



DEPARTMENT OF ECONOMICS,
MANAGEMENT AND STATISTICS
UNIVERSITY OF MILAN – BICOCCA

DEMS WORKING PAPER SERIES

**Some Twins Are Not Alike:
FDI Premia in the Former Soviet States**

Valeria Gattai, Rajssa Mechelli, Piergiovanna Natale

No. 340 – June 2016

Dipartimento di Economia, Metodi Quantitativi e Strategie di Impresa
Università degli Studi di Milano - Bicocca
<http://dems.unimib.it/>

Some Twins Are Not Alike: FDI Premia in the Former Soviet States

Valeria Gattai
(Università degli Studi di Milano-Bicocca)

Rajssa Mechelli
(Università Cattolica del Sacro Cuore)

Piergiovanna Natale
(Università degli Studi di Milano-Bicocca)

ABSTRACT

In this paper, we estimate Foreign Direct Investment (FDI) premia of firms from three distinctive groups of former Soviet states, designated *CIS*, *Developed* and *Developing*.

Using Orbis data, we provide *within-group* and *between-group* results on the effects of outward FDI (OFDI) and inward FDI (IFDI) on firm-level innovation.

As the most notable finding, OFDI firms innovate more than IFDI firms, which in turn innovate more than non-FDI firms. The innovation effect of OFDI is the largest for firms from the *Developing* economies, followed by the *Developed* and *CIS* countries. The innovation effect of IFDI is the largest for firms from the *Developing* economies, followed by the *CIS* and *Developed* countries. FDI to and from Europe have the largest impact on innovation; this holds across country groups.

JEL: F23, L25, O57

Keywords: FDI; Premia; Patents; Former Soviet States; Russia; CIS

Corresponding author

Piergiovanna Natale
Università degli Studi di Milano-Bicocca
Piazza dell'Ateneo Nuovo 1
20126 Milano
piergiovanna.natale@unimib.it
tel. +390264483095
fax +390264483085

1. INTRODUCTION

In this paper, we estimate Foreign Direct Investment¹ (FDI) premia in the former Soviet states.

Our interest in this topic is motivated by two main facts. First, recent years have witnessed the rise of a new geography of foreign direct investment in which emerging economies play a prominent role as home-, adding to host-countries. Second, firms that are involved in foreign direct investment are in the minority but they outperform purely domestic enterprises.

Estimating FDI premia means detecting systematic performance differences among firms that are characterized by different FDI involvement.

This topic has been only partially addressed in previous papers. On one hand, there is literature on *FDI from emerging economies* that analyzes the determinants and characteristics of foreign direct investment originating from developing² countries (for a survey, see, Ramamurti 2012; Deng 2012, 2013). On the other hand, there is literature on *FDI premia* that establishes the empirical methodology and derives some basic facts (for a survey, see Greenaway and Kneller 2007; Hayakawa et al. 2012).

However, from our point of view, both strands present some drawbacks and call for new evidence. Despite the large number of contributions on *FDI from emerging economies*, most studies are either descriptive or based on country-level data, thus failing to go beyond a general portrait of emerging countries' OFDI. Moreover, empirical studies are available only for a handful of countries, and comparable evidence is still missing. This results in "emerging economies" being considered as a homogeneous class, with little attention at exploring cross-country differences in MNEs' behavior. For what concerns *FDI premia*, it should be noted that IFDI and OFDI have not been addressed yet in a unified empirical framework, and the available measures do not distinguish between different FDI strategies. Moreover, FDI premia tend to be evaluated only in terms of productivity, and cross-country empirical evidence—potentially including developing adding to developed³ economies—is

¹ Consistent with IMF (1993) and OECD (2008), we denote as FDI a net investment in a foreign company with the following features. The investor owns at least 10% of the ordinary shares, and the investment is undertaken with the objective of establishing a lasting interest in the foreign country, a long-term relationship, and significant influence on the management of the foreign firm. Since FDI can be both inward and outward, we introduce the label IFDI to denote the former and OFDI to denote the latter. In our terminology, Multinational Enterprises (MNEs) are those engaged in either IFDI or OFDI. Note also that we consider "subsidiaries" and "affiliates" as synonymous.

² In this paper, we use "developing", "less developed" and "emerging" as synonymous. The list of emerging economies is available in IMF (2014).

³ In this paper, we use "developed" and "advanced" as synonymous. The list of advanced economies is available in IMF (2014).

still missing. Filling these gaps is essential to check the robustness of results to different FDI strategies, performance measures, home- and host-markets.

By estimating FDI premia in the former Soviet states, we draw complementary insights from both strands of literature. From previous studies on *FDI premia*, we borrow the general interest in the firm-level effects of foreign direct investment and the empirical methodology. From the existing contributions on *FDI from emerging economies*, we derive the specific focus on multinationals from developing countries.

To the best of our knowledge, this is the first paper dealing with FDI premia in the former Soviet states.

Retrieved from Orbis, our database covers more than 3,000 firms and presents a number of distinctive features that help filling most of the previous gaps.

Compared with the literature on *FDI from emerging economies*, we provide a quantitative analysis based on firm-level data. Moreover, by focusing on the former Soviet states, we offer comparable evidence on multinationals from both developed and developing countries⁴, thus opening up the black box of “emerging economies”. Compared with the literature on *FDI premia*, our contribution is to account for IFDI and OFDI premia in a unified empirical framework and to dissect IFDI and OFDI by location. This enables us to compare the premia implied by different FDI strategies. In addition, we study the potential benefits of FDI in terms of innovation, and we offer comparable evidence on developed and developing economies.

A quick inspection at Figure 1 suggests that former Soviet states are neighboring countries. As put forth in Filippov (2010) and Kalotay and Sulstarova (2010), their proximity is not only physical, but psychological too, due to common historical patterns and the socio-economic heritage from the Soviet Union. Consequently, multinationals from this geographical area could be regarded as “twins”: Being headquartered in neighboring countries, they are likely to behave in the same way.

Quite surprisingly, our results stand at odds with this general wisdom. By comparing multinationals from the former Soviet states in terms of FDI premia, we find that the benefit of engaging in FDI varies greatly throughout our sample. OFDI firms innovate more than IFDI firms, which in turn innovate more than non-FDI firms. The largest FDI premia accrue to multinationals from the *Developing* economies, whereas MNEs from the *CIS (Developed)* countries receive the smallest OFDI (IFDI) premium. FDI to and from Europe have the largest impact on innovation and this holds across country groups.

⁴ In this paper, we consider three distinctive groups of former Soviet states, designated *CIS*, *Developed* and *Developing*. See Section 3 on this point.

In summary, MNEs from the *CIS* are different from MNEs headquartered in both developing and developed countries belonging to the same geographical area: Some twins are not alike.

The remainder of the paper is organized as follows. In Section 2, we delineate the conceptual framework and stress our intended contribution to the existing literature. In Section 3, we present an overview of the former Soviet states through macroeconomic indicators. Section 4 is completely devoted to the empirical analysis: First, we present the data and the variables used for econometric purposes, and then we comment on the specifications and the main results. Section 5 concludes, sets forth future lines of research and derives some policy implications.

2. CONCEPTUAL FRAMEWORK

The present paper draws complementary insights from two strands of literature.

On one hand, the recent surge in outward *FDI from emerging economies* has reshaped the geography of foreign direct investment calling for an interpretation of the prominent role played by developing countries.

On the other hand, the seminal contribution of Bernard and Jensen (1995) encouraged a firm-level rethinking of the effects of foreign direct investment. Designated *FDI premia*, these effects point to establishing certain differences between firms that are engaged in FDI and firms that are not.

In the following, we briefly present the state of the art of both strands and describe our intended contributions to the literature.

2.1. FDI from emerging economies

Recent years have witnessed the emergence of a new geography of foreign direct investment in which emerging economies play a prominent role as home-, adding to host-markets. Traditionally considered as a mere destination of IFDI, China, India, Russia and many other developing countries have recently become a major source of OFDI (UNCTAD 2006, 2015).

This simple fact has stimulated a lively debate among scholars and policy makers, resulting in a vast and burgeoning literature on OFDI from emerging economies. Reviewing this literature in details goes beyond the purpose of the present research. Nonetheless, in the following, we summarize the main issues according to two broad research questions, one exploring the *determinants* and the other assessing the *characteristics* of OFDI from emerging economies.

As far as the *determinants* are concerned, the question is whether emerging countries' OFDI can be rationalized through the same conceptual framework as advanced economies' OFDI. According to Dunning (1993), advanced economies' OFDI are a means to capitalize abroad certain Ownership-Location-Internalization (OLI) advantages.

Some authors claim that the OLI theory has only limited power in interpreting developing countries' OFDI because MNEs from emerging economies lack the same advantages that the theory emphasizes as a prerequisite for investing abroad. Thus, they engage in asset-seeking, rather than asset-exploiting OFDI, expanding overseas to access those resources that they are not able to secure domestically (Mathews 2006; Deng 2007; Luo and Tung 2007; Athreye and Kapur 2009; Child and Rodrigues 2005; Zhang 2005; Sutherland and Ning 2011).

Other authors suggest instead that the traditional theory can be adapted⁵ to account for all possible types of OFDI. Indeed, MNEs from developing countries do possess some OLI advantages, even though they are different from those of MNEs from developed countries. While the latter traditionally rely on human capital, reputation and technology, the former count on process capabilities, management and corporate entrepreneurship, parental networks, flexibility, and social and networking skills (Fortanier and Tulder 2009; Yiu et al. 2007; Buckley et al. 2007; UNCATD 2006; Narula 2006; Kalotay and Sulstarova 2010; Filippov 2010; Puffer and McCarthy 2011; Mihailova and Panibratov 2012).

Despite their different positions on Dunning's theory, authors generally agree on some typical push and pull factors driving developing countries' OFDI. Pull factors are characteristics of the host-market that are likely to attract foreign investors. They can be grouped in three broad classes, including market-, efficiency- and resource-seeking motivations (De Beule et al. 2014; Fortanier and Tulder 2009; Niosi and Tschang 2009; Yeung and Liu 2008; Deng 2004 and 2007; Schuller and Turner 2005; Zhang 2005; Sutherland and Ning 2011; Cui et al. 2014; Mihailova and Panibratov 2012; Filippov 2010). In contrast, push factors are characteristics of the home-market that tend to favor internationalization of domestic firms through OFDI. They range from government support to the availability of capital to invest, from over-capacity in the domestic market to unfavorable business environment due to excessive taxation, legal instability, high level of criminality and bureaucratization (Kumar and Chadha 2009; Athreye and Godley 2009; Yeung and Liu 2008; Wang et al. 2012; Cui and Jiang 2012; Bulatov 1998; Panibratov and Ermolaeva 2015).⁶

As far as the *characteristics* are concerned, the existing studies reveal that emerging countries' OFDI follow some typical patterns in terms of number, destination and ownership structure of foreign affiliates. During the 1990s, emerging countries' OFDI was usually directed toward

⁵ For instance, Kalotay and Sulstarova (2010) and Filippov (2010) suggest to augment the OLI paradigm by country-specific factors that may shape the investment patterns.

⁶ When drawbacks in the business environment are particularly pronounced, a "system escape" motivation for OFDI tends to emerge. If this is the case, firms from emerging economies engage in OFDI to escape from the unfavorable home-country system and to safeguard their activities from domestic risk (Liuhto and Vahtra 2007; Kalotay and Sulstarova 2010; Zubkovsaya and Michailova 2014).

emerging economies, managed via wholly foreign-owned enterprises (WFOEs), and involved a limited number of foreign affiliates. One decade later, this picture started to change, with certain MNEs preferring joint venture rather WFOE, targeting developed in addition to developing hosts, and relying on a wider network of foreign affiliates (Child and Rodrigues 2005; Schuller and Turner 2005; Liu and Buck 2009; Yiu et al. 2007; Aybar and Ficici 2009; Gubbi et al. 2010; Makino et al. 2002). As noted in Sutherland and Ning (2011) and Piscitello et al. (2015), to understand these trends, one needs to consider how determinants and characteristics of emerging countries' OFDI co-evolve over time. During the 1990s, multinationals from developing economies were large state-owned enterprises, enjoying massive government support and expanding abroad for natural resource-seeking motivations. For these reasons, they mostly targeted developing countries, and they were used to operating alone within the boundaries of wholly foreign-owned enterprises. A few years later, many private enterprises entered into the world stage, responding to market competition. This is precisely the type of MNEs that expands overseas due to over-capacity in the domestic market or availability of capital to invest and engage in strategic resource-seeking OFDI. Not surprisingly, these firms prefer entering into developed rather than developing countries and setting many joint ventures in stead of a few WFOEs. Proceeding in this way, they are able to exploit all potential links with local enterprises and access key resources.⁷

Despite the large number of contributions on *FDI from emerging economies*, we believe that three important issues have remained unexplored. The first one deals with the empirical approach. In fact, most studies are either descriptive or based on country-level data.⁸ While they provide a general portrait of emerging countries' OFDI, they do not enter into the specific details of firm-level analysis. The second drawback regards the specific countries that have been analyzed, within the broad category of emerging economies. Our literature review suggests that the existing contributions focus almost exclusively on China, India and Russia, with little attention paid to

⁷ While this pattern is surely consistent with Chinese and Indian OFDI, Russian OFDI has undergone a different evolution. As extensively documented in Liuhto and Vahtra (2007), Kalotay and Sulstarova (2010), Mihailova and Panibratov (2012), Filippov (2010) and Zubkovsaya and Michailova (2014), moving from the 1990s to the 2000s, Russian OFDI witnessed a major change in the type of firms pursuing investments abroad; however, geographical and industrial patterns remained substantially unchanged. In short, Russian OFDI was dominated by privately owned MNEs in the 1990s and by state-owned MNEs in the 2000s. However, during both phases, developed countries were among the main hosts and the primary sector—including oil and gas, mining and metallurgy—accounted for the largest share of OFDI.

⁸ A few exceptions are Wang et al. (2012), Cozza et al. (2015), Edamura et al. (2014), and Chen and Tang (2014).

OOFDI from other developing economies.⁹ Even though China India and Russia feature prominently within the group of emerging economies, we believe that new insights could be drawn by considering a wider spectrum of countries. This would also increase the scope for generalizability of the empirical results. The third and most important gap, in our view, is the lack of comparable evidence. Throughout the literature, the category of “emerging economies multinationals” does not distinguish among different home-markets and so, “emerging economies” is used as a neutral label. Are Chinese MNEs special? Do Russian multinationals behave the same as Indian MNEs? To what extent do their FDI strategies differ? To date, comparisons have been addressed only in a bilateral setting.¹⁰ However, a unified empirical framework covering multiple developing economies is still missing. This would be an essential tool to assess unique features of multinationals headquartered in a certain country.

To address these issues and potentially contribute to the ongoing debate, we provide a quantitative analysis based on firm-level data. Moreover, we focus on relatively unexplored countries, i.e. the former Soviet states.¹¹ Lastly, and more importantly, our data allow dividing the former Soviet states in three distinctive groups, designated *CIS*, *Developed* and *Developing*. As documented in Section 3, the groups *CIS* and *Developing* embrace emerging economies, whereas the group *Developed* covers advanced countries. This distinction is key to unveiling certain peculiarities of multinationals headquartered in a given country group. By comparing MNEs from the *CIS* and MNEs from the *Developed* countries, we help assessing the robustness of the OLI paradigm to the distinction between multinationals from emerging versus advanced economies. By comparing MNEs from the *CIS* and MNEs from the *Developing* countries, we attempt at opening the black box

⁹ A few exceptions are Cuervo-Cazurra (2007) and Ramsey et al. (2012) on Latin America and Andreff (2003) on transition economies.

¹⁰ For instance, Duysters et al. (2009), Kumar and Chadha (2009), and Niosi and Tschang (2009) explore differences between Chinese and Indian MNEs. They find that multinationals from both countries receive notable state support, are successful in creating new products and accessing new markets and make strategic resource-seeking OOFDI. Nonetheless, Indian investors have a much longer history, a stronger preference for mergers & acquisitions (M&As) and they are used to targeting developed markets only after several decades of experience in developing countries, compared with their Chinese counterparts. Similarly, Filippov (2010) and Panibratov and Ermolaeva (2015) compare Chinese and Russian multinationals. They document that both countries are plagued by underdeveloped financial markets, which favor a system escape motivation for OOFDI. Moreover, multinationals from both countries receive notable state support, although government policies encouraging internationalization of domestic firms are more explicit in China.

¹¹ Among former Soviet states, the previous literature on *FDI from emerging economies* focuses only on Russia. Still, a relatively limited number of studies address Russian OOFDI, despite the impressive rise of Russian outward flows and stocks (Liuhto and Vatra 2007; Filippov 2010; Zubkovskaya and Michailova 2014; Puffer and McCarthy 2011).

of “emerging economies” and highlighting potential differences among multinationals from (different) developing countries. In the end, we are able to assert whether *CIS* multinationals are special, compared with MNEs located in both *Developed* and *Developing* countries that share the same historical heritage. This last remark is particularly important for empirical purposes. Restricting attention to the former Soviet states, we get rid of excessive cross-country heterogeneity that might bias our econometric estimates. At the same time, considering a broad array of countries allows checking the robustness of our results to different home-markets.

2.2. FDI premia

A key issue regarding foreign direct investment is the investigation of the host-country effects of IFDI and the home-country effects of OFDI. Does IFDI positively affect the host-country growth rate? Does OFDI negatively influence the home-country output and employment? These are quite popular feelings that have been largely addressed in theoretical and empirical studies, based on both macro and micro perspectives (for a survey, see, Barba Navaretti and Venables 2006). Although reviewing this vast literature goes beyond the purpose of the present research, we pay particular attention to empirical studies using firm-level data.

To assess the firm-level effects of FDI in a certain country, one needs to distinguish between local firms that engage in FDI and local firms that do not.

Following Bernard and Jensen (1995), the effects of foreign direct investment on FDI firms are labelled FDI “premia”.¹²

From a theoretical point of view, the existence of FDI premia might be interpreted in terms of learning-by-internationalization (LI). Formally modeled by Clerides et al. (1998) and operationalized by De Loecker (2007), Baldwin and Gu (2009), Aw et al. (2011) and Van Biesebroeck (2005) later on, the LI mechanism ensures that ex-post performance differences between internationalized and domestic firms depend on the former’s exposure to the international markets. This is because, by interacting with foreign competitors and customers, firms increase their scale (De Loecker 2007), become more efficient (Baldwin and Gu 2009), and become more innovative (Aw et al. 2011). Moreover, cross-border operations provide access to better institutions, which helps correct for credit constraints and weak institutional environments in the home-country (Van Biesebroeck 2005). For all of these reasons, internationalization is likely to foster firm-level

¹² In contrast, the effects of FDI on non-FDI firms are designated FDI “spillovers”. In the following, we focus only on FDI premia. The reader is referred to Blomstrom and Kokko (1998), Lipsey (2002), Gorg and Greenaway (2001) and Hanson (2001) for surveys on FDI spillovers.

performance. This simple prediction applies to various types of internationalization, including IFDI and OFDI.¹³

The empirical methodology to estimate *IFDI premia* is as follows. In Equation (1), the performance of firm i at time t (*performance*) is regressed on a dummy equal to 1 if the firm receives IFDI (*IFDI*), in addition to observable characteristics of the firm (X):

$$performance_{it} = \alpha + \beta IFDI_{it} + \gamma X_{it} + \varepsilon_{it} \quad (1)$$

Following closely Bernard and Jensen (1999), the IFDI premium is the average percentage difference of performance between firms that receive IFDI and firms that do not. Absent non-linear transformations of the right-hand side of Eq. (1), the IFDI premium is simply captured by the parameter β .

There is a quite broad empirical literature on IFDI premia. Depending on the performance measure employed in the left-hand side of Eq. (1), several premia have been identified using firm-level data.¹⁴ As the most notable finding, IFDI firms are more productive than non-IFDI firms, i.e. there is an IFDI premium in terms of productivity (Davies and Lyons 1991; Globerman et al. 1994; Doms and Jensen 1998; Blomstrom and Wolff (1994); Kokko et al. 2001; Griffith 1999; Benfratello and Sembenelli 2006; Harris 2002; Harris and Robinson 2003; Arnold and Javorcik 2009; Petkova 2008; Girma and Gorg 2007a; Girma et al. 2015; Bertrand and Zitouna 2008; Salis 2008; Piscitello and Rabbiosi 2005; Fukao et al. 2008; McGuckin and Nguyen 1995).

In addition, IFDI firms turn out to pay higher wages and employ higher-skilled personnel than non-IFDI firms. The existence of an IFDI premium in terms of wage is supported by Lipsey (1994), Feliciano and Lipsey (1999), Griffith and Simpson (2003), Oulton (1998), Girma et al. (2001), Driffield and Girma (2003), Conyon (2002), Aitken et al. (1996), Harrison (1996), Haddad and Harrison (1993), Lipsey and Sjolholm (2004) and Girma and Gorg (2007b). Robust findings of an IFDI premium in terms of skills are reported in Feenstra and Hanson (1996), Blonigen and

¹³ From a theoretical point of view, the existence of a positive correlation between FDI and firm-level performance can be framed also in terms of self-selection (SS). Following Melitz (2003), Head and Ries (2003) and Helpman et al. (2004) study heterogeneous firms' mapping into different internationalization strategies and reveal that only the most productive firms engage in trade and/or FDI. Thus, in principle, causality may run either from FDI to performance (LI) or from the other way around (SS). From an empirical point, this issue of reverse causality is not easy to tackle due to data limitations. Were panel data available, the same firm could be tracked over time to see whether performance enhancements precede or follow FDI involvement. Absent panel data, estimates should be regarded as a convenient way of summarizing statistical regularities among variables more than showing the exact direction of causality. For a survey, see Greenaway and Kneller (2005) and Hayakawa et al. (2012).

¹⁴ An exception is Bertrand and Betschinger (2012) who find a discount—rather than a premium—in the return on assets of Russian acquirers engaged in domestic and international M&As.

Slaughter (2001), Griffith and Simpson (2003), Almeida (2007), Gorg et al. (2007) and Blomstrom and Kokko (2003).

The same empirical methodology can be applied to estimate *OFDI premia*. In Equation (2), the performance of firm i at time t (*performance*) is regressed on a dummy equal to 1 if the firm makes OFDI (*OFDI*), in addition to observable characteristics of the firm (X):

$$performance_{it} = \alpha + \beta OFDI_{it} + \gamma X_{it} + \varepsilon_{it} \quad (2)$$

Absent non-linear transformations of the right-hand side of Eq. (2), the parameter β captures the OFDI premium, i.e. the average percentage difference of performance between firms that make OFDI and firms that do not.

The empirical literature on OFDI premia is still at an early stage, compared with the one on IFDI. Moreover, evidence is available only for a handful of countries. These include Italy (Barba Navaretti and Castellani 2008; Casaburi et al. 2007; Castellani 2002; Castellani and Zanfei 2007; Castellani et al. 2008; Castellani and Giovannetti 2008, 2010; Giovannetti et al. 2015; Piva and Vivarelli 2001), France (Hijzen et al. 2011; Barba Navaretti et al. 2010), and Japan (Hijzen et al. 2010; Ito 2007).

Unfortunately, the evidence of a learning effect of OFDI is still inconclusive. Whereas Castellani (2002), Barba Navaretti et al. (2010), Barba Navaretti and Castellani (2008), Castellani and Zanfei (2007), Castellani and Giovannetti (2008, 2010), Giovannetti et al. (2015) and Castellani et al. (2008) find a positive impact of OFDI on certain performance variables, Casaburi et al. (2007), Piva and Vivarelli (2001), Hijzen et al. (2010) and Ito (2007) do not detect any significant LI effect.¹⁵

OFDI premia, when available, are in terms of productivity (Castellani 2002; Barba Navaretti et al. 2010; Barba Navaretti and Castellani 2008; Castellani and Zanfei 2007; Castellani and Giovannetti 2008, 2010), value added (Barba Navaretti et al. 2010), size (Barba Navaretti and Castellani 2008; Barba Navaretti et al. 2010; Giovannetti et al. 2015) and skills (Castellani et al. 2008). This means

¹⁵ One possible reason behind these contrasting findings is the difference between vertical and horizontal FDI. Horizontal FDIs are those aimed at avoiding broadly defined trade costs by setting up plants in a given country instead of exporting to the same destination. Vertical FDIs are instead a strategy that exploits low-price production factors of the host-country. Thus, they imply the relocation abroad of the activities in which the host-country has a comparative advantage. From a theoretical point of view, the effect of horizontal FDI on performance in the home-market is ambiguous, depending on the trade-off between economies of scale and the availability of advanced knowledge in the host-country. Unlike horizontal FDI, vertical investments are more likely to enhance firm-level performance due to the total cost reduction implied by vertical specialization. Thus, the absence of a learning effect might depend on the specific FDI type: If most FDIs are horizontal, one could not really expect to find a significant positive impact on performance. To the best of our knowledge, only Hijzen et al. (2010) and Barba Navaretti et al. (2010) explicitly account for horizontal versus vertical FDI. Still, both papers document a positive enhancement in productivity only in cases of horizontal FDI.

that OFDI firms tend to be, on average, larger and more productive than non-OFDI firms; moreover, they produce larger value added and employ higher-skilled personnel.

Despite the burgeoning literature on FDI premia reviewed above, we believe a few gaps still plague the existing studies, leaving some room for more in-depth investigation. First, to the best of our knowledge, IFDI and OFDI premia have not been addressed yet in a unified empirical framework. This would allow for a more comprehensive treatment of the FDI-performance nexus through comparisons of the β parameters in equations like Eq. (1) and Eq. (2). Second, the IFDI and OFDI dummies have so far failed to reflect different FDI strategies. *IFDI* and *OFDI* simply capture whether firm i engages in inward or outward FDI at time t . However, we believe more could be learnt by dissecting FDI by location and computing the related premia by FDI strategy. Third, a careful read of the existing contributions reveals that performance is mostly measured in terms of productivity. Other economic variables—such as wage, size, value added and skills—are sometimes included whereas financial and innovation variables have not been considered yet. In our view, this reduces the scope for FDI premia in the existing empirical studies, offering quite standard results. Forth, from a geographical point of view, the debate on FDI premia has so far concentrated on single countries, most of which are developed economies. In our view, cross-country empirical evidence—potentially including developing economies—would be an essential step to check the robustness of previous findings and to gain some new insights on country-specific FDI premia.

We understand that most of the above-mentioned gaps depend on unintended data constraints rather than intended research strategies. Our data—described in Section 4—allow addressing most of these issues. Indeed, we estimate both the IFDI and OFDI premium in a unified empirical framework to see whether inward or outward direct investment enhances firm-level performance the most. In addition, we dissect IFDI and OFDI by location and compute the related premia by FDI strategy. This enables us to explore whether certain FDI strategies entail higher premia than others. Notice also that we study FDI premia in terms of innovation, rather than productivity or other widely used economic variables. Doing this way, we complement previous findings by asking whether FDI enhances firms' innovative effort beyond raising their productivity. Lastly, we offer comparable evidence on developed and developing economies in a cross-country empirical framework embracing the whole set of the former Soviet states. We believe this is a key contribution to check the robustness of FDI premia to heterogeneous countries and see whether being engaged in FDI is more important for firms based in developed or in developing economies.

3. FORMER SOVIET STATES: AN OVERVIEW

In the early 1990s, the fall of the Soviet Union restored historical national borders and led to a reshaping of the economic relationships of the region. The Baltic States (Estonia, Latvia and Lithuania) entered the European Union (EU) between 2003 and 2004 and are now members of the Monetary Union. The Central Asia republics (Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan and Uzbekistan) and Russia form the Commonwealth of Independent States (CIS). Georgia signed an Association Agreement with the EU in 2013, while Ukraine's difficult transition turned into an armed conflict with Russia in 2014. The economic performance of the Baltic States, the CIS countries, Georgia and Ukraine is well summarized by data on per capita income. During the last 25 years the per capita GDP of Baltic countries grew much faster than the per capita GDP of CIS countries, Georgia and Ukraine. However, the CIS countries exhibit higher per capita income than Georgia and Ukraine. This suggests dividing the former Soviet states into three distinctive groups: the Baltic States, to which we refer as *Developed* countries, the CIS countries (*CIS*), and Georgia and Ukraine, to which we refer as *Developing* economies. For the sake of clarity, it should be mentioned that the *CIS* and *Developing* economies are both examples of emerging countries, based on their per capita income.

[Insert Figure 2 about here]

CIS countries share in total world FDI inflows and outflows has been steadily increasing over the last two decades. FDI inflows rose from 0.4% of total world in 2000 to 3.4% in 2014, peaking at 6.4% in 2013. In turn, FDI outflows increased from 0.4% of total world in 2000 to 4.6% in 2014, peaking at 7% in 2013.¹⁶ These patterns reflect the extraordinary growth rate of *CIS* countries FDI inflows and outflows. From 2000 to 2014, FDI flows toward *CIS* countries increased from less than 5 million USD to 41 billion USD, whereas FDI flows from *CIS* countries increased from 3 million USD to 62 billion USD. FDI stocks to and from *CIS* countries changed accordingly.

[Insert Figure 3 about here]

A similar picture emerges for the group of *Developed* countries as well as for the group of *Developing* countries, with the former exhibiting less marked increases in both FDI inflows and outflows because of relatively high initial values.

[Insert Figure 4 and 5 about here]

Comparison with the groups of *Developed* and *Developing* countries highlights a salient feature of FDI to and from *CIS*. From 2000 to 2014, OFDI flows from *CIS* amount on average to 80% of IFDI

¹⁶ In 2014, FDI inflows and outflows as percentage of total world fell in consequence of the conflict between Ukraine and Russia (UNCTAD 2015).

flows to *CIS*. Over the same period, FDI outflows are below 30% of inflows for the *Developed* countries and below 10% for the *Developing* economies. The same holds true when considering FDI stocks.

This evidence suggests that the *CIS* countries are relatively less attractive than the *Developed* and *Developing* countries for foreign investors. Moreover, it appears consistent with data on trade openness that point in the direction of greater trade openness for both the *Developed* and *Developing* countries. In 2014, the sum of imports and exports takes values above 160% of GDP for Estonia and Lithuania and around 120% for Latvia, while it is around 100% for Georgia and Ukraine. The *CIS* exhibits heterogeneous degrees of openness, with the sum of imports and exports ranging from 34% to 128% of GDP; however, the median value is around 80%.

4. EMPIRICAL ANALYSIS

This section is entirely devoted to the empirical analysis. For expositional convenience, we first describe the data (4.1), and then the specifications and the econometric results (4.2).

4.1 Data

For the purpose of the present research, we employ firm-level information from Orbis, a commercial dataset issued by Bureau van Dijk. Orbis contains administrative data on 130 million firms from more than 100 countries and exhibits a number of distinctive features (Kalemli-Ozcan et al. 2015; Ribeiro et al. 2010). Unlike other administrative firm-level databases, Orbis covers firms of any size from all sectors and all continents; unlike census data, Orbis reports indicators, real and financial variables and a large set of information about firms' affiliates and shareholders.

For all of these reasons, we believe that Orbis is an appropriate database to estimate FDI premia in the former Soviet states, according to the empirical methodology described in Section 2.2.

Our measure of performance is selected from the wide array of indicators, real and financial variables available in Orbis at the firm level. In contrast, our measures of FDI draw on information regarding subsidiaries and shareholders. Although in Orbis performance data cover a 10-year period, data on subsidiaries and shareholders are available only for the previous year. This imposes constraints on empirical analysis that prevent, for instance, the use of panel techniques.

Downloaded in 2016, our data provide a cross-sectional picture of industrial¹⁷ companies headquartered in Armenia, Azerbaijan, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia and Ukraine in 2015. Unfortunately, data on Belarus, Tajikistan, Turkmenistan and Uzbekistan were not available by the time this paper was written.¹⁸ Therefore, in the following, our group *CIS* embraces Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Moldova and Russia; whereas the label *Developing* applies to Georgia and Ukraine and the label *Developed* to Estonia, Latvia and Lithuania.

Our sample of 3,401 firms is not equally distributed across the above-mentioned groups. As depicted in Figure 6, most firms are from the *CIS* (66%) and the *Developing* (30%) countries, while *Developed* economies account for a comparatively small 4% of the sample.

[Insert Figure 6 about here]

Figure 6 suggests also that FDI involvement of firms from the former Soviet states is quite limited. Consistent with the jargon of FDI premia, we apply the label non-FDI to firms that are engaged neither in IFDI nor in OFDI. In contrast, IFDI firms are those having at least 1 foreign shareholder and OFDI firms are those having at least 1 foreign subsidiary.

Our descriptive statistics reveal that the share of non-FDI firms is quite large throughout the sample, amounting to 83% in the *CIS*, 72% in the *Developing* countries, and 57% in the *Developed* economies.

Furthermore, there seems to be a prevalence of IFDI firms over OFDI firms. Indeed, in the *CIS*, 12% of the sample engages in IFDI and only 6% in OFDI; in the *Developed* countries, 35% of the firms have at least 1 foreign shareholder and 25% have at least 1 foreign subsidiary; in the *Developing* countries, IFDI firms amount to 28% and OFDI to a negligible 2%.

As shown in Table 1, the geographical patterns of IFDI and OFDI in our data are fully consistent with previous facts on Russian FDI reported in Liuhto and Vahtra (2007), Filippov (2010), Panibratov and Ermolaeva (2015), Zubkovsaya and Michailova (2014), Annushkina and Colonel (2013) and Michailova et al. (2013). This is because Europe is the most important home (host) for

¹⁷ The category of industrial companies is selected out of a long list of company types—including banks, insurance companies, financial companies, private equity funds, venture capital, hedge funds, mutual and pension funds, foundation and research institutes and public authorities—to study the behavior of heterogeneous firms within a relatively homogeneous class, which still covers all US SIC 2-digit sectors.

¹⁸ Data constraints are often lamented by scholars researching Russian FDI (see, among others, Liuhto and Vahtra 2007; Kalotay and Sulstarova 2010; Bulatov 1998; Filippov 2010; Panibratov and Ermolaeva 2015). As mentioned by Puffer and McCarthy (2011), the understanding of Russian FDI has so far remained relatively incomplete, because of the lack of sufficiently disaggregated data to permit formal analysis. This stems from the reluctance of Russian firms to reveal detailed information about their foreign activities (Annushkina and Colonel 2013).

FDI directed to (originating from) the former Soviet states, providing more than 90% of foreign shareholders and absorbing more than 80% of foreign subsidiaries. Interestingly, firms from the *CIS* countries tend to diversify their geographical patterns the most, engaging in IFDI and OFDI in Europe, Asia and America. In contrast, firms from the *Developing* and *Developed* countries have almost exclusively European shareholders and subsidiaries.

[Insert Table 1 about here]

In summary, our *within-group* results on FDI involvement suggest that FDI firms are in the minority and, among FDI firms, OFDI firms are in the minority. Moreover, Europe is the most common origin as well as destination of FDI within each group.

In addition, our *between-group* evidence reveals that FDI involvement of any type is maximal for firms from the *Developed* countries, followed by firms from the *Developing* and *CIS* economies. For the geographical patterns, firms from the *CIS* present a non-negligible share of foreign shareholders and subsidiaries outside Europe, whereas firms from the *Developed* and *Developing* countries tend to make and receive FDI exclusively from Europe.

4.2 Specifications and econometric results

In the following, we estimate FDI premia drawing on the firm-level data described in Section 4.1. Consistent with the empirical methodology introduced in Section 2.2, our estimated equation is:

$$PATENT_{it} = \alpha + \beta_1 OFDI_{it} + \beta_2 IFDI_{it} + \gamma_1 X_{firm_{it}} + \gamma_2 X_{industry_{it}} + \gamma_3 X_{country_{it}} + \varepsilon_{it} \quad (3)$$

In Equation (3), the dependent variable *PATENT* captures the exact number of patents firm *i* has registered in 2015. Thus, it is key to characterizing firm *i*'s innovative activities. We believe estimating FDI premia in terms of innovation makes a relevant contribution to the literature. As extensively documented in Section 2.2, the existing studies on FDI premia tend to measure firm-level performance only in terms of economic variables, such as productivity, size and wages. Although this strategy provides quite comparable and robust findings, it fails to investigate the entire set of premia that FDI involvement may imply. To fill this gap, by estimating Eq. (3), we ask whether firms engaged in foreign direct investment register a larger number of patents, i.e. whether they receive a premium in terms of innovation.

Taking the form of non-negative integer values, *PATENT* is an example of count data variables. Therefore, Eq. (3) is estimated through the Poisson model.

Covariates are listed on the right-hand side of Eq. (3). Our dummy *OFDI* takes value 1 if firm *i* has at least 1 foreign subsidiary. Similarly, *IFDI* is a dummy equal to 1 if firm *i* has at least 1 foreign shareholder.

At this stage, two facts are worth noting. First, the variables *OFDI* and *IFDI* are defined in a mutually inclusive way. Since the share of firms engaging in both *OFDI* and *IFDI* is negligible in our sample, mutually exclusive and mutually inclusive classes of FDI involvement tend to coincide. Therefore, we stick to the latter. Second, the dummies *OFDI* and *IFDI* are stock variables, meaning that they capture the presence of foreign subsidiaries and foreign shareholders still active in 2015. In contrast, our measure of performance (*PATENT*) is a flow variable, because it captures only those patents that were registered in 2015. This simple fact is important to interpret our results. As mentioned in Section 4.1, our database is cross-sectional, since Orbis provides the cumulative list of shareholders and subsidiaries only for the previous year. Therefore, our estimates suffer from the simultaneity bias, which makes it hard to deal with the potential endogeneity of the FDI dummies. Absent panel data—as in most of the literature on FDI premia—estimation results should be regarded as a convenient way of summarizing statistical regularities more than showing the exact direction of causality. Although this is the case also with our data, the above-mentioned distinction between flow and stock variables is worth bearing in mind. In Eq. (3), we are regressing the number of patents firm *i* has registered in 2015 on its FDI involvement up to the same year. This means that firm *i*'s involvement in FDI is likely to precede—and surely not to follow—the 2015 patents. Put another way, firm *i*'s innovative activities, as measured by *PATENT*, come after a potentially long FDI experience.

In Eq. (3), the parameters β_1 and β_2 are key to assessing FDI premia in the former Soviet states. If *OFDI* and *IFDI* are statistically significant, β_1 represents the percentage difference in performance between firms that are engaged in outward FDI and firms that are not; similarly, the magnitude of β_2 indicates the extent to which *IFDI* firms are more innovative than non-*IFDI* firms.

For our purposes, there is much to learn from the β parameters. By comparing β_1 and β_2 one can tell whether *OFDI* or *IFDI* entails the largest premium in terms of innovation. Moreover, if Eq. (3) is run separately for the three groups of former Soviet states—*CIS*, *Developed* and *Developing*—by comparing β_1 and β_2 across groups, one can tell which countries learn more from *OFDI* and *IFDI*.

In columns 1, 3 and 5 of Table 2, we stick to a parsimonious specification in which *PATENT* is regressed only on *OFDI* and *IFDI* for each group of countries. In columns 2, 4 and 6, we consider richer specifications in which firms' observable characteristics (*Xfirm*) are added, together with industry (*Xindustry*) and country (*Xcountry*) fixed effects. Firms' observable characteristics include size, age, a dummy for location in the capital city and a dummy for firm *i* being listed on the stock

market. Industry fixed effects are measured by US SIC 1-digit industry dummies and country fixed effects are captured by former Soviet states dummies.¹⁹

[Insert Table 2 about here]

Table 2 yields quite interesting *within-group* and *between-group* results.

As the most notable finding of *within-group* evidence, there exist both an OFDI premium and an IFDI premium for firms in our sample. In fact, the *OFDI* and *IFDI* dummies are significant in every specification. This suggests that firms engaged in OFDI or IFDI tend to be more innovative than non-FDI firms. Interestingly, the OFDI premium is larger than the IFDI premium, meaning that firms in our sample benefit more from outward rather than inward FDI. These results are robust to firms' observable characteristics, industry and country fixed effects. Moreover, they hold for every group of countries considered for empirical purposes, i.e. *CIS*, *Developed* and *Developing*.

As the most notable finding of *between-group* evidence, the OFDI premium is maximal for firms from the *Developing* economies, followed by the *Developed* and *CIS* countries. Put another way, *CIS* firms benefit less from outward FDI than their counterparts headquartered in the *Developing* and *Developed* countries: The magnitude of β_1 greatly differs across the three groups. For what concerns inward FDI, a different ranking of IFDI premia emerges. By comparing β_2 across the three groups of former Soviet states, one realizes that firms from the *Developing* countries receive the largest premium in terms of innovation, whereas firms from the *Developed* countries receive the smallest. In this case, *CIS* firms locate mid-way between these two extremes: They learn more than *Developed* countries firms, but less than *Developing* countries firms.

To interpret our *between-group* results, one should recall the overview of former Soviet states presented in Section 3. Macroeconomic data on *CIS*, *Developing* and *Developed* countries reveal that the three groups differ substantially in terms of per capita GDP (Figure 2). Estonia, Latvia and Lithuania are advanced economies, whereas the *CIS* and *Developing* countries are both examples of less developed markets. Moreover, the per capita GDP in the *Developing* countries is lower than the per capita GDP in the *CIS*. Therefore, it comes with no surprise that the IFDI premium in terms of innovation is maximal for firms from the *Developing* countries, followed by the *CIS* and *Developed* countries. According to Girma (2005) and Girma and Gorg (2007a, 2007b), the IFDI premium is sensitive to the pre-acquisition performance of the target firm. Moreover, beyond some critical level of pre-acquisition performance, the rate of technology transfer through inward FDI starts declining. This might suggest that domestic firms nearest to the technology frontier have less to learn from foreign multinationals. If this is the case, in our sample, firms from the *Developed* countries receive

¹⁹ Unfortunately, Orbis does not provide information on the firms' export activities. Therefore, we cannot control for this.

the smallest IFDI premium because they are already more performing than their counterparts from the *Developing* and *CIS* countries. Along the same reasoning, the largest IFDI premium accrues to firms headquartered in the *Developing* countries because their poor ex ante performance leaves more room for learning. Put another way, firms from every corner of the former Soviet states learn from IFDI; however, the less advanced the host-market, the largest the premium in terms of innovation.

For what concerns OFDI, different forces are at play, beyond the macroeconomic scenarios reviewed above. Recall from Section 3 that the ratio of OFDI over IFDI is much greater in the *CIS* than elsewhere. This means that this group exhibits a comparatively deeper attitude towards outward operations; nonetheless, *CIS* firms are those who learn the least from OFDI. Why is it the case? In our view, *between-group* results are driven by the overwhelming presence of Russian companies within the *CIS* subsample.²⁰ Russian multinationals are well known for having followed certain investment paths. During the 1990s, Russian OFDI was dominated by privately-owned MNEs, seeking safety nests abroad to protect themselves from domestic uncertainty. The following decade witnessed the surge of many state-owned or –influenced MNEs motivated by a hunt for natural resources and the desire to control their value chain of their products (Liuhto and Vatra 2007; Kalotay and Sulstarova 2010; Mihailova and Panibratov 2012; Filippov 2010; Zubkovsaya and Michailova 2014). In particular, Russian OFDI is said to be characterized by typical pull and push factors that are specific to the Russian case. Among pull factors, natural resource seeking-motivations occur more frequently than strategic resource seeking-OFDI (Mihailova and Panibratov 2012; Filippov 2010). In contrast, multinationals from other emerging economies, tend to rely almost exclusively on the latter type. This difference in pull factors between multinationals from Russia and from other emerging economies might explain the magnitude of the OFDI premia implied by Table 2: Firms from the *Developing* countries learn more from OFDI than firms from the *CIS*, simply because they invest abroad for the explicit purpose of enhancing their performance. Among push factors, the Russian OFDI has been massively driven by system escape motivations (Bulatov 1998; Panibratov and Ermolaeva 2015; Liuhto and Vatra 2007; Kalotay and Sulstarova 2010; Zubkovsaya and Michailova 2014) and government support (Liuhto and Vatra 2007; Mihailova and Panibratov 2012; Filippov 2010; Panibratov and Ermolaeva 2015; Puffer and McCarthy 2007), so far. In contrast, multinationals from advanced economies tend to open subsidiaries abroad to overcome capacity constraints in the home-market or due to capital abundance. This difference in push factors between multinationals from Russia and from advanced economies might drive the magnitude of the OFDI premia in Table 2: Firms from the *Developed*

²⁰ Russian firms amount to 67% of the total *CIS* firms.

countries learn more from OFDI than firms from the CIS, because their OFDI is driven by real economic stimulus rather than government support. Put another way, firms from Estonia, Latvia and Lithuania learn more than their CIS counterparts because they are more eager to learn. In summary, firms from every corner of the post-Soviet states learn from OFDI; however, the less pronounced the strategic resource-seeking motivations and the real economic stimulus, the smallest the premium in terms of innovation.

To exploit further the potentialities of our database, in Equation (4), we replace the generic *OFDI* and *IFDI* dummies with the location-specific *OFDI_Europe* and *IFDI_Europe* dummies.

$$\begin{aligned}
 PATENT_{it} = & \alpha + \beta_3 OFDI_EUROPE_{it} + \beta_4 IFDI_EUROPE_{it} + \\
 & + \gamma_1 Xfirm_{it} + \gamma_2 Xindustry_{it} + \gamma_3 Xcountry_{it} + \varepsilon_{it}
 \end{aligned} \tag{4}$$

OFDI_EUROPE is a dummy equal to 1 if firm *i* has at least 1 foreign subsidiary in Europe. Similarly, *IFDI_EUROPE* is a dummy equal to 1 if firm *i* has at least 1 foreign shareholder from Europe. The reason why we introduce location-specific FDI dummies is to compare the generic FDI premia from Table 2 with the premia implied by particular FDI strategies. Although, in principle, it would have been more informative to introduce FDI dummies for every macro region, our sample size poses some constraints to the number of regressors. Moreover, our data description in Section 4.1 suggests that Europe features prominently as both origin and destination of FDI for the former Soviet states (Table 1). For all of these reasons, we confine our attention to the dummies *OFDI_EUROPE* and *IFDI_EUROPE*.

Apart from the FDI dummies, the set of regressors, the econometric model and the specifications are the same as in Eq. (3).

Our Poisson estimates of Eq. (4) are displayed in Table 3.

[Insert Table 3 about here]

Consistent with our previous discussion on the β parameters, particular attention should be given to β_3 and β_4 . Indeed, they disclose the premium that firm *i* potentially receives from having at least 1 foreign subsidiary in Europe or at least 1 foreign shareholder from Europe, respectively.

Based on Table 3, our empirical exercise is threefold. First, we check the statistical significance of *OFDI_EUROPE* and *IFDI_EUROPE* to assess the related premia. Second, we compare β_3 and β_4 to see which type of FDI entails the largest premium. Third, we compare β_1 (β_2) and β_3 (β_4) to check whether firm *i* learns more from OFDI (IFDI) directed to (originating from) Europe than

elsewhere.²¹ Estimating Eq. (4) for each group of former Soviet states, we further assess potential differences in FDI premia among firms belonging to different groups of countries. This helps characterize *between-group* adding to *within-group* regularities.

A first look at Table 3 reveals some interesting facts that can be summarized as follows. All *between-group* and *within-group* results emerging from Table 2 still hold. However, comparisons of the β parameters across tables reveals that the *OFDI_EUROPE* premium is larger than the *OFDI* premium and the *IFDI_EUROPE* premium is larger than the *IFDI* premium for every group of countries. This evidence suggests that FDI per se is beneficial for firms' innovative activities in the former Soviet states, and FDI to/from Europe is particularly important.

This last result is consistent with previous evidence on the type of multinationals that produce the largest positive impact on the acquired firm's performance. In particular, Chen (2011) documents that the acquisitions by multinationals from advanced economies impact on the target firms' profits more than the acquisitions by multinationals from developing countries. Our findings on *IFDI* confirm that this holds true also in the former Soviet states; our findings on *OFDI* reveal that a similar pattern applies to outward direct investment. The reason why investing in Europe entails larger premia has probably to do with its potential for strategic resource seeking-*OFDI* ceteris paribus. Put another way, there is more room for learning in Europe through interactions with local firms that are, on average, more performing.

5. CONCLUDING REMARKS

In this paper, we estimate FDI premia in the former Soviet states.

To investigate potential differences between multinationals from emerging markets and multinationals from advanced economies, we compare FDI premia in the *CIS* and in the *Developed* countries. This empirical exercise is key to assessing whether multinationals from emerging economies are a new species of firms.

To investigate potential differences between multinationals from different emerging economies, we compare FDI premia in the *CIS* and in the *Developing* countries. This approach is essential to open the "black box" of emerging economies and see whether country-specific patterns emerge.

Using firm-level data covering the whole population of industrial companies headquartered in Armenia, Azerbaijan, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia and Ukraine in 2015, we unveil a number of robust regularities. They can be summarized as follows.

²¹ A more direct approach would be to regress *PATENT* on the entire set of FDI dummies—*OFDI*, *IFDI*, *OFDI_EUROPE*, *IFDI_EUROPE*. However, due to high correlation, we enter them sequentially, considering *OFDI* and *IFDI* in Eq. (3) and *OFDI_EUROPE* and *IFDI_EUROPE* in Eq. (4).

For what concerns FDI involvement, our *within-group* results (Section 4.1) suggest that FDI firms are in the minority and, among FDI firms, those engaged in OFDI are in the minority. From a geographical point of view, Europe is the most common origin as well as destination of FDI. In addition, our *between-group* evidence reveals that FDI involvement of any type is maximal for firms from the *Developed* countries, followed by the *Developing* and *CIS* economies. Geographical patterns differ as well, with firms from the *CIS* presenting a non-negligible share of foreign shareholders and subsidiaries outside Europe and firms from the *Developed* and *Developing* countries relying exclusively on European partners.

For what concerns FDI premia, our *within-group* exercise (Section 4.2) confirms that there exist both an OFDI premium and an IFDI premium for firms in our sample, meaning that FDI firms tend to be more innovative than non-FDI firms. Interestingly, the OFDI premium is larger than the IFDI premium, suggesting that firms benefit more from outward rather than inward FDI. In addition, according to our *between-group* evidence, the OFDI premium is maximal for firms from the *Developing* economies, followed by the *Developed* and *CIS* countries. Put another way, *CIS* firms benefit less from outward FDI than their counterparts from the other former Soviet states. For inward FDI, a different ranking emerges: Firms from the *Developing* countries receive the largest premium in terms of innovation, whereas firms from the *Developed* countries receive the smallest. In this case, *CIS* firms locate mid-way between these two extremes: They learn more than the *Developed* countries firms, but less than the *Developing* countries firms.

Once we control for the geographical patterns of FDI, the above-mentioned results still hold. However, *IFDI_EUROPE* and *OFDI_EUROPE* entail significantly larger premia than *IFDI* and *OFDI*. This fact points to the conclusion that FDI per se is beneficial for firms' innovative activities but FDI to/from Europe is particularly important.

Being robust to firms' observable characteristics, industry and country fixed effects, the above-mentioned results help assess key differences of multinationals in our sample.

Are MNEs from emerging economies a new species of firms? Our data reveal that there is a FDI premium for firms from both the *CIS* and the *Developed* countries. However, the magnitude of the FDI premia varies significantly. Although MNEs from emerging economies are not completely a new species of firms, they are not to be confused with MNEs from advanced countries.

Are MNEs from emerging economies all alike? According to our empirical analysis, there is a FDI premium for firms from both the *CIS* and the *Developing* countries. However, also in this case, the magnitude of the FDI premia differs dramatically. Although MNEs from emerging economies share some common features, they are not to be considered as a completely homogeneous group.

At this stage, it is worth specifying that comparing multinationals from neighboring countries is a strategy that strengthens our results. This is because certain differences emerge *despite* common historical patterns and proximity. Born from the same mother, multinationals from the former Soviet states, in principal, are “twins”. However, this paper suggests that some twins are not alike.

To what extent do our results contribute to the ongoing debate? By accounting for IFDI and OFDI in a unified empirical setting that covers the former Soviet states, we provide a comprehensive framework in which previous results still hold but new findings stand out as well. Like previous studies,²² we find that FDI firms outperform non-FDI firms. Unlike previous studies, we prove that this holds true for both inward and outward FDI of both developed and developing countries. Moreover, we are able to assert which FDI direction—inward versus outward—is more important in which type of countries—developed versus developing—to foster firm-level innovation.

Do our results suggest any policy recommendations? Taking for granted that promoting innovation in the former Soviet states is a desirable outcome of the policymaking process, our point is that: 1) such an outcome could be accelerated by encouraging FDI involvement and 2) certain types of FDI involvement should be particularly encouraged. For the FDI direction, the policymaker should favor both inward and outward FDI—especially from and to Europe—with a particular emphasis on the latter. For the country-specific context, more attention should be paid to the *Developing* countries.

While we believe these results are interesting, we are aware of some data limitations that may hinder our analysis and restrict its scope. For instance, there is an issue of representativeness. Although Orbis has a wide coverage, it is not an exhaustive database for all firms in all countries. This is because administrative datasets typically reflect the population of firms that meet the requirements for inclusion. Therefore, we have resisted the temptation to overgeneralize our results and claim instead that they hold within the sample used for empirical purposes. Another motive of concern involves causality issues. Indeed, the cross-sectional design of our data does not allow for any proper causality analysis. Put another way, while we document a positive and robust correlation between innovation and FDI, we cannot control for reverse causality. Lastly, Orbis data allow considering IFDI and OFDI in a unified empirical framework; however, we measure FDI in a rather indirect way, by looking at the presence of foreign shareholders and subsidiaries. If we were to possess detailed information on either the flows or the stocks of incoming and outgoing capital, it would be challenging to check the robustness of our results to a stricter definition of FDI.

These issues all warrant further analysis.

²² See Section 2 on this point.

REFERENCES

- Aitken, B., Harrison, A., & Lipsey, R. E. (1996). Wages and foreign ownership: A comparative study of Mexico, Venezuela, and the United States. *Journal of International Economics*, 40(3-4), 345-371. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56730688?accountid=16562>
- Almeida, R. (2007). The labor market effects of foreign owned firms. *Journal of International Economics*, 72(1), 75-96. doi:<http://dx.doi.org.proxy.unimib.it/10.1016/j.jinteco.2006.10.001>
- Andreff, W. (2003). The newly emerging TNCs from economies in transition: A comparison with third world outward FDI. *Transnational Corporations*, 12(2), 73-118. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56426991?accountid=16562>
- Annushkina, O.E. & Colonel, R.T. (2013). Foreign market selection by Russian MNEs – beyond a binary approach?. *Critical Perspectives on International Business*, 9(1), 1-47. Retrieved from <http://www.emeraldinsight.com/doi/pdfplus/10.1108/17422041311299950>
- Arnold, M. J., & Javorcik, B. S. (2009). Gifted kids or pushy parents? Foreign direct investment and plant productivity in Indonesia. *Journal of International Economics*, 79(1), 42-53. doi:<http://dx.doi.org.proxy.unimib.it/10.1016/j.jinteco.2009.05.004>
- Athreye, S., & Godley, A. (2009). Internationalization and technological leapfrogging in the pharmaceutical industry. *Industrial and Corporate Change*, 18(2), 295-323. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56926636?accountid=16562>
- Athreye, S., & Kapur, S. (2009). Introduction: The internationalization of Chinese and Indian firms—trends, motivations and strategy. *Industrial and Corporate Change*, 18(2), 209-221. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56926598?accountid=16562>
- Aw, B. Y., Roberts, M. J., & Xu, D. Y. (2011). R&D investment, exporting, and productivity dynamics. *American Economic Review*, 101(4), 1312-1344. doi:<http://dx.doi.org.proxy.unimib.it/10.1257/aer.101.4.1312>
- Aybar, B., & Ficici, A. (2009). Cross-border acquisitions and firm value: An analysis of emerging-market multinationals. *Journal of International Business Studies*, 40(8), 1317-1338. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/742827441?accountid=16562>
- Baldwin, J., & Gu, W. (2009). In Dunne, J., Jensen B. and Roberts, M. J., eds (Eds.), *Producer Dynamics: New Evidence from Micro Data* Chicago: Chicago University Press.
- Barba Navaretti, G., & Castellani, D. (2008). In Brakman S., Garretsen H., eds (Eds.), *Do Italian firms improve their performance at home by investing abroad?* CESifo Seminar Series. Cambridge and London: MIT Press. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56879217?accountid=16562>
- Barba Navaretti, G., Castellani, D., & Disdier, A. (2010). How does investing in cheap labour countries affect performance at home? Firm-level evidence from France and Italy. *Oxford Economic Papers*, 62(2), 234-260. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/742845907?accountid=16562>

- Barba Navaretti, G., & Venables, A. J. (2006). *Multinational firms in the world economy* With Frank G. Barry et al. Princeton and Oxford: Princeton University Press. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56446438?accountid=16562>
- Benfratello, L., & Sembenelli, A. (2006). Foreign ownership and productivity: Is the direction of causality so obvious? *International Journal of Industrial Organization*, 24(4), 733-751. doi:<http://dx.doi.org.proxy.unimib.it/10.1016/j.ijindorg.2005.07.012>
- Bernard, A. B., & Jensen, J. B. (1995). Exporters, jobs, and wages in U. S. manufacturing: 1976-1987. *Brookings Papers on Economic Activity*, 67-112. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56675367?accountid=16562>
- Bernard, A. B., & Jensen, J. B. (1999). Exceptional exporter performance: Cause, effect, or both? *Journal of International Economics*, 47(1), 1-25. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56882656?accountid=16562>
- Bertrand, O., & Zitouna, H. (2008). Domestic versus cross-border acquisitions: Which impact on the target firms' performance? *Applied Economics*, 40(16-18), 2221-2238. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56740476?accountid=16562>
- Blomstrom, M., & Kokko, A. (1998). Multinational corporations and spillovers. *Journal of Economic Surveys*, 12(3), 247-277. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56767306?accountid=16562>
- Blomstrom, M., & Kokko, A. (2003). *Human capital and inward FDI* CEPR Discussion Papers: 3762. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56280998?accountid=16562>
- Blomstrom, M., & Wolff, E. N. (1994). In Baumol W. J., Nelson R. R. and Wolff E. N., eds (Eds.), *Multinational corporations and productivity convergence in Mexico* Oxford and New York: Oxford University Press. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56744602?accountid=16562>
- Blonigen, B. A., & Slaughter, M. J. (2001). Foreign-affiliate activity and U.S. skill upgrading. *Review of Economics and Statistics*, 83(2), 362-376. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/57008764?accountid=16562>
- Buckley, P. J., Clegg, L. J., Cross, A. R., Liu, X., Voss, H., & Zheng, P. (2007). The determinants of Chinese outward foreign direct investment. *Journal of International Business Studies*, 38(4), 499-518. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56645788?accountid=16562>
- Bulatov, A. S. (1998). Russian direct investment abroad: Main motivations in the post-Soviet period. *Transnational Corporations*, 7(1), 69-82. Retrieved from <http://search.proquest.com/docview/56926389?accountid=16562>
- Casaburi, L., Gattai, V., & Minerva, G. A. (2007). Firms' international status and heterogeneity in performance: Evidence from Italy. *Rivista Di Politica Economica*, 97(5-6), 151-187. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56951806?accountid=16562>

- Castellani, D. (2002). Firm s' technological trajectories and the cr eation of foreign subsidiaries. *International Review of Applied Economics*, 16(3), 359-371. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56052320?accountid=16562>
- Castellani, D., & Giovannetti, G. (2008). Im prese internazionalizzate e produttività: Il ruolo delle competenze organizzative e m anageriali. (Productivity and the inte rnational firm: The ro le of managerial and organizational comp etences. with English summary.). *L'Industria, Nuova Serie*, 29(3), 385-403. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56743518?accountid=16562>
- Castellani, D., & Giovannetti, G. (2010). Produc tivity and the internat ional firm: Dissecting heterogeneity. *Journal of Economic Policy Reform*, 13(1), 25-42. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/760150709?accountid=16562>
- Castellani, D., Mariotti, I., & Pisc itello, L. (2008). The impact of outwards investments on parent company's employment and skill com position: Evidence from the Italian case. *Structural Change and Economic Dynamics*, 19(1), 81-94. doi:<http://dx.doi.org.proxy.unimib.it/10.1016/j.strueco.2007.11.006>
- Castellani, D., & Zanfei, A. (2007). Internationalisation, innovation and productivity: How do firms differ in Italy? *World Economy*, 30(1), 156-176. Re trieved from <http://search.proquest.com/docview/56707803?accountid=16562>
- Chen, W. (2011). The effect of inve stor origin on fir m performance: Domestic and foreign direct investment in the united states. *Journal of International Economics*, 83(2), 219-228. doi:<http://dx.doi.org.proxy.unimib.it/10.1016/j.jinteco.2010.11.005>
- Chen, W., & Tang, H. (2014). The dr agon is flying west: Micro-level evidence of Chinese outward direct investment. *Asian Development Review*, 31(2), 109-140. Retrieved fro m <http://search.proquest.com.proxy.unimib.it/docview/1700657510?accountid=16562>
- Child, J., & Rodrigues, B. (2005). The internationalization of Chinese firms: A case for theoretical extension?. *Management and Organization Review*, 1(3), 381-410. doi:10.1111/j.1740-8784.2005.0020a.x
- Clerides, S. K., Lach, S., & Tybout, J. R. (1998). Is learning by expor ting important? Micro-dynamic evidence from Colombia, Mexico, and Morocco. *Quarterly Journal of Economics*, 113(3), 903-947. Retrieved fro m <http://search.proquest.com.proxy.unimib.it/docview/56775652?accountid=16562>
- Canyon, M. J. (2002). The productivity and w age effects of foreign acqui sition in the United Kingdom. *Journal of Industrial Economics*, 50(1), 85-102. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56078297?accountid=16562>
- Cozza, C., Rabellotti, R., & Sanfilippo, M. (20 15). The impact of outward FDI on the perform ance of Chinese firm s. *China Economic Review*, 36, 42-57. doi:<http://dx.doi.org.proxy.unimib.it/10.1016/j.chieco.2015.08.008>
- Cuervo-Cazurra, A. (2007), Sequence of value-adde d activities in the in ternationalization of developing country MNEs. *Journal of International Management*, 13 (3), 258-277. Retrieved from <http://ac.els-cdn.com.proxy.unimib.it/S1075425307000518/1-s2.0-S1075425307000518->

main.pdf?_tid=d64b477a-244c-11e6-8bb8-00000aacb361&acdnat=1464382491_2321a5baab66de436d7663215442df53

Cui, L., & Jiang, F. (2012). State ownership effect on firms' FDI ownership decisions under institutional pressure: A study of Chinese outward-investing firms. *Journal of International Business Studies*, 43(3), 264-284. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/1023523339?accountid=16562>

Davies, S. W., & Lyons, B. R. (1991). Characterising relative performance: The productivity advantage of foreign owned firms in the UK. *Oxford Economic Papers*, 43(4), 584-595. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56516225?accountid=16562>

De Beule, F., Elia, S. & Piscitello, L. (2014). Entry and access to competencies abroad: emerging market firms versus advanced market firms. *Journal of International Management*, 20(2), 137-152. doi:10.1016/j.intman.2013.05.002

Deng, P. (2004). Outward investment by Chinese MNCs: Motivations and implications. *Business Horizons*, 47(3), 8-16. doi:10.1016/S0007-6813(04)00023-0

Deng, P. (2007). Investing for strategic resources and its rationale: The case of outward FDI from Chinese companies. *Business Horizons*, 50(1), 71-81. doi:10.1016/j.bushor.2006.07.001

Deng, P. (2012). The internationalization of Chinese firms: A critical review and future research. *International Journal of Management Reviews*, 14(4), 408-427. doi:10.1111/j.1468-2370.2011.00323.x

Deng, P. (2013). Chinese outward direct investment research: Theoretical integration and recommendations. *Management and Organization Review*, 9(3), 513-539. doi:10.1111/more.12030

De Loecker, J. (2007). Do exports generate higher productivity? Evidence from Slovenia. *Journal of International Economics*, 73(1), 69-98. doi:http://dx.doi.org.proxy.unimib.it/10.1016/j.jinteco.2007.03.003

Doms, M. E., & Jensen, J. B. (1998). In Baldwin R. E., Lipsey R. E. and Richardson J. D., eds (Eds.), *Comparing wages, skills, and productivity between domestically and foreign-owned manufacturing establishments in the United States* NBER Studies in Income and Wealth, vol. 59. Chicago and London: University of Chicago Press. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56929380?accountid=16562>

Driffield, N., & Girma, S. (2003). Regional foreign direct investment and wage spillovers: Plant level evidence from the UK electronics industry. *Oxford Bulletin of Economics and Statistics*, 65(4), 453-474. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56141093?accountid=16562>

Dunning, J.H. (1993). *Multinational Enterprises and the Global Economy*. Mass: Addison Wesley.

Duysters, G., Jacob, J., Lemmens, C., & Yu, J. (2009). Internationalization and technological catching up of emerging multinationals: A comparative case study of China's Haier group. *Industrial and Corporate Change*, 18(2), 325-349. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56908810?accountid=16562>Export-Import

- Edamura, K., Haneda, S., Inui, T., Tan, X., & Tōdo, Y. (2014). Impact of Chinese cross-border outbound M&As on firm performance: Econometric analysis using firm-level data. *China Economic Review*, 30, 169-179. doi:<http://dx.doi.org.proxy.unimib.it/10.1016/j.chieco.2014.06.011>
- Feenstra, R. C., & Hanson, G. H. (1996). Globalization, outsourcing, and wage inequality. *American Economic Review*, 86(2), 240-245. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56669543?accountid=16562>
- Feliciano, Z., & Lipsey, R. E. (1999). *Foreign ownership and wages in the United States, 1987 - 1992* National Bureau of Economic Research, Inc, NBER Working Papers: 6923. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56349779?accountid=16562>
- Filippov, S. (2010). Russian companies: The rise of new multinationals. *International Journal of Emerging Markets*, 5(3/4), 307-332. Retrieved from <http://www.emeraldinsight.com/doi/pdfplus/10.1108/17468801011058406>
- Fortanier, F., & van Tulder, R. (2009). Internationalization trajectories--A cross-country comparison: Are large Chinese and Indian companies different? *Industrial and Corporate Change*, 18(2), 223-247. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56911019?accountid=16562>
- Fukao, K., Inui, T., Kabe, S., & Liu, D. (2008). An international comparison of the TFP levels of Japanese, South Korean, and Chinese listed firms. *Seoul Journal of Economics*, 21(1), 5-33. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56810605?accountid=16562>
- Giovannetti, G., Marvasi, E., & Sanfilippo, M. (2015). Supply chains and the internationalization of small firms. *Small Business Economics*, 44(4), 845-865. doi:<http://dx.doi.org/10.1007/s11187-014-9625-x>
- Girma, S. (2005). Technology transfer from acquisition FDI and the absorptive capacity of domestic firms: An empirical investigation. *Open Economies Review*, 16(2), 175-187. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56383466?accountid=16562>
- Girma, S., Greenaway, D., & Wakelin, K. (2001). Who benefits from foreign direct investment in the UK? *Scottish Journal of Political Economy*, 48(2), 119-133. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/57019371?accountid=16562>
- Girma, S., & Gorg, H. (2007a). Multinationals' productivity advantage: Scale or technology? *Economic Inquiry*, 45(2), 350-362. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56666528?accountid=16562>
- Girma, S., & Gorg, H. (2007b). Evaluating the foreign ownership wage premium using a difference-in-differences matching approach. *Journal of International Economics*, 72(1), 97-112. doi:<http://dx.doi.org.proxy.unimib.it/10.1016/j.jinteco.2006.07.006>
- Girma, S., Gong, Y., Gorg, H., & Lancheros, S. (2015). Estimating direct and indirect effects of foreign direct investment on firm productivity in the presence of interactions between firms. *Journal of International Economics*, 95(1), 157-169. doi:<http://dx.doi.org.proxy.unimib.it/10.1016/j.jinteco.2014.11.007>

- Globerman, S., Ries, J. C., & Vertinsky, I. (1994). The economic performance of foreign affiliates in Canada. *Canadian Journal of Economics*, 27(1), 143-156. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56594280?accountid=16562>
- Gorg, H., & Greenaway, D. (2001). *Foreign Direct Investment and Intra-Industry Spillovers: A Review of the Literature*. GEP Research Papers: 2001/37. Retrieved from <http://www.nottingham.ac.uk/gep/documents/papers/2001/01-37.pdf>
- Gorg, H., Strobl, E., & Walsh, F. (2007). Why do foreign-owned firms pay more? The role of on-the-job training. *Review of World Economics/Weltwirtschaftliches Archiv*, 143(3), 464-482. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56858514?accountid=16562>
- Greenaway, D., & Kneller, R. (2007). Firm heterogeneity, exporting and foreign direct investment. *Economic Journal*, 117(517), F134-F161. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56678055?accountid=16562>
- Griffith, R. (1999). *Using the ARD establishment level data to look at foreign ownership and productivity in the UK* Institute for Fiscal Studies, IFS Working Papers: W99/06. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56344236?accountid=16562>
- Griffith, R., & Simpson, H. (2003). *Characteristics of foreign-owned firms in British manufacturing* National Bureau of Economic Research, Inc, NBER Working Papers : 9573. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56352482?accountid=16562>
- Gubbi, S. R., Aulakh, P. S., Ray, S., Sarkar, M. B., & Chittoor, R. (2010). Do international acquisitions by emerging-economy firms create shareholder value? The case of Indian firms. *Journal of International Business Studies*, 41(3), 397-418. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/742846576?accountid=16562>
- Haddad, M., & Harrison, A. (1993). Are there positive spillovers from direct foreign investment? Evidence from panel data for Morocco. *Journal of Development Economics*, 42(1), 51-74. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56609481?accountid=16562>
- Hanson, G. (2001). *Should countries promote foreign direct investment?* UNCTAD G.2.4 Discussion Papers. Retrieved from <http://unctad.org/en/Docs/pogdsmdpbg24d9.en.pdf>
- Harris, R. D. (2002). Foreign ownership and productivity in the United Kingdom --some issues when using the ARD establishment level data. *Scottish Journal of Political Economy*, 49(3), 318-335. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56070144?accountid=16562>
- Harris, R., & Robinson, C. (2003). Foreign ownership and productivity in the United Kingdom estimates for U.K. manufacturing using the ARD. *Review of Industrial Organization*, 22(3), 207-223. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56137406?accountid=16562>
- Harrison, A. (1996). In Roberts M. J., Tybout J. R., eds (Eds.), *Determinants and effects of direct foreign investment in Cote d'Ivoire, Morocco, and Venezuela* Oxford and New York: Oxford University Press for the World Bank. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56042654?accountid=16562>

- Hayakawa, K., Machikita, T., & Kimura, F. (2012). Globalization and productivity: A survey of firm-level analysis. *Journal of Economic Surveys*, 26(2), 332-350. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/1018336055?accountid=16562>
- Head, K., & Ries, J. (2003). Heterogeneity and the FDI versus export decision of Japanese manufacturers. *Journal of the Japanese and International Economies*, 17(4), 448-467. doi:<http://dx.doi.org.proxy.unimib.it/10.1016/j.jjie.2003.09.003>
- Helpman, E., Melitz, M. J., & Yeaple, S. R. (2004). Export versus FDI with heterogeneous firms. *American Economic Review*, 94(1), 300-316. doi:<http://dx.doi.org.proxy.unimib.it/10.1257/000282804322970814>
- Hijzen, A., Inui, T., & Todo, Y. (2010). Does offshoring pay? Firm-level evidence from Japan. *Economic Inquiry*, 48(4), 880-895. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/814968042?accountid=16562>
- Hijzen, A., Jean, S., & Mayer, T. (2011). The effects at home of initiating production abroad: Evidence from matched French firms. *Review of World Economics/Weltwirtschaftliches Archiv*, 147(3), 457-483. doi:<http://dx.doi.org.proxy.unimib.it/10.1007/s10290-011-0094-x>
- IMF (1993). *Balance of Payments Manual*, Fifth Edition. Washington, DC: IMF. Retrieved from <https://www.imf.org/external/np/sta/bop/BOPman.pdf>
- IMF (2014). *World Economic Outlook. Legacies, Clouds, Uncertainties*. Washington, DC: IMF. Retrieved from <http://www.imf.org/external/pubs/ft/weo/2014/02/>
- Ito, Y. (2007). *Choice for FDI and post-FDI productivity*. RIETI Discussion Paper E049. Retrieved from <http://www.rieti.go.jp/jp/publications/dp/07e049.pdf>
- Kalemli-Ozcan, S., Sorensen, B. E., Villegas-Sanchez, C., Volosovych, V., & Yesiltas, S. (2015). *How to construct nationally representative firm level data from the ORBIS global database*. C.E.P.R. Discussion Papers, CEPR Discussion Papers: 10829. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/1718044938?accountid=16562>
- Kalotay, K. & Sulstarova, A. (2010). Modeling Russian outward FDI. *Journal of International Management*, 16(2), 131-142. Retrieved from http://ac.els-cdn.com/S1075425310000207/1-s2.0-S1075425310000207-main.pdf?_tid=512a4260-2426-11e6-b979-00000aacb360&acdnat=1464365947_566998b99e92a282a07eb1190d8075fa
- Kokko, A., Zejan, M., & Tansini, R. (2001). Trade regimes and spillover effects of FDI: Evidence from Uruguay. *Weltwirtschaftliches Archiv/Review of World Economics*, 137(1), 124-149. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56998743?accountid=16562>
- Kumar, N., & Chadha, A. (2009). India's outward foreign direct investments in steel industry in a Chinese comparative perspective. *Industrial and Corporate Change*, 18(2), 249-267. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56921452?accountid=16562>
- Lipsey, R. E. (1994). *Foreign-owned firms and U.S. wages*. National Bureau of Economic Research, Inc, NBER Working Papers: 4927. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56333670?accountid=16562>

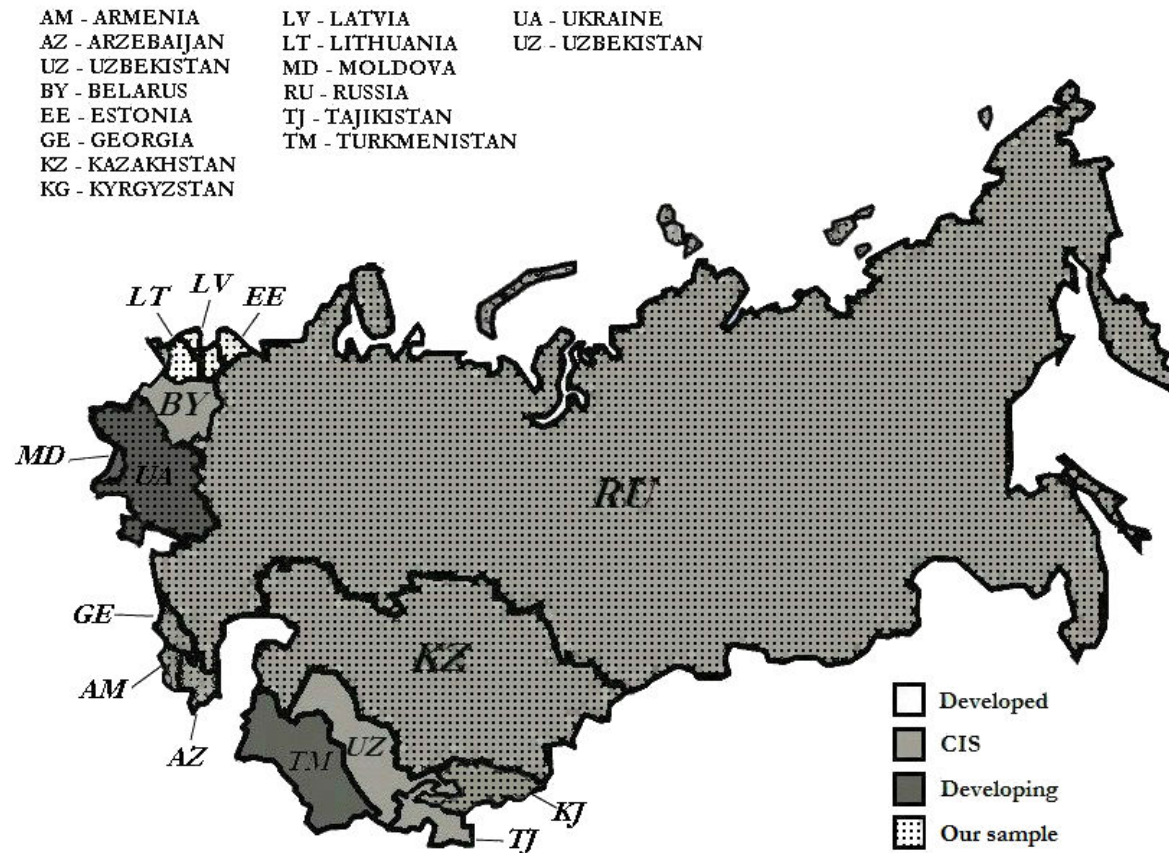
- Lipsey, R. E. (2002). Home and host country effects of FDI. National Bureau of Economic Research, Inc, NBER Working Papers: 9293. Retrieved from <http://search.proquest.com/docview/56343430?accountid=16562>
- Lipsey, R. E., & Sjöholm, F. (2004). FDI and wage spillovers in Indonesian manufacturing. *Review of World Economics/Weltwirtschaftliches Archiv*, 140(2), 321-332. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56222403?accountid=16562>
- Liu, X., & Buck, T. (2009). The internationalisation strategies of Chinese firms: Lenovo and BOE. *Journal of Chinese Economic and Business Studies*, 7(2), 167-181. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56935872?accountid=16562>
- Liuhto, K., & Vahtra, P. (2007). Foreign operations of Russia's largest industrial corporations--building a typology. *Transnational Corporations*, 16(1), 117-144. Retrieved from <http://search.proquest.com/docview/847276379?accountid=16562>
- Luo, Y., & Tung, R. L. (2007). International expansion of emerging market enterprises: A springboard perspective: Introduction. *Journal of International Business Studies*, 38(4), 481-498. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56647054?accountid=16562>
- Makino, S., Lau, C., & Yeh, R. (2002). Asset-exploitation versus asset-seeking: Implications for location choice of foreign direct investment from newly industrialized economies. *Journal of International Business Studies*, 33(3), 403-421. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56049759?accountid=16562>
- Mathews, J. A. (2006). Catch-up strategies and the latecomer effect in industrial development. *New Political Economy*, 11(3), 313-335. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56743020?accountid=16562>
- McGuckin, R. H., & Nguyen, S. V. (1995). On the productivity and plant ownership change: New evidence from the longitudinal research database. *RAND Journal of Economics*, 26(2), 257-276. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56636716?accountid=16562>
- Melitz, M. J. (2003). The impact of trade on intra-industry reallocations and aggregate industry productivity. *Econometrica*, 71(6), 1695-1725. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56269014?accountid=16562>
- Michailova, S., McCarthy, D.J. & Puffer, S.M. (2013). Russia: As solid as a BRIC? *Critical perspectives on international business*, 9(1/2): 5-18. Retrieved from <http://www.emeraldinsight.com/doi/pdfplus/10.1108/17422041311300029>
- Mihailova, I., & Panibratov, A. (2012). Determinants of internationalization strategies of emerging market firms: A multilevel approach. *Journal of East-West Business*, 18(2), 157-184. Retrieved from <http://search.proquest.com/docview/1667941854?accountid=16562>
- Narula, R. (2006). Globalization, new ecologies, new zoologies, and the purported death of the eclectic paradigm. *Asia Pacific Journal of Management*, 23(2), 143-151. doi: 10.1007/s10490-006-7162-0

- Niosi, J., & Tschang, F. T. (2009). The strategies of Chinese and Indian software multinationals: Implications for internationalization theory. *Industrial and Corporate Change*, 18(2), 269-294. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56925940?accountid=16562>
- OECD (2008), OECD Benchmark Definition of Foreign Direct Investment, Fourth Edition, Paris, OECD. Retrieved from <http://www.oecd.org/investment/fdibenchmarkdefinition.htm>
- Oulton, N. (1998). *Labour productivity and foreign ownership in the UK*. NIESR Discussion Paper Number: 143. Retrieved from <http://www.niesr.ac.uk/publications/labour-productivity-and-foreign-ownership-uk#.V0YdD75tJtQ>
- Panibratov A., & Ermolaeva, L. (2015). *Outward Investments from China and Russia: Macroeconomic and Institutional Perspective*. St.Petersburg State University Graduate School of Management Working Paper Number 25(E)-2015. Retrieved from https://www.researchgate.net/publication/290946790_Outward_Investments_from_China_and_Russia_Macroeconomic_and_Institutional_Perspective
- Petkova, N. (2008). *Does foreign ownership lead to higher productivity?* University of Oregon, mimeo.
- Piscitello, L., & Rabbiosi, L. (2005). The impact of inward FDI on local companies' labour productivity: Evidence from the Italian case. *International Journal of the Economics of Business*, 12(1), 35-51. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56436198?accountid=16562>
- Piscitello, L., Rabellotti, R. & Scalera V.G. (2015). In Risberg, A., King, D., & Meglio, O., (eds.) *Chinese and Indian acquisitions in Europe: The relationship between motivation and entry mode choice*. The Routledge Companion to merger and acquisition. London: Routledge
- Piva, M., & Vivarelli, M. (2001). The skill bias in Italy: A first report. *Economics Bulletin*, 15(2), 1-8. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56151466?accountid=16562>
- Puffer, S.M., & McCarthy, D.J. (2011). Two decades of Russian business and management research: An institutional theory perspective. *Academy of Management Perspectives*, 25(2), 21-36. Retrieved from <http://web.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=3&sid=c04c1622-a1ea-4d2a-9a68-e15a13f3fb4d%40sessionmgr104&hid=123>
- Ramamurti, R. (2012). What is really different about emerging market multinationals?. *Global Strategy Journal*, 2(1), 41-47. doi:10.1002/gsj.1025
- Ramsey, J. R., Barakat, L. L., & Cretoiu, S. L. (2012). Internationalization and its possible impact on subjective and objective performance: Evidence from Brazilian TNCs. *Transnational Corporations*, 21(2), 21-46. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/1667932933?accountid=16562>
- Ribeiro, S. P., Menghinello, S., & Backer, K. D. (2010). *The OECD ORBIS database: Responding to the need for firm-level micro-data in the OECD* OECD, Statistics Directorate, OECD Statistics Working Papers: 2010/1. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/742844273?accountid=16562>

- Salis, S. (2008). Foreign acquisition and firm productivity: Evidence from Slovenia. *World Economy*, 31(8), 1030-1048. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56770406?accountid=16562>
- Schuller, M. & Turner, A. (2005). Global ambitions: Chinese companies spread their wings. *China Aktuell-Journal of Current Chinese Affairs*, 34, 3-14. Retrieved from <https://ideas.repec.org/a/gig/chaktu/v34y2005i4p3-14.html>
- Sutherland, D., & Ning, L. (2011). Exploring 'onward-journey' ODI strategies in China's private sector businesses. *Journal of Chinese Economic and Business Studies*, 9(1), 43-65. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/864381881?accountid=16562>
- UNCTAD (2006). *World Investment Report. FDI from Developing and Transition Economies: Implications for Development*. Geneva: United Nations. Retrieved from <http://unctad.org/en/pages/PublicationArchive.aspx?publicationid=709>
- UNCTAD (2015). *World Investment Report 2015. Reforming International Investment Governance*. Geneva: United Nations. Retrieved from <http://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=1245>
- Van Biesebroeck, J. (2005). Exporting raises productivity in Sub-Saharan African manufacturing firms. *Journal of International Economics*, 67(2), 373-391. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56533689?accountid=16562>
- Wang, C., Hing, H., Kafouros, M. & Boateng, A. (2012), 'What drives outward FDI of Chinese firms? Testing the explanatory power of three theoretical frameworks', *International Business Review*, 21(3), 425-438. [doi:10.1016/j.ibusrev.2011.05.004](https://doi.org/10.1016/j.ibusrev.2011.05.004)
- Yeung, H. W., & Liu, W. (2008). Globalizing China: The rise of mainland firms in the global economy. *Eurasian Geography and Economics*, 49(1), 57-86. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56821003?accountid=16562>
- Yiu, D. W., Lau, C., & Bruton, G. D. (2007). International venturing by emerging economy firms: The effects of firm capabilities, home country networks, and corporate entrepreneurship. *Journal of International Business Studies*, 38(4), 519-540. Retrieved from <http://search.proquest.com.proxy.unimib.it/docview/56646201?accountid=16562>
- Zubkovskaya, A. & Michailova, S. (2014). The development of Russian multinational enterprises from the 1990s to the present. *Organizations and Markets in Emerging Economies*, 5, 2(10): 59-75. Retrieved from <http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=2&sid=9d669d0c-e78f-496a-b6ab-a86c41d70774%40sessionmgr106&hid=123>
- Zhang, Y. (2005). *China Goes Global*. London: The Foreign Policy Centre.

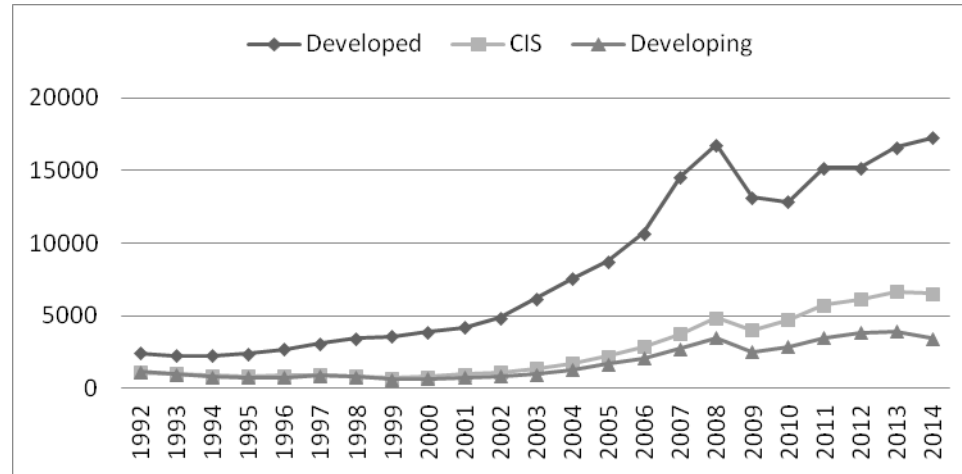
FIGURES AND TABLES

Figure 1: Former Soviet states



FDI Premia in the Former Soviet States

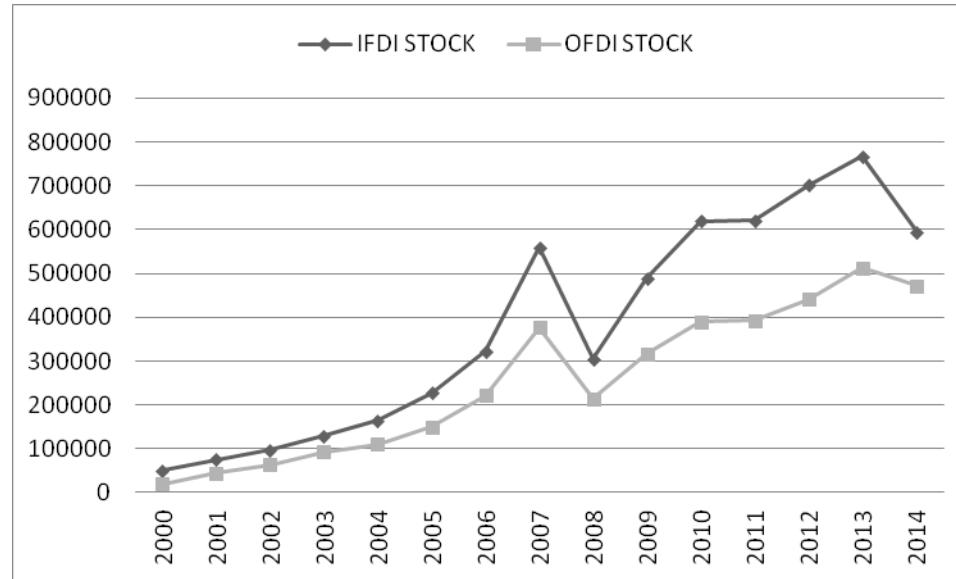
Figure 2: Per capita GDP in the former Soviet states, 1992-2014, USD at constant (2005) prices and exchange rates



Source: Authors' elaborations from Unctad (2015) data

FDI Premia in the Former Soviet States

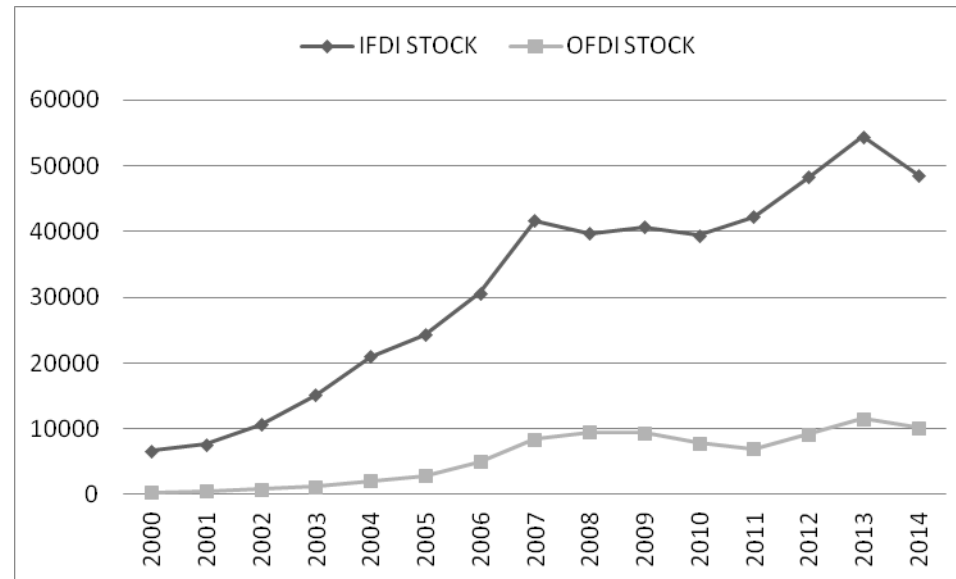
Figure 3: Stocks of IFDI and OFDI in the CIS, 2000-2014, mln USD



Source: Authors' elaborations from Unctad (2015) data

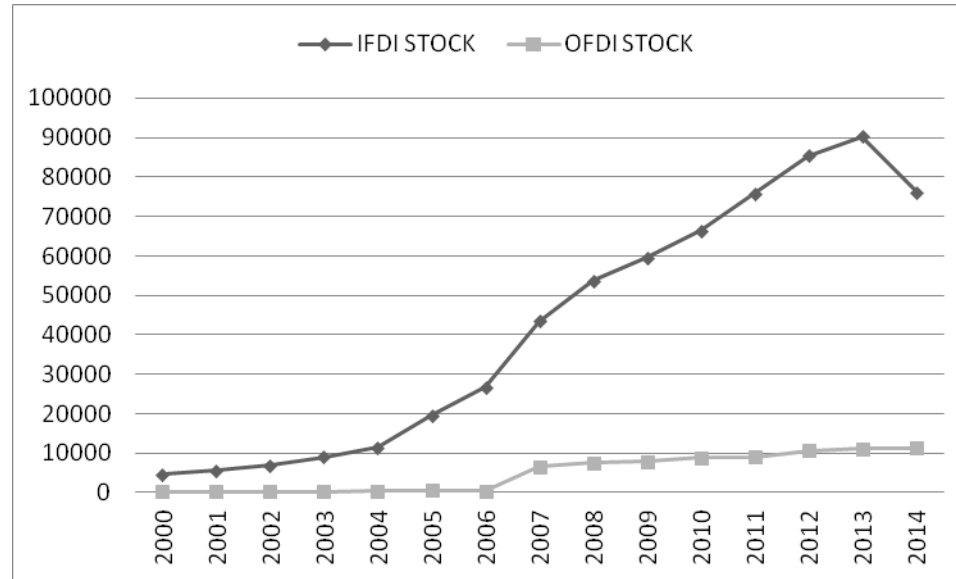
FDI Premia in the Former Soviet States

Figure 4: Stocks of IFDI and OFDI in the Developed countries, 2000-2014, mln USD



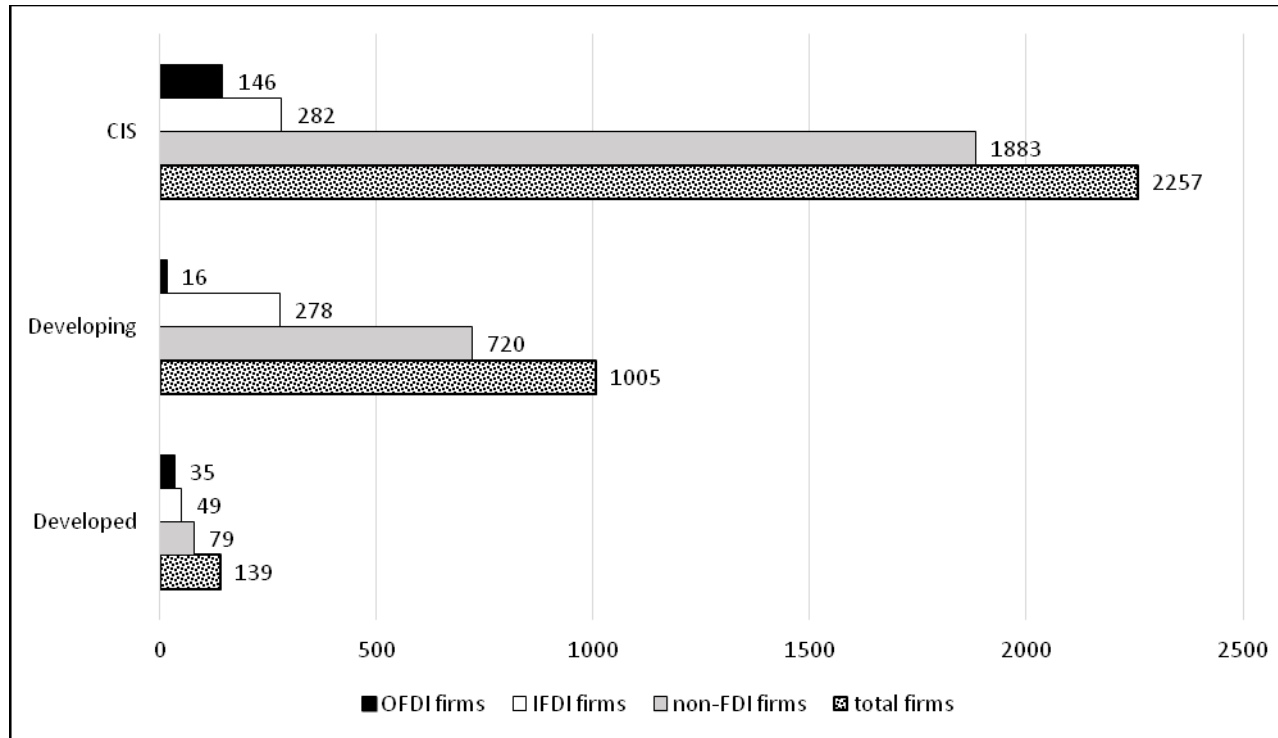
Source: Authors' elaborations from Unctad (2015) data

Figure 5: Stocks of IFDI and OFDI in the Developing countries, 2000-2014, mln USD



Source: Authors' elaborations from Unctad (2015) data

Figure 6: FDI involvement of firms in our sample of former Soviet states, number of firms, 2015.



Source: Authors' elaborations from Orbis (2016) data

FDI Premia in the Former Soviet States

Table 1: Geographical patterns of FDI in our sample of firms from the former Soviet states, number of FDI, 2015.

	OFDI			IFDI		
	CIS	Developing	Developed	CIS	Developing	Developed
Europe	422	21	169	408	420	76
North America	36	0	4	11	12	2
Central/South America	10	1	0	0	3	0
Africa	4	0	0	13	4	0
Oceania	2	0	0	2	0	0
Middle East	4	1	0	1	1	0
Asia	67	0	0	13	0	0
Total n. of subsidiaries/shareholders	545	23	173	448	440	78

Source: Authors' elaborations from Orbis (2016) data

Table 2: Poisson estimates of Eq. (3)

	CIS		Developing		Developed	
	<i>PATENT</i> (1)	<i>PATENT</i> (2)	<i>PATENT</i> (3)	<i>PATENT</i> (4)	<i>PATENT</i> (5)	<i>PATENT</i> (6)
<i>OFDI</i>	2.701*** (0.000)	1.853*** (0.000)	32.811*** (0.000)	17.042*** (0.000)	5.171*** (0.000)	3.902*** (0.000)
<i>IFDI</i>	0.851* (0.068)	0.697*** (0.000)	1.230* (0.071)	1.115 (0.342)	0.264*** (0.000)	0.374 (0.268)
<i>Xfirm</i>	no	yes	no	yes	no	yes
<i>Xindustry</i>	no	yes	no	yes	no	yes
<i>Xcountry</i>	no	yes	no	yes	no	yes
Observations	2,257	2,126	1,005	923	139	134
R ²	0.013	0.188	0.194	0.377	0.104	0.527
Overall P-Value	0.000	0.000	0.000	0.000	0.000	0.000

* means significant at 10%, ** means significant at 5%, *** means significant at 1%.

Source: Authors' elaborations from Orbis (2016) data

Table 3: Poisson estimates of Eq. (4)

	CIS		Developing		Developed	
	<i>PATENT</i> (1)	<i>PATENT</i> (2)	<i>PATENT</i> (3)	<i>PATENT</i> (4)	<i>PATENT</i> (5)	<i>PATENT</i> (6)
<i>OFDI_EUROPE</i>	2.074*** (0.000)	1.450*** (0.000)	32.418*** (0.000)	18.228*** (0.000)	4.902*** (0.000)	4.870*** (0.000)
<i>IFDI_EUROPE</i>	0.978* (0.080)	0.758*** (0.002)	1.270** (0.038)	1.180* (0.054)	0.282*** (0.000)	0.247 (0.451)
<i>Xfirm</i>	no	yes	no	yes	no	yes
<i>Xindustry</i>	no	yes	no	yes	no	yes
<i>Xcountry</i>	no	yes	no	yes	no	yes
Observations	2,257	2,126	1,005	923	139	134
R ²	0.006	0.184	0.194	0.377	0.096	0.555
Overall P-Value	0.000	0.000	0.000	0.000	0.000	0.000

* means significant at 10%, ** means significant at 5%, *** means significant at 1%.

Source: Authors' elaborations from Orbis (2016) data