



# FDI from the south: The role of institutional distance and natural resources

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## ABSTRACT

Using a novel dataset of bilateral FDI flows, we analyze location choices of investors from emerging economies, with an emphasis on institutions and natural resources. We show that FDI from the South has a more regional aspect than investment from the North. Institutional distance has an asymmetric effect on FDI depending on whether investors choose countries with better or worse institutions. In the latter case, large institutional distance discourages FDI inflows, but this deterring effect is diminished for destination countries with substantial resources. We also find a complementary relationship between capital flows from the North and the South in developing recipient countries, which we attribute to different FDI patterns of these investors.

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## 1. Introduction

The share of developing and transition countries in global foreign direct investment (FDI) outflows has doubled in the last 20 years, reaching 16% of the total FDI outward stock. Most of this increase has happened since 2004 (UNCTAD, 2010). This process has not only been driven by an active role of China whose share amounts to 8.5% of the total FDI stemming from the South.<sup>1</sup> Other important investors are Brazil, Hong Kong, India, Malaysia, Mexico, Russia, South Africa, South Korea, Singapore and the UAE, who together account for almost 80% of the total FDI outflows from the South in 2010. Most of the investment flows from developing countries go to other developing and transition economies, giving rise to the term “South–South FDI” and amount to one-third of the total FDI inflows in emerging economies (Aykut and Ratha, 2004). The appearance of these new global investors has been described as a “huge infusion” or “bonanza” in the popular media, reflecting the large amounts that are being invested. It has naturally raised a number of important questions regarding investors' strategies and motivations as well as implications for investors from the North.

Given the novelty of the subject and scarcity of the data, the academic literature about FDI stemming from the South is very limited and most existing papers are either descriptive or have a regional focus (Aykut and Ratha, 2004; UNCTAD, 2006; Buckley et al., 2007; Bera and Gupta, 2009). To our knowledge, there are only two studies that include investors from the South in their analysis of FDI determinants; Cuervo-Cazurra (2006) relies on FDI flows data, but restricts his sample to one year, and Darby et al. (2009) construct a panel dataset for a number of foreign affiliates of North and South companies. Both studies focus on institutional determinants of FDI.

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<sup>1</sup> We follow Aykut and Ratha (2004) and UNCTAD in defining “North” and “South” countries. In this paper, “North” includes only 22 high-income OECD countries, while “South” includes the rest: developing, transition economies, and six high-income non-OECD countries (Aruba, Brunei, Hong Kong, Kuwait, Singapore, UAE). Terms “the South”, “developing and transition economies” and “emerging economies” are used interchangeably throughout the paper.

The contribution of this paper is the following. First, we construct a novel dataset that combines information on bilateral FDI flows for 60 developing and 22 developed economies between 1996 and 2007, covering 85% of the world FDI flows. Second, relying on this dataset, we investigate whether investors from the South invest differently from their Northern counterparts. Besides traditional determinants of FDI, particular attention is paid to the institutional distance between source and destination countries and to endowment with natural resources. Third, having attested to differences between these investors, we inquire into the consequences of Southern FDI for investors from the North by studying the relationship between them. As we explain further, such test of substitution or complementarity can be considered as an additional approach to exploring differences and similarities between investors from the South and the North.

Our empirical analysis of FDI determinants yields a number of interesting results about the differences in behavior of South and North investors. We confirm earlier findings in the literature for investors from the North by showing that they are consistently deterred by a larger institutional difference between FDI source and destination countries. In contrast, for investors from the South, we find that institutional difference has an asymmetric effect depending on whether receiving countries possess better or worse institutions than origin countries. Those investors from the South that invest in countries with better institutions choose countries with the best possible institutions, thus giving preference to larger positive institutional distance. Despite unfamiliarity, such an institutional environment is the most transparent for potential entrants due to low corruption, sound property rights, and political stability. On the other hand, when investors from the South invest in countries with worse institutions than at home, institutional distance deters them, similarly to investors from the North. Most importantly, however, for South investors only, we find that the growing attractiveness of the primary sector diminishes the deterring effects of worse institutions in destination countries that are endowed with the largest natural resources. Finally, factors such as common language or being same country in the past are of greater importance for investors from the South than from the North.

Our focus on institutional distance is motivated by recent evidence showing that investors are not only discouraged by bad institutions in host countries but are also deterred by an institutional distance between origin and destination countries as they prefer to invest in countries with a similar institutional environment (Bénassy-Quéré et al. 2007; Habib and Zurawicki, 2002). These studies are performed on a sample of developed economies, but their results have an implicit implication that investors from the South may have a comparative advantage to invest in other developing countries (Claessens and Van Horen, 2008). Indeed, they may be eager and more able to operate in institutionally weak environments thanks to their previous domestic experience with poor institutions (Cuervo-Cazurra and Genc, 2008; Darby et al., 2009), as well as greater familiarity of business practices in similar markets (World Bank, 2006). This hypothesis could provide a very plausible explanation for the recent surge in South–South FDI. We extend this literature by explicitly testing the above hypothesis on a sample of investors from the South, but confirm it only partially. In fact, we argue that in the setting of the multitude of investors originating both from the North and the South, one cannot consider institutional distance between origin and destination countries in absolute terms, as has been done in the earlier literature. This is because such treatment implies a symmetric preference for worse and for better institutions, an assumption that may result in misleading conclusions. We show that more insight can be gained if one instead differentiates between flows to countries with better and with worse institutions.

Further, our focus on the endowment with natural resources is propelled by their growing strategic importance owing to increased demand and soaring prices, which motivates emerging economies to intensify efforts to acquire oil assets and invest in mining (UNCTAD, 2007).<sup>2</sup> To mitigate the domestic shortage of natural resources, the Chinese government has promoted outward FDI for resource exploration projects via preferential bank loans of the Export–Import Bank of China. As a result, between 2003 and 2005, the mining industry has accounted for 32% of total outward Chinese FDI, albeit its share has decreased since. The government of India has also mandated that its state-owned oil companies secure stakes in overseas oil deposits. While Russia does not need to secure resources for its own demand, it still has engaged in the competition for resources in the post-Soviet republics with the aim of selling them in international markets.<sup>3</sup> Other important emerging investors in the primary sector are Brazilian, Kuwaiti and Malaysian enterprises.

Importantly, companies from the South that invest in the primary sector are almost always state-owned and hence could be influenced by considerations other than economic ones. These investors appear to be less deterred by poor institutions in host countries than large private multinationals from developed countries (UNCTAD, 2007). As an extreme but instructive example, one may consider Chinese, Indian and Malaysian investment in Sudan that suffers from some of the worst institutions in the world and is facing United States economic sanctions due to the conflict in the Darfur region. China and Malaysia are also present in Iran, while Russia is the only major foreign investor in Belarus. Moreover, the availability of rents from natural resources is often negatively related to the quality of institutions in host countries and we indeed demonstrate that the omission of this variable can bias the results.

The emergence of large investors from the South may be viewed as taking away potential investment opportunities that could have been undertaken by investors from the North i.e. crowding them out.<sup>4</sup> However, we attest to numerous differences between investors from the South and the North, suggesting that investors from the South could be attracted by other types of activities or

<sup>2</sup> Despite the fact that companies from developing and transition economies now control most of the global production of oil and gas, their degree of internationalization is still relatively modest. Among five largest emerging country multinationals, only CNPC/PetroChina has any production abroad (17% of its total production). In comparison, the top privately owned oil multinationals from developed countries, ExxonMobil and BP, have at least 80% of their production in foreign countries.

<sup>3</sup> Turkmenistan and Uzbekistan, for instance, are large producers and exporters of natural gas, but they find it difficult to export due to restrictions on their access to the Russian Federation transit pipelines.

<sup>4</sup> Hillary Clinton, the US Secretary of State, has noted that some developing countries are making “disturbing” gains in Latin America. She said that the US was competing for attention and relationships with at least the Russians, the Chinese and the Iranians (The Economist, 2009).

sectors, and hence, these flows could be complementary. This would be good news for investors from developed economies, but also for developing receiving countries. Instead of emerging multinationals competing head-to-head with their counterparts from the North to earn market share, these countries would see different investment opportunities grasped by different investors. We test and confirm this hypothesis for the case of developing receiving countries.

The rest of this paper is organized as follows. [Section 2](#) reviews the theoretical predictions and empirical evidence on determinants of FDI; [Section 3](#) explains the data collection and summary statistics. [Section 4](#) presents our methodology and describes our empirical findings and [Section 5](#) concludes.

## 2. What makes FDI from the south different?

### 2.1. Institutional determinants

The traditional literature on FDI has paid particular attention to the importance of institutions in attracting FDI, suggesting several reasons why their quality may matter. In line with the growth literature, good economic institutions, such as property rights and rule of law, increase incentives to invest and improve the allocation of resources ([Acemoglu et al., 2005](#); [Kaufmann et al., 2002](#); [Rodrik et al., 2004](#)). This leads to higher growth prospective and, hence, renders a country more attractive for foreign investors. Second, a poor institutional environment, such as corruption ([Shleifer and Vishny, 1993](#); [Wei, 2000](#)) or criminality ([Daniele and Marani, 2011](#)), brings additional costs to FDI. Third, FDI has very high sunk costs, which makes investors reluctant to enter foreign markets unless they can write binding long-term contracts to decrease all types of uncertainty. Hence, government stability and institutions enabling contract enforcement are especially important ([Naudé and Krugell, 2007](#); [Busse and Hefeker, 2007](#)). If contracts and property rights are well-enforced, each agent will be able to recover its investment to a greater degree ([Levchenko, 2007](#)). The empirical literature supports these theoretical predictions and numerous studies demonstrate that strong institutions of host countries attract FDI ([Wheeler and Mody, 1992](#); [Daude and Stein, 2007](#)); however most of these studies focused on developed origin countries, and the analysis of developing countries' investors has been missing from the literature so far.

Poor institutional quality of potential host countries is often cited as the leading explanation for the scarcity of capital flows to poor countries predicted by the standard neoclassical theory – the “Lucas Paradox” ([Lucas, 1990](#); [Alfaro et al., 2008](#); [Papaioannou, 2009](#)). Thus, the above literature does not provide an explanation for the emerging phenomenon of the South–South FDI. To understand the role of institutions in the capital flows between developing economies, one should look at the studies of [Habib and Zurawicki \(2002\)](#) and [Bénassy-Quéré et al. \(2007\)](#), who propose to consider not only institutions in host countries, but also an institutional distance between the origin and the destination countries. They adopt the notion of “psychic distance” which asserts that companies choose to enter markets perceived to be psychologically closer because these countries present lower levels of uncertainty. Psychic closeness facilitates learning from host countries. In line with this hypothesis, they find that a larger institutional distance deters foreign investors. While these studies also analyze a sample of investors from mostly developed economies, their results imply that emerging investors from the South that are familiar with weak institutions may have a comparative advantage in investing in other developing economies that suffer from corruption and political instability. To the best of our knowledge, the only paper that studies the role of institutional distance on a sample that includes developing countries is [Claessens and Van Horen \(2008\)](#), but their study is restricted to banking FDI. They also report a deterring effect of a large institutional distance.

While not directly analyzing institutional distance, there are some studies that attest to the diminishing negative effects of bad host institutions if investors have earlier experience with poor institutional environment. [Cuervo-Cazurra \(2006\)](#) show that investors from countries with high corruption and a lack of enforcement of anticorruption laws select similar countries when they internationalize in order to exploit their familiarity with corrupt environments and because they face lower costs of operating as opposed to other investors.<sup>5</sup> [Darby et al. \(2009\)](#) develop and empirically test the hypothesis that multinationals with previous experience of imperfect institutions at home are less discouraged by institutional deficiencies abroad in contrast to multinationals with no such experience. They also show that good governance in host countries may even deter those investors who had previous negative experience at home. [Egger and Winner \(2005\)](#) test and confirm a “helping hand” impact of corruption on FDI according to which corrupt environments hasten the bureaucratic processes of setting up businesses. Taken together, these studies imply that incentives to invest differ across investors, and that countries with bad institutions do not necessarily have to improve institutional quality to attract investors. They may still see considerable investment inflows, albeit from a different type of investors.

Similarly, in a study of Chinese outward direct investment, [Buckley et al. \(2007\)](#) show that when choosing an investment location Chinese firms prefer countries with higher political risk, even after controlling for the rate of return. They advance a number of explanations that are linked to the nature and strategy of Chinese firms. This behavior could be led by state-owned firms that do not maximize profits or could be due to close political ties between China and other developing host countries, where the bargaining position of Chinese firms may have been strengthened because these host countries receive only a modest amount of FDI from developed economies. Chinese investors might be able to mitigate the risk associated with operating in a risky

<sup>5</sup> It should be mentioned that all investors, even those from developed countries, may engage in corrupt practices in order to smooth their business operations. [Hines \(1995\)](#) examines the impact of the Foreign Corrupt Practices Act of 1977 forbidding foreign bribery by American firms on subsequent US outward FDI growth to corrupt nations. Hines finds a lower FDI growth to corrupt states than to non-corrupt countries subsequent to the law's passage.

environment or be prepared to invest in countries that are usually avoided by other investors due to ethical reasons. These authors also blame the inexperience of Chinese investors who take decisions without sufficient due diligence and risk assessments. According to the [Boston Consulting Group Report \(2006\)](#), the largest Russian investors are also state-owned, and a similar logic may be applied to them.

It is important to also note, that earlier papers rely on a measure of institutional distance computed as an absolute difference between institutions in origin and destination countries. Thus, they assume that better or worse institutions have a similar deterring effect. Finding such an assumption unrealistic, we relax it by introducing the notions of positive (host institutions are better than home institutions) and negative institutional distance (host institutions are worse than home institutions). Whereas we presume that institutional distance plays a deterring role when institutions in destination countries are worse than at home (in line with previous studies), we hypothesize that a larger institutional distance should not harm and could even attract investors when institutions in destination countries are better than at home. Despite unfamiliarity, such an institutional environment is the most transparent for potential entrants due to the rule of law (the quality of contract enforcement and property rights), low level of corruption, sound and unobtrusive regulation that promotes private initiative, high accountability, good quality of public services and political stability. This also reflects “assets seeking FDI” as investors purchase multinationals with famous brands and the latest technologies, which are more likely to develop in institutionally friendly environments.

## 2.2. Institutions and resources

As was discussed in the [Introduction](#), a significant part of growth of FDI from the South has recently been driven by investment in natural resources. Interestingly, most developing countries that are endowed with natural resources have very poor institutions and, hence, it is necessary to look at the sources of this negative correlation. Most of the explanations found in the literature relate to the rents that are generated due to exploitation of natural resources and that are easily appropriated. A “rentier effect” occurs because revenues from the export of fuels and minerals allow governments to mollify dissent (buy off critics through lavish infrastructure projects or outright graft) and avoid accountability pressures (because taxes are low). They also increase incentives for corruption as well as discourage the development of better institutions, because those would erode the political advantage and future rents of the incumbents ([Acemoglu et al., 2004](#); [Acemoglu and Robinson, 2006](#); [Ades and Di Tella, 1999](#); [Robinson et al., 2006](#)). Numerous studies also show that natural resources income is one of the leading determinants of the probability of wars and of conflict duration ([Collier and Hoeffler, 2004](#); [Ross, 2004](#); [Collier et al., 2004](#)) with harmful effects on the quality of the legal system and thus on property rights ([Van der Ploeg, 2011](#)).

The above rent-seeking models are confirmed by a number of empirical studies. [Bhattacharyya and Hodler \(2010\)](#) rely on a dataset covering 99 countries during 1980–2004 and find that natural resources induce corruption in countries that have endured a non-democratic regime for a long time. [Isham et al. \(2003\)](#) stress that certain types of natural resources, such as oil and diamonds, have a particularly weakening effect on institutional capacity. In a quasi-experimental study, [Brollo et al. \(2010\)](#) argue that windfall government revenues worsen the functioning of institutions by reducing the degree of political accountability and deteriorating the quality of elected officials. [Vicente \(2010\)](#) documents an increase in corruption of 10% after the announcements of the oil discovery in São Tomé.

Such a close nexus between institutions and resources requires a simultaneous examination of the impact of institutions and endowment with natural resources, otherwise leading to a serious omitted variable bias. Surprisingly, very few papers address this issue. Exploring sector level data for one source country, [Poelhekke and Van der Ploeg \(2010\)](#) show that subsoil assets boost resource FDI, but also crowd out non-resource FDI, leading to lower aggregate amounts of foreign investment in countries endowed with natural resources. They attribute their results to the “resource curse”, but find no effect of institutions on non-resource FDI. Relying on country level data, [Asiedu \(2006\)](#) studies the impact of natural resources and bad host institutions on FDI in Africa and concludes that both factors are important in explaining FDI.

In this study, we show the effect of omitting and including natural resources as a determinant of FDI along with the institutions. The results suggest that the joint treatment of these variables is justified.

## 2.3. Complementarity versus substitution

Given the rise of investors from emerging economies, what are the implications for multinationals in developed economies? This depends on a number of factors. First of all, one has to know whether these investors compete in the same industries and sectors. [Bera and Gupta \(2009\)](#) show that investors in India from both the North and the South tend to concentrate in sectors that are equally characterized by larger markets, lower import intensity, and higher export orientation. Would this imply that South investors enter into competition with investors from the North for new investment opportunities? Besides their ability to deal with bad institutions, developing countries might have other advantages over developed countries when investing in the South, such as familiarity with low cost production processes and the use of technologies that are more appropriate for developing countries.<sup>6</sup> Moreover, there is anecdotal evidence that South–South FDI prepares emerging country corporations for ventures into developed economies by giving them the experience of competing with Northern companies in the Southern environment which

<sup>6</sup> For example, in Vietnam, TVs made by the Chinese TLC are the most popular brand as their powerful color receivers provide clear pictures even in remote areas.

they know. For example, before targeting Jaguar and Land Rover brands, Tata made important acquisitions in South Korea and Singapore.

Furthermore, one has to account for firm-specific advantages possessed by corporations from developing and developed countries. The latter are more likely to possess advantages based on ownership of key assets, such as technologies, brands and intellectual property, while developing country corporations rely more on advantages related to production process capabilities, networks and organizational structure (UNCTAD, 2006). This could lead to substitution relationship if firms rely on their different strengths to compete within the same industries. Alternatively, it can lead to a complementary relationship between multinationals from the South and the North as a number of investors from the South rely on a business model of serving multinationals from the North (which already exists in technology equipment, IT services, household appliances).

To the best of our knowledge, no study has explored the potential substitution or complementarity between South–South FDI and the ability of developed economies to invest in the South.<sup>7</sup> Methodologically, such a study would be related to the literature on the impact of FDI on domestic investment (Borensztein et al., 1998; Agosin and Machado, 2005). It would also be linked to a more recent literature that looks at the effect of large emerging FDI recipients, such as China, on the amount of FDI received by other developing countries (Eichengreen and Tong, 2007; Fung et al., 2008; Garcia-Herrero and Santabarbara, 2007; Mercereau, 2005). These papers find that FDI flows to China do not crowd-out FDI flows to other emerging economies in Asia, Latin America and Central and Eastern Europe.

It is important to mention that such a test should be viewed as an additional tool to analyze whether FDI from the South are driven by the same forces as FDI from the North. As our earlier discussion implies, a complementary relationship would suggest that FDI from the North and the South are different owing to different firm-specific advantages and/or choices of industries and sectors.

### 3. The data

To address these issues, we construct a novel comprehensive database of bilateral annual data on FDI inflows that, in addition to developed countries, the North, encompasses a significant number of investing countries from the South.

The data for developed countries come from the OECD statistics; while for other countries we use bilateral FDI inflow data from national sources, ASEAN and UNCTAD (for details, see Appendix 1 – Data Sources). In total, the dataset covers 82 host countries, of which 60 are located in the South. It also covers 163 source countries, of which 139 are from the South. The coverage is almost complete for receiving Latin American, Asian, Central and Eastern European and North African countries,<sup>8</sup> and, if contrasted to the IMF aggregate data on FDI inflows, it accounts for 85% of the total world FDI inflows. Even though earlier data are available for the majority of countries, the sample is restricted to the 1996–2007 period, in line with the availability of other indicators. This leaves us with 18,026 annual country-pairs in the bilateral dataset and with 38 source countries per destination and per year on average.

Over the studied period, there has been a considerable increase in the total amount of FDI inflows (Fig. 1). Notably, the amount of investment from the South has been increasing, almost doubling between the middle and the end of the considered period.

Table 1 contains some descriptive statistics of the FDI flows and of our key variables of interest. In Panel A of Table 1, these statistics are presented for the full sample. Distinguishing by sub-categories of investing and receiving countries, the FDI flows from North to North represent 63.4% of total FDI amount of our sample, even though there are only 14.8% of North–North country-pair observations in the sample (Panel A, columns 3 and 4). In contrast, South–South investments account for 14.5% of total FDI amount, while the South–South relationship is observed in 41% of the sample. In turn, North–south FDI represents 18.4% of total FDI flows while South countries invest relatively little into the North (3.7% of the total volume). Our analysis excludes inflows from islands and countries classified as tax havens or offshore financial centers. The information in Table 1, Panel A, column (2) also allows computing, by first summing up all flows originating from the South in rows 1 and 4, that 80% of FDI from the South is invested into the South. In the same manner, we can compute that 77% of FDI from the North is directed to the North.

All other data for our analysis come from standard sources: macroeconomic data are from the World Bank Development Indicators; geographic data are from the CEPII distance and geodesic databases; data on average years of schooling are from Cohen and Soto (2007). The data for natural resources are taken from the World Bank database on Natural Resources Wealth and are calculated as the present value of future rents from subsoil natural resources (oil, gas, coal, bauxite, copper, gold, iron, etc.) per capita. The definitions and descriptive statistics of all variables are provided in Appendix 2.

The data on institutions are from the World Bank Governance Matters database, described in Kaufmann et al. (2010). We work with six available measures of institutional quality – voice and accountability, political stability and lack of violence, government effectiveness, regulatory quality, rule of law and control for corruption. By relying on simple averages of these indicators, we construct annual differences between mean institutions in source and destination countries. Based on these data, we also construct a measure of institutional distance as an absolute distance between institutions in destination and origin countries. To differentiate between FDI in host countries with better or worse institutions than at home, we construct two additional measures.

<sup>7</sup> The question of substitution vs. complementarity is not analyzed for the South–north flows because these flows, accounting for just 3% of total flows, still do not represent an economically significant amount.

<sup>8</sup> Bilateral data for other African countries do not seem to be available. A notable exception is South Africa; however, this country reports FDI outflows rather than inflows.



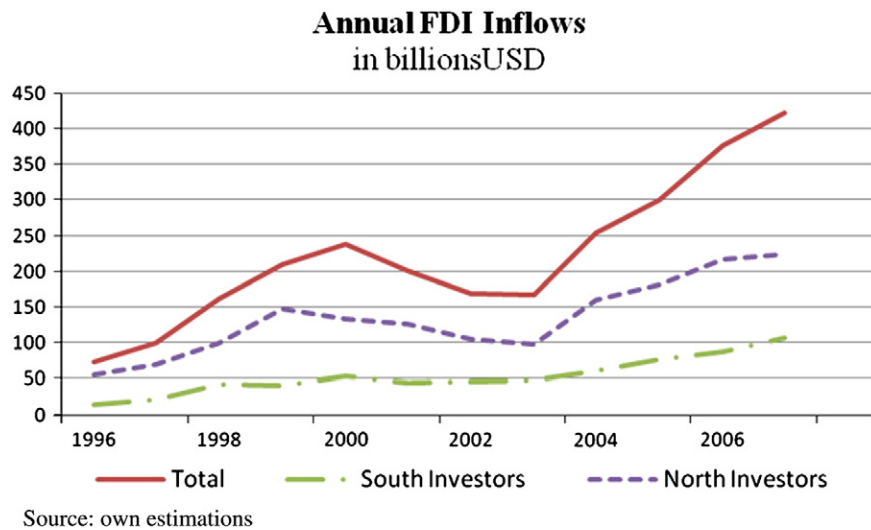


Fig. 1. The dynamics of FDI inflows.

Positive (negative) institutional distance is equal to an absolute institutional difference between destination and origin countries when institutions at destination country are better (worse) than at home and zero otherwise.

Panels B and C of Table 1 present descriptive statistics for the gravity-type sample split according to the investors' preferences of investing into countries with better, or worse, institutions than at home. By construction, specific types of flows in columns (2)

**Table 1**  
Summary statistics of bilateral inflows, 1996–2007.

Panel A: Full gravity sample						
Type of FDI relationship (source–destination)	Mean yearly flows; in mln USD	Aggregate flows for the period: percent of total	Observations: percent of total sample	Absolute institutional distance between partner countries	Correlation between inflows and absolute institutional difference	Correlation between host resources and inflows
(1)	(2)	(3)	(4)	(5)	(6)	(7)
South–South	96800	14.5	40.9	0.727	0.092	0.013
North–North	423000	63.4	14.8	0.380	–0.227	0.216
North–south	123170	18.4	26.8	1.528	–0.118	0.210
South–north	24500	3.7	17.5	1.439	–0.155	0.164
Panel B: Sub-sample with negative institutional distance (investing into worse institutions)						
Type of FDI relationship (source–destination)	Mean yearly flows; in mln USD	Aggregate flows for the period: percent of total	Observations: percent of sub-sample	Negative institutional difference between partner countries	Correlation between inflows and negative institutional difference	Correlation between host resources and inflows
(1)	(2)	(3)	(4)	(5)	(6)	(7)
South–South	78300	19.6	37.9	0.769	0.145	0.130
North–North	200000	49.8	14.5	0.385	–0.210	0.266
North–south	119000	30.1	46.3	1.563	–0.132	0.219
South–north	2350	0.44	1.2	0.293	–0.175	0.235
Panel C: Sub-sample with positive institutional distance (investing into better institutions)						
Type of FDI relationship (Source–Destination)	Mean yearly flows; in mln USD	Aggregate flows for the period: percent of total	Observations: percent of sub-sample	Positive institutional difference between partner countries	Correlation between inflows and positive institutional difference	Correlation between host resources and inflows
(1)	(2)	(3)	(4)	>(5)	(6)	(7)
South–South	18500	6.9	40.8	0.685	–0.003	–0.119
North–North	223000	83.3	16.9	0.369	–0.219	0.196
North–south	4170	1.3	1.7	0.275	–0.192	–0.138
South–north	22150	8.5	40.6	1.511	–0.152	0.167

Source: own calculations.

of Panels B and C, such as, for example, South–South flows, add up to the total South–South flows reported in column (2) of Panel A. One immediate interesting observation is that, if we consider only South–South flows, 81% of them go to countries with worse institutions than at home (negative institutional distance). This observation naturally raises concerns about the quality of this investment and the reasons for which countries from the South are attracted by countries with poor institutions.

The countries of our database exhibit significant variation in institutional quality. As shown in Table 1, Panel A, column (5), institutional disparities are, naturally, the largest between North and South countries. At the same time, institutional differences are much wider among South–South investors as opposed to North–North investors. This highlights the diversity of countries that are partners in South–South relationships as well as potentially different behaviors of investors from the South. The latter hypothesis is reinforced in Panel A, column (6). Whereas inflows from North to either North or South countries are negatively correlated with institutional differences between host and source countries – which is a common finding in the literature (Habib and Zurawicki, 2002; Bénassy-Quéré et al., 2007) – South–South flows exhibit a positive correlation with institutional differences.

When we look separately at negative and positive institutions distance, we find that the latter finding only holds for South economies investing into South countries with worse institutions (Table 1, Panel B, column 6). In other words, a part of South investors seems to be directed into countries with poorer institutional quality. However, for South countries investing into better South countries (Table 1, Panel C, column 6), the correlation is negative though next to nil. In all other instances, larger discrepancies between home and host institutions in both directions are negatively correlated with FDI inflows, as suggested by earlier literature.

Correlation coefficients between FDI inflows and resources in host countries hint at the possible trade-off between institutions and resources as attractors of FDI, notably for receiving South countries. Both South and North investors invest into institutionally worse economies which possess resources (Table 1, Panel B, column 7). In contrast, when both South and North countries choose institutionally better South economies, the latter tend not to have substantial resources (Table 1, Panel C, column 7).

For the second part of this paper, we additionally construct a panel dataset of receiving South countries, in which all incoming flows are aggregated into North and South flows. This database contains 399 panel type country–year observations. South flows represent a significant portion of total inflows into a number of developing and transition economies (Fig. 2), notably in Asia, but also in poorer countries of each sub-region, such as El Salvador in Latin America, Ethiopia in Africa, the former Republics of Yugoslavia and Central Asian former Republics of the Soviet Union. These countries are recipients of important amounts of regional FDI from richer and larger neighbors.

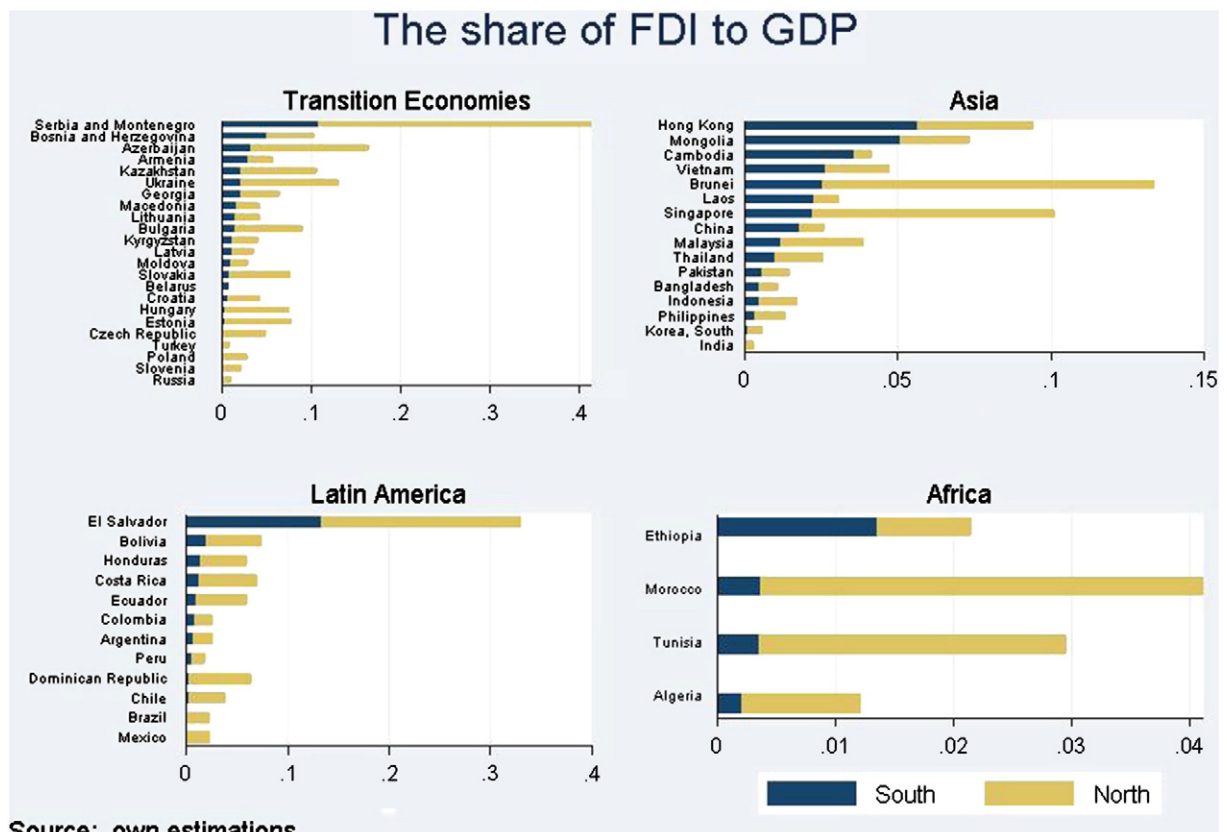


Fig. 2. The share of FDI inflows to GDP in developing and transition economies, 1996–2007.

## 4. Methodology and results

### 4.1. Institutions and other determinants of bilateral FDI: Are investors from the south different?

To estimate the differences in the investment behavior of investors from the South and the North, we rely on the gravity equation which has become commonly applied to bilateral FDI (Bénassy-Quéré et al., 2007; Daude and Stein, 2007; Javorcik et al., 2011).

In our initial specification, we follow earlier literature that estimates the effect of absolute institutional distance on FDI. To see a differential impact for developing and developed source countries, we interact institutional distance with a dummy variable that takes a value of 1 if the source country is located in the North. Hence, we estimate the following model:

$$\ln(FDI_{sdt}) = \alpha_0 + \alpha_1 Market\ size_{sdt} + \alpha_2 GDPcDiff_{sdt} + \alpha_3 \ln D_{sd} + \alpha_4 Contig_{sd} + \alpha_5 ComLang_{sd} + \alpha_6 SmCnt_{sd} + \alpha_7 Colony_{sd} + \alpha_8 InstDiff_{sdt} + \alpha_9 InstDiff_{sdt} * North_s + st_{st} + dt_{dt} + u_{sdt} \quad (1)$$

where  $\ln(FDI_{sdt})$  is a logarithm of bilateral uni-directional foreign direct investment from a source country  $s$  to a destination country  $d$  at a time  $t$ , *Market size* — logarithm of the product of the GDPs of origin and destination countries, *GDPcDiff* — absolute difference of GDP per capita, in logarithm, between origin and destination countries, *lnD* — logarithm of distance in kilometers between source and destination countries, *Contig* — a dummy variable equal to 1 if two countries have a common border, *ComLang* — a dummy variable equal to 1 if two countries share a common language, *SmCnt* — a dummy variable equal to 1 if two countries belonged to the same country in the past, *Colony* — a dummy variable equal to 1 if two countries share a colonial past, *InstDiff* — an absolute difference in institutions between destination and source countries and *North* — a dummy variable equal to 1 if the source country is a developed one.

Following Baldwin and Taglioni (2006), we include time-variant source and destination country dummy variables,  $st_{st}$  and  $dt_{dt}$ , in all our specifications in order to remove the cross-section and time-series correlation that result from an omitted variable bias. Moreover, this allows us to control for the omission of the term that Anderson and van Wincoop (2003) refer to as “multilateral trade resistance”. By definition, such an approach cannot be used in the analysis of the impact of host and home institutions because these variables cannot be included into regression such as Eq. (1). This provides an additional motivation to focus on institutional distance. Likewise, the dummy variable *North* is omitted from the regressions even though we are able to keep the interaction term of this variable with the *InstDiff* variable. To the best of our knowledge, ours is the first paper on institutional distance that includes time-variant source and destination country dummies and thus controls for all time-variant source and destination country effects, including home and host institutions.

The estimation results for this gravity equation are presented in column (1) of Table 2. If significant, all standard gravity variables are correctly signed. Geographic distance has a negative impact on FDI bilateral flows. Common border, language, colonial history and belonging to the same country in the past exert a positive influence. We also control for the difference in GDP per capita between origin and destination countries because it can be correlated with institutional distance. Alternatively, this variable can be interpreted as a test of the Linder hypothesis for FDI flows, according to which firms direct their investment primarily to markets with income levels similar to those of their home markets (Fajgelbaum et al., 2011). We do not find any statistically significant effect of this variable.

The coefficient on the institutional distance should be interpreted as the impact of institutional distance on the FDI outflows from the South, while the sum of this coefficient with the interaction coefficient should be interpreted as the impact on the FDI outflows from the North. As we see, the sum is negative (and statistically significant at 1%), reflecting the fact that investors from developed economies prefer to invest in countries with a similar institutional environment. This finding is in line with the results of Habib and Zurawicki (2002) and Bénassy-Quéré et al. (2007) that study FDI flows of OECD countries.

When it comes to developing and transition economies as source countries, we observe that institutional distance does not deter their FDI outflows and even has a positive effect, thus suggesting that investors from the South invest in countries with either much better or much worse institutions than at home. While the former effect is not surprising, the latter one is puzzling. However, in the current setting, it is not possible to see whether it is, in fact, better or worse institutions that stimulate the FDI from the South because the absolute value of the distance is used.

To shed more light on this issue, in column (2) of Table 2, we disaggregate the absolute institutional distance into positive (when institutions in the destination country are better than in the source country, that is, investors choose better institutional environment) and negative institutional distance (when institutions in the destination countries are worse than in the source country, that is, investors choose worse institutional environment). The idea behind this disaggregation is based on the hypothesis that the effect of positive and negative institutional distance is not symmetric because investing in countries with much better institutions (large positive institutional distance) could be attractive. The regression results show that this disaggregation plays no role for investors from the North, who always prefer to invest in countries with similar institutions, as suggested by the negative and statistically significant coefficients on the disaggregated institutional distance interacted with the North dummy. In contrast, the disaggregation is important for investors from the South. Our previous result that institutional distance plays a positive role for FDI from the South remains unchanged; however, we note that it is fully driven by the positive institutional distance: When they invest in countries with better institutions, they are attracted by the best institutions. At the same time, when investors from the South invest in countries with poorer institutions than at home, they appear not to care about



**Table 2**

Institutional and other gravity-type determinants of FDI Flows.

Dependent variable: $\ln(FDI)$	Absolute institutional distance	Positive and negative institutional distance
	(1)	(2)
Market size	0.102 (0.130)	0.343*** (0.0968)
GDPcDiff	0.0196 (0.0253)	0.00551 (0.0265)
lnD	−0.888*** (0.0248)	−0.892*** (0.0249)
Contig	0.382*** (0.0728)	0.375*** (0.0729)
ComLang	0.542*** (0.0608)	0.545*** (0.0608)
Colony	0.837*** (0.0769)	0.830*** (0.0769)
SmCnt	0.739*** (0.113)	0.741*** (0.113)
InstDiff	0.275*** (0.0497)	
InstDiff*North	−0.388*** (0.0667)	
NegInstDiff		−0.143 (0.215)
NegInstDiff*North		−0.461*** (0.101)
PosInstDiff		0.683*** (0.218)
PosInstDiff*North		−0.812*** (0.281)
Constant	14.21** (5.593)	3.058 (4.089)
Observations	18026	18026
R-squared	0.637	0.637

Column (1) presents estimation with an absolute institutional distance; (2) with positive and negative institutional distance. All models include time variant destination and source dummy variables.

\*, \*\*, \*\*\* Statistical significance at 10%, 5%, and 1% levels, respectively.

institutional quality. We also note that all other control variables are correctly signed, and that *Market size* variable gained significance and is positive.

The last finding, that investors from the South ignore institutional environment when they invest in countries with worse institutions, does not have a plausible explanation, unless we consider natural resources. As discussed in Section 2, natural resources could be an important driver of FDI and its omission could bias the results owing to the negative relationship between natural resources endowment and institutions. To control for this, we split the sample into the South and the North origin countries and estimate specifications that include an interaction term between the availability of subsoil resources in host countries and positive or negative institutional distance<sup>9</sup>:

$$\ln(FDI_{sdt}) = \alpha_0 + \alpha_1 Market\ size_{sdt} + \alpha_2 GDPcDiff_{sdt} + \alpha_3 lnD_{sd} + \alpha_4 Contig_{sd} + \alpha_5 Comlang_{sd} + \alpha_6 SmCnt_{sd} + \alpha_7 Colony_{sd} + \alpha_8 PosInstDiff_{sdt} + \alpha_9 PosInstDiff_{sdt} * \ln(Resources_d) + \alpha_{10} NegInstDiff_{sdt} + \alpha_{11} NegInstDiff_{sdt} * \ln(Resources_d) + st_{st} + dt_{dt} + u_{sdt} \quad (2)$$

where *PosInstDiff* (*NegInstDiff*) is the absolute difference in institutions between destination and source countries if institutions in a destination country are better (worse) than institutions in a source country and zero otherwise, *Resources* is the value of subsoil assets per capita in a destination country.

Our findings are presented in Table 3 and offer support for the hypothesis that the availability of natural resources is an important determinant of FDI from the South and hence cannot be excluded from the estimation. Moreover, controlling for resources changes the signs and significance of the coefficients on institutions, suggesting that omitting this variable indeed biases the results. Columns (1)–(2) of Table 3 contain the results of the baseline specification. In columns (3)–(4), we test the robustness of our results by excluding China from source and destination countries. Finally, in columns (5)–(6) we restrict our definition of resources to fossil fuels only, such as oil, gas and coal.

<sup>9</sup> Since we include time-varying source and destination country dummies, the variable for natural resources is dropped in the estimation, but it is preserved in the interaction terms with institutional distance.

**Table 3**

Institutional distance and resources as determinants of FDI.

Dependent variable: $\ln(FDI)$						
	Baseline (All subsoil resources)		Without China (All subsoil resources)		Baseline (Fossil fuels only)	
	South	North	South	North	South	North
	1	2	3	4	5	6
Market size	0.164 (0.167)	0.350** (0.175)	−0.0507 (0.128)	0.363** (0.177)	0.725*** (0.149)	0.396** (0.161)
GDPcDiff	0.0922*** (0.0337)	−0.120 (0.152)	0.149*** (0.0385)	−0.121 (0.154)	0.0561* (0.0328)	−0.110 (0.142)
lnD	−0.821*** (0.0410)	−0.983*** (0.0407)	−0.784*** (0.0437)	−0.972*** (0.0411)	−0.805*** (0.0403)	−1.027*** (0.0405)
Contig	0.675*** (0.0944)	0.00197 (0.134)	0.865*** (0.104)	0.00473 (0.134)	0.675*** (0.0932)	−0.00915 (0.129)
ComLang	0.912*** (0.0801)	0.135 (0.100)	0.845*** (0.0863)	0.149 (0.101)	0.885*** (0.0786)	0.0236 (0.0971)
Colony	0.376*** (0.102)	1.499*** (0.120)	0.457*** (0.108)	1.493*** (0.120)	0.380*** (0.101)	1.564*** (0.119)
SmCnt	0.301** (0.131)	0.485 (0.346)	0.216 (0.139)	0.501 (0.347)	0.287** (0.129)	−0.118 (0.321)
NegInstDiff	−1.928*** (0.265)	−0.899** (0.374)	−1.070 (0.316)	−0.882** (0.379)	−1.030*** (0.204)	−0.803** (0.355)
NegInstDiff*ln(Resources)	0.112*** (0.0256)	0.0253 (0.0316)	0.107*** (0.0263)	0.0228 (0.0317)	0.113*** (0.0232)	0.00875 (0.0266)
PosInstDiff	1.409*** (0.249)	−0.0993 (0.458)	0.528** (0.250)	−0.140 (0.463)	0.706*** (0.183)	0.367 (0.362)
PosInstDiff*ln(Resources)	0.0190 (0.0168)	0.0695 (0.0506)	0.00964 (0.0182)	0.0707 (0.0505)	0.0117 (0.0123)	0.0276 (0.0330)
Constant	11.22 (7.302)	6.324 (9.072)	21.36*** (5.927)	5.144 (9.252)	−10.24 (6.654)	3.867 (8.407)
Observations	10068	7471	8442	7310	10600	7785
R-squared	0.596	0.650	0.618	0.649	0.590	0.653

All estimations contain the full set of time variant source and destination fixed effects.

\*, \*\*, \*\*\* Statistical significance at 10%, 5%, and 1% levels, respectively.

Our results lead us to the following conclusions. First, we consider the case when institutions in host countries are superior to those of home countries (see the coefficient on *PosInstDiff* in Table 3). Investors from the North are indifferent to such institutional distance. In contrast, South investors are attracted by it. These results are robust if we exclude China or if we restrict the definition of natural resources to fossil fuels. As discussed in Section 2, despite being unfamiliar for South investors, better institutional environment is more transparent for potential entrants due to the rule of law and low level of corruption, and hence is appealing.

Second, we consider the case where institutions in host countries are worse than those of home countries (see the coefficient on *NegInstDiff* in Table 3). In this case, investors appear to choose countries that are similar in terms of institutional quality and a large institutional distance is a deterrent for all investors irrespective of their origin. With this result, we thus confirm earlier findings for the sample of investors from the North and provide new evidence for investors from the South. However, as mentioned earlier, the economic magnitude of the flows into countries with worse institutions than at home is very important for South–South FDI, and amounts to 81% of South–South FDI flows (Table 1). At the same time, what our regression results suggest is that despite the fact that South firms overwhelmingly invest in countries with worse institutions, they are actually discouraged by larger negative institutional distance. If they are to invest in countries with worse institutions than at home, they would be still deterred by the very worst institutions. Thus, taking together the descriptive statistics and the regression results, it can be deduced that most of the South–South FDI actually go into countries with only marginally worse institutions. These results are robust across all specifications.

Third, those investors from the South that invest in countries with worse institutions are less deterred by institutional distance when host countries are endowed with a large wealth of natural resources, as implied by the coefficient on the interaction term  $NegInstDiff_{sdt} * \ln(Resources_d)$ . If we rely on the coefficients in column 5 of Table 3, we find that for countries possessing fossil fuels that are worth more than 9000 USD per capita (top 5% of our sample), the attraction of natural resources outweighs the negative effect of institutional distance.<sup>10</sup> To name a few, this concerns countries such as Algeria, Russia, and Venezuela. Importantly, the interaction between institutional distance and resources is not significant for investors from the North, which are consistently deterred by worse institutions, despite the availability of resources in host countries.

<sup>10</sup> 9000 USD refer to the threshold level, or a minimum natural resources level under which the impact of negative institutional difference on FDI reverses its sign. It is computed by using the FDI impact of a marginal increase in institutions, implied by regression coefficients in Table 3, column 5:  $\frac{d(\ln(FDI))}{d(NegInstDiff)} = \alpha_{10} + \alpha_{11} * \ln(Resources_d) = -1.030 + 0.113 * \ln(Resources_d)$ .

Finally, we observe that certain traditional determinants such as common border and common language have a much larger impact on investors from the South than investors from the North. While these findings corroborate previous cursory observations of the regional aspect of South FDI (Aykut and Ratha, 2004; UNCTAD, 2006; Boston Consulting Group Report, 2006), our study is the first attempt to formally test this hypothesis within the gravity model framework. Also, investors from the North and the South behave differently when it comes to market size and income level of their destination countries. While investors from the North are attracted by large market size, this effect is not significant for investors from the South. In contrast, we find that differences in GDP per capita between origin and destination countries are of statistical relevance for South, but not for North investors.

#### 4.2. Complements or substitutes?

The analysis in the previous section allows us to conclude that emerging country investors behave differently from investors from developed economies. Geographic and linguistic distance appears to be a larger obstacle for the former while at the same time significant differences also exist vis-à-vis institutional distance and resource attractiveness. Given such differences, we would like to see whether investment flows from the North and the South behave as complements or substitutes. This question is of particular importance for developing host countries where source countries from both the South and the North are present.

To explore this issue, one can estimate the determinants of FDI at the aggregated level of destination countries focusing only on South recipients and cumulating, on a yearly basis, two broad types of foreign inflows – from the North and from the South. Following the Borensztein et al. (1998) methodology of studying the crowding-out effect of FDI on domestic investment, the estimated model would take the following form:

$$\begin{aligned} TotalFDI\_GDP_{dt} = & \beta_0 + \beta_1 SouthFDI\_GDP_{dt} + \beta_2 Resources + \beta_3 Resources * \\ & SouthFDI\_GDP_{dt} + \beta_4 Controls_{dt} + \mu_t + \varepsilon_{dt}. \end{aligned} \quad (3)$$

where  $TotalFDI\_GDP_{dt}$  is a ratio of total FDI to GDP in destination country  $d$  at time  $t$ ,  $SouthFDI\_GDP_{dt}$  is the amount of foreign direct investment from South investors over GDP in country  $d$  at time  $t$ ,  $\mu_t$  is a set of year fixed effects, and  $Controls_{dt}$  is a set of traditional determinants of FDI, such as the level of initial income, the level of initial human capital, government consumption, and host institutions (see also Mercereau, 2005). We also augment this specification by the variable  $Resources$ , the natural resources endowment. To see potential differences in North–south FDI relationship in resource-rich and resource-poor countries, we also interact this variable with South FDI flows.

In the absence of the interaction term in Eq. (3), we would have been interested in the magnitude of the coefficient on  $SouthFDI\_GDP_{dt}$ . In this case, if aggregate FDI flows from the South simply augment total FDI, the coefficient on this variable,  $\beta_1$ , should be equal to one. However, if FDI flows from South investors augment total FDI more than one-to-one, in other words, if there is a complementary relationship between South and North FDI, the coefficient on this variable should be greater than one. By the same token, a coefficient below one would imply the substitution between two types of flows. With the interaction term in the Eq. (3), it is the total effect of a unit change in the  $SouthFDI\_GDP_{dt}$  variable, given by  $(\beta_1 + \beta_3 Resources)$ , that should be greater than one to imply the complementarity relationship.

Estimation results based on this approach are summarized in Table 4, column (1). The coefficient on  $SouthFDI\_GDP_{dt}$  is found to be significantly greater than one while the interaction term is positive and also statistically significant. The total effect of a unit change in  $SouthFDI\_GDP_{dt}$ , evaluated at the mean value of natural resources, on the overall share of FDI to GDP is of the order of 2.219. Furthermore, we can also compute the confidence interval for this effect. Taking into account the interaction term, the 95% confidence interval for the unit change of  $SouthFDI\_GDP_{dt}$  on  $TotalFDI\_GDP_{dt}$  is obtained as  $(\beta_1 + \beta_3 * Resources) \pm 1.96 * SE(\beta_1 + \beta_3 * Resources)$ , where SE is the standard error of the total effect of this unit change. The formula for the confidence interval can further be rewritten as  $(\beta_1 + \beta_3 * Resources) \pm 1.96 * \sqrt{(V(\beta_1) + 2 * Resources * Cov(\beta_1; \beta_3) + V(\beta_3) * Resources^2)}$ . Using the regression variance–covariance matrix output and evaluating this expression at the mean value of natural resources, the obtained confidence interval for the total effect of a unit change in  $SouthFDI\_GDP_{dt}$  is (1.994; 2.446). This result suggests that in the absence of natural resources, aggregate South investment inflows increase aggregate total investment more than one for one. In other words, South FDI is complementary to North FDI. In the presence of natural resources, this complementary effect is actually amplified.<sup>11</sup>

The regression in Table 4 column (1) does not control for country fixed effects. This is deliberate as we are interested in seeing the effect of standard determinants of FDI suggested by the literature, some of which do not vary over time. The non-inclusion of country fixed effects, however, may affect both the coefficients on these regressors and on  $SouthFDI\_GDP_{dt}$ , especially if some of the omitted country characteristics are correlated both with South and North FDI. We thus repeat the estimation controlling for country fixed effects (Table 4, column 2). Indeed, both the coefficient on  $SouthFDI\_GDP_{dt}$  and on the interaction term are smaller than the coefficients obtained in column (1), suggesting that part of the positive bias has been eliminated by including these terms. Nevertheless, the total effect of the unit change in  $SouthFDI\_GDP_{dt}$  remains greater than one. It equals 1536 and falls into the confidence interval of (1.367; 1.705).

<sup>11</sup> In the current setting, we are not able to see whether this complementarity concerns only the resource FDI, or the resource and non-resource FDI. The distinction may be important, as suggested, for instance, by Poelhekke and Van der Ploeg (2010)

**Table 4**

Complementarity or substitution between investment from the South and the North.

Dependent variable: <i>TotalFDI_GDP</i>					
	A-la Borensztein et al. (1998)	A-la Borensztein et al. (1998) Including scountry fixed effects	Blundell and Bond (1998) + Borensztein et al. (1998)	Blundell and Bond (1998) + Borensztein et al. (1998)	A-la Borensztein et al. (1998) Cross-section
	(1)	(2)	(3)	(4)	(5)
SouthFDI_GDP	1.731*** (0.193)	1.268*** <sup>a</sup> (0.158)	1.385*** (0.383)	1.278*** (0.403)	2.153*** (0.587)
Resources	9.39e−07 (9.38e−07)		2.15e−06 (2.76e−06)	−3.51e−06 (5.40e−06)	−1.90e−07 (2.06e−06)
SouthFDI_GDP*Resources	0.00023*** (4.9e−05)	0.0001*** (0.00004)	2.01e−05 (8.05e−05)	−8.71e−05 (0.000150)	0.001** (0.0001)
Initial income (1996)	−0.003 (0.003)		−0.003 (0.004)	−0.008 (0.008)	−0.003 (0.007)
Initial education (1996)	0.003*** (0.001)		−0.001 (0.004)	−0.003 (0.005)	0.002 (0.002)
Gov. consumption	0.005 (0.006)	0.008 (0.012)	0.010 (0.019)	−0.004 (0.021)	0.009 (0.014)
Host institutions	0.018*** (0.004)	0.021** (0.010)	−0.005 (0.014)	−0.006 (0.016)	0.017- (0.009)
SouthFDI_GDP (−1)			−0.702** (0.334)	−0.559- (0.303)	
SouthFDI_GDP (−2)				−0.453 (0.480)	
TotalFDI_GDP (−1)			0.712*** (0.087)	0.787*** (0.184)	
TotalFDI_GDP (−2)				0.002 (0.199)	
Constant	−0.067** (0.028)		0.011 (0.084)	0.105 (0.128)	0.005 (0.053)
N Obs	352	382	303	276	37
R-squared	0.524	0.716			0.704
Sargan (p-value)			0.384	0.225	
First-order serial correlation (p-value)			0.093	0.038	
Second-order serial correlation (p-value)			0.323	0.432	
Total effect of SouthFDI_GDP	2.219	1.536	2.372	3.375	

Columns 1, 2 and 5 are estimated by OLS and include the full set of year fixed effects; reported are robust standard errors. Column 2 contains the full set of country fixed effects. Columns 3 and 4 are estimated using the one-step generalized method of moments. Instruments in GMM estimation: time dummies and GDP growth. Statistical significance at \*10%, \*\*5%, and \*\*\*1%, respectively.

<sup>a</sup> Test of the hypothesis that the coefficient is greater or equal to one: P-value = 0.956. Test of the hypothesis that the coefficient is smaller or equal to one: P-value = 0.047.

In addition to this, to control for the endogeneity of our variable of interest due to simultaneity and to also test the complementarity hypothesis in the long run, we estimate specification (3) using the [Blundell and Bond \(1998\)](#) system GMM estimator, which is a joint estimation of the equation in levels and in first differences. Adoption of this methodology is motivated by a similar application by [Agosin and Machado \(2005\)](#) to testing long-run complementarity between foreign and domestic investment. In column (3) of [Table 4](#), we embrace a specification that allows the current total amount of foreign investment to depend on the current and lagged value of South FDI as well as on the lagged value of total investment. Given the time-invariance of resources, it is interacted only with the current level of South FDI. In column (4) of [Table 4](#), we also inquire into a possible longer-term relationship, including two lags of the South and total investment variables. In both cases, we use year effects and previous GDP growth proxying returns on investment ([Gastanaga et al., 1998](#)) as instruments in GMM estimation. Both specifications fare well according to tests of first and second order serial correlation. Sargan test does not allow rejecting the null hypothesis of the validity of the instruments. Based on these two specifications, the computed complementarity effect between South and North FDI ranges from 2.372 to 3.375.<sup>12</sup> Given the careful treatment of endogeneity, we can attribute this result to

<sup>12</sup> The long term effect of South FDI is equal to the sum of short-term coefficients on South FDI divided by 1 minus the sum of coefficients of the lagged dependent variable:

$$\hat{\beta}_{LR}(\text{SouthFDI\_GDP}_{dt}) = \frac{\sum \hat{\beta}_{ST}(\text{SouthFDI\_GDP}_{dt})}{1 - \sum \hat{\beta}(\text{TotalFDI\_GDP}_{dt})} \quad (4)$$

crowding-in of investors from the North by investors from the South. The amplifying effect of natural resources endowment on this complementary relationship, however, is not robust.

Finally, to mitigate the volatility of yearly data, we also confirm these results in column (5) of Table 4, re-estimating Eq. (3) on cross-section data averaged for the studied period. Despite the small sample size, our results of complementarity between investment from the North and the South remain valid.<sup>13</sup>

## 5. Conclusions

While South–South FDI flows constitute one-third of total foreign investment in developing and transition economies, there has been a lack of a systematic study of the determinants and implications of such flows, mainly due to data limitations. We attempt to fill this gap by relying on our novel dataset of FDI flows and asking two simple questions: (1) Do foreign investors from the South behave differently from investors from the North; and (2) Do investments from the South serve as complements or substitutes to investments from the North?

We demonstrate that FDI from the South has a more regional exposure than investment from developed countries, as common border and common distance appear to be more important for the former investors. Whereas we confirm previous findings that large institutional distance deters investors from the North, the relationship between FDI and institutional distance is more complex for emerging economies. Our findings lead us to the following conclusions.

First, when countries from the South invest in countries with better institutions, institutional distance can be viewed as a driving force. This is likely due to the “asset-seeking” nature of FDI, as emerging investors acquire new technologies, brands, and intellectual property, which are more likely to be found in a good institutional environment.

Second, when emerging economies invest in countries with worse institutions, they are on average deterred by the very worst institutions. Since the vast majority of South FDI actually does go into countries with worse institutions, we thus argue that the rise in South–South FDI is driven by firms that invest in countries with relatively similar and only marginally worse institutions.

Third, a negative effect of an institutional distance can be diminished if host countries are endowed with large reserves of natural resources. Their appeal appears to be an important force behind FDI from the emerging economies that strive to secure the possession of subsoil resources. One of the alternative explanations of this finding may also be related to the FDI-receiving countries' responsiveness to strategically important acquisitions. Well-functioning institutions in the North can efficiently react to and block investments from the South if they are strategically undesirable. As a result, the South's investors may simply be left with investment opportunities in only those countries where such opportunities are institutionally easier to seize. Moreover, they may also intentionally direct their effort into environments suffering from the “resource curse”, that is, possessing natural resources but suffering from poor institutions.

Our analysis implies that countries with bad institutions do not necessarily have to improve institutional quality in order to attract investors. They may still see considerable investment inflows, albeit from a different type of investors and into different sectors, such as the primary sector. This, however, can present problems for receivers of such investments if their resources are overexploited, and if the benefits of such investments are not properly shared. In addition, ignoring bad institutions in a search of natural resources could also pose serious problems in the future for investors from the South. Recently, a combination of bad institutions, growing strategic importance of natural resources and large windfalls have led to the nationalization of oil and gas resources in Bolivia, Venezuela and Ecuador. In these instances, investors from the North have borne the costs. It remains to be seen whether these were isolated cases or whether a perceived loss of control over natural assets, with accompanying implications for national security, will motivate other countries with poor property rights protection to renegotiate contracts signed with foreign investors with the aim of increasing state control.

The emergence of new multinational corporations in the South does not displace other investors and, if anything, appears to be rather complementary to FDI from the North. Given our careful treatment of endogeneity, we can talk about a crowding-in of investment from the North by emerging country investors. We attribute this outcome to differences in investment behavior between developed and developing economies.

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<sup>13</sup> Having considered the impact of the South FDI on the flows originating in the North, one can also wonder about the reverse impact, namely whether FDI from the North crowd-in or crowd-out investors from the South. To address this issue, we estimate Eq. (4) with FDI from the North as an explanatory variable and our findings indicate a crowding-in effect as well. Thus, there is a mutually reinforcing relationship between FDI from the South and the North. This might appear surprising at first, because the estimated equations imply that an increase in USD1 of the South FDI should lead to a larger increase of the total FDI and the same applies to an increase in the North FDI, which is not possible if total FDI are equal to the sum of FDI from the North and the South. However, such an identity does not have to hold if we rely on lags of our explanatory variables, as is the case in specifications 2–3. In specifications 1 and 4, the above identity should hold for each country, but not in the cross-country context. For example, FDI flows from China to India could crowd-out an investor from the North in India but motivate this investor to redirect its investment to another developing country.