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# Building Stronger Economic Institutions in Developing Countries, the Role of FDI

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### **Building Stronger Economic Institutions in Developing Countries, the Role of FDI**

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**Abstract**

Foreign Direct Investment flows to developing economies have increased significantly over the last decades, bringing about important changes in the developing world. This paper is interested in the institutional aspect of these changes, a dimension weakly investigated in the development literature. More precisely, it explores how the quality of economic institutions in developing countries responds to changes in FDI inflows. The results, based on extensive data on FDI for a large sample of developing countries over the period 1990-2009, show that economic institutions improve in countries with larger FDI flows. On average, a 10-point increase in FDI inflows as a percent of GDP is associated with a 0.9-point increase in the quality of economic institutions. The results also show that this effect is driven by FDI flows from developed economies while no significant link is detected for FDI from developing economies. Furthermore, they indicate that the positive institutional impact of total FDI is likely to be mitigated in countries where the natural resources sector represents a major driver of FDI. The findings suggest that the quality of the institutions in FDI origin countries matters in the FDI/economic institutions relationship in the developing world. Overall, the results are robust to a series of sensitivity tests including the introduction of additional control variables, the exclusion of outliers, the test of income group and regional effects, and heterogeneity analysis based on the level of institutional development of the origin countries.

**Keywords**

economic institutions, property rights, FDI, developing countries

**JEL Codes**

LF21, C23, E02

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# 1 Introduction

Foreign Direct Investment (FDI) has been a significant source of capital formation in the developing world since the 1990s. Between 1990 and 2015, total FDI inflows in developing economies<sup>1</sup> increased steadily<sup>2</sup> to about USD 730 billion, i.e., by more than 2000 percent. These high levels of FDI are viewed by many as an important source of development financing as they contribute to closing the investment-saving gap and allow the transfer of advanced technology or management techniques embodied in FDI (see for example [Combes et al., 2019](#)). However, other aspects beyond these traditional economic mechanisms also deserve attention to capture the full potential of FDI for economic development. The goal of this paper is to explore the institutional aspect by examining the effects of FDI flows to developing economies on their economic institutions.

The increased competition among countries to attract FDI has led governments to provide cost-reducing conditions to foreign investors, such as tax cuts. A key determinant of a country's attractiveness to FDI is the quality of its institutions. It is established both theoretically and empirically that countries with better institutions tend to attract larger FDI<sup>3</sup>, everything else equal, for the lower costs of doing business associated with good institutions. Cognizant of investors' need for good institutions, governments, therefore, have incentives to improve their institutional environment to strengthen their competitiveness. Consistent with this argument, the 2017 World Investment Report pointed out that there was a global rush in many countries to promote a more favorable environment for foreign investors in 2016 with 108 countries, including 106 developing countries adopting a total of 111 investment laws that promote investment ([UNCTAD, 2017](#)).

Unlike other forms of foreign capital such as portfolio investment, FDI implies establishing a lasting interest by the direct investor in the host country through the direct investment enterprise<sup>4</sup>. In their quest for cost-reducing environments, foreign direct investors resort to lobbying and pressure to frame cost-reducing institutions ([Dang, 2013](#); [Malesky, 2009](#)). As suggested by [Hewko \(2002\)](#), two mechanisms serve to predict if they can succeed or not in influencing prevailing institutions: (i) the ability to provide the local policymakers with information on laws and regulations in other countries; (ii) and the ability to coerce

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<sup>1</sup>Based on the UNCTAD's classification of countries. Developed countries are Australia, Austria, Belgium, Canada, Switzerland, Cyprus, Germany, Denmark, Spain, Finland, France, Greece, Hong Kong, Ireland, Iceland, Israel, Italy, Japan, Luxemburg, Netherlands, Norway, New Zealand, Portugal, Sweden, United Kingdom, and the USA. Developing economies include all other countries including transition economies. See <https://unctadstat.unctad.org/EN/Classifications.html>.

<sup>2</sup>Except for some disruptions such as the decrease in 2009 due to the global financial crisis.

<sup>3</sup>See [Bailey \(2018\)](#) for a recent review.

<sup>4</sup>As defined by the Balance of Payments and International Investment Position Manual: Sixth Edition of the International Monetary Fund ([IMF, 2009](#)), FDI arises when a unit resident in one economy makes an investment that gives control or a significant degree of influence over the management of a company that is resident in another economy. This concept is operationalized where a direct investor owns equity that entitles it to 10 percent or more of the voting power (if it is incorporated, or the equivalent for an unincorporated company) in the direct investment enterprise.

them by threatening to leave for more hospitable investment environments. The potential of foreign investors as agents of institutional change is more relevant in developing host countries, given their relatively low bargaining power.

Institutions can be delineated in many ways. Following [Acemoglu and Robinson \(2012\)](#), this paper refers to institutions, as the rules influencing how the economy works, and the incentives that motivate people. Economic institutions determine the constraints on and the incentives of the key actors in the economic sphere. As argued by the same authors, good economic institutions are those that feature private property, a fair and well-functioning system of law and a provision of public services allowing people to contract and exchange effectively. Institutions with these features are engine of prosperity because they encourage people to invest in physical and human capital and in technology, which in turn favors economic performance.

While good economic institutions are instrumental for development, they also represent a significant foundation of transnational investments as they are crucial for investment contracts. Even countries with no liberal political institutions like China have adopted private property rights and freedom of contract as the authoritative basis for the agglomeration of Multinational Corporations (MNCs) as legal persons ([Robé et al., 2016](#)). Accordingly, economic institutions are more likely to respond to changes in FDI. Increasing FDI flows could therefore generate a greater scope for developing countries to achieve stronger economic institutions notwithstanding their overall weak levels of institutional quality (including political ones).

Up to date, relatively little attention has been paid to the institutional impacts of FDI in host countries in literature. To my knowledge, only [Ali et al. \(2011\)](#) have analyzed, for a cross-section of countries, the impact of FDI inflows on institutions from an economic perspective close to this study. This paper complements current studies on the institutional impact of FDI in various aspects. First, it uses relatively more recent data compared to [Ali et al. \(2011\)](#) and a more comprehensive measure of economic institutions based on the rule of law index of the Worldwide Governance Indicators (WGI).

Second, it explores heterogeneity in the institutional impact of FDI according to the origin country of the investment. Over the recent decades, FDI flows from developing countries to other developing countries have been growing with the rise of South-South cooperation. In 2010, South-South FDI outflows accounted for 63% of total FDI outflows from the developing region ([UNCTAD, 2011](#)). The difference in institutional quality between developed and developing FDI origin countries may result in different institutional impacts. In their economic relationship with other developing countries, Southern countries are often accused of not following or even undermining western countries efforts in promoting better institutions in the developing world. While legal provisions<sup>5</sup> in the North constrain

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<sup>5</sup>These include the US Foreign Corrupt Practices Acts of 1977; the OECD Anti-Bribery Convention of 1997; the US Kleptocracy Asset Recovery Initiative launched in 2010; and the U.K Bribery Act passed in

their firms to observe a number of good practices in host economies, such provisions lack in developing investing countries. In disentangling the impact based on the country of origin, I follow [Demir \(2016\)](#), which unlike this study, was interested in the general political risk through a composite index of multiple indicators<sup>6</sup>. This paper is rather interested in one specific dimension of institutions, economic institutions, captured by the protection afforded to property rights (the central piece of economic institutions as per [Acemoglu and Robinson \(2012\)](#)) as well as the quality of contract enforcement and the strength of the rule of law. This approach aligns with [Voigt \(2013\)](#)'s view that measures of institutions should refer to specific dimensions because aggregate measures are too broad and fuzzy to contain meaningful information.

Third, this paper also investigates heterogeneity in the effect of FDI flows on economic institutions based on the main sector driving the investments focusing on the resource sector. While one may expect FDI in the manufacturing and services sectors, known to be competitive, to promote private property rights by pushing the local environment towards market-oriented institutions, it plausible that FDI in the resource sector, known to be less competitive, contribute to extractive economic institutions. Therefore, I test whether the impact differs between resource-relying and non-resource-relying countries for FDI through an econometric method derived from [Hsiao \(2014\)](#).

Last but not least, while current empirical studies in this literature have commonly used OLS or System GMM estimations for dynamic panel models, the empirical method in this analysis relies on the Bootstrap-based bias Corrected Fixed Effects (BCFE) estimator proposed by [Everaert and Pozzi \(2007\)](#) and extended by [De Vos et al. \(2015\)](#). As with GMM estimators, the BCFE addresses the “Nickel bias” arising when the standard Fixed Effects (FE) estimator is used to estimate models with a large number of cross-section units and a small number of time periods (see [Nickell, 1981](#)). However, the BCFE is shown to be more stable and to have superior small-sample properties.

To preview the results, this paper evidences that economic institutions improve in countries with higher FDI flows. The results also show that this effect is driven by FDI from developed economies while no significant link is detected for FDI from developing economies. Furthermore, they indicate that the positive institutional impact of total FDI is likely to be mitigated in countries where the natural resources sector represents a major driver of FDI. The findings suggest that the quality of the institutions in FDI origin countries matters in the FDI/economic institutions relationship in the developing world.

The rest of the paper is organized as follows: the next section revisits the link between FDI and institutions. Section 3 presents the empirical methodology. Section 4 describes the data used in the study and provides some descriptive statistics. Section 5 discusses the

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2010.

<sup>6</sup>[Demir \(2016\)](#)'s main measure of institutions is based on the International Country Risk Guide (ICRG) political risk rating from the Political Risk Services, including political, legal and bureaucratic measures of institutions.

empirical results followed by some robustness tests in section 6. The final section concludes.

## 2 Related literature

There is extensive literature on the effects of FDI on the host economy. The most direct effect consists of building the host economy's capital stock in a more stable manner as opposed to other forms of foreign capital (Levchenko and Mauro, 2007; Tong and Wei, 2011). Early and most studies also focus on productivity and growth spillover effects of FDI. MNCs are generally considered to have superior technologies and managerial expertise compared to domestic firms. The presence of foreign firms in the host economy is therefore expected to enhance the productivity of domestic firms through various channels including increased competition (Markusen and Venables, 1999), labor mobility (Fosfuri et al., 2001), and technology transfer (Liu, 2008; Wang and Blomström, 1992). However, the empirical literature investigating the spillover effects of FDI finds mixed results with some studies supporting the prediction (Branstetter, 2006; Greenaway et al., 2004; Haskel et al., 2007), while others find no evidence (Aitken and Harrison, 1999; Haddad and Harrison, 1993). Likewise, no consensus has emerged from the literature on the effect of FDI on income growth. Blomström et al. (1996), and Li and Liu (2005), among others, find a growth-enhancing effect while others such as Durham (2004) fail to detect this effect. A bulk of this literature evidences that the contribution of FDI to growth in the host country is conditional on its absorptive capacity including human capital (Bengoia and Sanchez-Robles, 2003; Borensztein et al., 1998), the level of development (Xu, 2000), and financial development (Hermes and Lensink, 2003).

Foreign direct investors have become major actors in FDI recipient economies with the rapid growth of FDI flows since the 1990s. The growing importance of foreign investors has triggered a research interest in new aspects of FDI impacts in host economies beyond the traditional economic effects. Some studies have argued or evidenced adverse effects resulting from greater competition to attract FDI, referred to as “the race to the bottom”. These include sharp cuts in tax rates, abuse of workers' rights and non-compliance with environmental standards (Devereux et al., 2008; Garretsen and Peeters, 2007; Klemm and Van Parys, 2012; Oman, 2000). Another aspect, which has received much lower attention compared to studies on the growth and productivity spillover effects of FDI, is the impact on local institutions.

Studies on the relationship between FDI and host countries' institutions have focused on how the quality of institutions determines FDI locations. Factors like democracy, rule of law, property rights, low levels of corruption, and political stability have been identified as being positively associated with FDI as they create cost and risk-reducing environments for investors (see Bailey, 2018). However, exploring the other side of the picture – how institutions respond to changes in FDI – brings useful additional insights



into the linkage between FDI and institutions as (i) MNCs do not always adapt to the local environment, given their potential for political agency according to the profit-maximizing environment they need, in particular in developing countries where they are known to have high bargaining power, (ii) FDI has induced institutional reforms in countries competing to attract foreign investment, (iii) FDI socio-economic effects can trigger institutional change.

In this context, some studies, albeit comparatively few, have explored the reverse link by investigating how FDI affects institutions in destination countries. A body of this research argues that MNCs engage in lobbying and pressure activities on investment countries' policymakers. Using firm-level data in China's regions, [Long et al. \(2015\)](#) found that FDI improved the institutional quality – measured with the tax and fee burden and the quality of rule of law experienced by Chinese domestic firms – in host regions. They pointed out lobbying and negotiation by foreign investors to influence local governments as one potential channel explaining this effect. Similar previous results on the same mechanisms were found by [Dang \(2013\)](#) in his study of FDI effect on institutional quality across Vietnam's provinces. [Malesky \(2009\)](#) also resorted to investors' lobbying efforts to demonstrate how FDI has contributed to economic reforms in Eastern Europe. These empirical evidence follow prior political strategy analyses which argued that investors can individually or collectively interact with government officials to reduce the risks they face ([Hahn, 1999](#); [Hillman and Hitt, 1999](#)). If the main motive behind MNCs' attempts to bring about institutional change clearly appears to be the increase in profit margins, the outcome is however uncertain. As suggested by [Hewko \(2002\)](#), two mechanisms serve to predict if MNCs can succeed or not in influencing prevailing institutions: (i) the ability to provide the local policymakers with information on laws and regulations in other countries, (ii) the ability to coerce them by threatening to leave for more hospitable investment environments.

Economic exchanges have the potential to generate institutional spillovers between countries ([Bahar et al., 2014](#); [Bergstrand and Egger, 2013](#); [Cheong et al., 2015](#)). The existence of these spillovers is another channel through which FDI can influence institutions. Naming it the demonstration effect, [Kwok and Tadesse \(2006\)](#) proposed this channel to demonstrate a significant negative effect of FDI on corruption in a large sample of host countries. The idea is that the presence of MNCs in a country challenges the usual bad way business is done by demonstrating how business rooted in an environment built on trust and ethical conduct can be more efficient in the long run. The presence of MNCs therefore provides a concrete and real example to follow. Their findings echo [Larraín B and Tavares \(2004\)](#)'s assessment of the effect of openness on corruption which showed that FDI is significantly associated with lower corruption levels. However, [Webster and Piesse \(2018\)](#) found no difference in the behavior of foreign-owned firms and domestic firms with respect to corrupt practices based on firm-level data in emerging countries.

The institutional spillovers transmission channel implies that the investor's country of origin may matter in analyzing the institutional effect of FDI. Because developed countries

are endowed with better institutions than developing countries, one may expect institutions to get improved by FDI flows from developed economies but undermined by flows from developing economies. Moreover, while regulatory pressure in developed investing countries (e.g., the US Foreign Corrupt Practices Acts, the OECD Anti-Bribery Convention, the US Kleptocracy Asset Recovery Initiative, and the U.K Bribery Act) constrains their firms to observe a number of good practices when investing abroad, such provisions lack in developing investing countries. In this regard, [Demir \(2016\)](#) explicitly tested if there is any difference between the two investment origins (North vs. South) regarding their consequences on political risk. He did not find any significant effect of FDI flows on the institutional gap between home and host countries, except the case of aggregate South-South flows where a significant and negative effect is detected on host countries institutions<sup>7</sup>.

Following extant studies on the institutional impact of FDI across various dimensions, this paper is interested in the quality of economic institutions viewed as the constraints on and the incentives of the key actors in the economic sphere. As such, economic institutions are typically approached with elements including the system of private property, the strength of the rule of law, in particular the quality of contract enforcement ([Acemoglu and Robinson, 2012](#)). As market-based institutional factors, secure property rights and effective enforcement of contracts appear to be the type of environment foreign investors will tend to shape in host countries to have the risks and costs of their activities reduced. Several studies have revealed that overall, MNCs prefer to operate in a liberal environment ([Globerman and Shapiro, 2003](#); [Sethi et al., 2003](#)). A market-supporting institutional environment positively influences profitability by decreasing costs in many ways. It allows foreign investors to exploit ownership advantages in investment countries ([Grosse and Trevino, 1996](#); [Li and Resnick, 2003](#)), constrains opportunistic behavior ([Fan et al., 2009](#)), enables cost-saving benefits of internalizing production ([Meyer and Nguyen, 2005](#)).

In analyzing the institutional change potential of FDI in developing countries, this paper pays particular attention to the influence of natural resources, in line with the resource curse literature. In resource-rich countries, foreign investors are engaged in a contest, often competing to gain access to resources ([Newman et al., 2016](#)). The incentive of foreign investors to ensure access to the resources combined with that of the government to engage in rent-seeking activities can lead to extractive economic institutions under which the vast majority of the population has little or no secure property rights over the resource sector and many other related sectors. It then appears plausible that governments in resource-rich countries interact with multinationals – which possess the required technology – to appropriate more rents and serve their own interests at the expense of society. This may result in a lesser, if not detrimental, impact of FDI on economic institutions in countries

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<sup>7</sup>Similarly, literature on international migration and institutional change at origin has investigated heterogeneous effects based on common characteristics in destination countries. For example, [Spilimbergo \(2009\)](#) shows that foreign-educated students promote democracy at home if foreign education was acquired in democratic countries.

where the main attracting sector of FDI is the natural resources industry.

To my knowledge, the paper most closely related to this paper is [Ali et al. \(2011\)](#), who showed that FDI inflows promote property rights based on a panel data set of 70 developing countries. This paper is similar in the approach, with important conceptual and technical differences. First, the analysis in this study uses a more comprehensive sample of developing countries and measure of economic institutions as well as relatively more recent data. Second, this study offers more insights into the relationship between FDI and economic institutions by exploring potential heterogeneity in the effect of FDI based on the origin of the investment – North vs. South, following [Demir \(2016\)](#), and on the main sector driving foreign investment – resource vs. non-resource sector, drawing on the literature of the resource curse. Third, the empirical method in this paper relies on the Bootstrap-based bias Corrected Fixed Effects (BCFE) estimator proposed by [Everaert and Pozzi \(2007\)](#) for its higher stability and superior small sample properties over GMM estimators.

### 3 Empirical methodology

This section presents the empirical approach adopted to explore the FDI/economic institutions nexus in developing countries. Section 3.1 deals with the econometric model, and section 3.2 presents the estimation strategy.

#### 3.1 Model specification

To investigate the link between FDI flows and economic institutions in developing countries, I resort to the following dynamic model relating FDI to institutions and controlling for a host of time-varying determinants of economic institutions.

$$Inst_{it} = \alpha + \beta Inst_{i,t-1} + \gamma FDI_{i,t-1} + \sum_k \delta_k X_{it} + \varepsilon_{it} \quad (1)$$

Where  $Inst_{it}$  is a measure of economic institutions for country  $i$  at time  $t$ . The lagged value of this variable ( $Inst_{i,t-1}$ ) enters the set of regressors to capture persistence in institutions.  $\alpha$  is a constant.  $FDI_{i,t-1}$  represents FDI inflows in country  $i$  at time  $t - 1$ . Three measures of FDI are considered depending on the origin of the investments: total FDI (from all source countries), FDI from the North (flows from developed source countries), and FDI from the South (flows from developing origin countries). Using the lagged FDI in this model aims at accounting for delayed effects of FDI on changes in economic institutions. This also mitigates the endogeneity of FDI, especially by reducing the risk of reverse causality as institutional quality is found to be a strong predictor of cross-border investments in the literature on FDI determinants.  $X_{it}$  is a vector of controls reflecting the main time-varying determinants of economic institutions. These are:

*Real Gross Domestic Product per capita:* institutional theories argue that institutions are shaped by economic factors, highlighting that institutions develop in response to a county's income level (Svensson, 2005). Indeed, wealthier economies are expected to have better economic institutions as building and promoting a sound institutional environment require resources.

*Education:* the human capital theory of institutions argues that growth in human capital favors institutional development (Glaeser et al., 2004). Educated citizens are more likely to understand the nation's major issues and how to influence them to their benefit. Literature presents mixed results of the effect of education on institutions. Some studies find a positive effect (Acemoglu, Johnson, Robinson and Yared, 2005) while others like Murtin and Wacziarg (2014) evidence the contrary.

*Natural resource rents:* the distribution of property rights determines that of the economy's resources. When natural resource rents are viewed as manna by groups with political power, they tend to prevent a broad-based distribution of private property rights, hindering economic institutions. Research on the resource curse has also identified weak institutional quality as a channel of the resource curse (Barro, 1990; Collier and Hoeffler, 2004; Fearon and Laitin, 2003; Sala-i Martin and Subramanian, 2013).

*Trade openness:* integration into the global economy can affect institutions through the diffusion of good practices. Greater openness to the world markets may reinforce market-based institutions necessary to trade. Moreover, various studies, among which Rodrik et al. (2004), have shown that good institutions are correlated with openness.

*Democracy:* Acemoglu, Johnson and Robinson (2005) argue that economic institutions are the result of choices made by different groups of society for their economic consequences associated with the groups' interests. Ultimately, prevailing economic institutions are determined by groups with more political power which comprises *de jure* and *de facto* political power. The former originates from the political institutions whereas the latter depends on the society's economic resources (capital and human as well, which are accounted for with some of the control variables). While some political institutions like democracy or constitutional monarchy lead to inclusive economic institutions, others like dictatorship or autocracy are more favorable to extractive economic institutions.

*Government effectiveness:* the protection of property rights requires effective administrative institutions, such as deed registration offices. Djankov et al. (Forthcoming) find that government effectiveness matters for the development of property rights.

## 3.2 Estimation strategy

Eq. 1 will be first estimated using fixed effects (FE) OLS regressions. However, the dynamic nature of the model combined with individual effects poses major econometric challenges in the context of FE estimations. As evidenced by Nickell (1981), the standard FE estimator

is likely to be biased and inconsistent in panel models including the lagged dependent as a regressor with a large number of cross-section units and a fixed number of time periods, which I refer to as micro-dynamic panel models. Therefore, the OLS estimations will serve as a preliminary check on the relationship between FDI and developing countries' economic institutions.

A solution to the “Nickel bias” can be obtained with alternative estimators, among which the generalized method of moments (GMM) estimators, particularly the difference GMM and System GMM estimators (see [Arellano and Bond, 1991](#); [Arellano and Bover, 1995](#); [Blundell and Bond, 1998](#)). Under appropriate assumptions, the GMM estimators are unbiased when applied to micro-dynamic panel models. However, they are found to have poor small-sample properties due to the use of instrumental variables technique to solve the “Nickel bias”. More precisely, the GMM estimators' standard deviation is larger relative to the FE estimator ([Arellano and Bond, 1991](#); [Kiviet, 1995](#)). Also, they are subject to finite-sample bias caused by the issue of weak instrument ([Bun and Kiviet, 2006](#); [Bun and Windmeijer, 2010](#); [Ziliak, 1997](#)). Moreover, GMM estimations can lead to highly unstable estimates depending on which and how many instruments are used ([Roodman, 2009](#)).

To avoid these advantages in providing consistent estimations of Eq. 1, this paper mainly relies on the extended version of [Everaert and Pozzi \(2007\)](#)'s bootstrap-based bias corrected FE (BCFE) estimator proposed by [De Vos et al. \(2015\)](#). The BCFE estimator provides bias-corrected estimates using a bootstrap-based correction procedure of the FE estimator bias. Monte Carlo simulations show that the BCFE estimator has superior small-sample properties compared with GMM estimators. The modified version by [De Vos et al. \(2015\)](#) consists notably of simplifying the core of [Everaert and Pozzi \(2007\)](#)'s algorithm by using the invariance principle – this resulting in a further bias reduction – and extending the algorithm to fit unbalanced and higher-order dynamic panels. Inference is performed under the BCFE using either a parametric or a nonparametric bootstrapped variance-covariance matrix or percentile intervals. [De Vos et al. \(2015\)](#)'s extended version allows for a range of initialization and resampling schemes to account for general heteroskedasticity patterns and error cross-sectional dependence. It is worth noticing that the BCFE is designed to address correlation between all regressors and the error due to the within transformation of the FE estimator, not traditional endogeneity (due for example to reverse causality, and omitted variables.) However, it is very likely that it provides causal effects of FDI on institutions as the use of the lagged FDI as well as the main time-varying determinants of economic institutions mitigates the risks of both reverse causality and omitted variable bias<sup>8</sup>. At least, one can expect it to significantly mitigate possible endogeneity bias of FDI if not reducing the bias to zero.

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<sup>8</sup>In the robustness section, I also consider two additional controls and the results prove robust.

## 4 Data and descriptive statistics

### 4.1 Data

*Economic institutions* are measured with the rule of law index of the Worldwide Governance Indicators (WGI). This is a standardized measure that lies approximately between -2.5 (poorest institutions) and 2.5 (best institutions). Initiated by [Kaufmann et al. \(1999\)](#), the WGI reports governance indicators over six dimensions. The rule of law dimension is measured by a composite indicator capturing a number of elements including the protection afforded to property rights, the quality of contract enforcement as well as the strength of the rule of law<sup>9</sup>. As such, it appears to be a relevant measure of economic institutions in the sense used in this study. Previous studies that used it as a measure of economic institutions include [Rodrik et al. \(2004\)](#)

The *FDI* data are sourced from [Demir \(2016\)](#)<sup>10</sup> who collected yearly bilateral FDI flows data (in current US dollars) over the period 1990-2009 from the OECD, UNCTAD and national statistics institutes databases. I aggregate these bilateral FDI flows over origin country and year to obtain the aggregate FDI inflows for each host country and year, which I then compute as a percent of the host country's GDP using the World Development Indicator (WDI) data. In order to explore possible heterogeneity in the effects of FDI on institutions depending on the origin of the capital, I implement three levels of aggregation: over all source countries (total FDI), over developed origin countries (FDI from the North) and over developing source countries (FDI from the South).

Data on *real GDP per capita*, *trade openness* (proxied with the sum of exports and imports as a percent of GDP) and *natural resource rents* (calculated as the difference between the monetary value, at world price, of the physical quantities of total natural resources extracted or harvested by a country and the total cost of extracting those quantities, as a percent of GDP) are taken from the WDI of the World Bank.

*Education* is measured with the human capital (*hc*) variable of the Penn World Table database. The *hc* is a human capital index based on data on average years of schooling<sup>11</sup>.

*Democracy* and *government effectiveness* are respectively measured with the voice and accountability and government effectiveness estimates of the WGI. Like the rule of law estimate, they are standardized measures varying between -2.5 (weakest score) and 2.5 (best score).

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<sup>9</sup>See <https://info.worldbank.org/governance/wgi/Home/Documents> for more details.

<sup>10</sup>I thank Firat Demir (University of Oklahoma, Norman, USA) for graciously sharing the data with me.

<sup>11</sup>See [https://www.rug.nl/ggdc/docs/human\\_capital\\_in\\_pwt\\_90.pdf](https://www.rug.nl/ggdc/docs/human_capital_in_pwt_90.pdf) for details.

Table 1: Summary statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Rule of law	515	-0.319	0.734	-2.003	1.635
Total FDI (% of GDP)	721	1.301	3.188	-15.997	33.778
FDI, North (% of GDP)	715	1.089	2.733	-15.997	33.778
FDI, South (% of GDP)	477	0.342	1.008	-0.088	10.644
GDP per capita (Log)	721	7.892	1.297	5.358	11.098
Education (Log)	721	0.73	0.301	0.033	1.289
Rents (Log)	721	0.96	1.995	-7.982	4.012
Trade	705	77.63	46.288	13.616	413.361
Democracy	515	-0.245	0.768	-1.835	1.308
Effectiveness	515	-0.23	0.716	-1.884	2.354

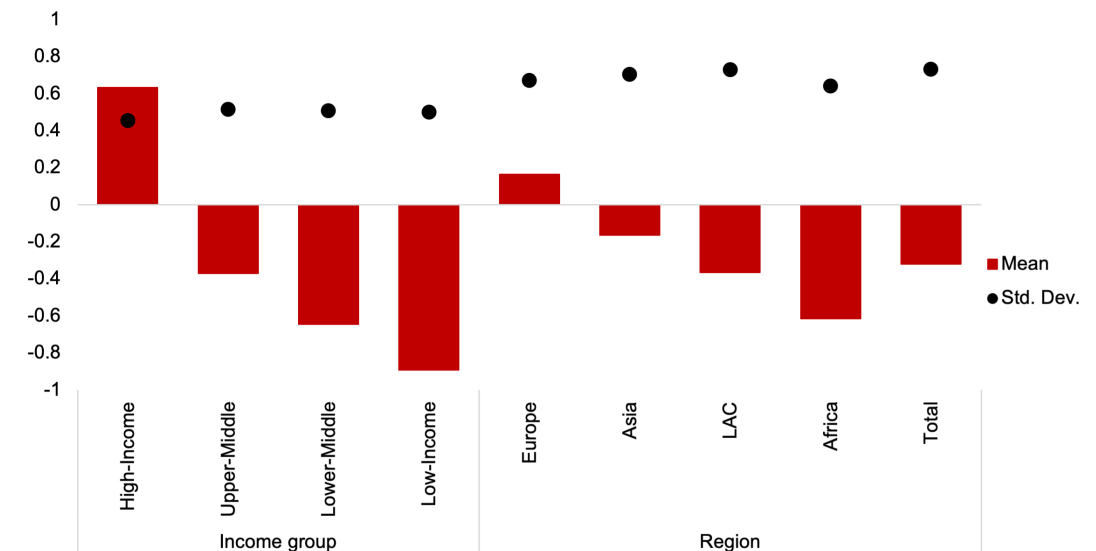
## 4.2 Descriptive statistics

Table 1 provides summary statistics for the variables entering the model depicted by Eq. 1. The final sample to serve for the econometric estimations is made up of 103 countries<sup>12</sup> over the period 1990-2009. In this sample, the mean score of the rule of law index, which measures economic institutions, is -0.3, with Congo, DR (-1.8) having the weakest economic institutions and Singapore (1.5) the best. There is little variation in the quality of institutions within income groups with standard deviations around 0.5, below the full sample standard deviation of 0.7 (Figure 1). In addition, the quality of economic institutions improves with the level of income<sup>13</sup>, aligning with the institutional theories that institutions develop in response to a country's income level (Svensson, 2005). The strongest economic institutions are observed in high-income countries (with a mean of 0.6) followed by the upper-middle income group (about -0.4). There is also significant heterogeneity at the regional level. With its economic institutions measure averaging -0.6 (Figure 1), Africa is the region with the weakest institutions, far below the group of European developing countries (0.2). Four countries out of the bottom five are from Africa: Congo, DR (-1.8), Sudan, Angola, and Zimbabwe (-1.5 each). In general, these countries were ruled by totalitarian governments or embroiled in conflicts during the period of study, a fertile ground for the weakening of economic institutions.

Foreign Direct Investment flows to the sample of developing countries increased over time and accounted for a growing share of their GDP (Figure 2). Developed countries remained the main source of FDI over the period, however, with a declining share as South-South FDI gained more importance. This growing importance of developing countries as new sources of investment within the developing world is driven by outflows from Asia

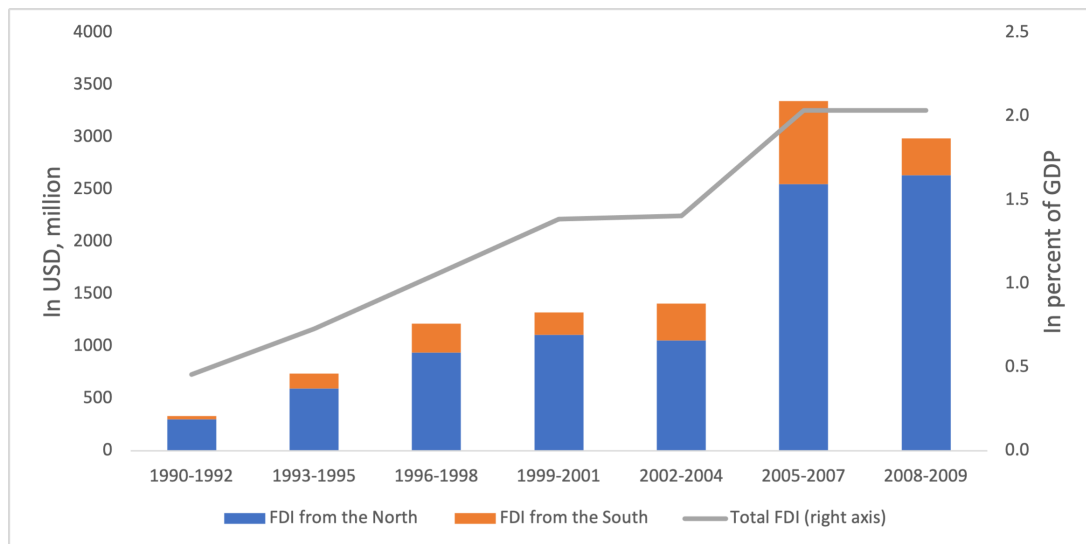
<sup>12</sup>The sample selection is based on data availability. The list of the countries is provided in Appendix, Table A1.

<sup>13</sup>Based on the World Bank's income group classification.



Source: Author's calculations based on WGI data.

Figure 1: Rule of law index scores by income group and region



Source: Author's calculations based on data from Demir (2016) and the WDI

Figure 2: Trends in FDI inflows

with China, Taiwan, the Republic of Korea, Singapore and Malaysia accounting for more than 40% of the outflows.<sup>14</sup>

<sup>14</sup>Based on the original sample.



## 5 Empirical results

The data underpinning the econometric estimations span the period between 1990 and 2009<sup>15</sup>. Given the relatively little variation over time of the institutional quality variable, I use three-year moving averages of the data, resulting in up to 7 time periods. For ease of interpretation, I rescaled the index so that it lies between 0 and 100<sup>16</sup>, with 100 reflecting the best economic institutions for the purpose of this study. The results are organized in three main sections. First, I estimate the economic institutions model depicted by Eq. 1 using OLS and BCFE, and distinguishing between total FDI, FDI from the North and FDI from the South. Then, I explore whether there is a difference between countries in the FDI-institutions relationship depending on how much natural resources drive FDI. Lastly, I conduct a series of supplementary estimations to test the robustness of the main findings.

### 5.1 Total FDI and economic institutions

Table 2 presents the results of the multivariate regression of economic institutions, proxied with the rule of law index of the WGI, on total FDI, controlling for a host of country characteristics. Columns (1) and (2) rely on standard fixed-effects estimations without time dummies and with time dummies respectively. In column (3), I resort to the bootstrap-based bias-corrected FE including both country and time fixed effects<sup>17</sup>. The results clearly evidence that past FDI inflows significantly explain a part of the cross-country variations in economic institutions. FDI is positively and significantly (at 10%) associated with the quality of economic institutions across regressions. A 100 point-increase in FDI inflows as a percent of developing countries GDP results in an 8.7 improvement in their institutional environment in terms of the protection afforded to property rights, the quality of contract enforcement as well as the strength of the rule of law, based on column (3), the baseline regression. These results suggest that the quality of economic institutions is on average better in countries with larger foreign direct investment, everything else being equal. This supports the main hypothesis that FDI contributes to better economic institutions and is consistent with previous studies (e.g., [Ali et al., 2011](#); [Dang, 2013](#); [Long et al., 2015](#); [Malesky, 2009](#)).

Regarding the control variables, the positive and highly significant coefficients on the lagged rule of law index across the regressions are indicative of positive inertia in institutions in the developing world. Consistent with the view that building sound institutions requires resources and that institutions develop in response to a county's income level, real GDP per capita is found to be positively and significantly (in columns (1) and (2)) associated

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<sup>15</sup>The period is dictated by the years for which data on bilateral FDI have been collected by [Demir \(2016\)](#).

<sup>16</sup>Using the min-max approach.

<sup>17</sup>I do not show the results without time dummies because they are identical to those based on both country and time fixed effects.

Table 2: Total FDI and economic institutions: OLS and BCFE estimates

	(1)	(2)	(3)
<i>Dependent:</i>	Economic institutions (RLE index)		
<i>Method:</i>	OLS		BCFE
RLE <sub>t-1</sub>	0.182*** (0.043)	0.190*** (0.043)	0.468*** (0.122)
Total FDI <sub>t-1</sub>	0.111* (0.060)	0.104* (0.060)	0.087* (0.050)
GDPPC (log)	2.487* (1.299)	2.554* (1.465)	1.474 (1.418)
Education (log)	-2.216 (5.371)	-4.669 (7.516)	2.831 (7.482)
Rents (log)	-0.559 (0.339)	-0.568 (0.351)	-0.460 (0.362)
Trade	-0.000 (0.013)	0.001 (0.013)	0.000 (0.019)
Democracy	6.402*** (0.816)	6.367*** (0.816)	6.432*** (0.928)
Effectiveness	8.230*** (1.125)	7.998*** (1.134)	7.700*** (1.540)
Constant	25.418*** (8.342)	26.308** (12.870)	
Observations	412	412	412
R-squared	0.490	0.496	
Countries	103	103	103
Country FE	Yes	Yes	Yes
Time FE	No	Yes	Yes

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. BCFE regression results without time FE identical to that including both country and time FE. The BCFE uses 150 bootstrap samples with a deterministic initialization and the cross-sectional heteroscedasticity. OLS-based standard errors (SE) robust to heteroskedasticity, and BCFE-based SE calculated using bootstrap iterations.

with the measure of institutional quality. The results also confirm that democratic political institutions are favorable to inclusive economic institutions, as evidenced by the positive and highly significant coefficient on the variable *Democracy*, and that the government effectiveness matters for good economic institutions.

## 5.2 Does the origin of the investment matter? FDI from the North vs. FDI from the South

Through the second set of estimations, I investigate whether the positive effect of FDI on economic institutions is actually driven by flows from developed countries (FDI from the North). These countries are endowed with better institutions, which can be embodied in FDI and spillover to host countries. In addition, they have introduced legal constraints to prevent their investors from undermining the institutions of the investment countries as opposed to developing countries which institutions are weak and where such legal constraints are lacking. Therefore, I replicate the previous estimations after splitting the total flows into flows from the North and flows from the South. Table 3 provides the estimations results. The estimations in columns (1) through (3) are based on flows from the North and the next three columns use FDI from the South.

The results suggest that the contribution of total FDI to better economic institutions in developing countries is driven by flows from the North. Across all regressions, FDI from the North is found to positively and significantly affect economic institutions, unlike FDI from the South where the link is also positive but not significant. The importance of FDI from the North as the main driver of positive institutional change is also confirmed by the magnitude of the coefficients larger than those based on total FDI in the previous regressions, 12.2 against 8.7 for a 100-point increase in the share of FDI in GDP, based on the BCFE regressions. The results seem to indicate that the type of institutional environment in the origin country matters in the FDI/economic institutions relationship. However, they do not evidence that South-South FDI is detrimental to host countries' institutions as the link is also positive although not significant. These findings differ from [Demir \(2016\)](#) who found the effect on host countries political risk to be non-significant for aggregate North-South FDI flows and significant and positive for aggregate South-South FDI. Regarding the control variables, they behave like in the regressions based on total FDI, in addition to the fact that the negative coefficients on natural resource rents become significant in many of the regressions.

Table 3: FDI and institutions: flows from the North vs. flows from the South

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent:</i>	Economic institutions (RLE index)					
<i>Origin:</i>	From the North			From the South		
<i>Method:</i>	OLS	OLS	BCFE	OLS	OLS	BCFE
RLE <sub>t-1</sub>	0.184*** (0.042)	0.192*** (0.043)	0.470*** (0.106)	0.192*** (0.054)	0.194*** (0.054)	0.593*** (0.181)
FDI_North <sub>t-1</sub>	0.138* (0.070)	0.129* (0.071)	0.122* (0.063)			
FDI_South <sub>t-1</sub>				0.161 (0.213)	0.123 (0.216)	0.003 (0.171)
GDPPC (log)	2.448* (1.299)	2.543* (1.464)	1.416 (1.407)	4.824*** (1.466)	6.473*** (1.854)	4.655** (1.844)
Education (log)	-2.288 (5.368)	-4.546 (7.512)	2.723 (7.012)	-6.443 (6.615)	0.168 (9.089)	-4.329 (9.160)
Rents (log)	-0.570* (0.338)	-0.575 (0.350)	-0.463 (0.328)	-0.859** (0.384)	-0.718* (0.395)	-0.820 (0.547)
Trade	-0.000 (0.013)	0.002 (0.013)	0.000 (0.019)	-0.002 (0.016)	0.007 (0.017)	0.004 (0.026)
Democracy	6.382*** (0.815)	6.350*** (0.816)	6.422*** (0.966)	6.735*** (1.113)	6.755*** (1.112)	6.769*** (1.350)
Effectiveness	8.283*** (1.125)	8.046*** (1.135)	7.735*** (1.290)	7.269*** (1.419)	7.116*** (1.422)	7.358*** (1.736)
Constant	25.683*** (8.346)	26.193** (12.848)		8.905 (9.657)	-12.110 (18.269)	
Observations	412	412	412	277	277	276
R-squared	0.491	0.496		0.470	0.479	
Countries	103	103	103	72	72	71
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	No	Yes	Yes	No	Yes	Yes

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The BCFE uses 150 bootstrap samples with a deterministic initialization and cross-sectional heteroscedasticity. OLS-based standard errors (SE) robust to heteroskedasticity, and BCFE-based SE calculated using bootstrap iterations.

### 5.3 How influential are natural resources?

The negative association of natural resource rents with economic institutions found in the previous estimations supports the hypothesis that institutions decadence is one of the channels of the resource curse phenomenon. Given this prediction and that foreign investors are a key player in the resource industry in developing countries, the influence of this variable deserves particular attention in the analysis of the FDI/institutions relationship. Foreign investors can influence investment countries property rights systems differently depending on their resources endowments. In resource-rich countries, foreign investors are engaged in a contest, often competing to gain access to the resources (Newman et al., 2016). The incentive of foreign investors to ensure access to the resources combined with that of the government to engage in rent-seeking activities can lead to extractive economic institutions under which the vast majority of the population has little or no secure and well-enforced property rights over the resource sector and many other related sectors. Resource-driven FDI are thus likely to feed poor economic institutions.

As the dataset pertaining to the analysis does not contain information on the sector of investment, I test this hypothesis by differentiating the institutional effect of FDI according to the strength of the nexus between resource rents and FDI. More precisely, I assess how successful are natural resources in attracting FDI in the whole sample and for every single country in a one-step estimation using a Fixed-Coefficient model also called Fixed-Effects ANOVA model (see Hsiao, 2014). The coefficient on natural resource rents for every economy is then compared with the average coefficient (on the full sample.) Countries with a coefficient greater than the average are considered more reliant on the resource sector in attracting FDI relative to countries with a value below the average. I name the former group of countries rentier states for the purpose of the comments. The econometric specification is given by Eq. 2 which is a fixed-effects panel data model with coefficients that vary over time and cross-sectional units.

$$FDI_{it} = (\bar{\beta} + \alpha_i + \lambda_t)Resources_{it} + \mu_{it} \quad (2)$$

Natural resources are proxied with total natural resource rents.  $\bar{\beta}$  indicates the average coefficient on rents,  $\alpha_i$  is the country-specific coefficient on rents to be compared with  $\bar{\beta}$ , and  $\lambda_t$  refers to the time-specific coefficient. When  $\alpha_i - \bar{\beta}$  is positive and statistically different from 0, the country  $i$  is considered a rentier state, i.e., it attracts FDI via natural resources to a greater extent than the average country. The estimations results<sup>18</sup> are summarized in Table A2 in Appendix. Three groups of countries are distinguished: rentier states (countries with  $\alpha_i - \bar{\beta}$  positive and significantly different from 0), non-rentier states (with  $\alpha_i - \bar{\beta}$  negative and significantly different from 0), and neutral sates (with  $\alpha_i$  not significant).

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<sup>18</sup>Eq. 2 is estimated using the Stata command `xtfixedcoefv` developed by Diallo (2016)

In line with the above argument, one should expect the effect of FDI on economic institutions to be negative or at best positive but smaller for the group of rentier states, compared with the group of non-rentier states. To test this hypothesis, I augment the specification in Eq. 1 by adding to the set of explanatory variables dummies reflecting the link between rents and FDI and their interactions with FDI as depicted by Eq. 3.

$$Inst_{it} = \alpha + \beta Inst_{i,t-1} + \gamma_1 FDI_{i,t-1} + (\gamma_2 Rent_i + \gamma_3 Neut_i) FDI_{i,t-1} + \sum_k \delta_k X_{it} + \varepsilon_{it} \quad (3)$$

Where  $Rent_i$  is a dummy equal to 1 for the group of rentier states, and 0 otherwise, and  $Neut_i$  is a dummy variable for countries where no significant link between natural resources and FDI was detected from the previous regressions<sup>19</sup>. Non-rentier states represent the comparison group. The results of the estimations are provided in Table 4. As expected, the positive effect of total FDI flows on economic institutions is mitigated in countries where the mining and quarrying sector represents a major driver of FDI as the coefficient on the interaction between  $Rent_i$  and  $FDI_{i,t-1}$  is negative in all regressions. However, the coefficient is not statistically different from zero at the conventional levels. Therefore, the prediction that economic institutions in countries with larger FDI in the resource industry would be worse than those of their low-resource FDI counterparts fails to receive strong support based on this sample of developing countries.

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<sup>19</sup>I do not include the dummies separately (without interacting them) as they will be captured by the country FE in the estimations.

Table 4: FDI and economic institutions: rentier vs. non-rentier states

	(1)	(2)	(3)
<i>Dependent:</i>	Economic institutions (RLE index)		
<i>Method:</i>	OLS	OLS	BCFE
RLE <sub>t-1</sub>	0.183*** (0.043)	0.191*** (0.043)	0.472*** (0.136)
Total FDI <sub>t-1</sub>	0.141 (0.139)	0.122 (0.140)	0.149 (0.277)
FDI <sub>t-1</sub> × Rentier	-0.106 (0.180)	-0.095 (0.180)	-0.162 (0.295)
FDI <sub>t-1</sub> × Neutral	-0.005 (0.159)	0.011 (0.159)	-0.031 (0.279)
GDPPC (log)	2.444* (1.311)	2.508* (1.475)	1.452 (1.861)
Education (log)	-2.317 (5.392)	-4.965 (7.559)	2.617 (8.604)
Rents (log)	-0.529 (0.344)	-0.543 (0.355)	-0.424 (0.424)
Trade	-0.000 (0.013)	0.002 (0.013)	-0.000 (0.017)
Democracy	6.413*** (0.818)	6.376*** (0.818)	6.452*** (1.016)
Effectiveness	8.255*** (1.135)	8.032*** (1.144)	7.693*** (1.298)
Observations	412	412	412
R-squared	0.491	0.497	
Countries	103	103	103
Country FE	Yes	Yes	Yes
Time FE	No	Yes	Yes

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. OLS standard errors (SE) robust to heteroskedasticity, BCFE-based SE calculated using bootstrap iterations.. All regressions include a constant.

## 6 Robustness checks

This section provides sensitivity checks on the main findings. First, I augment the control variables by considering two additional possible determinants of the quality of institutions, namely the (log of the) size of the population and migrants remittances as a percent of GDP. Setting up broadly distributed and secure property rights, creating the conditions for contracts enforcement are easier to achieve for a limited number of people. In consequence, countries with smaller populations are more likely to develop better economic institutions. Literature argues that remittances reduce the utility of government patronage (Pfütze, 2012) and can lead migrants and remittance recipients to pressure governments to pursue political reforms (Williams, 2017). In this context, remittances can contribute to better economic institutions. Data on both variables (population and remittances) are sourced from the WDI.

In Table 5, I repeat the previous main estimations after including these variables as additional controls one at a time. The results, based on the BCFE, show that the two variables are not significant determinants of economic institutions after the previous variables are controlled for. In addition, the main findings are robust to their inclusion. Total FDI still positively affects the institutional variable in columns (1) and (2) and this link is significant in column (1) which controls for remittances. Likewise, FDI from the North is positively related to economic institutions and significant in column (4) controlling for population, while the estimations still fail to detect a significant link for FDI from the South in columns (5) and (6).

Second, I test the sensitivity of the findings to the exclusion of possible influential observations. More concretely, I repeat the estimations on a new sample excluding Lithuania, Singapore, and Bulgaria which registered total average FDI/GDP ratios of 32% (for Lithuania) and more than 7% (for the two others) over the period of study, far above the sample average of 1.2%. The results, reported in Table 6, are similar to those based on the full sample.

Next, I test whether the results are conditional on the income group of host countries based on the World Bank classification using dummy variables for each group. Similarly, I analyze the sensitivity of the results to regional differences. The results are provided in Appendix by Table A3 (using the group of low-income countries as comparison group) and Table A4 (Europe being the reference group), respectively. Table A3 does not indicate income differences in the FDI/economic institutions relationship as none of the interaction terms is significant whatever the type of FDI considered. Likewise, Table A4 suggests that the effect of FDI on institutions does not significantly differ across regions.

Behind the hypothesis that FDI flows from the North are more likely to lead to positive institutional change compared to flows from the South is the idea that developed countries are endowed with better institutions which can be embodied in their FDI outflows and



Table 5: BCFE estimations, controlling for population and remittances

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent:</i>	Economic institutions (RLE index)					
<i>Origin:</i>	Total FDI		From the North		From the South	
RLE <sub>t-1</sub>	0.479*** (0.131)	0.474*** (0.116)	0.482*** (0.145)	0.475*** (0.112)	0.477*** (0.163)	0.592*** (0.148)
FDI_Total <sub>t-1</sub>	0.097* (0.060)	0.082 (0.055)				
FDI_North <sub>t-1</sub>			0.115 (0.078)	0.118* (0.063)		
FDI_South <sub>t-1</sub>					0.133 (0.247)	-0.025 (0.223)
GDPPC (log)	2.402 (2.218)	1.265 (1.436)	2.361 (2.212)	1.190 (1.497)	4.381** (1.923)	4.285* (2.320)
Education (log)	-3.355 (6.470)	5.387 (8.469)	-3.352 (6.250)	5.398 (8.833)	-4.087 (8.184)	-1.765 (11.841)
Rents (log)	-0.363 (0.424)	-0.405 (0.372)	-0.373 (0.401)	-0.404 (0.344)	-0.568 (0.459)	-0.759 (0.529)
Trade	-0.004 (0.024)	0.001 (0.019)	-0.004 (0.020)	0.001 (0.020)	-0.016 (0.026)	0.006 (0.024)
Democracy	6.853*** (1.298)	6.483*** (0.973)	6.825*** (1.239)	6.475*** (0.977)	6.815*** (1.706)	6.759*** (1.343)
Effectiveness	8.001*** (1.580)	7.760*** (1.497)	8.056*** (1.654)	7.797*** (1.334)	7.664*** (1.838)	7.457*** (1.540)
Remittances	0.003 (0.110)		0.004 (0.103)		0.031 (0.177)	
Population (log)		-1.550 (2.319)		-1.623 (2.495)		-1.824 (6.147)
Observations	363	412	363	412	261	276
Countries	94	103	94	103	68	71
Country/Time FE	Yes	Yes	Yes	Yes	Yes	Yes

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The estimations use 150 bootstrap samples with a deterministic initialization and the cross-sectional heteroscedasticity with bootstrapped SE.

Table 6: Excluding possible influential observations

	(1)	(2)	(3)
<i>Dependent:</i>	Economic institutions (RLE index)		
RLE <sub>t-1</sub>	0.443*** (0.123)	0.445*** (0.131)	0.552*** (0.175)
FDI.Total <sub>t-1</sub>	0.104* (0.076)		
FDI.North <sub>t-1</sub>		0.131* (0.091)	
FDI.South <sub>t-1</sub>			0.144 (0.306)
GDPPC (log)	1.352 (1.764)	1.283 (1.763)	4.562*** (1.710)
Education (log)	2.991 (8.338)	2.941 (7.982)	-2.636 (7.817)
Rents (log)	-0.392 (0.392)	-0.393 (0.364)	-0.716 (0.457)
Trade	-0.007 (0.018)	-0.007 (0.017)	-0.012 (0.026)
Democracy	6.453*** (0.853)	6.434*** (0.822)	6.916*** (1.454)
Effectiveness	7.965*** (1.411)	8.012*** (1.443)	7.503*** (1.983)
Observations	400	400	264
Countries	100	100	68
Country FE	Yes	Yes	Yes
Time FE	Yes	Yes	Yes

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The estimations use 150 bootstrap samples with a deterministic initialization and the cross-sectional heteroscedasticity with bootstrapped SE. All regressions include a constant

spillover to host countries in developing host countries. Accordingly, it appears relevant to question whether what really matters for institutional change is the quality of institutions in the origin country rather than its level of development. To this end, I replicate the previous estimations after splitting the total flows into flows from countries with developed institutions and flows from countries with weak institutions. The results are given in Table 7. In column (1) FDI origin countries with developed institutions are those with average rule of law index above the sample first quartile, and countries with weak institutions are below the sample first quartile in column (2). The distinction between flows from countries with developed institutions and weak institutions is made in a similar way in columns (3) and (4) based on the sample median, and in columns (5) and (6) based on the sample third quartile. Like the distinction between flows from the North and flows from the South, the results show that flows from origin countries with developed institutions positively affect economic institutions in the host developing countries when based on the first quartile in column (1) and the third quartile in column (3). On the other hand, flows from FDI home countries with weak institutions have no statistically significant link with the institutional variable.

Table 7: FDI and economic institutions: heterogeneity based on the quality of institutions in the origin country

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent:</i>	Economic institutions (RLE index)					
RLE <sub>t-1</sub>	0.468*** (0.119)	0.249** (0.112)	0.470*** (0.119)	0.283** (0.125)	0.469*** (0.119)	0.577*** (0.162)
FDI.Dev.Q1 <sub>t-1</sub>	0.092* (0.053)					
FDI.Weak.Q1 <sub>t-1</sub>		0.123 (2.638)				
FDI.Dev.Q2 <sub>t-1</sub>			0.088 (0.079)			
FDI.Weak.Q2 <sub>t-1</sub>				-0.289 (0.844)		
FDI.Dev.Q3 <sub>t-1</sub>					0.100* (0.059)	
FDI.Weak.Q3 <sub>t-1</sub>						0.172 (0.324)
GDPPC (log)	1.469 (1.440)	7.717** (3.514)	1.457 (1.610)	6.476** (2.997)	1.453 (1.437)	3.107 (1.922)
Education (log)	2.853 (7.545)	-11.625 (16.617)	2.865 (6.608)	-10.270 (14.992)	2.796 (7.582)	-1.675 (8.551)
Rents (log)	-0.465 (0.331)	-2.461*** (0.805)	-0.465 (0.350)	-1.464* (0.780)	-0.464 (0.331)	-0.757 (0.495)
Trade	0.000 (0.019)	-0.039 (0.046)	0.000 (0.017)	-0.046 (0.037)	0.000 (0.019)	-0.004 (0.019)
Democracy	6.435*** (0.938)	11.064*** (2.299)	6.433*** (0.936)	11.587*** (2.315)	6.435*** (0.938)	6.705*** (1.609)
Effectiveness	7.708*** (1.397)	5.395* (2.947)	7.715*** (1.523)	7.296** (2.800)	7.730*** (1.402)	7.584*** (2.141)
Observations	412	104	412	124	412	281
Countries	103	31	103	37	103	73
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The estimations use 150 bootstrap samples with a deterministic initialization and the cross-sectional heteroscedasticity with bootstrapped SE. All regressions include a constant.

## 7 Concluding remarks

Foreign Direct Investment represents an important source of development financing for developing countries, bringing about important changes in these countries. While the literature on the effects of FDI on host countries has focused on the economic aspects of these changes, this study contributes to the relatively recent and weakly explored research on the institutional aspects of these changes by examining how FDI influences the economic institutions of developing host countries.

The presence of MNCs in developing countries may shape their institutional environment in several ways. Foreign direct investors not only search for economic opportunities such as market size, low wages, or resources, but also demand better institutional quality, which governments competing to attract FDI have incentive to provide. MNCs can also resort to lobbying and their relatively high bargaining power in developing countries to pressure policymakers to pursue institutional reforms. This study therefore assumes that MNCs do not always adapt to the host country institutional context but can resort to their institutional change potential to frame a supportive institutional environment to their activities. Moreover, the quality of property rights and contract enforcement represents an important foundation of transnational investments as they are crucial for investment contracts. Accordingly, economic institutions are likely to respond to the increasing flows of FDI.

This paper empirically investigates the question based on extensive data on FDI and economic institutions measured with the rule of law index of the WGI for a large sample of developing countries, over the period 1990-2009. First, consistent with the prediction, I find that economic institutions are better in countries with larger FDI flows. On average, a 100-point increase in FDI inflows as a percent of GDP is associated with an 8.7 increase in the rule of law index in developing countries.

Investigating the possible sources of the change in developing countries' economic institutions resulting from FDI, I test whether the effect differs depending on the origin of the flows (North vs. South.) Because institutions in developed economies (North) are more developed than those in developing countries (South), FDI from the North may be more likely to cause institutional development as transferring capital may go along with transferring institutions. Moreover, the behavior of foreign direct investors from developed economies is constrained by regulatory pressure aimed at preventing them from weakening institutions in the investment countries while such legal constraints lack in developing economies. After splitting total FDI flows into flows from the North and flows from the South, I find that the positive effect of total FDI on economic institutions in developing countries is driven by flows from the North. However, the results do not evidence that flows from the South are detrimental to economic institutions as the link is positive but not statistically significant. These findings suggest that the type of institutional environment in

the origin country matters in the FDI/economic institutions relationship. This suggestion is supported by further estimations where I split total flows into flows from origin countries with developed institutions and flows from origin countries with weak institutions, and where FDI from the former group of countries is found to be positively associated with economic institutions while no significant link is found for FDI from countries with weak institutions.

Some important policy implications for policymakers and development organizations emerge from these findings. The increasing FDI flows from all origins represent a source of institutional development for developing countries that needs to be sustained. If politics is the problem preventing inclusive economic institutions in developing countries, external actors through foreign direct investors can be part of the solution if barriers to cross-border flows of FDI are lifted to support investments. This requires the promotion of FDI from all source countries. Preferential investment agreements with a specific type of investing countries may have a limited impact on institutions in developing countries. Governments and development organizations concerned with institutions should encourage more open and competitive investment policies for all types of origin countries (North and South as well). In addition, unleashing the full potential of FDI for institutional development would require making the existing legal constraints in the North more effective on the one hand, and the introduction of similar regulatory pressure on investors from the South on the other hand.

The empirical results also highlight that the main sector driving FDI may matter. In particular, the positive impact of total FDI flows on economic institutions is mitigated in countries where the mining and quarrying sector represents a major driver of FDI although the results fail to detect a statistical significance on this relationship. However, they warn of the necessity to promote efficiency-seeking investments through a rebalancing of FDI driving sectors rather than largely relying on the resource sector.

The findings of the study are robust to series of sensitivity tests including the inclusion of additional control variables, the exclusion of outliers, the test of income group and regional effect, and heterogeneity analysis based on the level of institutional development of the origin countries.

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# Appendix

Table A1: List of countries

<i>Country</i>	<i>Region</i>	<i>Country</i>	<i>Region</i>	<i>Country</i>	<i>Region</i>
Angola	Africa	The, Gambia	Africa	Niger	Africa
Albania	Europe	Guatemala	LAC	Nigeria	Africa
United Arab Emirates	Asia	Guyana	LAC	Nicaragua	LAC
Argentina	LAC	Honduras	LAC	Nepal	Asia
Armenia	Asia	Croatia	Europe	Pakistan	Asia
Burundi	Africa	Haiti	LAC	Panama	LAC
Benin	Africa	Hungary	Europe	Peru	LAC
Burkina Faso	Africa	Indonesia	Asia	Philippines	Asia
Bangladesh	Asia	India	Asia	Poland	Europe
Bulgaria	Europe	Iran	Asia	Paraguay	LAC
Bahrain	Asia	Jamaica	LAC	Romania	Europe
Belize	Europe	Jordan	Asia	Russia	Europe
Bolivia	LAC	Kazakhstan	Asia	Rwanda	Africa
Brazil	LAC	Kenya	Africa	Saudi Arabia	Asia
Barbados	LAC	Kyrgyz Rep.	Asia	Sudan	Africa
Brunei	Asia	Cambodia	Asia	Senegal	Africa
Botswana	Africa	Korea, Rep.	Asia	Singapore	Asia
Central African Rep.	Africa	Kuwait	Asia	Sierra Leone	Africa
Chile	LAC	Lao PDR	Asia	Slovakia	Europe
China	Asia	Sri Lanka	Asia	Slovenia	Europe
Cote d'Ivoire	Africa	Lithuania	Europe	Togo	Africa
Cameroon	Africa	Latvia	Europe	Thailand	Asia
Congo, DR	Africa	Macao SAR	Asia	Tajikistan	Asia
Congo	Africa	Morocco	Africa	Tunisia	Africa
Colombia	LAC	Moldova	Europe	Turkey	Europe
Costa Rica	LAC	Madagascar	Africa	Tanzania	Africa
Czech Republic	Europe	Mexico	LAC	Uganda	Africa
Dominican Republic	LAC	Mali	Africa	Ukraine	Europe
Algeria	Africa	Mongolia	Asia	Uruguay	LAC
Ecuador	LAC	Mozambique	Africa	Venezuela	LAC
Egypt	Africa	Mauritania	Africa	Vietnam	Asia
Estonia	Europe	Mauritius	Africa	South Africa	Africa
Gabon	Africa	Malawi	Asia	Zambia	Africa
Ghana	Africa	Malaysia	Asia	Zimbabwe	Africa
		Namibia	Africa		

LAC stands for Latin America and Caribbean

Table A2: Rentier vs. non-rentier states, the Fixed-Effects ANOVA results

	(1)	(2)	(3)
	Common coefficient	Country-specific	Time-specific
Full sample	-0.480***		
	(0.112)		
Constant	0.255		
	(0.450)		
Aruba		0.781*	
		(0.474)	
Angola		0.344**	
		(0.157)	
Albania		0.081	
		(0.150)	
United Arab Emirates		0.53	
		(0.329)	
Argentina		0.943	
		(0.709)	
Armenia		0.663	
		(0.440)	
Azerbaijan		1.329***	
		(0.347)	
Burundi		0.174	
		(0.160)	
Benin		-0.162	
		(0.135)	
Burkina Faso		0.032	
		(0.158)	
Bangladesh		2.018***	
		(0.435)	
Bulgaria		16.993***	
		(3.756)	
Bahrain		-0.112	
		(0.157)	
Bahamas		-8.056*	
		(4.414)	
Bosnia and Herz.		1.441***	
		(0.333)	
Belarus		-1.539***	
		(0.365)	
Belize		0.799*	
		(0.425)	
Bolivia		0.814*	

	(0.433)
Brazil	0.836**
	(0.362)
Barbados	-2.302
	(3.175)
Brunei	0.564**
	(0.275)
Botswana	0.762**
	(0.319)
Central Afr. Rep.	0.047
	(0.140)
Chile	1.321***
	(0.242)
China	1.634***
	(0.410)
Côte d'Ivoire	0.006
	(0.337)
Cameroon	0.099
	(0.163)
Congo, DR	0.190
	(0.158)
Congo	0.817**
	(0.324)
Colombia	0.538**
	(0.266)
Comoros	-1.753***
	(0.654)
Cabo Verde	1.943
	(1.235)
Costa Rica	-0.642
	(0.415)
Cuba	0.068
	(0.344)
Czech Republic	-6.164***
	(2.224)
Dominica	0.985***
	(0.231)
Dominican Republic	-0.279
	(0.429)
Algeria	0.288
	(0.187)
Ecuador	0.324*
	(0.196)
Egypt	0.838*

	(0.467)
Eritrea	-0.388*
	(0.211)
Estonia	6.390*
	(3.33)
Ethiopia	0.125
	(0.134)
Fiji	-0.895
	(0.637)
Gabon	0.480**
	(0.203)
Georgia	1.931***
	(0.576)
Ghana	0.302
	(0.192)
Guinea	0.128
	(0.144)
Gambia, The	-0.586**
	(0.240)
Guinea Bissau	0.046
	(0.137)
Equatorial Guinea	0.428**
	(0.190)
Guatemala	-1.559**
	(0.633)
Guyana	0.313*
	(0.186)
Honduras	-0.950***
	(0.305)
Croatia	-3.454
	(2.366)
Haiti	3.128***
	(0.867)
Hungary	-8.422
	(5.453)
Indonesia	0.556***
	(0.172)
India	0.011
	(0.370)
Iran	0.178
	(0.144)
Jamaica	-0.142
	(1.094)
Jordan	0.914***

	(0.200)
Kazakhstan	1.160***
	(0.398)
Kenya	-0.095
	(0.197)
Kyrgyz Republic	-0.028
	(0.361)
Cambodia	0.639*
	(0.352)
Korea, Republic	0.659***
	(0.198)
Kuwait	0.235
	(0.144)
Lao PDR	0.181
	(0.229)
Lebanon	0.741***
	(0.183)
St. Lucia	0.591***
	(0.199)
Sri Lanka	1.321***
	(0.272)
Lithuania	-31.819***
	(4.545)
Latvia	0.024
	(0.542)
Macao	0.769***
	(0.167)
Morocco	1.229***
	(0.263)
Moldovia	1.050***
	(0.317)
Madagascar	0.031
	(0.224)
Mexico	0.840***
	(0.210)
Macedonia	1.971***
	(0.637)
Mali	0.014
	(0.222)
Mongolia	0.744***
	(0.195)
Mozambique	0.234
	(0.183)
Mauritania	0.201



	(0.222)
Mauritius	0.090
	(0.305)
Malawi	0.038
	(0.146)
Malaysia	0.873***
	(0.177)
Namibia	0.191
	(0.416)
Niger	-0.090
	(0.158)
Nigeria	0.326**
	(0.158)
Nicaragua	-0.909***
	(0.285)
Nepal	-3.141***
	(1.136)
Oman	0.275**
	(0.136)
Pakistan	-0.389
	(0.513)
Panama	-1.411**
	(0.563)
Peru	0.458
	(0.310)
Philippines	-0.221
	(0.387)
Papua New Guinea	0.411
	(0.292)
Poland	-0.559
	(1.193)
Paraguay	-0.805
	(0.674)
Romania	1.036
	(0.760)
Russia	0.437**
	(0.206)
Rwanda	-0.029
	(0.142)
Saudi Arabia	0.295*
	(0.165)
Sudan	0.652***
	(0.159)
Senegal	-0.296

	(0.340)
Singapore	-0.332*
	(0.194)
Solomon Islands	0.545
	(0.357)
Sierra Leone	0.063
	(0.139)
Suriname	0.722**
	(0.292)
Slovakia	-0.255
	(0.725)
Slovenia	1.030***
	(0.242)
Seychelles	0.943***
	(0.247)
Chad	-0.135
	(0.572)
Togo	0.252
	(0.204)
Thailand	1.333***
	(0.287)
Tajikistan	1.878***
	(0.473)
Turkmenistan	0.212
	(0.145)
Trinidad and Tobago	0.832**
	(0.356)
Tunisia	0.393
	(0.432)
Turkey	0.761**
	(0.330)
Tanzania	0.011
	(0.160)
Uganda	0.356***
	(0.125)
Ukraine	1.086*
	(0.600)
Uruguay	1.005**
	(0.424)
Uzbekistan	0.187
	(0.183)
St Vincent & the Grenad.	0.877***
	(0.190)
Venezuela	0.483***

		(0.144)	
Vietnam		0.368	
		(0.244)	
Vanuatu		-8.967*	
		(5.349)	
Samoa		0.160	
		(0.551)	
Yemen		0.426**	
		(0.182)	
South Africa		1.192***	
		(0.447)	
Zambia		0.206	
		(0.201)	
Zimbabwe		0.210	
		(0.157)	
Constant		0.505	
		(0.346)	
1990-1992			-0.053
			(0.082)
1993-1995			-0.143
			(0.163)
1996-1998			0.176
			(0.163)
1999-2001			0.150
			(0.267)
2002-2004			0.232
			(0.222)
2005-2007			-0.274*
			(0.153)
2008-2009			-0.590
			(0.416)
Constant			0.502***
			(0.107)
Observations	945	945	945
R-squared	0.419	0.419	0.419
Countries	135	135	135

\*\*\* p<sub>i</sub>0.01, \*\* p<sub>i</sub>0.05, \* p<sub>i</sub>0.1. Robust standard errors in parenthesis.

Table A3: Test of income group effect: BCFE estimates

	(1)	(2)	(3)
<i>Dependent:</i>	Economic institutions (RLE index)		
RLE <sub>t-1</sub>	0.468*** (0.108)	0.477*** (0.130)	0.580*** (0.154)
FDI.Total <sub>t-1</sub>	0.003 (0.862)		
FDI.Total <sub>t-1</sub> × LMI	0.199 (0.901)		
FDI.Total <sub>t-1</sub> × UMI	-0.104 (0.848)		
FDI.Total <sub>t-1</sub> × HI	0.139 (0.868)		
FDI.North <sub>t-1</sub>		1.046 (1.622)	
FDI.North <sub>t-1</sub> × LMI		-0.966 (1.662)	
FDI.North <sub>t-1</sub> × UMI		-1.125 (1.618)	
FDI.North <sub>t-1</sub> × HI		-0.850 (1.642)	
FDI.South <sub>t-1</sub>			3.014 (140.558)
FDI.South <sub>t-1</sub> × LMI			-2.451 (140.561)
FDI.South <sub>t-1</sub> × UMI			-4.097 (140.505)
FDI.South <sub>t-1</sub> × HI			-2.923 (140.558)
GDPPC (log)	1.523 (1.586)	1.477 (1.539)	4.633*** (1.481)
Education (log)	1.471 (7.289)	1.662 (6.595)	-6.162 (6.935)
Rents (log)	-0.376 (0.388)	-0.390 (0.314)	-0.794* (0.443)
Trade	0.001 (0.017)	-0.001 (0.019)	0.009 (0.022)
Democracy	6.420*** (1.102)	6.407*** (0.930)	6.773*** (1.494)
Effectiveness	7.564*** (1.169)	7.634*** (1.569)	7.206*** (1.420)
Observations	412	412	276
Countries	103	103	71
Country/Time FE	Yes	Yes	Yes

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The estimations use 150 bootstrap samples with a deterministic initialization and the cross-sectional heteroscedasticity with bootstrapped SE. LMI=Lower-Middle Income, UMI=Upper-Middle Income and HI=High-Income.

Table A4: Test of regional effect: BCFE estimates

	(1)	(2)	(3)
<i>Dependent:</i>	Economic institutions (RLE index)		
RLE <sub>t-1</sub>	0.467*** (0.128)	0.467*** (0.114)	0.594*** (0.141)
FDI.Total <sub>t-1</sub>	0.079 (0.061)		
FDI.Total <sub>t-1</sub> × Afr	-0.214 (0.306)		
FDI.Total <sub>t-1</sub> × Asia	-0.142 (0.279)		
FDI.Total <sub>t-1</sub> × LAC	0.146 (0.115)		
FDI.North <sub>t-1</sub>		0.107 (0.099)	
FDI.North <sub>t-1</sub> × Afr		-0.207 (0.255)	
FDI.North <sub>t-1</sub> × Asia		-0.022 (0.362)	
FDI.North <sub>t-1</sub> × LAC		0.101 (0.137)	
FDI.South <sub>t-1</sub>			-0.004 (0.386)
FDI.South <sub>t-1</sub> × Afr			2.099 (3.411)
FDI.South <sub>t-1</sub> × Asia			-0.001 (0.489)
FDI.South <sub>t-1</sub> × LAC			-0.174 (2.097)
GDPPC (log)	1.236 (1.942)	1.337 (1.952)	4.609*** (1.714)
Education (log)	4.626 (7.268)	3.999 (7.318)	-4.374 (7.355)
Rents (log)	-0.483 (0.339)	-0.477 (0.317)	-0.821 (0.498)
Trade	0.000 (0.019)	-0.001 (0.020)	0.003 (0.025)
Democracy	6.376*** (0.922)	6.395*** (1.003)	6.757*** (1.450)
Effectiveness	7.959*** (1.324)	7.888*** (1.307)	7.551*** (1.638)
Observations	412	412	276
Countries	103	103	71
Country/Time FE	Yes	Yes	Yes

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The estimations use 150 bootstrap samples with a deterministic initialization and the cross-sectional heteroscedasticity with bootstrapped SE. Afr is shorthand for Africa, LAC for Latin America and Caribbean.