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Determinants of FDI in Developing Countries:

Has Globalization Changed the Rules of the Game?

by
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Abstract: There is a startling gap between, allegedly, globalization-induced changes in international competition for foreign direct investment (FDI) and recent empirical evidence on the relative importance of determinants of FDI in developing countries. We show that surprisingly little has changed since the late 1980s. Traditional market-related determinants are still dominant factors. Among non-traditional FDI determinants, only the availability of local skills has clearly gained importance. As concerns the interface between trade policy and FDI, we find that the tariff jumping motive for FDI had lost much of its relevance well before globalization became a hotly debated issue.

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I. INTRODUCTION

It is widely believed that the trend towards globalized production and marketing has major implications for developing countries' attractiveness to foreign direct investment (FDI). The boom of FDI flows to developing countries since the early 1990s indicates that multinational enterprises have increasingly considered these host countries to be profitable investment locations. At the same time, various experts argue that the determinants of and motivations for FDI in developing countries have changed in the process of globalization. As a consequence, it would no longer be sufficient to offer promising markets in order to induce FDI inflows. Policymakers would face rather complex challenges in striving for locational attractiveness to FDI (Kokko 2002).

It is beyond serious doubt that the rules of the game have changed in some respects. For instance, tariff-jumping FDI to serve large protected markets should have become less relevant as various developing countries have liberalized their import regime and relaxed performance requirements such as local content rules. Apart from unilateral liberalization, successive rounds of multilateral trade liberalization have reduced the relevance of market access through FDI for many products (UNCTAD 1998: 115). Recent studies also suggest that FDI is increasingly referred to by some industries to slice up the value chain and to outsource less human capital intensive stages of the

production process to lower income countries offering the relevant comparative advantages.[1]

Yet, the proposition may be questioned that traditional FDI determinants are on the decline. The reasoning on globalization-induced changes mainly refers to FDI in manufacturing. However, the recent boom of FDI in developing countries is largely due to a stronger engagement of multinational enterprises (MNEs) in the services sectors of developing countries.[2] Except for some services such as data processing and software programming, FDI in services is almost by definition local market-seeking, rather than export-oriented or efficiency-seeking.[3] It was encouraged by the wave of privatizing state companies in services sectors such as transport, telecommunication, energy and finance in various developing countries, notably in Latin America.[4] Moreover, regional integration schemes such as Mercosur (Argentina, Brazil, Paraguay and Uruguay) provided incentives to market-seeking FDI even in manufacturing by expanding the relevant market.

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[1] See, e.g., Spatz and Nunnenkamp (2002) on the automobile industry; see also Dunning (2002).

[2] UNCTAD (1998: 113) notes "an explosion of FDI in the services sector as a result of the general trend towards the liberalization of FDI frameworks for services".

[3] The differentiation between market-seeking and efficiency-seeking FDI is widely used in the relevant literature. Market-seeking FDI aims at penetrating the local markets of host countries. Efficiency-seeking FDI is motivated by creating new sources of competitiveness for firms and strengthening existing ones.

[4] Sader (1993) shows that foreign investors participated significantly in the wave of privatizations in 1988–1992. In this period, Latin America attracted almost two thirds of foreign exchange from privatizations in the developing world.

Hence, it remains open to debate whether new rules of the game apply to a sufficiently large segment of FDI to discount the relevance of traditional determinants. This is essentially an empirical question. As shown in Section II, recent empirical studies on FDI determinants in developing countries hardly address the question of globalization-induced changes. The shortage of relevant empirical studies is probably largely because non-traditional determinants, including cost factors and complementary factors of production, are difficult to capture for a sufficiently large sample of developing countries and over a sufficiently long time span. This is in marked contrast to traditional determinants such as the size and growth of local markets.

In Section III, we argue that the gap between analytical thinking and empirical evidence may be narrowed by drawing on survey results presented by the European Round Table of Industrialists (ERT 2000). Though subjective by nature, this source offers valuable insights on various variables on which hard data are almost impossible to come by. In Section IV, we use these survey results, supplemented by more conventional sources, to evaluate whether the distribution of (inward) FDI stocks reveals significant changes over time. Given the limited number of (28) developing host countries surveyed in ERT (2000), Section V applies correlation analysis, in order to assess whether traditional FDI determinants have become less important, while non-traditional determinants have become more important. We summarize in Section VI that surprisingly little has changed so far as concerns the driving forces of FDI in developing countries.

II.   STRONG ARGUMENTS, LIMITED EVIDENCE

UNCTAD (1998: 108 ff.) argues that globalization has led to a reconfiguration of the ways in which MNEs pursue their resource-seeking, market-seeking and efficiency-seeking objectives. The opening of markets to trade, FDI and technology flows has offered MNEs a wider range of choices on how to serve international markets, gain access to immobile resources and improve the efficiency of production systems (see also Dunning 1999). Reportedly, MNEs are increasingly pursuing complex integration strategies, i.e., MNEs "increasingly seek locations where they can combine their own mobile assets most efficiently with the immobile resources they need to produce goods and services for the markets they want to serve" (UNCTAD 1998: 111). This is expected to have two related consequences regarding the determinants of FDI:

- Host countries are evaluated by MNEs on the basis of a broader set of policies than before. The number of policies constituting a favorable investment climate increases, in particular with regard to the creation of location-specific assets sought by MNEs.

- The relative importance of FDI determinants changes. Even though traditional determinants and the types of FDI associated with them have not disappeared with globalization, their importance is said to be on the decline. More specifically, "one of the most important traditional FDI determinants, the size of national markets, has decreased in importance. At the same time, cost differences between locations, the quality of infrastructure, the ease of

doing business and the availability of skills have become more important" (UNCTAD 1996: 97).

Likewise, Dunning (1999) argues that the motives for, and the determinants of FDI have changed. According to Dunning (2002: exhibit 5), FDI in developing countries has shifted from market-seeking and resource-seeking FDI to more (vertical) efficiency-seeking FDI. Due to globalization-induced pressure on prices, MNEs are expected to relocate some of their production facilities to low (real) cost developing countries. Nevertheless, and in contrast to FDI in industrial countries, FDI in developing countries still is directed predominantly to accessing natural resources and national or regional markets according to this author.[5]

It would have important policy implications if globalization had changed the rules of the game in competing for FDI. The policy challenge may become fairly complex; host country governments would have "to provide and publicize a unique set of immobile assets, pertinent to the types of economic activity they wish to attract and retain, vis-à-vis those offered by other countries" (Dunning 1999: 17 f.). Arguably, policymakers can no longer rely on the previous empirical literature stressing the overriding role of some clearly defined factors shaping the distribution of FDI.

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[5]   In an earlier paper, Dunning (1999: 24) states: "There remains comparatively little North-South asset augmenting FDI."

Among more traditional FDI determinants, market-related factors clearly stand out. In a frequently quoted survey of the earlier literature on FDI determinants, Agarwal (1980) found the size of host country markets to be the most popular explanation of a country's propensity to attract FDI, especially when FDI flows to developing countries are considered. Subsequent empirical studies corroborated this finding.[6] Even authors who dismissed earlier studies as seriously flawed came up with results supporting the relevance of market-related variables such as GDP, population, GDP per capita and GDP growth; examples are: Schneider and Frey (1985), Wheeler and Mody (1992), Tsai (1994), Jackson and Markowski (1995) and, more recently, Taylor (2000).[7] Chakrabarti (2001), while questioning the robustness of various other FDI determinants, finds the correlation between FDI and market size to be robust to changes in the conditioning information set.

Against this backdrop, the obvious question is whether the dominance of market-related factors no longer holds under conditions of proceeding globalization, while less traditional FDI determinants have become more important. Recent empirical studies on FDI determinants in developing countries

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[6] Shamsuddin (1994) reiterated Agarwal's finding some 15 years later: "Most empirical studies support the market size hypothesis."

[7] Schneider and Frey (1985) criticize that previous studies dealt insufficiently with the *joint* influence of economic and political factors. Tsai (1994) supposes empirical results to be unreliable unless the simultaneity between determinants and consequences of FDI is taken into account.

hardly address this question explicitly.[8] Yet, some of these studies offer at least tentative insights, e.g. on changes in the relevance of market-related and trade-related variables.

As concerns market-related variables, Loree and Guisinger (1995) find per capita GDP of host countries to be a driving force of FDI from the United States in 1977, but not in 1982.[9] The authors presume that this rather surprising result is due to a shift from local market-seeking FDI towards more world market-oriented FDI. This reasoning suggests that the motives for FDI may have changed well before globalization became a hotly debated issue. However, data constraints prevented Loree and Guisinger from testing this proposition. Moreover, industrialized host countries constitute about half of the sample analyzed in this study. Hence, it remains open to question whether the presumed shift in FDI motives applies to both industrialized and developing host countries. The results of Tsai (1994), whose sample consists of developing countries almost exclusively, indicate that the relevance of market-related variables did not decline in the 1980s, compared to the 1970s. Econometric tests performed by UNCTAD (1998: 135–140) reveal that, in some contrast to UNCTAD's reasoning elsewhere in the same World Investment Report, market size-related

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8   According to UNCTAD (1998: 135), "it is hard to derive any conclusion from these studies as to whether the list of determinants has changed over time or whether some have gained or lost importance".

9   These authors use detailed data from the benchmark surveys of the US Department of Commerce for 1977 and 1982. The focus of their study is on policy factors such as investment incentives, performance requirements and tax rates.

variables remained the dominant influence on inward FDI even in the mid-1990s.[10]

The findings of Tsai (1994) are surprising in another respect. According to the simultaneous equation model applied in this study, FDI and the growth of host country exports were positively correlated in the 1970s, but no longer in the 1980s. One could have expected the opposite pattern as the motives for FDI are widely supposed to have shifted towards more world market-oriented FDI since the 1980s. The estimates of Tsai (1994) may rather suggest that host countries' openness to trade represents a fairly traditional determinant of FDI.[11] The analysis by Lucas (1993) of determinants of FDI in East and Southeast Asian countries tends to support this view. FDI in 1960–1987 is found to be somewhat more elastic with respect to aggregate demand in export markets than with respect to demand in the host country. Lucas (1993) suspects that the importance of local market size is overstated in various empirical studies because they omit export markets as a determinant of FDI.[12]

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[10] UNCTAD (1998: 14) qualifies this finding by noting that market size-related variables "explain less of the variation across countries in more recent years than in earlier periods". However, exactly the opposite is true for regressions run for the subsample of developing countries (ibid: Table IV.A.4).

[11] In Section III, we discuss in some more detail why openness is considered a non-traditional determinant of FDI in the present study.

[12] Note, however, that Lucas (1993) does not address changes over time in the importance of FDI determinants. Furthermore, it is questionable whether the results for world market-oriented Asian economies would hold in other regions, too.

More recent studies typically consider trade-related determinants of FDI:

- Singh and Jun (1995) find export orientation to be the strongest variable for explaining why a country attracts FDI. Yet, it is somewhat heroic to conclude that their findings are "in line with the secular trend toward increasing complementarity between trade and FDI" (ibid.: inside cover). Surprisingly, the study also supports the tariff jumping hypothesis, which is in conflict with the authors' conclusion.

- Gastanaga, Nugent and Pashamova (1998) address the tariff jumping hypothesis in the context of a panel analysis on the effects of host country reforms on FDI. While cross-section results suggest that FDI flows were motivated more strongly by tariff jumping than by potential exports, the effects of import tariffs on FDI tend to be negative in a time-series context.[13] These authors conclude that "over time in individual countries trade liberalization has become the more important motive for FDI" (ibid.: 1312).

- According to the sensitivity analysis of Chakrabarti (2001), openness to trade (proxied by exports plus imports to GDP) has the highest likelihood of being correlated (positively) with FDI among all explanatory variables classified as fragile. Asiedu (2002), using the same proxy for openness, comes to a similar conclusion when separating Sub-Saharan host countries from host countries in other regions. Africa differs significantly from non-African sample

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[13] However, both the direction and magnitude of effects are sensitive to the specification of the test equation.

countries with regard to other FDI determinants, whereas the promotional effect of openness to trade on FDI is found to be only slightly weaker in Africa.

The problem with essentially all these studies is that they use trade-related variables that are seriously flawed.[14] Import tariff rates capture at best part of the trade policy stance of host countries.[15] The ratio of exports plus imports to GDP suffers from a large-country bias and may, thus, lead to unreliable results. We are aware of just one recent study on FDI determinants which takes a different route, as we do below, in assessing openness. Taylor (2000) refers to survey results (from the World Competitiveness Report) on the degree to which government policy discourages imports. This measure of openness to trade is shown to be positively related to FDI undertaken by MNEs from the United States. By contrast, alternative measures tried as proxies of openness (tariff rates, coverage of non-tariff barriers) turned out to be insignificant when correlated with FDI.

Taylor (2000) resembles most other studies in that he does not assess changes over time in the importance of openness as an FDI determinant. His results do suggest, however, that a globalization-induced increase in the relevance of openness cannot be taken for granted. The positive correlation between

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[14] For a more detailed discussion of different measures of openness to trade, see Edwards (1998).

[15] Moreover, most studies use *nominal* import tariffs as sufficient data on *effective* tariff protection are not available. Hence, the account of import protection is not only incomplete, but also distorted.

openness and FDI is restricted to the manufacturing sector, whereas the correlation is insignificant for FDI by MNEs from the United States in the services sector. Considering that the recent boom of FDI in developing countries is largely because of FDI in non-traded services (see Section I), the relevance of openness even may have declined.

Finally, the study by Noorbakhsh, Paloni and Youssef (2001) offers insights on non-traditional determinants of FDI in developing countries, though not with regard to trade-related variables.[16] The focus of this study is on human capital as a determinant of FDI. Most importantly, "the results ... are suggestive of an increasing importance of human capital through time. The estimated coefficients of the variables used as proxies for human capital as well as their t-ratios increase in magnitude across the consecutive sample periods" (ibid: 1602 f.). The authors attribute this finding explicitly to the process of globalization. Limitations of this study are twofold: The period of observation is restricted to 1983–1994, and changes over time are not studied for FDI determinants other than human capital.

III. DATA AND APPROACH

In reviewing the existing literature on FDI determinants, we made some implicit assumptions concerning the classification of variables as traditional or non-

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[16] These authors, too, use the ratio of exports plus imports to GDP as a measure of openness.

traditional determinants. Before presenting our own approach and the data base, it may be useful to justify these assumptions. The classification is essentially based on the overview of host country determinants of FDI presented in UNCTAD (1998: Table IV.1).[17] Furthermore, we take into account that FDI in developing countries traditionally concentrated in market-seeking and resource-seeking activities, while efficiency-seeking FDI is of a more recent nature in these host countries (Dunning 1999). Hence, variables that are typically regarded as driving forces of efficiency-seeking FDI are considered non-traditional determinants of FDI in developing countries in the following.

Against this backdrop, it is obvious that market-related variables such as GDP, population, GDP per capita and GDP growth constitute traditional FDI determinants. In addition, the subsequent list of traditional determinants includes some factors which UNCTAD (1998) considers to be part of the overall policy framework for FDI and business facilitation measures of host countries. This is because factors such as entry restrictions, so-called hassle costs, and economic as well as political stability are relevant, in principle, for all types of FDI. However, other elements of the policy framework for FDI may affect specific types of FDI differently. For example, performance requirements related to local

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[17] For a slightly modified version, see Nunnenkamp (2001: Figure 7). The major difference to UNCTAD (1998) is on trade policy; the reasons are given below.

content and imported inputs are likely to discourage efficiency-seeking FDI more than purely market-seeking FDI.[18]

Apart from data availability, our selection of non-traditional determinants is guided by UNCTAD's proposition that cost differences between locations and the availability of complementary local factors of production have become more important in the process of globalization (UNCTAD 1996: 97). Complementary factors of production include business-related services such as access to local finance, and the strength and efficiency of local enterprises on which MNEs would like to draw as suppliers of inputs and potential customers. Furthermore, both analytical reasoning[19] and previous empirical findings (Noorbakhsh, Paloni and Youssef 2001) clearly suggest to regard the availability of local skills as a particularly important complementary factor of production.

The classification of trade-related variables as non-traditional FDI determinants may be more contentious. In UNCTAD (1998: Table IV.1), trade policy is part of the overall policy framework affecting all types of FDI. By contrast, Nunnenkamp (2001: Figure 7) lists trade policy as an economic determinant of efficiency-seeking FDI. This is not to ignore the relevance of trade policy for

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[18] On performance requirements, see Loree and Guisinger (1995). These authors find performance requirements to be negatively correlated with FDI by MNEs from the United States in 1977, whereas the correlation turned insignificant in 1982.

[19] For example, Zhang and Markusen (1999) present a model in which locally available skills constitute a relevant factor of MNE production and affect the magnitude of FDI flows. Noorbakhsh, Paloni and Youssef (2001) attribute it explicitly to the process of globalization that skilled labor has become more attractive to MNEs relative to low labor costs per se. Dunning (1999: 28) argues that a knowledge supporting human and physical infrastructure is increasingly important as a locational pull to mobile investment.

market-seeking FDI in the past. As a matter of fact, the tariff-jumping hypothesis figured prominently in earlier research on FDI determinants (Section II; see also Taylor 2000: 637). Lacking a promising alternative to FDI in the presence of significant trade barriers, it was reasonable indeed to expect higher FDI flows to large and protected markets. However, widespread trade liberalization, both multilaterally and unilaterally, should have eroded the tariff-jumping motive for FDI in manufacturing.

Trade liberalization has led Loree and Guisinger (1995: 285) to suspect FDI determinants other than trade policy to have gained relative importance. Current thinking on the interface between trade and FDI invites a different hypothesis, however. According to Markusen (1995), trade barriers cause a substitution towards FDI; at the same time, they reduce the level of both trade and FDI. The balance of the two opposing effects of trade barriers on FDI is likely to have become negative due to trade liberalization and the shift in MNE strategies towards efficiency-seeking FDI. To the extent that the shift in MNE strategies applies to developing countries, too, the impact of trade barriers on FDI in these countries should have changed from positive (or insignificant) to negative. Put differently, the removal of import restrictions (and, thus, the removal of the implicit taxation of exports) may induce higher FDI flows by giving rise to new types of FDI. That is why we regard openness to trade as a non-traditional determinant of FDI in developing countries. It should be recalled, however, that the above reasoning refers to FDI in manufacturing, whereas openness to trade should play a minor role with regard to FDI in services.

The following empirical analysis mainly draws on survey data on investment conditions in 28 developing countries. The European Round Table of Industrialists (in cooperation with the United Nations and the International Chamber of Commerce) conducted three surveys on investment conditions in the developing world; results are summarized in ERT (2000). The main sources of information on which ERT drew were the developing countries themselves. In the latest survey, the authorities of 33 countries participated by returning questionnaires, designed by ERT, on important improvements in investment conditions. Replies were restructured and completed by ERT, in order to prepare country files on improvements and remaining impediments to investment; additional sources used by ERT were exclusively from the public domain.

The checklist of the survey covers 33 items, most of which are considered in subsequent sections of this paper by aggregating them into several clusters (see Annex for the definition of items and the aggregation). For each of these items, ERT presents country-wise improvements and remaining impediments on a scale ranging from 0 to 6. The three surveys report improvements for 1987–1992, 1993–1996 and 1997–1999, respectively, as well as remaining impediments at the end of 1992, 1996 and 1999, respectively.

The major strength of the ERT surveys, e.g. compared to the Global Competitiveness Report of the World Economic Forum in Geneva, is that comparability between the three surveys is ensured. The original questions of the first survey and the criteria according to which improvements in investment conditions are measured remained unchanged. As a result, a consistent data set

is available for 28 developing countries that participated in all three surveys.[20]

The weaknesses are twofold. First, the assessment of improvements and remaining impediments, especially the weighting done by ERT, "can be rather subjective" (ERT 2000: 29). This drawback is common to all surveys and has to be accepted unless hard data are available (which is not the case in many regards, including FDI restrictions). Second, the limited sample of 28 host countries prevents us from applying multiple regression analysis, as the degrees of freedom would be very low. Yet, the results achieved by our more modest approach of simple correlations should be fairly representative. The ERT sample accounted for 56 percent of inward FDI stocks in all developing countries in 1999, and for 62 percent of FDI flows to all developing countries in 1997–2000 (UNCTAD online data base).

Survey results presented in ERT (2000) are supplemented by World Bank data on variables that are typically considered important determinants of FDI, including market size proxied by the host countries' population and the level of GDP per capita, as well as the growth of local markets, proxied by GDP growth (see Annex for details). All in all, we deal with 13 possible determinants of FDI in developing countries. The classification into traditional and non-traditional determinants is based on the reasoning in the beginning of this section. The following variables are considered traditional determinants:

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[20] The countries are: Argentina, Bangladesh, Brazil, China, Colombia, Ecuador, Egypt, Ghana, Guatemala, India, Indonesia, Iran, Kenya, Korea, Malaysia, Mexico, Nigeria, Pakistan, Philippines, Saudi Arabia, Sri Lanka, Syria, Taiwan, Thailand, Tunisia, Turkey, Viet Nam, Zimbabwe.

- population of host countries;

- GDP per capita in host countries;

- GDP growth of host countries;

- administrative bottlenecks;

- entry restrictions;

- risk factors.

By contrast, the following (non-traditional) variables should have become more important if globalization has changed the rules of the game in competing for FDI:

- complementary factors of production, i.e. local inputs required for an internationally competitive production in developing host countries;

- average years of schooling, drawn from Barro and Lee (2000), in order to assess more accurately one particular complementary factor of production, namely the availability of sufficiently qualified labor in host countries;

- cost factors, relating to taxes, employment conditions, labor market regulations and the leverage of trade unions;[21]

- restrictions of foreign trade, which may impede an internationally competitive production in developing host countries;

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[21] Productivity adjusted labor costs would be a clearly superior measure. However, survey results, presented by World Economic Forum (2002), on this measure are not available over a longer time span.

- the change in trade shares, which provides an alternative proxy of opening up to trade by host countries (based on actual trade data, instead of survey results on trade restrictions).

Some further variables cannot easily be classified as either traditional or non-traditional. This applies to:

- post-entry restrictions, some of which may discourage all foreign investors whereas other restrictions (notably performance requirements) may discourage efficiency-seeking FDI more than purely market-seeking FDI;

- technology related regulations, which may be as multi-faceted as post-entry restrictions.

FDI in sample countries is defined in different ways. The subsequent section refers to inward FDI stocks in absolute (US$) terms, in order to assess changes in the distribution of FDI over time. For the correlation analyses in Section V, we use FDI stocks and FDI inflows in absolute terms and in per capita terms. As argued below, FDI in per capita terms helps avoid biased results resulting from the overriding importance of some large FDI recipients.

IV.   CHANGES IN THE DISTRIBUTION OF FDI STOCKS

This section portrays the distribution of FDI stocks in the 28 sample countries according to the (traditional and non-traditional) determinants listed above. For

all determinants, we calculate the sample average.[22] Sample countries are then grouped into two categories of weak and strong attractiveness with regard to particular determinants. For example, strong attractiveness means large markets, a high income level, low FDI restrictions, favorable cost conditions and good endowment of complementary factors of production. In all respects, the sample average is taken as the dividing line between weak and strong attractiveness. As sample averages may be biased due to outliers, we check the sensitivity of results at the end of this section by taking the median, instead of the average, as the dividing line between countries with weak and strong attractiveness.

Annex Table 1 presents average indicator values for the subgroups of sample countries with weak and strong attractiveness. It is interesting to note that indicators improved with few exceptions from 1992 to 1999 for both subgroups of countries.[23] In other words, almost all developing countries offered more favorable investment conditions in the late 1990s, especially by liberalizing FDI restrictions. For example, entry restrictions were relaxed considerably by countries with relatively low attractiveness (from an indicator value of 3.3 in 1992 to 1.9 in 1999). Though from a lower level of impediments in 1992, minor improvements are reported for cost factors and restrictions on foreign trade. This may be surprising as these two variables belong to the list of non-traditional FDI

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[22] Some variables such as GDP growth and the change in trade shares are not considered in this section, as they relate to FDI flows rather than stocks.

[23] The exceptions are: declining GDP growth for both subgroups of countries and the change in trade share for the subgroup of countries with weak attractiveness.

determinants which are widely believed to have become more important in shaping the distribution of FDI.

Due to across-the-board liberalization of FDI restrictions, even the less attractive developing host countries within the sample, on average, score below 2 in 1999 with regard to all indicators derived from the ERT survey. For various countries with relatively strong attractiveness, the ERT survey reports no remaining impediments in 1999 so that the average of all indicators derived from this source is below 1 for this subgroup of countries. Across-the-board liberalization notwithstanding, distinct differences between the two subgroups of sample countries remained. This applies to survey results for both traditional determinants (e.g., administrative bottlenecks) and non-traditional determinants (e.g., complementary factors of production). Data drawn from other sources fit into this picture. For instance, GDP continued to grow more than twice as fast in countries with relatively strong attractiveness than in countries with relatively weak attractiveness. As concerns non-traditional determinants, differences between the two subgroups of countries are pronounced and rising with regard to the change in trade shares.

The distribution of FDI stocks between countries with relatively strong and weak attractiveness, as defined above, is shown in Table 1.[24] It may be surprising that countries with weak attractiveness hosted about half of FDI stocks in 1999 according to various indicators. While this applies mainly to

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[24] While survey results on remaining impediments are available since 1992, indicators derived from other sources are reported since 1987.

traditional determinants, the share of this subgroup of countries is surprisingly high with regard to some non-traditional determinants, too (including

Table 1 — Distribution of FDI Stocks in 28 Developing Countries: Shares of Countries with Weak and Strong Attractiveness According to Selected Indicators (in percent)

Indicators[b]	Weak			Strong[a]				
	1987	1992	1999	1987	1992		1999	
population	57.5	58.5	43.6	42.5	41.5	(32.4)	56.5	(36.7)
GDP per capita	39.8	41.7	50.1	60.2	58.3	(67.7)	50.0	(73.6)
administrative bottlenecks[c]	n.a.	40.0	50.9	n.a.	60.0	(69.3)	49.2	(71.6)
entry restrictions[c]	n.a.	68.6	49.6	n.a.	31.4	(36.2)	50.5	(73.5)
risk factors[c]	n.a.	38.0	43.6	n.a.	62.0	(71.7)	56.5	(82.2)
complementary factors of production[c]	n.a.	64.2	47.8	n.a.	35.8	(41.4)	52.3	(76.1)
years of schooling	54.0	45.2	35.5	46.0	54.8	(46.7)	64.6	(46.8)
cost factors[c]	n.a.	38.7	40.7	n.a.	61.3	(70.8)	59.4	(86.4)
restrictions on foreign trade[c]	n.a.	59.8	18.4	n.a.	40.2	(46.4)	81.7	(73.4)
post-entry restrictions[c]	n.a.	39.7	47.7	n.a.	60.3	(69.6)	52.4	(76.3)
technology related regulations[c]	n.a.	68.2	53.1	n.a.	31.8	(36.8)	47.0	(68.4)

[a] Figures in brackets: excluding China. – [b] See Annex for definition of variables. – [c] Based on survey results in ERT (2000).

Source: UNCTAD online data base; ERT (2000); World Bank (2001); Barro and Lee (2000).

complementary factors of production and cost factors). This is mainly due to FDI stocks in China. China's share in FDI stocks in all sample countries soared from 8 percent to 31 percent in 1999, even though the attractiveness of China remains relatively weak according to all indicators derived from ERT surveys,

including the most recent one for 1999.[25] Hence, the steeply increased FDI share of China may be taken as a first indication that market size has remained a major driving force of FDI in developing countries in the era of globalization.

Excluding China from the sample, the share of more attractive countries rises to about three quarters of overall FDI stocks in 1999 with few exceptions (see figures in brackets in the last column of Table 1). Furthermore, the FDI share of this subgroup of the sample (except China) has increased in all respects since 1992. This increase was most significant for the following indicators: entry restrictions, complementary factors of production, restrictions on foreign trade, and technology related regulations. Even though this list includes two non-traditional determinants of FDI (complementary factors of production, restrictions on foreign trade), it is difficult to draw clear conclusions from these shifts in the distribution of FDI on whether non-traditional determinants have become more important. This is not only because the distribution of (absolute) FDI stocks is dominated by some large host countries. Furthermore, shifts of FDI towards more attractive host developing countries are observed for both non-traditional and traditional determinants. For example, the concentration of FDI in relatively advanced developing countries, measured by GDP per capita, was considerably stronger in 1999 than in 1987 and 1992, once China is excluded from the sample.

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[25] In all three ERT surveys, China is shown to be on a "very fast track of opening" (ERT 2000: 348–350). As a result, China is rated "moderately open" in terms of remaining impediments by the end of 1999. However, the large majority of sample countries still are considered more open than China.

The picture on changes in the importance of traditional and non-traditional determinants remains ambiguous if we take the median of indicator values, instead of the arithmetic average, as the dividing line between sample countries with weak and strong attractiveness. It is mainly with regard to indicators of market size, i.e. population and GDP per capita, that outliers cause a significant difference between the average and median of indicator values (see the last two columns in Annex Table 2). The average and median differ only slightly for all indicators based on survey results in ERT (2000). Nevertheless, the FDI share of countries with strong attractiveness changes considerably for some ERT indicators, too, if strong attractiveness is measured by indicator values above the median (Annex Table 2). Cost factors are the most striking case in point. Even though the median (0.88) is extremely close to the average (0.91), the FDI share of countries with favorable cost conditions drops by about 20 percentage points. This is because the evaluation of cost factors equals the median in five sample countries (Argentina, Ecuador, Indonesia, Saudi Arabia and Vietnam). All these countries belong to the subgroup with strong attractiveness if the sample average with regard to cost factors serves as a yardstick. For some other ERT indicators, too, the indicator values of several sample countries equal the median, while being slightly below the average (which means stronger attractiveness). This suggests that both classifications have flaws: While outliers impact on averages, the median does not always offer a clear dividing line.

Yet, essential insights gained from Table 1 are hardly affected. We are mainly concerned with *changes* in FDI shares over time, rather than the level of FDI shares. Changes in shares move in the same direction irrespective of the

classification.[26] Most importantly, the earlier observation remains valid that shifts in FDI towards more attractive host developing countries were not restricted to non-traditional determinants of FDI. All in all, the distribution of FDI tends to confirm the reasoning of Dunning (2002) that traditional economic determinants remain important, particularly in larger developing countries.

V. CORRELATION RESULTS

The relevance of traditional and non-traditional determinants of FDI may be better captured by the subsequent correlation analysis. As mentioned already, multiple regression analysis would be clearly superior to simple correlations, but is not feasible given the relatively small number of sample countries and the fairly large number of possible determinants. The more modest correlation approach notwithstanding, we can take account of the large country bias, shaping the distribution of absolute FDI, by considering FDI in per capita terms. As shown elsewhere (Nunnenkamp 2001), various small developing countries were more successful in attracting foreign investors than the largest recipients of FDI, once FDI is related to the host countries' population (or GDP). Hence, avoiding the large country bias may offer better insights on the relevance of traditional and non-traditional determinants of FDI, and possible changes over time.

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[26] Cost factors represent the only, though minor exception (Annex Table 2).

In addition to FDI stocks, we perform correlations with FDI flows. This is for three reasons. First, FDI flows are expected to be less path dependent than FDI stocks. Any changes in the relevance of determinants may, thus, affect FDI flows more strongly than FDI stocks. Second, some additional determinants can be taken into account in the case of FDI flows. We add GDP growth to the list of traditional determinants, and the change in trade shares (as an alternative measure of opening up towards world markets) to the list of non-traditional determinants in the correlation analysis for FDI flows. Third, FDI flows allow us to use additional information contained in ERT surveys, namely the assessment of improvements in investment conditions (instead of remaining impediments referred to so far).

Before analyzing FDI flows, Table 2 reports correlation coefficients for FDI stocks on the one hand, and possible determinants of FDI on the other hand. Almost all correlation coefficients have the sign to be expected, although various coefficients lack statistical significance at conventional levels. Typically, stronger FDI impediments reported in ERT surveys are negatively correlated with FDI stocks per capita of the host countries' population.[27] Among the indicators with significant coefficients in 1999, all but one were significantly correlated with FDI stocks throughout the 1990s (average years of schooling

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[27] The most surprising result may be the positive correlation between FDI stocks and technology related regulations. In 1999, the correlation coefficient is even significantly positive for technology targeting by developing host countries, which represents one element of technology related regulations (see Annex). This unexpected result is mainly because Malaysia reported the highest inward FDI stock per capita in 1999 (US$ 2234) within the sample, even though it was rated most unfavorably in ERT (2000) with regard to technology targeting.

representing the exception). On the other hand, just one indicator (restrictions on foreign trade) that had been significantly correlated with FDI stocks earlier in the 1990s turned insignificant at the end of this decade. Taken together, these two observations suggest that changes in the importance of determinants of FDI remained modest so far, at least as concerns FDI stocks which tend to be more path dependent than FDI flows.

More specifically, Table 2 provides little support to the view that non-traditional determinants of FDI gained prominence in developing countries. Among non-

Table 2 — Correlation Results for FDI Stocks[a] in 28 Developing Countries[b]

Indicators[c]	1987	1992	1996	1999
population				
FDI per capita	-0.18	-0.22	-0.21	-0.20
FDI million US$	0.17	0.36*	0.71***	0.68***
GDP per capita				
FDI per capita	0.55***	0.61***	0.55***	0.68***
FDI million US$	0.38*	0.30	0.09	0.16
administrative bottlenecks[d]	n.a.	-0.64***	-0.67***	-0.53***
entry restrictions[d]	n.a.	-0.17	0.10	0.00
risk factors[d]	n.a.	-0.35*	-0.52***	-0.58***
complementary factors of production[d]	n.a.	-0.11	-0.06	-0.27
years of schooling	0.09	0.25	0.33	0.45**
cost factors[d]	n.a.	-0.34*	-0.56***	-0.47**
restrictions on foreign trade[d]	n.a.	-0.32*	-0.36*	-0.22
post-entry restrictions[d]	n.a.	-0.27	-0.15	-0.09
technology related regulations[d]	n.a.	0.08	0.23	0.19

[a] US$ per capita of the host countries' population, if not stated otherwise. – [b] *, **, *** significant at 10 percent, 5 percent and 1 percent level, respectively (two-tailed); see Annex Table for missing observations. – [c] See Annex for definition of variables. – [d] Based on survey results in ERT (2000).

Source: Own calculations based on UNCTAD online data base; ERT (2000); World Bank (2001); Barro and Lee (2000).

traditional determinants listed there, it is only average years of schooling that were clearly more important in 1999 than before in shaping the pattern of FDI stocks per capita in developing countries. This result underscores the findings of Noorbakhsh, Paloni and Youssef (2001); it is also consistent with survey results: FDI stocks per capita in 1999 were relatively low in sample countries for which the lack of basic and higher education, one of the complementary factors of production (see Annex), was regarded an important impediment to investment.[28] However, the aggregate of complementary factors of production was not correlated with FDI stocks per capita in a statistically significant way throughout the period under consideration.

The picture becomes blurred still more if other non-traditional determinants are taken into consideration. FDI impediments related to cost factors were negatively correlated with FDI stocks throughout the 1990s. Moreover, it seems premature to conclude that this correlation is becoming stronger over time. Results for particular cost factors (not reported in Table 2) are as follows:

- Similar to the pattern observed for aggregated cost factors, the relevance of taxes peaked in 1996, but remained higher in 1999 than it had been in 1992.

- A high leverage of trade unions seems to have discouraged FDI throughout the 1990s, though to slightly rising extent.

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[28] The correlation coefficient between FDI stocks per capita and FDI impediments related to basic and higher education was –0.28 in 1999. Though not significant at conventional levels, this is in contrast to 1992 when the corresponding correlation coefficient was 0.15. Correlation results for the elements of aggregated indicators are not reported here in detail.

- The correlation between discriminatory employment conditions and FDI was practically zero in all three years.

- The (negative) correlation coefficients achieved for restrictive labor legislation increased slightly, but remained insignificant until 1999.

The results reported for restrictions on foreign trade are in conflict with the view that non-traditional determinants have gained relevance.[29] Most surprisingly perhaps, the correlation with FDI stocks per capita turned insignificant in 1999. In interpreting this result, it must be recalled that the debate on the relevance of openness to trade for FDI focuses on FDI in the manufacturing sector (Section III), while booming FDI in developing countries in the 1990s was largely because of FDI in services. Our correlations had to be run for aggregate FDI in all sectors.[30] Hence, we cannot separate potentially opposing effects. However, the weaker relevance of openness to trade in the late 1990s reported in Table 2 is consistent with Taylor (2000) who found openness to trade and FDI to be positively correlated in the manufacturing sector only.

Correlations between FDI stocks and traditional determinants strengthened, rather than weakened in some respects. The correlations for FDI stocks in absolute amounts (million US$) underscore the importance of FDI in China, noted in Section III. Booming FDI in China explains why market size, proxied

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[29] The same applies to performance requirements, which represent an element of post-entry restrictions (see Annex). The correlation coefficient with FDI stocks per capita of −0.30 in 1992 (almost significant at the 10 percent level) declined to −0.03 in 1999.

[30] The online data base of UNCTAD which we use does not provide FDI data for specific sectors.

by population, was more strongly associated with absolute FDI stocks in the second half of the 1990s, whereas the correlation between absolute FDI stocks and the income level of host countries turned insignificant. If FDI stocks are considered in per capita terms, essentially nothing has changed with regard to the relevance of market related variables such as the host countries' population and income level. A similar conclusion can be drawn for two more traditional determinants, namely administrative bottlenecks and entry restrictions, while risk factors have become more strongly associated with FDI stocks per capita in recent years.[31]

Correlation results achieved for FDI flows to the 28 sample countries largely confirm previous findings for FDI stocks, even though FDI flows are supposed to be less path dependent than FDI stocks. We proceed in two steps in analyzing FDI flows. Before referring to survey data on *improvements* in investment conditions, we reproduce Table 2 for FDI flows. Table 3 lists two additional variables, i.e., GDP growth (proxying the growth of local markets) and the change in trade shares (as an alternative measure of opening up towards world markets). FDI flows in 1993–1996 and 1997–2000 are correlated with investment impediments at the end of 1992 and at the end of 1996, respectively. Population and GDP per capita refer to the first year of the respective subperiod (1987, 1993 and 1997). For lack of data, the same procedure could not be followed for average years of schooling; we chose the closest available years

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[31] This is mainly due to two (out of seven) risk elements, namely shortcomings in legal and regulatory systems as well as civil disturbances and violence.

(1990, 1995 and 2000). Annual average GDP growth is lagged by two years; for example, FDI flows in 1997–2000 are correlated with GDP growth in 1995–1998. Likewise, the change in trade shares is lagged by two years. For FDI flows in 1997–2000, the change in trade shares is calculated as the ratio of imports plus exports to GDP in 1998 minus the corresponding ratio in 1995.

Table 3 — Correlation Results for FDI Flows[a] to 28 Developing Countries[b]

Indicators[c]	1987–1992	1993–1996	1997–2000
population			
FDI per capita	-0.17	-0.11	-0.15
FDI million US$	0.47**	0.75***	0.63***
GDP per capita			
FDI per capita	0.33	0.36*	0.78***
FDI million US$	0.21	-0.01	0.23
GDP growth			
FDI per capita	-0.01	0.39**	-0.14
FDI million US$	0.21	0.56***	0.29
administrative bottlenecks[d]	..	-0.44**	-0.46**
entry restrictions[d]	..	-0.08	-0.31
risk factors[d]	..	-0.26	-0.50***
complementary factors of production[d]	..	-0.29	-0.42**
years of schooling	0.45**	0.39*	0.59***
cost factors[d]	..	-0.35*	-0.40**
restrictions on foreign trade[d]	..	-0.34*	-0.44**
change in trade share	0.42**	0.22	0.10
post-entry restrictions[d]	..	-0.02	-0.18
technology related regulations[d]	..	0.06	0.09

[a] US$ per capita of the host countries' population, if not stated otherwise. – [b] *, **, *** significant at 10 percent, 5 percent and 1 percent level, respectively (two-tailed); see Annex Table for missing observations. – [c] See Annex for definition of variables. – [d] Based on survey results on remaining impediments in ERT (2000).

Source: Own calculations based on UNCTAD online data base; ERT (2000); World Bank (2001); Barro and Lee (2000).

As before with FDI stocks, Table 3 contradicts the notion that market-related determinants of FDI have lost importance. Rather, the correlation between absolute FDI flows and market size (proxied by population), as well as the correlation between FDI flows per capita and the income level of host countries strengthened over time. The correlations with GDP growth do not reveal a clear trend, irrespective of how FDI flows are measured.

For the remaining determinants, we report only the correlations with FDI flows per capita in Table 3. Correlations with absolute FDI flows did not offer additional insights, as the coefficients turned out to be insignificant with two exceptions (1987–1992: years of schooling; 1993–1996: post-entry restrictions). This underscores our earlier reasoning on the large country bias shaping the distribution of FDI in absolute terms. The insignificant correlation results achieved for absolute FDI flows with regard to determinants that are not market related support the view that, if at all, the large country bias has become stronger, rather than weaker.

Even if FDI flows are considered in per capita terms, clear-cut evidence that non-traditional determinants of FDI have gained prominence in the era of globalization does not exist:

- In 1997–2000, the correlation coefficients of all non-traditional determinants are considerably below the correlation coefficient shown for GDP per capita.

- The relevance of administrative bottlenecks in discouraging FDI flows has remained somewhat stronger than the relevance of non-traditional determinants such as cost factors and restrictions on foreign trade.

- Alternative indicators of openness to trade do not reveal a consistent picture. In contrast to survey results on trade restrictions, rising trade shares did not go along with higher FDI flows since 1993.

- Among non-traditional determinants of FDI flows, complementary factors of production have clearly become more important in recent years. However, the same is true for risk factors which can be regarded as a fairly traditional determinant of FDI in developing countries.

The second step in analyzing FDI flows draws on survey results on improvements in investment conditions. ERT (2000) rated improvements on a scale of 0 (no improvement) to 6 for the same indicators as before with remaining investment impediments. Accordingly, positive correlations between survey indicators and FDI flows should be expected. However, the following complication must be taken into account: In the period under consideration, ERT (2000) observed a general move towards improved investment conditions across sample countries (see also Annex Table 1). Yet, the frontrunners among sample countries had probably removed many impediments at the beginning of the survey period already. As a consequence, these countries would tend to report fewer improvements later on. We correlate improvements in investment conditions with *changes* in FDI flows in the following, in order to avoid the bias which would result from high FDI inflows to sample countries with less severe

investment impediments at the beginning of the survey period and, thus, minor subsequent improvements. The change in FDI flows is calculated for absolute inflows as well as for per capita inflows.[32]

All in all, Table 4 points to remarkably weak correlations between survey results on improvements in investment conditions and increased FDI flows to sample countries. This may be because the survey results reveal minor variance in the potential determinants of FDI, compared with the variance in the change of FDI flows. In 1997–1999, for example, the coefficient of variation (standard deviation divided by mean) was below 1 for all but one of the determinants listed in Table 4.[33] At the same time, the coefficient of variation for changes in FDI flows amounted to 2.4 (US$ per capita) and 2.7 (million US$). The general trend towards improved investment conditions seems to have dominated country-specific developments in investment conditions.

While the correlations are insignificant with few exceptions in the case of changes of FDI flows in per capita terms, somewhat stronger results are shown for changes in FDI flows in absolute terms. Yet, our earlier reasoning on the

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[32] For both variants, we calculate period averages for 1982–1986, 1987–1992, 1993–1996 and 1997–2000. The latter three subperiods correspond to ERT surveys on improvements in investment conditions. Changes in FDI flows equal absolute differences between the subperiod under consideration and the previous subperiod.

[33] Improvements with regard to administrative bottlenecks represent the exception (coefficient of variation: 2.2).

Table 4 — Improvements in Investment Conditions and Change in FDI Inflows:
Correlation Results for 28 Developing Countries[a]

Improvements with regard to:[b]	Change in FDI inflows					
	US$ per capita			million US$		
	1987–1992 vis-à-vis 1982–1986	1993–1996 vis-à-vis 1987–1992	1997–2000 vis-à-vis 1993–1996	1987–1992 vis-à-vis 1982–1986	1993–1996 vis-à-vis 1987–1992	1997–2000 vis-à-vis 1993–1996
administrative bottlenecks	0.l0	-0.01	0.32*	0.02	-0.13	0.49***
entry restrictions	0.23	0.00	-0.19	0.32*	-0.03	-0.29
risk factors	-0.24	-0.24	-0.29	-0.07	0.13	-0.29
complementary factors of production	0.10	0.01	0.09	0.27	-0.03	0.09
cost factors	0.31	0.13	0.22	0.35*	0.33*	0.34*
restrictions on foreign trade	0.31	0.21	0.00	0.28	0.40**	0.30
post-entry restrictions	0.27	-0.02	0.09	0.36*	0.32*	0.30
technology related regulations	-0.14	0.25	0.34*	0.16	0.21	0.31

[a] *, **, *** significant at 10 percent, 5 percent and 1 percent level, respectively (two-tailed). –
[b] Improvements as reported in ERT (2000), in 1987–1992, 1993–1996 and 1997–1999, respectively.
For the definition of variables, see Annex.

Source: Own calculations based on UNCTAD online data base; ERT (2000).

limited relevance of non-traditional determinants of FDI is hardly affected. In
particular, Table 4 casts further doubt on whether the distribution of FDI among
developing countries has increasingly been influenced by non-traditional
determinants. The correlations between the change in FDI inflows in absolute
terms and improved investment conditions with regard to complementary factors
of production, cost factors and restrictions on foreign trade are indeed very
similar to results reported above for FDI stocks and remaining impediments with
regard to the same non-traditional determinants.

VI. SUMMARY AND CONCLUSIONS

There is a startling gap between current thinking on, allegedly, globalization-induced changes in international competition for FDI and the lack of recent empirical evidence on shifts in the relative importance of traditional and non-traditional determinants of FDI in developing countries. The main objective of this paper was to narrow this gap by making use of comprehensive survey data from European Round Table of Industrialists, complemented by more conventional sources, on investment conditions in 28 developing countries since the late 1980s. We find that surprisingly little has changed so far:

- Traditional market-related determinants are still dominant factors shaping the distribution of FDI. If at all, the bias of foreign direct investors in favor of large host countries has become stronger, rather than weaker.

- Non-traditional determinants such as cost factors, complementary factors of production and openness to trade, though mostly revealing the expected correlation with FDI, have typically not become more important with proceeding globalization.

This is not to say that policymakers can do little to improve the attractiveness of developing countries to FDI. First of all, our results do support the finding of Noorbakhsh, Paloni and Youssef (2001) that the availability of local skills has become a relevant pull factor of FDI in the process of globalization. This strengthens the case for human capital formation. Efforts to provide better education and training would not only enhance the economic growth effects of

FDI in developing countries, as shown by Borensztein, De Gregorio and Lee (1998), but are also likely to induce higher FDI inflows.

As concerns the much debated interface between trade policy and FDI, we find that the tariff jumping motive for FDI had lost much of its relevance well before globalization became a hotly debated issue. At a cursory look, it may be surprising that some correlations between trade-related variables and FDI turned out to be weaker in recent years. It must be taken into account, however, that the boom of FDI in developing countries in the 1990s was fuelled considerably by FDI in non-traded services. Hence, our results are consistent with Taylor (2000), who found openness to trade and FDI to be positively correlated in the manufacturing sector only. Developing countries striving for efficiency-seeking FDI in manufacturing are thus well advised to offer an open trade policy environment.

At the same time, the complex relation between openness to trade and FDI hints at one of the shortcomings of our analysis. Similar to most of the existing literature, we dealt with FDI in aggregate terms. However, both the effects and the determinants of FDI are likely to differ between various types of FDI. Therefore, future research should aim at providing a more differentiated picture, even though this will probably meet with considerable data constraints. Besides disaggregating the FDI variable, efforts should be directed at expanding the data base on non-traditional FDI determinants, in terms of country coverage and FDI policies. Comparable data for a larger sample of developing countries would allow us to apply more sophisticated estimation techniques than simple

correlations. Among FDI policies not covered in the present paper, FDI incentives may be particularly relevant for future research. This is for two reasons: The use of incentives has proliferated (UNCTAD 1998: 102), and globalization may have made incentives a more important determinant of FDI (Kokko 2002).

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Annex

Definition of Variables and Statistical Sources

administrative bottlenecks:	inefficient administration and red tape; survey results presented in ERT (2000).
change in trade share:	change (percentage points) in the ratio of exports plus imports to GDP. World Bank (World Development Indicators 2001 CD-ROM).
complementary factors of production:	average of survey results presented in ERT (2000) on three factors: • local finance: inadequate regulatory framework, insufficient links with international financial markets, and discrimination against private investors by state banks; • local private sector: lack of strength and efficiency; inadequate local supplies of goods, services and finance; inefficient distribution systems; • basic and higher education: lack of trained people in terms of quantity and quality; low opinion of apprenticeship schemes.
cost factors:	average of survey results presented in ERT (2000) on four factors: • taxes: complex tax structure; tax levels; discrimination against FDI and other distortions; inequality and inefficiency in tax collection; international double taxation; • personnel: discriminatory employment conditions compared to local employers; quotas and time limits on work-permits for international staff; • restrictive labor legislation: pressure to employ or retain more or other staff than required; • labor-management relations: trade unions with high leverage in multinational enterprises.
entry restrictions:	average of survey results presented in ERT (2000) on three restrictions: • ownership restrictions: mandatory state or local partnership; limitations related to industrial property and land; • access to sectors and activities: industries reserved for the state or local enterprises; restrictions related to acquisition of existing enterprises; minimum investment requirements; • approval procedures: discrimination against private business or FDI; complex procedures; rapidly expiring licenses; red tape.
FDI:	flow and stock data, in US$ million and US$ per capita, from UNCTAD's online data base.
GDP growth:	annual average of percentage growth rate of GDP at market prices based on constant local currency; World Bank (World Development Indicators 2001 CD-ROM).

GDP per capita:	GDP per capita based on purchasing power parity, in current international US\$; World Bank (World Development Indicators 2001 CD-ROM).
population:	million; World Bank (World Development Indicators 2001 CD-ROM).
post-entry restrictions:	average of survey results presented in ERT (2000) on six restrictions: • management control/freedom of decision: political pressure on management; discretionary state intervention; • performance requirements: requirements with regard to exports, local content and manufacturing; foreign exchange neutrality; import and local sales licenses depending on export performance; • foreign exchange transactions: restrictions with regard to profit remittances, import financing and payment of fees; delays imposed on transfers; additional taxation of remittances; • exit restrictions: restrictions on repatriation of capital; • price controls: freezing prices and/or wages; • marketing and distribution: interference in the structure of sales organizations and product distribution.
restrictions on foreign trade:	foreign trade monopolies; import/export licensing and quantitative restrictions; level and structure of import duties; regulated access to foreign currency for imports; survey results presented in ERT (2000).
risk factors:	average of survey results presented in ERT (2000) on seven factors: • inconsistent, unclear and/or erratic regulations; • risk of nationalization or expropriation; • shortcomings in legal and regulatory systems; • political instability; • environmental risks (e.g., contingent liabilities for previous environmental damage); • high rates of criminality; • civil disturbances and violence.
technology related regulations:	average of survey results presented in ERT (2000) on two factors: • intellectual property protection: insufficient protection for patents, copyrights, trademarks etc.; no, insufficient or highly taxed remuneration for brand use, technical assistance and technology transferred; • technology targeting: interventions into corporate technology transfers; pressure to dissipate a company's R&D efforts; insistence on local R&D.
years of schooling:	average years of schooling of the total population aged 15 and over; Barro and Lee (2000).

Annex Table 1 – Summary Statistics on FDI Determinants[a]

Indicators:	Countries with Weak Attractiveness				Countries with Strong Attractiveness			
	1992		1999		1992		1999	
	average	number	average	number	average	number	average	number
population (mill.)	44	24	50	24	596	4	657	4
GDP per capita (US$)	2016	16	2635	16	6771	11	8372	11
GDP growth (percent)[b]	3.3	17	2.5	14	8.2	10	5.6	13
administrative bottlenecks[c]	2.5	15	1.5	16	0.6	13	0.04	12
entry restrictions[c]	3.3	15	1.9	13	1.6	13	0.8	15
risk factors[c]	1.6	10	0.7	11	0.5	18	0.2	17
complementary factors of production[c]	2.9	14	1.9	11	1.5	14	0.6	17
years of schooling[d]	4.0	16	4.7	15	6.9	10	7.7	10
cost factors[c]	1.7	12	1.3	13	0.9	16	0.6	15
restrictions on foreign trade[c]	3.9	17	2.5	14	1.6	11	0.8	14
change in trade share[e] (percentage points)	-1.1	14	-3.6	17	14.2	13	18.3	9
post-entry restrictions[c]	2.1	11	1.2	11	0.9	17	0.4	17
technology related regulations[c]	2.4	16	1.8	12	1.2	12	0.7	16

[a] Missing observations: Taiwan for GDP per capita, GDP growth and change in trade share; Nigeria, Saudi Arabia and Viet Nam (1999) for average years of schooling; Viet Nam (1999) for change in trade share. – [b] 1991–1994 and 1995–1998 (instead of 1992 and 1999). – [c] Survey results; range from 0 (no impediments) to 6 (major impediments). – [d] 1990 and 2000 (instead of 1992 and 1999). – [e] 1994 vis-à-vis 1991 and 1998 vis-à-vis 1995 (instead of 1992 and 1999).

Source: ERT (2000); World Bank (2001); Barro and Lee (2000).

Annex Table 2 – Share of Countries with Strong Attractiveness in FDI Stocks in 28 Developing Countries: Sensitivity to Changes in Classification

Indicators:[a]	Strong attractiveness defined as:						memorandum: All sample countries	
	above average			above median			average	median
	1987	1992	1999	1987	1992	1999	1999	
population	42.5	41.5	56.5	68.0	68.8	75.4	137	54
GDP per capita	60.2	58.3	50.0	64.1	60.3	51.3	4972	3674
administrative bottlenecks[b]	..	60.0	49.2	..	60.0	49.2	0.9	1.0
entry restrictions[b]	..	31.4	50.5	..	32.7	39.4	1.3	1.2
risk factors[b]	..	62.0	56.5	..	46.3	37.2	0.4	0.3
complementary factors of production[b]	..	35.8	52.3	..	35.8	49.1	1.1	0.9
years of schooling	46.0	54.8	64.6	46.0	56.4	66.7	5.9	5.4
cost factors[b]	..	61.3	59.4	..	40.9	41.2	0.9	0.9
restrictions on foreign trade[b]	..	40.2	81.7	..	40.2	81.7	1.7	1.8
post-entry restrictions[b]	..	60.3	52.4	..	41.2	39.4	0.7	0.5
technology related regulations[b]	..	31.8	47.0	..	31.8	41.5	1.1	1.0

[a] See Annex for definition of variables. – [b] Based on survey results in ERT (2000).

Source: UNCTAD online data base; ERT (2000); World Bank (2001); Barro and Lee (2000).