Trust and foreign ownership: Evidence from intra-European foreign direct investments

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Abstract

We use a novel firm-level dataset to test whether trust affects the volume and the ownership structure of FDI across Europe. Our methodology deals with the endogeneity of trust from the investor to the recipient country. We expect such trust measure to affect investment decisions, and the associated knowledge capital, differently across types of foreign investors. In particular this effect is expected to be stronger for industrial investors, which possess transferable knowledge capital. The data confirm our predictions. Higher trust increases the number and volume of FDIs, but also the probability of co-investing with a partner from the recipient country.

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1 Introduction

The importance of bilateral trust among nations for economic outcomes has been object of a recent and growing literature (see Guiso, Sapienza, and Zingales (2006) for a survey). These studies build on the seminal intuition by Arrow (1974) that trust is a fundamental determinant of human behavior which shapes economic transactions and affects organizational efficiency.

Studies at the macroeconomic level have established a positive relationship between trust among nations and economic growth (e.g., Knack and Keefer (1997), Temple and Johnson (1998), and Zak and Knack (2001)).[1] Algan and Cahuc (2014) provide a comprehensive survey of this literature.

At the microeconomic level, studies have shown the importance of bilateral trust for specific economic outcomes: the volume and synergies of cross-border mergers (Ahern, Daminelli, and Fracassi (2015)), the contractual structure of syndicated loans (Giannetti and Yafeh (2012)), the degree of individuals' stock market participation (Guiso, Sapienza, and Zingales (2008)), and the structure and success of venture capital investments (Bottazzi, Da Rin, and Hellmann (2016)). These studies document that bilateral trust affects both the intensity of transactions and the way they are structured, for example in terms of contractual clauses or pricing elements.

In a recent contribution, Guiso, Sapienza, and Zingales (2009), using European data, show the importance of bilateral trust for the aggregate volume of FDI. Studying FDI is particularly salient, as they have long overtaken trade as the main engine of product market globalization. At the same time their work on aggregate data suggests that it might be fruitful to build on the above microeconomic studies, and learn more about how cultural values shape the structure of FDIs.

Our contribution takes it from here. We start by observing the increasing relevance of firm-specific intangible assets for foreign investments and the central role of foreign subsidiaries (the 'FDI companies') in the circulation of knowledge within multinational companies (Rugman and Verbeke (2001)). Intangibility implies that the investor commit-

[1] The relatively homogeneous economies of the European Union have attracted several studies of the effects of trust on macroeconomic activity, both at regional and at national level (e.g., Forte, Peiró-Palomino, and Tortosa-Ausina (2015)).

ting assets to a foreign environment, and possibly to a co-investor, assumes considerable risk of leakage of internal knowledge beyond firm boundaries (Carr, Markusen, and Maksus (2001)). Such risk is expected to be larger for corporate ('industrial') investors, which commit knowledge and intangible assets to a greater extent than financial or individual investors. This brings into play trust from the investor country to the destination country ('origin-to-destination' trust), as investors must trust in the possibility to realize the gains from trade they are investing for.

In this paper we therefore ask how origin-to-destination trust affects the structure of FDIs, focussing on two issues. First, we ask whether the effect of origin-to-destination trust on FDI flows depends on the type of the investor, which reflects its technological and managerial capabilities. The economic literature points to the importance of the ownership of FDI companies, as corporate investors are more likely to transfer valuable technology and managerial practices than financial or individual investors (Bloom, Sadun, and van Reenen (2012)). Second, we examine whether origin-to-destination trust affects the likelihood of observing different ownership structures for FDI companies, and specifically the presence of destination country co-investors. We also ask whether such effect also varies with the type of the investor. A co-investor from the destination country can provide assets complementary to those of the foreign investor, especially knowledge of the local market, but it also exposes the foreign investor to the risk of leakages of intangible knowledge. We develop our hypotheses for these two mechanisms in Section 2.

To bring our hypotheses to the data, we build an original sample of over 30,000 intra-European FDI companies created from 2000 to 2006 from the Amadeus database. An important feature of such data is that we are able to identify the controlling ('ultimate') owners of each company. We are also able to obtain information on their nationality and their nature as industrial company, financial company, or individual person. We use the total number and the cumulative size of these companies as complementary proxies of the stock of FDI companies at country pair level. We also identify the presence of co-investors of different type as a measure of the ownership structure of the FDI company. Such detailed data allow us to generate novel results on aspects that had not previously been analyzed.

Our results show that origin-to-destination trust is important for the structure of FDIs.

In particular, we find that the effect of trust on the stock of FDIs obtains primarily when the investor is industrial. This is important, because corporates make larger investments, often in high-tech manufacturing industries. These effects are economically appreciable. For industrial investors, a change in origin-to-destination trust from the first to the third quartile (which approximately corresponds to one standard deviation change in trust) leads to a median increase in the number of investments in FDI companies between 4.5 (OLS) and 12 (IV). Also for industrial investors, a one percentage point change in origin-to-destination trust leads to an increase between 5.7% (OLS) and 8.2% (IV) in total size of bilateral investments in FDI companies. Computed at the average size of bilateral investments by industrial investors, this increase amounts to betweeen 113 and 162 million euros, which is how much Denmark invested in Italy or Belgium over our sample period. Origin-to-destination trust also makes industrial investors more likely to find a co-investor in the destination country, therefore facilitating the capture of strategic complementarities. Since we employ empirical methods that address the endogeneity of bilateral trust, we can claim to uncover a genuinely causal effect of trust on FDI decisions.

In the rest of the paper we first develop a conceptual framework that draws on economics and management studies to build the hypotheses that we bring to the data. We then describe the construction of our sample. We start the empirical analysis by examining the data at the descriptive level, documenting some novel stylized facts. After discussing our econometric methodology, we test our hypotheses and discuss our results and their implications.

2 Trust among nations, ownership, and FDI

2.1 The economics perspective on FDI

Transaction cost economics (Coase (1937)) has been the first framework for interpreting FDI. Its view is that organizations optimize their behavior by relying on market transactions when available, but by internalizing them within their boundaries when markets for inputs, skills, or services, are imperfect. Market imperfections may arise due to market failures or contract incompleteness, and create uncertainty about how transactions can be completed, leading to transaction costs such as information, enforcement, and bargain-

ing costs (Teece (1986), Williamson (1975)). These inefficiencies may be mitigated by organizing a firm's activities internally, under common ownership. In the international context, firms may choose between direct ownership of foreign subsidiaries versus trading or operating through a joint-venture with other co-investors.

The property rights theory of the firm (Grossman and Hart (1986) and Hart and Moore (1990)) takes a similar view, stressing the importance of asset specificity rather than of transaction costs. It predicts that assets which are difficult to contract upon get organized under common ownership, so as to avoid hold-up threats by separate owners. The strong uncertainty surrounding FDIs therefore makes them a good testing ground for the effects of origin-to-destination trust on investment and organizational choices.

More recently, explicitly knowledge-based theories of cross-border investments have examined directly the importance of knowledge and intangible assets for FDI decisions (Carr, Markusen, and Maskus (2001), Yeaple (2003)). These theories incorporate foreign investment decisions that address both 'vertical' (up- and down-stream) and 'horizontal' (cross-country expansion) integration challenges taking into account the risk of leakage of internal knowledge beyond firm boundaries.

Economists have documented that companies with foreign investors typically have higher productivity, measured by either output per worker or total factor productivity, and that such productivity channel trickles down to the country level (Aitken and Harrison (1999), Alcácer and Chung (2007), Raff, Ryan, and Stahler (2012)). Greenaway and Kneller (2007) survey this literature. This 'own plant' effect can be even larger than the 'spillover' effect that motivates common joint ownership policies like that of China (Harrison and Rodríguez-Clare (2010)).[2] Both the 'own plant' and the 'spillover' effects have been found to be heterogenous since they depend on the amount of assets foreign investors possess and on their willingness to transfer them to organizations located outside of their own countries (Zhang et al. (2010)). These assets, including technological and organizational capabilities, are largely intangible and their cross-border transfer is prone to leakage of internal knowledge outside firm boundaries. Such leakages might be especially harmful for corporate investors, which are characterized by a high degree of complexity

[2] Whereas there is abundant empirical evidence suggesting a positive statistical association between foreign ownership and productivity, the debate is still open on whether this association can be given a causal interpretation. See Benfratello and Sembenelli (2006) for a discussion.

and asset specificity.

2.2 The importance of ownership for FDI

The economics of the FDI decision has made considerable progress in the past two decades, exploring the nature of the investment itself, and on the role of costs, benefits, and knowledge intensity. The ownership structure of the investment itself has instead received much less attention, and new evidence about the relevance of ownership can potentially bring us new important insights into the economics of FDI. We consider two dimensions of ownership.

First, we argue that different types of shareholders have different objectives and different constraints, which are likely to shape how origin-to-destination trust affects their decision whether to invest or not. We consider three types of investors: industrial companies, financial companies, and individuals. In Europe, ownership is quite concentrated and the two most frequent blockholders are industrial companies or individuals and their families (Faccio and Lang (2002)). Individual ownership is characterized by a higher degree of risk aversion, less diversified investments (Fama and Jensen (1985)), and by a more limited access to financial, technological, and managerial resources and capabilities (Allen and Phillips (2000), Bloom and Van Reenen (2007)). Individuals (and their families) often employ non-monetary objectives in managing their businesses, e.g., nepotism or family legacy (Bertrand and Schoar (2006)). By contrast, industrial and financial owners are primarily motivated by financial returns.

Second, investors have to choose between whole or joint ownership of the subsidiary, and in the latter case on which partner they want to team up with. This choice is not new to international investment studies (Asiedu and Esfahani (2001), Desai, Foley, and Hines (2004a)). However, the literature has so far neglected the moderating role of cultural values, and of trust in particular. This is important, as co-investors bring different competencies and assets to the venture (Mani, Antia, and Rindfleisch (2007)), and the role of a co-investor from the destination country may well be different from that of a co-investor from the origin country (Tan and Mayer (2011)). Foreign investors look for destination country co-investors able to contribute to the FDI company's assets, capabilities, and resources that cannot be otherwise acquired on the market because of market

failures such as contract incompleteness (Raff, Ryan, and Stahler (2009)). The probability of choosing a destination country co-investor then increases with the importance of local assets in the production process. At the same time, the level of ownership of the foreign investor increases with the use of proprietary and intangible assets (Gatignon and Anderson (1988), Desai, Foley, and Hines (2004b)).

2.3 Trust, ownership, and FDI

We now draw trust into the picture. Drawing on the above discussions, we argue that the FDI decision and the structure of the investment are likely to be affected by the investor's trust in the possibility to realize a large return. 'Personalized' trust is relevant to relational contracts where repeated interactions reveal to the parties information about each other (Greif (1993)), so that trust is generated within the relationship. By contrast, 'generalized' trust reflects a stereotypical view of others that matters before personal interactions unfold; therefore it matters in situations where members of one group start interacting with members of another identifiable group (Durlauf and Fafchamps (2006)). In the context of FDI, generalized trust corresponds to origin-to-destination trust, which includes beliefs about a country's institutions. It is important to take into account that the effect of trust among nations, as well as the other measures of cultural distance that we introduce in Section 3.3, is unlikely to be symmetric, as observed by several scholars.[3] We therefore focus on the trust from the investor to the company country, and stress this with the 'origin-to-destination' label.

An implication of the importance of assets intangibility for direct investment is that origin-to-destination trust should affect the size of aggregate bilateral FDI differentially across investor types. We submit that higher origin-to-destination trust should positively affect the expected return of the investment by decreasing the perceived probability of opportunistic behavior by third parties capturing the return to the investment. Trust among nations has been shown to favor FDI decisions (Guiso, Sapienza, and Zingales (2009)), as well as other types of cross-border investment that entail substantial intangibility. These include mergers and venture capital investments (Ahern, Daminelli, and Fracassi (2015), Bottazzi, Da Rin, and Hellmann (2016)); these studies provide formal

[3] See Shenkar (2001), Li et al. (2017), and Felbermayr and Toubal (2010), among others.

models where origin-to-destination trust directly affects the expected profits of the cross-border investments, either increasing total revenues or decreasing costs. Notice that the effect of origin-to-destination trust affects organizations as well as individuals. As the above studies show, there are a few individuals in top management positions that decide for corporate organizations, and it is through them that trust has effect.

We therefore expect FDI companies that are characterized by a relevant transfer of intangible proprietary assets to be located in trustworthy countries. We also expect the probability of co-ownership with local investors to increase with the level of origin-to-destination trust.

Our knowledge on how origin-to-destination trust affects the location and structure of FDI companies is scant.[4] This is rather unfortunate since it is highly relevant for both policy and corporate strategy. Foreign investors' choices contribute materially to shaping a country's industrial structure and ultimately to determining the specialization of its labor force. This is even more so in emerging economies, where the industrial structure is less consolidated and therefore its long-term dynamic can to a large extent be affected by external factors, including FDI. Understanding how origin-to-destination trust affects FDI location and structure decisions is therefore very important. The main reason for such lack of empirical evidence is the need for disaggregated firm-level data with detailed information on the ownership structure associated to each FDI company.

The effect of origin-to-destination trust on the choice of co-investor is ex-ante ambiguous. Higher origin-to-destination trust reduces the cultural distance between two countries, so that the need for a partner (and especially a local partner) becomes less pressing. By contrast, higher origin-to-destination trust also reduces the likelihood of conflicts of interests among partners. When the investment encompasses the transfer of intellectual property, technological and managerial know-how, the prevention of appropriation by partners is costly (Desai, Foley, and Hines (2004a)). If trust reduces such monitoring and coordination costs, it may increase the probability of observing international partnerships with local co-investors (Bloom, Sadun, and van Reenen (2012)).

We submit that the conflict- and risk-reducing effect is more likely to matter for in-

[4] For exceptions see the studies by Fernández and Nieto (2006), for Spanish SMEs, and Zahra (2003) for US manufacturing firms.

vestors that contribute technological and managerial capabilities at risk of expropriation. Industrial investors are more involved in R&D activities and transfers of technology and managerial capabilities (Bloom and Van Reenen (2007)), and thus the cost reducing-role of origin-to-destination trust is more important for them. For individual and financial investors, by contrast, we expect origin-to-destination trust to decrease the probability of partnerships with local co-investors through its direct effect on cultural distance discussed above.

2.4 Hypotheses

Based on these considerations, we are going to test the following two hypotheses:

Hypothesis 1: The level of origin-to-destination trust positively affects the number and volume of bilateral FDIs. This effect is expected to be heterogeneous across types of investors in the foreign entity, and should matter more for types of investors that have stronger technological and managerial capabilities.

Hypothesis 2: The effect of origin-to-destination trust on the co-investment decision is ambiguous and depends on the trade-off between the direct negative effect of the reduction in cultural distance and the indirect positive effect that the reduction in cultural distance has on the risk of expropriation. This combined effect is expected to be heterogeneous across types of investors in the FDI companies since we expect the second effect to matter more for types of investors that have stronger technological and managerial capabilities.

3 Data and variables

In this section we describe how we construct our sample and the variables we employ in the analysis. Definitions and sources for all variables are reported in Table 1.

3.1 Sample construction

We build a unique, novel dataset from multiple sources. Our main source is the Amadeus database published by Bureau van Dijk Electronic Publishing. Amadeus collects information on a very large sample of public and private companies across all European countries.

Data are collected from local providers that source information from repositories of accounting information filed according to national regulations. Amadeus then harmonizes the accounting information in a common format and includes additional information on industry activity codes, legal form, ownership structure, and date of incorporation. This database is increasingly used in scholarly research in different fields (e.g., Belenzon and Berkovitz (2010), Da Rin, Di Giacomo, and Sembenelli (2011), Erel, Jang, and Weisbach (2015)).

We identify in Amadeus all companies that incorporated in the years from 2000 to 2006 in one of the following 17 European countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and UK.[5] Our sample therefore includes information about FDIs done over several years and countries. Europe is a relatively uniform economy where cross-border investments are less constrained by regulations than in other economic areas, and therefore provides a suitable testing ground for our hypotheses (see Borchert, Gootiiz, and Mattoo (2014)). We include companies that operate in all industries, except for the primary sector and financial services. The number of firms complying with these initial requirements is around 3.5 million.

For each of these companies, we identify all the Global Ultimate Owners (GUOs) reported in the December 2008 release of the database. GUOs are persons or legal entities with an ownership of at least 25% of the company. Amadeus reconstructs ultimate owners using a variety of public and commercial sources (see Franks et al. (2012)). We retain only those firms that have at least one European foreign GUO; if there is more than one foreign GUO, we consider the country of the GUO with the largest ownership stake.[6]

Additionally, we exploit the available information on the type of a company's GUO. In the Amadeus database, each shareholder is classified according to a category. We aggregate these into three types: financial company (bank, financial firm, insurance company, mutual and pension fund, private equity firm); industrial company (all companies that are

[5] These countries are those in the EU15 group, with the addition of Norway and Switzerland that do not belong to the European Union.

[6] In 124 cases there are more foreign GUOs with the same ownership share from different countries. In these cases we drop the observation. In unreported regressions, we include these observations by assigning each of them alternatively to the country of the first or of the second investor, as identified by their alphabetic order. None of our results are affected.

not in the set of financial shareholders, and are involved in manufacturing or services); individuals.[7]

We assume that firm ownership as recorded in 2008 reflects the ownership at incorporation. This assumption is supported by evidence that ownership in European privately-held companies moves very slowly. Franks et al. (2012) report that in the UK, which has one of the most active markets for corporate control, a privately-owned family firm has a 75% probability at incorporation of remaining controlled by the same family forty years later and a 30% probability of this persisting 150 years later. By comparison, we observe our firms for about half a dozen years only.[8]

Our final sample consists of 33,040 FDI companies. The number of foreign-owned firms in our database is about one third of the number of foreign-owned firms included in the 2009 Eurostat FATS (Foreign Affiliates Statistics) database. Our sample differs from FATS in two respects. First, we include only firms that incorporated between 2000 and 2006. Second, Eurostat adopts a 50% foreign ownership threshold, while we use a 25% threshold. The Appendix (Table A.1 and Figure A.1) reports additional information to compare these two data sources. The 25% ownership threshold is an additional point of departure from the analysis of Guiso, Sapienza, and Zingales (2009), who employ OECD data based on a 10% ownership threshold. As pointed out by Griffith (1999) and Lipsey (2003), this leads to including some purely financial investments.

3.2 Dependent variables

We build our dependent variables using company-level data. We build two sets of dependent variables, one that characterizes FDI companies, and one that characterizes the type and nationality of foreign co-investors in these companies.

The first set of dependent variables is obtained by aggregating investments by origin and destination country couples—for example the total number of FDIs from the Netherlands to Italy. We build two complementary measures of bilateral stocks of FDI. First, we

[7] Amadeus also includes the following shareholder categories: public authorities (states, governments, foundation and research institutes); employees, managers, and directors. These owners represent only 5% of the GUOs in our sample, and we drop all companies with such GUOs as the main foreign owner.

[8] Listed firms, which display larger movements in ownership structure (Foley and Greenwood (2010)), represent less than 1% of our sample.

compute the count of investments from an origin country to a destination country over the 2000-2006 period (COUNT–FDI). Second, we compute the sum of total FDI assets over all companies from an origin country to a destination country over the 2000-2006 period (SIZE–FDI). Panels A and B of Table 2 report cross-tabulated data on bilateral FDI counts and size, respectively. Total assets are measured in the first year after incorporation and they are meant to measure the economic initial size of investments (Da Rin, Di Giacomo, and Sembenelli (2010)).

We use both a count and a size measure as dependent variables because they provide information on different aspects of FDI. The number of investments is informative about the intensity of bilateral investment flows, while the size variable is informative about their nature and their magnitude.

Data on total assets one year after incorporation are available for only 60% of the companies in our sample. This is the case since balance sheet data for recently incorporated companies are less routinely available since at this early stage in their life many of these are still very small firms, and therefore are not required to disclose much accounting information. To check that this claim holds in our dataset, we computed the median value of total assets for those firms with data in the second, but not in the first, year after incorporation. The computed median value of total assets for these firms turns out to be about one tenth of the median value of total assets for firms with information the first year after incorporation. We infer from this that companies with missing initial size information are indeed very small, and adopt the following conservative imputation strategy. We compute the 5th percentile in the initial distribution of total assets for manufacturing and services firms separately, and we impute these values—20,580 euros for manufacturing and 8,000 euros for services—to firms with missing size information, according to their respective sector. These values are then used to compute our aggregate SIZE–FDI variable.[9]

The second set of dependent variables consists of three binary indicators that we use in the company-level analysis. First, we identify firms where the main (foreign) investor has a co-investor (CO-INVESTOR). A single foreign investor (GUO) owns on average

[9] The 5th percentile corresponds to one tenth of the median. As robustness check we have also replicated all our equations with SIZE-FDI as dependent variable by setting all missing values equal to zero. All findings discussed in section 6.1 are fully robust to this alternative imputation strategy.

86% of the firm. This figure falls to 50% when there is a co-investor, whose share is on average 35%. Since a co-investor may be either foreign or domestic (i.e. from the same country of the FDI company), we distinguish between whether the co-investor is from the country of destination (CO-INVESTOR–DESTINATION) or from the country of origin (CO-INVESTOR–ORIGIN).

3.3 Independent variables and instruments

We use several bilateral distance measures as our explanatory variables and instruments. Our main explanatory variable (TRUST) is the measure of origin-to-destination trust among nations ('bilateral trust') derived from the Eurobarometer survey and described by Guiso, Sapienza, and Zingales (2009). The survey asks whether respondents have 'a lot of trust,' 'some trust,' 'not very much trust' or 'no trust at all' in citizens of different countries. Following Bloom, Sadun, and van Reenen (2012) and Bottazzi, Da Rin, and Hellmann (2016), we define TRUST to be the percentage of respondents in a given member country, declaring 'a lot of trust' in people from another member country, averaged over the survey waves from 1970 to 1995. We report data on origin-to-destination trust in Table A.2 of the Appendix. The data conform to expected patterns. For instance, Scandinavian countries exhibit the highest trust values: Danish, Finnish, Swedish and Norwegian people have very high trust among each others. On average, the least trusted country is Italy, while the most trustworthy is Switzerland. Conversely, Portugal is the least trusting country, and Sweden is the most trusting one. Importantly, TRUST shows high persistence over time and high correlation with other measures of social capital.[10] This suggests a reliable measure of trust, that reflects expected patterns among nations that remain stable over time.

As control variables we consider a set of regressors which measure the distance between the country of the investor and the country of the company. These variables include four historically predetermined distance variables. CONTIGUITY is a binary indicator that identifies country pairs sharing a common border. DISTANCE is the logarithm of the dis-

[10] Bottazzi, Da Rin, and Hellmann (2016) report a significant 0.72 correlation coefficient between the Eurobarometer measure and another widely used measure of trust, the World Value Survey measure (www.worldvaluessurvey.org) of trust in people of the same country. They also provide evidence of high correlation of bilateral trust measured across Eurobarometer waves.

tance from two countries' largest cities. These two variables capture transportation costs. COMMON–LANGUAGE is a binary indicator for country pairs sharing the same official primary language. SAME–LEGAL–ORIGIN is a binary indicator for country pairs that share the same legal origin (common law or civil law, see La Porta et al. (1998)). These two variables proxy for contracting and negotiation costs, as it is reasonable to expect that a common language and a similar legal system may facilitate economic transactions.

In our robustness checks we also use PRESS-COVERAGE which counts the number of times a country's name appears in the headlines of another country's major newspaper. This variable proxies for costs associated with information barriers, for search costs, and for familiarity with the destination country.

In the extensions of the baseline analysis we introduce two additional sets of variables. The first set includes two measures of distance between countries that are meant to measure additional (comparative) costs of cross-border investments due to taxation and labor costs.

We compute the corporate tax differential, TAX–DIFF, as the logarithm of one plus the absolute value of the difference in corporate tax rates between the investor's country and the FDI company's country, averaged over the 2000-2006 period. Similarly, the differential in labour cost, LAB–COST–DIFF, is the logarithm of one plus the absolute value of the difference in hourly labour cost between the investor's country and the company's country, averaged over the 2000-2006 period. These variables are not included in the baseline specifications since they are potentially jointly determined with the FDI decision. We rather add them in subsequent–less parsimonious– specifications to check the robustness of our main results when standard economic factors are also included.

The second set of additional explanatory variables includes measures of distance in the cultural space. We include these variables with the purpose of ruling out the possibility that TRUST may simply proxy for underlying cultural factors omitted in our baseline specifications. Cultural values are an intrinsically multidimensional concept, some dimensions of which are potentially correlated–and could even be observationally equivalent–to TRUST. For this, we borrow from two recent studies which look at the role played by cultural differences in values and practices on cross-border mergers (Ahern, Daminelli, and Fracassi (2015)) and on FDI (Li et al. (2017)). We proxy distance in cultural values with two variables developed in theoretical work by Fiske (1991) and Hofstede (1980).

HIERARCHY measures the difference between two countries in the propensity to follow the rules and orders by higher authorities and to defer to authorities to settle disputes. INDIVIDUALISM measures the difference between two countries in the degree to which individuals are viewed as autonomous in their power of self-determination, rather than members of a larger social group whose collective welfare is determining decisions. Both measures have been widely used in economics, psychology, and sociology as key dimension of national cultural values (see Guiso, Sapienza, and Zingales (2006) for a survey). A high difference in hierarchical and individualistic values is likely to discourage investment, as it hampers cooperation between foreign investors and local workforce.

An alternative approach is to consider cultural attractiveness as a distance measure. Cultural attractiveness is defined as 'the desirability of a culture for members of another culture, based on the extent to which the former culture's practices reflect the latter culture's values' (Li et al. (2017)). The measure of cultural attractiveness developed by Li et al. (2017) uses data on the behavioral patterns and practices of a national culture and on what members of different cultures find desirable that are found in the GLOBE database (House et al. (2004)). We use their measure of CULTURAL-ATTRACTIVENESS, which is a multidimensional bilateral indicator of cultural attractiveness. The salient feature of this measure is that it is a weighted index of the distance between a set of cultural values of the origin country and the corresponding set of cultural *practices* of the destination country.

Finally, since TRUST might be endogenous to our measures of bilateral FDIs, we make use of three additional bilateral variables as instruments: SOMATIC-DISTANCE, GENETIC-DISTANCE and RELIGIOUS-SIMILARITY. The first two variables measure distance among countries on the basis of differences in somatic traits and in prevailing genes, respectively, whereas the third is based on the commonality in religious beliefs among citizens of each pair of countries. We discuss them further in section 5.1.

4 Descriptive evidence

An advantage of using company-level data is that it allows us to use company attributes to define the sample and partition it into different subsets of firms.

4.1 Sample characteristics by investor type

In Table 3 we look at the distribution of FDI companies by investor (GUO) type, both for the aggregate and for the subsets of high-tech manufacturing industries or knowledge-intensive services. Overall, 90% of FDI companies are in services and this share is relatively stable across types of owners. This closely mimics the structure of the data in the full Amadeus database, where the share of firms in services is nearly 80%. As expected, the largest category of ultimate owners is industrial, accounting for half of the sample. Individuals make up nearly a third of sample. Only one in six investors is financial. When we further disaggregate the data we find that 42% of the FDI companies in manufacturing are high-tech, while 62% of the FDI companies in services are in knowledge-intensive services.

More importantly for the purpose of this paper, when we look at the industry decomposition of these FDI companies, we observe heterogeneity in the behavior of different investors. More precisely, there are stark differences between industrial and individual investors, with financial ones being somewhat in between. First, in terms of sector composition, industrial investors are more attracted by manufacturing than other investors; they are also more likely to invest in high-tech industries. Differences across investors are less pronounced for FDI companies in services. In this case it is financial investors that invest more in knowledge-intensive companies. Also, proportionally more companies are in knowledge-intensive services than in high-tech manufacturing. Second, the differences across investors become starker in terms of initial size. FDI companies in manufacturing are over five times larger than those in services. The median initial size of FDI companies owned by industrial and financial investors is about five times higher than for companies owned by individual investors. This pattern is even more marked for companies in the manufacturing sector. Overall, industrial investors own larger companies that operate frequently in high-tech manufacturing. Individual investors exhibit an opposite behavior. This provides us with prima facie evidence that different types of investors own different types of FDI companies.

4.2 Sample characteristics by investor type and co-investor location

Table 4 further explores these differences by including information on the number and type of other ultimate owners of FDI companies (co-investors). Panel A reports data for the whole sample, and Panels B, C, and D for each subset of ultimate owners.

From Panel A we see that most FDI companies only have one ultimate owner. Only 6% of the companies experience the presence of a co-investor, whose origin is evenly split between the destination and the origin countries. There are no strong differences in the sectorial distribution for companies with or without a co-investor, only a slightly larger presence of co-investors in high-tech manufacturing and a lower presence in knowledge-intensive services. Interestingly, the median initial size is 35% lower when a co-investor is present, and this effect is stronger when the co-investor is from the destination country.

Panels B, C, and D document a marked difference between industrial and financial investors compared to individual ones also when it comes to co-investment decisions. Industrial and financial ultimate owners co-invest in less than 4% of the cases, while individuals in over 10% of the cases. In most cases the co-investor is of the same type as the main ultimate owner.

When the ultimate owner is an individual, in 97% of the cases the co-investor is also an individual.[11] When the ultimate owner is an industrial company, the co-investor is also an industrial company in 77% of the cases. When the ultimate owner is a financial company, the co-investor is also a financial entity in 70% of the cases.

Another notable difference is that industrial and financial investors have more co-investors from the destination country than from the origin country, while the reverse is true for individual investors. No consistently strong patterns are discernible when comparing characteristics of investments made with a co-investor from the destination or from the origin country, except that the FDI company size is somewhat larger in the latter case. For all ultimate owner types, a larger share of manufacturing companies is associated with the presence of a co-investor, even if these are not necessarily more technology-intensive. Finally, median initial size is considerably larger when the co-investor is from

[11] As imperfect as it may be, we checked for identical surnames in the lists of the largest ultimate individual owner and of the co-investors. We find that 23% of the co-investors belong to the same family of the main ultimate owner. We re-estimate our regressions by excluding these companies and we find that the main results are unchanged.

the origin country. We return to these stylized facts in section 6.

4.3 Empirical distribution of variables

Panels A and B of Table 5 report descriptive statistics for the dependent and explanatory variables, respectively, aggregated at the country pair level.[12] In Panel A we report the cumulative count and size of FDIs for each country pair by type of ultimate owner. In the whole sample, the median number of investments between two countries is 22, while the average is 131, suggesting a right-skewed distribution. The distribution has similar patterns across investor types, with industrials characterized by a much larger number of investments. The dispersion is high for both financial and individual ultimate owners.

Panel A of Table 5 also presents statistics for FDI company size. In the whole sample, the median total size is 151 million euros, mainly reflecting the large size of FDI companies with an industrial ultimate owner. Companies with a financial or individual ultimate owner show much lower size values across the whole distribution.

Panel B of Table 5 reports country pair level descriptive statistics for independent variables. The average trust measure is 21% (median 18%), meaning that on average, 21% of people declare lot of trust in other countries' population. There is substantial variation in the amount of trust across country pairs. We observe that 11% of country pairs share a common language, 15% share a common border, and 29% share the same legal origin. Finally, we notice that the number of observations for all other variables is somewhat more limited due to data unavailability for HIERARCHY, INDIVIDUALISM, CULTURAL–ATTRACTIVENESS, and PRESS–COVERAGE. [13]

5 Methodology

5.1 The relationship between trust and FDI

In this section we outline our empirical strategy. The models we propose can be viewed as extensions of the standard Anderson and van Wincoop (2003) specification for gravity

[12] We deal with 17 destination countries and 16 origin countries, so we potentially have 256 observations, as we need to exclude cells within the same country. Since TRUST is not available for four country pairs (Norway with Austria, Finland, Sweden, and Switzerland), the regressions employ 252 observations.

[13] We report correlation coefficients among all bilateral variables in the Appendix (Table A.3).

equations, where trade flows among two countries are expected to be related both to bilateral and to multilateral trade resistance terms, the latter captured through importer and exporter fixed effects. We apply this approach both to the count and to the size of bilateral FDIs. From this perspective, our paper aligns with Head and Ries (2008) and Sousa and Lochard (2012) which also apply a 'gravity approach' to MAs and greenfield FDI respectively.

In the first specification that we take to the data, the count of FDI companies for each country pair o (origin) and d (destination) is explained by bilateral trust and a set of additional measures of physical and cultural distance between o and d. We model COUNT–FDI as a Poisson random variable and its conditional mean is specified as an exponential function:

$$\mathsf{E}[COUNT - FDI_{od}|TRUST_{od}, \mathbf{x}_{od}] = \lambda_{od} = exp(\alpha_o + \gamma_d + \beta TRUST_{od} + \mathbf{x}'_{od}\eta) \quad (1)$$

where $TRUST_{od}$ is our bilateral trust measure, $\mathbf{x}_{od}$ includes a set of bilateral measures of physical and cultural distance between o and d, and α_o and γ_d represent country o and country d fixed effects, respectively.[14]

In order to estimate consistently our parameters of interest, reasonable identification assumptions have to be made. In particular the potential problems arising from the endogeneity of $TRUST_{od}$ have to be addressed. Endogeneity may arise for a variety of reasons including measurement errors, omitted variables, and simultaneity. This last problem may occur because of reverse causality. This would be the case if, for example, trust increases when more foreign investments take place. The omission of relevant variables occurs if we omit from equation (1) unobserved or unobservable variables which are related to $TRUST_{od}$ and affect $COUNT - FDI_{od}$. Finally, $TRUST_{od}$ may be measured with error. Many different proxies for trust have been suggested in the literature (see Glaeser et al. (2000)), and probably none of them is able to fully and accurately measure the behavior or attitude we aim at capturing.

[14] As pointed out by Santos Silva and Tenreyro (2006), Anderson and van Wincoop (2003) impose unit income elasticities by dividing the dependent variable by the product of the countries' GDP. Since we are working with cross-sectional data and the model specification includes destination country and origin country fixed effects, income elasticities cannot be identified and therefore there is no need to impose restrictions on them.

We deal with these three endogeneity concerns in different ways. Firstly, we make a preliminary step towards addressing the simultaneity problem by measuring $TRUST_{od}$ over the years 1970-1995, that is well before firms in our sample were incorporated (2000-2006). In such a way, $TRUST_{od}$ can be taken as predetermined with respect to $COUNT-FDI_{od}$.

Secondly, we experiment with different sets of bilateral covariates in x_{od} with the purpose of checking whether the sign and the size of the estimated parameter of interest, β are robust to the inclusion of several observable, and potentially relevant, economic and cultural factors.

Thirdly, we recognize that, even after controlling for a large set of observables, $TRUST_{od}$ could still suffer from the omission of unobservable relevant factors or from measurement error. To address this additional concern, we estimate an IV-Poisson version of equation (1). We follow Guiso, Sapienza, and Zingales (2009) and employ two instrumental variables for $TRUST_{od}$ measured at the country pair level. The first variable, $SOMATIC-DISTANCE_{od}$, is an index measure of the somatic dissimilarity (height, hair, skin) between country pairs. The second variable, $RELIGIOUS-SIMILARITY_{od}$, is the probability that two randomly chosen individuals in two countries share the same religion.

The identification assumption we make is that somatic and religious differences do not affect FDIs directly, but only through trust. Indeed, while religious and somatic differences are found to be relevant determinants of $TRUST_{od}$, Guiso, Sapienza, and Zingales (2009) provide compelling historical reasons for why they should be excluded from equation (1). First, $SOMATIC-DISTANCE$ is unlikely to have a direct effect on FDI, unless it proxies for well established routes of communication. This is unlikely to be the case since somatic differences reflect the history of ancient migrations from Asia and Africa to Europe, which are unlikely to be correlated with today's FDI patterns. Second, the religious roots of most European countries are the result of religious persecutions and royal conversions and impositions. The commonality of religion ($RELIGIOUS-SIMILARITY$) is therefore unlikely to explain current FDI bilateral flows, especially once common borders, common language and geographic distance are accounted for.[15]

[15] In section 6 we also explore the relevance and the validity of a third instrument, which is often used in

We then investigate whether trust also affects the size of bilateral FDI activities. We estimate the following model, where the dependent variable SIZE-FDI is the amount of total assets (at incorporation) of FDI companies established in country d in the 2000-2006 period, owned by investors from country o:

$$\mathsf{E}[SIZE - FDI_{od}|TRUST_{od}, \mathbf{z}_{od}] = exp(\alpha_o + \gamma_d + \delta TRUST_{od} + \mathbf{x}'_{od}\boldsymbol{\varsigma}) \tag{2}$$

where the variables and symbols are the same as in equation (1). The estimation of equation (2) poses serious econometric challenges since the standard approach of taking logs and then estimating the transformed model with OLS involves making strong assumptions on the functional form of the transformed error. The violation of this assumption leads, in turn, to inconsistent estimates of the parameter of interest in the log-transformed model (Santos Silva and Tenreyro (2006)). In addition, the existence of observations for which the dependent variable is zero creates an obvious additional problem for the use of the log-transformation approach. For this reason several Pseudo Maximum Likelihood (PML) approaches have been suggested in the recent empirical literature.[16] Since each of these methods has its advantages and disadvantages, which depend on the sample size and on the empirical distribution of the variables of interest, we follow Manning and Mullay (2001) and estimate equation (2) with several estimators to establish robustness. These include OLS and GMM on the log-transformed model and Poisson and Gamma PML on the original multiplicative gravity model.

In order to test Hypothesis 1 that trust may differently affect investors of different type, we estimate models (1) and (2) both on the whole sample and on the three sub-samples of industrial, financial and individual ultimate owners. We expect the signs for β and δ to be positive. Furthermore, since investors differ in their degree of managerial and technological expertise, we also expect the size for β and δ to be larger for the sub-sample of industrial investors.

the literature, $GENETIC-DISTANCE_{od}$. This is an index measure of the genetic dissimilarity between country pairs and is defined in Table 1.

[16] Santos Silva and Tenreyro (2006) advocate the use of the so-called Poisson PML approach. Head and Mayer (2014), in the context of gravity equations, and Manning and Mullahy (2001), more generally, propose instead to report a "robustness-exploring ensemble" of estimators, including OLS performed on the log-transformed model, Poisson PML and Gamma PML.

5.2 Co-investor analysis

In the second part of our analysis, we move to examine whether trust also affects the ownership structure of FDI companies. Following Hypothesis 2, we expect the propensity towards co-ownership of FDI companies to depend on the degree of bilateral trust when the potential co-investor is from the FDI company's country. To test this hypothesis we exploit firm-level information on ownership, and we estimate a variety of binary response models which share the same basic structure:

$$Prob(Y_i = 1|TRUST_{od}, \mathbf{w}_{od}) = \Phi(\alpha_o + \gamma_d + \lambda_j + \theta TRUST_{od} + \mathbf{w}'_{od}\eta) \tag{3}$$

where i indexes firms, d destination country, o origin country, j incorporation year and Φ is the normal cumulative distribution function. The binary dependent variable Y is equal to 1 if the co-investor is from the same country as the FDI company ($CO-INVESTOR-DESTINATION$), and 0 if there is no co-investor. Observations with a co-investor not from the destination country are dropped in estimation. Among the independent variables, we include $TRUST_{od}$ and a set of measures of physical and cultural distance $\mathbf{w}_{od}$. α_o and γ_d represent country o and country d fixed effects, respectively, while λ_j embodies fixed effects for the incorporation year.

The sign of θ in equation (3) is ambiguous. Higher trust is expected to reduce the cultural distance between the two countries and therefore the need for a partner. On the other hand, trust might also reduce the potential conflicts of interest among the two partners and therefore increase the incentive to find a co-investor from the destination country. This second mechanism is more likely to apply to investors which transfer more managerial and technological capabilities, so we expect θ to be larger in the sub-sample of industrial investors.

In order to test the robustness of our results, we also estimate equation (3) after replacing $CO-INVESTOR-DESTINATION$ with an alternative binary variable which is equal to 1 if the co-investor is from the same country as the investor and 0 if there is no co-investor ($CO-INVESTOR-ORIGIN$).[17] We do so in order to provide indirect evidence that the channel through which bilateral trust affects the probability of

[17] In this specification observations not from the origin country are instead dropped in estimation.

co-ownership is specific to partnerships between co-owners of different nationalities and does not reflect a spurious correlation which applies to all joint ownerships.

6 Results

6.1 Trust and FDIs

In this section we test Hypothesis 1 on the role of trust in FDI decisions. Table 6 reports results of estimates of equation (1) for COUNT–FDI. We first estimate the effect of trust for the whole sample and then separately for each type of investor: industrial, financial, and individual. In odd-numbered columns we report the estimates from Poisson regressions. The results show TRUST to have a positive and statistically significant effect for the whole sample. The effect is fully due to industrial investors. A one percentage point increase in TRUST leads to an increase in the number of FDI companies of 1.9% in the industrial investors sub-sample (column (3)). Given the non linearity of the Poisson model, we report at the bottom of the Table the marginal effect at different percentiles of its own distribution. The economic significance of the effect of TRUST turns out to be economically large. For industrial investors, a change in TRUST from the first to the third quartile (i.e. from 12% to 26%, which approximately corresponds to one standard deviation change), leads to a median increase in COUNT-FDI of 4.5. This is a sizeable effect given a median value of COUNT–FDI of 22.

The estimates for the other regressors are largely as predicted. CONTIGUITY and SAME–LEGAL–ORIGIN positively affect COUNT–FDI. The relative difference in the number of FDI companies, between countries with a common border and countries without common borders is around 0.3% for industrial and financial investors, while it rises to 1.2% for individuals. The relative difference in the number of FDI companies, between countries with the same legal origin and countries with different legal origin, is close to 1% for all investors' types. As expected, DISTANCE has a negative effect on FDI activity: a one percentage point increase in distance lowers the count of FDI companies by about 0.7%, for all types of investors. Sharing a common language does not affect COUNT–FDI.

We report the instrumental variables Poisson estimates in the even-numbered columns of Table 6. Table 7 reports results from the first stage regression, which points to the

relevance of SOMATIC-DISTANCE and RELIGIOUS-SIMILARITY as instruments and exhibits good diagnostics. The effect of TRUST on COUNT–FDI retains its strong statistical significance and becomes economically even larger: in column (4), a one percentage point increase in TRUST increases the number of FDI companies by 7.8%. The median increase in COUNT-FDI, for an increase in TRUST from the first to the third quartile, is 12 investments. As a robustness check, we re-estimate the same set of regressions with the inclusion of RELIGIOUS-SIMILARITY in the set of regressors. As discussed in section 5.1, we do this even if commonality of religion is unlikely to have a direct effect on trade, especially since we control for distance, commonality of language, and common border. We also include in the set of instruments GENETIC-DISTANCE. In all cases our results are virtually unchanged. Also, GENETIC-DISTANCE turns out to be a very weak instrument.[18]

Tables 8 and 9 report estimates of equation (2). Columns (1) to (4) of Table 8 provide a comparison of results from different estimation methods when equation (2) is estimated for the whole sample. With the exception of Poisson PML, TRUST always has a positive, and significant, effect on SIZE–FDI. Also, results for OLS on the transformed model and for Gamma PML on the original multiplicative model are extremely close (0.056 and 0.054 respectively). This is comforting for two reasons. Firstly, it suggests that the reduction in sample size due to the loss of observations associated to the log transformation of the dependent variable (from 252 in column (3) to 223 in column (1)) is not a major concern in this application. Secondly, and possibly even more importantly, it provides evidence on the robustness of our OLS estimates to violations of the exogeneity assumption arising from the heteroskedasticity in the transformed error term. The fact that for some of the variables, including TRUST, estimated coefficients are instead smaller when Poisson PML is used as estimation method should be viewed as a signal that this approach is not appropriate in our case. This claim is supported both by the empirical evidence against the Poisson PML constant variance-mean ratio assumption (The Manning-Mullahy estimated heteroskedasticity parameter is very close to 2 in all columns) and by the excess kurtosis in the distribution of the residuals (ranging from 4.2 to 5.2).[19] Finally, the effects of TRUST

[18] We report these additional sets of results in Appendix Tables A.4 to A.6.

[19] Also, the Poisson PML estimator is not robust to even mild right-tail trimming. In fact the estimated coefficient on TRUST becomes positive (= 0.026 and significant at the 10% level) and therefore closer to

in the whole sample remains significant, and becomes larger in size, after instrumentation (0.083, column (4)).

Table 9 reports OLS estimates in odd-numbered columns and GMM estimates in even numbered columns for our three sub-samples.[20] When estimated with OLS, TRUST has a positive, and significant, effect on SIZE–FDI for both industrial and financial investors. A one percentage point change in TRUST corresponds to an increase in SIZE–FDI between 5.7% (for industrial investors) and 6.7% (for financial investors). The effect of TRUST in the two sub-samples becomes even larger, after instrumentation, although it now becomes marginally insignificant at conventional levels. Individual investors remain immune from the influence of TRUST in volume terms, as it was the case for COUNT–FDI.[21]

Control variables in Tables 8 and 9 largely have the same effects as they had in Table 6, with the exception of CONTIGUITY, which becomes insignificant. Individual investors show greater sensitivity to distance measures: a one percentage point increase in distance reduces SIZE–FDI by 2.1% for individual investors, and by only 1% to 1.4% for financial and industrial investors, respectively. Similarly, the percent difference in SIZE–FDI from countries with the same legal origin and countries with different legal origin, is between 0.8% and 1.4% for industrials and financial investors, while it amounts to 3.2% for individuals.

Overall, the results from Tables 6, 8 and 9 point to a sizeable effect of TRUST on FDI decisions. This effect holds mainly for industrial investors, and to a lesser extent for financial ones. These findings are consistent with recent studies of the effect of TRUST on mergers (Ahern, Daminelli, and Fracassi (2015)) and on venture capital (Bottazzi, Da Rin, and Hellmann (2016)), which point to the importance of investor capabilities and of potential synergies for cross-border investment to create value. Trust reduces participation costs (transaction costs, monitoring costs, bargaining costs, etc.) and the perceived

OLS and Gamma PML when estimated on a sample which excludes the upper 5% observations on the dependent variable. The other estimation methods are instead insensitive to such trimming.

[20] We do not report Gamma PML estimates since convergence is not reached for the sub-samples of financial and individual investors. This is likely to depend on the larger number of zeroes in these two sub-samples. For the sub-sample of industrial investors–for which convergence is obtained– estimated coefficients are once again very close to their OLS counterparts.

[21] We also re-estimate equation (2) with the inclusion of RELIGIOUS-SIMILARITY among regressors and of GENETIC-DISTANCE as instrument. Results do not change noticeably. We report them in Appendix Tables A.7 and A.8.

probability of opportunistic behavior by third parties, thus boosting international involvement, both in number and size. As industrial investors have stronger technological and managerial capabilities at risk, they are more subject to such effect.

We interpret the fact that trust does not matter for individual investors as the result of two possible effects: either bilateral trust does not actually enter the decision process of such investors, as other non-monetary objectives prevail, or these owners show more heterogeneity in their behavior, and we are not able to capture such diversity. This could be the case, for instance, with varying degrees of involvement of family members in the management of the firm or in their risk aversion.

6.2 Alternative data and additional determinants of FDI

An additional concern that we have to address is to rule out the possibility that our empirical results depend on the way we built our dataset. This might be related to the way we identify foreign ownership, to the sample period we refer to, or to the differences in country coverage discussed in section 3.1. To verify whether this is the case, we replicate the first two columns of Table 6 by using the count of bilateral FDIs reported officially by the Eurostat FATS dataset. We report the results in Table A.9 of the Appendix. Comfortingly, the coefficient on TRUST is still positive and significant regardless of whether or not we take care of the endogeneity of trust. Also, as in Table 6, the estimated parameter with IV-Poisson is almost twice as large compared to the parameter estimate with standard Poisson. The marginal effects computed at different quartiles are larger, but this is to be expected since the sample period covered by FATS is longer than ours.

A second, and possibly more worrisome, concern is that the omission of confounding economic or cultural factors could bias the results. To address this issue we develop two extensions of our main econometric model that incorporate additional explanatory variables. We report the results in Tables A.10 through A.17 of the Appendix.

Firstly, we enrich the analysis with three additional variables that directly affect the cost of the investment: the differential in corporate tax income rates between origin and destination countries (TAX–DIFF), the differential in hourly labor costs (LAB–COST–DIFF) and the amount of information on the destination country available through business newspapers published in the country of origin (PRESS–COVERAGE), the latter

proxying for information barriers and search costs. TAX–DIFF accounts for any tax advantages that may drive FDI flows (Bénassy-Quéré et al. (2005)). Similarly, LAB–COST–DIFF accounts for labor cost advantages across countries (Braconier, Norback, and Urban 2005)). For COUNT–FDI we find results largely consistent with those of Table 6. TRUST remains significant and with similar marginal effects as before; its effect still mainly goes through industrial investors. TAX–DIFF has a positive, and significant, sign for COUNT–FDI, pointing to an increasing number of FDI companies being created the larger is the tax advantage. Interestingly, this effect is significant only for financial and individual investors, for which the purely financial return is likely to be more important than for industrial investors. By contrast, LAB–COST–DIFF is not significant (Table A. 10). For SIZE–FDI we find similar results–albeit slightly less precisely estimated–with the only difference that TAX–DIFF affects only the decision of financial investors (Table A. 11). As to PRESS–COVERAGE, its inclusion does not alter the effect of TRUST. This additional variable shows no explanatory power, as it was the case in Guiso, Sapienza,and Zingales (2009) and Bottazzi, Da Rin, and Hellmann (2016). We report the results in Tables A.12 and A.13 of the Appendix.

Secondly, we explore the robustness of our results to the inclusion of additional variables proxying for the bilateral proximity in cultural values, whose omission therefore can potentially bias the estimated effect of TRUST on FDIs.

We start tackling this issue by including two separate dimensions of cultural values which have been perceived as very relevant in the economic literature, INDIVIDUALISM and HIERARCHY. We report the results of these estimates in Tables A.14 and A.15 of the Appendix. INDIVIDUALISM is never statistically significant, but we find evidence that bilateral distance in hierarchical values reduces the propensity to engage in FDI for individual investors. More importantly for our analysis, the effect of TRUST remains unabated, statistically and economically. We then replace INDIVIDUALISM and HIERARCHY with CULTURAL-ATTRACTIVENESS, a multidimensional variable used in the managerial literature. We report these results in Tables A.16 and A.17 of the Appendix. CULTURAL-ATTRACTIVENESS is never significant in any of the equations for COUNT–FDI. It is however positive, and significant, in the sub-sample of individual investors for SIZE–FDI. Also in this case the size of the coefficients on TRUST remains

unaltered even if we observe a reduction in the precision of the instrumental variable estimates.

6.3 Trust and the choice of a co-investor

In this section we test Hypothesis 2 by examining the role of trust in the decision to share the ownership of the foreign subsidiary with a national of the destination country. This is still unexplored territory, and we believe it is useful and importnat to shed light on this issue even we recognize that, at least in our data-set, co-ownership turns out to be a rather uncommon occurrence.

Table 10 reports results from the binary response models of equation (3) in the usual format. We now bring the analysis at firm level, and include the over 30,000 observations of our sample.[22]

We report results from standard Probit regressions in odd-numbered columns and results from instrumented Probit regressions in even-numbered columns. Since we have multiple observations at country pair level, in all specifications we cluster the standard errors at the country pair level. TRUST has a negative and significant effect on the probability of having a destination country co-investor for financial as well as for individual investors. This effect also holds when the endogeneity of TRUST is taken into account. In economic terms, an increase in TRUST from the first to the third quartile corresponds to a median change in the probability of observing a destination country co-investor between –0.03 and –0.07 (columns (6) and (8)) for financial and individual investors, respectively. On the contrary, we find that the same probability is positively associated to TRUST for industrial investor (column (3)) albeit this result is not robust to IV estimation (column (4)).

These findings suggest that TRUST does indeed affect the probability of finding a co-investor in the destination country, and that this effect is not homogenous across different types of investors. The fact that the effect is positive for industrial investors but negative for financial and individual investors is consistent with the idea that higher trust may bring

[22] The reduced number of observations is due to the presence of perfect collinearity between destination country fixed effects and the dependent variable. For instance, in columns (1) and (2), which report results for the full sample, we miss 11,638 observations for UK and 14 observations for Switzerland, as none of these firms has a co-investor from the destination country.

industrial investors to choose a co-investor from the same country of the FDI company because it reassures them on potentially losing valuable intangible knowledge. In the case of the other two types of investors instead TRUST seems to affect the probability through a reduction of the incentives to share risks with local partners.

Clearly, the fact that our results match well the theoretical prediction embodied in Hypothesis 2 is not a direct test of the existence of the economic channel we are trying to document. A substantial step forward can be made by analyzing whether our findings also apply to the probability of choosing a co-investor from the origin country of the investor, or whether they are indeed specific to the choice of co-investing with a partner from the destination country. We report estimates from this exercise in Table 11. The results suggest that TRUST has virtually no role on the probability of having a co-investor from the same country. The only exception is in column (6) where the coefficient on TRUST, for financial investors, is negative and marginally significant.

Overall, therefore, we find that bilateral trust affects the probability of selecting a co-investor from the destination country, but it plays no role in the decision to partner with a co-investor from the origin country, i.e., the country of the main investor. While the effect on co-investors of the destination country is heterogenous across investor types, the effect on co-investors from the origin country applies to all types of investors. This is a comforting result, since there is no reason why bilateral trust should affect the probability of co-investing with a co-national partner, at least with respect to the leakage argument.

6.4 Additional determinants of co-ownership

As we already mentioned in subsection 6.2, TRUST is likely to be correlated with other cultural variables which are expected to affect not only the number and the size of FDIs but also the probability of selecting a co-investor from the destination country. Indeed one can well imagine that an international main investor is more likely to match with a local partner if the latter shares the same cultural values and the same cultural practices of the main investor. To address this legitimate concern, we briefly discuss two additional sets of results which we report in Table A.18 and Table A.19 of the Appendix.

We start by expanding the model specification reported in Table 10 with the inclusion of INDIVIDUALISM and HIERARCHY. The latter is never statistically significant,

but we find evidence that INDIVIDUALISM positively affects the probability of matching with a co-investor from the destination country, even if only in the sub-sample of financial investors. Overall, the effect of TRUST is similar in size compared to what we found in the baseline specifications reported in Table 10 albeit it is more imprecisely estimated, especially with instrumental variables. We then replace INDIVIDUALISM and HIERARCHY with CULTURAL-ATTRACTIVENESS. This variable turns out to be positively significant in the equations for industrial investors, and this is the case regardless of the chosen estimation method (probit or IV probit). More importantly, the size of the coefficients on TRUST remains unaltered even if we observe a reduction in the precision of the IV estimates.

Overall, we conclude that the effect of TRUST is robust to the inclusion of several confounding cultural factors. This is definitively the case if we look at the sign and the size of the estimated parameters but less so if we focus on the statistical significance of the estimated parameters when we allow TRUST to be endogenous and we instrument it accordingly.

7 Conclusion

In this study we provide a new perspective on the role of bilateral trust among nations for foreign direct investments. Previous literature has convincingly documented the importance of trust for the size of cross-border transactions of different type, including FDIs, mergers and venture capital. The literature is however largely silent on the 'how' of the role of trust. We provide a contribution in this direction by examining how trust interacts with the type of investor making the foreign investment. Our results are novel and interesting. In particular, we find that trust leads to stronger FDI activity by industrial investors and not by financial or individual ones. This differential effect extends to the choice of co-investor, with higher trust reducing the likelihood of a destination-country co-investor for financial and individual investors but not for industrial ones. Our econometric approach, based on instrumental variables, allows us to attach a causal interpretation to these results.

These results build on recent literature on multinational investments and on their

increasing reliance on transfers of intangible assets. They show that cultural values do influence the more knowledge-intensive component of FDI, in an economically sizeable way. This has important consequences for our understanding of the economic forces that shape knowledge flows and contribute to create gains from trade. Trust among nations is a very stable factor, that cannot be changed by public policy or by corporate behavior—at least over sensible time horizons. For economists, the question is to delve deeper into the structure of FDIs and further identify which organizational elements may be affected by bilateral trust. In particular, learning about the effect of trust on contractual and governance structures of FDI companies could further shed light on the effects of deep-seeded cultural values.

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Table 1. Definition and sources of variables

Variable	Definition and sources
COUNT–FDI	*Definition*: Count of bilateral foreign direct investments, by country pair, made over the years from 2000 to 2006. *Source*: Amadeus database, December 2008 release.
SIZE–FDI	*Definition*: The cumulative size of bilateral FDIs, by country pair, made over the years from 2000 to 2006. Size is measured by company total assets, in euros, in the first year after incorporation. *Source*: Amadeus database, December 2008 release.
CO–INVESTOR–DESTINATION	*Definition*: Dummy variable that takes value 1 if a FDI company has a ultimate owner from its same country, and 0 if the company is owned by only one (foreign) owner. *Source*: Amadeus database, December 2008 release.
CO–INVESTOR–ORIGIN	*Definition*: Dummy variable that takes value 1 if a FDI company has a ultimate owner from the same country of the main ultimate owner, and 0 if the company is owned by only one (foreign) owner. *Source*: Amadeus database, December 2008 release.
TRUST	*Definition*: Percentage of citizens in the country of origin of the FDI who declare "a lot of trust" in the citizens of the country of destination, in the following Eurobarometer survey question: 'I would like to ask you a question about how much trust you have in people from various countries. For each, please tell me whether you have a lot of trust, some trust, not very much trust or no trust at all.' This measure is averaged over all survey waves. *Source*: Eurostat Eurobarometer survey, 1970-1995.
CONTIGUITY	*Definition*: Dummy variable that takes value 1 if two countries share a common land border; 0 otherwise. *Source*: Frankel et al. (1995).
DISTANCE	*Definition*: Logarithm of the kilometric distance between the two most populated cities a pair of countries. *Source*: Frankel et al. (1995).
COMMON–LANGUAGE	*Definition*: Dummy variable that takes value 1 if two countries share the same main official language; 0 otherwise. *Source*: Jon Haveman's website at Macalester University.
SAME–LEGAL–ORIGIN	*Definition*: Dummy variable that takes value 1 if two countries share the same legal system (civil or common law); 0 otherwise. *Source*: La Porta, et al. (1998).
TAX–DIFF	*Definition*: Logarithm of 1 plus the absolute value of the difference between the average tax rates of two countries, over the years from 2000 to 2006. *Source*: Ernst & Young, Corporate Tax Guides, 2000-2006.
LAB–COST–DIFF	*Definition*: Logarithm of 1 plus the absolute value of the difference between the average hourly gross labour cost of each pair of countries, over the years from 2000 to 2006. *Source*: Eurostat
PRESS–COVERAGE	*Definition*: The number of times a country appears in the headlines of another country's main newspaper, divided by the number of total headline news in that newspaper that cite one of the countries in our sample over the years from 2000 to 2006.

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Variable	Definition and sources
	Source: Factiva database.
HIERARCHY	*Definition*: This variable is obtained from the following question 'People have different ideas about following instructions at work. Some say that one should follow one's superior's instructions even when one does not fully agree with them. Others say that one should follow one's superior's instructions only when one is convinced that they are right. With which of these two opinions do you agree? (1) Should follow instructions (2) Must be convinced first (3) Depends.' For each country we compute the share of respondents who choose the first answer, and average them over the survey waves. For each country pair, we then compute the logarithm of 1 plus the absolute value of the difference between their respective shares of first answer. *Source*: European Value Survey, waves 1981-1984 and 1990-1993.
INDIVIDUALISM	*Definition*: This variable is obtained from the following question "Incomes should be more equal or we need larger income differences as incentives for individual effort". For each country we compute the share of respondents who answer 'Should not equalize income' and then average them over the survey waves. For each country pair we then compute the logarithm of 1 plus the absolute value of the difference between their respective shares of answer against income equalization. *Source*: European Value Survey, waves 1981-1984 and 1990-1993.
CULTURAL–ATTRACTIVENESS	*Definition*: We build this variable following the methodology of Li et al. (2007). The score measure is given by the sum, over nine cultural dimensions, of the Euclidean distance between the *cultural practice* index for cultural dimension i in the destination country P_i^d, and the *cultural value* index for the same cultural dimension i, of the origin country V_i^o: $\sqrt{\sum_{i=1}^{9}(6-|P_i^d - V_i^o|)^2}$. The nine cultural dimensions, ranked on a 1-7 scale, are: Performance Orientation, Assertiveness, Future Orientation, Human Orientation, Institutional Collectivism, In-Group Collectivism, Gender Egalitarianism, Power Distance, Uncertainty Avoidance. The data come from the GLOBE Phase 2 Aggregated Societal Level Database for Society Culture Scales, described in House, et al. (2004). A larger score indicates closer cultural practices and values for the destination and origin countries. *Source*: GLOBE project, www.globeproject.com.

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Variable	Definition and sources
SOMATIC–DISTANCE	*Definition*: Measure of somatic distance based on the average population frequency of specific somatic traits, developed by Guiso, Sapienza, and Zingales (2009). For height, hair color, and cephalic index (the ratio of the length and width of the skull), Biasutti (1954) maps the prevailing traits in each country in Europe. For each trait, European countries fall into three different categories. For instance, hair color is categorized 'Blond prevails,' 'Mix of blond and dark,' and 'Dark prevails.' The measure assigns a score of 1 to 3 to each trait, taking for each country its prevalent somatic trait category. It then computes the somatic distance between two countries as the sum of the absolute value of the difference in each of the three traits. *Source*: Biasutti (1954) and Guiso, Sapienza, and Zingales (2009).
RELIGIOUS–SIMILARITY	*Definition*: Probability that two randomly chosen individuals in two countries will share the same religion. This is computed as the product of the fraction of individuals in country j and in country i belonging to religion k, according to the World Value Survey, and then summing across k. Religions are: Catholic, Protestant, Jewish, Muslim, Hindu, Buddhist, Orthodox, no-religion, and other affiliation. *Source*: Guiso, Sapienza, and Zingales (2009)
GENETIC–DISTANCE	*Definition*: Difference between the frequencies of alleles in the populations of a country pair; the larger is this measure, the more the two populations are genetically separated. *Source*: Cavalli-Sforza, Menozzi, and Piazza (1994)

Table 2. COUNT–FDI and SIZE–FDI by country of origin and country of destination

Panel A reports the number of FDI companies for each pair of country of origin and country of destination. Panel B reports the size (sum of total assets) for FDI companies for each pair of country of origin and country of destination. For Switzerland SIZE–FDI is always zero, and the corresponding column is not reported in panel B. Variables are defined in Table 1.

Panel A. COUNT–FDI by country of origin and country of destination

	Country of Destination																	
Country of Origin	AT	BE	DK	FI	FR	DE	GR	IE	IT	LU	NL	NO	PT	ES	SE	CH	UK	Total
Austria – AT	–	0	4	3	9	1,078	1	0	18	1	22	4	0	34	6	0	120	1,300
Belgium – BE	31	–	22	8	257	386	3	0	80	142	212	12	11	96	29	1	283	1,573
Denmark – DK	24	18	–	27	30	776	2	1	23	1	48	171	5	68	121	0	242	1,557
Finland – FI	16	9	46	–	8	67	2	0	8	0	20	36	0	13	42	0	63	330
France – FR	55	166	39	13	–	800	26	3	178	112	94	41	55	396	46	2	1,006	3,032
Germany – DE	1,541	71	105	13	123	–	21	1	96	122	238	48	36	456	38	5	1,744	4,658
Greece – GR	2	0	0	0	2	60	–	0	2	1	1	1	0	1	0	0	48	118
Ireland – IE	10	3	7	4	5	154	1	–	8	1	25	13	9	50	2	0	5,077	5,369
Italy – IT	206	30	11	4	120	593	10	1	–	3	46	5	65	288	18	1	429	1,830
Luxembourg – LU	88	20	34	9	151	880	5	0	36	–	113	18	22	219	8	0	741	2,344
Netherlands – NL	153	165	75	13	98	1,874	8	2	79	7	–	66	35	397	98	2	1,079	4,151
Norway – NO	0	5	98	0	3	91	2	1	3	0	26	–	5	29	0	0	245	508
Portugal – PT	7	1	5	0	16	40	2	1	8	1	7	0	–	125	0	0	43	256
Spain – ES	48	21	8	2	109	403	25	0	74	2	30	16	315	–	6	0	427	1,486
Sweden – SE	37	26	336	172	15	257	8	0	25	2	55	470	8	95	–	0	364	1,870
United King. – UK	135	59	102	12	97	1,404	23	23	60	12	168	80	68	360	51	4	–	2,658
Total	2,353	594	892	280	1,043	8,863	139	33	698	407	1,105	981	634	2,627	465	15	11,911	33,040

Panel B. SIZE–FDI (Mil. Euro) by country of origin and country of destination

	Country of Destination																
Country of Origin	AT	BE	DK	FI	FR	DE	GR	IE	IT	LU	NL	NO	PT	ES	SE	UK	Total
Austria – AT	–	0	10	27	51	2,312	5	0	308	0	31	33	0	143	81	1,765	4,766
Belgium – BE	145	–	41	20	2,633	2,109	1	0	1,815	392	459	18	3	747	21	4,057	12,462
Denmark – DK	173	167	–	1,136	19	3,044	2	0	101	0	458	703	171	297	455	5,666	12,390
Finland – FI	752	43	142	–	283	1,037	1	0	10	0	1,953	64	0	250	1,937	439	6,911
France – FR	534	1,877	1,540	208	–	10,225	323	187	3,128	125	1,597	405	117	16,913	2,044	75,896	115,119
Germany – DE	4,932	2,808	505	885	1,068	–	186	1	2,011	75	4,116	673	69	6,392	565	24,517	48,804
Greece – GR	6	0	0	0	1	61	–	0	9	0	3	0	0	1	0	596	675
Ireland – IE	47	19	34	638	5	11,795	4	–	134	0	48	20	92	662	263	9,453	23,214
Italy – IT	358	1,981	10	220	187	2,838	55	0	–	10	2,431	1	501	5,656	290	8,543	23,082
Luxembourg – LU	2,062	91	3,631	4	710	53,951	135	0	567	–	7,204	29	71	11,299	154	61,770	141,675
Netherlands – NL	1,283	4,253	739	171	1,099	50,821	40	918	1,267	2,483	–	511	269	3,776	563	26,111	94,301
Norway – NO	0	17	524	0	2	925	9	212	5	0	2,140	–	1	149	0	905	4,889
Portugal – PT	0	3	2	0	22	232	1	0	143	0	1,225	0	–	3,801	0	29	5,460
Spain – ES	48	157	8	5	4,568	1,226	70	0	9,901	3	565	14	2,565	–	170	38,501	57,801
Sweden – SE	765	473	12,989	4,656	30	7,802	52	0	105	0	1,051	9158	16	642	–	3,611	41,348
United King. – UK	3,754	1,027	4,463	69	472	15,198	107	117	5,567	147	4,628	800	51	26,744	939	–	64,084
Total	14,857	12,915	24,637	8,039	11,148	163,575	991	1,437	25,070	3,236	27,908	12,429	3,926	77,473	7,483	261,856	656,981

Table 3. Count of FDI companies by investor type

This table reports the count of FDI companies for the whole sample and by type of foreign investor (ultimate owner): industrial, financial or individual. The table also splits the count of FDI according to the industry (manufacturing or services) and the knowledge characteristics of the industry: high-tech manufacturing industries and knowledge-intensive services. High-Tech industries are defined in Benfratello, Schiantarelli and Sembenelli (2008): chemicals, non-electric machinery, office equipment and computers, electric machinery, electronic material, measurement and communication tools, TV and radio, medical apparels and instruments, vehicle, other transportation. Knowledge-Intensive services are defined by Eurostat: Post and Telecommunications, Computer and related activities, Research and development, Water transport, Air transport, Real estate activities, Renting of machinery and equipment without operator, and of personal and household goods. The last three rows report FDI company median initial size, measured by the company total assets in the first year after incorporation (in Euro), also by industry. Variables are defined in Table 1.

	Whole Sample	Industrial	Financial	Individual
Number of FDI	33,040	16,939	5,202	10,899
% FDI in manufacturing	9.1	10.5	8.6	7.1
of which: % in High-Tech	*42.2*	*45.7*	*41.8*	*34.5*
% FDI in services	90.8	89.5	91.5	92.9
of which: % in Knowledge-Intensive	*62.1*	*61.1*	*73.9*	*58.1*
Median initial size	31,630	87,430	75,020	16,330
Median initial size in manufacturing	170,910	378,320	411,580	30,610
Median initial size in services	27,700	74,290	65,000	10,200

Table 4. FDI by investor type and co-investor location

This table reports the count of FDI companies and its share broken down (in successive columns) by companies: (i) with no co-investor; (ii) with co-investor; these are further divided into companies: (iii) with a co-investor from the destination country, or (iv) with a co-investor from the origin (investor) country. Panel A reports data for the whole sample, Panels B, C, and D split the data by type of investor (ultimate owner). The table also reports (in successive rows) the percentage of FDI companies in manufacturing (and the percentage of which is in High-Tech, HT) and in services (and the percentage of which is Knowledge-Intensive, KI). The last row of each panel reports the median initial size of FDI companies, measured by a company total assets in the first year after incorporation (in Euro) in each category. Variables are defined in Table 1.

Panel A: Whole Sample				
	No co-investor	*With co-investor*		
		Total	Destination country	Origin Country
Number of FDI	31,051	1,989	1,006	983
% FDI	94.0	6.0	3.0	3.0
% FDI in manufacturing	9.1	9.1	9.8	8.3
of which: % in HT	*42.1*	*44.8*	*43.4*	*46.3*
%FDI in services	91.0	91.0	90.2	91.7
of which: % in KI	*62.6*	*54.6*	*52.8*	*56.4*
Median initial size	33,670	20,580	17,490	20,580
Panel B: Industrial Investors				
	No co-investor	*With co-investor*		
		Total	Destination country	Origin Country
Number of FDI	16,380	559	376	183
% FDI	96.7	3.3	2.2	1.1
% FDI in manufacturing	10.5	10.9	11.7	9.3
of which: %in HT	*45.8*	*44.3*	*47.7*	*35.3*
%FDI in services	89.5	89.1	88.3	90.7
of which: % in KI	*61.3*	*54.6*	*52.7*	*58.4*
Median initial size	90,111	53,660	24,670	151,780
Panel C: Financial Investors				
	No co-investor	*With co-investor*		
		Total	Destination country	Origin Country
Number of FDI	5,029	173	106	67
%FDI	96.7	3.3	2.0	1.3
% FDI in manufacturing	8.4	13.3	17.9	6.0
of which: % in HT	*42.2*	*34.8*	*31.6*	*50.0*
%FDI in services	91.6	86.7	82.1	94.0
of which: % in KI	*73.9*	*73.3*	*72.4*	*74.6*
Median initial size	76,430	61,580	39,250	90,300
Panel D: Individual Investors				
	No co-investor	*With co-investor*		
		Total	Destination country	Origin Country
Number of FDI	9,642	1,257	524	733
%FDI	88.5	11.5	4.8	6.7
% FDI in manufacturing	7.0	7.7	6.9	8.3
of which: % in HT	*32.6*	*47.4*	*44.4*	*49.2*
%FDI in services	93.0	92.3	93.1	91.7
of which: % in KI	*58.9*	*52.2*	*49.4*	*54.2*
Median initial size	17,000	8,000	8,000	14,330

Table 5. Descriptive statistics at country-pair level

This table reports descriptive statistics. Panel A reports descriptive statistics for the dependent variables, for the whole sample and for sub-samples split by type of investor (ultimate owner): industrial, financial, and individual. Panel B reports descriptive statistics for the explanatory variables. Variables are defined in Table 1.

Panel A. Dependent variables

	Mean	St.Dev.	1st quartile	Median	3rd quartile	Observations
COUNT–FDI						
Whole Sample	131	408	3	22	96	252
Industrial	67	143	2	14	58	252
Financial	21	61	0	2	16	252
Individual	43	299	0	1	7	252
SIZE–FDI (Mil. Euro)						
Whole Sample	2,607	8,668	4	151	1,180	252
Industrial	1,975	7,448	1	90	665	252
Financial	557	1,886	0	2	196	252
Individual	74	236	0	0	9	252

Panel B. Explanatory variables

	Mean	St.Dev.	1st quartile	Median	3rd quartile	Observation
TRUST	20.91	12.06	12.00	18.00	26.00	252
CONTIGUITY	0.15	0.36	-	-	-	252
DISTANCE	7.00	0.68	6.65	7.14	7.52	252
COMMON–LANGUAGE	0.11	0.31	-	-	-	252
SAME–LEGAL–ORIGIN	0.29	0.45	-	-	-	252
TAX–DIFF	1.58	0.70	1.10	1.63	2.06	252
LAB–COST–DIFF	1.94	0.78	1.36	1.98	2.59	252
PRESS–COVERAGE	0.05	0.05	0.02	0.03	0.07	203
HIERARCHY	0.12	0.08	0.06	0.11	0.16	179
INDIVIDUALISM	0.05	0.04	0.02	0.04	0.08	179
CULTURAL-ATTRACTIVENESS	14.20	0.56	13.87	14.21	14.58	165
SOMATIC–DISTANCE	2.46	1.23	2.00	2.00	3.00	252
RELIGIOUS–SIMILARITY	0.38	0.35	0.02	0.38	0.68	252
GENETIC–DISTANCE	0.75	0.54	0.36	0.64	0.96	182

Table 6. The effect of trust on FDI companies: Count

This table reports results for Poisson and IV-Poisson estimation of equation (1) discussed in section 5.1. The dependent variable is COUNT–FDI. The table reports results for the whole sample and for the split into industrial, financial, and individual investors (ultimate owners). Odd-numbered columns report results for Poisson regressions, while even-numbered columns report results for IV-Poisson regressions where TRUST is instrumented (see Nichols (2007)). The instrumental variables are SOMATIC–DISTANCE and RELIGIOUS–SIMILARITY. Variables are defined in Table 1. Standard errors (shown in parenthesis) are robust to heteroscedasticity. Fixed effects for the country of origin (country of the investor) and for the country of destination (country of the FDI company) are included but not reported. Coefficients significant at the 10%, 5%, and 1% level are marked with *, **, and ***.

	Whole sample		Industrial		Financial		Individual	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Poisson	*IV*	*Poisson*	*IV*	*Poisson*	*IV*	*Poisson*	*IV*
TRUST	0.015*	0.104***	0.019***	0.078***	0.017	0.077	0.035	0.129
	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.21)	(0.02)	(0.16)
CONTIGUITY	0.511***	0.721***	0.291**	0.880***	0.327*	-1.054	1.198***	1.175
	(0.12)	(0.22)	(0.12)	(0.29)	(0.18)	(0.74)	(0.29)	(0.72)
DISTANCE	-0.610***	-0.265	-0.668***	-0.242	-0.738***	-2.487	-0.721***	-0.930
	(0.08)	(0.17)	(0.08)	(0.19)	(0.12)	(1.94)	(0.23)	(0.83)
COMMON-LANGUAGE	0.261	0.290	0.074	-0.303	-0.307	2.629	0.330	1.064
	(0.17)	(0.31)	(0.16)	(0.33)	(0.24)	(1.61)	(0.50)	(1.56)
SAME-LEGAL-ORIGIN	1.174***	0.236	0.896***	0.412*	1.185***	-0.323	0.939***	1.549
	(0.11)	(0.25)	(0.09)	(0.23)	(0.13)	(1.49)	(0.31)	(1.49)
Constant	11.293***	7.966***	11.024***	7.896***	10.178***	24.174	9.693***	10.472
	(0.56)	(1.33)	(0.54)	(1.41)	(0.82)	(16.30)	(1.52)	(6.86)
Destination Country F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Origin Country F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Predicted % zeros	9.54	10.53	12.04	15.32	29.51	36.24	38.23	42.75
Actual % zeros	11.51	11.51	14.68	14.68	33.33	33.33	45.24	45.24
Marginal Effect of Trust								
1st quartile	0.07	0.40	0.05	0.18	0.01	0.01	0.01	0.01
Median	0.32	1.99	0.25	0.98	0.05	0.19	0.05	0.15
3rd quartile	1.38	11.29	1.19	4.98	0.28	3.91	0.25	2.56
Observations	252	252	252	252	252	252	252	252

Table 7. First-stage estimation results

This table reports results from the first stage. The dependent variable is TRUST, and the estimation method is OLS. The table also reports the F-statistic of a joint test whether all excluded instruments (SOMATIC–DISTANCE and RELIGIOUS–SIMILARITY) are significantly different from zero. Variables are defined in Table 1. Standard errors (shown in parenthesis) are robust to heteroscedasticity. Fixed effects for the country of origin (country of the investor) and for the country of destination (country of the FDI company) are included but not reported. Coefficients significant at the 10%, 5%, and 1% level are marked with *, **, and ***.

	Whole sample
SOMATIC–DISTANCE	-1.941***
	(0.32)
RELIGIOUS–SIMILARITY	4.260***
	(1.32)
CONTIGUITY	-2.155*
	(1.23)
DISTANCE	-2.377***
	(0.89)
COMMON–LANGUAGE	1.364
	(1.20)
SAME–LEGAL–ORIGIN	3.364***
	(0.98)
Constant	39.44***
	(5.56)
Destination Country F.E.	Yes
Origin Country F.E.	Yes
R^2	0.86
F-statistic [p-value]	27.73 [0.00]
Observations	252

Table 8. The effect of trust on FDI companies: Size (whole sample)

This table reports results from the OLS, the Poisson Pseudo Maximum Likelihood (PPML), the Gamma Pseudo Maximum Likelihood (Gamma), and the IV-GMM estimates of equation (2) discussed in section 5.1. The dependent variable is SIZE–FDI logarithmic transformed in columns (1) and (4), and SIZE-FDI expressed in Million Euro in columns (2) and (3). The table reports results for the whole sample. In the IV-GMM regression TRUST is instrumented by SOMATIC–DISTANCE and RELIGIOUS–SIMILARITY. Variables are defined in Table 1. Standard errors (shown in parenthesis) are robust to heteroscedasticity. Fixed effects for the country of origin (country of the investor) and for the country of destination (country of the FDI company) are included but not reported. For details about the Park (or Ma-Mu) test, see Manning and Mullahy (2001), and Silva and Tenreyro (2006). Coefficients significant at the 10%, 5%, and 1% level are marked with *, **, and ***.

	(1)	(2)	(3)	(4)
	OLS	*PPML*	*Gamma*	*IV*
TRUST	0.056**	-0.005	0.054**	0.083*
	(0.02)	(0.02)	(0.02)	(0.05)
CONTIGUITY	-0.042	0.012	0.117	-0.001
	(0.44)	(0.26)	(0.43)	(0.49)
DISTANCE	-1.356***	-1.581***	-1.049***	-1.242***
	(0.29)	(0.16)	(0.34)	(0.39)
COMMON-LANGUAGE	-0.532	-0.348	-0.258	-0.548
	(0.54)	(0.29)	(0.48)	(0.53)
SAME-LEGAL-ORIGIN	1.163***	0.356	1.032***	0.989**
	(0.33)	(0.25)	(0.30)	(0.45)
Constant	19.114***	21.049***	18.325***	17.906***
	(2.01)	(1.14)	(2.45)	(3.13)
Destination Country F.E	Yes	Yes	Yes	Yes
Origin Country F.E	Yes	Yes	Yes	Yes
R^2	0.77			0.77
Park (or Ma-Mu) Test:				
$\hat{\lambda}$	1.848	1.805	1.922	
(log) Residuals Kurtosis	4.17	5.22	4.61	
Hansen J Statistic				2.69
[p-value]				0.10
Cragg-Donald Statistic				25.41
Observations	223	252	252	223

Table 9. The effect of trust on FDI companies: Size

This table reports results from OLS and IV-GMM estimates of equation (2) discussed in section 5.1. The dependent variable is SIZE–FDI (logarithmic transformed). The table reports results for the split into industrial, financial, and individual investors (ultimate owners). Odd-numbered columns report results from OLS regressions, while even-numbered columns report results from IV-GMM regressions where TRUST is instrumented. The instrumental variables are SOMATIC–DISTANCE and RELIGIOUS–SIMILARITY. Variables are defined in Table 1. Standard errors (shown in parenthesis) are robust to heteroscedasticity. Fixed effects for the country of origin (country of the investor) and for the country of destination (country of the FDI company) are included but not reported. Coefficients significant at the 10%, 5%, and 1% level are marked with *, **, and ***.

	Industrial		Financial		Individual	
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	*IV*	*OLS*	*IV*	*OLS*	*IV*
TRUST	0.057**	0.082	0.067*	0.111	-0.021	-0.117
	(0.02)	(0.05)	(0.04)	(0.08)	(0.06)	(0.12)
CONTIGUITY	-0.114	-0.093	-0.252	-0.245	1.291	1.075
	(0.40)	(0.53)	(0.82)	(0.71)	(0.86)	(0.91)
DISTANCE	-1.511***	-1.416***	-1.190*	-1.028*	-1.788**	-2.115***
	(0.32)	(0.41)	(0.67)	(0.57)	(0.72)	(0.76)
COMMON-LANGUAGE	-0.205	-0.205	-0.257	-0.251	-3.804***	-3.608***
	(0.49)	(0.59)	(0.81)	(0.81)	(1.11)	(1.08)
SAME-LEGAL-ORIGIN	0.981**	0.820*	1.720***	1.446**	2.529***	3.228***
	(0.40)	(0.48)	(0.57)	(0.68)	(0.73)	(1.08)
Constant	26.828***	25.782***	22.522***	20.702***	23.615***	27.490***
	(2.17)	(3.27)	(4.48)	(4.54)	(4.83)	(6.45)
Destination Country F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Origin Country F.E.	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.71	0.71	0.55	0.54	0.48	0.46
Hansen J Statistic		3.72		1.98		0.00
[p-value]		[0.05]		[0.16]		[0.97]
Cragg-Donald Statistic		25.36		21.12		8.18
Observations	215	215	168	168	138	138

Table 10. Estimation results for the Presence of a Co-investor from the Destination Country

This table reports results from Probit and IV Probit estimates of equation (3) discussed in section 5.2. The dependent variable is CO–INVESTOR–DESTINATION. The table reports results for the whole sample and for the split into industrial, financial, and individual investors (ultimate owners). Odd-numbered columns report results from Probit regressions, while even-numbered columns report results from IV-Probit regressions where TRUST is instrumented. The instrumental variables are SOMATIC–DISTANCE and RELIGIOUS–SIMILARITY. Variables are defined in Table 1. Standard errors (shown in parenthesis) are clustered at country of origin–country of destination level. Fixed effects for the country of origin (country of the investor), for the country of destination (country of the FDI company) and for the incorporation year of the FDI company are included but not reported. Coefficients significant at the 10%, 5%, and 1% level are marked with *, **, and ***.

	Whole Sample		Industrial		Financial		Individual	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Probit	*IV*	*Probit*	*IV*	*Probit*	*IV*	*Probit*	*IV*
TRUST	0.010	-0.001	0.034***	0.006	-0.044**	-0.078*	-0.018*	-0.041**
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.05)	(0.01)	(0.02)
CONTIGUITY	0.006	-0.018	0.095	0.049	-0.420**	-0.520**	0.040	-0.057
	(0.12)	(0.11)	(0.11)	(0.11)	(0.19)	(0.21)	(0.22)	(0.26)
DISTANCE	0.029	-0.005	0.113	0.022	-0.532***	-0.652***	0.232	0.185
	(0.09)	(0.09)	(0.09)	(0.11)	(0.17)	(0.20)	(0.19)	(0.20)
COMMON–LANGUAGE	-0.003	0.036	-0.298	-0.177	0.174	0.350	0.197	-0.012
	(0.18)	(0.19)	(0.20)	(0.22)	(0.18)	(0.28)	(0.16)	(0.25)
SAME–LEGAL–ORIGIN	0.157	0.211*	0.100	0.229	0.629***	0.828**	0.163	0.458*
	(0.12)	(0.12)	(0.12)	(0.14)	(0.24)	(0.33)	(0.17)	(0.25)
Constant	-3.333***	-2.821***	-4.563***	-3.116***	1.951	3.000*	-3.504***	-3.160**
	(0.72)	(0.82)	(0.74)	(1.17)	(1.24)	(1.54)	(1.25)	(1.31)
Destination Country F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Origin Country F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Incorporation Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Marginal Effect of Trust								
1st quartile	0.0004	-0.0001	0.0007	0.0001	-0.0042	-0.0077	-0.0050	-0.0112
Median	0.0008	-0.0001	0.0020	0.0004	-0.0028	-0.0052	-0.0038	-0.0084
3rd quartile	0.0013	-0.0000	0.0033	0.0006	-0.0012	-0.0021	-0.0026	-0.0058
Observations	20,405	20,405	12,227	12,227	3,469	3,469	4,131	4,131

Table 11. Estimation results for the presence of a Co-investor from the Origin Country

This table presents results from Probit and IV-Probit estimates of equation (3) discussed in section 5.2. The dependent variable is CO–INVESTOR–ORIGIN. The table reports results for the whole sample and for the split into industrial, financial, and individual investors (ultimate owners). Odd-numbered columns report results from Probit regressions, while even-numbered columns report results from IV-Probit estimates where TRUST is instrumented. The instrumental variables are SOMATIC–DISTANCE and RELIGIOUS–SIMILARITY. Variables are defined in Table 1. Standard errors (shown in parenthesis) are clustered at country of origin–country of destination level. Fixed effects for the country of origin (country of the investor), for the country of destination (country of the FDI company) and for the incorporation year of the FDI company are included but not reported. Coefficients significant at the 10%, 5%, and 1% level are marked with *, **, and ***.

	Whole Sample		Industrial		Financial		Individual	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Probit	*IV*	*Probit*	*IV*	*Probit*	*IV*	*Probit*	*IV*
TRUST	0.0002	-0.002	-0.002	-0.003	-0.001	-0.031*	-0.00003	0.005
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.03)
CONTIGUITY	-0.045	-0.046	-0.372***	-0.373***	0.220	0.064	-0.054	-0.049
	(0.09)	(0.10)	(0.13)	(0.13)	(0.20)	(0.20)	(0.14)	(0.14)
DISTANCE	-0.113	-0.116	-0.200*	-0.202*	0.227	0.119	-0.069	-0.078
	(0.07)	(0.08)	(0.12)	(0.12)	(0.17)	(0.15)	(0.12)	(0.12)
COMMON–LANGUAGE	-0.375***	-0.365***	-0.099	-0.093	-0.155	0.081	-0.771***	-0.778***
	(0.11)	(0.13)	(0.17)	(0.19)	(0.25)	(0.28)	(0.15)	(0.16)
SAME–LEGAL–ORIGIN	-0.004	0.007	-0.223	-0.216	0.255	0.371	0.067	0.028
	(0.08)	(0.09)	(0.15)	(0.16)	(0.26)	(0.25)	(0.16)	(0.25)
Constant	-1.535***	-1.483***	-1.091	-1.056	-4.143***	-3.058***	-1.298*	-1.301*
	(0.45)	(0.50)	(0.74)	(0.81)	(1.15)	(0.98)	(0.68)	(0.68)
Destination Country F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Origin Country F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Incorporation Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Marginal Effect of Trust								
1st quartile	0.0000	-0.0002	-0.0001	-0.0001	-0.0000	-0.0014	-0.0000	0.0002
Median	0.0000	-0.0001	-0.0000	-0.0001	-0.0000	-0.0006	-0.0000	0.0005
3rd quartile	0.0000	-0.0001	-0.0000	-0.0000	-0.0000	-0.0002	-0.0000	0.0010
Observations	32,034	32,034	16,276	16,276	4,686	4,686	10,329	10,329