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Nikolaos Antonakakis[1] and Gabriele Tondl[2]

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JEL : C11, F0, F21
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The authors

[1]Institute for International Economics and Development, Vienna University of Economics and Business, e-mail: nikolaos.antonakakis@wu.ac.at.
[2] Institute for International Economics and Development, Vienna University of Economics and Business, email: gabriele.tondl@wu-wien.ac.at.

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Nikolaos Antonakakis† Gabriele Tondl‡

December 13, 2011

Abstract

The main objective of this paper is to examine the determining factors of outward FDI from four major OECD investors US, Germany, France and the Netherlands to developing countries located in different world regions. Our goal is to elucidate whether the motivation for FDI differs among these investors. Rather than relying on specific theories of FDI determinants we examine them all simultaneously employing Bayesian Model Averaging (BMA) in a panel data set with 129 FDI destinations in 5 geographical regions over the period 1995-2008. This approach permits us to select the most appropriate model that governs FDI allocation and to distinguish robust FDI determinants. We find that all our investors search for destinations with whom they have established intensive trade relations and that offer a qualified labor force. However, low wages and attractive tax rates are robust investment criteria too, and a considerable share of FDI is still resource-driven. Our investors show fairly similar strategies in the main FDI destinations.

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†Vienna University of Economics and Business, Institute for International Economics, Althanstrasse 39-45, A-1090 Vienna, Austria, e-mail: nikolaos.antonakakis@wu.ac.at.

‡Vienna University of Economics and Business, Institute for International Economics & Research Institute for European Affairs, Althanstrasse 39-45, A-1090 Vienna, Austria, email: gabriele.tondl@wu.ac.at.

1 Introduction

Since the mid 1990s OECD countries have begun placing an increasing share of their FDI into developing countries (DC), specifically, in the regions of Eastern Europe and Central Asia (ECA), East and South Asia (ESA), Latin America & Caribbean (LAC), Middle East and North Africa (MENA), and in Sub-Saharan Africa (SSA). Their presence in these regions reveals a distinct pattern.

If we concentrate among the major OECD investors, namely, the US, Germany, France and the Netherlands we see that their presence, in the developing regions mentioned above, varied substantially in terms of value and time.[1] As an indicator for FDI commitment in a country, we consider the amount of foreign direct investment stocks per inhabitant of the investor country. Figure 1 shows the FDI positions of the regarded OECD investors in 1995 and 2008. In 1995, the Netherlands had by far the most intensive FDI activity in DC, ahead of other European countries and the US. It invested primarily in ESA and LAC. The US concentrated its FDI in LAC and ESA. At that time, Germany engaged mostly in LAC, while its commitment in ECA and ESA was only half as high. For France, a similar picture emerged, although its internationalization was even lower than that of Germany. SSA and MENA were virtually neglected by all OECD investors, except for some sizable Dutch FDI in MENA.

In 2008, the internationalization through FDI in DC has impressively increased for all our regarded investor countries. In the case of the European investors this development was much more pronounced than for the US. The most internationally active European investor, the Netherlands, has propelled its commitment also in ECA by 2008, becoming equally high internationalized in ESA and ECA, followed by LAC. Germany has shifted its focus to ECA, ESA and MENA although its presence in LAC has also increased. A similar tendency is observed with France. Thus, European investors had not only discovered ECA in that period, but also ESA and MENA as FDI fields. For the US, LAC remains the first FDI destination although ESA has become almost equally important. In contrast to the European investors, ECA and MENA are subordinate for US investors. SSA still is a

[1]The other main OECD investors into DC are the UK, Switzerland and Japan; unfortunately their FDI statistics are not fully accessible so that we cannot consider these investors in our study.

destination which hardly attracts OECD FDI.

These facts raise several important questions: (i) What determines FDI from high income countries to different developing regions? (ii) Do different OECD investors show different motivations and care for different location factors in these regions? (iii) What are the prospects of these regions for further FDI**?** Which factors must DC improve to become attractive FDI locations? (iv) Given the ample of FDI determinants considered in the literature, which are indeed the most crucial ones?

A bulk of literature investigating the determinants of FDI has emerged aiming primarily to pinpoint which factors FDI recipients have to provide to secure FDI inflows (for instance, Wernick et al. 2009; Azemar and Desbordes 2009; Bellak et al. 2008; Campos and Kinoshita 2008; Bevan and Estrin 2004; for a review see Blonigen 2005). In most studies the key determinants of FDI considered are market potential and labor costs, for horizontal and vertical FDI, respectively, as well as distance. Others emphasize the role of certain types of FDI determinants like taxation, human capital, infrastructure, macroeconomic factors, institutional factors and trade liberalization.

Several studies looked at the determining factors of specific regions (for example, Barrell and Pain 1997, for Eastern Europe; Trevino et al. 2008, for LAC; Asiedu 2006, for Africa; and Hattari and Rajan 2009, for Asia). In contrast, there are few studies that look at the motives of the investor countries (see, for example Nasser 2007 and Udomkerdmongkol et al. 2009, for the US; Toubal et al. 2003 and Buettner and Ruf 2007, for Germany; Pfister and Deffains 2005 and Fontagné and Pajot 1998, for France).

Given the distinctly different investment patterns of the OECD investors described above and the scarce literature in this field, we think it is imperative to further explore how the motives of these investors differ, and whether these motives differ between certain host regions. Answers to such questions are of great importance. They would permit OECD investors to elaborate on their internationalization strategy and OECD governments to advance a specific international economic dialogue that would support it. Moreover, they would indicate to DC which conditions must be improved in order to attract more or specific investors.

The second major contribution this paper aims to offer, is to find out which are

indeed the robust FDI determinants for our investor countries in different destinations. Although the literature has emphasized particular groups of determinants, there is no study that looks at the complete set of determinants and indicates the crucial ones. We will look at a large set of more than 30 potential determinants including, market size and market dynamics, labor costs, human capital, infrastructure, trade relations, macroeconomic factors and institutional factors. Given the large number of potential determinants, we apply Bayesian Model Averaging (BMA) to assess which models can best explain the FDI patterns of our investors, and which are indeed the robust factors determining FDI to different developing regions.

Our main conclusion is that all our investors prefer: (i) FDI destinations with whom they already maintain intensive trade relations, and search for advanced developing countries with a more qualified labor force. (ii) However, low wages and attractive tax rates are robust investment criteria too, and (iii) a considerable share of their FDI is still resource-driven. We do not find that macroeconomic and institutional factors are robust FDI determinants. Our investors show fairly similar strategies in the main FDI destinations, although, certain particularities appear, like the absence of resource-oriented German FDI and its request for efficient government authorities. Since many developing countries score poorly with respect to point (i) they are not attractive for OECD investors.

The remainder of the paper is organized as follows: Section 2 discusses the determinants of FDI and the hypotheses regarding our investor countries. Section 3 describes the empirical methodology and the data. Section 4 presents the empirical results and section 5 concludes.

2 Motives and Determinants of FDI

In this section we present the theoretical and empirical evidence on the determinants of FDI found in the literature, and propose the hypotheses concerning our investors.

2.1 Market size and market dynamics as determinants for market-seeking FDI

Market size is one of the key determinants of FDI according to Dunnings Ownership, Location and Internalization (OLI) paradigm (Dunning, 1993b;a). Establishing the production of a good or service in big economies gives access to large sales markets, and it permits to exploit Economies of Scale (EOS) (Amiti, 1998; Krugman, 1979). Thus, FDI flows are often explained in gravity type models with market size among the central variables. Empirically, the relation between the host country's market size and FDI is the most tested hypothesis (see for example, Culem 1988; Wheeler and Mody 1992; Barrell and Pain 1997; 1999; Bevan and Estrin 2004; Bevan and Meyer 2004). Busse and Hefeker (2007) and Trevino et al. (2008) show that market size is an important determinant of FDI in developing countries. However, if the endogeneity of the regressor is correctly taken into account, Busse and Hefeker (2007) and Campos and Kinoshita (2008) concluded that market size and market growth are no longer significant determinants of FDI flows into developing countries.

A positive relation between the host country's market size and FDI suggests that FDI is market-seeking (as opposed to efficiency-seeking and resource-seeking FDI which is discussed below). Market-seeking FDI typically goes hand in hand with horizontal FDI where the entire production takes place in the host country in order to serve the local market, but not the export market. This type of FDI usually permits firms to operate in markets which are protected by high tariff barriers. Not all countries invest in a region for market-seeking motives, e.g. US FDI in Mexico is mainly efficiency-seeking whereas Germany's FDI in Mexico is market-seeking (see, for instance,Vodusek 2004). Investors that wish to enter new markets usually prefer dynamic ones, i.e. markets with good growth performance. Furthermore, developed countries may prefer developed markets with a high GDP per capita to low income markets, since they would meet demand for the typical products of developed countries there.

Central European EU countries, such as Austria, have placed a large share of their FDI in the neighboring CEECs. A large share of US FDI in EU15 is located in the UK and in Ireland. Spain has become a heavy investor in LAC. From these facts, we conjecture that

geographical distance, common language and former colonial links may promote FDI in certain markets.

Consequently, we are interested to test whether market size and market dynamics are among the prime determinants of our investor countries. This could be considered as strong evidence for market-seeking FDI, although we admit that market-seeking FDI can also be expected in smaller markets. While market-seeking FDI in ordinary consumer goods will be less sensitive to the development level, market-seeking FDI with technologically advanced products will be constrained to countries with advanced development (income level, education, infrastructure, see below). Since all regarded investor countries offer leading world products, we expect market-seeking FDI to be a highly important strategy. Further, we will test whether geographical distance and cultural proximity of markets play a significant role for FDI.

2.2 Human capital and infrastructure as determinants for market-seeking FDI in advanced markets

With more advanced products the availability of skilled labor, labor productivity and a developed infrastructure becomes important.

Filippaios and Papanastassiou (2008) looked at US multinational investment in Europe and concluded that in the EU periphery, besides labor costs, the host country's labor productivity is important for FDI inflows. Trevino et al. (2008) find that LAC FDI inflows are related to educational attainment, measured by enrolment in tertiary education. Azemar and Desbordes (2009) and Suliman and Mollick (2009) analyze FDI flows to developing countries and conclude that the relatively low FDI flows into Sub-Saharan Africa are partly explained by poor human capital and illiteracy. Noorbakhsh et al. (2001) examine why FDI flows to developing countries have reached only a limited part of them. Their empirical analysis proposes that human capital is one of the key FDI determinants and has constantly gained in importance. We propose that market-seeking FDI of OECD countries, producing higher quality products and services, is linked to the availability of human capital. As an indicator for human capital we consider labor productivity since it provides a more accurate picture on the educational level in DC than primary and

secondary school enrollment which is the only education indicator available for our large set of DC.

The manufacture of advanced products entails a need for communication with high technology media and thus requires a well functioning telecommunication and internet network. Bénassy-Quéré et al. (2007) and Bellak and Leibrecht (2009) found that infrastructure in Eastern Europe promotes FDI. More specifically, Campos and Kinoshita (2008) showed that telecommunication is important for FDI in Eastern Europe and LAC and Bellak et al. (2010) concluded that Information Computer Technologies (ICT) are an essential factor for FDI in the enlarged EU. Globerman and Shapiro (2003) argued that US firms invest only in countries with a threshold level of infrastructure.

We hypothesize that telecommunication technologies are important determinants of FDI and test, in particular, whether investors search destinations with a high rate of internet accessibility and a high rate of fixed and mobile telephone lines.

2.3 Labor costs and taxation as determinants for efficiency-seeking FDI

Investment in developing countries often arises from the motivation to save labor costs and taxes and thus, to dislocate a part of (vertical FDI) or the entire production to low wage countries or countries with attractive tax rates (efficiency-seeking FDI). The intermediate or final product needs to be shipped back to the FDI home country, which requires sufficiently low tariffs or free trade arrangements. We expect that FDI to developing countries is encouraged by big wage gaps with the sender country. There are numerous examples for efficiency-seeking FDI, e.g., US investment in Central America, EU investment in Eastern Europe, developed countries' investment in the textile industry in East Asia. Konings and Murphy (2006) found that in the post-1992 period US FDI in the EU periphery was discouraged in places with high labor costs. Bellak et al. (2008) estimated that increasing labor costs had a negative effect on FDI inflows into the CEECs. Braconier et al. (2005) found that about 20 per cent of US multinational sales are based on low wages of skilled labor.

Bellak and Leibrecht (2009) find that tax-lowering strategies of CEEC governments seem to have an important impact on foreign firms' location decisions. Bénassy-Quéré et al. (2007) find that FDI inflows have become very sensitive to tax rates in Eastern Europe and the enlarged EU respectively. Bénassy-Quéré et al. (2007) and Bellak and Leibrecht (2009) argue that the tax elasticity of FDI is higher than with respect to infrastructure. Big tax competition of countries wishing to attract FDI will lead to an undersupply of infrastructure. Cleeve (2008) finds that fiscal incentives, namely tax holidays are important for investors in Africa, which was also found by Lansbury et al. (1996) for investors in Eastern Europe.

Therefore, we are interested in examining whether efficiency-seeking FDI is an important motive for our investor countries.

2.4 Resources

Since the beginning of the 2000s, resource-seeking FDI, geared by increasing demand and rising commodity prices for oil and minerals, has once again boomed (WIR 2007). Thus, the rising profits in this sector induced a wave of investment. Investment in extractive industries involves large scale investment and high uncertainty of return. Investors can act as monopolists. A good relationship with governments is essential. Autocratic regimes and corruptive systems may facilitate the operation of businesses. However, with this type of investment, political instability and the risk of expropriation can potentially lead to high costs and losses (WIR 2007; Buckley 2008).

Asiedu (2006) concludes that natural resources are besides market size the key determinants **of** FDI in Africa. Consequently, we are interested in knowing to which extent our investor countries have placed their FDI in resource abundant countries and which conditions destinations have to offer to investors in extractive industries.

2.5 Host country's trade openness, bilateral trade experience and common trade policy framework

The embeddedness of the host country in international trade is relevant for FDI inflows in several respects.

First, open economies – openness being indicated by exports plus imports over GDP – are heavily linked with the world economy. They have liberal trade regimes, long established international economic relations and are competitive on the world market. This should provide a positive setting for investors. FDI would benefit from the liberal trade regime which would facilitate to use the affiliate as export base. Several studies find a strong positive effect of openness on inward FDI. For different regions including Eastern Europe, Asia, LAC and Africa, Campos and Kinoshita (2008), Trevino et al. (2008), de Boyrie (2010), and Sekkat and Veganzones-Varoudakis (2007) find that openness of the host country is an important factor explaining FDI inflows.

Secondly, we propose that investors will have a stronger propensity to put their FDI into countries with whom external relations have been already established. As evidence, we consider the position of the host country in the home country's total trade over the past 5 years.

Third, we conjecture that bilateral free trade agreements (FTA) encourage FDI, notably efficiency-seeking FDI. Bilateral trade agreements provide opportunities to dislocate a part of, or the entire production in lower cost countries and to import the product without trade barriers. There is evidence that FTAs of the US with Central America have generated important FDI flows into this region (Waldkirch 2010). The same applies for FTAs between the EU and Eastern Europe (Baltagi et al. 2008). The perspective of vertical and efficiency-seeking FDI under FTAs will increase with the wage gap of the host country, as argued in Kim (2007).

Since the early 1990s, the number of Double Taxation Treaties (DTTs) and Bilateral Investment Treaties (BITs) has grown significantly. BITs contain provisions for investor-state dispute settlement with international institutions (e.g. the International Center for Investment Dispute Settlement at the Worldbank) and reduce the uncertainty of expropriation (WIR 2005). Our sample of investors have concluded numerous DTTs. Desbordes and Vicard (2009) investigated the impact of BITs and found that this depends on the political relationship between the signatory countries. Only in case of tense relationship, BITs would promote FDI flows.

2.6 Macroeconomic factors: exchange rate, inflation, external debt

Macroeconomic stability has been stressed in numerous empirical investigations as an important determinant of FDI (e.g. Campos and Kinoshita 2008; Lansbury et al. 1996; Asiedu 2006). Macroeconomic stability involves low inflation rates, a stable currency and low external debt. There are manifold examples that increasing external debts worsen the creditworthiness of countries, generate solvency problems and lead to currency devaluations. Under these conditions, investment can loose considerably in value. Currency devaluations and high volatility in exchange rates can also result from current account deficits and other risk factors. High and volatile inflation increases uncertainty and thus, leads to higher investment risk. Consequently, FDI will be discouraged by such conditions. Busse and Hefeker (2007), Asiedu (2006), Campos and Kinoshita (2008) as well as Trevino et al. (2008) stressed that the inflation level is an important factor for FDI inflows in DC. Servén (2002) proves that exchange rate uncertainty, i.e. volatility, discourages private investment into DC. Clark and Kassimatis (2009) find that default risk leads to FDI drops in Latin America.

We shall test the impact of changes in exchange and inflation rates, their volatility, as well as the impact of changes in external debt in order to find out to which extent these factors are relevant in explaining FDI from our investor countries.

2.7 Institutional factors

In recent years, the importance of institutions for attracting FDI inflows has been increasingly stressed. In view of the unequal FDI flows within Eastern Europe and LAC, and the low FDI record of Africa, institutions like the Worldbank underlined this factor.

The political system and quality of institutions are likely to be important determinants of FDI activity, particularly for less-developed countries, for a variety of reasons. (i) Political instability denoted by violence, civil war, or simply weak governments, will discourage FDI. (ii) Countries with a developed democracy/political accountability provide a more reliable legal base and therefore may encourage FDI inflows. On the other hand, Li and Resnick (2003) argue that democratic countries limit Multinational Firms (MNF)

to pursue a monopolistic behavior and local governments to offer generous incentives, which may therefore reduce FDI. (iii) Poor legal protection of assets increases the chance of expropriation of a firm's assets and is thus making investment less likely. (iv) Poor quality of institutions that are necessary for well-functioning markets (and/or corruption) increase the cost of doing business (Antal-Mokos 1998; Meyer 2001) and thus, should also diminish FDI activity.

In recent years the importance of these factors of FDI has been verified in a number of empirical studies for large worldwide samples (e.g. Wernick et al. 2009; Busse and Hefeker 2007; Campos and Kinoshita 2008), or specific regions (Asiedu 2006; Naudand and Krugell 2007, for Africa; Barrell and Pain 1999, for Eastern Europe; and Trevino et al. 2008, for LAC).

Several international data sets are maintained which provide indicators of institutional quality, among them the indicators of the International Country Risk Guide, of the Fraser Institute and the World Bank's World Governance Indicators. Since the latter provides the largest coverage with respect to time and countries, we will use the indicators of this data set to examine to which extent the quality of institutions is a robust FDI determinant.

3 Model specification and data

To find out which are the principal factors that determine the FDI commitment of the US, Germany, France and the Netherlands we look at their bilateral FDI positions in 1995-2008 in 129 recipient developing countries classified under five regions: ECA, ESA, LAC, MENA and SSA (see Table A.2 for more details). We estimate the following model (time subscript t omitted for simplicity):

$$\begin{aligned} FDI_{ij} &= \alpha_{ij} + \beta_1 MARKETSIZE_j \& MARKET\,DYNAMIC_j \\ &\quad + \beta_2 DEVELOPMENT_j + \beta_3 RESOURCES_j \\ &\quad + \beta_4 OPEN_j \& ECONOMIC\,RELATIONS_{ij} + \beta_5 MACRO\,STABILITY_j \\ &\quad + \beta_6 INFRASTRUCTURE_j + \beta_7 INSTITUTIONS_j \\ &\quad + \beta_8 CULTURAL\,TIES_{ij} + \beta_9 MARKET\,PROXIMITY_j + \epsilon, \end{aligned} \tag{1}$$

where FDI_{ij} is the FDI position of the investor i in country j per country i inhabitant. Equation (1) includes the following matrices:

- $MARKETSIZE_j$ & $MARKET\,DYNAMIC_j$:

  with included variables GDP_j and GDP growth, $GROWTH_j$.

- $DEVELOPMENT_j$:

  with GDP per capita, $GDPPC_j$, labor productivity, $LPROD_j$, wage differential, $WAGE_{ij}$, and an interaction term of $WAGE$ and $LPROD$, $WAGE\_LPROD_{ij}$.

- $RESOURCES_j$:

  with per capita production of oil and gas (OIL_j, GAS_j) and share of minerals and ores in exports $MINORES_j$.

- $OPEN_j$ & $ECONOMIC\,RELATIONS_{ij}$:

  with the share of the host country in investor's total trade, $BTRADE_{ij}$, trade openness of the host country, $OPEN_j$, existence of bilateral free trade agreement, FTA_{ij}, bilateral investment treaty, BIT_{ij}, and double taxation treaty, DTT_{ij}.

- $MACRO\,STABILITY_j$:

  with the exchange rate index, $EXCH_j$, exchange rate volatility, $STDEXCH_j$, inflation rate, INF_j,volatility of inflation, $STDINF_j$, and external debt rate, $DEBT_j$.

- $INFRASTRUCTURE_j$:

  with the number of fixed and mobile telephone lines per inhabitant, $MOBFIX_j$, and internet access per inhabitant, $INTER_j$.

- $INSTITUTIONS_j$:

  with an index of political stability, POL_j, democratic accountability, ACC_j, government efficiency, GOV_j, regulatory quality, REG_j, law and order, LAW_j, and corruption, $CORR_j$.

- $CULTURAL\,TIES_{ij}$:

containing interaction terms of host's GDP and the presence of English/French language (GDP_LANGUS_j, $GDP\_LANGFRA_j$) and colonial ties, GDP_COLON_{ij}.

- $MARKET\ PROXIMITY_{ij}$:

with the interaction of GDP and distance between i and j, GDP_DIST_{ij}.

$\alpha_(ij)$ is a fixed effect, and ϵ is the error term. Equation (1) explains the FDI commitment of the investor in a region by host country characteristics containing more than 30 variables (a detailed definition and sources of the variables is given in Table A.1 in the Appendix).

Further, we include interaction terms for investors/regions like GDP_BTRADE for big economies with intensive trade relations, and market development or infrastructure indicators interacted with institutional or macroeconomic factors. This permits us to capture multiple investment strategies in a given region. For example, we may find that an investor does not care for institutional quality, while it does so in locations with resources.

In any estimation of FDI determinants the issue of endogeneity of variables may arise. Note that our dependent variable is bilateral FDI stocks per head of the investor country while the explanatory variables, market size, market dynamics and income level, are related to the host country. Since we take into account bilateral FDI stocks – not total inward stock into country j – and not flows, we practically rule out reverse causality. In the case of bilateral trade relations where endogeneity with FDI may arise, we used past trade relations.

4 Empirical Methodology - BMA

The theoretical and empirical literature on the determinants of FDI has identified a large number of variables as being correlated with FDI. A recent survey on FDI determinants by Faeth (2009) presents nine theoretical models explaining FDI flows along with their empirical performance. The author shows that there is no single theory of FDI, but a variety of theoretical models attempting to explain FDI. In other words, not all determinants in each of the nine theoretical models are found significant. Thus, any analysis

of FDI determinants should be explained more broadly by a combination of factors from a variety of theoretical models. Put differently, the various FDI theories are typically compatible with one another. For instance, a theoretical view holding that market size matters for FDI is not logically inconsistent with another view that emphasizes the role of openness on FDI.

Since theory does not provide sufficient guidance for selecting the proper empirical model, the issue of model uncertainty arises. So far the empirical literature has not attempted to evaluate the robustness of FDI determinants. Model Averaging techniques have been proposed to account for such model uncertainty. The basic idea behind Model Averaging is to estimate the distribution of unknown parameters of interest across different models. The fundamental principle of Bayesian Model Averaging (BMA) is to treat models and related parameters as unobservable, and to estimate their distributions based on the observable data. Based on prior information on the parameters and considering all possible models, i.e. given by all possible combinations of regressors, the posterior probability of models and regressors are estimated.

BMA techniques have been applied in numerous empirical applications. In the growth context, Fernandez et al. (2001b) apply the BMA with different priors to determine the most robust growth regressors that should be included in linear cross-country growth regressions. León-González and Montolio (2004) extend the BMA to a panel data framework. Prüfer and Tondl (2008) use this approach to test the robustness of FDI related growth effects among other growth factors.

We have a dataset on FDI determinants stretching over fourteen years and can thus, investigate how the effect of FDI determinants changes across countries and over time. Therefore we will apply BMA in the panel data context based on LSDV estimation. As we have argued above, we should not encounter endogeneity problems which would demand a different estimation technique.

In the face of model uncertainty, a formal Bayesian approach can be used to treat the models as random variables, and conduct inference on them.

Let us assume that, in order to describe the data, y, we consider the following possible models M^j , with $j = 1, ..., J$, grouped in the model space $\mathcal{M}$. Each model contains a

different set k^j of explanatory variables, K, and includes individual effects, α_i. These models are normal linear regression models which differ in their regressors. The number of possible models is 2^K, where K is the number of explanatory variables.

Our data consist of N countries and T periods in each of the five regions. In vector y, which is of length NT, we group the dependent variables for all countries and all models. In matrix X, which is of dimension $NT \times (K+N)$, we stack the explanatory variables and the N dummy variables for each country. The regression coefficients and individual effects are given in the full $(K+N)$-dimensional β vector. Then, any model M^j for country i with T observations is represented by:

$$y_i = \alpha_i \iota_T + X_i^j \beta^j + \varepsilon_i, \tag{2}$$

where X_i^j is the Txk^j submatrix of regressors of model M^j and β^j is the k vector of slope coefficients, $\beta^j \, \epsilon \, \Re^{kj}$ $(0 \leq k^j \leq K)$. ι_T is a column vector of T ones, and ε_i is the $T \times 1$ error vector that is normal, with covariance matrix $\sigma^2 I_T$, not autocorrelated and independent of X_i^j, α_i and β^j. The normality assumption guarantees good finite sample properties albeit not necessary for consistency (Fernandez et al., 2001a).

According to the logic of Bayesian inference, the posterior distribution of any quantity of interest, in our case, $\theta^j (= \beta^j, \sigma, \alpha_i)$, is a weighted average of the posterior distributions of θ^j under each of the models, where the weights are given by the posterior model probabilities (PMPs) and is denoted by:

$$p(\theta^j | y_i) = \sum_{j=1}^{2^K} p(\theta^j | y_i, M^j) p(M^j | y_i). \tag{3}$$

This approach is typically known as BMA and it follows from direct application of Bayes' theorem (Leamer, 1978). $p(\theta^j | y_i, M^j)$, the posterior distribution of θ^j under model M^j, is typically of standard form. Nevertheless, due to model uncertainty we need to compute the PMPs. Therefore, we have to choose a prior distribution over the model space $\mathcal{M}$ of all 2^K possible models. We follow standard procedures for BMA in linear regression models of the existing literature (see, for instance, Hoeting et al. 1999; Fernandez et al. 2001b; Masanjala and Papageorgiou 2008) by assuming a uniform distribution and that regressors are independent of each other, so that the prior probability of each model is

$$p(M^j) = \frac{1}{2^K} \tag{4}$$

implying that the prior probability of including any regressor equals $\frac{1}{2}$, and is independent of the combination of regressors included in the model.[2] Given this prior the posterior model probability is given by

$$p(M^j|y_i) = \frac{p(y_i|M^j)}{\sum_{i=1}^{2^K} p(y_i|M^i)} \tag{5}$$

where $p(y_i|M^j)$ is the marginal likelihood of model M^j given by

$$p(y_i|M^j) = \int p(y_i|\alpha_i, \beta^j, \sigma, M^j)p(\alpha_i; \sigma)p(\beta^j|\alpha_i, \sigma.M^j)d\alpha_i\, d\beta^j\, d\sigma, \tag{6}$$

where $p(y_i|\alpha_i, \beta^j, \sigma, M^j)$ is the sampling model corresponding to Equation (2), and $p(\alpha_i, \sigma)$, and $p(\beta^j|\alpha_i, \sigma, M^j)$, are the relevant priors specified below in Equations (7) and (8), respectively.

Computational burden of BMA can be prohibitive as the number of models under consideration, 2^K, is huge since it increases exponentially with the number of regressors included. Moreover, because the integrals may not exist in closed form additional difficulties are raised in the derivation of the integrals in Equation (6). Having at least 30 regressors in our estimations, we approximate the posterior distribution on the model space $\mathcal{M}$ by applying the Markov Chain Monte Carlo Model Composition (MC^3) methodology by Madigan and York (1995) to simulate a sample from $\mathcal{M}$. MC^3 is based on a Random Walk Chain Metropolis-Hastings algorithm which takes draws from the model space focusing on models with high posterior model probability. Posterior results based on the sequence of models generated from the MC^3 algorithm can be calculated by averaging over the draws.

Another important aspect under the Bayesian framework is the decision on the prior structure for the parameters in each model M^j: α_i, β^j, and σ. Since the choice of pri-

[2]Since many researchers prefer more parsimonious models, there exists some discussion about the priors on the model space. Nevertheless, regular posterior odds ratios already include a reward for parsimony. Brock and Durlauf (2001), among others, are opposed to uniform model priors because of the implicit assumption that a regressor's probability is independent of the inclusion of others. They recommend a hierarchical structure for the model prior. However, this requires agreement on which regressors proxy the same theories. As stated in Eicher et al. (2007), such a consensus is often not present and, therefore, independent model priors are preferable.

ors influences the results we therefore choose non-informative priors.[3] Yet, improper non-informative priors for parameters that are not common to all models can lead to unmeaningful calculated PMPs. Therefore, we use the following benchmark priors developed by Fernandez et al. (2001a) that do not require subjective input or fine tuning for each individual model. We take the $\{\alpha_i\}$ to be independently uniformly distributed on the real line and also adopt a uniform prior for the scale parameter common to all models which gives us

$$p(\alpha_i, \sigma) \propto \frac{1}{\sigma}. \tag{7}$$

This prior implies that equal prior weight is given to all values of α and σ for $\ln(\sigma)$. Moreover, this distribution is invariant under scale transformations such as changes in the measurement units. For β^j we adopt an informative g-prior structure

$$p(\beta^j|\alpha_i, \sigma, M^j) \sim N(0, \sigma^2[g_j X'^j X^j]^{-1}), \tag{8}$$

with the following choice of the scalar hyperparameter g_j

$$g_j = \min\{\frac{1}{NT}, \frac{1}{(K+N)^2}\}. \tag{9}$$

This weighting factor, which is a decreasing function of the sample size, depends only on the number of regressors and the sample size. This prior resembles the one suggested by the risk inflation criterion (RIC) of Foster (1994) and has good small sample performance (Fernandez et al., 2001a).

5 Empirical results

We base our discussion below on the most important regressors having a Posterior Inclusion Probability (PIP) above the recommended threshold of 0.50. According to Raftery (1995), evidence for a regressor with a posterior inclusion probability from 50-75 % is called weak, from 75-95 % positive, from 95-99 % strong, and $>$ 99 % very strong. Masanjala and Papageorgiou (2008) state that a PIP of 0.50 corresponds approximately to an absolute t-ratio of one. We also indicate the regressors that are included in at least one of the ten best models, however, we do not discuss them in order to focus on the main results.

[3] In a growth regression context, two recent studies of Ley and Steel (2009) and Eicher et al. (2007) have analyzed the effects of prior choices on the robustness of parameter choices and coefficient estimates.

The results of the BMA approach are based on the MC^3 chain with 4 million draws for the pooled sample in section 5.2 and 2 millions for the regional samples in section 5.1 (the initial half million draws are discarded). To verify convergence of the algorithm, and thus the accuracy of the posterior moments, we regard the correlation between the analytical and MC^3 PMPs for a subset of models (for example, every model visited by the MC^3 algorithm) and take enough replications to ensure this correlation lies above 0.99 as suggested by Fernandez et al. (2001a). The correlation between visit frequencies and posterior probabilities for our BMAs lies above this recommended threshold.

5.1 Determinants of FDI in specific regions of developing countries

We begin our analysis of FDI determinants by investigating FDI relations in each of the five developing regions for each single investor. Table 1 reports the posterior moments and mean coefficients of the BMA regarding FDI in each developing region for each of our four OECD investor countries. Above the horizontal line, regressors with a PIP of more than 0.5 are found. Below the line, other regressors that are found in the ten best models are reported. Table 2 presents the frequencies of the robust determinants found in the BMAs for each region. The determinants are grouped under the areas: market size, market dynamics, market development, resources, openness and economic relations, macro stability, infrastructure, institutions, cultural ties and market proximity.

5.1.1 Determinants of FDI in ECA by OECD investor

According to Table 1 and Table 2 we find the following most robust and most frequent FDI determinants in ECA from our BMA:

- Bilateral trade ($BTRADE$ +).
- Wage level and labor productivity ($WAGE\_LPROD$ +).
- Wage ($WAGE$ -).
- Market size (GDP, GDP_DIST + and -).
- Resources (GAS, OIL +).
- Openness ($OPEN$ +).

Other factors still above the 0.5 PIP threshold are nevertheless less robust and appear at lower frequency: macroeconomic stability is a robust factor only for two investors (Germany: $STDEXCH$ - , France: GDP_INF -), developed infrastructures are only important for two investors (US and the Netherlands: $MOBFIX$ +) and institutions appear also only for two investors both with negative and positive sign.

Established trade relations are the most robust FDI determinant for European investors in ECA. Furthermore, trade openness is a robust factor for them. On the one hand, FDI in ECA is attracted by low wage countries,[4] on the other hand, investors search for markets that are more advanced, with higher wages and higher productivity. Particularly, for France and the Netherlands, market development is an important factor of their FDI position in the region. Finally, for all our investors, except Germany, resource abundance has been an important factor of their FDI commitment in the region. Dutch FDI is much more correlated with resources than the other countries' FDI. With the Netherlands the coefficient of resources is the highest. Institutional factors are not important for European investors.[5]

Table 3 presents the multiple investment strategies of our investor countries in ECA derived from the robust FDI determinants of the BMAs. This table indicates the different investment strategies and reports the variables and their signs that suggest this strategy. Furthermore, key destinations representing these investment strategies are reported.

All investor countries have been engaged in advanced transition countries in the CEEC. For European investors trade relations and openness were important factors of investment in these countries. Investments are also prompted by the relatively high productivity, the better infrastructure and economic stability. Germany has even exclusively invested in countries of ECA with these features. It appears that Germany's investment in ECA – which accounts for a major share of its global FDI commitment in DC (see Figure 1) – is fairly conservative. In contrast to Germany, the US, France and the Netherlands have

[4]The motivation of the US, France and the Netherlands to invest in ECA in destinations with low wages which offer a reasonable productivity confirms previous findings by Lansbury et al. (1996) for FDI inflows in Eastern Europe in general.

[5]Similarly, Campos and Kinoshita (2008) could not verify that institutions matter for FDI flows into Eastern Europe.

all had a second equally important investment strategy in the region: they invested in the oil and gas producing countries, such as Russia, Azerbaijan, Kazakhstan, and in early transition countries with low wages and less developed institutions (the US tolerates low democracy in this part and has concluded DTT with these countries).

France and the Netherlands pursue the most differentiated investment strategies in ECA. In addition to the above indicated strategies they are also in search for the large, low wage countries in ECA, namely Russia and Turkey, and for small European transition countries like Serbia, Romania and Bulgaria. France is willing to tolerate a less developed legal system, given the size of the market and low wages.

In summary, we see that investment of European countries is above all determined by the progress that has been made in establishing strong trade relations with ECA. ECA attracts resource seeking investment which is paired with lower income countries and institutional risk. France and the Netherlands have developed the most differentiated investment strategies in ECA.

5.1.2 Determinants of FDI in ESA by OECD investor

The developing region of East and South Asia has gained tremendous importance for all our investor countries. There is a number of location factors which govern OECD FDI in ESA uniformly, and, in general, host countries in this region have to fulfill a number of criteria.

Our BMA analyses suggest the following robust FDI determinants for investors in ESA (see Tables 1 and 2).

For all investors:

- Established bilateral trade relations ($BTADE$ +).
- Openness of the destination ($OPEN$ +).
- Preference for large, English speaking countries (GDP_LANGUS +).
- Markets with no dynamic growth ($GROWTH$ -).
- High labor productivity ($LPROD$ +).

Low wages and low productivity ($WAGE\_LPROD$ -) as well as low telecommunications infrastructure ($MOBFIX$ -) appear robust for 3 investors and resource abundance

for 2 investors (with Germany and the Netherlands GAS -).

Our OECD investors show strong common characteristics in their – more than in other regions – highly focused investment strategy. The highly robust FDI determinants in ESA are: established trade linkages and openness, and large markets with good management of English language. They must not be the most dynamic markets but have to show a high level of productivity – reflecting evidently high education levels – and a good infrastructure. These factors are not only highly robust but also have a high impact on the size of the FDI position. A one per cent increase in the market size (GDP) is reflected in an increase of the bilateral investment position of 0.10 per cent (France), 0.23 per cent (US and Germany) and even 0.58 per cent with the Netherlands. High labour productivity increases the FDI position in a country in ESA by 0.19 per cent (France), 0.20 per cent (US), 0.29 per cent (Germany) and even 0.47 per cent (with the Netherlands). In high wage countries, an increase of telecommunication infrastructure increases the FDI position.

The BMA estimations suggest a second FDI focus for all four investors: countries with established trade links, low wages, low productivity and poor infrastructure ($MOBFIX$ -). Again, these factors are highly robust.[6] However,we find lower elasticities for FDI with these factors indicating that investors search this group of countries to a lesser extent. The elasticity of FDI with respect to lower $MOBFIX$ lies between 0.04 and 0.06 per cent (see Table 1).

OECD FDI in ESA does not focus on resource abundant countries. Germany and the Netherlands do even explicitly not invest in gas abundant countries (GAS -).

As with FDI in ECA, we find that macroeconomic and institutional factors are no prominent determinants in ESA. We only observe that Germany and France accept exchange rate deteriorations ($EXCH$ +) which might indicate that they are interested to invest in countries which keep their currencies competitive through devaluations.

Table 4 summarizes the investment strategies of our OECD investors in ESA. It highlights the dual investment strategy which is found for all OECD investors in ESA: on the one hand they focus on big and developed markets (which includes places like Hong

[6]Note that for France, the BMA does not indicate $MOBFIX$ (-) and $WAGE\_LPROD$ (-) as robust factors but rather small countries which were former colonies, GDP_COLON (-).

Kong, Singapore, Malaysia and South Korea), and, on the other hand, they focus on less developed trade partners like the Philippines, Indonesia, China, India and Thailand. The strong commitment of the Netherlands in ESA cannot be explained by the results of our BMA approach alone. It appears from the FDI data that Dutch FDI is more present than other investors in all ESA countries.

5.1.3 Determinants of FDI in LAC by OECD investor

According to Table 1 and 2 the most robust FDI determinants for OECD investors in LAC suggested by the BMA analysis are the following:

For all investors:

- Large markets with established trade relations (GDP_BTRADE +).

For 3 investors:

- Minor trading partners (EU investors: $BTRADE$ -).
- FTA partners (EU investors: FTA +).
- High productivity countries with high wages ($WAGE\_LPROD$ +).
- Low wage countries ($WAGE$ -).

For 2 investors:

- Low inflation (Germany and France: INF -)
- Resource abundance (US and Netherlands: GAS +)

This indicates that all investors invest in large markets with whom intensive trade relations have already been established. Given the negative coefficient of $BTRADE$ itself, we can retrieve a threshold value of GDP beyond which $BTRADE$ gets positive, and find that this is the case for all big economies in LAC, i.e. Brazil, Mexico and Venezuela. On the other hand, as the BMA indicates that $BTRADE$ is also a negative robust factor for European investors, FDI is attracted by economies with whom investors maintain little trade relations. However, European investors prefer also destinations which are under the umbrella of a common FTA. The BMA results indicate that $WAGE\_LPROD$ (+) and WAGE (-) are robust determinants for three investors, but with a lower PIP. Gas abundance and a dislike for inflation are additional robust determinants for two investors.

In summary (see Table 2), market size is an important determinant for FDI in LAC.

Both, high wage/high productivity countries as well as low wage locations are selected. Investors search destinations which are related through intensive trade as well as destinations which are minor trading partners. Since this applies for distant EU investors, it suggests that European FDI is partly a substitute for trade. Resource abundance (gas and minerals) appears as a distinct FDI criterion for some investors. Macroeconomic stability appears as a robust regressor but is subordinate to the determinants suggested above. The same applies for institutional factors.

Since the variables which appear as robust investment determinants comprise conflicting investment strategies, we sorted out the apparent investment strategies in Table 5.

In order to extract the different investment types we started with a robust factor with high PIP and checked with which other robust factors the identified cross sections appeared. First, we find that investors have selected the big LAC markets with whom also intensive trade relations exist (Mexico, Brazil, Venezuela). The US and Germany select these destinations also in search for low wages. Second, we see that three countries (US, Germany, France) have a second focus on advanced markets with relatively high wages and productivity, as well as better macroeconomic stability. The investors have established economic relations with these destinations, reflected in DTT (US) or FTA (Germany, France). Examples are Argentina and Chile. The US, Germany and France show a third common investment focus, in the poorer economies with whom France and Germany maintain few trade relations. An example is Peru. A different second investment strategy appears for the Netherlands which selects destinations with high growth performance, covered by a FTA or without trade links which offer abundant resources (minerals or gas). Examples for the Netherlands are Chile, Argentina and Bolivia. The US and France have a resource-seeking investment strategy as well. The US invest in Argentina, Bolivia and Brazil for gas and France in Chile for minerals.

5.1.4 Determinants of FDI in MENA by OECD investor

As we have seen in Figure 1, the region of MENA received increasing attention from European investors during the investigation period. For France, MENA has even become

the most important FDI location, although immediately followed by ECA and ESA. In contrast, US commitment in the region has remained rather moderate. In Table 1 and 2 we report the posterior moments of the FDI determinants from the BMA analysis and the frequencies of robust variables, respectively.

Our investors seem to pursue fairly individual investment strategies. Besides GDP, which appears – also in combination with cultural ties – for the US and France, no other determinants are consistently found robust. Three factors which belong to the "market development" area are found with a negative sign. There are practically no robust factors in the areas of "economic relations", "macroeconomic stability" and "infrastructure". We find, however, repeatedly institutional factors as robust determinants (twice with negative and with positive sign). For two countries, "cultural proximity" is a robust investment factors.

Although investors are attracted by fairly individual factors in MENA, we can derive some common investment strategies (see Table 6). All four investors focus primarily on developed markets, the US and France even on large developed markets. However, within this strategy, they show different robust FDI determinants. This is also reflected by the FDI destinations which correspond to this FDI strategy. Thus, the US and France prefer culturally related destinations. Developed infrastructure is a condition for the US and the Netherlands. The European countries care for developed institutions, Germany for government efficiency, France for low corruption and in the case of the Netherlands, law and order appears in the ten best models. France and the Netherlands - the two countries with the strongest presence in MENA - have invested in a number of more developed countries in the Middle and Far East. Germany has invested in just a few of those places.

France and the Netherlands have also a second investment strategy in less developed markets with low wages and low productivity in MENA. Again, France shows a preference for culturally related countries in this group. The FDI destinations in North Africa and the Near East correspond to this investment strategy.

Finally, we see that the US, France and the Netherlands pursue resource-oriented investment strategies in North Africa and the Gulf region.

The high presence of French and Dutch FDI in MENA can be explained by the willing-

ness of their investors to engage in very different areas which might also bear higher risk. Germany has increased its investment selectively in all parts of MENA following, however, much clearer and thus more restrictive investment criteria. For all European investors, – to a minor extent for France although–, these destinations are new and challenging. Established trade relations do not show to be an important criterion. Consequently, a part of European FDI in MENA seems to be market-seeking.

5.1.5 Determinants of FDI in SSA by OECD investor

The results presented in Table 1 and 2 indicate that FDI of our OECD investors follows distinctly different location factors in SSA. However, as we shall argue, one can associate the same types of investment strategy with those factors.

Thus, the robust FDI determinants are manifold, much more than in the other investment regions. Nevertheless, market size (GDP alone with a positive sign or in combination with English language) appears in the case of three investors as a robust factor. Oil and gas are also robust factors with three investors (OIL_GAS with positive sign for the US and the Netherlands, $BTRADE\_OIL$ with positive sign for France). Three variables that indicate "market development" are found as further robust factors ($GDPPC$ +, $EXCH\_GDPPC$ +, $WAGE\_LPROD$ +, $WAGE$ +). In contrast to ECA, ESA and LAC but as in MENA, variables in the area of "openness and economic relations" are hardly FDI determinants. As with the other investment regions, macroeconomic and institutional factors are of minor importance.

Despite the diversity of robust FDI factors, we can extract three types of investment strategies pursued by OECD investors in SSA (see Table 7). First, all four countries have an investment focus on large developed markets. Diverse robust FDI factors correspond to this strategy: $GDPPC$ (+), $WAGE$ (+), $WAGE\_LPROD$ (+) and telecommunication infrastructure ($INTER$ +, $MOBFIX$ +). Further, for the US and the Netherlands English language is important within this strategy, while for Germany and France established trade relations count. The FDI destination that covers these criteria prominently is South Africa.

The European investors, – but not the US –, also pursue a second investment strategy,

placed in poor countries, with poor infrastructure and weak institutions.

Finally the US, France and the Netherlands, – but not Germany –, invest in SSA for resource-seeking motives. An example is Nigeria. The Netherlands holds resource-seeking investment in several locations: Nigeria, Angola, Cameroon, the Republic of Congo and South Africa.

If we compare the FDI determinants found for OECD FDI in SSA with the motives revealed in the other regions, we see that SSA can be only of minor importance to our investors. It offers little potential for market-seeking FDI which our investors associate with a sufficient labor productivity and infrastructure.[7] SSA is largely seen as a FDI location for resource-seeking FDI as pointed out also in Asiedu (2006).

5.2 Determinants of FDI in developing countries in general - similarities and differences among OECD investors

Having learned about the FDI determinants in specific groups of developing countries, we would like to conclude our analysis with the factors our investors care in developing countries in general. For this purpose, we perform the BMA analysis on a worldwide pool of developing countries. Since we wish to include the taxation factor the pool excludes several countries in SSA and MENA.

Table 8 reports the posterior inclusion probability (PIP), the posterior mean and the posterior standard error of the BMA for all developing countries for each of the four OECD investors during 1995-2008.

These estimations show the following robust FDI determinants:

For all investors:

- Importance of established trade relations ($BTRADE$ +).
- High wages if paired with high productivity ($WAGE\_LPROD$ +).
- Low wages ($WAGE$ -).
- Low taxation (TAX -).

For three investors:

[7] The constraint of low productivity and missing education for FDI inflows into SSA is also found in Azemar and Desbordes (2009) and Suliman and Mollick (2009).

- Market size (GDP +) (not with the Netherlands).

Compared to the above factors, indicators of macroeconomic stability have a lower PIP or are below the 50 per cent threshold, i.e. are found only in the ten best models. The sign is always negative, indicating a dislike for economically unstable destinations. Infrastructure ($MOBFIX$ +, -) is robust only for two investors. Institutional quality (GOV +) is a robust factor for only one investor (Germany, and it is found among the ten best models for the other investors). Resources (OIL +) are robust only for one investor (Netherlands).

We see that all investors prefer destinations with whom good trade relations are established. FDI follows trade. The US and France prefer culturally related destinations. Linguistic ties are an important condition for them. All investors search for the more advanced markets in the developing world with high wages and high labor productivity and all, except the Netherlands, search large markets. This suggests that all investors pursue a market-seeking FDI strategy. Thus we can confirm the result found in the empirical literature on the importance of the market size factor (see section 2) in a more specific way. All investors reveal an efficiency-oriented investment strategy, looking for locations with low wages or low tax rates. This confirms the findings of Braconier et al. (2005), Bénassy-Quéré et al. (2007) and Bellak and Leibrecht (2009) but in a much larger country context than the existing literature. From this, we can also conjecture that investors wish to engage in vertical FDI where productions are dislocated to low wage destinations.

Comparing the scale of the FDI impact of variables across investor countries we see that established trade relations have a considerably higher impact for European investors than for the US. French FDI is less sensitive to the wage level than that of other investor countries. The US focuses more than the other countries on big markets. FDI of France and the Netherlands react stronger to taxation than German FDI. The superior size of the coefficients of all variables in the estimation for the Netherlands reflects its leading investment position.

In contrast to the picture drawn in the literature (see section 2), we see that macroeconomic stability is in general no robust FDI factor and, if so, it appears with a lower PIP. The little robustness of institutional factors in our results is in contrast to the find-

ings of Busse and Hefeker (2007) and Wernick et al. (2009) who propose that institutions play a major role for FDI decisions. However, their studies include only a very limited number of other variables while we include some 30 additional explanatory variables in our BMA. Thus, we have to conclude that when a large number of potential determinants are included in the estimations, institutional factors are no longer important.

Besides the common FDI determinants, our investor countries show individual preferences. For the US, the area of "openness and economic relations" is more important than for other investors. Besides established trade relations, the openness of a destination is important. The US prefers globalized destinations. Furthermore, it is explicitly searching for destinations covered by a free trade arrangement. Surprisingly, $MOBFIX$ is a robust factor with negative sign for the US. This might indicate that a part of its investment focuses on the poorest developing countries, i.e. those with a poor infrastructure. One has to note, however, that the impact of these individual US determinants is far less than that of the above named factors, as shown by the size of the coefficients. Germany is the only investor for whom institutional quality is a robust FDI determinant. It searches destinations with efficient government institutions. France and the Netherlands care for macroeconomic stability, France for exchange rate stability and the Netherlands for low inflation. Surprisingly, France has an investment focus on countries which are not covered by a DTT. This might reflect that it thrives among others for destinations which are less familiar to it. With the Netherlands, $MOBFIX$ (+), $INFL$ (-) and OIL (+) are additional robust FDI factors. The Netherlands thus explicitly show a preference for destinations with developed infrastructure, macroeconomic stability and resources.

Developing countries aiming to attract FDI are advised to invest in the qualification of their workforce, to establish economic relations with potential investors, to keep wages competitive and offer attractive tax rates.

6 Conclusions

The purpose of this study was to shed light on the determinants of FDI in developing countries. We examined outward FDI stocks from four major OECD investors, namely the US, Germany, France and the Netherlands into 129 developing countries grouped into five

world regions over the period 1995-2008. In an attempt to find robust explanatory factors and to account for specific econometric issues, we estimated robust model specifications by Bayesian Model Averaging (BMA). We scrutinized around 30 different explanatory variables which can be clustered into market size and market dynamics, market development (including labor costs and human capital), resources, openness and bilateral trade relations, geographical and cultural proximity, macroeconomic factors, institutional factors and infrastructure. Finally, we allowed for heterogeneity across investor countries in each developing region. The BMA analysis permitted us to identify the factors which are indeed the dominant determinants for individual OECD investors, in DC in general and within the regarded regions.

When investigating the FDI determinants of individual investors in all DC together, we find that all show a strong FDI preference for countries with established trade relations. All pursue two main strategies: (i) an efficiency-oriented FDI strategy opting for destinations with low wages and attractive tax rates and (ii) a market-seeking FDI strategy searching advanced markets with high productivity and high wages with some preference for big economies. Concerning the size of the impact of these factors on FDI, the criteria "qualification" and "established trade relations" are by far the most important ones. In contrast to the literature, we do not find that macroeconomic and institutional factors are consistently robust FDI determinants when a large set of determinants is taken into account. Our investors show some individual requirements on FDI locations: For the US "openness and economic relations" are more important than for others. The US and France prefer markets with linguistic ties. Institutional quality is only a robust factor for Germany, and macroeconomic stability only for France and the Netherlands. The Netherlands is the only investor that looks explicitly for locations with abundance of crude oil.

Developing countries that wish to attract FDI should invest in the qualification of their workforce and establish economic relations with potential investors. Low wages and taxes have a lower potential to attract FDI.

Within the regarded regions Eastern Europe and Central Asia, East and South Asia, Latin America and the Caribbean, Middle East and North Africa, and Sub-Saharan Africa,

our OECD investors reveal to some extent similar, but also dissenting investment patterns.

Eastern Europe and Central Asia (ECA) has become a major FDI destination for our European investors, while the commitment of the US has remained moderate. For Germany, this region has become the most import FDI destination, and it ranks second, close to its Asia commitment, for the Netherlands. European investors give high importance to destinations in Eastern Europe which have become open economies and are established trade partners. All investors have searched for the advanced markets in Eastern Europe with high productivity and higher wages. For Germany, this is the exclusive investment strategy in ECA, while the US, France and the Netherlands have been also searching for oil and gas abundant locations in Central Asia. France and the Netherlands pursue the most diversified investment strategy in ECA searching also for low wage late transition countries and low wage big economies (like Turkey and Russia). For European investors, Eastern Europe has gained a similarly important role as Latin America (LAC) for the US. Their FDI has been attracted by Eastern European countries due to a favorable productivity-wage level and trade integration. The US commitment in Eastern Europe is much smaller than the European one in Latin America, which may be related to missing cultural and political ties that we found to be important for the US when investing in DC.

East and South Asia (ESA) has significantly gained in importance for all our OECD investors over the past decade. Particularly the Netherlands have an important FDI commitment in the region. All our investors show – more than in other regions – a highly focused and common investment strategy (i) on advanced large markets with a high productivity level, a good management of English language, which are open economies and are established trade partners, and (ii) low wage/low productivity destinations with poor infrastructure with whom they have established good trade relations.

Latin America and the Caribbean (LAC) has been traditionally the most important FDI destination for the US. It ranks on the fourth place in importance for Germany and France and on the third place for the Netherlands, the latter having the highest commitment of all investors in this region. All investors have searched for big LAC markets with whom good trade relations have already been established. Besides that, investment

strategies reveal particularities of investors. European investors have placed their FDI also in destinations which are minor trade partners which would indicate that FDI is a substitute for trade in these distant destinations. Investors have searched destinations with low wages as well as advanced economies with high productivity in LAC. The US, France and the Netherlands invest in the region for resource-seeking motives. Since Dutch FDI is to a considerable extent resource-seeking, it has become the most intensive in the region. Trade liberalization and FTA negotiations seem to have been important for LAC countries to attract FDI, developing productivity/education will be important for further FDI.

The Middle East and North Africa (MENA) has also grown significantly in importance for our European investors, but only modest for the US. Investment motives are very individual in this region, although, all four investors have a strong focus on developed markets in the region. The US and France prefer destinations with cultural proximity. A developed infrastructure is a strong criterion for the US and the Netherlands. In contrast to other regions, we find that investors in MENA namely European investors, care for institutional quality. Established trade relations are no important criterion for investors. For European investors, except for France, this region is rather new and challenging. The US, France and the Netherlands, but not Germany have placed resource-oriented investment in the region. MENA countries can become more attractive for OECD investors when trade openness and external and cultural relations improve. There is further potential for market-seeking as well as efficiency-seeking investment. To become more attractive, countries have to improve their productivity, i.e., education.

The FDI commitment of our OECD investors in Sub-Saharan Africa (SSA) has remained very modest. Despite the variety of individual criteria which investors request in SSA, one can synthesize that all investors have focused their investment on South Africa, due to its market size, the English language and the market development which is reflected in a higher productivity and telecommunication infrastructure. European investors, but not the US, have also invested in poor countries in SSA. All investors, except for Germany have placed FDI in the region out of resource seeking motives. The commitment of investors in SSA is not likely to gain immediately in importance, since the region offers

little potential for entry in advanced DC markets with an educated workforce, sufficient infrastructure and effective administrations.

In summary, we can see from the analysis that our OECD investors show to quite an extent common investment strategies in the regarded regions, although, the factors identified in our BMA analysis as robust determinants may be quite heterogenous. The Netherlands and France pursue the most diversified investment strategies while the US and Germany have a more restricted scope. In contrast to the other investors, resources are not a robust investment criteria for Germany. A common feature appears: investors show a strong preference for advanced markets with a qualified labor force, and prefer destinations which whom trade relations are established. However, they also place FDI for reasons of cost-efficiency and thus search for locations with competitive wages and attractive tax rates. Investment is still resource-seeking to a considerable extent.

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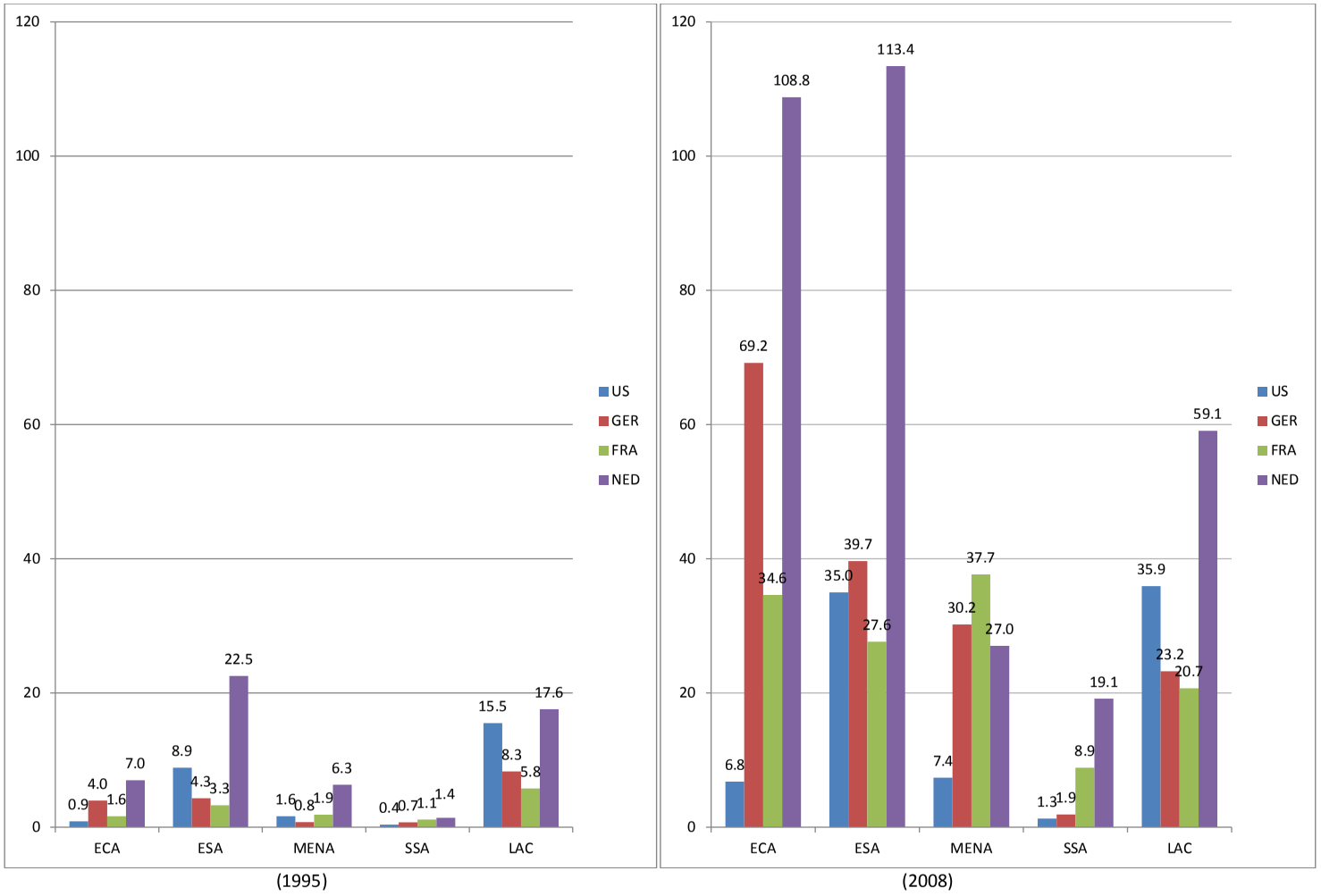
Figure 1: OECD countries FDI per inhabitant (in US$) position by region of destination



Source: UNCTAD, National Bank Statistics and OECD.

Table 1: Determinants of FDI in different DC regions by different OECD investors

ECA

US				GER				FRA				NED			
PIP	**Var**	**MEAN**	**SE**	**PIP**	**Var**	**MEAN**	**SE**	**PIP**	**Var**	**MEAN**	**SE**	**PIP**	**Var**	**MEAN**	**SE**
1.00	*WAGE_LPROD*	0.2083	0.0393	**1.00**	*BTRADE*	48.1944	2.7066	**1.00**	*BTRADE*	66.3911	5.1170	**1.00**	*BTRADE*	166.41	7.1054
1.00	*WAGE*	-2.1130	0.4084	**0.99**	*OPEN*	0.2036	0.0484	**1.00**	*OIL*	0.0671	0.0139	**0.99**	*WAGE*	-20.894	4.2063
1.00	*DTT_ACC*	-0.0169	0.0035	**0.63**	*STDEXCH*	-0.0305	0.0260	**0.95**	*WAGE_LPROD*	0.7087	0.3432	**0.99**	*WAGE_LPROD*	2.0911	0.4201
1.00	*GAS_OIL*	0.0060	0.0010	**0.56**	*GDP_DIST*	-0.0178	0.0196	**0.92**	*GDP_INF*	-0.0049	0.0022	**0.98**	*GDP_DIST*	0.0875	0.0212
0.99	*DTT*	0.1028	0.0257	0.43	*MOBFIX*	0.0146	0.0198	**0.89**	*WAGE*	-6.1903	3.1539	**0.98**	*GDP*	-0.3824	0.0956
0.86	*GDPPC_ACC*	-0.0020	0.0017	0.25	*STDINF*	-0.0117	0.0230	**0.73**	*GDP*	-0.1190	0.0821	**0.97**	*OIL*	0.1007	0.0324
0.82	*MOBFIX_ACC*	0.0022	0.0012	0.23	*GDP*	0.0292	0.0615	**0.71**	*OPEN*	0.0630	0.0468	**0.90**	*MOBFIX*	0.0432	0.0194
0.20	*MOBFIX*	0.0026	0.0056	0.14	*INT*	-0.0018	0.0053	**0.71**	*GDP_DIST*	0.0237	0.0170	**0.54**	*GAS*	0.0218	0.0227
0.17	*OIL*	0.0028	0.0069	0.11	*ACC*	-0.0020	0.0066	**0.52**	*WAGE_LAW*	-0.0920	0.1002	0.45	*OPEN*	0.0647	0.0804
0.15	*GDP*	-0.0032	0.0087	0.06	*WAGE*	-0.2793	1.4013	0.27	*POL*	-0.0036	0.0066				
0.13	*GDPPC*	-0.0026	0.0081	0.06	*WAGE_LPROD*	0.0261	0.1335	0.20	*LAW*	-0.0040	0.0091				
0.06	*GOV*	-0.0003	0.0015					0.09	*STDINF*	-0.0019	0.0072				

ESA

US				GER				FRA				NED			
PIP	**Var**	**MEAN**	**SE**	**PIP**	**Var**	**MEAN**	**SE**	**PIP**	**Var**	**MEAN**	**SE**	**PIP**	**Var**	**MEAN**	**SE**
1.00	*LPROD*	0.2017	0.0287	**1.00**	*BTRADE*	31.5937	1.7460	**1.00**	*LPROD*	0.1887	0.0323	**1.00**	*GDP_LANGUS*	0.5839	0.0579
1.00	*BTRADE*	5.1777	0.8261	**1.00**	*WAGE*	6.8269	0.8647	**1.00**	*BTRADE*	18.253	3.6571	**1.00**	*OPEN*	0.2551	0.0412
1.00	*OPEN*	0.2477	0.0201	**1.00**	*LPROD*	0.2893	0.0239	**1.00**	*GROWTH*	-0.0338	0.0080	**1.00**	*MOBFIX*	-0.0636	0.0118
1.00	*MOBFIX*	-0.0314	0.0037	**1.00**	*MOBFIX_WAGE*	0.2870	0.0370	**0.93**	*GDP_LANGUS*	0.1042	0.0420	**1.00**	*LPROD*	0.4670	0.0627
1.00	*GDP_LANGUS*	0.2285	0.0292	**1.00**	*GDP_LANGUS*	0.2367	0.0238	**0.91**	*GOV*	0.0285	0.0122	**1.00**	*GAS*	-0.0513	0.0103
1.00	*MOBFIX_WAGE*	0.2498	0.0326	**1.00**	*OPEN*	0.1144	0.0175	**0.91**	*GDP_COLONFRA*	-0.0858	0.0384	**1.00**	*MOBFIX_WAGE*	0.5646	0.1034
1.00	*GROWTH*	-0.0335	0.0073	**1.00**	*GOV*	0.0368	0.0069	**0.71**	*EXCH*	0.0267	0.0203	**1.00**	*GROWTH*	-0.0686	0.0150
0.72	*WAGE_LPROD*	-0.0470	0.0334	**1.00**	*MOBFIX*	-0.0362	0.0040	**0.68**	*OPEN*	0.0415	0.0330	**1.00**	*WAGE_LPROD*	-1.1142	0.3122
0.21	*GAS*	-0.0024	0.0052	**1.00**	*GROWTH*	-0.0509	0.0062	0.40	*CORR*	0.0080	0.0109	**1.00**	*BTRADE*	14.2103	3.5284
0.09	*LAW*	0.0008	0.0028	**1.00**	*WAGE_LPROD*	-0.7578	0.0865	0.32	*STDEXCH*	-0.0195	0.0330	**0.98**	*GOV*	0.0552	0.0164
0.07	*CORR*	0.0007	0.0032	**1.00**	*EXCH*	0.0455	0.0098	0.31	*MOBFIX*	-0.0038	0.0063	**0.96**	*WAGE*	9.2215	3.1704
0.06	*MINORES*	0.0068	0.0314	**1.00**	*GAS*	-0.0198	0.0043								
0.06	*GOV*	0.0007	0.0032	**0.75**	*LAW*	-0.0096	0.0066								
				0.70	*STDEXCH*	-0.0712	0.0580								
				0.54	*STDINF*	0.0589	0.0608								

LAC

US				GER				FRA				NED			
PIP	**Var**	**MEAN**	**SE**	**PIP**	**Var**	**MEAN**	**SE**	**PIP**	**Var**	**MEAN**	**SE**	**PIP**	**Var**	**MEAN**	**SE**
1.00	*GDP_BTRADE*	1.8444	0.0953	**1.00**	*BTRADE*	-313.22	55.418	**1.00**	*BTRADE*	-237.47	44.027	**1.00**	*BTRADE*	-344.47	52.114
0.99	*OPEN*	0.2039	0.0477	**1.00**	*GDP_BTRADE*	41.430	8.0350	**1.00**	*GDP_BTRADE*	44.019	6.1433	**1.00**	*FTA*	0.2340	0.0309
0.78	*GDP*	-0.0800	0.0562	**0.77**	*FTA*	0.0350	0.0226	**0.98**	*DTT*	-0.1002	0.0265	**1.00**	*GDP_BTRADE*	85.9223	8.0152
0.58	*WAGE_LPROD*	0.1546	0.1471	**0.66**	*LPROD*	0.0482	0.0366	**0.98**	*FTA*	0.0715	0.0192	**0.86**	*GROWTH*	0.0265	0.0138
0.57	*WAGE*	-1.5613	1.4916	**0.57**	*INF*	-0.0129	0.0126	**0.98**	*INF*	-0.0307	0.0088	**0.81**	*GAS*	0.0567	0.0330
0.52	*GAS*	0.0337	0.0363	**0.51**	*WAGE*	-1.8080	2.3735	**0.94**	*WAGE*	-4.0884	1.3328	0.26	GDP_COLON	-0.0798	0.1518
0.49	*DTT*	0.0451	0.0498	0.49	*WAGE_LPROD*	0.1717	0.2305	**0.94**	*WAGE_LPROD*	0.3925	0.1295	0.17	*BIT*	0.0051	0.0131
0.49	*OIL_GAS*	-0.0104	0.0115					**0.92**	*STDEXC*	-0.0400	0.0154	0.11	*MINORES*	0.0071	0.0230
0.42	*INF*	-0.0124	0.0162					**0.91**	*POL*	-0.0175	0.0075	0.11	*POL*	0.0025	0.0080
0.27	*INT*	0.0018	0.0033					**0.77**	*MINORES_POL*	0.0953	0.0700	0.10	*OPEN*	-0.0119	0.0410
								0.76	*MINORES*	-0.5742	0.4039				
								0.13	*GAS*	-0.0027	0.0081				

Continued on next page

Table 1 – continued from previous page

MENA

US				GER				FRA				NED			
PIP	**Var**	**MEAN**	**SE**	**PIP**	**Var**	**MEAN**	**SE**	**PIP**	**Var**	**MEAN**	**SE**	**PIP**	**Var**	**MEAN**	**SE**
1.00	*GAS*	0.0119	0.0014	**1.00**	*GOV*	0.1483	0.0276	**0.99**	*GDP_LANGFRA*	0.2436	0.0670	**0.99**	*LPROD*	-0.2611	0.0616
0.99	*GDP_LANGUS*	0.0472	0.0112	**1.00**	*GROWTH_GOV*	-0.0692	0.0154	**0.97**	*LPROD*	-0.1685	0.0540	**0.99**	*WAGENED*	-6.9386	1.6134
0.82	*FTA*	-0.0136	0.0077	**0.99**	*OPEN*	0.2788	0.0608	**0.88**	*INF_CORR*	0.0170	0.0077	**0.99**	*WAGE_LPROD*	0.6481	0.1521
0.60	*MOBFIX*	0.0038	0.0035	**0.99**	*GROWTH*	0.2409	0.0726	**0.76**	*GDP*	0.1739	0.1077	**0.81**	*POL*	-0.0334	0.0209
0.43	*GDP*	0.0135	0.0170	0.49	*LAW*	0.0349	0.0406	0.47	*WAGE_LPROD*	-0.0130	0.0177	**0.72**	*MOBFIX*	0.0251	0.0179
0.25	*DEBT*	0.0013	0.0026	0.44	*GAS*	-0.0134	0.0168					0.48	*LAW*	0.0225	0.0264
0.15	*EXC*	0.0016	0.0043	0.36	*POL*	-0.0159	0.0234					0.47	*OIL_ups_GAS_ups*	0.0061	0.0073
0.15	*INT*	-0.0003	0.0007	0.16	*MOBFIX*	-0.0056	0.0160								
0.13	*BIT*	-0.0015	0.0046												
0.09	*LPROD*	-0.0013	0.0048												

SSA

US				GER				FRA				NED			
PIP	**Var**	**MEAN**	**SE**	**PIP**	**Var**	**MEAN**	**SE**	**PIP**	**Var**	**MEAN**	**SE**	**PIP**	**Var**	**MEAN**	**SE**
1.00	*STDINF*	0.0091	0.0017	**1.00**	*BTRADE*	29.762	4.8404	**1.00**	*WAGE*	2.8598	0.3888	**1.00**	*GDP_LANGUS*	0.1867	0.0284
1.00	*STDEXC*	-0.0094	0.0013	**1.00**	*DTT*	0.0941	0.0074	**1.00**	*WAGE_LPROD*	-0.2542	0.0347	**1.00**	*GDP_ACC*	0.0214	0.0026
0.86	*GDP_LANG*	0.0058	0.0029	**1.00**	*LPROD*	-0.0897	0.0087	**0.99**	*EXCH_GDPPC*	0.0060	0.0012	**1.00**	*GDP_INT*	0.0112	0.0012
0.73	*WAGE_LPROD*	0.0030	0.0019	**0.99**	*INT*	-0.0047	0.0013	**0.99**	*EXCH*	-0.0295	0.0069	**1.00**	*INT*	-0.0198	0.0043
0.63	*OIL_GAS*	0.0004	0.0003	**0.97**	*INT_GDP*	0.0013	0.0004	**0.88**	*OIL*	-0.0141	0.0069	**0.99**	*ACC*	-0.0319	0.0071
0.45	*POL*	0.0004	0.0005	**0.86**	*GDP*	0.0566	0.0301	**0.86**	*BTRADE_OIL*	8.1302	3.8323	**0.93**	*GDP*	-0.1553	0.0486
0.28	*WAGE*	0.0120	0.0212	**0.75**	*MOBFIX*	-0.0029	0.0020	**0.67**	*MOBFIX*	0.0057	0.0053	**0.90**	*POL*	-0.0126	0.0057
				0.53	*EXCH_GDPPC*	0.0001	0.0002	**0.57**	*STDEXCH*	-0.0119	0.0117	**0.78**	*STDINF*	0.0375	0.0236
				0.51	*GDPPC*	0.0288	0.0330	0.45	*GDPPC*	0.0706	0.0850	**0.54**	*WAGE*	0.1809	0.1914
				0.45	*GDP_LANGUS*	0.0069	0.0085	0.44	*GDP*	-0.0597	0.0732	0.49	*OIL_GAS*	0.0037	0.0042
								0.35	*INT*	0.0014	0.0022	0.46	*WAGE_LPROD*	0.0138	0.0172
								0.15	*OPEN*	0.0003	0.0009	0.13	*LPROD*	-0.0155	0.0455

Table 2: Frequencies of robust FDI determinants by region of investment

AREA	**variable**	**ECA**		**ESA**		**LAC**		**MENA**		SSA	
market size		large	small	large	small	large	small	large	small	large	small
	GDP	2	3	4	1	4	1	2		3	1
market dynamics		high	low	high	low	high	low	high	low	high	low
	GROWTH				4	1		1	1		
market development		developed	poor	developed	poor	developed	poor	developed	poor	developed	poor
	GDPPC		1							2	
	LPROD			4		1			2		1
	WAGE_LPROD	3			3	3		1		1	1
	WAGE		3	3			3		1	2	
resources		yes	no	yes	no	yes	no	yes	no	yes	no
	OILGAS	3			2	2		1		3	1
	MINORES					1					
openness, economic relations		yes	no	yes	no	yes	no	yes	no	yes	no
	BTRADE	3		4		4	3			2	
	OPEN	3		4				1			
	FTA					3			1		
	BIT										
	DTT	1				2				1	
macro stability		stable	unstable, depreciation	stable	unstable, depreciation	stable	unstable, depreciation	stable	unstable, depreciation	stable	unstable, depreciation
	EXCH				2						2
	STDEXCH	1		1		1				1	
	INF	1				2			1		
	STDINF				1						1
	DEBT										
infrastructure		developed	poor	developed	poor	developed	poor	developed	poor	developed	poor
	MOBFIX	2		3	3					1	1
	INT									2	2
institutions		strong	poor	strong	poor	strong	poor	strong	poor	strong	poor
	POL					1	1		1	1	1
	ACC	1	1								
	GOV			3				1	1		
	REG										
	LAW		1		1						
	CORR							1			
cultural ties		close	no ties	close	no ties	close	no ties	close	no ties	close	no ties
	LANGUS			4				1		2	
	LANGFRA							1			
	COLON			1							
market proximity		close	far	close	far	close	far	close	far	close	far
	GDP_DIST	1	2								

Table 3: Location factors searched by OCED FDI in ECA and apparent investment strategies

US	GERMANY	FRANCE	NETHERLANDS
1.Developed transition countries – High income, high productivity – Developed democracy – Developed infrastructure – Tax agreements + $WAGE\_LPROD$ + $MOBFIX\_ACC$ + DTT Examples: CEECs	**1. Developed, close transition countries** – Small, close markets – Open economies – Strong trade relations – Developed infrastructure – GDP_DIST + $BTRADE$ + $OPEN$ – $STDEXC$ + $MOBFIX$ (high in top 10 mod) Examples: CEECs	**1. Developed small transition countries** – Small, high income, high productivity markets – Open economies – Strong trade relations – Stable macroeconomy – GDP_INF + $WAGE\_LPROD$ + $BTRADE$ + $OPEN$ Examples: CEECs	**1. Developed, small transition countries** – Small, high income, high productivity markets – Open economies – Strong trade relations – Stable macroeconomy – GDP + $WAGE\_LPROD$ + $BTRADE$ + $OPEN$ (high in top 10 model) Examples: CEECs
2. Countries in early transition with resources – Gas and oil producers – Low wage – Low income – Low democratic development – Tax agreements + GAS_OIL – $WAGE$ – $GDPPC\_ACC$ – DTT_ACC Examples: Russia, Azerbaijan, Kazakhstan		**2. Countries in early transition with resources** – Oil producers – Low wage – Poor legal system + OIL – $WAGE$ – $WAGE\_LAW$ Examples: Russia, Azerbaijan, Kazakhstan	**2.Countries with resources** – Gas and oil producers + OIL + GAS Examples: Russia, Azerbaijan, Kazakhstan
		2. Big, distant, low wage, institutionally risky countries – Big market – Low wage – Important trade relations – Poor legal development + GDP_DIST – $WAGE$ + $BTRADE$ – $WAGE\_LAW$ Examples: Russia, Turkey	**2. Big, distant, low wage, countries** – Big market – Low wage – Important trade relations + GDP_DIST – $WAGE$ + $BTRADE$ Examples: Russia, Turkey
		3. Small European countries in early transition – Small economies – Low wage – Developed trade relations – Poor legal system – GDP – $WAGE$ + $BTRADE$ – $WAGE\_LAW$ Examples: Romania, Bulgaria, Serbia, Ukraine	**3. Small European countries in early transition** – Small economies - Low wage – GDP – $WAGE$ Examples: Romania, Bulgaria, Serbia, Ukraine

Table 4: Location factors searched by OCED FDI in ESA and apparent investment strategies

US	GERMANY	FRANCE	NETHERLANDS
1. Big and developed markets	**1. Big and developed markets**	**1. Big and developed markets**	**1.Big and developed markets**
− Below average growth	− Below average growth	− Below average growth	− Below average growth
− High productivity	− High wage, high productivity	− High productivity	− High wage, high productivity
− Open economies	− Open economies	− Open economies	− Open economies
− Important trade partner	− Important trade partner	− Important trade partner	− Important trade partner
− Developed infrastructure	− Developed infrastructure	− High government efficiency	− Developed infrastructure
− Common use of English	− High government efficiency	− Undervalued currency	− High government efficiency
	− Undervalued currency	− Common use of English	− Common use of English
	− Common use of English		
− *GROWTH*	− *GROWTH*	− *GROWTH*	− *GROWTH*
	+ *WAGE*		+ *WAGE*
+ *LPROD*	+ *LPROD*	+ *LPROD*	+ *LPROD*
+ *OPEN*	+ *OPEN*	+ *OPEN*	+ *OPEN*
+ *BTRADE*	+ *BTRADE*	+ *BTRADE*	+ *BTRADE*
+ *MOBFIX_WAGE*	+ *MOBFIX_WAGE*		+ *MOBFIX_WAGE*
	+ *GOV*	+ *GOV*	+ *GOV*
	+ *EXC*	+ *EXC*	
+ *GDP_LANGUS*	+ *GDP_LANGUS*	+ *GDP_LANGUS*	+ *GDP_LANGUS*
Examples: Hongkong, Singapore, Malaysia, South Korea	Examples: Hongkong, Singapore, Malaysia, South Korea	Examples: Hongkong, Singapore, South Korea	Examples: Hongkong, Singapore, South Korea, Malaysia
2. Less developed trade partners	**2. Less developed trade partners**	**2. Less developed trade partners**	**2. Less developed trade partners**
− Low wage, low productivity	− Low wage, low productivity	− partly small former colonies	− Low wage, low productivity
− Low infrastructure	− Low infrastructure		− Low infrastructure
	− Poor legal development		
	− Undervalued currency		
		− *GDP_COLON*	
− *WAGE_LPROD*	− *WAGE_LPROD*		− *WAGE_LPROD*
− *MOBFIX*	− *MOBFIX*		− *MOBFIX*
+ *BTRADE*	+ *BTRADE*	+ *BTRADE*	+ *BTRADE*
	− *LAW*		
	+ *EXCH*		
Examples: Philippines, Indonesia, Thailand, China, India	Examples: Philippines, Indonesia, Thailand, China, India	Examples: Philippines, Indonesia, Thailand, China, India, Vietnam (colony)	Examples: Philippines, Indonesia, Thailand, China, India, Vietnam, Bangladesh
	3. no investment with gas producers		**3. no investment with gas producers**
	− *GAS*		− *GAS*
			Example: Brunei

Table 5: Location factors searched by OCED FDI in LAC and apparent investment strategies

US	GERMANY	FRANCE	NETHERLANDS
1. Big markets with intensive trade relations, low wages or DTT + *GDP_BTRADE* − *WAGE* + *DTT* Examples: Brazil, Mexico, Venezuela (low wage)	**1. Big markets with intensive trade relations, low wages** + *GDP_BTRADE* − *WAGE* Examples: Brazil, Mexico, Venezuela	**1. Big markets with intensive trade relations, partly political instability** + *GDP_BTRADE* − *POL* Examples: Brazil, Mexico, Venezuela	**1. Big markets with intensive trade relations** + *GDP_BTRADE*
2. Advanced markets − high wage, high productivity − open economies − developed infrastructure − Low inflation − DTT + *WAGE_LPROD* + *OPEN* − *INF* (top ten model) + *DTT* Examples: Argentina, Chile, Panama, Costa Rica, Colombia	**2. Advanced markets** − high wage, high productivity − free trade agreement − Low inflation + *WAGE_LPROD* + *LPROD* + *FTA* − *INF* Examples: Argentina, Chile, Colombia	**2. Advanced markets** − high wage, high productivity − free trade agreement − Low inflation −low exchange rate volatility − but: political instability + *WAGE_LPROD* + *FTA* − *INF* − *STDEXC* − *POL* Examples: Argentina, Chile, Colombia	**2. Fast growth countries, with free trade agreements** (partly with minerals) + GROWTH + FTA + *MINORES* (top 10) Examples: Chile, Bolivia, Surinam (Bolivia no FTA)
3. Small, poorer markets − *GDP* − *WAGE* Example: Peru	**3. Poor economies with no trade relations** − *WAGE* − *BTRADE* Example: Peru	**3. Poor economies with no trade relations** − *WAGE* − *BTRADE* Examples: Uruguay, Ecuador	
4. Ressource abundant countries + *GAS* − *GAS_OIL* Examples: in Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador (but not Venezuela) more gas increased *FDIUS*		**4. Ressource abundant countries if political stability** + *MINORES_POL* Example: Chile	**3. Fast growth countries, with no trade relations, mostly gas producers** + *GROWTH* − *BTRADE* + *GAS* Examples: Argentina, Bolivia, (Venezuela, Mexico, Ecuador gas but below average growth)

Table 6: Location factors searched by OCED FDI in MENA and apparent investment strategies

US	GERMANY	FRANCE	NETHERLANDS
1. Developed large markets − good infrastructure − common use of English − no free trade agreement + *GDP_LANGUS* + *MOBFIX* − *FTA* Examples: Egypt, Israel, Saudi Arabia, Libya	**1. Developed markets** − High growth − open economies − high government efficiency + *GROWTH* + *OPEN* + *GOV* Examples: Emirates, Malta, Cyprus	**1. Developed large markets** − big economies − partly common use of French − low corruption but high inflation + *GDP*, + *GDP_LANGFRA* + *INF_CORR* Examples: Israel, Cyprus, Saudi Arabia, Emirates, Kuwait	**1. Developed markets** − high wage, high productivity − developed infrastructure − developed legal system + *WAGE_LPROD* + *MOBFIX* + *LAW* (top ten models) Examples: Cyprus, Israel, Kuwait, Oman, Saudi Arabia, Emirates
		2. Less developed, (big) markets with poor institutions − large markets − common use of French − low wage, low productivity − low corruption although high inflation + *GDP* + *GDP_LANGFRA* − *LPROD* − *WAGE_LPROD* (top 10 models) + *INF_CORR* Examples: Algeria, Morocco, Tunisia, Lebanon, Egypt, Libya recently	**2. Less developed markets, politically unstable** − Low wage, low productivity − political unstable − *LPROD* − *WAGE_LPROD* − *POL* Examples: Egypt, Algeria, Morocco, Tunisia, Syria
3. Resource oriented FDI + *GAS* Examples: Algeria, Libya, Saudi Arabia		**3. Resource oriented FDI** Resources are no explicit criteria according to BMA, but see above point 1 and 2.	**3. Resource oriented FDI** + *OIL_GAS* (top ten) Examples: Kuwait, Saudi Arabia, Emirates

Table 7: Location factors searched by OCED FDI in SSA and apparent investment strategies

US	GERMANY	FRANCE	NETHERLANDS
1. Developed big markets − Large markets − high wage, high productivity − macroeconomic stability − political stability − common use of English + *GDP_LANGUS* + *WAGE_LPROD* − *STDEXCH* + *POL* Example: South Africa	**1. Developed big markets** − Large markets − high income − important trade partner − Tax agreements − devaluating currencies − Advanced infrastructure Common use of English + *GDP* + *GDP_LANGUS* (in 10 best model) + *GDPPC* + *EXCH* + *EXCH_GDPPC* + *BTRADE* + *DTT* + *GDP_INT* Example: South Africa	**1. Developed big markets** − High wage − high income − important trade partners − macroeconomic stability (partly devaluating currency) − Advanced infrastructure + *WAGE*, + *GDPPC* (top ten models) − *EXCH* − *STDEXCH* + *EXCH_GDP* + *BTRADE* + *MOBFIX* + *INT*(top ten) Example: South Africa	**1. Developed big markets** − Large markets − high wage, high productivity − developed infrastructure − developed democracy − common use of English + *GDP_LANGUS* + *WAGE* + *WAGE_LPROD* (top 10 models) + *GDP_INT* + *GDP_ACC* Example: South Africa
	2. Poorer countries with poor infrastructure and institutions − low productivity − poor infrastructure − *LPROD* − *MOBFIX*	**2. Poorer countries with poor infrastructure and institutions** − Low wage and low productivity − *WAGE_LPROD*	**2. Poorer countries with poor infrastructure and institutions** − poor infrastructure − political instability and little democracy − *INT* − *ACC* − *POL*
3. Resource oriented investment in countries with macroeconomic instability + *OIL_GAS* + *STDINF* Examples: Angola, Nigeria, Equatorial Guinea	**3. No resource oriented investment**	**3. Resource oriented investment in countries with developed trade relations** + *OIL_BTRADE* Example: Nigeria, South Africa	**3. Resource oriented investment** + *OIL_GAS* Example: Nigeria, Angola, Cameroon, Congo Rep., South Africa

Table 8: Determinants of FDI in developing countries in general by different investor

US				**GER**				**FRA**				**NED**			
	PIP	Mean	SE		PIP	Mean	SE		PIP	Mean	SE		PIP	Mean	SE
FTA	1.0000	0.0610	0.0086	$BTRADE$	1.0000	48.279	1.9101	$BTRADE$	1.0000	41.094	2.7567	$BTRADE$	1.0000	55.705	3.5014
$BTRADE$	1.0000	10.520	0.4962	$WAGE$	1.0000	-4.4514	0.6675	TAX	1.0000	-0.2116	0.0373	$WAGE$	1.0000	-10.423	1.2245
$WAGE$	1.0000	-3.4656	0.3019	$WAGE\_LPROD$	1.0000	0.4342	0.0629	$GDP\_LANGFRA$	0.9991	0.2446	0.0478	$WAGE\_LPROD$	1.0000	1.0390	0.1152
$WAGE\_LPROD$	1.0000	0.3406	0.0282	GOV	0.937	0.0235	0.0087	GDP	0.9712	0.0798	0.0200	TAX	1.0000	-0.4915	0.0820
GDP_LANGUS	1.0000	0.1321	0.0214	GDP	0.9639	0.0691	0.0216	$WAGE\_LPROD$	0.7246	0.1538	0.1055	$MOBFIX$	0.8481	0.0186	0.0108
GDP_DIST	0.9931	0.0062	0.0019	TAX	0.5406	-0.0822	0.0837	$WAGE$	0.7195	-1.5786	1.0907	INF	0.7615	-0.0254	0.0161
$MOBFIX$	0.9799	-0.0123	0.0037	INF	0.0727	-0.0008	0.0031	DTT	0.6984	-0.0291	0.0218	OIL	0.7337	0.0514	0.0356
TAX	0.9716	-0.1101	0.0335	GDP_COLON	0.0551	0.0090	0.0420	$STDEXC$	0.5089	-0.0120	0.0129	ACC	0.366	0.0084	0.0121
$OPEN$	0.7927	0.0026	0.0016	GDP_DIST	0.041	-0.0002	0.0014	INF	0.1288	-0.0013	0.0038	GDP_DIST	0.2697	-0.0033	0.0060
REG	0.4762	-0.0055	0.0063	$STDEXC$	0.0322	-0.0005	0.0033	$STDINF$	0.1224	-0.0027	0.0079	$STDINF$	0.2449	-0.0135	0.0255
$STDEXC$	0.4497	-0.0092	0.0111	$OPEN$	0.0321	0.0001	0.0005	FTA	0.1067	0.0027	0.0086	GOV	0.1658	0.0046	0.0111
INF	0.3285	-0.0029	0.0046									INT	0.1334	0.0011	0.0031
GDP	0.2021	-0.0099	0.0216												
ACC	0.145	-0.0010	0.0026												

A Appendix

Table A.1: Definition of variables

Variable	Definition	Source
FDI	Annual log of bilateral outward FDI stocks per capita at current US$ (data scaled upwards by 171 to avoid logs of negative/zero values)	UNCTAD, OECD and National Bank Statistics
GDP	Log of GDP at constant 2005 international billions US$, PPP	WDI
GDPPC	Log of GDP per capita at constant 2005 international US$, PPP	WDI
GROWTH	5-year average of annual growth rate of GDP at constant 2005 US$ relative to 5-year average regional mean	Authors' calculation based on WDI, WEO and WIIW
WAGE	Monthly wages of host country (at constant 2005 US$) as a share of home country's monthly wages	Author's calculations based on ILO, UNIDO, HDR and WDI
MINORES	Minerals and ores exports (at current US$, SITC Rev.3, codes 27 and 28) as a share of total exports	Authors' calculations based on COMTRADE, UNCTAD and WDI
OIL	Log of Crude oil and NGL production (kt, kbbl/day) per capita (data scaled upwards by 0.001 to avoid logs of zero values)	Authors' calculations based on World Oil Statistics IEA and Index Mundi
GAS	Log of Natural gas indigenous production (thousand cubic metres) per capita (data scaled upwards by 0.001 to avoid logs of zero values)	Authors' calculations based on World Natural Gas Statistics IEA and Index Mundi
OPEN	Exports and imports (at current US$) divided by GDP at current 2005 international US$, PPP	Author's calculations based on WDI
BTRADE	5-years lag of exports and imports (at current US$) of home country to host country as a share of its total exports and imports of home country	Author's calculations based on IMF DOTS, COMTRADE and WDI
FTA	Dummy variable that equals 1 if there is Free Trade Agreement into force between home and host country, 0 otherwise	WTO
BIT	Dummy variable that equals 1 if there is Bilateral Investment Treaty into force between home and host country, 0 otherwise (date into force used)	ICSID and UNCTAD
DTT	Dummy variable that equals 1 if there is Double Taxation Treaty between home and host country, 0 otherwise	UNCTAD
TAX	Log of highest marginal tax, corporate tax (%)	WDI, KPMG, Michigan University, OECD, Price Waterhouse, DoingBusiness, Eurostat, Tesche, WIIW, IBFD, Deloitte, Central & East European Tax Directory, Global Market Briefings, International Tax Review, Investment Guide for Southeast Europe, Ernst & Young,
LPROD	Labor productivity defined as GDP per person employed at constant 2005 international US$, PPP	Authors' calculation based on IMF-IFS, WEO, ILO, WDI and United Nations Statistical Yearbook
EXCH	Log of nominal exchange rate index (2005=100) (national currency per currency of the sender country, period average)	WDI, OECD IDIS and CIA World Factbook, various years
STDEXC	Standard deviation of past 5 years of nominal exchange rate index divided by mean of past 5 years of nominal exchange rate index	Author's calculations based on WDI, OECD IDIS and CIA World Factbook, various years
INF	Log of annual growth OF CPI (2005=100) (data scaled upwards by 0.172 to avoid logs of negative/zero values)	Authors' calculation based on WDI, WEO, UN and CIA
STDINF	Standard deviation of past 5 years of CPI (2005=100) divided by mean of past 5 years of CPI	Authors' calculation based on WDI, WEO, UN and CIA data
DEBT	1-diff of external debt stocks (at current US$) as a share of total exports (at current US$)	Authors' calculations based on WDI, WRI, EIU, UNECE, UNECA and CIA data
DIST	Distance (in 1000 km) between sender country and destination country	Author's calculations based on CEPII
LANG	Dummy variable that equals 1 if home and host country share a common language (that is spoken by at least 20% of the population), and 0 otherwise	CEPII
COLON	Dummy variable that equals 1 if home country was former colonizer in the host country	CEPII
ACC	Voice & Accountability	WGI
POL	Political Stability & Absence of Violence/Terrorism	WGI
GOV	Government Effectiveness	WGI
REG	Regulatory Quality	WGI
LAW	Rule of Law	WGI
CORR	Control of Corruption	WGI
INT	Log of internet users (per 1000 people) (data scaled upwards by 0.001 to avoid logs of zero values)	WDI
MOBFIX	Log of mobile and fixed-line telephone subscribers (per 1000 people) (data scaled upwards by 0.001 to avoid logs of zero values)	WDI
GDP_DIST	Interaction of GDP and DIST	
GDP_LANG	Interaction of GDP and LANG	
GDP_COLON	Interaction of GDP and COLON	
GDP_BTRADE	Interaction of GDP and BTRADE	
GDP_DIST	Interaction of GDP and DIST	
GDP_INF	Interaction of GDP and INF	
GDP_ACC	Interaction of GDP and ACC	
GDP_INT	Interaction of GDP and INT	
GDPPC_ACC	Interaction of GDPPC and ACC	
GROWTH_GOV	Interaction of GROWTH and GOV	
BTRADE_OIL	Interaction of BTRADE and OIL	
DTT_ACC	Interaction of DTT and ACC	
EXCH_GDPPC	Interaction of EXCH and GDPPC	
INF_CORR	Interaction of INF and CORR	
MOBFIX_ACC	Interaction of MOBFIX and ACC	
MOBFIX_WAGE	Interaction of MOBFIX and WAGE	
OIL_GAS	Interaction of OIL and GAS	
WAGE_LPROD	Interaction of WAGE and LPROD	
WAGE_LAW	Interaction of WAGE and LAW	

Table A.2: Classification of Regions

Region name	Countries included	Number of countries
Europe & Central Asia (ECA)	Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia (FYR), Moldova, Poland, Romania, Russian Federation, Serbia, Slovak Republic, Slovenia, Tajikistan, Turkey, Turkmenistan, Ukraine and Uzbekistan	28
East & South Asia (ESA)	Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Hong Kong, India, Indonesia, Korea Rep., Lao PDR, Macao (China), Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Singapore, Sri Lanka, Thailand, Vietnam	22
Middle East & North Africa (MENA)	Algeria, Bahrain, Cyprus, Djibouti, Egypt (Arab Republic), Israel, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Saudi Arabia, Syrian Arab Republic, Tunisia, United Arab Emirates, Yemen (Republic)	18
Sub-Saharan Africa (SSA)	Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Congo (Democratic Republic), Congo (Republic), Cote d'Ivoire, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe	41
Latin American countries (LAC)	Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Uruguay, Venezuela (RB)	20

Note: Regions based on the World Bank classification