Foreign Direct Investment, Structural Reforms, and Institutional Quality: Panel Evidence from Eastern Europe and Latin America*

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Abstract:

This paper investigates the importance of structural reforms (financial reforms, trade liberalization, and privatization) and institutional qualities as determinants of FDI inflows. Our analysis is based on a unique data set we constructed on structural reforms and institutions for 19 Latin American and 25 Eastern European countries between 1989 and 2004.

Our main finding is that of a strong empirical relationship from reforms to FDI, in particular, from financial liberalization and privatization efforts. These results are robust to different measures of FDI, of reform, split samples, and potential endogeneity and omitted variables biases.

JEL Classification Numbers: F21, O16, C33, P27
Keywords: foreign direct investment, financial reforms, privatization, trade liberalization, institutions, Latin America, transition economies

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I. Introduction

Foreign direct investment (henceforth FDI) is a crucial element of financial globalization. The vast literature on the costs and benefits of financial globalization lacks consensus (Prasad et al., 2003). Kose et al. (2006) review the literature and argue that one of the deciding factors in taking stock of this empirical evidence is the nature of the existing measures of capital account liberalization; de jure measures (which capture whether legal restrictions on capital movements are in place) generally tend to give less support to the benefits of capital account liberalization than de facto measures (which take into account the effectiveness of those legal restrictions).

The share of FDI in GDP or per worker in less developed countries has risen significantly in recent years and FDI had become the most important form of private capital flow in emerging markets. Recent research has tried to identify and assess the relative importance of various mechanisms or channels through which FDI affects the economy.[1] One such channel is the observance of a minimum threshold level of human capital in the host country (Borenstein et al. 1998). This minimum stock helps generating an enabling environment to foreign investment so that it can generate significant spillovers and transfer of technology and managerial know-how and ultimately improve the host country's overall economic performance. We believe that the implementation of structural reforms can work in the same way because the stated goal of these reforms is to improve business conditions and the investment climate. The literature has made some progress in this regard in that it has investigated the potential effects of a few reforms, individually.[2] In this paper we try to go

[1] See among others Campos and Kinoshita (2002), Alfaro et al. (2004), Carkovic and Levine (2005), and Kinoshita and Lu (2006).

[2] For instance, Alfaro et al. (2004) show that financial market reforms play a prominent mediating role between FDI and economic growth. They note that "better financial markets [an increase of one standard deviation in the share of credit to the private sector] would have allowed countries to experience an annual growth rate increase of 0.6% points during the 20-year period" (pp. 99-101).

beyond the identification of the potential effects of individual reforms and provide a somewhat more comprehensive assessment of these mechanisms by asking which reforms matter vis-à-vis FDI and whether their effects differ in a systematic way from that from other standard FDI determinants.[3]

We investigate the importance of structural reforms as determinants of FDI inflows to Latin America and to the transition economies of Central Europe and former Soviet Union between 1989 and 2004. The transition from centrally planned to market economy started more or less simultaneously in nearly thirty countries with similar inherited institutions, initial conditions and income levels. A number of centrally planned economies set out to implement economic and political reforms, choosing different strategies and end up experiencing dramatically different outcomes in many dimensions, including FDI flows. The period of our analysis corresponds roughly for Latin America to the one Krueger calls "a decade of disappointment".[4] We think that this term also works well to describe the transition experience given that the latter is marked by an unexpectedly severe fall of per capita GDP.

The collapse of the socialist and import-substitution systems somewhat coincide and provide myriad investment opportunities. Many of these economies were industrialized and could count on a relatively cheap yet educated workforce. FDI was perceived as an important catalyst as it could bring in not only less volatile capital flows but also technology and managerial know-how necessary for making them competitive in the international market. Yet, these high hopes for FDI contrast sharply with the reduced role governments in transition economies allowed for foreign investors during the privatization process (Hungary is an exception) as well as against the backdrop of disappointingly large falls in output per capita

[3] Traditionally, two theories throw light on the determinants of FDI. Factor endowments-based trade theory argues that FDI is drawn to abundant domestic resources, while the new trade theory suggests that economies of scale are a driving force of FDI. See Wheeler and Mody (1992), and Kinoshita and Mody (2001).

4 See 'Forward' in Singh and others (2005).

and extended recessions (Campos and Coricelli, 2002).

The 1990s in Latin America were equally a decade of intense structural reform (Singh et al. 2005). The first years of the decade saw the successful implementation of various major macroeconomic stabilization programs that were successful after much trial and error with the notable exception of Brazil as stabilization only succeeded in 1994 with Plano Real. Macroeconomic stability paved the way for the adoption, implementation and deepening of important structural reforms. Aggressive programs of trade liberalization (e.g. Chile) were implemented, privatization programs were adopted, and the liberalization of labor and credit markets were pursued with different degrees of success across the region. The period is said to be disappointing because, although reforms were implemented in Latin America with more intensity than in most developing countries, the growth pay-offs turned out to be low and came accompanied by unexpected and severe financial crises (Singh, 2006). [5]

As far as FDI inflows are concerned, the early hopes have not thus far materialized. The share of FDI inflows to transition economies has been less than that for other developing regions, mainly Asia. According to UNCTAD (2002), between 1990 and 1994, transition economies received 2.1 percent of global FDI inflows, Latin America received about 10 percent while Asia received almost twice as much. In the second half of the 1990s, transition economies received 3.2 percent of global FDI inflows, Latin America received about 12 percent while Asia received approximately 16 percent (UNCTAD, 2002). Although FDI flows increased in the second half of the 1990s, they were still disproportionately concentrated in a handful of countries (mainly Brazil, Mexico, Hungary, and Russia).

[5] Lora et al. (2003) talk of "reform fatigue" as the region sees the disappointing effect of the reforms on growth after extensive pro-market reforms in the 1990s. For example, average yearly per capita GDP growth rate was only 2.1 per cent in the 1990s compared to more than 3 per cent for the 1960s and 1970s.

This paper uses a unique panel data set, for 19 Latin American and 25 transition economies yearly from 1989 to 2004 to investigate the main determinants of FDI.[6] We pay special attention to the role of structural reforms. Investment decisions in emerging markets are influenced by economic and political risks. Successful implementation of economic reforms by the host government is a positive signal to foreign investors (in terms of its commitment and credibility) and it implies less investment risk. One main contribution of this paper is the construction of various structural reform indicators that: (a) are comparable across countries in more than one region, (b) are consistently defined over time, and (c) try to isolate reform efforts from reform outcomes.

Our principal finding is that of a strong econometric relationship from structural reforms to FDI. Among the reforms we consider, we find stronger effects from financial and privatization reforms than from trade liberalization. Moreover, we find that the effect of financial reform on FDI is substantially more important than that of privatization, suggesting that foreign investors do value highly a host country's financial system that is able to allocate capital efficiently, monitor firms, ameliorate, diversify and share risk, and ultimately mobilize savings. In addition to financial and privatization reforms, we also find that foreign investors are attracted to countries with higher levels of economic development and infrastructure. We find that these results are robust to different measures of FDI, reform, different estimators, split samples, measurement error, endogeneity and potential omitted variables bias. Last, but not least, an important recent development in the literature is the incorporation of institutional quality in the modeling of the FDI location determinants. We control for various aspects of

[6] There are numerous papers examining FDI inflows in Latin American and in transition economies, separately. For Latin American countries see, among others, De Gregorio (1992), Trevino et al. (2002) and Bengoa and Sanchez-Robles (2003). For transition economies, see among others, Bevan and Estrin (2000), Garibaldi at al (2001), and Resmini (2000).

institutional development and our results are in line with those put forward, among others, by Alfaro et al. (2004), Bevan et al. (2004) and Gastanaga et al. (1998).[7]

It is our view that the literature has not yet fully investigated the relationship between structural reforms and FDI in large part because of the lack of satisfactory measures of structural reforms that are comparable over time as well as across regions. In this light, we base our measure of trade liberalization on tariff levels and their dispersion for 6000 products (per year per country).[8] Regarding financial liberalization, we construct a set of measures that range from indicators of financial development to measures closer to the actual reform effort of the government in this regard. This allows us to differentiate reform efforts from reform outcomes and we find categorically that only the former helps explain the variation of FDI across countries over time.[9] Finally, our privatization measure is constructed on the basis of a data set that contains information on the revenues that each privatized enterprise generated for the government (per year and restricted to transactions above USD 50,000), for all Latin American and transition economies. One obvious concern in this case is that the relationship we uncover is spurious because of the perception that most of the privatizations that took place in Latin America and in the transition economies comprise the selling of state owned enterprises to foreign investors.[10] This suspicion may be justified because of the better-known

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[7] Alfaro et al. (2004) present cross-sectional (long-term) results, while Bevan et al. (2004) focus only on the transition economies. Our paper differs from Gastanaga et al. (1998) in that we look at fewer reforms in fewer regions (although our samples are of approximately the same size) but we use measures of reform that try to separate reform inputs to reform outcomes and examine the effects of reform controlling for a richer set of standard determinants. It is also noteworthy that Gastanaga et al. (1998) argue that panel results on the relationship between reform and FDI tend to differ significantly from those from pure cross-section analysis. We also find support for this notion in the sense that the results for our institutional measures tend to be much stronger in the cross-section than in the panel.

[8] One drawback from our measure is that it does not reflect non-tariff barriers and other features of the liberalization process. The latter are still often captured with broad categorical variables, both at the country (Wacziarg and Seldom, 2003) and firm levels (Pavchik, 2002).

[9] This distinction also applies to trade liberalization. We think that trade openness is a measure of reform outcome, while actual tariffs and their dispersion are a better measure of government reform efforts.

[10] For the transition economies, Campos and Horvath (2006) find that although FDI inflows do not help explain privatization efforts, they do help explain privatization reversals.

privatization transactions (namely the sales of telecommunication companies in Latin America and in transition economies[11]). Our data set also contains information that allow us to try to identify whether or not the buyer is foreigner. Therefore, we construct an additional data series of government revenues from privatization that exclude all those transactions with a foreign buyer. All our main results remain robust (including that for the role of privatization), which suggest that the link between reform (in this case privatization) and FDI inflows is not spurious in this sense.

The paper is organized as follows. The next section is dedicated to our econometric model: we discuss briefly the underlying theoretical framework on the determinants of FDI inflows, expand on our choice of estimation method and relate it to the rest of the empirical literature. Section III describes in detail the construction of the variables used to examine the determinants of FDI, with particular emphasis on our measures of structural reform (the indexes of trade liberalization, privatization and financial reform). Section IV reports our main econometric results and sensitivity checks. Section V concludes the paper and outlines directions for future research.

II. Modeling FDI Inflows

The objective of this section is to provide details of our econometric model and spell out how it relates to the existing literature.

There has been a vast literature on theoretical frameworks on the determinants of FDI. However, there is no generally-accepted model providing the basis for empirical work.[12] One strand of the literature focuses on firm-specific attributes or "intangible assets" as to why the firms chooses to service a foreign market through production abroad, rather than exporting or

[11] For example, Telefonica de Argentina was acquired in 1991 by a consortium led by Citibank, which included Telefonica de Espana, Banco Central de Espana, Bank of Tokyo and Bank of Zurich, while Greece's OTE acquired Armenia's Armintel in 1997.

[12] See Blonigen(2005) for a survey of the literature on FDI determinants.

licensing. They are considered to be the push-factor of FDI. The other strand concerns the locational advantages of the host country that attract FDI, or the pull-factor. This paper focuses on the latter as we examine the comparative advantages of one host country over the others in attracting FDI.

Specifically, this paper studies on three categories of the determinants. First, there are traditional or classical factors such as market size, infrastructure, and macroeconomic environment. Second is the institutional factors. Finally, the host country government's structural reforms may play a significant role in attracting foreign investors especially in emerging economies.

The main reasons for foreign investors to choose a certain investment location can be explained by several motives such as market-seeking and resource-seeking (Lipsey, 2006). If FDI is market-seeking, then a large host country's market size and high growth prospects can be the main drivers of FDI. If it is resource-seeking, FDI is drawn to the location with abundant natural resources. To test for these different hypotheses, we include various classical determinants of FDI as the first set of explanatory variables.

Namely, we measure market size by log of GDP. If investment decisions are of market-seeking nature (i.e. sell in the local market), then we would expect this to be positive. Natural resources endowment may also be an important factor, particularly for resource-driven FDI. We use (log of) the percentage of fuel and natural gas in total exports as a proxy for natural resource dependence. Log GDP per capita captures the level of development across countries, which reflects among other things differences in initial conditions. Inflation is a standard proxy for macroeconomic stability. We expect a negative sign on the coefficient of (log) inflation as low inflation is perceived by foreign investors as a favorable signal and it should lead to more FDI. Sufficient infrastructure is another factor that allures foreign investors to a country. We use (log of) the number of main telephone lines as our

infrastructure variable. Availability of main telephone lines is important to facilitate communication and help integrate the domestic market and, given that other important elements of the national infrastructure (for instance, internet services or computer usages) are often complementary to telephones lines, this variable provides a useful proxy for the overall quality of infrastructure in the host country.

A second set of explanatory variables includes those that are related to structural reforms: financial reform, trade liberalization, and privatization efforts. In the recent literature of capital account liberalization, it is argued that pre-commitment to structural reforms can encourage more stable and longer-term capital inflows to the host country (Forbes, 2006). In our view, these three are some of the most important reforms that help bring in FDI to the host country.

A third set of variables include various measures of institutional quality. A growing body of literature in economic growth emphasizes the role of good economic institutions in promoting higher investment, higher educational attainment, and lower mortality. In the context of FDI, institutions underpin local business operating conditions, but they differ from "physical" supporting factors such as transport and communication infrastructure. Consider, for instance, the context in which a fair, predictable, and expedient judiciary, an efficient bureaucracy and less corruption may help attract FDI. On the other hand, as the recent literature of international trade argues, institutional quality matters to the firm's decision to choose FDI as a mode of entry as opposed to outsourcing because of the hold-up problem (Antras, 2003).[13] If this is indeed the case, poor institutional quality would encourage more FDI, ceteris paribus. Thus, the theories point to two possibilities regarding the role of

[13] The hold-up problem arises when the firms' necessary investments are relationship-specific and it is impossible ex-ante to write complete contracts covering all contingencies between the buyer and seller. In the absence of property right protection, a firm would prefer to engage in vertical integration rather than the arm's length contracts with outside suppliers.

institutions in affecting FDI inflows. Good institutions may increase or decrease FDI inflows depending on the sector and type of FDI the country receives. In the past, data limitations have impeded extensive testing of these ideas, constraining them to focus on just one aspect of the issue, normally corruption. In this paper, we examine an array of institutional features and try to assess their relative importance. The institutional quality variables used in this study are the rule of law, quality of bureaucracy, and executive constraints.

The dependent variable in our model is the log of the share of FDI in GDP.[14] We estimate FDI inflows as a function of a set of potential determinants in a panel setting. To address the potential endogeneity of regressors and to incorporate fixed effects, we report results from the system-GMM estimator from Blundell and Bond (1998). The Blundell-Bond estimator is arguably a superior approach to the Arellano-Bond difference-GMM as adding lagged differenced variables as instruments in the level equations may generate substantial efficiency gains when the time window is relatively short.[15] Another advantage of the system-GMM estimation is to be able to identify the coefficients of time-invariant variables in the level equation.

In our baseline model, we specify FDI as a function of three main groups of variables: a set of classical determinants of FDI, structural reforms and institutional quality. The baseline econometric model is as follows:

$$\begin{aligned} Y_{it} &= \lambda X_{it} + \varepsilon_{it} \\ \varepsilon_{it} &= \eta_i + \gamma_t + u_{it} \end{aligned} \qquad (1)$$

where Y_{it} is FDI to GDP in country i at year t. In addition, η_i contains country-specific attributes, γ_t is a vector of time-specific effects (e.g., time dummies).

[14] Alternatively, we use the log of FDI per worker. The main reason for using FDI per worker is that, in developing countries, large informal sectors are not uncommon which affects the official GDP figures.
[15] The difference-GMM estimator utilizes lagged levels as instruments in the difference equations (Arellano and bond, 1991), whereas the system-GMM estimator uses lagged differences as additional instruments in the level equations.

System GMM also has advantages over the standard IV estimates because as the length of the panel increases, so does the number of valid instruments. For equation (1), valid instruments are lagged levels of dependent variables, Y_{it-s} where $s \geq 2$ and $t = 3,4,...,T$. If X_{it} is strictly exogenous, then ΔX_{it-s} (for all s) can be used as additional instruments to increase the efficiency of the estimates. The validity of instruments is checked by the Sargan test. The second-order correlation of the error term in the first-differenced equation is assessed using Arellano-Bond statistics for autocorrelation, which is asymptotically distributed as N(0,1). When the number of observations is small relative to parameter estimates, we should be attentive to the possibility of small sample bias in the GMM estimation.

III. Data and Measurement: FDI, Reforms and Institutions

In this section, we describe the data set we put together for this paper. As noted, one of the main constributions of the paper is to construct the data by measuring multiple structural reform that are comparable across regions, countries and over time. Our data set covers 19 Latin American and 25 transition economies from 1989 to 2004.[16] We describe the FDI measures, the indexes of financial reform, and of trade liberalization, the privatization index, the various institutional measures (executive constraints, corruption, rule of law and quality of the bureaucracy) as well as the additional controlling variables (such as natural resources, infrastructure, and market size).

[16] The Latin American countries are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, México, Nicaragua, Paraguay, Perú, Uruguay, Venezuela, and Trinidad and Tobago; while the Transition countries are Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

The data on foreign direct investment are from the International Monetary Fund's "International Financial Statistics." These are balance of payments data reflecting capital inflows to acquire a lasting management interest in an enterpise operating in a different economy than that of the investor (where lasting interest is defined in standard fashion as acquiring at least 10% of total ownership).

Figures 1 and 2 show FDI inflows over GDP and FDI inflows per worker, respectively. Firstly, it is interesting to note that throughout the 1990s average FDI inflows (over GDP as well as per worker) to Latin American countries tend to be substantially larger than to transition economies, with this reversing only for two years of our whole period of analysis. For the years up to the East Asian crisis, the behaviour of the two series in the two regions is similar, both showing a rapid increase in FDI inflows. The East Asia crisis of 1997 quickly spilled over to Brazil and Russia (Kaminsky and Reinhart, 2000) but has acquired a different dynamics depending on the region: Figures 1 and 2 show that, in Latin America, FDI inflows come to a halt and have yet to recover in GDP terms although they did recover in 2004 in per worker terms (Calvo, 2003), while for the transition economies these effects seem milder with FDI inflows recovering two years after the crisis. The relatively small dip in 2002 in Latin America coincides with the Argentinean Crisis.

Investment decisions in emerging markets are influenced by economic and political risks. Successful implementation of economic reform by the host government provides a positive signal to investors, as progress towards a stable macroeconomic environment implies less investment risk and uncertainty. Regarding the process of implementation of those structural reforms, our goal was to construct measures that are comparable across regions and over time. The data requirements are high: we need yearly data for a panel of countries from two different regions on a number of reform variables that, for comparability purposes, should

ideally come from the same source.[17] In light of these requirements, we decided to focus on three reform areas: financial sector reform, privatization and trade liberalization.[18]

We construct several indicators for financial sector reform.[19] The source of our data is the recently updated (February 2006 version) World Bank's *Financial Structure Dataset* (Beck et al., 2000).[20] This data set has been widely used in the financial liberalization literature as a main source for financial reform indicators. The first indicator reflects overall financial development and the second reflects the efficiency of the banking sector. Notice that only the second indicator corresponds to reform efforts (inputs), while the first one is better at capturing overall reform outcomes. This should help us investigate how important it actually is to try to differentiate between inputs and outcomes.[21]

The three underlying variables for the first financial reform index are the ratio of liquid liabilities to GDP, based on the liquid liabilities of the financial system (currency plus demand and interest-bearing liabilities of bank and non-bank financial intermediaries); the ratio to GDP of credit issued to the private sector by banks and other financial intermediaries; and the ratio of commercial bank assets to the sum of commercial bank assets and central bank assets. We generated two versions of this index: one is an arithmetic average of the normalized values (more details shown below) of these three variables, and the second is

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[17] Notice this rules out a number of options, such as the European Bank for Reconstruction and Development (EBRD) and Inter-American Development Bank Annual reports.

[18] We started out with the following set of reforms in mind: financial sector reform, privatization, trade liberalization, tax reform, labor market reform, and changes in the regulatory framework (the latter, along the lines of the World Bank's Doing Business project). Yet, data availability forced us to focus only on these three reforms.

[19] We also constructed another measure of financial liberalization based on stock capitalization, which was not used in the regressions.

[20] Available at http://econ.worldbank.org/staff/tbeck

[21] These two indexes are also helpful in distilling different interpretations of the effects of financial reform. The underdevelopment of financial markets may encourage FDI inflows in search of monopoly power, or financial market deregulations may be taken as a credible signal of a host government committed to economic reforms (e.g. multinational firms seldom depend on the host country's financial markets to raise

(continued…)

based solely on the ratio of commercial bank assets to the sum of commercial bank assets and central bank assets.

In order to normalize our reform measures into indices that reflect the strengthening of the operation of the market, we use the procedure suggested by Lora (1998), which involves subtracting each value from the series maximum and dividing this by the series range (maximum minus minimum value) which yields values between 0 and 1 scale (with 1 indicating the maximum in-sample level of reform):

$$I_i = \frac{1}{m_i}\frac{1}{n_i}\sum_{j=1}^{m_i}\sum_{t=1}^{n_i}\left[\frac{(V_{j\max} - V_{jit})}{V_{j\max} - V_{j\min}}\right] \qquad (2)$$

where V is a value of j-th variable in i-th country in time t, n stands for the number of the years and m for the number of variables. One main advantage of such transformation is that it allows our reform series to be measured over the same scale. Another advantage is that the reference point is the maximum in-sample value which changes over time (that is, it is not bound from above and does not refer to some idealized perfectly-functioning market economy). Notice we apply this normalization to all of our reform indexes below.

Our second index of financial reform measures the efficiency of financial intermediation and it is built upon two variables: the ratio of overhead costs to total bank assets and the "net interest margin" which equals the difference between bank interest income and interest expenses, divided by total assets. Because larger values of these two variables are associated with a more inefficient financial sector, we adjusted the normalization above (in the numerator we subtracts the actual value from the minimum instead), so that the resulting

finance). In the next section, we report that the second index is significant suggesting more weight should be given to the second explanation.

figures read in tandem with our other reform indicators (larger values indicating more efficient financial intermediation). [22]

Figures 3 and 4 show these financial reform indexes over time for the two regions. As expected, they reveal different aspects of financial reform. From Figure 3, financial reform as overall financial development was relatively more intense in the transition economies than in Latin America from 1989 to the mid-1990s, with the situation reversing after that (except for the post 2001 years). Regarding our indicator of the efficiency of the financial sector, Figure 4 shows that the transition economies were catching-up with their Latin American counterparts until at least the middle of the decade, and after that point our index reveals that average efficiency in financial systems in transition economies surpasses those in Latin America.

The relationship between trade liberalization and FDI inflows is less straightforward. If trade flows are complements to FDI flows,[23] then we should expect more FDI should be attracted to the countries with more liberalized trade regimes. On the other hand, if FDI is basically intended for tariff-jumping purposes, more restrictive trade regimes may be able to attract more FDI. In terms of measuring trade liberalization, we construct an index based on two variables: average tariff rates and tariff dispersion. We use data from the World Bank-UNCTAD's WITS system, for about 6,000 HS-6 digit product groups to calculate the trade-weighted average tariff and standard deviations, yearly and for each of the 44 countries in our sample. At this point we should stress that we are aware of the rich literature on the construction of indexes of the restrictiveness of trade policy (e.g., Kee et al. 2006) as well as

[22] We also generate a third index of financial reform measuring of the level of stock-market based financial development (as opposed to the more traditional, bank-based indicator described above). This was constructed upon three variables: (a) the ratio of stock market capitalization to GDP, (b) the total value traded: the ratio of trades in domestic shares (on domestic exchanges) to GDP, and (c) the turnover ratio, which is the ratio of trades in domestic shares to market capitalization. As the results turn out to be similar to the ones for the first financial development index, we refrain from reporting them for the sake of space.
[23] See Caves (1996) and Singh and Jun (1996) for complementarity between trade and FDI. See also Blonigen et al. (2004) for tariff-jumping argument.

of the various criticisms and the long controversy surrounding this topic (see e.g. Rodrik and Rodriguez, 2002). This said, and in light of our data requirements, we choose to follow other studies in which trade reform is measured in this way and compared to other structural reforms. The first is Lora (2001), which cover the Latin American countries until 2000, and the other is the Heritage Foundation's *Economic Freedom of the World* project (Gwartney, Lawson and Samida, 2000), which covers most of the countries in our sample for years 1985, 1990, 1995, 2000, and yearly after 2000. Both Lora and *Economic Freedom of the World* measure trade reform as a combination of average tariff levels and tariff dispersion across a large number of products and/or sectors. We thus adopt this idea to construct our own index of trade reform using the above mentioned UNCTAD data. However, in constructing our indicator, we faced missing data for some Latin American countries (especially for the most recent years) as well as for a few transition economies (especially for the earlier years). In order to improve data coverage, we supplemented the UNCTAD data with data from Lora and *Economic Freedom of the World*.[24] Once these were obtained, we applied the normalization above and took the arithmetic average of the two variables to generate an overall trade reform indicator.

Figure 5 shows the behavior of trade liberalization efforts over time. As it can be seen, our measure suggests that this dynamics was similar in the two regions over this time period, showing an almost continuous process of successive reduction of tariff levels as well as of their dispersion. Despite the very high levels of reform attained in the two regions, our indexes suggest that the extent of trade openness in Latin America has gone somewhat further than that in the transition economies.

[24] For the transition economies subsample, this supplementation still left missing values so we used the one-year ahead annual value of imports to estimate the missing observations in the two series (tariff averages and their standard deviation).

The measure of privatization reform efforts is based on recently constructed data on privatization proceeds by the World Bank (Kikeri and Kolo, 2005). This provides detailed information on all privatization transactions across developing countries between 1990 and 2003. Privatization proceeds are defined as "all monetary receipts to the government resulting from partial and full divestitures (via asset sales or sale of shares), concessions, leases, and other arrangements" (2005, p.2). Notice that this excludes management contracts, new green-field investments and investments committed by new private operators as part of concession agreements. More importantly for our purposes, these data also do not reflect "voucher" privatization programs as these methods tend to generate little revenues for the government. Although this bias our privatization index downwards, we note that there are few Eastern European countries that carried out extensive voucher privatization programs (notably, Czech Republic and Russia) and further that the choice of privatization methods has changed over time. In Russia, for example, voucher privatization was followed in the mid-1990s by the loans-for-shares scheme which was abandoned in late 1990s in favor of a case-by-case privatization program (see, e.g., Bennett et al., 2004). On this basis, we believe this bias is not severe enough to discard this comprehensive and internationally-comparable source.[25]

The privatization index results from aggregating privatization proceeds from the World Bank data for every country in our sample country per year, and applying the normalization described above. Figure 6 shows these figures over time for the two regions. Note that: (a) with the exception of 1996 and 1997, our index suggests that privatization efforts were broadly comparable across the two regions, (b) somewhat surprisingly privatization efforts were more intense in Latin America than in Eastern Europe in the first

[25] Available at http://rru.worldbank.org/Privatization/. As noted, our data set also contains information on whether or not the buyer is foreigner (company, individual or consortium). Thus, we also construct a data series of government revenues from privatization that exclude all those transactions with a foreign buyer. All our main results below remain (including that for the role of privatization), which suggest that the link between reform (in this case privatization) and FDI inflows is not spurious in this sense.

half of the 1990s, (c) privatization efforts as measured by proceeds are more volatile in Latin America (than in the transition economies), and (d) there is a noticeable slow down of privatization activity after 1998 in the two regions but particularly so in Latin America (Kikeri and Kolo, 2005, show that this trend also emerges in other regions and is thus not restricted to the two regions of interest here).

One important concern in constructing these reform measures is to try not to confuse reform *efforts* with reform *outcomes*.[26] For instance, in discussions of trade liberalization reform efforts based upon indicators of trade openness are common. Yet improvements in trade openness can be generated by myriad of reasons other than attendant changes in trade policy (for instance, it can be driven by exchange rate movements, technological change, climate shocks, unilateral changes in trade policy stances of major trading partners, and so on and so forth). A similar case can be made for privatization and financial reform: consider the use of the share of private sector in GDP for the former, and the use of proxies for financial development in the latter. With this concern in mind, we put forward the notion that one of the main advantages of our reform indexes is that they explicitly try to isolate the effect of reform efforts from that of reform outcomes, and mostly capture the former. We feel confident that this is particularly true for the trade liberalizations and privatization measures. As mentioned, we believe that our overall financial reform index and our stock-market development measure are not input-only measures of reform (although we argue that this is not the case with respect to our index of the efficiency of financial intermediation).

Host country institutions also influence investment decisions, because they directly affect business operating conditions. The cost of investment consists not only of economic costs, but also includes non-economic costs, such as bribery and time lost in dealing with

[26] Rodrik (2005) and Loayza and Soto (2004) also make this important point.

bureaucracy and local authorities. To assess the institutional aspects of business operation conditions in the host country, we use two main data sources: Polity IV and the International Country Risk Guide (ICRG).[27] From Polity IV, we use the extent of constraints on the executive power and the actual number of years the current regime has been in power (*xconst* and *durable*, respectively in the original sources). These measures have been used widely in the economics literature (e.g., Acemoglu et al. 2001). From the ICRG, we use the indexes of quality of the bureaucracy and the rule of law.[28] These measures have also been used extensively in the economics literature (see e.g. Gelos and Wei, 2005). The former is a 1 to 4 indicator reflecting the "autonomy from political pressure, institutional strength and quality of the bureaucracy" with higher ratings indicating a better bureaucracy along these lines. Also note that this measure is somewhat close to the corruption measure used by Wei (2000a, 2000b). High values for this variable implies good quality of bureaucracy and, thus, a lower cost for foreign investors as an honest government with transparent regulations is probably less likely to ask for bribes and side payments. The indicator for the rule of law (originally in ICRG called "law and order") is coded from 1 to 6 with higher ratings reflecting the effectiveness of the legal system ("each sub-component equals half of the total. The "law" sub-component assesses the strength and impartiality of the legal system and the "order" sub-component assesses popular observance of the law.") A higher score in the rule of law implies better legal institutions. We expect that countries with better legal infrastructure will be able to attract more FDI, everything else the same.

Maybe not surprisingly, executive constraints seem to have been more effective in Latin America than in the transition economies throughout the period of analysis. The Latin

[27] Available at http://www.cidcm.umd.edu/inscr/polity/ and http://www.icrgonline.com/, respectively.
[28] Notice that below we do not report results on durable from Polity IV for the sake of space. We have assessed other institutional dimensions from ICRG such as their measure of corruption, of government stability and of political and economic risks but for space reasons also do not discuss these results as they are similar to the ones we report.

America average is closer to the maximum category (which is seven) and indicates almost perfect parity of the executive with the other powers (legislative and judiciary), while the average for the transition economies is somewhat lower indicating only "substantial limitations on executive authority." The rapid implementation of political reforms in the transition economies can be seen by the imposition of constraints on the executive (which was virtually unconstrained under communism) which in our data is reflected in its brisk change between 1989 and 1990 for this region. Regarding rule of law**,** transition economies score better than Latin American ones throughout our period of analysis. In both regions we can see a slight improvement in this regard between 1992 and 1998 but the values at the end of the period return to their 1989 levels. Finally, the ICRG's quality of the bureaucracy generates a slightly different picture: although until 1997, transition economies seem to have better bureaucracies than Latin American countries, from 1998 onwards these indexes overlap. This arguably reflects, on the one hand, successful public sector reforms in Latin America and cuts in government expenditures in transition economies. The lesson we take from these three series is that different dimensions of institutional development behave differently not only across regions but also over time.[29]

Investors choose a location for their investment according to the expected profitability associated with the various potential locations. Profitability of investment is in turn affected by various country-specific factors and by the motives for each type of investment. For example, market-seeking investors will be attracted to a country with a large and fast-growing local market. Resource-seeking investors will favor a country with abundant natural resources, everything else constant. Efficiency-seeking investors will weigh more heavily geographical proximity to the home country, to minimize transportation costs. Thus, the

[29] Appendix Tables 1 and 2 report summary statistics and the correlation matrix, respectively. As it can be clearly seen from the latter, the correlations among our institutional variables are low.

location of FDI is closely related to a country's comparative advantage, which in turn affects the expected profitability of investment. The classical sources of comparative advantage are input prices, market size, growth of the market, and the abundance of natural resources. Market-seeking FDI is mostly to serve the host country market. Market size is a measure of the size of potential demand in the host country. We expect FDI inflows (per worker and over GDP) to be greater in countries with larger domestic markets. For a proxy market size, we follow the literature and use Gross Domestic Product (in PPP terms), while the level of development is proxied by the level of real per capita GDP. The source of these two series is the IMF World Economic Outlook (WEO) database.

One indicator of a stable macroeconomic environment is price stability. Low inflation and prudent fiscal policies signal to investors the extent of government commitment and credibility. To proxy for stability, we use annual average inflation rates (from IMF WEO). Many transition and Latin American countries experienced high inflation after liberalizing prices in the late 1980s and early 1990s. Those countries that embarked on stabilization programs succeeded in bringing inflation under control rapidly. In this light, the lower the average inflation rate is in the host country, the more successful was the stabilization program and the faster GDP growth returned. Thus, we expect that foreign investment, ceteris paribus, will be attracted to countries with lower inflation rates. Also from IMF's World Economic Outlook(WEO), we construct a measure of natural resources dependence which is the percentage of oil and natural gas in total exports. Countries that are natural resources abundant may attract foreign investment in those industries, possibly diverting investment from the manufacturing sector.[30]

Good infrastructure is an important factor for foreign investors to operate successfully,

[30] Gyfason and Zoega (2001) find that abundant natural resources may crowd out physical capital and inhibit economic growth. See also Robinson, Torvik, and Verdier (2002).

regardless of the type of FDI. Availability of main telephone lines is necessary to facilitate communication and we draw this information from the World Bank's World Development Indicators (WDI).[31]

IV. The Results

The objective of this section is to identify what factors explain the distribution of FDI across Latin American and transition economies for the period of 1989-2004. The novelty of our study is to explicitly introduce structural reforms and institutions as determinants of FDI. We argue that the omission of such factors may bias existing results.

Baseline results

Table 1 reports the regression results from the system-GMM due to Blundell and Bond(1998). One main advantage of this estimator is that it addresses the potential endogeneity of regressors, minimizes measurement error and takes into account unobserved fixed effects. The system we estimate comprises the difference equation instrumented with lagged levels as in the difference-GMM estimator as well as the level equation which is estimated using lagged differences as instruments. The dependent variable is the ratio of FDI to GDP.

As shown in columns 1 and 2, the results on the classical determinants of FDI are mostly consistent with the existing literature. Higher level of per capita income, stable macroeconomic environement (low inflation), and sufficient infrastructure are positively related to FDI inflows. Resource abundance is another driver for FDI inflows in the region as seen in a positive and significant coefficient on log(fuel). However, it is important to note that market size proxied by log(GDP) fails to bear statistical significance and carries a negative sign. This implies that affiliate production in the host country is not necessarily intended for

[31] One alternative for the infrastructure variable is the percentage of paved roads in the country. But this
(continued…)

local sale but rather for export-platform. This is consistent with the findings in recent studies that vertical FDI is becoming more common than horizontal FDI. [32] Alternatively, it might be the case that foreign investors are in search of monopoly power (Detragiache and others, 2005) and that they do not care about the domestic market size.

In columns 3 through 7, we include three institutional quality variables as well as four structural reform variables. Columns 6 and 7 report results for two subsets of the countries, Latin American countries (LACs) and transition economies (TEs), respectively. For institutional quality, quality of bureaucracy consistently has a positive impact on FDI inflows for all countries while its statistical significance diminishes for the region-wise regressions in the last two columns. The coefficients of executive constraints and rule of law are positive as expected, although they often fail to bear statistical significance. It is worth noting that rule of law is quite important for LACs (column 6), while quality of bureacracy is the most important institutional quality for foreign direct investors in TEs (column 7).

Turning to structural reform variables, we report that the coefficients on privatization and financial reform, particularly the measure of bank efficiency are both positive and statistically significant for all countries.

The importance of a well-developed financial market is often cited as one of the prerequisites for economic growth. Specifically for FDI, the study by Alfaro and others(2004) finds that well-developed financial markets allow significant gains from FDI on economic development.[33] In our regressions, overall financial development is related closely to their financial market variable.

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variable can be misleading in developing countries: if there is one main road in the country and it is paved, then the value for this will be 100. Thus, large values may not necessarily indicate better infrastructure.

[32] Hanson and others (2001) and Grossman and Helpman (2003).

[33] In their study, the variables used for financial market development are based on private credits to GDP, credit by deposit money banks to the private sector as a share of GDP, liquidity liabilities of the financial

(continued…)

The results show that the overall indicator of financial development of the host country may not matter much to foreign investors but they are more concerned with the efficiency of the banking sector as shown in positive and large coefficients of bank efficiency.

Privatization measure is based on information from all privatization transactions above USD 50,000. That is, it contains the data on total revenues that privatized enterprise generated for the government per year. One concern is that the relationship we uncover is spurious because most of the privatizations that took place in these emerging economies comprise the selling of state owned enterprises to foreigners. Our data set also contains information on whether or not the buyer is a foreigner (company, individual or consortium). We construct an additional data series of government revenues from privatization that exclude all those transactions with a foreign buyer. All our main results remain (including that for the role of privatization), which suggest that the link between greater private sector involvement (e.g. privatization) and FDI inflows is not spurious in this sense.[34]

We also run the regressions excluding Russia and the Czech Republic that were heavily reliant on vouchers. Unlike other countries in the sample, due to voucher privatization, they received little privatization revenue. However, the results are insensitive to the exclusion of the two countries.

Interestingly, the difference between LACs and TEs is seen in trade liberalization. The progress of trade liberalization is an impetus to FDI inflows only in LACs, but not inTEs.

Decomposition of the financial sector reforms on FDI

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system (currency plus demand deposits), ratio of commercial bank domestic assets divided by total bank assets.

[34] We also find no evidence of Granger-causality between our privatization index and FDI inflows (over GDP or per worker). These results are also available from the authors upon request.

The previous table shows that an efficient banking sector helps the country attract more FDI inflows. One might argue that two indicators of financial sector reform (overall financial development and bank efficiency) reflect the *level* of financial development rather than reform efforts. Thus, our results might simply indicate that FDI is attracted to the country with a financial market that had been already well-developed. Is this is indeed the case, financial sector reforms themselves may not matter to foreign investment decisions.

In order to test if policy *changes* encourage more FDI inflows rather than the level of financial development, we add more variables of financial sector reforms from the alternative data source.[35] One drawback is that we lose quite a few observations. Nevertheless, this would serve us a robustness check on the importance of structural reforms in the financial sector in explaining FDI inflows.

Eight additional financial reform variables are shaded in gray. The definitions of these variables are found in Appendix 2. Financial liberalization index is an overall average of seven financial reform variables. Note that we also included overall financial development to control for the current level of financial sector development.

Columns 1 to 7 report the coefficients on each component of the financial reform variables when included separately in the regressions. They report that the ones that are associated with higher FDI inflows are *supervision, creditceilings*, and *secruitiesmarkets*. That is, FDI is attracted to a country with less restrictions on the expansion of bank credits, greater supervision over the banking sector, and more liberalized securities markets.

Columns 8 to 10 report the results when we include *financial liberalization index* (the composite of all financial reform variables). For all countries, *financial liberalization index* is positive and significant. The same result holds for TEs. However, *financial liberalization*

[35] Abiad, Detragiache, and Tressel, forthcoming, "A New Database of Financial Reforms".

index is no longer important for LACs. We also tried with each of the financial reform variables but they mostly fail to bear statistical significance.[36] For LACs, not financial sector reforms but privatization is a driving force behind FDI inflows.

In sum, the efforts of developing a well-functioning financial sector do indeed encourage more FDI inflows even after controlling for the current level of financial development: the progress in structural reforms in the financial sector can send a good signal to foreign investors even if overall financial depth is not yet deep.

We found that financial sector reforms are an important driver for FDI. But could the causality run the opposite direction? That is, does FDI itself promote the efficiency of financial sector rather than being attracted with an efficient financial sector?
Although it is not possible to distinguish FDI inflows in the financial sector and in the non-financial sector, we have the data on the share of foreign ownership in the financial sector. [37] In Table 3, we divided the sample into two subgroups, *nonfinancial FDI* and *financial FDI*. If the observation has a major foreign share (greater than 20%), then it is classified as *financialFDI*. If a foreign share is less than 20%, it is grouped as *nonfinancial FDI*.

The results in the first two columns show that, for all countries, *financial liberalization index* remains to be significant only for the countries with large foreign presence in the financial sector. Together with the insignificance of *overall financial development,* it implies that the policies to liberalize the financial markets rather than the level of financial development are more important for FDI inflows particularly when the country receives much FDI in the financial sector. In region-wise regressions, the difference between nonfinancial and financial FDI disappears both for LACs and TEs. However, we need caution

[36] Results available upon request.

[37] Data was drawn from BankScope.

in interpreting the region-wise results as this can be due to a paucity of sufficient number of observations.

Robustness checks

So far we find that institutional qualities have a limited impact on FDI inflows in the data. Namely, the quality of bureaucracy seems to play a role in attracting FDI for all countries while rule of law is only important for LACs. As it is well-known that the institutional variables tend to be closely related with one another, the inclusion of all institution variables at once might make it difficult to see which institutional attribute is more important.[38]

In Table 4, we include the institutional variables one at a time to address this issue. In addition, we include other institutional variables such as corruption, political risk, and indicator of polity durability. The aspects of institutional qualities that are closely related to FDI inflows are bureaucracy and executive constraints. Durability is another important factor. Rule of law remains statistically insignificant (column 3). We did the same sensitivity analysis for both region groups, LACs and TEs and the baseline results remain robust: in LACs, rule of law is the only institutional variable that matters. In TEs, the quality of bureaucracy is the only variable with significance.

Another sensitivity analysis is carried out for the infrastructure variable. In the baseline regressions, we use the number of main telephone lines as a proxy for communication technology. One might argue that fixed telephone lines lose its importance for countries that are modernized enough to take advantage of cellular networks. Though we do not have that information in the data, alternatively, we use the number of computers per 1000

[38] The correlation coefficients among institutional variables are not so large. See Appendix 2.

people. As seen in Table 5, the main results hold by replacing telephone lines with computers: the country with sufficient provisions of infrastructure attracts FDI. [39]

In sum, our main findings on structural reforms and institutions withstand robustness tests. We find that the efficiency of the banking sector and privatization are two areas of structural reforms important for FDI investors. Good institutions also play a role via the quality of bureacracy and rule of law for TEs and LACs, respectively.

V. Conclusions

Since the late 1980s, structural reforms have been implemented in unparalleled scale across the developing world while foreign direct investment (FDI) became one of the main components of private capital flows. The literature has not yet fully investigated their relationship in large part, we posit, because of the lack of measures of structural reforms, satisfactorily comparable over time and across regions. More recently, the literature has given weight to the identification of possible channels through which FDI may be made more effective such as a minimum (threshold) level of human capital in the host country (Borenstein et al. 1998). The implementation of structural reforms can work in similar way as their stated goal is to improve business conditions and the investment climate. The literature is fast making progress in this direction in that it has investigated the potential effects of selective individual reforms. One contribution of this paper is to go beyond the identification of the effects of selective individual reforms and try to provide a more comprehensive assessment of these links by asking which reforms matter vis-à-vis FDI and whether the effects of reform efforts differ in systematic ways from reform outcomes as well as from other

[39] We also included the uses of internet as a proxy for infrastructure but the number of observations drops significantly due to missing observations. Results available upon request.

standard FDI determinants. We do so using a new data set for a panel of 19 Latin American and 25 transition economies from 1989 to 2003.

Our main finding is a robust empirical relationship from structural reforms to FDI. Also, we find stronger effects from financial and privatization reforms than from trade liberalization. Finally, where we had measures of both reform efforts and reform outcomes (e.g. financial reform), we find that the effect of reform *outcomes* is fragile (in terms of the overall degree of financial development), while that of reform *efforts* tend to be more powerful: we conclude that this set of determinants of FDI inflows - financial reform, privatization, level of development and quality of the infrastructure- is robust to different measures of FDI, different measures of reform, different estimators, measurement error, split samples, and potential endogeneity and omitted variables biases.

We highlight three suggestions for future research. One is that it would be interesting to assess whether our findings hold as well for developed and for other groups of developing countries (Africa, Middle East and Asia), although this would require a substantial data collection effort. Second, our period of analysis may be too short to try to identify the long-term implications of our findings. Yet this is an important task because the literature has qualified the impact of FDI on growth and our results open the possibility that structural reforms may be useful in recovering that impact if they are found to have a direct and/or an indirect (through FDI) effect on say economic growth. Third, as mentioned above, our choice of reforms was constrained by data availability so future research would do well in assessing the effects of an even broader range of structural reforms that could include labor market liberalization, tax policy, as well as changes in the regulatory framework.

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Figure 1.
Foreign Direct Investment Inflows over GDP (both in constant USD billions),
Latin American and Transition economies, 1989-2004

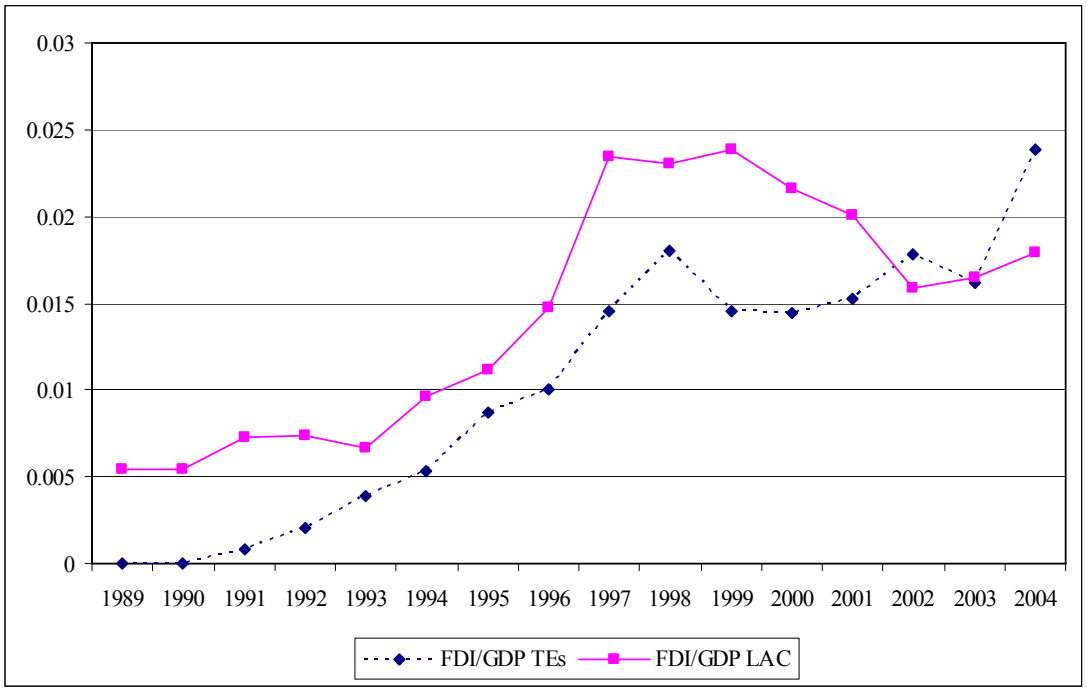

Figure 2.
Foreign Direct Investment Inflows (in constant USD billions) per Worker,
Latin American and Transition economies, 1989-2004

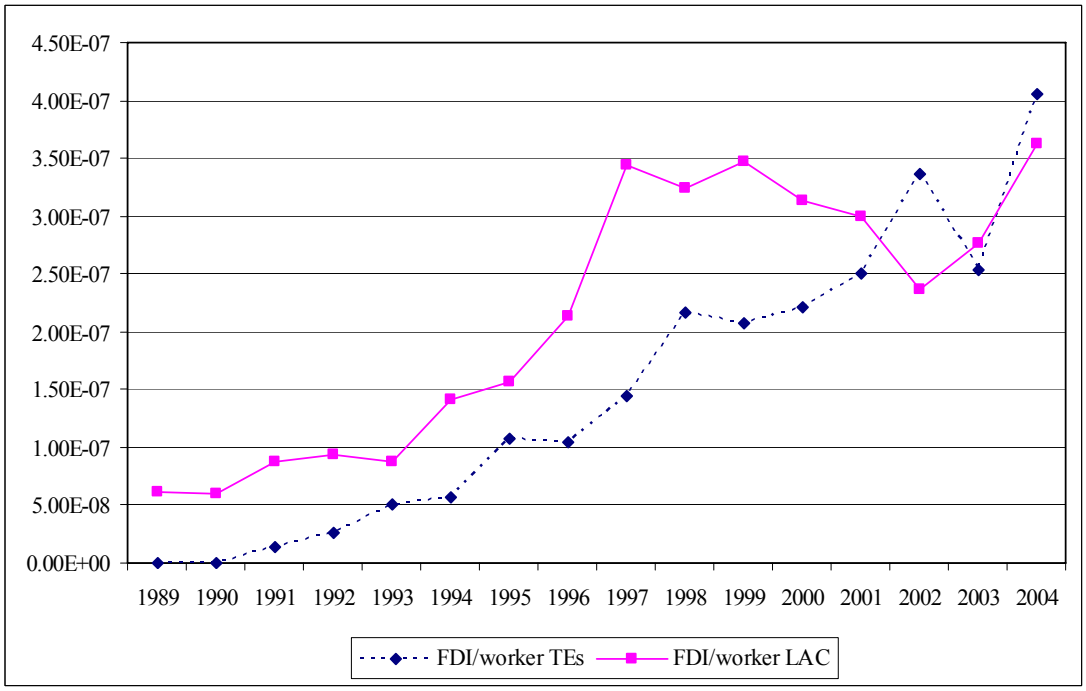

Figure 3.
Overall Financial Reform Index (fd1b)

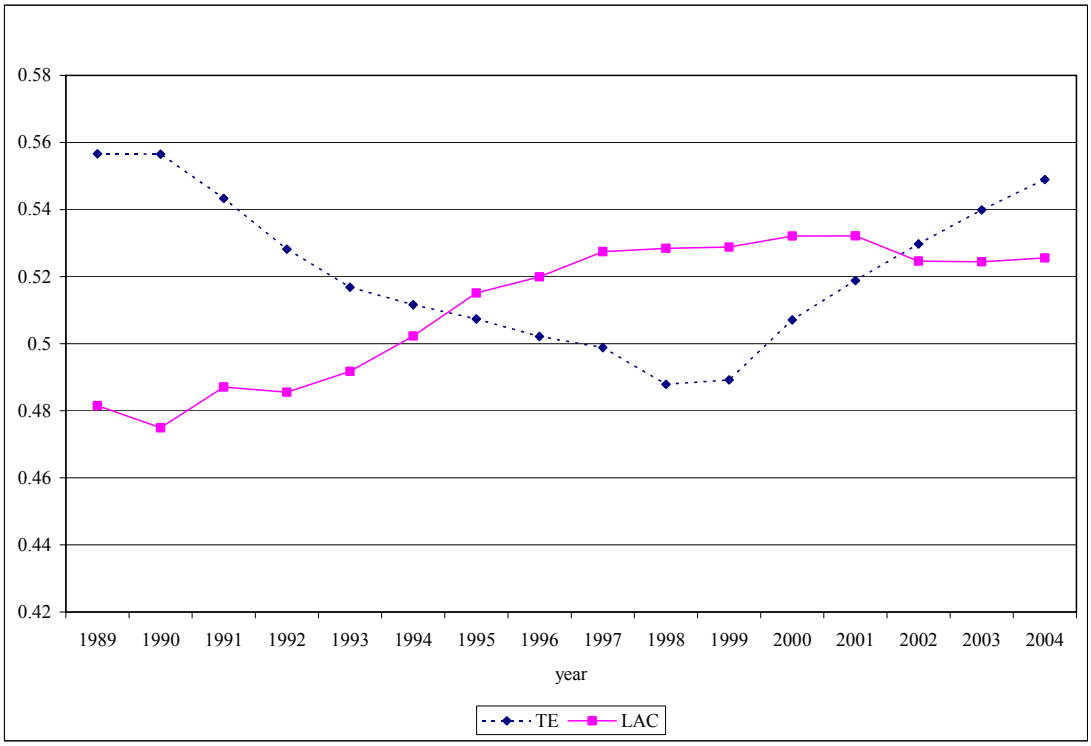

Figure 4.
Index of Efficiency of Financial Intermediation

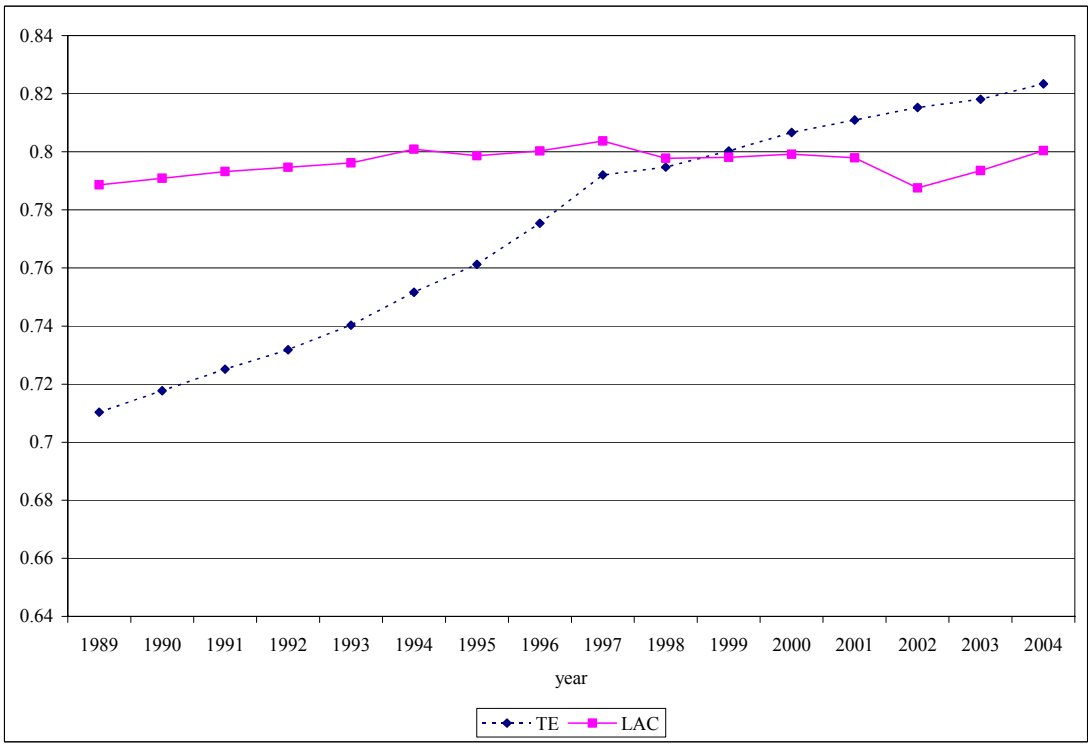

Figure 5 Trade Liberalization Index

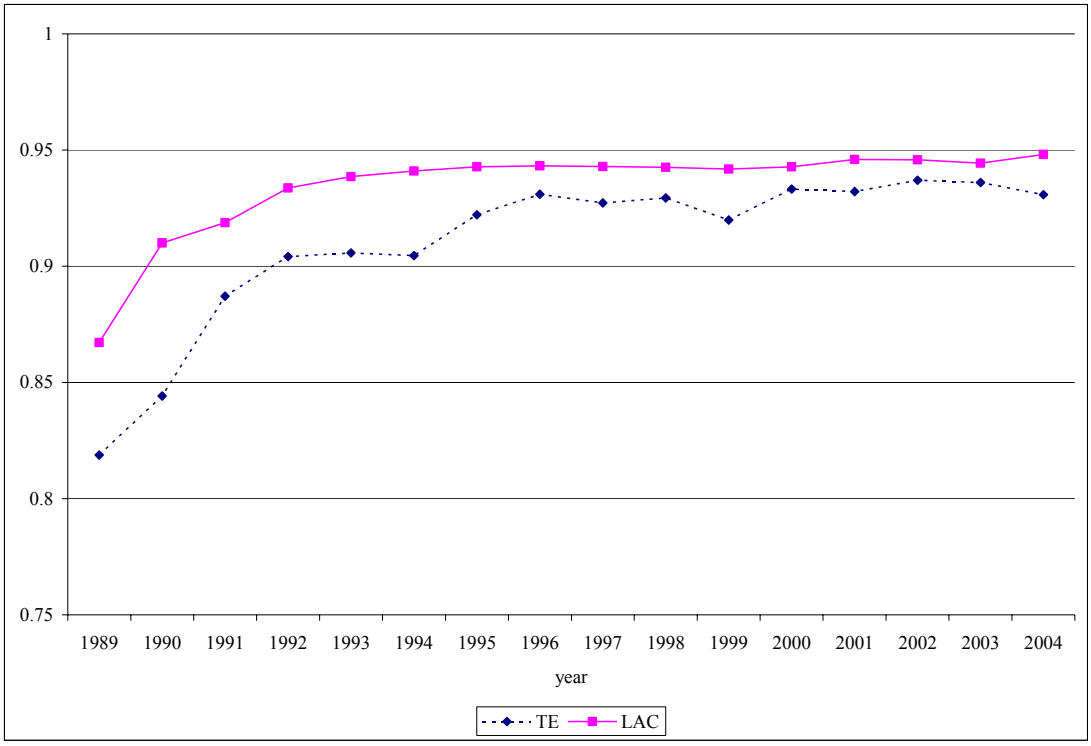

Figure 6. Privatization Index

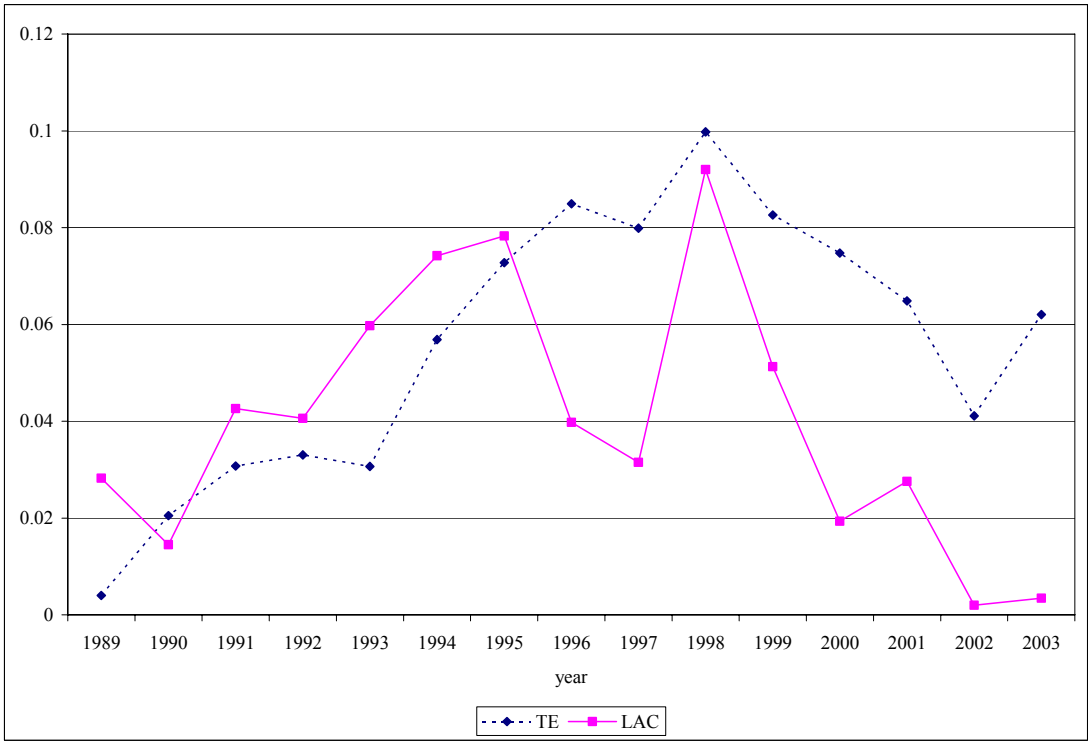

Table 1. Determinants of FDI: Baseline model
Dependent variable = log(FDI/GDP)

	1	2	3	4	5	6	7
	ALL	ALL	ALL	ALL	ALL	LAC	TE
log(GDP)	-0.167***	-0.515***	-0.432***	-0.413***	-0.383***	-1.161***	-0.622***
	[0.041]	[0.096]	[0.097]	[0.098]	[0.096]	[0.17]	[0.17]
log(GDP per capita)	0.499***	0.473***	0.271***	0.285***	0.218**	-0.269**	0.17
	[0.075]	[0.073]	[0.089]	[0.093]	[0.090]	[0.13]	[0.19]
log(inflation)	-0.237***	-0.176***	-0.180***	-0.139***	-0.153***	-0.101**	-0.0777
	[0.035]	[0.035]	[0.034]	[0.039]	[0.038]	[0.050]	[0.052]
log(telephone lines)		0.341***	0.252***	0.274***	0.259***	1.192***	0.460***
		[0.090]	[0.092]	[0.092]	[0.091]	[0.18]	[0.15]
log(fuel)		0.0513*	0.0734***	0.0817***	0.0570**	0.0645**	0.0357
		[0.028]	[0.028]	[0.028]	[0.027]	[0.028]	[0.069]
Qual. of Bureaucracy			0.216***	0.165**	0.155**	0.0266	0.185
			[0.074]	[0.077]	[0.078]	[0.10]	[0.14]
Executive constraints			0.0316	0.0376	0.0851*	-0.152**	0.074
			[0.039]	[0.041]	[0.047]	[0.077]	[0.064]
Rule of Law			0.0389	0.0343	0.0241	0.349***	-0.0221
			[0.040]	[0.041]	[0.041]	[0.063]	[0.090]
Overall fin. development				-1.105	-1.018	-0.791	0.107
				[0.82]	[0.82]	[1.13]	[1.54]
Bank efficiency				4.485***	3.048**	4.132**	9.180***
				[1.49]	[1.43]	[1.62]	[2.47]
Trade liberalization					1.835	5.582*	-1.796
					[1.47]	[2.88]	[1.62]
Privatization					1.133***	1.410***	1.512***
					[0.37]	[0.51]	[0.47]
Observations	355	315	315	315	298	182	116
Number of ccode	33	33	33	33	31	15	16
Sargan Test	0.55	0.64	0.53	0.66	0.27	0.31	0.18
SOC	0.42	0.46	0.39	0.49	0.21	0.65	0.09

All regressions include a constant term. Standard errors in brackets.
*** , **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Table 2. Determinants of FDI: Decomposition of Financial Liberalization
[Dependent variable = log(FDI/GDP)]

	1	2	3	4	5	6	7	8	9	10
	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	LAC	TE
log(GDP)	-0.475***	-0.297**	-0.417***	-0.393***	-0.432***	-0.615***	-0.356***	-0.335***	-1.489***	-0.486***
	[0.13]	[0.13]	[0.12]	[0.12]	[0.12]	[0.17]	[0.12]	[0.12]	[0.24]	[0.19]
log(GDP per capita)	0.445***	0.407***	0.428***	0.416***	0.366***	1.622***	0.343***	0.363***	-0.239	0.917***
	[0.11]	[0.11]	[0.11]	[0.11]	[0.11]	[0.20]	[0.12]	[0.12]	[0.17]	[0.27]
log(inflation)	-0.187***	-0.137***	-0.164***	-0.166***	-0.181***	0.0133	-0.169***	-0.138***	-0.133**	-0.0144
	[0.036]	[0.041]	[0.037]	[0.038]	[0.035]	[0.043]	[0.036]	[0.042]	[0.056]	[0.051]
log(telephone lines)	0.317**	0.13	0.249**	0.238**	0.253**	0.341**	0.174	0.167	1.524***	0.124
	[0.13]	[0.12]	[0.11]	[0.11]	[0.11]	[0.16]	[0.12]	[0.12]	[0.26]	[0.18]
log(fuel)	0.0893**	0.0849**	0.0639*	0.0734**	0.0439	-0.147**	0.0509	0.0603	0.0179	0.102
	[0.037]	[0.036]	[0.037]	[0.037]	[0.033]	[0.063]	[0.039]	[0.038]	[0.044]	[0.092]
Qual. of Bureaucracy	0.151*	0.133	0.140*	0.178**	0.207***	-0.440***	0.167**	0.169**	-0.0255	-0.106
	[0.081]	[0.082]	[0.081]	[0.088]	[0.080]	[0.13]	[0.082]	[0.082]	[0.12]	[0.15]
Executive constraints	0.110**	0.112**	0.0948*	0.101*	0.0661	0.168***	0.115**	0.0923*	-0.173*	0.028
	[0.052]	[0.052]	[0.053]	[0.053]	[0.053]	[0.058]	[0.052]	[0.053]	[0.10]	[0.065]
Rule of Law	0.012	-0.00482	0.00198	-0.0163	-0.00574	-0.134*	-0.0293	-0.0115	0.320***	0.0377
	[0.044]	[0.043]	[0.043]	[0.048]	[0.043]	[0.072]	[0.046]	[0.044]	[0.068]	[0.091]
Overall fin. development	-0.672	-0.94	-1.009	-0.847	0.00603	-4.761***	-1.149	-1.077	0.82	-4.199***
	[0.98]	[0.97]	[0.98]	[0.98]	[0.98]	[1.16]	[0.98]	[0.98]	[1.59]	[1.50]
Trade liberalization	1.374	1.665	0.431	0.649	1.284	-3.293**	1.17	0.782	5.182	-4.940***
	[1.70]	[1.71]	[1.77]	[1.82]	[1.68]	[1.67]	[1.69]	[1.71]	[3.86]	[1.84]
Privatization	1.010***	1.056***	1.067***	1.089***	1.004***	0.675*	1.099***	1.080***	1.671***	1.067**
	[0.38]	[0.38]	[0.38]	[0.38]	[0.38]	[0.40]	[0.38]	[0.38]	[0.54]	[0.47]
competition	-0.0922									
	[0.074]									
supervision		0.150**								
		[0.075]								
privatization			0.0777							
			[0.053]							
ccontrol				0.0615						
				[0.074]						
capitalflows					-0.0741					
					[0.059]					
creditceilings						0.580*				
						[0.30]				
securitiesmarkets							0.152*			
							[0.079]			
Financial liberalization index								0.733*	-0.499	2.009***
								[0.42]	[0.66]	[0.62]
Observations	245	245	245	245	253	113	245	245	145	100
Number of ccode	24	24	24	24	25	13	24	24	11	13
Sargan test	0.23	0.24	0.22	0.24	0.21	0.18	0.24	0.24	0.23	0.16
SOC	0.3	0.25	0.29	0.27	0.22	0.26	0.27	0.28	0.5	0.33

All regressions include a constant term. Standard errors in brackets.
*** , **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Table 3. Determinants of FDI: Nonfinancial vs. financial FDI
[Dependent variable = log(FDI/GDP)]

	NoFinFDI ALL	FinFDI ALL	NoFinFDI LAC	FinFDI LAC	NofinFDI TE	finFDI TE
log(GDP)	-0.708***	-0.0113	-1.766***	-1.385***	-0.766**	-0.524**
	[0.18]	[0.19]	[0.26]	[0.30]	[0.33]	[0.24]
log(GDP per capita)	0.572***	0.138	-0.728**	-0.275	0.0305	1.373***
	[0.20]	[0.15]	[0.30]	[0.19]	[0.47]	[0.33]
log(inflation)	-0.157**	-0.126**	-0.200***	-0.120*	0.0877	0.0271
	[0.064]	[0.052]	[0.071]	[0.063]	[0.069]	[0.066]
log(telephone lines)	0.504***	-0.0721	2.043***	1.387***	0.164	0.233
	[0.18]	[0.18]	[0.27]	[0.31]	[0.28]	[0.22]
log(fuel)	0.0745	0.0236	-0.101	0.0174	0.167	0.0243
	[0.065]	[0.047]	[0.069]	[0.050]	[0.17]	[0.11]
Qual. of Bureaucracy	0.285*	0.103	0.0566	-0.0586	0.223	-0.350**
	[0.15]	[0.098]	[0.17]	[0.14]	[0.25]	[0.16]
Executive constraints	0.0518	0.136*	-0.0505	-0.157	-0.0782	0.138
	[0.070]	[0.081]	[0.11]	[0.13]	[0.099]	[0.097]
Rule of Law	-0.125*	0.0109	0.336**	0.363***	0.312**	-0.0953
	[0.065]	[0.053]	[0.13]	[0.076]	[0.15]	[0.10]
Financial liberalization index	-0.661	1.708***	-1.039	-0.389	6.598***	1.818**
	[0.81]	[0.54]	[1.10]	[0.81]	[1.47]	[0.72]
Overall fin. development	-1.259	-0.935	-1.786	2.188	1.01	-5.977***
	[1.51]	[1.35]	[1.88]	[1.92]	[3.70]	[1.59]
Trade liberalization	-3.16	0.0378	2.866	5.14	0.751	-4.439**
	[3.06]	[2.00]	[7.97]	[4.59]	[2.78]	[2.04]
Privatization	1.930**	1.074**	2.675***	1.199*	4.740***	0.865*
	[0.82]	[0.42]	[0.58]	[0.63]	[1.76]	[0.46]
Observations	72	173	36	109	36	64
Number of ccode	17	22	8	11	9	11
Sargan test	0.27	0.5	0.16	0.27	0.08	0.15
SOC	0.16	0.79	0.02	0.62	0.05	0.96

All regressions include a constant term. Standard errors in brackets.
*** , **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Table 4. Determinants of FDI: Robustness check - institutions
[Dependent variable = log(FDI/GDP)]

	1	2	3	4	5	6
log(GDP)	-0.398***	-0.394***	-0.324***	-0.502***	-0.539***	-0.523***
	[0.093]	[0.094]	[0.10]	[0.088]	[0.099]	[0.099]
log(GDP per capita)	0.214**	0.268***	0.390***	0.464***	0.273***	0.427***
	[0.084]	[0.077]	[0.086]	[0.074]	[0.10]	[0.089]
log(inflation)	-0.151***	-0.136***	-0.122***	-0.134***	-0.140***	-0.144***
	[0.037]	[0.037]	[0.041]	[0.037]	[0.036]	[0.039]
log(telephone lines)	0.242***	0.296***	0.214**	0.326***	0.336***	0.301***
	[0.088]	[0.087]	[0.097]	[0.085]	[0.089]	[0.093]
log(fuel)	0.0499*	0.0474*	0.0546*	0.0356	0.0408	0.0463
	[0.027]	[0.027]	[0.029]	[0.025]	[0.028]	[0.031]
Bank efficiency	2.703*	3.712***	5.676***	2.497**	2.288*	3.146**
	[1.41]	[1.41]	[1.59]	[1.22]	[1.23]	[1.31]
Trade liberalization	1.741	1.39	0.725	2.582**	-0.3	-0.801
	[1.48]	[1.48]	[1.61]	[1.09]	[1.48]	[1.48]
Privatization	1.243***	1.254***	1.163***	0.936***	1.354***	1.268***
	[0.37]	[0.37]	[0.39]	[0.33]	[0.37]	[0.39]
Qual. of Bureaucracy	0.225***					
	[0.069]					
Executive constraints		0.142***				
		[0.041]				
Rule of Law			0.0143			
			[0.044]			
Corruption				0.0345		
				[0.048]		
Political Risk					0.0127	
					[0.0083]	
Durability						0.00586**
						[0.0027]
Observations	298	298	298	314	244	244
Number of ccode	31	31	31	35	30	30

All regressions include a constant term. Standard errors in brackets.
*** , **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Table 5. Determinants of FDI: Robustness check - Infrastructure
[Dependent variable = log(FDI/GDP)]

	ALL	ALL
log(GDP)	-0.323***	-0.338***
	[0.068]	[0.060]
log(GDP per capita)	0.353***	0.207***
	[0.064]	[0.078]
log(inflation)	-0.114***	-0.109***
	[0.024]	[0.026]
log(telephone lines)	0.167**	
	[0.065]	
log (computer)		0.224***
		[0.050]
log(fuel)	0.0778***	0.0566**
	[0.023]	[0.024]
Qual. of Bureaucracy	0.141***	0.115**
	[0.046]	[0.053]
Executive constraints	0.115***	0.166***
	[0.029]	[0.045]
Rule of Law	0.00222	-0.00856
	[0.024]	[0.027]
Bank efficiency	1.997**	1.242
	[0.84]	[0.88]
Financial liberalization index	0.578**	0.503*
	[0.23]	[0.27]
Trade liberalization	1.032	0.625
	[0.94]	[0.97]
Privatization	1.069***	1.208***
	[0.21]	[0.22]
Observations	245	210
Number of ccode	24	21

All regressions include a constant term. Standard errors in brackets.
*** , **, and * denote significance at the 1%, 5%, and 10% level, res

Appendix 1
Basic statistics

	Obs	Mean	Std. Dev.	Min	Max
FDI/GDP	704	.0120866	.0148197	0	.1096491
FDI/worker	702	1.76e-07	2.82e-07	0	2.95e-06
GDP	704	126545.4	252488	3880	1489350
GDP per capita	704	2747.588	2394.178	30.87	16266.63
Inflation	573	140.4642	660.0533	-8.59	7485.49
Telephones	638	2960068	6016982	40000	4.24e+07
Fuel/exports	524	14.3609	21.27355	0	91.33
Bureaucracy	498	1.932396	.8607151	0	4
Exec constraints	543	5.441989	1.796842	1	7
Rule of law	498	3.506108	1.188185	1	6
Fin lib (depth)	672	.5168637	.0837575	0	1
Fin lib (eff)	672	.7837967	.0879508	0	1
Trade Lib	571	.9271304	.0662782	0	1
Privatization	704	.0461125	.1136541	0	1

Appendix 2
Definitions of components of financial reform

Variable	Definition
competition	Policies to lower banking sector entry barriers; (i) foreign banks allowed to enter?, (ii) new domestic banks allowed to enter? (iii) restrictions on branching?, (iv)allow banks to engage in a wide range of
supervision	Poicies to enhance banking sector supervision; (i) A country adopted capital adequacy ratio based on Basle standard, (ii) banking supervisory agnecy indepndent from executive influence, (iii) does
privatization_bank	Privatization of banks or the state involvement in the banking sector; =3(FL) if no state banks exist, =2(LL) if most banks are privately owned, =1(PR) if major banks are still state-owned, =0(FR) if major
ccontrol	Credit controls and reserve requirements; (i) reserve requirements restrictive?, (ii) are there min. amount of credit that must be channeled to certain sectors?, (iii) are there any credits supplied to certain
capitalflows	Capital account restrictions; (i) ex rate unified?, (ii) restrict capital inflow?, (iii) restrict capital outflows?
creditceilings	Ceilings on expansion of bank credit imposed by the CB; =0 if yes, =1 if no.
securitiesmarkets	Policies to develop securities nd stock markets;(i) a country took measures to develop securities markets, (ii) stock market open to foreigners
Financial liberalization index	A composite of all the above variable.

Note: The higher score is associated with the more liberalized regime in each category.

Source: "A New Database of Financial Reforms", by Detragiache, Abiad and Tressel. Forthcoming IMF Working Paper.

Appendix 3
Correlation matrix

	fdi/gdp	fdi/wk	gdp_ppp	gdp_pc	inflation	telephones	fuel	bureac~y	xconst	ruleof~w	fd1b	fd2	TradeLib	privat
fdi/gdp	1.0000													
fdi/wk	0.8048	1.0000												
gdp_ppp_	-0.0898	0.0048	1.0000											
gdp_pc_	0.2622	0.5852	0.1506	1.0000										
inflation	-0.1222	-0.1001	0.1120	-0.0681	1.0000									
telephone	-0.0801	-0.0015	0.9384	0.0771	0.0279	1.0000								
fuel	0.0414	-0.0599	0.1476	-0.0765	-0.0481	0.1922	1.0000							
bureacracy	0.3672	0.5057	0.1363	0.5564	-0.0063	0.0467	-0.1304	1.0000						
xconst	0.2952	0.2810	-0.1871	0.2398	-0.0803	-0.2251	-0.2160	0.4742	1.0000					
ruleoflaw	0.2135	0.3965	-0.0713	0.4059	-0.0595	-0.0639	-0.1092	0.3920	0.2140	1.0000				
fd1b	0.1158	0.2134	0.0167	0.3136	-0.0709	0.0019	-0.0194	0.2171	-0.1247	-0.0360	1.0000			
fd2	0.1982	0.2359	-0.1302	0.2345	-0.1051	-0.0879	-0.3942	0.1801	0.1294	0.0253	0.0713	1.0000		
TradeLib	0.1354	0.1154	-0.1181	0.0299	-0.0630	-0.0927	0.0054	-0.1275	-0.0125	-0.0991	0.0795	0.1318	1.0000	
privat	0.2395	0.2334	-0.0477	0.0976	-0.0313	-0.0534	-0.0962	0.2060	0.1481	0.1269	0.0072	0.1454	-0.0048	1.0000