

## **What Type of FDI Is Attracted by Bilateral Investment Treaties?**

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## What Type of FDI Is Attracted by BITs?

### 1. Introduction

After a period of reluctance towards foreign investors, since the 1980s developing and transition countries have started to open up towards international capital flows and to attract foreign investor. However, the range of policy tools that can enhance the inflow of FDI in the short run is limited. Economic factors such as market size, openness, economic growth and political institutions are the most important determinants of FDI. Although policy can affect these dimensions, it usually takes time for changes to materialize. Therefore, many policy makers have increasingly turned towards alternative solutions that may improve the attractiveness of their countries in the short run, such as reduced tax regimes for foreign companies, investment promotion activities and bilateral investment treaties (BITs).

By signing a BIT, the host country guarantees the fair and equitable treatment of foreign investors and include guarantees on compensation in case of expropriation. Moreover, the host country commits to submit to a binding dispute settlement mechanism in case of disputes between investors and the state (UNCTAD, 1998). Developing countries invest time and resources to set up, negotiate and sign these treaties, by which they give up part of their sovereignty. An important question is therefore whether BITs actually succeed in attracting more FDI inflows and whether it is worthwhile for a developing country to incur these costs.

Since the first BIT has been signed between Germany and Pakistan in 1959, the number such bilateral agreements has been rising at an exponential rate. Between 1990 and 2009, the number of BITs signed by developing countries increased from 200 to about 2000. Not surprisingly this evolution attracted the interest of researchers and several authors have analyzed whether BITs effectively lead to increased FDI flows.

While the early literature was skeptical on the effectiveness of BITs (e.g. Hallward-Driemeier, 2003), more recent empirical studies generally find that BITs do actually stimulate the inflow of FDI (e.g. Egger and Merlo, 2007; Busse et al., 2010; Berger et al., 2010)<sup>1</sup>. These studies all look at aggregate bilateral FDI flows. In a recent paper Egger and Merlo

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<sup>1</sup> For an overview of the literature, refer to Sauvart and Sachs, 2009

(forthcoming) analyze the response of MNEs in Germany using firm-level data and find that a BIT leads to more plants being opened and increased sales abroad.

This paper aims at contributing to this literature by considering the potentially heterogeneous impact that BITs may have, according to the sector of FDI activity. There are two main reasons for considering the different effects that BIT may have on different types of FDI. First of all, the view that FDI automatically contributes to growth has been challenged, and it has been emphasized that the beneficial impact of FDI likely depends on the type of FDI concerned (Nunnenkamp, 2004). In general, FDI is expected to contribute more to poverty alleviation when it is targeted at labour-intensive industries and when interactions with local firms can create spillovers (OECD, 2002). On the other hand, the enclave character of investments in resource extraction seems unlikely to significantly contribute to growth and poverty reduction (Nunnenkamp, 2004). When BITs are signed in order to stimulate growth and development through incoming FDI, it is therefore important to analyze whether it is indeed the development-enhancing type of FDI that is attracted through signing these agreements.

Second, by studying the heterogeneous impact of BITs we will contribute to ‘opening the black box’ of how these treaties work. While early studies were mostly interested in studying whether or not BITs effectively attracted FDI, more recent studies started investigating also some of the mechanisms through which these effects are likely to happen. Egger and Merlo (2007), for instance, distinguish a short-term and long-term impact, while Kerner (2009) compares protected and non-protected investors, to see whether in addition to providing legal protection to investors from the signatory country, the signing of a BIT also acts as a signal to investors from other countries, by indicating that the country is serious about protecting and promoting foreign investment. Kerner finds evidence for such a ‘signaling effect’ - although the effect of a BIT is found to be larger for investors that are effectively protected by the BIT. Finally, Berger et al. (2010) look into the different provisions of BITs and RTAs (Regional Trade Agreements), concluding that the actual provisions matter for RTAs, but not for BITs, since foreign investors react positively to BITs independently from the specific modalities.

On the basis of the prevailing arguments in the literature on how BITs are expected to affect investors’ decisions, in the following sections we derive more specific hypotheses concerning the heterogeneous effect that BITs are expected to have on different types of FDI. The validity of these hypotheses will then be tested empirically in the subsequent section of the

paper. A serious concern when one wants to study heterogeneous effects on FDI flows, is the limited availability of sectorally disaggregated FDI data. We will rely on data on FDI stocks disaggregated by industry for 12 countries in the Former Soviet Union and Central and Eastern Europe, collected by the Vienna Institute for International Economic Studies (WIIW, 2011). While this relatively small dataset obviously imposes constraints on our empirical analysis as well as on the geographical representativeness of our results, –it is the only source of available disaggregated FDI data that has been collected in a systematic way. Moreover, the specific set of countries in our sample seems to be especially relevant for a study on BITs, given that these countries have increasingly engaged in signing investment treaties since the early 1990s, with 800 new BITs entering into force between 1990 and 2009. Moreover, previous empirical studies have revealed that BITs may be particularly effective for transition countries. In a survey among managers by UNCTAD (2009), BITs were reported to be amongst the most important decision factors when undertaking FDI in transition countries, more important than for developing countries. Also in the empirical studies by Busse et al. (2010) and Berger et al. (2010) the positive effect of BITs is found to be largely driven by the effect of BITs for transition countries and their results loose significance once this group of countries is excluded. And The fact that BITs are especially important for these countries might be related to the lack of credibility of these countries immediately after the regime change.

Overall, the results of our empirical analysis confirm the findings of the recent literature on BITs: the effect of BITs on the inflow of FDI is statistically significant and non-negligible. Moreover, our findings confirm our hypothesis that BITs have a heterogeneous effect on FDI in different sectors.

In the next section we develop the hypotheses for the heterogeneous impact of BITs across different sectors of FDI. The third section describes the data and section 4 discusses the empirical estimation strategy. Section 5 contains the results and section 6 concludes.

## **2. The heterogeneous effects of BITs on FDI: Conceptual framework**

The existing literature on BITs suggests several hypotheses on how certain aspects of these treaties are supposed to have an impact on foreign investors' decisions. In this section we analyze conceptually how different types of FDI may be affected differently by each one of these

aspects and we formulate hypotheses on the sectors for which the impact of BITs and DTTs is expected to be larger.

### *Bilateral Investment Treaties*

BITs specify a number of guarantees to foreign investment, such as rights to freely transfer funds and assets, minimum treatment standards and protection from expropriation. In particular, several authors have referred to the protection from expropriation - and the provision of the dispute settlement mechanism to ensure this protection - as the crucial elements in BITs (Büthe and Millner, 2008; Kerner, 2009; Elkins et al., 2006). The need for an external arbitration mechanism, which allows investors to bring claims of treaty violations to international arbitration tribunals (mostly the International Centre for Settlement of Investment Disputes, ICSID), is the result of a time inconsistency problem (Vernon, 1971; Simmons, 2000): in order to attract foreign investment, a government can assure investors that it will not expropriate the investments or raise taxes after the investment is made; yet, once the costs of investments are borne by the investors, the optimal policy for the host country government is to breach its promises and extract rents or expropriate property or funds. Anticipating these incentives, investors will not trust the promises made by the government in the first place and will refrain from investing in the country. Since many types of FDI typically imply large sunk costs, they are likely to be very susceptible to such time-inconsistent behavior and this hold-up problem will ultimately lead to underinvestment (Büthe and Millner, 2008; Neumayer and Spess, 2005)<sup>2</sup>. Bilateral investment treaties are believed to provide a credible commitment to overcome this problem of time-inconsistency (Vandevelde, 1998; Elkins et al., 2006), thereby reducing the risk of investment and, ultimately, attracting more FDI.

If this is the main argument for BITs to be effective – as the literature suggests - we should expect foreign investments that are more susceptible to discriminatory treatment and expropriation to react to the signature of a new BIT relatively more strongly than investments that are less vulnerable to such threats.

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<sup>2</sup> Busse *et al.* (2010, *op.cit.*) correctly point out that the need for such an external arbitration option is necessary in a one-time game, while in a dynamic setting, the deterring effect of violating earlier promises on future FDI inflows, should be sufficient to ensure compliance. However, even in a dynamic setting, policy reversals may not only lead to the violation of guaranteed rights, but also to an overall negative attitude towards future foreign investment flows. In case of such a policy reversal, a binding bilateral treaty still provides external arbitration options to the investor.

### *BITs and the sector of investment*

A number of studies have analyzed the expropriation risk of FDI and the sectors in which this risk is concentrated. Hajzler (2010) shows that after a period of frequent expropriations acts<sup>3</sup> in the 1960s and 1970s (which corresponds to the period of colonial independence), expropriations went down in the 1980s. Yet, since about 1995 the number of expropriation acts has increased again, mostly in Latin America and Central and Eastern Europe. Hajzler studies the frequency of expropriation of foreign investment in different sectors relative to the importance of these sectors in total FDI and he finds that most expropriation acts are more frequent in mining and petroleum, which appears in line with results of earlier studies (Truitt, 1970; Kobrin, 1980; Kennedy Jr., 1993). Expropriations in the services sector seem to have increased during the 1990s, while the expropriation risk seems to be considerably lower in the manufacturing sector. A look at the list of the arbitration cases of the ICSID provided by UNCTAD (2011), supports these findings: most cases concern expropriation of resource extraction industries and utilities such as electricity provision, water and communication.

In the literature, a number of explanations have been put forward on why resources and to some extent utilities would be more vulnerable to expropriations than other types of foreign investment. First of all, technologies used in these sectors may be less dependent on foreign owned knowledge and capacities, which may result in a higher return to expropriated capital. This is in line with the theories by Eaton and Gersovitz (1984) and by Raff (1992), who consider that a host country government can expropriate capital but not foreign managerial expertise, which may be especially important in many manufacturing and service industries. This explanation finds confirmation in the findings of Kobrin (1980), who estimates a negative effect of firm-specific knowledge on expropriation. A second explanation is related to the importance of sunk costs in resource extracting industries and utilities provision. Mineral extraction requires large investments in exploration and excavation infrastructure before revenues are realized and, once the profitability and the quality of mineral deposits is clear, expropriation becomes particularly profitable for the government (Vernon, 1971). Moreover, a sudden increase in

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<sup>3</sup> Expropriation in this paper is measured by the frequency of ‘expropriation acts’ where an ‘act’ may refer to 1- explicit confiscations of property; 2- breaches of contract including forced renegotiation of contract terms; 3- extra-legal interventions or transfers of ownership by private actors and not resolved by the government; 4-forced sale of property (Hajzler, 2010).

mineral prices may result in governments wanting to renegotiate contracts that are suddenly perceived as much more generous than expected (Duncan, 2006; Engel and Fischer, 2010). Thus, the combination of large initial investments and high fluctuations in mineral and petroleum prices makes the mining sectors specifically vulnerable. In the case of utilities, costs are mainly related to the initial establishment of network infrastructures, as in the case of water and electricity distribution. Finally, foreign ownership in utilities and extractive industries is very often politically sensitive. Extractive industries, utilities, rail, communications and national defense are indeed seen as important to political and economic independence and national security (Kobrin, 1980; Shafer, 2009). Utilities may be considered as basic provisions that should be in public ownership, therefore being susceptible to policy reversals, while natural resources are owned by the host country itself. Some authors also argue that extractive industries may become subject to high political pressure when a period of overall poor economic performance in the country coincides with a period of prosperity in industries that are dominated by foreign owned firms (Kobrin, 1984; Jodice, 1980).

Overall, these arguments suggest that the increased protection provided by BITs benefits especially FDI in the resource sector and in utilities. Our hypothesis is therefore that BITs would have a stronger effect for FDI in these sectors compared to others.

#### *BITs and alternative classifications of FDI*

A similar reasoning as the one presented in the previous paragraph could apply to alternative classifications of FDI, such as by different components (equity capital, reinvested earnings or intra-company loans) or by different forms of ownership (joint venture or complete ownership).

The values of FDI usually reported by institutions such as IMF, UNCTAD and OECD is the sum of three components: equity capital, reinvested earnings, and intra-company loans (IMF and OECD, 2000). The argument that FDI is vulnerable to the time-inconsistent behavior of governments appears to be best suited for equity investment. The decision of equity investment is indeed the most likely to bring along a large share of primary investment and to be susceptible to policy reversals. Intra-company loans and reinvested earnings might also be affected by such threat, but are more likely to be used for current than initial investments. Hence, BITs are

predicted to have a significant positive effect on equity investment, a potentially weaker positive effect on loans and a small or non-significant one on reinvested earnings

Concerning the different forms of ownership, Asiedu and Esfahani (2001) prove that US multinationals are more likely to choose complete ownership if the country risk of expropriation declines. In this case we would therefore predict that BITs - by reducing expropriation risk - would enhance complete ownership. This, in turn, could potentially enhance the long term involvement of foreign investment, strengthening spillover effects and contributing to the host country's development.

Unfortunately, the data we have currently available do not allow a proper disaggregation of FDI along these lines. In the empirical part of this paper we will therefore focus on the heterogeneous effects of BITs on FDI in different sectors and we leave the exploration of these other questions to further research.

### **3. Data**

We empirically estimate the impact of BITs on the inflow of FDI in different sectors for 12 countries in Central and Eastern Europe and the Former Soviet Union over the period 1995-2009<sup>4</sup>. We use FDI data disaggregated by industry, collected by the Vienna Institute for International Economic Studies (WIIW, 2011). We have classified the FDI data by industry into six economic sectors: agriculture and fisheries, mining, manufacturing, utilities, services and banking<sup>5</sup>. For some countries, information is missing for a number of years or sectors, resulting in an unbalanced panel. The dependent variable will be the stock of FDI of each country. Given that we will rely on a fixed effects estimator or first-difference model, the use of FDI stocks allows us to consider the effect on the net inflow of FDI, which is the difference of FDI stocks (Egger and Merlo, 2007).

Contrary to the more recent papers that estimate the effect of BITs on FDI (e.g. Egger and Merlo, 2007; Busse et al., 2010), we do not use bilateral FDI information, but we consider a measure of overall incoming FDI in the host country. This choice is in the first place driven by data availability, as there are no FDI data available that are disaggregated both by sending country and by sector. However, the use of a dyadic versus non-dyadic approach comes down to

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<sup>4</sup> See Appendix A for the full list of countries and years considered in the analysis.

<sup>5</sup> See Appendix B for the list of industries assigned to each of the six sectors.

the discussion of whether BITs have a ‘signaling effect’, in addition to a ‘commitment effect’ on investors’ decisions (Kerner, 2009). It is argued that a dyadic approach underestimates the effects of BITs, since it ignores the spillovers that a BIT (especially when signed with an important capital exporter) might have on FDI from other source countries. Investors from other source countries - even though not protected by the BIT themselves - may indeed see the BIT as a signal that this host country wants to engage in the protection of FDI and is willing to formally commit thereto. Kerner (2009) uses dyadic data and estimates both the effect on the bilateral inflow of FDI from the signatory partner country (the commitment effect) and the effect on other investors (the signaling effect). He finds evidence for both, but the former is – as expected – stronger. Given that we use non-dyadic data, our analysis estimates the overall effect (commitment and signaling) without being able to distinguish between the two.

Information on the signing and ratification of BITs is taken from UNCTAD’s IIA database (UNCTAD, 2011). Given our fixed effects estimation approach, we use the cumulative number of BITs entered into force in order to estimate the effect of one additional BIT on FDI. We use the year of entry into force, rather than the moment of signature, as between signature and ratification several years may pass, and it is only upon ratification that the actual commitments are made. Moreover, states tend to publish the text of treaties and submit them to the United Nations only after ratification (Yackee, 2007).

We include in the analysis a number of control variables that may explain part of the variation in FDI in the host country over time (see the next section for a more detailed explanation for the choice of the variables). Data on real per capita GDP, the inflation rate and a measure of trade openness (sum of exports and imports relative to GDP) are taken from the World Development Indicators (World Bank, 2011). Our measure of political institutional quality is taken from the Polity project (Polity IV, 2011). It is a composite index of the political regime ranging from +10 (strongly democratic) to -10 (strongly autocratic). In a robustness test we also use data from ILO on monthly wages.

#### **4. Empirical specification**

We use fixed effects models to estimate the effect of BITs on FDI. We use a dynamic model, including the lagged value of FDI, in order to properly take into account the sluggish adjustment of FDI. The dynamic fixed effects model takes the following form:

$$FDI_{ist} = FDI_{is(t-1)}'\alpha + BIT_{ist}'\beta + x_{ist}'\gamma + \mu_i + v_{ist},$$

$$i = 1, \dots, N; t = 2, \dots, T; s = 1, \dots, S$$

Where the subscript  $i$  indicates the host country,  $s$  indicates the sector and  $t$  indicates the year. The error term is composed by an idiosyncratic component  $v_{ist}$  and a country-specific component  $\mu_i$ . The former is specific to each country-sector-year observation, while the latter varies only across countries and contains unobserved time-invariant differences between countries. Year dummies  $t_t$  are included in the regression to capture eventual common time-trends in FDI across host countries.

The FDI variable ( $FDI_{ist}$ ) is the logarithm of FDI stock in sector  $s$ . As already mentioned, using stock values in a fixed effects estimation (or first-differenced model), effectively allow us to look at differences in stocks over time, which is actually a measure of net FDI flows (Egger and Merlo, 2007). The lagged value of FDI ( $FDI_{is(t-1)}$ ) allows us to take into account the sluggish adjustment of FDI over time and its coefficient is expected to be positive. The explanatory variable of interest is the cumulative number of BITs ( $BIT$ ) by host country  $i$  in year  $t$ . In order to determine whether BITs attract more FDI in certain sectors than in others, we interact the BIT variable with the sectoral dummies.

The vector  $x$  consists of a standard set of controls. Given that it takes some time for FDI to take place, we use the lags of these control variables rather than their current values to explain FDI stocks: the logarithm of real GDP accounts for market size and is expected to be positively related to FDI. Logarithm of the inflation rate is meant to control for macroeconomic distortions generated by poor monetary policies and is expected to be negatively related to FDI. However, it should be noted that there seems to be an unclear relationship between inflation and economic growth and the actual impact of inflation might therefore be ambiguous (McGillivray et al., 2005). The logarithm of real per capita GDP can be considered both a measure for purchasing power parity - in which case we would expect a positive coefficient - and a proxy for labor costs - in which case we would instead expect a negative coefficient. As an alternative, we use the real monthly wage (in US dollars) in a robustness test. Also the coefficient of the variable capturing openness to trade is expected to have an ambiguous sign. On the one hand, a high value of openness is expected to enhance FDI by signaling a positive attitude towards foreign investors. On the other hand, market-seeking FDI might be negatively related to increased openness, as openness decreases incentives for investors to move production to the host country rather than to

export goods to that country in order to avoid tariffs. The final sign of the coefficients of these last two variables is thus an empirical matter. Finally we include a measure of political institutional quality, taken from the POLITY IV Project. This variable takes larger values for stronger institutional environments, which are likely to attract more FDI. A positive coefficient is therefore expected for this variable. We will also interact this variable with the variable containing the number of BITs. As suggested by earlier studies, BITs might be more effective in countries with a lower level of institutional quality, as the need for investment protection is higher. In that case we would expect a negative coefficient on the interaction term and BITs are said to work as complements to institutional quality. If the contrary is true, they act as substitutes. We also include year dummies (and country-year dummies in an alternative specification) to control for common time trends or shocks in FDI stocks across countries (or across sectors within countries).

While our dynamic fixed effects model takes into account the fact that FDI stocks adjust slowly, it brings along another problem. Indeed the inclusion of lagged variables of the dependent variable in a fixed effects estimation causes the so-called ‘Nickell bias’ (Nickell, 1981). This bias decreases as the number of time periods increases, but, given the relatively short span of our dataset, it is likely to affect our estimates. A possible solution is represented by the first-differenced GMM (General Method of Moments) estimator by Arellano and Bond (1991), in which lagged variables of the explanatory and dependent variables are used as ‘internal’ instruments for the first-differenced equation. More recently, Arellano and Bover (1995) and Blundell and Bond (1998) proposed a system GMM approach in which also lagged first-differences are used as instruments for the levels. However, the last approach imposes the additional assumption of stationarity of the dependent variable (Roodman, 2009b), which is unlikely to hold for FDI stocks in a period of increasing FDI inflows. As an alternative to the first difference transformation, data can be transformed using ‘forward orthogonal deviation’, which is especially desirable if the data series contains some gaps. We will use the orthogonal deviations transformation and – as a robustness test – the first difference transformation, in which we instrument the first difference with the lags 2 to 4 of the FDI stock (and in the alternative specification: all available lags starting from lag 2). Different lag structures provide similar results. In order to avoid a problem of too many instruments, we collapse the vector of instruments (Roodman, 2009a).

## 5. Results

The results from the static fixed effects model are reported in Table 1. Table 2 reports the results from the dynamic fixed effects regression. The first three columns provide the results with year dummies, while the second three include country-year dummies. Columns 1 and 4 report the aggregate effect of BITs. Columns 2 and 5 report the sector-specific BIT effects, and columns 3 and 6 do the same, but use Arellano-Bond estimation. Table 3 includes interaction term with the democracy index. Table 4 show robustness tests for different Arellano-Bond specifications. Our main results from the GMM estimation are robust to alternative specifications (available on request), such as using lags 2 to 4, 2 to 5 or 2 to 6, not collapsing instruments or using system GMM instead of difference GMM (although Sargan tests perform less well for some sectors when using system GMM). Table 5 shows the robustness of the results to including the Freedom House rather than the Polity IV index for political institutional quality, exclusion of Lithuania from the sample, using the year in which BITs were signed rather than entered into force, BITs weighted by the share of the signatory partner in global capital exports, and BITs weighted by the share of the signatory partner in global capital exports only for the top 15 capital exporters.

The coefficients from the static fixed effects estimation (Table 1) are in line with our expectations. A higher number of BITs is associated with a higher FDI stock in the mining, manufacturing and services. Note that the estimate for the regression of FDI in the mining sector is substantially larger than the estimates for the other sectors of FDI. The logarithm of per capita GDP is negatively related to FDI in mining and manufacturing, suggesting that FDI is attracted by lower labour costs, while it is positively related to FDI in agriculture. The logarithm of total GDP has a positive coefficient which is statistically significant in the regressions of FDI in mining and manufacturing. A higher level of democracy is associated with more FDI, and is significantly different from zero for the total FDI stock, for mining, services and banking. The logarithm of inflation has a negative and significant coefficient for total FDI stock, services and banking. Trade openness is found to have a negative effect (although often only significant at the 0.15 level) for total FDI, mining, manufacturing and banking. For manufacturing and banking this last result could be explained by the fact that FDI in these sectors is mostly market-seeking and that greater openness reduces the need for moving production or financial operations

physically to the host country. For FDI in utilities larger openness is instead associated with more FDI.

The results from the dynamic fixed effects model (Table 2), which includes the lag of the dependent variable FDI stock, suggest that the static model indeed overestimated the role of BITs and of the other determinants in explaining FDI stocks. As expected, FDI decisions are found to be dynamic and the past level of FDI stocks explains an important part of the current stock of FDI for all sectors. The dynamic model finds a significant effect of BITs for mining and services, with a larger estimate for the former than for the latter sector. For the other variables, the results are in line with what was found in the static model, although for some of the variables the coefficients lose significance in the dynamic specification. The only exception is the unexpected significantly negative effect of overall GDP on total FDI stock. It seems that this negative relation is mostly driven by FDI in the utilities and banking sector, but a further investigation of this rather counterintuitive result would be necessary. In Table 3 an interaction term of BITs and the level of democracy is added in order to test whether BITs act as complements or substitutes of a safe institutional environment. In line with earlier studies (e.g. Neumayer and Spess, 2005) we find that BITs act as substitutes. The higher the level of democracy, the less strong is the effect of signing an additional BIT on attracting FDI in mining and services. In the regression of total FDI the interaction term also has a negative sign, but is not statistically significant. Note that the effect of BITs loses significance in the regression of FDI in manufacturing.

Table 4 and 5 show the results for the first-differenced GMM estimation, that address the bias that we introduced in the model when adding a lagged dependent variable to the controls. The Sargan test statistic does not reject the null hypotheses that the moment conditions are jointly satisfied, except for the regression for FDI in services. Hence, we need to be cautious with interpreting the results for these specific regressions. There is some significant first-order autocorrelation in the first-differenced residuals in some of the regressions (AR1), but there is no significant second-order serial correlation (AR2), except for utilities. This is why we decide to use lags starting from order 3, rather than 2. The results from the difference GMM estimation show that BITs have a significantly positive effect on the total level of FDI and on FDI in mining, with a larger estimate for the latter. Again the results for the other variables are in line with earlier results, although significance levels may differ somewhat. Note that the democracy

indicator gets a negative sign in some of these regressions, while remaining positive for mining. After adding an interaction term of BITs with democracy (Table 5), these negative effects for the democracy variable disappear and the interaction term in the GMM estimation confirms that BITs are more effective when levels of political institutional quality are low.

Although further analysis for a larger sample of countries and a longer time series would be desirable, these results do suggest that the effect of a BIT may be very different for FDI in different sectors. The results discussed above, indicate that especially FDI in mining is attracted by the additional protection provided in BITs. We moreover find a positive effect also for the aggregate regression, in which we analyse the overall effect of BITs on FDI. This is in line with the most recent studies showing that BITs are effective, and especially so in transition countries (Busse et al., 2010). The magnitude of the effect for mining and for total FDI is substantial. Our most conservative estimate is a coefficient of 0.04 for mining and 0.02 for total FDI. Hence, when a new BIT enters into force overall FDI stock is expected to increase by 2%, while the stock of FDI in mining increases by 4%. The magnitude of these results is in line with the results of recent studies (Egger and Merlo, 2007; Busse et al., 2010; Barthel et al., 2011).

## **6. Conclusion**

Over the past decades, developing countries have increasingly engaged in the signing of bilateral investment treaties with developed countries in order to attract FDI. Besides the time and effort developing countries invest in negotiation process of these treaties, they also give up part of their sovereignty. It is therefore relevant to know whether these treaties really fulfil expectations. Do these treaties succeed in attracting FDI and, if they do so, do they succeed in attracting the type of FDI that is desirable to spur economic growth and development?

While recently several studies have addressed the first part of this question, none of these looked into the potential heterogeneous effects of BIT on different forms of FDI. In this paper we make a first step in that direction by analysing the effect of BITs on FDI in different economic sectors. We argue that BITs have a larger effect on investment decisions for those sectors that involve large sunk costs and are susceptible to expropriation. The literature on expropriation and the records of investor-state dispute settlement suggest that FDI in resource extraction and utilities are the most vulnerable to expropriation. These sectors typically involve large sunk costs, require relatively low levels of knowhow, and are often politically sensitive to

foreign ownership. We would therefore expect that FDI in mining and utilities are more responsive to BITs compared to other sectors. We empirically test this hypothesis using disaggregated FDI data for 12 countries in Central and Eastern Europe and the Former Soviet Union. Using different estimation models, including static and dynamic fixed effects models and GMM estimations, we find partial support to our hypothesis: BITs have a larger impact on FDI in the mining sector (and on overall FDI). Contrary to our hypotheses, however, FDI in the utilities sector is not found to be responsive to BITs. For FDI in the services sector some of our models find a significant effect of BITs, but it is not robust to alternative specifications. FDI in other sectors seems not to respond to new BITs.

While the small sample of countries that we use in this study clearly limits the geographical relevance of our findings, we do think they are important in that they are the first results to point to a differential impact of investment treaties on different types of FDI. Overall, our results suggest that BITs do not attract the most development enhancing FDI. Investments in the mining sector often have limited linkages with the local economy, create little knowledge transfer and are likely to repatriate the majority of profits made. Although more detailed studies for a larger set of countries are required before formulating strong policy conclusions, our results do challenge the idea that BITs are a desirable policy tool to enhance development through increased foreign investments.

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