



What drives foreign direct investment: The role of language, geographical distance, information flows and technological similarity

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ARTICLE INFO

Keywords:

Foreign direct investment
International business
Language
Distance
Technology
Information flow
Gravity model

ABSTRACT

This paper sheds new light on the impact of linguistic and technological similarities between countries on foreign direct investment (FDI), using an extended gravity model. The model includes technological commonality, as measured by the aggregate production of intellectual property, at the country level. An analysis of 71,309 pairs of FDI relationships, from 2000 to 2012, showed that language is positively associated with a high level of FDI. Technological differences do impede the flow of FDI between countries, and information flow is crucial for large flows of FDI. Information flow diminishes the negative impact of distance.

1. Introduction

Neoclassical theory predicts that capital will flow from rich to poor countries, and this will hold true until the returns from investments are equaled (Lucas, 1990). In fact, the bulk of foreign direct investment (FDI) take place in developed countries (UNCTAD, 1998), even though the highest returns can be obtained in developing countries (Pigato, 2000). Various and sometime competing explanations are offered in the debate about this phenomenon. Typically, the focus is on host countries' formal barriers, such as political risk, capital restrictions, taxes, legal and regulatory regime. Although it is intuitive that these factors affect FDI, the barriers to international investments have diminished considerably over the past few decades (Ahearne, Grier, & Warnock, 2004; Huberman, 2001). The sharp decline in transaction costs associated with FDI (e.g., similar legal background – UNCTAD, 1998), and diminished corporate tax rates (Devereux, Lockwood, & Redoano, 2008; Slemrod, 2004) have not diminished the skewed pattern of FDI toward developed countries. One possible explanation for this phenomenon is information asymmetry, because it is most acute in the international market (Doherty, 1999) and can hinder FDI. Information asymmetry can arise due to geographical distance (Coval & Moskowitz, 1999), or different legal and regulatory regime, or business practice between home and host countries (Ahearne et al., 2004). These differences are critical for FDI, because the high market entry costs are mainly costs of acquiring information regarding ways to conduct business in the host countries (Mata & Portugal, 2002). This situation is more severe in developing and emerging countries due to limited availability of public

information (Kinoshita & Mody, 2001). Given that information is costly (Grossman & Stiglitz, 1980) and leads firms to equate unknown markets with high risks (Coval & Moskowitz, 1999), we expect it would skew investment preference toward countries that are familiar for investing firms. Access to information is made difficult by geographical distance between countries (Ivković & Weisbenner, 2005), thus leading to increased information asymmetry. Consequently, information costs are expected to increase in tandem with distance.

Therefore, we have identified factors which can impact distance and by extension minimize information asymmetry, namely, language, level of technological development and information flows. Theoretically, distance can be an incentive for FDI (Hirsch, 1976) or disincentive (Helpman, 1984), depending on the nature and purpose of the FDI. Language barriers contribute to information asymmetry among multinational corporations (MNCs), because they affect communication processes negatively (Kang & Kim, 2010). In addition, language differences between home and host countries means increased difficulty for MNCs in identifying business opportunities and negotiating agreements (Rauch & Trindade, 2002). Technology, particularly, information and communication technology (ICT), allows firms to circumvent barriers created by distance, enabling remote access to customers and resources (Nachum & Zaheer, 2005), and reduces the costs of communications and coordination of operations (Mosakowski & Zaheer, 1999).

This research addresses the impact of information asymmetry on FDI in conjunction with the factors identified above. With the exceptions of Kinoshita and Mody (2001) and Loungani, Mody, and Razin (2002), the majority of studies on information's effect on FDI are

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conceptual in nature (e.g., Goldstein & Razin, 2006). We sought to fill in this gap in the literature by using a dataset covering most of the world's economies and applying a different research methodology than that of previous studies. We used the Poisson Pseudo Maximum Likelihood (PPML) approach suggested by Silva and Tenreyro (2006), instead of the traditional ordinary least squares (OLS). Furthermore, we applied rarely used patent data as proxy for the level of technological development and tourism flow as proxy for information flow.

The present research further relied on the gravity model proposed by Pöyhönen (1963) and Tinbergen (1962). We used UNCTAD's outward bilateral FDI stock data and the Centre d'Études Prospectives et d'Informations Internationales's (CEPII) database for most of the gravity variables. We tested our hypotheses on panel data extending over 13 years (2000–2012).

The results have provided strong and positive evidence for the language effect on FDI, especially for high-income countries. The effects of geographic distance are strongly negative, for both high and low-income countries. We found that technological difference from high-income countries has a negative effect on FDI and a positive effect on FDI from low-income countries. Informational flow is positively associated with the level of FDI stock, even after accounting for possible tourism flow endogeneity. This result is not sensitive to source countries' income level or methodology applied.

This paper is organized as follows. In section two, we review the recent developments of studies on FDI determinants and describe the research hypotheses. In section three, we describe the data used, and present the empirical model in section four. The results and robustness analysis are presented in sections five and six, respectively. Finally, section seven provides a summary and conclusions.

2. Literature review

The impact of information asymmetry on capital flow has received considerable attention from both academics and policymakers (e.g., Portes & Rey, 2005; Portes, Rey, & Oh, 2001; Tenzer, Terjesen, & Harzing, 2017). Most studies (e.g., Goldstein & Razin, 2006; Horstmann & Markusen, 1987) are conceptual or qualitative in nature, focusing on how information asymmetry can lead to one form of capital investment instead of another (e.g., FDI versus portfolio flow, and FDI versus licensing). The empirical studies, on the other hand, have been concerned with information asymmetry's impact on investors' behavior (e.g., Coval & Moskowitz, 1999; Huberman, 2001; cf. Hejazi & Safarian, 2005). Rare empirical research exceptions in the FDI field are Kinoshita and Mody (2001) and Loungani et al. (2002). We present details on the conceptual nuances of FDI and information asymmetry (language, technology and distance) in International Business literature in Table 1.

2.1. Conceptual development of recent FDI research

2.1.1. Language in international business (IB) literature

Contemporary language research in MNCs' literature has been predominantly qualitative, based on firm-level studies (e.g., Neeley, Hinds, & Cramton, 2012; O'Grady & Lane, 1996). This research has highlighted the strong impact of language on IB, and the distinct effects of language and culture. In this study, by language we mean the same language type that is internationally standardized but with local differences in terms of dialect (a particular form of a language specific to a region), specific vocabulary or grammar tradition. For instance, the Portuguese language used in Portugal, Brazil, Cape Verde or Angola is the standard Portuguese in its essence. However, in each country the language has evolved revealing national differences in vocabulary, accent or grammar tradition due to external influences from local (native) culture and longstanding political independence from Portugal. Moreover, by language proximity we consider the language family that is a group of languages descending from a common language root. For instance, language commonalities between Portuguese and Spanish, or Spanish

and Italian allow a certain ease of common communication between speakers without translation. In both cases, language is not the obstacle in communication or business interaction. This positioning is in line with recent research on language in IB literature by Tenzer et al. (2017) and Hejazi and Ma (2011).

The studies in IB literature have mostly focused on the post-FDI impact of language. Country level studies are critical to understand the impact of language on FDI. However, these studies have been rare in IB literature with the exceptions of Hejazi and Ma (2011); Oh, Selmier, and Lien (2011); and Selmier and Oh (2012, 2013). Although the literature has expanded our understanding of language influence on FDI, it has not, however, addressed the mechanisms through which language exerts its influence or the source countries' income level impact on language demand.

In this paper we explore the effect of information on FDI, taking into account the country of origin's effect on the pattern of FDI, because MNCs' attitudes toward risk and institutional factors are specific to a country's income level (Cuervo-Cazurra, 2012). Additionally, we used a language similarity variable approach as opposed to a binary variable one. Recognizing the fact that while two countries' languages might be different (e.g., Portuguese and Spanish), they can be understood and interchangeably used by their respective population, in such a way that they may significantly minimize transaction costs of investments (Selmier & Oh, 2012, 2013; cf. Zheng, 2014).

2.1.2. Distance in IB literature

There is an extensive literature on distance in the IB literature. Distance has long been perceived as a factor negatively affecting countries' relationship, since it is a source of friction between markets and produces greater transaction costs (Tesar & Werner, 1995). The studies on trade have confirmed these assertions (e.g., Disdier & Head, 2008; Frankel & Rose, 2002; Rose, 2000). However, IB literature (e.g., Hirsch, 1976; Horstmann & Markusen, 1987; Markusen & Venables, 1998) argue that if high export costs prevent an arm's length transaction, then setting up an operation in the form of a subsidiary could circumvent these problems. A competing view (e.g., Helpman, 1984) suggests that, if the purpose of FDI is to reduce costs and the relationship is mainly intra-firm, then the effect of distance will be to reduce FDI.

Initially, distance was used as a proxy for transport and communication costs. However, despite the continuous decline in transport and communication costs, the distance impact has not diminished. Some argue it has been rising over the years (Bénassy-Quéré, Coupet, & Mayer, 2007), causing researchers to question the overall effect of globalization. In most studies the distance estimate is strongly negative, even after controlling for factors such as colonial ties, common language, or membership in the same trading block (Ghemawat, 2001). Consequently, the attempts to explain the distance puzzle have shifted from transport and communication costs to information frictions. For instance, according to Rauch (1999) and Rauch and Trindade (2002) increased geographical distance means a higher cost of information acquiring, identifications costs (ex-ante), and higher information asymmetry among investors (Coval & Moskowitz, 1999). However, research on the implications for FDI has been scarce, with the exceptions of Kinoshita and Mody (2001) and Loungani et al. (2002).

2.1.3. Technology in IB literature

Technological differences between countries have long been regarded as a factor affecting the FDI flows. Differences in the level of development between countries limit information flows between firms and markets (Johanson & Vahlne, 1977). The interest among academics and policymakers in the link between technology and FDI is due to the belief that technology is a major driver of economic growth (e.g., Barrell & Pain, 1997; Borensztein, De Gregorio, & Lee, 1998; De Mello, 1999). However, the reluctance to abandon the traditional perspective of FDI flows from more advanced to developing economies has limited a broader analysis of contemporary FDI flows, as shown by Guillén and

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