPrev	-0.411***	-0.416***	0.043	-0.359**	-0.345***	-0.161
	(0.134)	(0.134)	(0.132)	(0.132)	(0.124)	(0.143)
LaborProd						0.232***
						(0.036)
K/A						1.474***
						(0.153)
Cash/A						0.268
						(0.181)
Debt/A						-0.357**
						(0.161)
STD/A						0.932***
						(0.166)
Credit/A						1.101***
						(0.243)
Loans/A						1.392
						(0.838)
N. of employees & age	Yes	Yes	Yes	Yes	Yes	Yes
Sub-industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Municipality fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
N. of clusters 1 (ethnicity)	31	31	31	31	31	31
N. of clusters 2 (sub-industry)	67	67	67	67	67	67
N. of clusters 3 (municipality)	4,684	4,684	4,684	4,684	4,684	4,684
N. of observations	509,164	509,164	509,164	509,164	509,164	509,164

This table presents the regressions of the log ratio of revenue over employees (*LaborProd*) in Brazil on ethnic effects in Eurasia, as in equation (3). The ethnic effects in Eurasia are calculated as in equations (1) and (2). The estimation of mean (α_d) and industry-specific (υ_k^d) ethnic effects in equation (1) controls for industry-country-year effects, and firm's age. For ethnic effects on *LaborProd*, we also control for log number of employees and log number of fixed assets. For ethnic effects on financial variables, we also control for log of total assets. For *SurvivalSens* and *GrowthSens*, we also control for financial variables. These effects are matched to firms in Brazil based on their industry (k) and entrepreneur's ethnic group (d). All regressions control for the log number of employees, age, sub-industry (two-digit NACE Rev. 2), and municipality fixed effects. The sample excludes firms at the revenue mode — see Figure A2 of the Appendix. Robust standard errors in parenthesis are clustered by ethnic group, sub-industry, and municipality. ***, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively.

Table A10: Relationship between Labor Productivity in Brazil and Ethnic Effects on Capital Structure and Management Practices, Weighted by Street Names

	LaborProd					
	(1)	(2)	(3)	(4)	(5)	(6)
Mean effect on						
LaborProd	1.177***	1.078***	0.552***	0.632***	0.571***	0.419***
	(0.106)	(0.089)	(0.064)	(0.118)	(0.121)	(0.138)
Management		0.081			0.337***	
		(0.053)			(0.088)	
Incentives			0.025***			0.029***
			(0.005)			(0.006)
Monitoring			-0.012***			-0.000
			(0.002)			(0.007)
Targeting			0.015***			0.012***
			(0.002)			(0.003)
K/A				-3.645***	-3.508***	-2.123***
				(0.366)	(0.380)	(0.449)
Cash/A				-1.222	-0.028	-1.019
				(0.775)	(0.968)	(1.068)
Debt/A				-0.996	1.261**	2.421**
				(0.760)	(0.542)	(0.948)
STD/A				3.155***	1.424**	-0.058
				(0.808)	(0.554)	(1.020)
Credit/A				-2.057**	0.952	-0.157
				(0.812)	(0.811)	(0.927)
Loans/A				15.700***	13.007***	10.786***
				(1.890)	(1.450)	(1.830)
SurvivalSens				-0.615***	-0.774***	-1.136***
				(0.097)	(0.109)	(0.144)
GrowthSens				0.284**	0.383***	0.410**
				(0.122)	(0.133)	(0.155)
Industry-specific effect on						
IndPrev				-0.317**	-0.374***	-0.404***
				(0.133)	(0.128)	(0.133)
N. of employees & age	Yes	Yes	Yes	Yes	Yes	Yes
Sub-industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Municipality fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
N. of clusters 1 (ethnicity)	20	20	20	20	20	20
N. of clusters 2 (sub-industry)	67	67	67	67	67	67
N. of clusters 3 (municipality)	4,684	4,684	4,684	4,684	4,684	4,684
N. of observations	506,960	506,960	506,960	506,960	506,960	506,960

This table presents the regressions of the log ratio of revenue over employees (*LaborProd*) in Brazil on ethnic effects in Eurasia, as in equation (3). Except for management practices, the ethnic effects in Eurasia are calculated as in equations (1) and (2), which controls for industry-country-year effects, and firm's age. For ethnic effects on *LaborProd*, we also control for log number of employees and log number of fixed assets. For ethnic effects on financial variables, we also control for log of total assets. For *SurvivalSens* and *GrowthSens*, we also control for financial variables. For management practices (*Management*, *Incentives*, *Monitoring*, and *Targeting*), the first-stage regressions consider that all firms in a country belong to the same ethnic group. These regressions control only for the number of employees and sub-industry fixed effects (two-digit SIC). All regressions in the second stage control for the log number of employees, age, sub-industry (two-digit NACE Rev. 2), and municipality fixed effects. The sample excludes firms at the revenue mode — see Figure A2 of the Appendix. Robust standard errors in parenthesis are clustered by ethnic group, sub-industry, and municipality. ***, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively.

Table A11: Relationship between Capital Structure in Brazil and Ethnic Effects Overseas

	Dependent variable						
	K/A	Cash/A	Debt/A	STD/A	Credit/A	Loans/A	SubLoan/A
Mean effect on							
LaborProd	-0.261***	-0.196***	0.092	0.110	0.079***	0.004	0.167***
	(0.061)	(0.049)	(0.082)	(0.080)	(0.024)	(0.049)	(0.025)
K/A	0.409	-1.134***	0.052	-0.051	0.143	0.028	0.355
	(0.486)	(0.275)	(0.459)	(0.284)	(0.215)	(0.149)	(0.242)
Cash/A	-1.356	0.669***	-0.169	0.198	0.591*	-0.262	0.649**
	(0.824)	(0.179)	(1.205)	(0.402)	(0.335)	(0.359)	(0.301)
Debt/A	0.171	-0.785***	1.779***	1.631***	0.549***	0.219**	0.509***
	(0.238)	(0.260)	(0.190)	(0.312)	(0.113)	(0.093)	(0.094)
STD/A	0.284	0.735**	-2.292***	-1.997***	-1.018***	-0.386***	-0.234**
	(0.470)	(0.294)	(0.554)	(0.530)	(0.226)	(0.070)	(0.102)
Credit/A	-2.574**	-0.191	2.386	2.382**	2.418***	0.495	1.242***
	(1.099)	(0.526)	(1.569)	(0.974)	(0.199)	(0.456)	(0.283)
Loans/A	2.994	1.451*	-2.502***	-1.503	-0.227	-1.538**	2.027**
	(1.784)	(0.848)	(0.777)	(1.703)	(0.663)	(0.701)	(0.771)
SurvivalSens	-0.051	0.227**	-0.040	-0.176**	-0.123***	0.006	-0.189***
	(0.165)	(0.102)	(0.177)	(0.083)	(0.028)	(0.049)	(0.051)
GrowthSens	-0.153	-0.046	-0.092	-0.019	-0.085***	0.018	0.110***
	(0.113)	(0.034)	(0.095)	(0.104)	(0.025)	(0.030)	(0.027)
Firm size & age	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sub-industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N. of clusters 1 (ethnicity)	25	25	25	25	25	25	25
N. of clusters 2 (sub-industry)	61	61	60	61	61	61	61
N. of clusters 3 (municipality)	626	623	604	623	626	623	625
N. of observations	7,943	7,807	6,994	7,875	7,868	7,849	7,884

This table presents the regressions of financial variables in Brazil on ethnic effects in Eurasia, as in equation (3). The ethnic effects in Eurasia are calculated as in equations (1) and (2), which controls for industry-country-year effects, firm's age, and log of total assets. For *SurvivalSens* and *GrowthSens*, we also control for financial variables. All regressions control for the log of total assets, age, sub-industry (two-digit NACE Rev. 2), and year dummies. The sample in Brazil includes only public firms in 2014-2016. Robust standard errors in parenthesis are clustered by ethnic group, sub-industry, and municipality. ***, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively.