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Does Growth Attract FDI?

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Abstract
FDI is seen widely as a vital source of investment, technology transfer, and growth. The factors that attract FDI have been a longstanding source of debate. The authors present a comprehensive assessment of the accumulated evidence on one factor, the success of economic growth in attracting FDI. Meta-regression analysis is applied to 946 estimates from 140 empirical studies. The results confirm that, on average, economic growth is an important determinant of FDI. Overall, there is a positive correlation between growth and FDI and this is much larger among single country case studies than with cross-country analysis.

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1 Introduction

Although many developing economies have access to abundant natural resources, they face more limited human capital, physical capital, and technology than developed nations. Developing countries are also constrained by corruption, the quality of their institutions, and political and economic instability. These constraints hinder capital accumulation and are a major obstacle to the efficient use of existing resources. Hence, it is not surprising that developing countries turn to international sources of economic development and economic growth, particularly foreign direct investment (FDI).[1] Developing countries seek to attract international investors by offering new and relatively unexploited markets, access to natural resources and relatively cheap labor, locational advantages, and direct and indirect incentives (Albuquerque *et al.* 2005; Asiedu 2002; Reece and Sam, 2012).

FDI has grown significantly in both volume and importance during the past 30 years (UNCTAD, 2012). Compared with other types of international capital flows, FDI is seen to be relatively more attractive as it offers a range of desirable characteristics to a host country. For example, it provides a relatively high degree of capital inflow stability that contributes to capital formation, and it offers the potential transfer of intangible assets such as technology, skills, management know-how, and entrepreneurship. FDI can also generate positive externalities. There have been several meta-analyses and surveys of the FDI spillovers literature (*e.g.*, Clark *et al.* 2011; Havránek and Iršová 2011; Havránek and Iršová 2012; Meyer and Sinani 2009; Wooster and Diebel 2010). These studies establish that FDI is generally associated with positive spillovers, with stronger evidence of vertical spillovers and weaker evidence of horizontal spillovers (Havránek and Iršová 2011; Havránek and Iršová 2012). In contrast, Wooster and Diebel (2010) find insignificant intra-sectoral FDI spillovers in developing countries. Another benefit of FDI is that it offers access to foreign markets (Buckley and Casson 1976; Dunning 1973; Hymer 1976; Kindleberger 1969; Vernon 1966).

Given these desirable characteristics of FDI, it is natural that researchers and policy makers seek to identify the factors that make a host country attractive to

[1] While most FDI flows between developed countries, FDI is an important source of funds for developing countries. Official development assistance (ODA) and remittances are also important sources of funds for developing countries.

foreign investors. One such factor is the host country's economic performance, specifically economic growth.

The focus of this paper is to identify and quantify the importance of a host country's economic growth on FDI inflows. Does economic growth attract FDI? We offer the first ever quantitative review, or meta-regression analysis (MRA), of the extant evidence (Stanley 2001). We also assess how differences in studies (*e.g.* the choice of data, specification and estimation methodologies) affect the current state of knowledge on the relationship. Empirical studies are multidimensional; the data in each study differs across groups of countries, the time period, the adopted specification, and the estimation methodology. Hence, it is not clear from the existing studies whether there are similar universal FDI attracting effects, or whether effects vary by region and time period. MRA can help to dissect the literature and draw valid statistical inferences from it. The sole focus of this paper is on the effects of growth on FDI. There is a much larger literature that explores the effects of FDI on growth. However, this literature is not analyzed in this paper.

MRA is particularly suited to the study of the effects of economic growth on FDI (growth-FDI) literature base. Although most empirical studies find a positive relationship between economic growth and FDI, many find the opposite. For instance, the distribution of the results (the data are discussed in Section 3 below) from 946 regression estimates from 140 growth-FDI studies shows that: 47 percent of the estimates are positive and statistically significant, 27 percent of the estimates are positive and statistically insignificant, 7 percent of the estimates are negative and statistically significant, and 19 percent of the estimates are negative and statistically insignificant. MRA can make sense from such apparent wide variation in results and it can explain why studies report such wide differences in the effects of economic growth on FDI. By combining the results from all comparable studies, meta-analysis increases statistical power, filters out sampling error and specification and other biases, and is thereby able to provide more accurate statistical inference. Moreover, MRA enables analysis to extend beyond statistical significance and quantify the economic significance of economic growth on FDI. This effect can then be compared with other determinants of FDI, enabling policy makers to target their actions towards factors that are more effective in attracting FDI.

Our paper makes three contributions to the FDI literature. First, by necessity existing surveys provide only a selective assessment of the evidence base (*e.g.*, Agarwal 1980; Chakrabarti 2001). Typically, some studies are chosen by the survey's author and a qualitative assessment is made of the literature. In contrast, we assess all 140 comparable studies, *i.e*., ours is a *comprehensive* survey of the evidence base. Second, existing reviews tend to focus on whether the effect of growth on FDI is statistically significant. However, the more interesting question is the *magnitude* of the effect: how large is growth's effect on FDI? This analysis is currently missing from the literature as existing surveys do not quantify the magnitude of growth as a determinant of FDI. In contrast, our meta-analysis specifically quantifies the economic significance of growth. Third, existing surveys do not explain the heterogeneity in reported estimates. Our meta-analysis specifically maps out the distribution of reported estimates and identifies the factors that drive this heterogeneity. For example, we explore whether the importance of growth varies by regions and explore differences between developing and developed countries and between single country and cross-country studies. These findings are new to the literature. It is also important to investigate time variation in order to assess whether growth is becoming more or less important as an FDI attractor over time. This issue remains unexplored in existing surveys. Through meta-analysis we show that the importance of growth has not diminished over time.

The paper is presented as follows. The theoretical background of the links between economic growth and FDI is presented in Section 2. Section 3 discusses the data used in our meta-study, while Section 4 explains the meta-regression analysis methodology. The results are presented in Section 5, and the paper is concluded in Section 6.

2 Brief review of the theoretical and empirical literature

A broad range of potential determinants of FDI have been investigated in the literature, including the availability of an educated workforce (Noorbakhsh *et al*. 2001), infrastructure (Wheeler and Mody 1992), a sound climate for international investors such as political stability (Schneider and Frey 1985), trade openness (Albuquerque *et al*. 2005; Gastanaga *et al.* 1998), comparative costs such as labor cost (Lucas 1993), taxes and tariffs (Gastanaga *et al*. 1998; Wei 2000), and access to natural resources (Agosin and Machado 2007).

When the locational determinants of FDI are discussed in the theoretical literature, market size and the growth rate of host economies are treated as two of the most prominent factors (Li and Liu 2005). However, the net effect of economic growth on FDI is theoretically ambiguous: economic growth might have a positive effect on FDI, a negative effect on FDI, or no effect at all on FDI flows.

Economic growth as an FDI attractor

Many empirical studies find that economic growth is an incentive for FDI inflows (*e.g.,* Al Nasser 2010; Jiménez 2011; Kandil 2011). There are several reasons why foreign investors might prefer faster growing markets. For example, cost efficiency of production and the realization of economies of scale and scope in production are closely linked with market size (Blonigen *et al*. 2007; Filippaios *et al*. 2003; Greenaway *et al*. 2007; Vernon 1966; Wang and Swain 1995). Other things equal, a growing market can be attractive to FDI because of the likelihood that a larger market will enable a more efficient scale of production (Agosin and Machado 2007; Carstensen and Toubal 2004). That is, growth is a measure and signal of market demand and market demand attracts FDI.

FDI location decisions depend on recent and past earnings, as well as on the potential and expected profitability of the specific investment project in a particular location. The prospects for market growth would need to be favorable to ensure a long-term commitment by the foreign investor. Lim (1983) and Zhang (2001a) argue that a higher economic growth rate, other things being equal, leads to a higher level of aggregate demand, leading to greater opportunities for making profits and, hence, increasing the incentive to invest. These incentives attract FDI to growing regions.

A higher rate of economic growth signals the size of the potential market, which could be expanded in the future. Economic growth motivates foreign firms to plan new projects or new production facilities. Regions that are experiencing rapid economic growth are also generating more profitable opportunities, and they give the promise of growing markets and growing profits. As such, growing markets may be an important part of the strategy of multinational corporations looking to expand in global markets.

Growing economies provide growing prospects for profitable investments. Where FDI is attracted by economic growth it will tend to be targeted at the recipient nation's domestic market rather than for exports. The size of the recipient's market can be particularly important for horizontal FDI where economies of scale are especially important. Growth, however, is unlikely to be as important for vertical FDI.

Economic growth as a deterrent to FDI

Several empirical studies report negative effects of economic growth on FDI. For example, Buchanan *et al*. (2012), Jensen (2003), and Wint and Williams (2002) all find a significantly negative impact of economic growth in attracting FDI in developing countries. One explanation for such empirical results is that it is a measurement artifact. Jensen (2003) explains such negative associations as a result of a scaling effect; economies that grow at a faster rate than the growth in FDI will experience a decrease in FDI as a percentage of GDP.

A more causal explanation is that a recession in the host country could attract some types of FDI, especially mergers and acquisitions which can increase during a recession, as this can drive labor and capital cost downwards and thereby improve the cost structure of the firm. Jensen (2003) finds that while a number of industrialized countries were in recession during the early 1980s, they experienced increased FDI. In such cases, low economic growth is associated with high FDI.

A negative association between economic growth and FDI can also emerge if low economic growth means greater opportunities for *future* profits. For example, consider a low growth economy that is relatively capital poor but has a relatively abundant supply of cheap (underemployed or unemployed) labor and natural resources. There may here be an opportunity for FDI to profit from the relatively underutilized resources. In such cases, FDI is drawn to low growth regions in the hope of realizing unexploited opportunities for profit.

Economic growth with no links to FDI

It is entirely possible that market size and market growth might not be important considerations for export-oriented and extractive motives for FDI. Zhang (2001b) argues that export-oriented FDI is motivated by factor-price differentials, such as labor cost, and transportation cost from host countries to other countries in the region. For example, in Africa, extractive FDI is located in several mineral-rich countries, where market size and growth rate are not the key motivation for FDI (Akinlo 2004). Consequently, in such cases, economic growth and FDI will be unrelated.

Hence, it is an empirical issue whether economic growth attracts, repels, or has no effect at all on FDI. It is entirely possible that growth has a positive effect on FDI in some regions, while it has a negative or even no effect in others. We apply MRA to the extant evidence to test which of these associations are supported by the data.

3 Data

Like any empirical analysis, MRA requires data. In the case of MRA, this involves searching studies for relevant and comparable estimates. The basic econometric model in the primary empirical literature is a variant of a generic determinants of FDI model:

$$fdi_{it} = \alpha + \mu g_{it} + \beta_1 x'_{1it} + u_{it}, \tag{1}$$

where the variables *fdi* and *g* denote FDI and economic growth, respectively, *i* and *t* are country and time indices, *x* is a vector of controls, and *u* are the residuals (fixed country and time effects can also be included). Economic growth as a determinant of FDI requires that $\mu > 0$.

The search and coding strategy followed the MAER-NET protocols as outlined in Stanley *et al.* (2013). We first commenced with a comprehensive search of the literature. We began by searching Econlit, Google Scholar, Scopus, and various other search engines. In addition to search engines, we also conducted a cited reference search on the papers that we found to have viable estimates and we also cross-referenced the references of relevant studies. Keywords used for the search included, but were not limited to: “determinants of FDI”, “drivers of FDI”, “location of FDI”, “market size and FDI”, “economic growth and FDI”, and “growth and FDI”. The search for studies was terminated October 30, 2012.

The selection criteria were as follows. First, the study had to be published in a scholarly journal. We decided to exclude unpublished studies and focus only on the published literature. Published studies have gone through the referee process and are thus arguably of higher quality. Moreover, given the large size of our sample, there is no reason to believe that the omission of unpublished studies will in anyway bias our results. Second, the study had to focus on macroeconomic relationships. Hence, studies of FDI at the firm level or a specific sectors were excluded. Third, studies that fail to report the necessary results are not included (*e.g.* Most and Vann De Berg 1996). This search strategy revealed 140 comparable published papers that offer regression-based estimates of the economic growth-FDI association. These studies report a total of 946 comparable estimates of the effects of economic growth on FDI.[2] The estimates and various characteristics of the studies were coded as variables to be used in the MRA (see below). All the coding was checked by four independent coders.

Our measure of the effect of economic growth on FDI is the *partial correlation*. That is, we collect estimates of the various estimates of μ (Eqn.1) and convert them into partial correlations, *r*. This is the correlation between economic growth and FDI, conditional on other factors that influence FDI. The partial correlation coefficient can be calculated from basic regression output as $r = \frac{t}{\sqrt{t^2 + df}}$, where *t* denotes the t-statistic of the appropriate multiple regression coefficient, and *df* reports the degrees of freedom. The standard error of the partial correlation is given by $\sqrt{\frac{1-r^2}{df}}$. See Stanley and Doucouliagos (2012) for details.

As it is a correlation, care must be exercised with interpreting this measure as a causal effect. While numerous studies treat the effect of growth on FDI as a causal relation, there is also a large literature that explores the effects of FDI on growth (see Li und Liu 2005). Our below MRA shows that essentially the same inference can be drawn when we use all available estimates as when we use only those estimates that explicitly correct for endogeneity between economic growth and FDI. That is, endogeneity does not appear to be an issue in this literature. Nevertheless, we interpret our findings as correlation and association rather than causation.

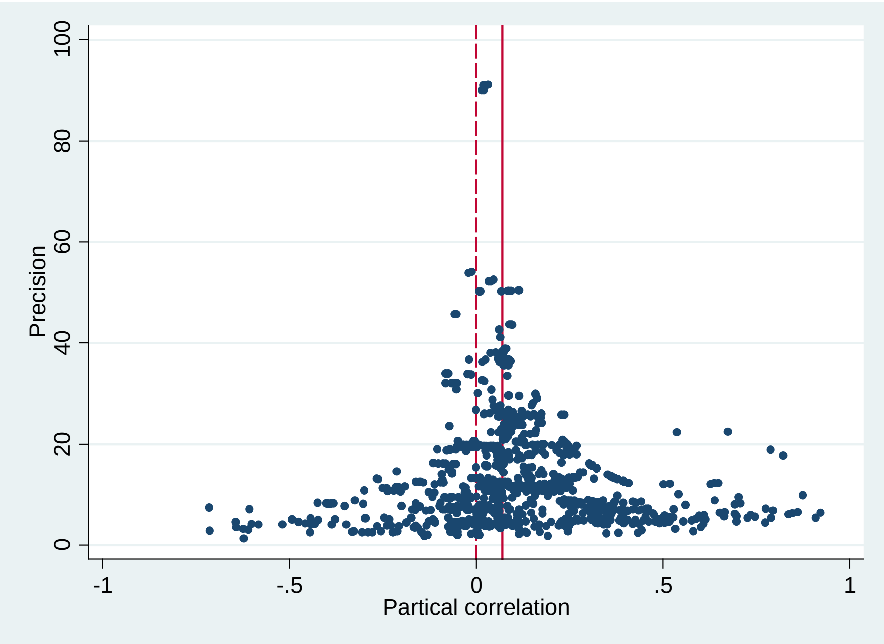
The advantage of partial correlations is that they are a standardized measure of association that is scale free and, thus, they can be meaningfully compared across

[2] The full reference list of studies included in the meta-analysis is available from http://www.deakin.edu.au/business/economics/research/meta-analysis.

the various econometric models. Unfortunately, many of the empirical studies do not provide sufficient information from which to calculate elasticities. Indeed, many studies are interested only in the direction of the effect and/or whether it is statistically significant. The partial correlation facilitates our aim to be as inclusive as possible.

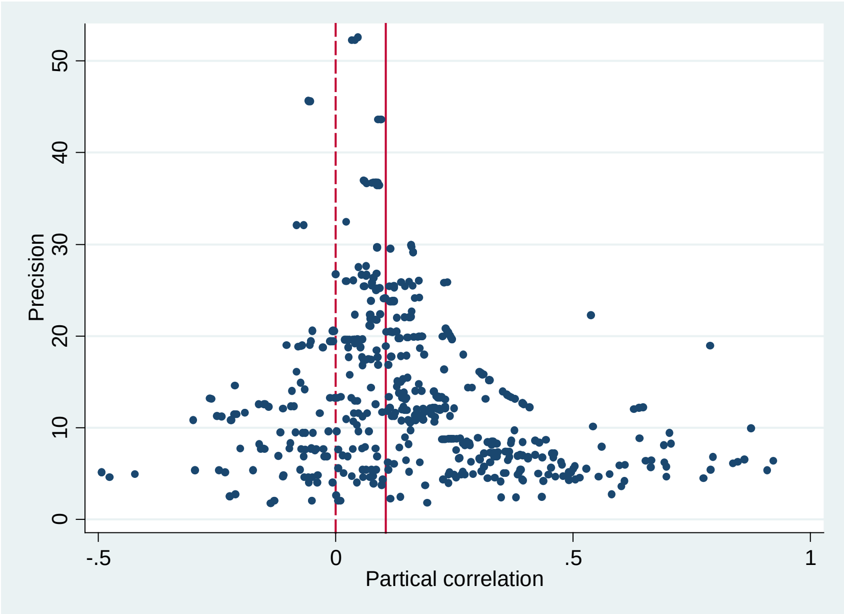
The distribution of the reported estimates is illustrated in Figures 1 and 2 in the form of a funnel plot, for all estimates and for estimates for developing countries

Figure 1: Funnel plot of growth-FDI partial correlations, all estimates (n = 946)



Notes: Each data point represents a single estimate of the effects of growth on FDI. The dashed line indicates the position of a zero effect. The vertical continuous line indicates the value of the weighted average partial correlation.

Figure 2: Funnel plot of growth-FDI partial correlations, developing countries (n = 574)



Notes: Each data point represents a single estimate of the effects of growth on FDI. The dashed line indicates the position of a zero effect. The vertical continuous line indicates the value of the weighted average partial correlation.

only, respectively. There is a fairly wide distribution of results, with the majority of the results being positive, while a sizeable number of negative results are also reported. MRA is well suited to drawing statistical inferences from such diverse findings. The funnel plot can be used to identify if there is any publication selection bias in the literature (Iršová and Havránek 2013; Stanley and Doucouliagos 2010) and it can also illustrate the position of average effect of economic growth on FDI; this is calculated here as the weighted average using each estimate's precision as the weight. Lack of symmetry in the funnel plot is consistent with publication bias (though only formal statistical tests can provide sufficient proof of this). Funnel graphs 1 and 2 appear to be fairly symmetrical. The meta-average is illustrated as the solid vertical line. In both cases, this suggests a small positive effect of economic growth on FDI.

4 The meta-regression methodology

The analytical framework we apply is meta-regression analysis (MRA). We follow the MRA approach as developed by Stanley and Jarrell (1989), Stanley (2008), and Stanley and Doucouliagos (2012). We apply MRA to: (i) estimate the *mean* effect of economic growth on FDI, and (ii) identify the main factors that determine the size of the reported effect of economic growth on FDI.

4.1 The mean effect of economic growth on FDI

MRA is used to estimate the *mean growth-FDI effect*. This "meta-average" comprises a number of dimensions studied in growth-FDI models, and it can be regarded as a reliable and statistically valid representative summary statistic of all the estimates. Note that the impact of econometric specification differences will be quantified through multiple MRA. If the meta-average is statistically significant different from zero, then we can conclude that the literature has established that economic growth does attract FDI. The size of the meta-average then informs on how large the effect is, *i.e*. its economic significance and policy relevance.

The most basic approach to estimating the mean growth-FDI effect involves regressing comparable partial correlations (r) between economic growth and FDI upon a constant and an error term:

$$r_{ij} = \beta_0 + v_{ij}, \tag{2}$$

where r_{ij} is the i^{th} growth-FDI partial correlation reported in the j^{th} study and v_{ij} is the random error. Eqn. (2) assumes that the reported effects of economic growth on FDI vary randomly around a central effect, β_0. Hence, β_0 is the MRA estimate of the mean growth-FDI effect, after allowing for random sampling error. A test of H_0: $\beta_0 = 0$ is thus a test for whether there is a real effect from economic growth to FDI, where the magnitude of β_0 informs on the size of the effect. The meta-regression of Eqn. (2) is an effective way of integrating the diverse findings from numerous models and to control for the effects of random error.

A major problem that can potentially affect any appraisal of the evidence base is the presence of publication selection bias. Selection bias arises when researchers give preference to statistically significant results, suppressing insignificant results in order to increase the probability of securing publication (Card and Krueger 1995; Stanley 2005). Publication bias can severely distort statistical inference by removing observations from the public domain (Roberts and Stanley 2005; Stanley and Doucouliagos 2012). Typically, the distortion involves inflating the meta-average, giving the appearance that the effect is greater than what it actually is. Publication selection bias is detected as a statistically significant relationship between an effect and its standard error. Absent publication bias, there should be no relationship between an estimate and its standard error. The standard test for this is to estimate the FAT-PET MRA:

$$r_{ij} = \beta_0 + \beta_{se}\, SE_{ij} + \varepsilon_{ij}, \qquad (3)$$

where *SE* denotes the standard error of the partial correlation (not the standard error of the regression coefficient) and ε_{ij} is the error term.[3] The Funnel Asymmetry (FAT) tests H_0: $\beta_{se} = 0$. This is a test for censoring of reported estimates (a preference for statistically significant findings). The Precision Effect Test (PET) tests H_0: $\beta_0 = 0$. This provides a test for the existence of a genuine empirical effect of economic growth as an attractor of FDI *corrected for selection bias*.

Stanley (2008) points out that the PET estimate suffers from a downward bias when there is a true non-zero effect; that is, when H_0: $b_0 = 0$ is rejected in Eqn. (3) (Stanley 2008; Stanley and Doucouliagos 2014). This bias can be reduced by adopting a non-linear estimator that replaces SE_{ij} with SE^2_{ij} (Stanley and Doucouliagos 2012, 2014). This model is known as precision-effect estimate with standard error (or PEESE) and involves estimating the following equation:

$$r_{ij} = \beta_0 + \beta_2\, SE^2_{ij} + \upsilon_{ij} \quad . \qquad (4)$$

Our meta-analysis uses only published papers as these have gone through the refereeing process. Arguably, publication bias would be more likely to be a problem when only published studies are evaluated. However, publication bias relates to selection of certain effects and there is no real reason to expect that

[3] Eqn. (2) is a fixed effects MRA. An alternative model that is widely used in medicine is the random effects MRA. Stanley and Doucouliagos (2012) argue that the fixed effects MRA is less biased in the face of publication selection bias.

unpublished studies will necessarily be less selective. Indeed, Stanley and Doucouliagos (2012) argue that the exclusion of unpublished papers (the so-called “grey literature”) does not make any substantial difference to analysis of publication bias.

4.2 Explaining heterogeneity in the reported effect of economic growth on FDI

Applied economics research typically exhibits excess variation (Stanley and Doucouliagos 2012). This can be seen clearly in Figures 1 and 2. The use of different datasets, different control variables, and different estimators all produce wide heterogeneity in reported estimates. MRA can be used to identify some of the key factors behind this heterogeneity. That is, we can use MRA to explain why the estimates of economic growth as an attractor of FDI differ between and within studies. This involves estimating a multiple MRA:

$$r_{ij} = \beta_0 + \beta_{se}\, SE_{ij} + \gamma \mathbf{Z}_{ij} + \varepsilon_{ij}, \tag{5}$$

where **Z** is a vector of time and regional variables and variables that reflect modeling differences. For example, Eqn. (5) can usefully inform on a number of issues, such as whether: the growth-FDI relationship has changed over time, becoming more or less important; whether the growth-FDI relationship varies between regions; whether different measures of FDI and controlling for endogeneity results in different estimates of the effect of growth on FDI.

Our approach in this paper is to estimate Eqns. (2) to (5). We do this for all estimates available and then separately for only developing countries. There are two approaches to modeling heterogeneity in meta-analysis: the classical and the Bayesian. We follow the vast majority of meta-studies in economics and adopt the classical approach. This approach is also recommended by Stanley and Doucouliagos (2012). Applications of Bayesian approach in economics are still in the minority, so that there have not been sufficient number of meta-studies that use this approach from which we can learn from the experience of alternate estimators. For a nice application of the Bayesian approach see Iršová and Havránek (2013).

4.3 Issues in meta-analysis

Data Dependence. The MRA models presented in Eqns. (2) to (5) assume that the reported estimates, *r*, are statistically independent. This assumption is difficult to maintain for multiple estimates reported by the same study, which can potentially cause data dependence.[4] Our approach is to correct the induced lower standard errors that arise from clustering of observations within a study, *i.e.* we correct standard errors for clustering of estimates within studies (Everitt *et al.* 2001; Hox 2002).

Study Quality. We have tried to be as inclusive as possible in choosing studies to include in the MRA. This raises the issue of whether differences in the quality of studies might affect statistical inference. Our approach to this is to construct *weighted* averages, by assigning greater weight to estimates that are deemed to be of higher quality. Hence, in estimating Eqns. (2) to (5), we do not treat each observation equally. Instead, we use precision - the inverse of the variance of a partial correlation - as weights.[5] Consequently, all models are estimated using weighted least squares. Precision is an objective measure of quality and is the standard approach in meta-analysis (Hunter amd Schmidt 2004) and is known to produce optimal weights. However, we also consider alternate weights.

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[4] If the estimates are reported by a different author, or if the same author uses a different sample, then the corresponding estimates are regarded as statistically independent (Hunter and Schmidt 2004).

[5] Alternative weights can be used, such as the number of citations received and the Social Science Citation Index Impact Factor of the journal in which the study was published, assigning greater weight to estimates from journals with higher Impact Factors. Journal Impact Factors can be considered to be a measure of what the profession deems to be more important. Unfortunately, while precision is available for all estimates, Impact Factors are not available for all journals. Moreover, the use of the number of citations might bias meta-averages against newer studies in favor of older ones.

5 Analysis and results

5.1 Mean growth–FDI effects

Table 1 reports the basic FAT-PET MRA results. Columns 1 and 4 report the results of estimating Eqn. (2), for all estimates and estimates for developing countries only, respectively. In both cases, there is a statistically significant positive effect of economic growth as an attractor of FDI (see the constant or PET coefficient). Columns 2 and 5 report the FAT-PET MRA results, Eqn. (3). The publication selection coefficient (FAT) is statistically significant and positive in both cases. This implies that there is selection for positive economic growth on FDI effects. As a consequence, the PET coefficient is now less than half of what it was without correction for publication bias. Nevertheless, PET is still statistically significant and positive. Columns 3 and 6 report the PEESE results, Eqn. (4). These actually result in meta-averages that are fairly close to the meta-averages reported in Columns 1 and 4.

Panel B of Table 1 reports the results using only estimates that correct for endogeneity. The results vary, but are essentially similar to those when all estimates are used. Below we report multiple MRA where we confirm that correcting endogeneity is not important in explaining differences in reported partial correlations.

Table 1 uses all the studies, be they cross-country studies or single country case studies. Table 2 repeats the analysis of Table 1, but this time focusing only on the studies that have used data from a single country. (There are insufficient observations from which to focus only on single country estimates that controlled for endogeneity.) This literature reports much higher meta-averages. The publication selection bias term is now negative suggesting a preference for an adverse growth effect on FDI; however this is not statistically significant.

In Table 3 we focus only on the studies that use cross-country data. This literature reports much smaller meta-averages than the single country studies.

Table 1: FAT-PET and PEESE MRA, all studies

	All estimates (1)	All estimates FAT-PET (2)	All estimates PEESE (3)	Developing countries only (4)	Developing countries only FAT-PET (5)	Developing countries only PEESE (6)
			Panel A: All estimates			
Constant (PET)	0.07 (4.96)	0.03 (2.55)	0.07 (4.64)	0.11 (5.75)	0.04 (2.27)	0.09 (5.09)
Standard error (Selection bias, FAT)	-	0.96 (3.34)	-	-	1.22 (3.70)	-
Standard error Squared (PEESE)	-	-	2.10 (1.78)	-	-	3.25 (2.63)
Number of observations	946	946	946	574	574	574
Number of studies	140	140	140	100	100	100
Adjusted R^2	0	0.08	0.02	0	0.09	0.04
			Panel B: Endogeneity corrected			
Constant (PET) - endogeneity	0.08 (3.50)	0.04 (0.95)	0.07 (2.53)	0.11 (5.60)	0.07 (1.61)	0.10 (3.78)
Standard error (Selection bias, FAT)	-	1.00 (1.85)	-	-	0.87 (1.46)	-
Standard error Squared (PEESE)	-	-	4.41 (1.89)	-	-	4.99 (2.04)
Number of observations	124	124	124	103	103	103
Number of studies	25	25	25	19	19	19

Notes: The dependent variable is the partial correlation of the effects of growth on FDI. Figures in brackets are t-statistics using standard errors robust to data clustering (clustered at the study level). Columns 1 to 3 use all estimates from all studies. Columns 4 to 6 use only estimates that relate to developing countries. Columns 1 and 4 report estimates of Eqn. (2). Columns 2 and 5 report estimates of Eqn. (3). Columns 3 and 6 report estimates of Eqn. (4). Panel B reports the results of re-estimating all models using only the subset of estimates that correct for endogeneity between growth and FDI. WLS is used for all estimations, using inverse variance weights.

Table 2: FAT-PET and PEESE MRA, Single Country Estimates

	Single country estimates (1)	Single country estimates FAT-PET (2)	Single country estimates PEESE (3)	Single country estimates developing countries only (4)	Single country estimates developing countries only FAT-PET (5)	Single country estimates developing countries only PEESE (6)
Constant	0.28	0.43	0.35	0.34	0.40	0.38
(PET)	(5.82)	(3.57)	(5.76)	(6.04)	(3.03)	(5.17)
Standard error (Selection bias, FAT)	-	-0.93 (-1.52)	-	-	-0.40 (-0.62)	-
Standard error Squared (PEESE)	-	-	-2.17 (-2.27)	-	-	-1.39 (-1.66)
Number of observations	174	174	174	105	105	105
Number of studies	46	46	46	36	36	36
Adjusted R^2	0	0.03	0.03	0	0	0.02

Notes: The dependent variable is the partial correlation of the effects of growth on FDI. Figures in brackets are t-statistics using standard errors robust to data clustering (clustered at the study level). Columns 1 to 3 use all estimates from all studies. Columns 4 to 6 use only estimates relating only to developing countries. Columns 1 and 4 report estimates of Eqn. (2). Columns 2 and 5 report estimates of Eqn. (3). Columns 3 and 6 report estimates of Eqn. (4). WLS is used for all estimations, using inverse variance weights.

Table 3: FAT-PET and PEESE MRA, Cross-Country Estimates

	Cross-country estimates (1)	Cross-country estimates FAT-PET (2)	Cross-country estimates PEESE (3)	Cross-country estimates developing countries only (4)	Cross-country estimates developing countries only FAT-PET (5)	Cross-country estimates developing countries only PEESE (6)
Constant (PET)	0.07 (4.84)	0.03 (2.31)	0.06 (4.49)	0.10 (5.40)	0.05 (2.07)	0.09 (4.76)
Standard error (Selection bias, FAT)	-	0.92 (2.42)	-	-	1.15 (2.41)	-
Standard error Squared (PEESE)	-	-	1.89 (0.96)	-	-	5.34 (2.57)
Number of observations	772	772	772	469	469	469
Number of studies	96	96	96	65	65	65
Adjusted R^2	0	0.06	0.01	0	0.06	0.04

Notes: The dependent variable is the partial correlation of the effects of growth on FDI. Figures in brackets are t-statistics using standard errors robust to data clustering (clustered at the study level). Columns 1 to 3 use all estimates from all studies. Columns 4 to 6 use only estimates relating only to developing countries. Columns 1 and 4 report estimates of Eqn. (2). Columns 2 and 5 report estimates of Eqn. (3). Columns 3 and 6 report estimates of Eqn. (4). WLS is used for all estimations, using inverse variance weights.

We conclude from Tables 1, 2, and 3 that when all the evidence is considered, economic growth is a statistically significant determinant of FDI. However, the size of the partial correlation is rather small. Economic growth is slightly more important for developing countries than all countries combined, but the difference is not really of practical importance. When attention shifts to single country case studies, we find much larger partial correlations. We cannot entirely rule out the possibility that only the more successful country case studies have been explored. Our meta-tests do not enable us to explore this proposition. Hence, we have to take the literature at face value and conclude that single country studies find a much larger role for economic growth in attracting FDI.

5.2 Heterogeneity: Why do reported effects vary?

In this section, MRA is applied to identify the factors that result in heterogeneity in the published results (as illustrated in Figures 1 and 2). This involves estimating Eqn. (5). The variables are listed and defined in Appendix A. We commenced with a general model that included 34 explanatory variables. These results are also presented in Appendix A, Columns 1 and 2 for all observations and for developing countries only, respectively. We then applied a general-to-specific modeling strategy to this general model, as recommended by Stanley and Doucouliagos (2012); statistically insignificant variables were sequentially removed. This enables greater clarity of the results. These results are presented in Table 4. Column 1 presents the results for all countries combined (using all available estimates), while Column 2 presents the results for developing countries only. Before discussing the results we provide a brief explanation and justification for the inclusion of the MRA variables.

Region and Data: Studies differ in the composition of the countries included in their samples. We used the World Bank's classification to assign countries into ten regional group dummies: *Africa*, *Australasia*, *East Asia*, *Central and Eastern Europe*, *Latin America*, *Middle East*, *North America*, *South East Asia*, *South Asia*, and *West Europe*.[6] We use *Africa* as the baseline. These dummies are included to identify the existence of region specific growth-FDI effects. That is, we wish to explore whether growth is more important in attracting FDI in some regions than others. This would be the case if, for example, FDI was attracted to a particular region purely because of the availability of resources, while for other regions, FDI was more motivated by growth in market demand.

In order to explore whether the reported results vary over time, we constructed the variable *AveYear*, which is the average year of the data used in each study. We also include *Panel* and *SingleCountry*, binary variables for whether panel data are

[6] Unfortunately, in some cases authors do not identify the countries included in their samples and, hence, these estimates drop out of the analysis of heterogeneity involving country composition.

used and whether the data relate to a single country, respectively. The baseline here is studies that use cross-sectional or time series data and a cross-country sample, respectively.

Measure: The different measures of economic growth and FDI may be an important source of variation in empirical results. The dummy variables *Gross FDI* and *FDI/GDP* are included to explore whether measuring FDI in gross terms (total inflows) or as a ratio of GDP makes a difference to the reported results. The baseline is all other measures of FDI, including Net FDI (FDI from foreign sources less FDI to the rest of the world) and the stock of FDI. Some studies measure growth with a lag and *Growthlagged* reflects these studies.

Estimator: Most of the estimates are derived from estimators that do not correct for endogeneity. The variable *Endogeneity* is included in the MRA in order to test whether estimates from models that correct for endogeneity are quantitatively different from those that do not. That is, the coefficient on *Endogeneity* informs on the size of endogeneity bias, if any. This is potentially important given the vast literature on the growth effects of FDI, which is the reverse causality of the effects of growth on FDI that we are analyzing here. An argument can also be made that studies that use *Growthlagged* are also correcting for potential endogeneity. We also include the binary variable *Fixed* in order to test if estimates that control for fixed effects differ from those that do not.

Specification: We include 14 variables that reflect the main econometric specification differences between studies. Growth is only one of many potential determinants of growth that has been investigated by researchers. Some studies also include the level of GDP in addition to economic growth. The dummy variable *Marketsize* explores the effect that this has on the reported effects. The variables *Resources*, *HumanCapital*, *DomCapital*, and *Infrastructure* are variables that reflect host country resources and capabilities, which are also important determinants of FDI. The variables *Tax rate*, *Labor cost*, *Interest rate*, *Tariff rate*, *Inflation rate*, *Governance*, *Trade* and *Exchange rate*, reflect cost structure, competitiveness, and policy and governance outcomes in the host country, all of which can also affect FDI decisions. Finally, *Lagged FDI* is included to capture differences between dynamic and static models.

The general-to-specific models are presented in Table 4. Thirteen of the 34 variables emerge as important in explaining the observed variation in partial correlations. However, of these, only *SingleCountry*, *Tax rate*, and *Growthlagged* are important regardless of the sample used. These variables are the main focus of the ensuing discussion. With the exception of North America, none of the area dummies is statistically significant. This means that with the exception of North America, growth is equally important to all countries for attracting FDI. The negative coefficient for North America suggests that growth is slightly less important in attracting FDI than it is in Africa (or anywhere else). The statistical insignificance of *AveYear* means that the effects of growth on FDI have not been getting stronger or weaker over time: growth has not diminished as an important determinant of FDI.

As was the case with the comparison between Tables 1, 2 and 3, the results in Table 4 indicate that studies that focus on a single country find much larger correlations. It appears that economic growth is more highly correlated with FDI when focusing on a single country than in a pool of countries. By design, single country studies use a much smaller sample size and hence they are estimated with less precision relative to cross-country studies. However, they have the advantage that they can, in principle, offer a more nuanced analysis. Studies that use cross-country data assume homogeneity between countries even though countries can differ widely. If there is significant heterogeneity between countries, then pooling data from various countries can be problematic and unrepresentative coefficients might emerge. These concerns can be partly addressed by applying heterogeneous panel estimators. This is rarely done in this literature. MRA offers an alternative approach. By pooling the estimates from the individual case studies, we are able to control for sampling error and other differences in research design and can then identify the meta-average, or the average of the distribution of effects. Table 4 tells us that holding all other factors constant, single country case studies find, on average, much larger effects (0.14 higher for developing countries only and 0.18

Table 4: Multiple Meta-Regression Analysis,
Heterogeneity in Estimates of the Effect of Growth on FDI

Variable	All estimates (1)	Developing countries only (2)
Constant	0.17 (6.53)	0.08 (2.15)
SingleCountry	0.18 (3.77)	0.16 (2.15)
FDI/GDP	-0.05 (-2.66)	-
Tax rate	-0.06 (-2.17)	-0.07 (-2.15)
Exchange rate	-0.06 (-2.75)	-
Resources	-0.08 (-4.14)	-
Interest rate	0.04 (1.84)	-
Growthlagged	-0.03 (-1.72)	-0.07 (-2.63)
DomCapital	-0.11 (-3.77)	-
North America	-0.06 (-3.58)	-
Standard error	-	0.81 (1.80)
Inflation rate	-	-0.07 (-2.18)
Tariff rate	-	0.10 (3.19)
Marketsize	-	0.06 (2.16)
Number of observations	917	574
Number of studies	134	100
Adjusted R^2	0.24	0.21

Notes: Estimations of Eqn. (5) using a general-to-specific modeling approach. The dependent variable is the partial correlation of the effects of growth on FDI. Figures in brackets are t-statistics using standard errors robust to data clustering (data clustered by study). Column 1 uses all estimates from all studies. Column 2 uses only estimates relating only to developing countries. WLS is used for all estimations, using inverse variance weights.

higher for all estimates combined).[7] This difference is large and of practical importance.

The coefficient on *Tax rate* is negative. This means that studies that control for tax rates report, on average, slightly lower partial correlations than those that do

[7] This difference is smaller than when Table 1 is compared to Table 2, because Table 4 controls for other study design differences.

not. Similarly, the coefficient on *Growthlagged* is also negative. This means that studies that measure the influence of current growth on FDI report larger effects than those that use a lagged value of growth. One way to interpret this is that the contemporaneous effect of economic growth on FDI is larger than the lagged effect. Another interpretation is that there could be endogeneity between FDI and economic growth. Using lagged economic growth is one way to avoid this endogeneity and doing so results in smaller effects. In this case, the MRA coefficient can be interpreted as a measure of the endogeneity bias. We also included a formal test for endogeneity with the inclusion of the *Endogeneity* variable. This variable is never statistically significant. Removing *Growthlagged* from the MRA doesn't change the statistical insignificance of *Endogeneity*. This means that studies that correct for endogeneity using IV estimation find essentially the same results, on average, as studies that do not attempt such a correction. De Mello (1997, 30–31) concludes that: "The association between FDI determinants and actual inflows may be stronger than that between FDI and growth such that causality may well run from growth to FDI inflows." The statistical insignificance of *Endogeneity* might reflect poor instrumentation strategies, so that endogeneity is not adequately controlled in the primary studies.

5.3 Robustness

We explored the robustness of the results by exploring the sensitivity of key variables with respect to specification differences in the MRA. This form of sensitivity analysis is actually rare in meta-analysis. We followed a similar procedure to the one adopted by Barslund *et al.* (2007). Three variables were chosen as "core" variables: *SingleCountry*, *Growthlagged, and Tax rat*e. That is, these three variables are included in every regression. Then, 14 other variables were included in all possible linear combinations. The WLS MRA was thus repeated a total of 16,384 times, with each MRA regression including the three core variables and various combinations of the other 14 variables. The 14 alternating variables were the publication bias variable, the regional dummies, the average year of the data, *Endogeneity*, and whether panel data was used. The three core variables were statistically significant 99%, 97%, and 99% in the regressions, respectively, with no instances of sign reversals. That is, they are very robust to the specification of the MRA. These robustness checks also confirm the statistical insignificance of the region dummies. The one exception is North America, which was statistically significant in 56% of the regressions. The average year of data and *Endogeneity* are also robust, with zero instances of statistical significance (panel data is statistically significant in only 2% of the regressions). Thus, the MRA results are robust.

The results reported in Table 4 use inverse-variance weights, apply a general-to-specific methodology and we control for within-study dependence using cluster-robust standard errors. This is the MRA modelling strategy outlined and recommended in Stanley and Doucouliagos (2012). However, other approaches are possible. Table 5 reports several robustness checks.

For the sake of comparison, Column 1 reproduces the results from Table 4, Column 1. Recall that the results from this column were derived using a general-to-specific modelling strategy. In Column 2 we follow Havránek and Iršová (2011) in deriving the specific model by excluding a number of insignificant variables jointly using an F-test. We first estimate the general model and then remove all variables that are not statistically significant at least at the 0.3 level of statistical significance. An *F*-test confirms that the redundant variables can be eliminated from the MRA; *F*-test = 0.96 and *p*-value = 0.51. We then re-estimate the model without these redundant variables. Estimating the MRA in this manner gives us the same nine variables as the general-to-specific strategy reported in Column 1, plus six other variables only one of which is statistically significant; lagged FDI with a t-statistic of 1.94.

In Column 3 we re-estimate the model reported in Column 2 using degrees of freedom as weights, rather than inverse variance. One argument against inverse variance weights is that reported standard errors might be endogenous to reported point estimates (see Havránek, 2015). Sample size offers an alternate set of weights. Here we use degrees of freedom or sample size minus the number of parameters to be estimated. However, as can be seen from Column 3, the results are essentially unchanged.

In Column 4 we use the inverse of the number of estimates as weights. These weights produce different results. However, we very much doubt that the inverse

Table 5: Robustness checks

Variable	Original estimates (1)	New estimates (2)	Degrees of freedom weights (3)	1/number of estimates weights (4)	Panel (5)
Constant	0.17 (6.53)	0.15 (4.76)	0.13 (4.62)	0.17 (3.81)	0.24 (2.38)
SingleCountry	0.18 (3.77)	0.20 (3.81)	0.16 (3.47)	0.10 (1.45)	0.25 (1.22)
FDI/GDP	-0.05 (-2.66)	-0.04 (-2.03)	-0.03 (-1.78)	-0.08 (-1.60)	0.01 (0.35)
Tax rate	-0.06 (-2.17)	-0.08 (-3.29)	-0.07 (-2.88)	-0.05 (-0.82)	-0.06 (-1.05)
Exchange rate	-0.06 (-2.75)	-0.06 (-2.81)	-0.06 (-2.70)	-0.03 (-0.67)	-0.08 (-2.44)
Resources	-0.08 (-4.14)	-0.07 (-2.21)	-0.06 (-2.03)	0.02 (0.45)	-0.13 (-1.21)
Interest rate	0.04 (1.84)	0.07 (2.33)	0.06 (2.32)	0.02 (0.22)	0.06 (1.29)
Growthlagged	-0.03 (-1.72)	-0.05 (-2.64)	-0.05 (-2.84)	0.11 (2.03)	-0.08 (-2.62)
DomCapital	-0.11 (-3.77)	-0.13 (-4.02)	-0.12 (-4.77)	-0.03 (-0.59)	-0.13 (-2.35)
North America	-0.06 (-3.58)	-0.06 (-3.52)	-0.05 (-3.31)	-0.15 (-2.77)	-0.02 (-0.84)
Infrastructure	-	-0.02 (-1.05)	-0.02 (-1.16)	-0.05 (-0.99)	-0.02 (-1.03)
Panel	-	0.03 (1.26)	0.04 (1.37)	0.02 (0.39)	-0.12 (-1.54)
Trade	-	-0.03 (-1.46)	-0.03 (-1.31)	-0.02 (-0.43)	0.03 (1.09)
Inflation		-0.02 (-0.69)	-0.01 (-0.55)	0.01 (0.12)	-0.06 (-1.47)
Lagged FDI		0.03 (1.94)	0.02 (1.63)	-0.03 (-0.63)	0.07 (1.71)
Gross	-	0.02 (1.33)	0.03 (1.65)	0.03 (0.82)	0.02 (0.57)
Number of observations	917	917	917	917	917
Number of studies	134	134	134	134	134
Adjusted R^2	0.24	0.26	0.26	0.15	0.76

Notes: See notes to Table 4. Column 2 excludes all moderator variables with a *p*-value in excess of 0.3, using inverse variance weights. Column 3 uses degrees of freedom weights. Column 4 uses the inverse of the number of estimates weights. Column 5 includes study level fixed effects, using inverse variance weights.

number of estimates produces a ‘better’ weight than inverse variance. The issue of unequal number of observations in a cluster is an important issue in econometrics. This would be a particular pressing issue if we had a small number of clusters (studies). However, in our view, given the relatively large number of clusters in our data, the unequal number of observations within clusters becomes less of an issue. Moreover, we have two good reasons for using inverse variance weights. First, if we do not do so, we know that our standard errors will be biased: using the inverse of the number of estimates is likely to produce biased standard errors. Second, we can justify inverse variance weights on the basis of statistical power alone. Many studies have very low power. One can argue that they probably should be omitted from a review. However, the approach in meta-analysis is to combine all comparable estimates and doing so increasing statistical power. The benefit of inverse variance weights is that they appropriately and automatically down weight low powered studies.

Finally, in Column 5 we report results of including study level fixed effects, using inverse variance weights. The inclusion of study level fixed effects means that the results essentially relate to within study estimations. However, we are rather skeptical about the use of such study dummies in meta-analysis. It is not obvious to us that the real issue is differences in estimates within studies. Rather, the more interesting issue is the between study heterogeneity - that is where the real action takes place. Hence, in our view, it is the results presented in Table 4 that are the more reliable representation of the extant evidence base.

6 Summary and conclusions

The impact of economic growth on FDI has been a source of interest for decades. The literature contains rival theoretical predictions and much conflicting evidence. The aim of this paper is to identify the significance and the strength of the impact of economic growth in a host country on FDI inflows and to identify the impact of specification differences on the reported economic growth-FDI effects.

Our analysis is based on the available empirical evidence of 946 observations from 140 comparable empirical studies. These studies report a wide range of results, with less than half reporting a positive and statistically significant association between growth and FDI. However, by applying meta-analysis to the evidence base we are able to draw the robust conclusion that, on average, economic growth is an important determinant of FDI. MRA clearly rejects the idea that growth has no association (or even a negative association) with FDI. Growth is positively correlated with FDI in all regions, though some of the results suggest that the association is slightly weaker in North America. Some of the results suggest that the correlation is slightly higher in developing countries than when all countries are combined, but the difference is not really of practical importance. We find that economic growth plays a much more important role in attracting FDI for single country case studies than in studies that pool several countries. This difference might arise if there is significant heterogeneity between countries, and consequently analysis of cross-country datasets understates the correlation between economic growth and FDI.

The MRA results indicate that the average partial correlation of growth on FDI is 0.18 for individual developing countries, controlling for inflation, tariffs, market size, lagged growth, and taxation. Cohen (1988) offers criteria for assessing the size of a simple correlation: the correlation is considered small if it less than 0.1, moderate if 0.25 and large if more than 0.4. According to Doucouliagos' (2011) guidelines for partial correlations, a partial correlation is deemed to be small if it is less than 0.07, it is moderate if it is 0.17 and 0.33 is deemed to be large. Hence, a value of 0.17 can be considered to be a medium sized effect. We conclude that economic growth has a moderate effect in attracting FDI and that this association has not diminished over time.

The findings indicate that the inclusion of *Tax rate* and *Growthlagged* in primary regressions leads to smaller estimates of the growth-FDI relationship. In other words, it is not just the direct economic growth experience *per se* that matters for foreign investors, but also the climate for economic growth, as evidenced through tax rates and previous period's economic growth rate.

There are many other potential locational determinants of FDI inflows. Most of these factors have not yet been scrutinized with the tools of meta-analysis. However, in their meta-analysis of the effects of taxation, Feld and Heckemeyer (2011) find that tax matters for FDI decisions. Future research could apply meta-regression analysis to investigate the relative effectiveness and, hence, policy relevance of various competing factors in attracting FDI and also compare the size of the effect of growth against other determinants of FDI.

Appendix A: Meta-regression variable definitions and general MRA results

Variable Name	Variable Description	All estimates (1)	Developing countries only (2)
Constant	Constant	0.15 (2.73)	0.05 (0.61)
Standard error	Standard error of the partial correlation	0.13 (0.45)	0.60 (1.50)
SSCI	Social Science Citation Index Journal Impact Factor	-0.01 (-0.95)	-0.01 (-0.75)
	Estimation		
Endogeneity	BD = 1: If estimator corrects for endogeneity, *e.g.* 2SLS, 3SLS, or GMM	-0.01 (-0.25)	-0.01 (-0.19)
Fixed	BD = 1: Fixed Effect used	-0.01 (-0.49)	-0.01 (-0.62)
	Region and Data		
Panel	BD = 1: Panel Data used	0.06 (1.92)	0.06 (1.15)
SingleCountry	BD = 1: Single country data used	0.20 (3.21)	0.21 (2.57)
AveYear	Average year of the sample used, normalized to 1990	0.01 (0.82)	0.01 (0.45)
East Asia	BD = 1: Countries from East Asia included in sample	-0.01 (-0.32)	-0.01 (-0.23)
CEE	BD = 1: Central from Eastern Europe included in sample	0.03 (0.68)	0.06 (1.24)
Latin America	BD = 1: Countries from Latin America included in sample	-0.03 (-0.79)	-0.02 (-0.55)
Middle East	BD = 1: Countries from Middle East included in sample	0.03 (0.98)	-0.01 (-0.15)
Southeast Asia	BD = 1: Countries from Southeast Asia included in sample	-0.05 (-0.93)	0.04 (0.65)
South Asia	BD = 1: Countries from South Asia included in sample	0.03 (0.66)	0.01 (0.14)
North America	BD = 1: North America included in sample	-0.14 (-1.63)	-
Western Europe	BD = 1: Countries from Western Europe included in sample	0.08 (0.95)	-
Australasia	BD = 1: Australia and New Zealand included in sample	-0.02 (-0.36)	-

Table continued

Table continued

Variable Name	Variable Description	All estimates (1)	Developing countries only (2)
	Measures of FDI and Growth		
Gross FDI	BD = 1: FDI measured in gross terms	0.02 (1.26)	0.03 (1.20)
FDI/GDP	BD = 1: FDI measured as share of GDP or GNP	-0.06 (-2.45)	-0.04 (-1.28)
Growthlagged	BD = 1: Lagged growth rate of output used	-0.06 (-2.80)	-0.05 (-1.28)
	Control variables included in specification		
Marketsize	BD = 1: Market size (*e.g.* GDP, GNP, GDP per capita)	0.01 (0.21)	0.05 (1.40)
Governance	BD = 1: Governance (*e.g.* corruption & institutional quality)	-0.01 (-0.51)	-0.03 (-1.60)
Resources	BD = 1: Labor and natural resources	-0.05 (-1.71)	-0.04 (-0.79)
Trade	BD = 1: Trade to GDP ratio	-0.03 (-1.68)	-0.03 (-0.93)
HumanCapital	BD = 1: Human capital (*e.g.* literacy rate, school enrolment)	0.01 (0.69)	0.01 (0.45)
DomCapital	BD = 1: Domestic capital	-0.11 (-3.44)	0.01 (0.05)
Infrastructure	BD = 1: Infrastructure (*e.g.* telephones, rail, roads)	-0.03 (-1.27)	-0.01 (-0.21)
Tax rate	BD = 1: Tax rate	-0.10 (-2.78)	-0.06 (-1.61)
Labor cost	BD = 1: Labor cost	-0.03 (-0.76)	-0.01 (-0.21)
Interest rate	BD = 1: Interest rate	0.10 (2.20)	0.11 (1.81)
Tariff rate	BD = 1: Tariff rate	0.01 (0.15)	0.14 (4.14)
Exchange rate	BD = 1: Effective exchange rate	-0.07 (-3.07)	-0.04 (-1.19)
Inflation rate	BD = 1: Inflation rate	-0.04 (-1.27)	-0.08 (-2.20)
Lagged FDI	BD = 1: Lagged FDI	0.04 (1.41)	0.02 (0.57)
Number of observations		916	558
Number of studies		133	95
Adjusted R^2		0.29	0.28

Notes: BD means binary dummy, with a value of 1 if condition fulfilled and zero otherwise. The dependent variable is the partial correlation of growth on FDI. Figures in brackets are t-statistics using standard errors robust to data clustering. Column 1 uses all estimates from all studies. Column 2 uses only estimates relating only to developing countries. WLS is used for all estimations, using inverse variance weights. The number of observations is reduced from 946 to 916 because of missing data for some of the moderator variables.

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