

Employment Strategy Papers

# Capital inflows and investment in developing countries

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## Foreword

This paper has been prepared within the framework of the research project on globalization and employment. As rapid growth of inflows of foreign direct investment (FDI) is a defining feature of globalization, one part of the project seeks to investigate how and through what channels FDI inflows affect employment, wages and labour productivity in developing countries. The focus is on manufacturing industries both because global restructuring of manufacturing industries is a central feature of globalization and because FDI inflows into developing countries in recent years have been mainly into manufacturing.

One major channel through which inflows of foreign capital, of foreign direct investment (FDI) in particular, affect labour markets in developing countries is economic growth. If capital inflows enable the recipient developing countries to increase the investment rate beyond what they could sustain with their domestic savings, they should achieve accelerated economic growth with favourable consequences for employment, wages and labour productivity. This argument defines the context for this paper, which empirically investigates the effects of capital inflows on investment in developing economies.

The paper starts by examining the trends and patterns of capital flows during the last quarter of the twentieth century. This part of the analysis is based on statistical data for 82 countries, developed and developing, and yields three main findings. First, the conventional focus in the literature on gross FDI inflows obscures one important fact: on a net basis, FDI flows have always been and continue to be from developed to developing countries. Second, there was a rapid and sustained growth of net FDI inflows to developing countries during the period 1990-97. The East Asian crisis, apparently, reversed the trend quite drastically. Third, the trends in net FDI inflows in the 1990s do not seem to have been associated with consistent trends in the rate of investment in either the developed or the developing world.

The focus of analysis then shifts to developments in 37 developing countries, referred to as “core developing countries”. Between 1983-89 and 1990-97, this group of countries witnessed not just sharply increased net FDI inflows but also sharply increased net inflows of private non-FDI finance. The associated developments were somewhat surprising. First, in many countries that received large net inflows, the aggregate rate of investment was in fact persistently lower than the domestic saving rate. Second, most of the countries accumulated huge reserves of foreign currency assets. Third, in many instances, capital inflows led to current account deficits and not the other way round.

These facts suggest that capital inflows are largely exogenous and are not really “attracted” by developing countries as conventionally supposed. Econometric analysis is then carried out to examine the effects of exogenous capital inflows on investment by domestic entrepreneurs. This yields the following basic findings. First, net inflows of FDI have a fairly strong crowding out effect on domestic investment. Second, net inflows of non-FDI finance boost domestic investment, but also make it unstable (as such inflows are highly volatile). Third, both types of inflows lead to under-utilisation of domestic saving for investment. This, together with the need to

guard against the risk of sharp reversals of flows of private non-FDI finance, leads to accumulation of foreign currency reserves involving income losses.

These findings have two important implications. First, capital account liberalisation seriously undermines national governments' ability to pursue independent demand management policies because national investment is strongly influenced by the behaviour of international investors. Second, it is when there are capital account restrictions that developing countries can seek to attract capital inflows in a real sense, so that special incentives might serve a purpose. Removal of restrictions also removes the usefulness of special incentives.

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## 1. Introduction

Do inflows of foreign capital augment the investment rate in developing countries? The answer to this question is widely thought to be in the affirmative. Most academic economists believe that the surge in cross-border capital flows since the early 1990s has created unprecedented opportunities for developing countries to achieve accelerated economic growth. International financial institutions routinely advise developing countries to adopt policy regimes that encourage capital inflows. A large majority of the developing countries have substantially reduced restrictions on capital inflows, and some have proceeded to offer substantial incentives in the form of tax concessions or subsidies to international investors.<sup>1</sup>

Standard economic theory, of course, predicts that capital inflows unambiguously increase investment rates in developing countries.<sup>2</sup> The argument runs as follows. In developed countries, savings are abundant but return to investment is low because capital per worker is already high. In developing countries, on the other hand, return to investment is high as capital per worker is low, but savings are scarce. Hence if capital were allowed to move freely across national frontiers, a part of the savings of the developed world would be invested in the developing world. So the investment rate would fall below the saving rate in developed countries and rise above the saving rate in developing countries. International capital mobility, therefore, is expected to help poorer nations to achieve faster growth and thus promote economic convergence among nations.<sup>3</sup>

Recent experience with capital flows has added an important qualification to this argument. The economic crises of the 1990s have highlighted the “footloose” character of certain types of capital flows, such as flows of private equity and bank loans, which appear to be driven by short-run speculative objectives in a world of asymmetric information. Flows of foreign direct investment (FDI), by comparison, have shown a remarkable degree of stability even during economic crises, which appears to suggest that they are driven by considerations of long-term economic prospects of destination countries.<sup>4</sup> There is now a reasonable degree of consensus that the standard theory gives a fair account of FDI flows but not of capital flows in general.

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<sup>1</sup> See Hanson (2001) and UNCTAD (1999) for some details.

<sup>2</sup> See Obstfeld and Rogoff (1996) for a comprehensive discussion of the potential benefits of capital flows to developing countries.

<sup>3</sup> There are well-recognized caveats to the argument. See Lucas (1990).

<sup>4</sup> Sarno and Taylor (1999) and Prasad et al (2003) show FDI flows to have been much less volatile than the flows of equity capital or loans.

So, in theory, developing countries should be able to rely at least on FDI inflows to increase their investment rates. However, there has been too little effort to confront this prediction of theory with real-world experience. The proposition that FDI inflows enable developing countries to achieve investment rates higher than their domestic saving rates remains to be empirically established. There are some studies that investigate whether FDI inflows indeed finance investment or end up financing financial outflows and/or reserve accumulation.<sup>5</sup> Aside from the fact that the question itself is not really meaningful (FDI inflows, by definition, finance investment), it is very different from the question as to whether FDI inflows increase the investment rate in recipient developing countries beyond what could be sustained by their domestic savings. To answer the latter, we need to know if and how FDI inflows affect investment by domestic entrepreneurs, including national governments, in recipient countries. The few studies that have addressed this issue have not produced unambiguous conclusions.<sup>6</sup> Other studies that have tried to empirically discern the effect of FDI inflows on economic growth in developing countries have also failed to produce unambiguous results.<sup>7</sup> Thus the question of the effect of FDI inflows on investment rates in recipient developing countries remains basically unanswered in the empirical literature.

Against this backdrop, this paper seeks to empirically analyse the relationship between FDI inflows and domestic investment<sup>8</sup> in the context of developing countries. Obviously, if FDI inflows either do not affect or crowd in domestic investment, they would unambiguously increase the aggregate rate of investment above the domestic saving rate. If, however, FDI inflows crowd out investment by domestic entrepreneurs, the aggregate investment rate could equal, exceed or fall short of the domestic saving rate, depending on the strength of the crowding-out effect. The standard economic theory rules out the possibility of a crowding-out effect by assuming, first, that domestic investment in a developing country is constrained by domestic saving and, second, that FDI inflows to developing countries only serve to ease the saving constraint and hence do not affect domestic investment, which continues to equal domestic saving. As we shall see below, there are strong empirical grounds for questioning the validity of these assumptions.

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<sup>5</sup> Among the most recent such studies are Bosworth and Collins (1999); World Bank (2001); and Mody and Murshid (2002).

<sup>6</sup> Borensztein, Gregorio and Lee (1998) find indications that FDI inflows crowds in domestic investment, but their results are not robust. Agosin and Mayer (2000) find that FDI inflows crowd in domestic investment in some countries but crowd it out in others.

<sup>7</sup> Borensztein et al (1998) find that FDI inflows are growth augmenting only in countries with levels of human resource development above a certain threshold. But they also find that FDI inflows reduce growth in countries with poor human resources. Balasubramanyam et al (1996) find FDI inflows to be growth augmenting when there is trade openness. But Carkovic and Levine (2000) show these results to be far from robust; they find no effect of FDI inflows on growth.

<sup>8</sup> Throughout this paper, the term “domestic investment” is used to mean investment by domestic entrepreneurs including national governments.

In our empirical analysis, we focus on the crowding-out hypothesis as a way of testing the effect of FDI inflows on aggregate investment rates in developing economies. The analysis covers the period 1975-2000. The statistical data, used in the analysis, have been assembled from a variety of sources. These data are presented in Appendix Tables, which also provide details on sources. We start by analysing data for 82 countries, 23 developed and 59 developing, to establish a broad picture of the trends and patterns of FDI flows during 1975-2000.<sup>9</sup> We then focus on a smaller group of 37 core developing countries and a shorter period (1983-97) for the main part of the analysis. This group of 37 core developing countries is defined by excluding the “high-income developing countries”, the “petroleum exporting developing countries” and the “least developed countries” from the group of 59 developing countries in the sample.

While our enquiry is about the contribution of FDI inflows to aggregate investment, it should be noted that augmenting investment is not the only way FDI inflows could contribute to economic growth in developing countries. This contribution could come through at least two other channels. First, FDI inflows are generally thought to be associated with transfers of technology and managerial skills, and could generate externalities in the form of positive productivity spillovers to domestic enterprises in recipient developing countries. Second, FDI inflows could improve the recipient developing countries’ access to global markets and could thus help promote export orientation, which in turn could lead to an acceleration of economic growth.

These issues are not explored in this paper. But it is useful, at this point, to take note of the findings available in the literature. First, researchers have so far found no convincing evidence of positive spillover effects of FDI inflows.<sup>10</sup> Existence of foreign-owned enterprises does not seem to induce technological innovation or skill upgrading in domestic enterprises. Indeed, there is some evidence to suggest that the presence of foreign-owned enterprises in an industry has a negative effect on productivity growth in domestic enterprises in that industry. Second, the available evidence (at both macro and micro levels) does seem to suggest that FDI inflows are associated with growth of manufactured exports from developing countries.<sup>11</sup> There is also some empirical support for the idea that increased export-orientation has a stimulating effect on economic growth in these countries.<sup>12</sup> However, the issues still remain to be fully settled.

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<sup>9</sup> A detailed list of the sample countries is provided in Annex 1. In 2000, the 82 sample countries accounted for 87% of world population, 97% of world GDP and 93% of world FDI inflows.

<sup>10</sup> Among the important studies are Haddad and Harrison (1993); Blomstrom and Kokko (1998); Blomstrom and Sjöholm (1999); and Aitken and Harrison (1999).

<sup>11</sup> See Aitken, Hanson and Harrison (1997) for some micro-level evidence. Ghose (2003) examines some macro-level evidence. See also Berg and Krueger (2002), and Fischer (2003).

<sup>12</sup> See Ghose (2003) for analysis, evidence and review of literature.

## 2. FDI inflows: some basic facts

The first striking fact about FDI inflows in recent periods is their rather explosive growth in the 1990s (Figure 1). Globally, there was a dramatic acceleration in the growth of these inflows after 1993 and the accelerated growth was sustained till the end of the 1990s. In absolute terms, FDI inflows into our sample countries increased from US\$ 27.5 billion in 1975 to US\$ 210.5 billion in 1993 and then to US\$ 1333.4 billion in 2000. As percentage of GDP, they grew from just 0.5 percent in 1975 to 0.9 percent in 1993 and then to 4.5 percent in 2000. The trends for developed and developing countries were surprisingly similar; in the 1990s, FDI inflows, both in absolute terms and as percentage of GDP, increased sharply in both groups of countries. The only noteworthy difference is that while the increase was rather abrupt in developed countries (it came towards the end of the 1990s), in developing countries, it was steady throughout the 1990s.

A major consequence of increased FDI inflows was a hugely expanded role of foreign investors in national economies (Figure 2). In our group of sample countries, the share of FDI inflows in investment, which was around 2 percent till the mid-1980s, increased to 4 percent by 1993 and then jumped to 20 percent by 2000.<sup>13</sup> On the other hand, the global investment rate remained quite stable at around 22 percent throughout the 1990s. In both developed and developing countries, the share of FDI inflows in investment increased rapidly in the 1990s. But while the rate of investment remained fairly stable (around 21 per cent) in developed countries, in developing countries, it rose in the first half of the 1990s and declined in the second half.

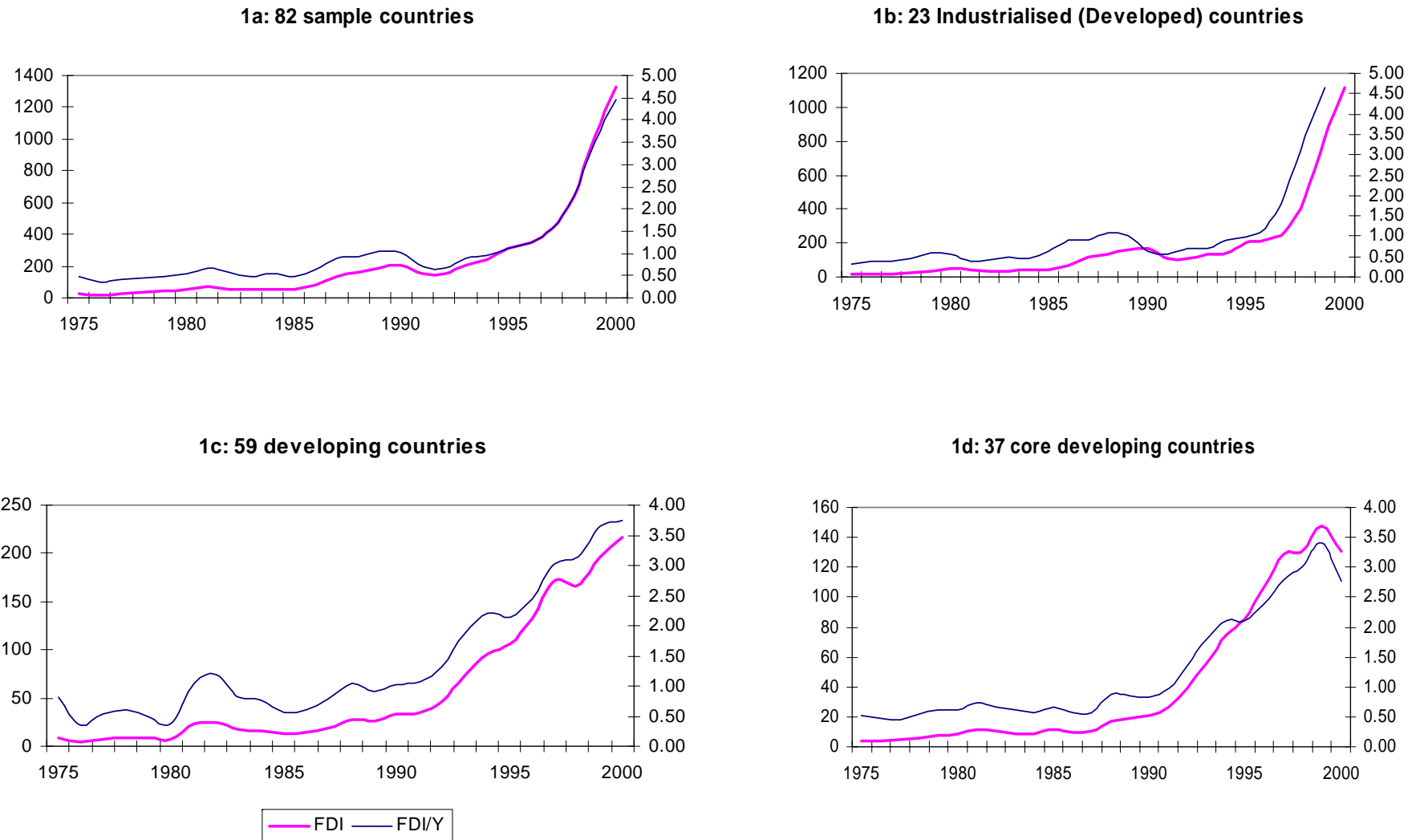
There was a good deal of fluctuation but no consistent time-trend in the share of developing countries in global FDI inflows during the last quarter of the twentieth century (Figure 3). The share declined between 1975 and 1980, increased sharply till 1982, declined sharply till 1987, rose sharply between 1990 and 1994 and declined quite abruptly after 1997. Overall, it was no higher in 2000 than it had been in 1980. We get a slightly different picture if we confine attention to the share of the group of core developing countries in global FDI inflows. This share was small but stable till the mid-1980s.<sup>14</sup> It declined somewhat thereafter and then grew rapidly during 1990-97. The rising trend was halted, seemingly, by the East Asian crisis. Indeed, there was quite a sharp reversal of the trend after 1997, so that the core developing countries' share in global FDI inflows was roughly the same in 2000 as in 1990.

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<sup>13</sup> Investment, here and throughout the paper, refers to investment in fixed assets.

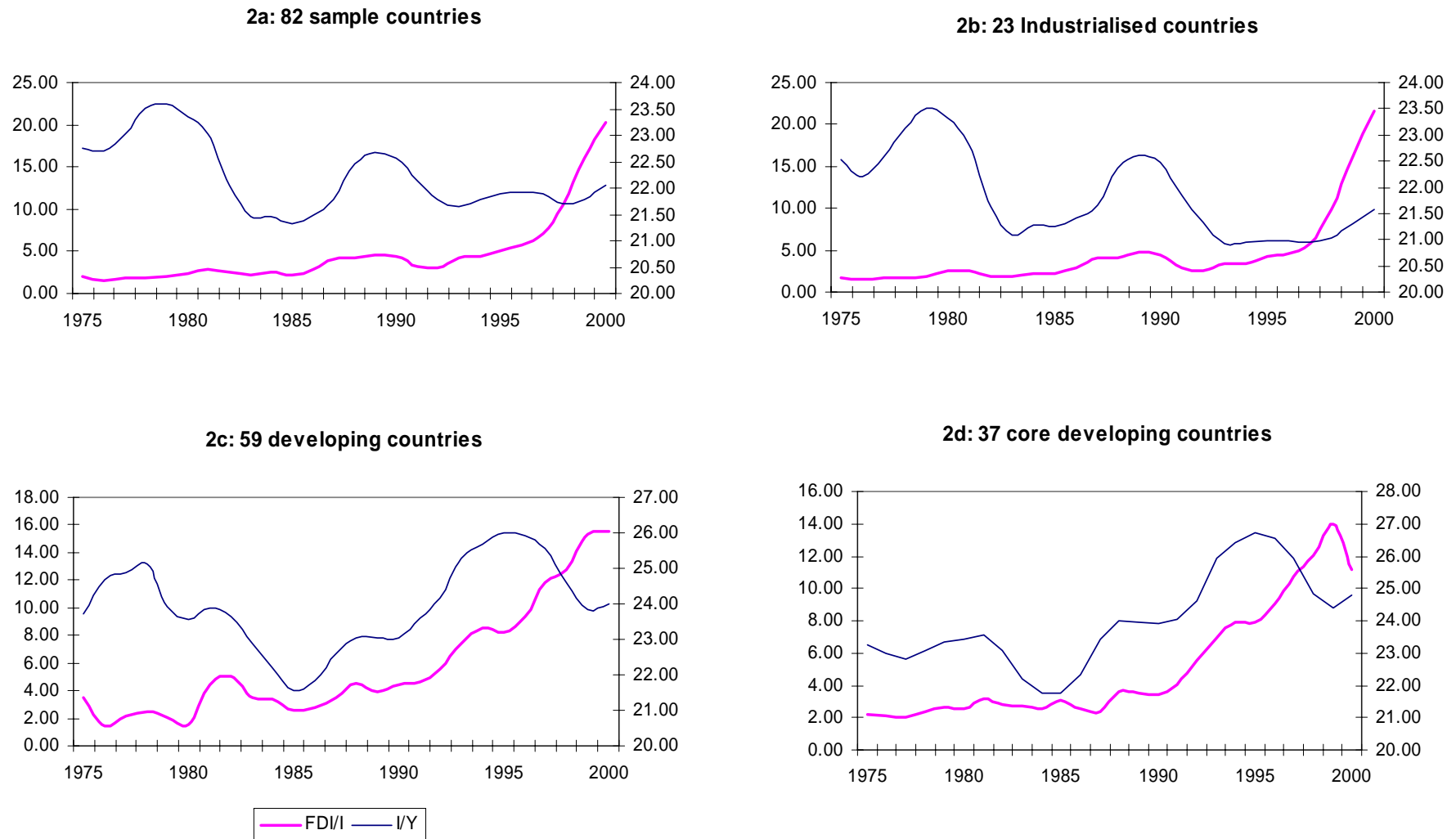
<sup>14</sup> The share of the rest of the developing countries, on the other hand, showed a great deal of fluctuation, and this is explained basically by the fluctuation in the share of petroleum exporting developing countries. See Appendix Table A4 for the detailed data.

**Figure 1 : FDI inflows, in billion US\$ (left scale) and as % of GDP (FDI/Y, right scale)**



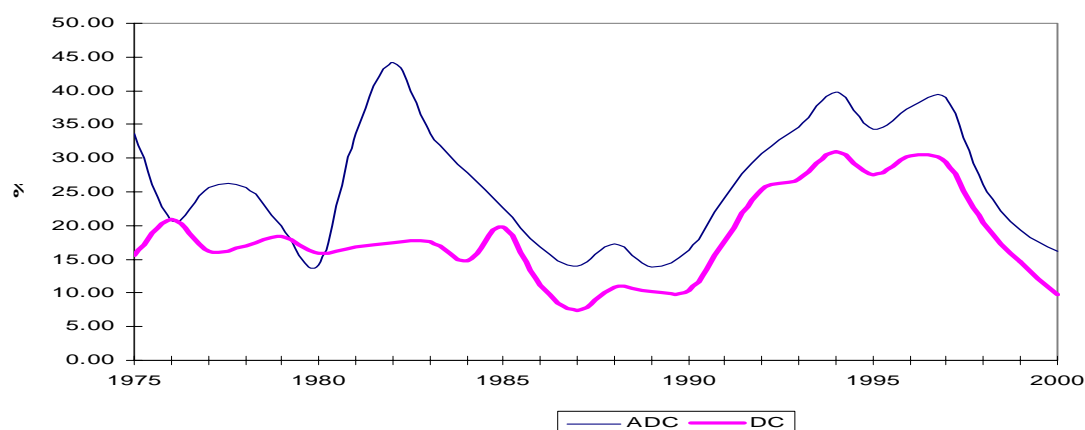
Source : Based on data in the Appendix A1 and A2.

**Figure 2: FDI inflows as % of investment (FDI/I; left scale) and investment as % of GDP (I/Y; right scale)**



Source: Based on data in Appendix Table A3.

**Figure 3: Share (%) of 59 developing countries (ADC) and 37 core developing countries (DC) in total FDI inflows.**



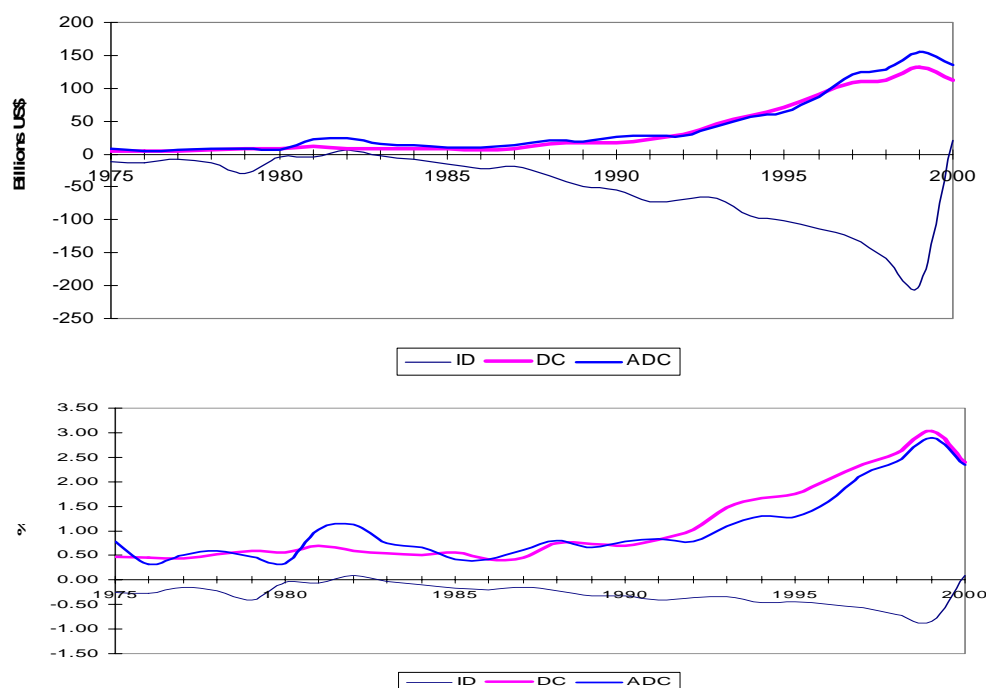
Source: Based on data in Appendix Table A4.

The observations above are based on data on FDI inflows alone. The picture changes in quite fundamental ways if we consider net FDI inflows (i.e., inflows net of outflows), which is a measure of resource transfer. Figure 4 shows the time-trends in net FDI inflows. Two important points emerge. First, on a net basis, FDI flows have always been and continue to be from developed to developing countries; for the entire period, 1975-2000, there were net inflows into developing countries and net outflows from developed countries. Second, till about 1989, both net inflows into developing countries and net outflows from developed countries were stable at quite modest levels. These patterns changed in the 1990s; net FDI inflows into developing countries showed a sharply rising trend and, correspondingly, net FDI outflows from developed countries also showed a sharply rising trend.<sup>15</sup> These trends were reversed after 1998, in the aftermath of the East Asian crisis.

At least for the period 1990-97, therefore, the observed trends in net FDI inflows seem to be quite consistent with one of the predictions of standard economic theory; freer cross-border flows of capital apparently resulted in rising flows of savings from developed countries into investment in developing countries. What remains unclear is whether and to what extent the investment rate in developing countries rose above the saving rate as a result. In the next section, we take a close look into this issue.

<sup>15</sup> See Appendix Tables A5 and A6 for detailed data.

**Figure 4: Net FDI Inflows, in billion US\$ and as % of GDP.**



Source: Based on data in Appendix Tables A5 and A6.

### 3. FDI inflows and investment in developing countries

Our analysis in this section focuses on the effects of net FDI inflows on investment in developing countries.<sup>16</sup> For this analysis, we choose to confine attention to the group of 37 core developing countries and to the period 1983-1997. The reason for focusing on developing countries should by now be clear: only the developing countries are and have been net importers of FDI.<sup>17</sup> The decision to focus on the group of 37 core developing countries is based on two considerations: (i) that “high-income” and “petroleum exporting” developing countries are arguably rather non-typical as developing countries, and (ii) that the least developed countries have never been recipients of significant net FDI inflows, indeed of any kind of private capital inflows (they have been and remain dependent on official loans and grants). The choice of the period is guided by the fact that it contains two sub-periods of roughly equal length that showed, as we have just seen, quite distinct trends with respect to net FDI inflows into the core developing countries. The first sub-period is 1983-89 when, in the aftermath of the Latin American debt crisis, net FDI inflows were small but relatively stable. The second sub-period is 1990-97 during which the inflows showed quite dramatic and sustained upward trend.

<sup>16</sup> In our analysis, we use net FDI inflows (FDI inflows – FDI outflows). In the literature, the use of gross FDI inflows has been common. It should be said, however, that net FDI inflows are substantially the same as gross FDI inflows for the core developing countries.

<sup>17</sup> It is also worth noting that FDI inflows to developed countries are quite distinct in character from FDI inflows to developing countries. While FDI flows among developed countries usually are substitutes for trade, FDI flows from developed to developing countries usually are trade creating.

### *Analytical framework*

To fix ideas, it is useful to consider a simple accounting identity for any given country:

$$DI + NFDI = DS + NFDI + NFR - CIR$$

where DI is investment by domestic entrepreneurs (including national governments), DS is domestic saving, NFDI is net inflow of FDI (= inflow – outflow), NFR is net inflow of non-FDI financial resources (= inflow – outflow), and CIR is change in international reserve. We abstract from complications associated with exchange rates by considering all values in current US Dollars. NFR includes net inflows of private equity, private loans, and loans and grants from bilateral and multilateral sources. The left-hand side of the identity represents aggregate investment in the economy. NFDI, by definition, is investment; its appearance on both sides of the equation underlines the fact that it finances itself. It is easy to see that aggregate investment exceeds domestic saving whenever  $NFDI > DS - DI$ , equals domestic saving whenever  $NFDI = DS - DI$ , and falls short of domestic saving whenever  $NFDI < DS - DI$ . Thus it is only when domestic saving is fully used to finance domestic investment in all circumstances that any positive net FDI inflow necessarily raises aggregate investment above domestic saving. Since non-FDI inflow can in principle be used to finance domestic investment, the upper limit to DI is given by  $DS + NFR$ . Whenever  $DI < DS + NFR$ , CIR must be positive. The parts of domestic saving and net non-FDI inflow that are not used to finance domestic investment end up financing accumulation of foreign currency reserve.

The identity can be used to study adjustment dynamics once we postulate any of the variables as exogenous. Traditionally, domestic investment is postulated as the exogenous variable. It is then easy to see that, starting from a position where there is no foreign capital so that domestic investment is the same as national investment and equals domestic saving, any attempt by domestic entrepreneurs (including the government) to increase the investment rate in the economy would entail either positive NFDI or positive NFR or negative CIR or some combination of these.<sup>18</sup> Investment in excess of domestic saving results in a current account deficit, which must be financed through inflows of external resources. The standard view of capital inflows occurring to meet the unmet demand for investment finance in developing countries derives from such a perspective; capital inflows finance current account deficits, which reflect the fact that the desired investment rate is higher than the actual saving rate. On this view, both NFDI and NFR are endogenous variables; NFDI is simply additional investment undertaken by foreign investors and NFR is simply a certain amount of foreign saving available for use by domestic entrepreneurs. Hence net capital inflows necessarily imply total investment in the recipient economy to be in excess of domestic saving.

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<sup>18</sup> The traditional Keynesian view is that an exogenous change in investment causes income and its distribution to vary till the level of saving equals the new level of investment. But the proposition holds only in the context of a fully closed economy.

This view, however, is not consistent with some basic facts about capital flows. In quite a few developing countries that received substantial net inflows of both FDI and non-FDI financial resources during 1983-97, even aggregate investment (not just domestic investment) persistently fell short of domestic saving, often by a substantial margin. The most obvious example is that of China, which not only has been the largest recipient of foreign capital in the developing world for many years but also has consistently generated excess domestic saving. But the case of China is by no means unique, as Table 1 shows. The nine countries, represented in the Table, were major recipients of FDI; they accounted for 55 percent of net FDI inflows to all 37 countries during 1983-89 and 70 percent during 1990-97. It is clear from Table 1 that, in many instances, countries received substantial net inflows of foreign capital even while their own savings were not fully used to finance investment. In other instances, where the inflows were smaller than the outflows of national financial resources (for repayment of past loans and/or interest payments on past loans) so that there were net outflows of domestic savings, the magnitudes of unutilised domestic savings were nevertheless larger than the magnitudes of the net outflows. And this means that, in these instances too, the available domestic savings were not fully used to finance investment. Such outcomes, it may also be noted, had very little to do with the level of domestic saving; they are observed in both high-saving and low-saving countries.

**Table 1: Net capital inflows, domestic saving and aggregate investment**

|               | 1983-89 |              |       | 1990-97 |              |       |
|---------------|---------|--------------|-------|---------|--------------|-------|
|               | NCI/Y   | (DS/Y – I/Y) | DS/Y  | NCI/Y   | (DS/Y – I/Y) | DS/Y  |
| Brazil        | -0.022  | 0.039        | 0.240 | 0.011   | 0.012        | 0.201 |
| Chile         | -0.014  | 0.042        | 0.216 | 0.018   | 0.024        | 0.259 |
| Mexico        | -0.039  | 0.072        | 0.256 | 0.020   | 0.026        | 0.210 |
| Uruguay       | -0.020  | 0.056        | 0.173 | 0.001   | 0.021        | 0.160 |
| China         | 0.016   | 0.055        | 0.349 | 0.048   | 0.082        | 0.408 |
| Indonesia     | -0.015  | 0.063        | 0.310 | 0.007   | 0.043        | 0.320 |
| Cameroon      | 0.007   | 0.035        | 0.244 | 0.013   | 0.031        | 0.188 |
| Congo, Rep.   | 0.031   | 0.037        | 0.296 | 0.027   | 0.024        | 0.271 |
| Côte d’Ivoire | -0.038  | 0.070        | 0.195 | 0.017   | 0.050        | 0.158 |

Note: NCI (= NFDI + NFR) is net capital inflow, I (= DI + NFDI) is aggregate investment in the economy, and Y is GDP.

Source: Author’s estimates based on data available from World Bank.

More generally, there is evidence to suggest that capital inflows often finance accumulation of foreign currency reserve rather than investment in recipient developing countries. Studies have found that between 30 and 60 percent of gross capital inflows to developing countries in the 1990s ended up financing reserve accumulation.<sup>19</sup> In the context of our sample countries, the growth of global international reserve in the 1990s was nearly as impressive as the growth of global capital inflows (see Appendix Table A7). And here there is a remarkable contrast between developing and developed countries. The accumulated reserve of the developed countries grew at a much slower rate than that of the developing countries (see Appendix Table A7.). As a result, the share of developed countries in global reserve declined from 77 per cent in 1989 to 48 per cent in 2000. Between 1989 and 2000, international reserve as percentage of GDP remained stable at around 3 per cent for the developed countries but increased from 5 per cent to 15 per cent for the developing countries. For the 37 core developing countries, foreign currency reserve increased from US\$90 billion (4 per cent of GDP) in 1989 to US\$563 billion (12 per cent of GDP) in 2000. Their share in global reserve increased from just 14 per cent in 1989 to 33 per cent in 2000. Freer capital flows, it seems, transformed a part of the savings of developed countries into foreign currency reserve of developing countries.

Another fact that the existing literature has highlighted is that, in many cases, capital inflows lead to a widening of current account deficits and not *vice versa*.<sup>20</sup> This runs counter to what the standard theory postulates, namely, that current account deficits induce capital inflows.

These facts about capital inflows to developing countries and their consequences appear as odd or paradoxical if we hold on to the idea that foreign capital is “pulled” into developing countries by the existence or emergence of unmet demand for investment finance. But these same facts seem perfectly consistent with an alternative view, namely, that capital inflows to developing countries are largely exogenous. On this view, capital inflows could occur irrespective of the levels of saving and investment in destination countries. It would also seem perfectly normal that capital inflows induce, and are not induced by, current account deficits. And the fact that capital inflows often finance reserve accumulation rather than investment would not seem particularly surprising.

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<sup>19</sup> See Calvo, Leiderman and Reinhart (1996); Bosworth and Collins (1999); and Mody and Murshid (2002).

<sup>20</sup> See Calvo, Leiderman and Reinhart (1996).

The empirical evidence, therefore, seems consistent with the postulate that capital inflows are exogenous in the sense that the recipient countries do not have much of a role (except, of course, opening up) in determining the volume and type of inflows that they receive. To put it differently, capital inflows are driven by the strategic objectives of international investors and lenders, and have little to do with unmet demand for investment finance in destination countries.<sup>21</sup> It seems sensible to assume that FDI flows are driven by global business plans of multinational corporations<sup>22</sup>, and that flows of private non-FDI financial resources are driven by perceived opportunities for financial gains arising from temporary interest rate differentials and exchange rate fluctuations.<sup>23</sup>

However, developing countries also receive financial flows from official sources (foreign governments, the World Bank and the regional development banks). Obviously, it would be inappropriate to suppose that these flows are also driven by opportunities for exploiting interest rate differentials and exchange rate fluctuations. As it happens, there are good reasons to think that even official flows to developing countries do not have much to do with unmet demand for investment finance. In aggregate terms, official inflows to developing countries are found to vary inversely with private non-FDI inflows. For our sample countries, simple cross-country regressions yield the following results:

$$1983-97: \text{NOI} = -2.60 - 0.45 \text{NPI}, \quad \text{Adjusted } R^2 = 0.544, n = 37 \\ (-1.14) \quad (-4.21)$$

$$1990-97: \text{NOI} = -3.70 - 0.74 \text{NPI}, \quad \text{Adjusted } R^2 = 0.796, n = 37 \\ (-1.93) \quad (-5.32)$$

NOI is net official inflow (loans and grants from bilateral and multilateral sources, except the IMF); NPI is net private inflow of financial resources (private equity capital and loans), n is the number of observations and the figures in parentheses are t-statistics. The coefficients are negative and highly significant in statistical terms. These results show that, at least since the early 1980s, official inflows have basically played a stabilising role, countering the volatility of private non-FDI inflows to some extent. This perhaps should not come as a surprise in view of the fact that official

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<sup>21</sup> One robust finding in the literature is that capital inflows to a particular developing country is strongly and positively related to total capital inflows to all developing countries. In other words, “push” factors, i.e. changes in developed economies associated with business cycles, macroeconomic policy changes, changing importance of institutional investors, etc. have been the most important determinants of private capital inflows to developing countries in recent periods. See Calvo, Leiderman and Reinhart (1993); Dooley et al (1994); Fernandez-Arias (1996); Bosworth and Collins (1999); and Mody and Murshid (2002). Mody and Murshid (2002) conclude that “developing countries typically lack the pulling power to attract additional flows ...” (p. 15).

<sup>22</sup> There is a large literature on determinants of investment and location decisions by multinational firms. See, for example, Helpman and Krugman (1985); Markusen (1997, 2002); Markusen and Venables (1998, 2000); Wheeler and Mody (1992); and Lipsey (2004). In this literature, the emphasis is entirely on global business plans of multinational firms.

<sup>23</sup> This assumption is certainly consistent with the observed volatility of non-FDI financial flows.

lending during the period has in the main been used either to manage economic crises in developing countries caused by sudden reversals of private flows or to support implementation of stabilisation and structural adjustment programmes as correctives to external imbalances. One recent study of IBRD lending shows that, at least since the late 1970s, adjustment lending has driven total IBRD lending; investment lending has been a small and dwindling proportion of total lending.<sup>24</sup> Thus empirical evidence suggests quite strongly that official loans and grants have in reality been quite closely linked to private non-FDI financial flows (at least during the period under review) and hence can be regarded as exogenous in the same way as private flows.

When capital inflows are exogenous, domestic investment ceases to be exogenous and has to adjust to exogenous changes in capital inflows. Hence whether or not capital inflows enable developing countries to achieve investment rates higher than their domestic saving rates depends on how the investment activities of domestic entrepreneurs are affected by capital inflows. In what follows, therefore, we empirically explore the following hypothesis: in developing countries open to capital inflows, it is not the domestic demand for investment finance that attracts capital inflows; rather, exogenous capital inflows strongly influence the domestic demand for investment finance. In specific terms, domestic investment is functionally dependent on net capital inflows:

$$DI/Y = f(DS/Y, NFR/Y, NFDI/Y)$$

where Y is GDP. The formulation is obviously of the type explored by Feldstein and Horioka in a well-known paper.<sup>25</sup> It simply proposes that exogenous changes in domestic saving, FDI inflows and non-FDI inflows have significant and distinct effects on domestic investment.

We expect to observe a crowding-out effect, i.e. an inverse relationship between DI/Y and NFDI/Y for the following reasons. At the macroeconomic level, crowding-out effect is generated fundamentally by problems of absorption of exogenous capital inflows encountered by developing countries. Such inflows, typically, threaten to provoke currency appreciation on the one hand and inflationary pressures on the other. Policy responses usually consist of what are known as “sterilisation” measures, which have the effect of restraining aggregate investment in the economy. In the absence of any specific restraint on FDI, the restraint on aggregate investment

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<sup>24</sup> See Dasgupta and Ratha (2000).

<sup>25</sup> See Feldstein and Horioka (1980). These authors, of course, examine only the effect of exogenous changes in the domestic saving rate on the aggregate investment rate.

translates into reduced domestic investment.<sup>26</sup> At the microeconomic level, exogenous FDI inflows imply competition between domestic and international entrepreneurs. It is reasonable to think that international entrepreneurs would normally be the winners in this competition so that a crowding-out effect of NFDI on DI is a distinct possibility. In concrete terms, FDI inflows are associated either with establishment of affiliates by multinational firms or with (partial or full) acquisition of domestic firms by foreign firms. In the first case, domestic firms could be adversely affected by competition for (internal and external) market share and inputs (finance, raw materials, infrastructure facilities and human resources) from the newly established affiliates, which usually have access to superior technology and management skills. In the second case, domestic entrepreneurs may not necessarily find, indeed may not even look for (e.g., in the case of privatisation programmes), opportunities for investing the proceeds from asset sales in new activities.<sup>27</sup>

Non-FDI inflows, like domestic saving, can be used to finance domestic investment. Thus we would expect both non-FDI inflows and domestic saving to have positive effects on domestic investment. From the point of view of domestic entrepreneurs, non-FDI inflows differ from domestic saving in one important respect: non-FDI inflows are associated with direct availability of foreign exchange. Using non-FDI inflows as a source of finance allows domestic entrepreneurs to import capital and intermediate goods, which might otherwise be infeasible. In other words, non-FDI inflows are an attractive source of finance for domestic entrepreneurs not necessarily because the cost of external finance is lower than that of domestic finance, nor because the available domestic saving is inadequate to finance the desired level of investment, but because such inflows provide direct access to imports. In the presence of non-FDI inflows, therefore, we should expect domestic entrepreneurs to use both domestic saving and non-FDI inflows as sources of investment finance. We should note, however, that the whole of the net non-FDI inflow to any given country is normally not available to domestic entrepreneurs for financing investment. The reason is that such inflow tends to increase the recipient country's short-term external payment obligations. And any perception in financial markets that the country concerned has not put aside sufficient foreign currency reserve to meet these obligations can cause a sudden reversal of private non-FDI inflow, thereby engendering a financial crisis. The recipient country, therefore, usually has to use a substantial part of the inflow to accumulate foreign currency reserve so as to forestall panic in financial markets.

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<sup>26</sup> See Calvo, Leiderman and Reinhart (1996).

<sup>27</sup> In the literature, it has often been argued that FDI can generate crowding-in effects through forward and backward linkages. The argument is difficult to understand since such linkages are not unique to affiliates of multinational firms but are also associated with domestic firms.

### *Empirical analysis*

In what follows, we employ regression analysis to empirically examine the effects of capital inflows on domestic investment in developing countries. Before embarking on this analysis, however, it is useful to take a quick look at the summary statistics on net inflows of foreign resources to the core developing countries. These data, presented in Table 2, reveal a few points of interest. First, it is clear once again that there was a dramatic growth of net FDI inflows into the core developing countries in the 1990s when, moreover, FDI was the most important form of capital inflow, not just in the aggregate but also for all regions except Sub-Saharan Africa. In both periods, the countries of Latin America-Caribbean and Asia-Pacific accounted for bulk of the net FDI inflows. The average share of these countries in net FDI inflows into core developing countries was 84.4 percent during 1983-89 and 95.6 percent during 1990-97. Second, the growth of net non-FDI inflows in the 1990s was also dramatic, and this basically reflected a very sharp growth of net inflows of private equity capital. As in the case of net FDI inflows, the countries of Latin America-Caribbean and Asia-Pacific accounted for bulk of the equity inflows; the average share of these countries in total equity inflows into core developing countries was 99.4 percent during 1983-89 and 97.6 percent during 1990-97. Third, in both periods, net inflows of loans from private sources were negative (i.e., repayments of past loans and interest payments exceeded fresh loans) for all regions. Indeed, in the case of the countries of Latin America-Caribbean, net outflows to private creditors were so large in the 1980s that, on a net basis, there were large resource outflows from these countries. Fourth, the relative importance of official loans and grants as a source of external finance declined quite sharply in the 1990s in all regions except Sub-Saharan Africa, where they constituted the most important form of capital inflows in both periods.

Table 3 gives a summary view of the overall consequences of these developments on investment in core developing countries. Four things are clear from these data. First, the share of FDI in investment increased in all regions except Middle East-North Africa, where it was high even in the 1980s. Second, the aggregate rate of investment increased in all regions except Latin America-Caribbean, where it declined. Third, the domestic saving rate showed a sharp growth in the Asia-Pacific region and a small growth in the Middle East-North Africa region; it declined in the other two regions. Fourth, in the two regions – Latin America-Caribbean and Asia-Pacific - that received the bulk of the capital inflows, the aggregate investment rate was in fact lower than the domestic saving rate in both periods.

**Table 2: Average annual net inflow of foreign resources (millions of US \$)**

|  | LAC      | MENA    | AP      | SSA    | All      |
|--|----------|---------|---------|--------|----------|
| <b>1983-89</b>                               |          |         |         |        |          |
| Private equity                               | 112.7    | 4.7     | 583.3   | 0.0    | 700.7    |
| Private loans                                | -21305.7 | 162.2   | -4472.7 | -994.1 | -26610.3 |
| Official loans and grants<br>(excluding IMF) | 1481.6   | 1147.4  | 4621.5  | 1272.3 | 8522.8   |
| Loans and grants from<br>IMF                 | 0.0      | 0.0     | 0.0     | 0.0    | 0.0      |
| FDI  | 4985.3   | 1338.9  | 3734.6  | 152.4  | 10211.2  |
| <b>1990-97</b>                               |          |         |         |        |          |
| Private equity                               | 10854.5  | 495.8   | 12853.5 | 99.0   | 24302.8  |
| Private loans                                | -3849.6  | -1582.0 | -18.8   | -910.2 | -6360.6  |
| Official loans and grants<br>(excluding IMF) | -5164.6  | 67.2    | 4166.8  | 1960.0 | 1029.4   |
| Loans and grants from<br>IMF                 | 439.4    | -74.7   | 1686.8  | -27.4  | 2024.1   |
| FDI  | 20930.1  | 2189.3  | 32313.2 | 225.0  | 55657.5  |

Note: LAC – 15 countries of Latin America and Caribbean  
MENA – 4 countries of Middle East and North Africa  
AP – 11 countries of Asia-Pacific  
SSA – 7 countries of Sub-Saharan Africa  
The values are weighted averages.

Source: Author's estimates based on data available from World Bank and UNCTAD.

**Table 3: Saving, investment and capital flows**

|   | LAC    | MENA   | AP    | SSA   | All    |
|---|--------|--------|-------|-------|--------|
| Saving-GDP ratio  |        |        |       |       |        |
| 1983-89   | 0.236  | 0.181  | 0.285 | 0.185 | 0.256  |
| 1990-97   | 0.196  | 0.186  | 0.333 | 0.166 | 0.265  |
| Investment-GDP ratio  |        |        |       |       |        |
| 1983-89   | 0.194  | 0.227  | 0.258 | 0.162 | 0.229  |
| 1990-97   | 0.192  | 0.232  | 0.313 | 0.174 | 0.257  |
| Ratio of net FDI inflows to GDP                                   |        |        |       |       |        |
| 1983-89   | 0.007  | 0.010  | 0.004 | 0.004 | 0.006  |
| 1990-97   | 0.015  | 0.008  | 0.018 | 0.005 | 0.016  |
| Ratio of net FDI inflows to investment                            |        |        |       |       |        |
| 1983-89   | 0.039  | 0.042  | 0.016 | 0.023 | 0.025  |
| 1990-97   | 0.079  | 0.036  | 0.058 | 0.027 | 0.062  |
| Ratio of net non-FDI inflows<br>(excluding those from IMF) to GDP |        |        |       |       |        |
| 1983-89   | -0.030 | 0.009  | 0.001 | 0.007 | -0.010 |
| 1990-97   | 0.000  | -0.004 | 0.010 | 0.024 | 0.005  |

Note: LAC – 15 countries of Latin America and Caribbean  
MENA – 4 countries of Middle East and North Africa  
AP – 11 countries of Asia-Pacific  
SSA – 7 countries of Sub-Saharan Africa  
The figures are weighted averages.

Source: Estimated from the data presented in Table 2 and Appendix Table A8.

In the regression exercises that follow, DI is defined as  $I - \text{NFDI}$  and NFR is defined as the sum of net official inflows (excluding loans and grants from the IMF) and net private inflows. 'I' refers to total investment in fixed assets. Annex 2 elaborates on the definitions, and states the sources. The statistical data used in the regression exercises are presented in Appendix Tables A9-A11.

Table 4 shows the results of cross-country regressions where the values of the variables are averages for each of the periods 1983-89 and 1990-97. These results show that net FDI inflows had a significant crowding-out effect on investment by domestic entrepreneurs in the 1990s. In the 1980s, the crowding-out effect seems to

**Table 4: Capital inflows and domestic investment – 1, dependent variable: DI/Y**

| Independent variable    | Period             |                       |                      |
|-------------------------|--------------------|-----------------------|----------------------|
|                         | 1983-89            | 1983-89               | 1990-97              |
| DS/Y(1983-89)           | 0.706*<br>(8.681)  | 0.652*<br>(7.899)     |                      |
| DS/Y(1990-97)           |                    |                       | 0.621*<br>(7.206)    |
| NFR/Y(1983-89)          | 0.894*<br>(4.776)  | 0.728*<br>(3.682)     |                      |
| NFR/Y(1990-97)          |                    |                       | 0.454**<br>(2.103)   |
| NFDI/Y(1983-89)         | 0.526<br>(0.843)   | 0.986<br>(1.537)      |                      |
| NFDI/Y(1983-89)*lac     |                    | -1.971***<br>(-1.985) |                      |
| NFDI/Y(1990-97)         |                    |                       | -0.681**<br>(-2.191) |
| Intercept               | 0.048**<br>(2.652) | 0.062*<br>(3.314)     | 0.093*<br>(5.060)    |
| Adjusted R <sup>2</sup> | 0.670              | 0.697                 | 0.584                |
| No. of observations     | 37                 | 37                    | 37                   |

Note: lac is a dummy variable (1 for each of the countries of Latin America-Caribbean, 0 for others). NFR is defined to include net inflows of private equity, private loans and official loans and grants.

Figures in parentheses are t-statistics.

- \* statistically significant at 1%
- \*\* statistically significant at 5%
- \*\*\* statistically significant at 10%

have been confined to the countries of Latin America-Caribbean, where it was rather large (one-to-one). This, however, could simply be a reflection of the fact that, in the 1980s, FDI inflows to developing countries outside the Latin American-Caribbean region were quantitatively rather small. The regression results also show that investment by domestic entrepreneurs was strongly and positively related to net non-FDI inflows in both periods. We should recall, however, that in the 1980s, net inflows of non-FDI resources were negative for most of the countries, and resource outflows were particularly large for the countries of the Latin-America-Caribbean region. So, in the 1980s, non-FDI inflows played a largely negative role; they had the effect of reducing domestic investment. On the other hand, non-FDI inflows were positive for most of the countries in the 1990s, and appear to have contributed to the growth of domestic investment. In the context of the countries of sub-Saharan Africa, this means that official loans and grants made a positive contribution to investment.

The same conclusions can be drawn from the following regression equation:

$$\Delta (DI/Y) = 0.018^* + 0.400^* \Delta(DS/Y) + 0.681^* \Delta(NFR/Y) - 0.792^* \Delta(NFDI/Y)$$

$$(2.841) \quad (3.657) \quad (3.712) \quad (-3.191)$$

$$\text{Adjusted } R^2 = 0.442, \text{ number of observations} = 37$$

where  $\Delta$  denotes change between 1983-89 and 1990-97, the figures in parentheses are t-statistics, and \* denotes statistical significance at 1% level. Increased FDI inflows crowd out investment by domestic entrepreneurs while increased non-FDI inflows boost it.

These propositions receive strong support from the results of fixed-effects regressions based on panel data, consisting of annual observations for each of the countries. These results, presented in Table 5, show that the crowding-out effect of net FDI inflows was strong, that it was general rather than confined to countries of Latin America-Caribbean even in the 1980s, and that the effect was somewhat stronger in the 1990s than in the 1980s. The relation between inflows of non-FDI finance and domestic investment was positive and significant in both periods. The results also show domestic investment to have been persistent (the coefficient of lagged DI/Y is quite large and statistically significant).

For the period 1984-97, the regression equation is also estimated by using the Arellano-Bond method of dynamic panel data estimation<sup>28</sup>, and the results are presented in Table 6. Dynamic panel data regressions control for potential endogeneity of the independent variables and for potential bias arising from the use of lagged dependent variable as an explanatory variable. They, therefore, provide a stronger basis for inferences than fixed-effects regressions. Reassuringly, the results in Table 6 fully confirm the results of the fixed-effects regressions.

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<sup>28</sup> See Arellano and Bond (1991).

**Table 5: Fixed-effects estimates, panel data, dependent variable: DI/Y**

| Independent variable    | Period              |                      |                      |
|-------------------------|---------------------|----------------------|----------------------|
|                         | 1984-89             | 1990-97              | 1984-97              |
| DS/Y                    | 0.332*<br>(6.452)   | 0.163*<br>(3.607)    | 0.222*<br>(7.161)    |
| NFR/Y                   | 0.227*<br>(3.096)   | 0.166*<br>(4.678)    | 0.239*<br>(7.403)    |
| NFDI/Y                  | -0.504*<br>(-2.374) | -0.771*<br>(-12.651) | -0.562*<br>(-10.977) |
| DI/Y(-1)                | 0.316*<br>(5.001)   | 0.256*<br>(5.722)    | 0.424*<br>(12.895)   |
| Adjusted R <sup>2</sup> | 0.836               | 0.887                | 0.833                |
| Durban-Watson statistic | 1.842               | 1.75                 | 1.721                |
| Number of observations  | 222                 | 296                  | 518                  |

Note: DI – investment by domestic entrepreneurs

DS – domestic saving

NFR – net inflow of non-FDI financial resources

NFDI – net inflow of FDI

Y – GDP

-1 indicates lag of one year

NFR is defined as the sum of net inflows of private equity, private loans and official loans and grants.

Figures in parentheses are t-statistics

\* indicates statistical significance at least 1%

**Table 6: Arellano-Bond dynamic panel data estimates, dependent variable: DI/Y, period: 1984-97**

| Independent variables | Assuming strict exogeneity | Assuming pre-determination | Assuming endogeneity |
|-----------------------|----------------------------|----------------------------|----------------------|
| DS/Y                  | 0.257*<br>(7.066)          | 0.238*<br>(6.643)          | 0.275*<br>(6.288)    |
| NFR/Y                 | 0.222*<br>(6.944)          | 0.233*<br>(8.112)          | 0.236*<br>(7.140)    |
| NFDI/Y                | -0.662*<br>(-12.810)       | -0.761*<br>(-15.736)       | -0.737*<br>(-13.594) |
| DI/Y(-1)              | 0.264*<br>(6.66)           | 0.479*<br>(11.768)         | 0.442*<br>(10.101)   |
| Intercept             | 0.002*<br>(7.773)          | 0.001*<br>(4.167)          | 0.001*<br>(4.105)    |
| No. of observations   | 481                        | 481                        | 481                  |

Note: See Note to Table 5 for definition of the variables. Figures in parentheses are t-statistics, and \* denotes significance at at least 1%.

In qualitative terms, the different types of regression exercises suggest exactly the same conclusions: domestic investment is positively affected by exogenous changes in domestic saving and in net non-FDI inflows, and is negatively affected by exogenous changes in net FDI inflows. The estimated coefficients in the different regressions also fall within reasonably narrow ranges: a range of  $-0.5$  to  $-0.8$  for NFDI/Y, a range of  $0.2$  to  $0.8$  for NFR/Y and a range of  $0.4$  to  $0.7$  for DS/Y.<sup>29</sup>

<sup>29</sup> It is reasonable to think that the persistence of domestic investment, shown in the fixed-effects and Arellano-Bond regressions, can only be predicated on the availability of domestic saving. So the coefficient of DS/Y and that of lagged DI/Y together reflect the strength of the effect of DS/Y.

Our main conclusion is that net FDI inflows to developing countries have a fairly strong crowding-out effect on investment by domestic entrepreneurs.<sup>30</sup> However, since one unit of net FDI inflow crowds out less than one unit of domestic investment, aggregate investment in the recipient economy still rises above the domestic saving rate. But the same fact also implies that net inflows of FDI necessarily increase the share of foreign investors in aggregate investment. Moreover, because net FDI inflows reduce domestic investment, the recipient economy becomes saving-surplus.

Since the positive effects of domestic saving and of net non-FDI inflows counter the negative effect of net FDI inflow on domestic investment, simultaneous growth of FDI inflows, non-FDI inflows and domestic saving has the overall effect of significantly increasing the aggregate investment rate. But these circumstances also increase the level of surplus saving rather sharply. If, on the other hand, growth of net FDI inflows is accompanied by financial outflows and declining domestic saving, a substantial decline in the aggregate investment rate must be expected. But surplus saving may still emerge or increase, depending upon the magnitudes of changes in FDI inflows, financial inflows and domestic saving.

The emergence or growth of surplus saving in many developing countries can thus be seen as a consequence of exogenous capital inflows. And this is one of the factors that drive accumulation of foreign currency reserve; in effect, developing countries receiving capital inflows often end up transforming a part of their domestic savings, together with a part of the capital inflows, into foreign currency reserve. This kind of accumulation of foreign currency reserve generates income losses for the developing countries concerned and hence reduces the benefits of capital inflows.<sup>31</sup>

Finally, our results suggest that, *ceteris paribus*, net inflows of foreign capital can help accelerate economic growth in developing countries. But, even in the best of circumstances (when there are net inflows of both FDI and non-FDI finance), the growth effect is much smaller than might be expected. This is because the quantity of incremental investment is only a fraction, often a small fraction, of the quantity of actual inflows. Moreover, the growth effect of non-FDI inflows is further reduced by their volatility, which makes them rather risky sources of investment finance.

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<sup>30</sup> It is quite surprising that the crowding-out effect has received so little attention in the literature. The idea is old. The “infant industry argument” is based on it.

<sup>31</sup> The rate of interest earned on foreign currency reserve tends to be substantially lower than the rate of return earned on international lending and that on investment in the domestic economy.

## 4. Conclusions

Capital inflows to developing countries are largely exogenous, and are not “pulled” into them by the lure of unmet potential demand for investment finance. This does not mean that developing countries never have unmet demand for investment finance, nor that capital inflows do not meet the unmet demand in any situation. It only means that international investors have their own objective functions, and unmet demand for investment finance in developing countries is not a particularly important variable in these functions.

When capital inflows are exogenous, their effects are not unambiguously positive for developing countries. FDI inflows have a fairly strong crowding-out effect on domestic investment, which greatly reduces their investment-augmenting effect. Non-FDI inflows have the effect of boosting domestic investment but they also make it unstable. Both FDI and non-FDI inflows, moreover, have the effect of transforming a part of the domestic saving into foreign currency reserve, which usually involves income losses.

These features and consequences of capital inflows point to a deeply serious problem that capital account liberalisation can generate for developing countries: national governments tend to lose control over national investment rates, which come to be strongly influenced by international investors. This makes it extremely difficult for national governments to pursue independent demand management policies since the behaviour of capital inflows becomes an important determinant of aggregate demand in the economy. Indeed, the policy focus tends to shift away from demand management to management of exchange rate, current account and foreign currency reserve. Capital account liberalisation, therefore, seems undesirable not just because this exposes developing countries to violent external shocks delivered by volatile flows of non-FDI finance but more importantly because it undermines national governments’ autonomy in the area of macroeconomic policy.<sup>32</sup>

It does not follow that developing countries cannot expect to derive much benefit from capital inflows. FDI inflows in particular can certainly help accelerate economic growth, especially when these enable the recipient country to promote exports of manufactures. But it appears that FDI inflows are more likely to meet the unmet demand for investment finance in the presence of capital account restrictions than in their absence. For, in the presence of restrictions, any unmet demand for investment finance is reflected in a current account deficit, to which FDI inflows can constitute a response. It cannot be assumed, of course, that any particular developing country can expect to receive FDI inflows whenever it runs a current account deficit, but this has little to do with the degree of capital account liberalisation. For, there is no reason to suppose that any particular developing country will receive FDI inflows whenever it eliminates capital account restrictions. The available empirical evidence in fact suggests that capital account liberalisation is neither necessary nor sufficient for

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<sup>32</sup> Globalisation is often thought to be eroding the policy-making autonomy of nation states. Our analysis suggests that such erosion results from liberalisation of capital accounts, which need not be seen as essential to globalisation. Trade liberalisation also promotes global economic integration but does not erode policy-making autonomy to any substantial extent.

inducing FDI inflows.<sup>33</sup> We should also note that special incentives, so often offered by developing countries to international investors, might conceivably serve a useful purpose only when there are capital account restrictions. When a country opens its capital account, it also removes the need to offer special incentives.

Naturally, our findings will need to be reconfirmed and extended through further research. In empirical research, distinguishing between “greenfield” investment and “mergers and acquisition” would be helpful, as would separate treatment of FDI promoting horizontal expansion of multinational firms and of FDI promoting vertical expansion. Theoretical investigations into the macroeconomic processes that underlie the crowding-out effect of FDI inflows would also add to our understanding.

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<sup>33</sup> See Mody and Murshid (2002) and Prasad et al (2003). Prasad et al (2003) also show that capital market liberalisation has no discernible effect on economic growth in developing countries.

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## **Annex 1: List of countries**

**Industrialised countries (ID):** Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, Japan, United States

**Core developing countries (DC):** Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Guyana, Honduras, Jamaica, Mexico, Paraguay, Peru, Uruguay, Egypt, Morocco, Tunisia, Turkey, China, Fiji, India, Indonesia, Korea (Rep.), Malaysia, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Thailand, Cameroon, Congo, Côte d'Ivoire, Ghana, Kenya, Mauritius, Zimbabwe

**Petroleum exporting developing countries (PE):** Trinidad and Tobago, Venezuela, Algeria, Iran, Saudi Arabia, Gabon, Nigeria

**High-income developing countries (HI):** Barbados, Malta, Israel, Hong Kong (China), Singapore, South Africa

**Least developed countries (LD):** Bangladesh, Nepal, The Gambia, Madagascar, Malawi, Niger, Senegal, Togo, Zambia



## **Annex 2: Appendix Tables**

## **Data and definitions**

The data on FDI inflows and FDI outflows are from UNCTAD website. FDI is defined as investment that is made to acquire a lasting management interest (10 per cent or more of voting stock) in an enterprise operating in a country other than that of the investor (defined according to residence), the investor's purpose being an effective voice in the management of the enterprise.

The data on net official inflows are from the World Bank's Global Development Finance (2003 CD-ROM) and are the same as "official net transfers". These are defined as official flows on long-term debt to official creditors (excluding IMF) plus official grants (excluding technical co-operation) minus principal repayments minus interest payments.

The data on private equity inflows are from the World Bank's Global Development Finance (2003 CD-ROM) and are the same as "portfolio equity flows". These include country funds, depository receipts and direct purchases of shares by foreign investors.

The data on net inflows of private loans are derived as "private net transfers" minus "portfolio equity flows" minus FDI inflows. Private net transfers (from the World Bank's Global Development Finance, 2003 CD-ROM) are defined as flows of debt to private creditors plus FDI inflows plus portfolio equity flows minus principal repayments minus interest payments.

The data on loans and grants from IMF are from the World Bank's Global Development Finance (2003 CD-ROM).

The data on international reserve (excluding gold) are from the IMF website.

The data on domestic saving, investment in fixed assets and GDP (all in current US\$) are from the World Bank's World Development Indicators (2003 CD-ROM).

**Table A1: FDI inflows (in billion US\$), 1975-200**

| Year | ID      | DC     | PE    | HI    | LD   | All sample countries |
|------|---------|--------|-------|-------|------|----------------------|
| 1975 | 16.91   | 3.97   | 3.57  | 0.94  | 0.12 | 25.50                |
| 1976 | 15.36   | 4.06   | -0.70 | 0.57  | 0.01 | 19.40                |
| 1977 | 20.13   | 4.40   | 1.86  | 0.55  | 0.10 | 27.04                |
| 1978 | 25.26   | 5.77   | 2.04  | 0.74  | 0.18 | 33.10                |
| 1979 | 33.28   | 7.66   | -0.54 | 1.03  | 0.14 | 41.57                |
| 1980 | 46.45   | 8.62   | -3.21 | 2.01  | 0.19 | 54.06                |
| 1981 | 45.66   | 11.62  | 7.56  | 4.01  | 0.01 | 68.85                |
| 1982 | 31.94   | 9.96   | 11.96 | 3.25  | 0.12 | 57.23                |
| 1983 | 33.52   | 8.91   | 5.66  | 2.46  | 0.00 | 50.55                |
| 1984 | 42.70   | 8.51   | 4.43  | 3.10  | 0.07 | 57.81                |
| 1985 | 42.58   | 10.90  | 1.05  | 0.45  | 0.03 | 55.02                |
| 1986 | 69.88   | 9.38   | 0.92  | 3.72  | 0.06 | 83.96                |
| 1987 | 116.30  | 10.04  | -0.27 | 9.15  | 0.10 | 135.33               |
| 1988 | 132.99  | 17.50  | 1.04  | 9.08  | 0.14 | 160.70               |
| 1989 | 162.42  | 19.14  | 1.91  | 4.95  | 0.23 | 188.65               |
| 1990 | 170.90  | 21.23  | 2.76  | 8.92  | 0.39 | 204.21               |
| 1991 | 112.64  | 26.15  | 2.98  | 6.38  | 0.04 | 148.20               |
| 1992 | 106.59  | 38.89  | 1.78  | 6.42  | 0.14 | 153.82               |
| 1993 | 136.41  | 56.06  | 3.55  | 12.11 | 0.35 | 208.48               |
| 1994 | 144.69  | 74.35  | 3.55  | 17.39 | 0.17 | 240.15               |
| 1995 | 202.58  | 84.92  | -0.12 | 20.50 | 0.20 | 308.07               |
| 1996 | 219.76  | 106.91 | 2.64  | 22.48 | 0.24 | 352.04               |
| 1997 | 267.50  | 128.80 | 10.77 | 30.76 | 0.63 | 438.45               |
| 1998 | 470.31  | 130.20 | 10.89 | 25.05 | 0.56 | 637.02               |
| 1999 | 820.74  | 148.11 | 3.80  | 43.23 | 0.71 | 1016.59              |
| 2000 | 1114.79 | 130.69 | 4.42  | 80.90 | 0.60 | 1331.40              |

Source: UNCTAD

**Table A2: FDI inflows as % of GDP, 1975-2000**

| Year | ID   | DC   | PE    | HI    | LD    | ADC  | All sample countries |
|------|------|------|-------|-------|-------|------|----------------------|
| 1975 | 0.40 | 0.51 | 2.02  | 1.43  | 0.38  | 0.82 | 0.48                 |
| 1976 | 0.33 | 0.48 | -0.31 | 0.85  | 0.48  | 0.35 | 0.34                 |
| 1977 | 0.38 | 0.46 | 0.76  | 0.72  | 0.50  | 0.53 | 0.41                 |
| 1978 | 0.40 | 0.55 | 0.77  | 0.86  | 0.70  | 0.62 | 0.44                 |
| 1979 | 0.46 | 0.62 | -0.16 | 0.96  | 0.45  | 0.48 | 0.46                 |
| 1980 | 0.58 | 0.61 | -0.74 | 1.39  | 0.52  | 0.37 | 0.54                 |
| 1981 | 0.56 | 0.75 | 1.69  | 2.63  | 0.02  | 1.06 | 0.67                 |
| 1982 | 0.40 | 0.65 | 2.77  | 2.17  | 0.36  | 1.18 | 0.56                 |
| 1983 | 0.40 | 0.61 | 1.30  | 1.53  | -0.00 | 0.81 | 0.49                 |
| 1984 | 0.48 | 0.56 | 1.07  | 2.00  | 0.21  | 0.76 | 0.53                 |
| 1985 | 0.47 | 0.67 | 0.25  | 0.33  | 0.09  | 0.56 | 0.48                 |
| 1986 | 0.62 | 0.57 | 0.21  | 2.38  | 0.17  | 0.62 | 0.62                 |
| 1987 | 0.89 | 0.56 | -0.08 | 4.71  | 0.25  | 0.80 | 0.88                 |
| 1988 | 0.91 | 0.87 | 0.30  | 4.07  | 0.30  | 1.05 | 0.93                 |
| 1989 | 1.07 | 0.84 | 0.57  | 2.05  | 0.49  | 0.91 | 1.05                 |
| 1990 | 1.01 | 0.83 | 0.74  | 3.18  | 0.75  | 1.02 | 1.10                 |
| 1991 | 0.63 | 0.98 | 1.17  | 2.03  | 0.08  | 1.08 | 0.70                 |
| 1992 | 0.56 | 1.36 | 0.65  | 1.82  | 0.26  | 1.33 | 0.68                 |
| 1993 | 0.71 | 1.80 | 1.13  | 3.21  | 0.64  | 1.86 | 0.90                 |
| 1994 | 0.70 | 2.10 | 1.11  | 4.15  | 0.34  | 2.20 | 0.96                 |
| 1995 | 0.89 | 2.11 | -0.03 | 4.36  | 0.34  | 2.14 | 1.11                 |
| 1996 | 0.97 | 2.40 | 0.62  | 4.54  | 0.38  | 2.43 | 1.25                 |
| 1997 | 1.20 | 2.79 | 2.40  | 5.86  | 0.96  | 3.02 | 1.57                 |
| 1998 | 2.08 | 3.00 | 2.51  | 5.14  | 0.84  | 3.13 | 2.28                 |
| 1999 | 3.45 | 3.41 | 0.83  | 9.01  | 1.04  | 3.66 | 3.49                 |
| 2000 | 4.65 | 2.77 | 0.85  | 16.14 | 0.86  | 3.73 | 4.47                 |

Note: Both FDI inflows and GDP are measured in current US \$. ADC refers to all developing countries in the sample (DC + PE + HI + LDS).

Source: UNCTAD and World Bank.

**Table A3: FDI inflows and investment, 1975-2000**

| FDI inflows as % of investment |       |       |       |       |       |       |       |
|--------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Year                           | ID    | DC    | PE    | HI    | LD    | ADC   | All   |
| 1975                           | 1.75  | 2.19  | 7.73  | 5.01  | 3.58  | 3.45  | 2.10  |
| 1976                           | 1.49  | 2.10  | -1.01 | 3.05  | 3.46  | 1.42  | 1.47  |
| 1977                           | 1.70  | 2.02  | 2.27  | 2.72  | 3.42  | 2.14  | 1.79  |
| 1978                           | 1.73  | 2.40  | 2.29  | 3.23  | 4.60  | 2.45  | 1.87  |
| 1979                           | 1.95  | 2.66  | -0.61 | 3.49  | 2.93  | 2.01  | 1.96  |
| 1980                           | 2.48  | 2.59  | -3.19 | 5.00  | 3.15  | 1.59  | 2.30  |
| 1981                           | 2.47  | 3.16  | 7.10  | 8.98  | 0.13  | 4.42  | 2.90  |
| 1982                           | 1.84  | 2.82  | 11.47 | 7.39  | 2.23  | 4.99  | 2.56  |
| 1983                           | 1.91  | 2.73  | 5.39  | 5.52  | -0.01 | 3.54  | 2.26  |
| 1984                           | 2.25  | 2.57  | 4.67  | 7.73  | 1.47  | 3.42  | 2.49  |
| 1985                           | 2.19  | 3.10  | 1.21  | 1.37  | 0.63  | 2.61  | 2.27  |
| 1986                           | 2.91  | 2.54  | 1.02  | 10.91 | 1.11  | 2.82  | 2.90  |
| 1987                           | 4.13  | 2.41  | -0.37 | 21.90 | 1.72  | 3.55  | 4.04  |
| 1988                           | 4.07  | 3.61  | 1.54  | 18.35 | 2.01  | 4.56  | 4.15  |
| 1989                           | 4.74  | 3.52  | 3.13  | 8.95  | 3.16  | 3.93  | 4.61  |
| 1990                           | 4.48  | 3.47  | 4.07  | 13.83 | 4.61  | 4.42  | 4.47  |
| 1991                           | 2.89  | 4.08  | 5.59  | 8.67  | 0.53  | 4.58  | 3.17  |
| 1992                           | 2.61  | 5.50  | 2.97  | 7.77  | 1.64  | 5.51  | 3.11  |
| 1993                           | 3.38  | 6.93  | 5.02  | 13.82 | 3.90  | 7.38  | 4.16  |
| 1994                           | 3.34  | 7.94  | 5.31  | 17.02 | 1.94  | 8.57  | 4.41  |
| 1995                           | 4.25  | 7.88  | -0.16 | 17.44 | 1.96  | 8.22  | 5.09  |
| 1996                           | 4.60  | 9.05  | 3.11  | 17.13 | 2.11  | 9.39  | 5.69  |
| 1997                           | 5.71  | 10.75 | 11.64 | 21.52 | 5.10  | 11.82 | 7.15  |
| 1998                           | 9.88  | 12.08 | 11.49 | 20.07 | 4.23  | 12.72 | 10.49 |
| 1999                           | 16.20 | 13.98 | 4.20  | 39.02 | 5.10  | 15.37 | 16.03 |
| 2000                           | 21.52 | 11.20 | 4.42  | 72.28 | 4.08  | 15.55 | 20.25 |
| Investment as % of GDP         |       |       |       |       |       |       |       |
| 1975                           | 22.53 | 23.27 | 26.18 | 28.45 | 10.73 | 23.73 | 22.77 |
| 1976                           | 22.21 | 23.01 | 31.22 | 27.81 | 13.88 | 24.69 | 22.71 |
| 1977                           | 22.57 | 22.82 | 33.33 | 26.34 | 14.60 | 24.89 | 23.03 |
| 1978                           | 23.14 | 23.09 | 33.59 | 26.48 | 15.27 | 25.11 | 23.50 |
| 1979                           | 23.52 | 23.33 | 25.58 | 27.62 | 15.23 | 23.90 | 23.59 |
| 1980                           | 23.31 | 23.45 | 23.05 | 27.76 | 16.36 | 23.54 | 23.36 |
| 1981                           | 22.81 | 23.57 | 23.73 | 29.23 | 16.99 | 23.89 | 23.04 |
| 1982                           | 21.64 | 23.09 | 24.13 | 29.39 | 16.12 | 23.63 | 22.06 |
| 1983                           | 21.09 | 22.18 | 24.05 | 27.70 | 15.43 | 22.89 | 21.45 |
| 1984                           | 21.29 | 21.78 | 22.94 | 25.94 | 14.52 | 22.19 | 21.47 |
| 1985                           | 21.26 | 21.74 | 20.57 | 24.18 | 14.89 | 21.56 | 21.32 |
| 1986                           | 21.42 | 22.31 | 20.62 | 21.85 | 14.80 | 21.84 | 21.49 |
| 1987                           | 21.65 | 23.41 | 20.03 | 21.50 | 14.75 | 22.60 | 21.80 |
| 1988                           | 22.37 | 23.99 | 19.18 | 22.16 | 15.07 | 23.04 | 22.47 |
| 1989                           | 22.60 | 23.94 | 18.08 | 22.84 | 15.49 | 23.03 | 22.67 |
| 1990                           | 22.48 | 23.91 | 18.12 | 22.96 | 16.33 | 23.04 | 22.57 |
| 1991                           | 21.86 | 24.04 | 20.89 | 23.44 | 15.73 | 23.61 | 22.13 |
| 1992                           | 21.33 | 24.63 | 21.77 | 23.42 | 15.93 | 24.15 | 21.78 |
| 1993                           | 20.93 | 25.94 | 22.48 | 23.25 | 16.35 | 25.26 | 21.66 |
| 1994                           | 20.96 | 26.41 | 20.86 | 24.39 | 17.34 | 25.69 | 21.78 |
| 1995                           | 20.99 | 26.75 | 20.66 | 25.01 | 17.61 | 26.01 | 21.89 |
| 1996                           | 20.97 | 26.54 | 19.91 | 26.51 | 18.21 | 25.92 | 21.92 |
| 1997                           | 20.95 | 25.93 | 20.64 | 27.24 | 18.81 | 25.55 | 21.88 |
| 1998                           | 21.02 | 24.82 | 21.83 | 25.61 | 19.96 | 24.59 | 21.70 |
| 1999                           | 21.31 | 24.41 | 19.71 | 23.08 | 20.32 | 23.84 | 21.77 |
| 2000                           | 21.59 | 24.77 | 19.21 | 22.33 | 21.10 | 24.02 | 22.06 |

Note: All variables are measured in current US \$. ADC refers to all developing countries in the sample (DC + PE + HI + LD).

Source: UNCTAD and World Bank.

**Table A4: Share (%) of county groups in total FDI inflows, 1975-2000**

| <b>Year</b> | <b>ID</b> | <b>DC</b> | <b>PE</b> | <b>HI</b> | <b>LD</b> |
|-------------|-----------|-----------|-----------|-----------|-----------|
| 1975        | 66.3      | 15.5      | 14.0      | 3.7       | 0.5       |
| 1976        | 79.2      | 20.9      | -3.6      | 3.0       | 0.5       |
| 1977        | 74.4      | 16.3      | 6.9       | 2.0       | 0.4       |
| 1978        | 74.3      | 17.0      | 6.0       | 2.2       | 0.5       |
| 1979        | 80.1      | 18.4      | -1.3      | 2.5       | 0.3       |
| 1980        | 85.9      | 16.0      | -5.9      | 3.7       | 0.3       |
| 1981        | 66.3      | 16.9      | 11.0      | 5.8       | 0.0       |
| 1982        | 55.8      | 17.4      | 20.9      | 5.7       | 0.2       |
| 1983        | 66.3      | 17.6      | 11.2      | 4.9       | 0.0       |
| 1984        | 72.1      | 14.7      | 7.7       | 5.4       | 0.1       |
| 1985        | 77.4      | 19.8      | 1.9       | 0.8       | 0.1       |
| 1986        | 83.2      | 11.2      | 1.1       | 4.4       | 0.1       |
| 1987        | 85.9      | 7.4       | -0.2      | 6.8       | 0.1       |
| 1988        | 82.8      | 10.9      | 0.6       | 5.7       | 0.1       |
| 1989        | 86.1      | 10.1      | 1.0       | 2.6       | 0.1       |
| 1990        | 83.7      | 10.4      | 1.4       | 4.4       | 0.2       |
| 1991        | 76.0      | 17.6      | 2.0       | 4.3       | 0.0       |
| 1992        | 69.3      | 25.3      | 1.2       | 4.2       | 0.1       |
| 1993        | 65.4      | 26.9      | 1.7       | 5.8       | 0.2       |
| 1994        | 60.3      | 31.0      | 1.5       | 7.2       | 0.1       |
| 1995        | 65.8      | 27.6      | 0.0       | 6.7       | 0.1       |
| 1996        | 62.4      | 30.4      | 0.8       | 6.4       | 0.1       |
| 1997        | 61.0      | 29.4      | 2.5       | 7.0       | 0.1       |
| 1998        | 73.8      | 20.4      | 1.7       | 3.9       | 0.1       |
| 1999        | 80.7      | 14.6      | 0.4       | 4.3       | 0.1       |
| 2000        | 83.7      | 9.8       | 0.3       | 6.1       | 0.0       |

Source: UNCTAD.

**Table A5: Net FDI inflows (in billion US\$), 1975-2000**

| <b>Year</b> | <b>ID</b> | <b>DC</b> | <b>PE</b> | <b>HI</b> | <b>LD</b> |
|-------------|-----------|-----------|-----------|-----------|-----------|
| 1975        | -11.06    | 3.74      | 3.53      | 0.94      | 0.11      |
| 1976        | -12.47    | 3.77      | -0.73     | 0.57      | 0.10      |
| 1977        | -7.80     | 4.15      | 1.84      | 0.55      | 0.10      |
| 1978        | -13.44    | 5.53      | 2.04      | 0.75      | 0.19      |
| 1979        | -29.14    | 7.42      | -0.57     | 1.08      | 0.12      |
| 1980        | -3.90     | 7.92      | -3.43     | 2.03      | 0.19      |
| 1981        | -5.04     | 10.99     | 7.52      | 4.08      | -0.01     |
| 1982        | 6.92      | 8.97      | 11.83     | 3.23      | 0.10      |
| 1983        | -2.85     | 8.09      | 5.66      | 1.89      | 0.00      |
| 1984        | -8.76     | 7.80      | 4.34      | 1.98      | 0.07      |
| 1985        | -15.28    | 8.97      | 1.05      | -0.55     | 0.03      |
| 1986        | -22.76    | 6.86      | 0.35      | 2.34      | 0.03      |
| 1987        | -19.06    | 8.10      | -0.33     | 6.58      | 0.09      |
| 1988        | -32.52    | 15.27     | -0.60     | 6.52      | 0.13      |
| 1989        | -48.76    | 16.46     | 0.23      | 2.08      | 0.22      |
| 1990        | -54.60    | 17.99     | 1.17      | 6.25      | 0.39      |
| 1991        | -73.11    | 21.71     | 2.41      | 3.31      | 0.05      |
| 1992        | -69.01    | 29.66     | 1.20      | -3.23     | 0.03      |
| 1993        | -67.09    | 46.12     | 2.27      | -6.50     | 0.33      |
| 1994        | -93.94    | 59.16     | 2.75      | -5.63     | 0.15      |
| 1995        | -101.62   | 70.81     | -0.42     | -7.01     | 0.19      |
| 1996        | -112.95   | 91.21     | 1.77      | -6.82     | 0.19      |
| 1997        | -127.84   | 109.22    | 9.94      | 1.76      | 0.61      |
| 1998        | -159.44   | 112.09    | 10.48     | 5.22      | 0.50      |
| 1999        | -199.59   | 131.46    | 2.09      | 20.40     | 0.65      |
| 2000        | 20.47     | 112.37    | 3.66      | 19.31     | 0.58      |

Note: Net FDI inflows = FDI inflows - FDI outflows.

Source: UNCTAD.

**Table A6: Net FDI inflows as % of GDP, 1975-2000**

| Year | ID    | DC   | PE    | HI    | LD    | ADC  |
|------|-------|------|-------|-------|-------|------|
| 1975 | -0.26 | 0.48 | 2.00  | 1.43  | 0.38  | 0.79 |
| 1976 | -0.27 | 0.45 | -0.33 | 0.85  | 0.49  | 0.32 |
| 1977 | -0.15 | 0.43 | 0.75  | 0.72  | 0.50  | 0.51 |
| 1978 | -0.21 | 0.53 | 0.77  | 0.87  | 0.72  | 0.60 |
| 1979 | -0.40 | 0.60 | -0.16 | 1.02  | 0.40  | 0.47 |
| 1980 | -0.05 | 0.56 | -0.79 | 1.41  | 0.52  | 0.33 |
| 1981 | -0.06 | 0.70 | 1.68  | 2.67  | -0.02 | 1.03 |
| 1982 | 0.09  | 0.59 | 2.74  | 2.16  | 0.30  | 1.13 |
| 1983 | -0.03 | 0.55 | 1.30  | 1.17  | 0.00  | 0.74 |
| 1984 | -0.10 | 0.51 | 1.05  | 1.28  | 0.21  | 0.67 |
| 1985 | -0.17 | 0.55 | 0.25  | -0.41 | 0.08  | 0.43 |
| 1986 | -0.20 | 0.41 | 0.08  | 1.50  | 0.07  | 0.42 |
| 1987 | -0.15 | 0.46 | -0.09 | 3.39  | 0.22  | 0.61 |
| 1988 | -0.22 | 0.76 | -0.17 | 2.92  | 0.28  | 0.81 |
| 1989 | -0.32 | 0.72 | 0.07  | 0.86  | 0.47  | 0.66 |
| 1990 | -0.32 | 0.70 | 0.31  | 2.23  | 0.75  | 0.79 |
| 1991 | -0.41 | 0.81 | 0.94  | 1.05  | 0.10  | 0.84 |
| 1992 | -0.36 | 1.03 | 0.44  | -0.92 | 0.06  | 0.78 |
| 1993 | -0.35 | 1.48 | 0.72  | -1.72 | 0.61  | 1.09 |
| 1994 | -0.45 | 1.67 | 0.86  | -1.34 | 0.28  | 1.30 |
| 1995 | -0.45 | 1.76 | -0.11 | -1.49 | 0.32  | 1.29 |
| 1996 | -0.50 | 2.05 | 0.41  | -1.38 | 0.30  | 1.59 |
| 1997 | -0.57 | 2.36 | 2.22  | 0.34  | 0.93  | 2.15 |
| 1998 | -0.70 | 2.58 | 2.41  | 1.07  | 0.76  | 2.41 |
| 1999 | -0.84 | 3.03 | 0.46  | 4.25  | 0.96  | 2.89 |
| 2000 | 0.09  | 2.39 | 0.70  | 3.85  | 0.84  | 2.34 |

Note: The variables are measured in current US \$. ADC refers to all developing countries in the sample (DC + PE + HI + LD).

Source: UNCTAD and World Bank.

**Table A7: International reserve (excluding gold)**

|      | In billions of current US\$ |        |        | Percentage share of GDP |       |       |
|------|-----------------------------|--------|--------|-------------------------|-------|-------|
|      | ID                          | ADC    | DC     | ID                      | ADC   | DC    |
| 1975 | 99.21                       | 62.84  | 16.49  | 2.32                    | 5.98  | 2.12  |
| 1976 | 108.70                      | 77.68  | 25.78  | 2.34                    | 6.76  | 3.06  |
| 1977 | 145.81                      | 92.07  | 37.03  | 2.78                    | 7.09  | 3.88  |
| 1978 | 188.64                      | 91.52  | 47.26  | 2.98                    | 6.45  | 4.54  |
| 1979 | 204.03                      | 108.29 | 56.26  | 2.81                    | 6.29  | 4.55  |
| 1980 | 237.24                      | 119.48 | 55.77  | 2.95                    | 5.86  | 3.92  |
| 1981 | 217.05                      | 120.41 | 51.35  | 2.68                    | 5.48  | 3.29  |
| 1982 | 204.66                      | 107.17 | 45.34  | 2.56                    | 5.00  | 2.97  |
| 1983 | 215.84                      | 111.22 | 51.50  | 2.59                    | 5.29  | 3.50  |
| 1984 | 221.55                      | 123.73 | 66.17  | 2.55                    | 5.83  | 4.36  |
| 1985 | 252.02                      | 127.01 | 61.99  | 2.76                    | 5.74  | 3.83  |
| 1986 | 307.39                      | 113.30 | 58.73  | 2.74                    | 4.95  | 3.54  |
| 1987 | 460.10                      | 136.86 | 72.64  | 3.53                    | 5.77  | 4.08  |
| 1988 | 475.12                      | 137.95 | 80.63  | 3.25                    | 5.23  | 4.00  |
| 1989 | 502.29                      | 151.10 | 90.02  | 3.32                    | 5.21  | 3.96  |
| 1990 | 589.11                      | 216.48 | 118.54 | 3.47                    | 6.62  | 4.63  |
| 1991 | 573.11                      | 274.93 | 161.23 | 3.21                    | 8.36  | 6.05  |
| 1992 | 545.53                      | 300.59 | 180.06 | 2.85                    | 8.46  | 6.28  |
| 1993 | 567.89                      | 368.92 | 218.51 | 2.94                    | 9.55  | 7.01  |
| 1994 | 633.31                      | 439.75 | 272.34 | 3.06                    | 10.14 | 7.68  |
| 1995 | 724.95                      | 524.74 | 341.87 | 3.19                    | 10.64 | 8.48  |
| 1996 | 789.14                      | 633.04 | 412.82 | 3.46                    | 11.65 | 9.28  |
| 1997 | 779.46                      | 697.47 | 436.92 | 3.49                    | 12.32 | 9.45  |
| 1998 | 768.11                      | 745.89 | 482.69 | 3.39                    | 14.00 | 11.12 |
| 1999 | 763.98                      | 803.85 | 526.12 | 3.21                    | 15.03 | 12.12 |
| 2000 | 811.75                      | 870.31 | 562.63 | 3.38                    | 15.00 | 11.94 |

Note: ADC refers to all developing countries in the sample. (DC + PE + HI + LD).

Source: IMF

**Table A8: Macroeconomic aggregates, period averages (millions of US \$)**

|                | <b>LAC</b> | <b>MENA</b> | <b>AP</b> | <b>SSA</b> | <b>All</b> |
|----------------|------------|-------------|-----------|------------|------------|
| <b>1983-89</b> |            |             |           |            |            |
| GDP            | 668065.0   | 139590.8    | 913054.7  | 41263.7    | 1761974.2  |
| Savings        | 157350.0   | 25321.1     | 260349.5  | 7643.9     | 450664.5   |
| Investment     | 129286.2   | 31682.2     | 235645.2  | 6695.7     | 403309.5   |
| <b>1990-97</b> |            |             |           |            |            |
| GDP            | 1386729.4  | 262947.3    | 1784487.9 | 48695.0    | 3482859.6  |
| Savings        | 272307.8   | 49000.0     | 593886.0  | 8070.6     | 923264.4   |
| Investment     | 266537.5   | 61095.9     | 559215.9  | 8458.5     | 895307.8   |

Note: LAC – 15 countries of Latin America and Caribbean  
MENA – 4 countries of Middle East and North Africa  
AP – 11 countries of Asia-Pacific  
SSA – 7 countries of Sub-Saharan Africa

Source: Author's estimates based on data available from World Bank.

**Table A9: Data used in regression analysis-I, 1983-89**

|                    | DI/Y  | S/Y   | NFR/Y  | NFDI/Y |
|--------------------|-------|-------|--------|--------|
| Argentina          | 0.180 | 0.218 | -0.027 | 0.006  |
| Brazil             | 0.205 | 0.247 | -0.026 | 0.004  |
| Chile              | 0.157 | 0.224 | -0.033 | 0.022  |
| Colombia           | 0.162 | 0.213 | -0.021 | 0.014  |
| Costa Rica         | 0.176 | 0.235 | -0.017 | 0.018  |
| Dominican Republic | 0.209 | 0.146 | 0.002  | 0.011  |
| El Salvador        | 0.121 | 0.057 | 0.049  | 0.005  |
| Guatemala          | 0.101 | 0.093 | -0.003 | 0.013  |
| Guyana             | 0.253 | 0.187 | 0.065  | 0.002  |
| Honduras           | 0.152 | 0.126 | 0.030  | 0.009  |
| Jamaica            | 0.212 | 0.180 | -0.008 | 0.004  |
| Mexico             | 0.172 | 0.255 | -0.050 | 0.011  |
| Paraguay           | 0.220 | 0.204 | 0.011  | 0.001  |
| Peru               | 0.210 | 0.230 | 0.014  | 0.002  |
| Uruguay            | 0.115 | 0.175 | -0.023 | 0.004  |
| Egypt              | 0.252 | 0.158 | 0.041  | 0.028  |
| Morocco            | 0.219 | 0.174 | 0.012  | 0.001  |
| Tunisia            | 0.243 | 0.224 | -0.007 | 0.013  |
| Turkey             | 0.199 | 0.189 | -0.003 | 0.003  |
| China              | 0.288 | 0.349 | 0.012  | 0.005  |
| Fiji               | 0.152 | 0.185 | -0.032 | 0.008  |
| India              | 0.209 | 0.210 | 0.014  | 0.000  |
| Indonesia          | 0.243 | 0.311 | -0.020 | 0.004  |
| Korea, Republic of | 0.300 | 0.348 | -0.022 | 0.000  |
| Malaysia           | 0.260 | 0.319 | -0.071 | 0.019  |
| Pakistan           | 0.167 | 0.088 | 0.013  | 0.002  |
| Papua New Guinea   | 0.197 | 0.132 | 0.056  | 0.035  |
| Philippines        | 0.197 | 0.199 | -0.011 | 0.008  |
| Sri Lanka          | 0.234 | 0.132 | 0.053  | 0.005  |
| Thailand           | 0.284 | 0.283 | 0.003  | 0.012  |
| Cameroon           | 0.204 | 0.238 | -0.001 | 0.007  |
| Congo              | 0.244 | 0.297 | 0.019  | 0.011  |
| Cote d'Ivoire      | 0.118 | 0.188 | -0.040 | 0.005  |
| Ghana              | 0.093 | 0.050 | 0.053  | 0.001  |
| Kenya              | 0.150 | 0.166 | 0.038  | 0.003  |
| Mauritius          | 0.208 | 0.235 | 0.013  | 0.009  |
| Zimbabwe           | 0.160 | 0.175 | 0.005  | -0.003 |

**Table A10: Data used in regression analysis-II, 1990-97**

|                    | DI/Y  | S/Y   | NFR/Y  | NFDI/Y |
|--------------------|-------|-------|--------|--------|
| Argentina          | 0.164 | 0.170 | 0.007  | 0.014  |
| Brazil             | 0.188 | 0.205 | 0.005  | 0.008  |
| Chile              | 0.205 | 0.257 | -0.011 | 0.034  |
| Colombia           | 0.181 | 0.189 | -0.009 | 0.021  |
| Costa Rica         | 0.162 | 0.148 | -0.030 | 0.029  |
| Dominican Republic | 0.192 | 0.152 | -0.054 | 0.020  |
| El Salvador        | 0.165 | 0.033 | 0.025  | 0.002  |
| Guatemala          | 0.137 | 0.088 | -0.004 | 0.007  |
| Guyana             | 0.195 | 0.193 | 0.116  | 0.136  |
| Honduras           | 0.219 | 0.236 | 0.035  | 0.018  |
| Jamaica            | 0.258 | 0.204 | -0.050 | 0.021  |
| Mexico             | 0.165 | 0.208 | -0.002 | 0.021  |
| Paraguay           | 0.211 | 0.098 | -0.018 | 0.015  |
| Peru               | 0.175 | 0.177 | 0.002  | 0.033  |
| Uruguay            | 0.134 | 0.157 | -0.001 | 0.006  |
| Egypt              | 0.172 | 0.127 | 0.018  | 0.013  |
| Morocco            | 0.201 | 0.164 | -0.032 | 0.015  |
| Tunisia            | 0.248 | 0.238 | -0.009 | 0.023  |
| Turkey             | 0.243 | 0.205 | -0.005 | 0.004  |
| China              | 0.292 | 0.414 | 0.010  | 0.040  |
| Fiji               | 0.076 | 0.127 | -0.059 | 0.047  |
| India              | 0.221 | 0.224 | 0.003  | 0.004  |
| Indonesia          | 0.266 | 0.318 | -0.004 | 0.013  |
| Korea, Republic of | 0.369 | 0.351 | 0.020  | -0.003 |
| Malaysia           | 0.353 | 0.397 | -0.014 | 0.049  |
| Pakistan           | 0.167 | 0.151 | 0.019  | 0.009  |
| Papua New Guinea   | 0.152 | 0.294 | -0.021 | 0.049  |
| Philippines        | 0.213 | 0.160 | 0.002  | 0.016  |
| Sri Lanka          | 0.231 | 0.154 | 0.030  | 0.013  |
| Thailand           | 0.382 | 0.354 | 0.025  | 0.014  |
| Cameroon           | 0.160 | 0.189 | 0.016  | -0.002 |
| Congo              | 0.208 | 0.272 | -0.015 | 0.032  |
| Cote d'Ivoire      | 0.099 | 0.157 | 0.003  | 0.010  |
| Ghana              | 0.207 | 0.088 | 0.102  | -0.002 |
| Kenya              | 0.158 | 0.145 | 0.018  | 0.002  |
| Mauritius          | 0.269 | 0.241 | 0.012  | 0.004  |
| Zimbabwe           | 0.202 | 0.166 | 0.020  | 0.004  |

**Table A11: Data used in regression analysis III, 1983-1997**

| DI/Y               | 1983  | 1984  | 1985  | 1986  | 1987  | 1988  | 1989  | 1990  | 1991  | 1992  | 1993  | 1994  | 1995  | 1996  | 1997  |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Argentina          | 0.207 | 0.197 | 0.166 | 0.169 | 0.196 | 0.177 | 0.143 | 0.127 | 0.134 | 0.153 | 0.182 | 0.189 | 0.163 | 0.161 | 0.175 |
| Brazil             | 0.176 | 0.162 | 0.163 | 0.190 | 0.220 | 0.219 | 0.246 | 0.206 | 0.181 | 0.179 | 0.191 | 0.205 | 0.201 | 0.177 | 0.173 |
| Chile              | 0.110 | 0.114 | 0.159 | 0.157 | 0.168 | 0.169 | 0.201 | 0.210 | 0.179 | 0.211 | 0.236 | 0.200 | 0.205 | 0.195 | 0.204 |
| Colombia           | 0.184 | 0.162 | 0.138 | 0.159 | 0.157 | 0.178 | 0.152 | 0.154 | 0.139 | 0.137 | 0.173 | 0.217 | 0.216 | 0.187 | 0.168 |
| Costa Rica         | 0.162 | 0.186 | 0.177 | 0.174 | 0.181 | 0.163 | 0.187 | 0.196 | 0.154 | 0.171 | 0.180 | 0.168 | 0.162 | 0.136 | 0.149 |
| Dominican Republic | 0.198 | 0.203 | 0.165 | 0.185 | 0.222 | 0.223 | 0.266 | 0.231 | 0.197 | 0.204 | 0.245 | 0.192 | 0.158 | 0.180 | 0.167 |
| El Salvador        | 0.108 | 0.111 | 0.117 | 0.125 | 0.132 | 0.122 | 0.130 | 0.137 | 0.147 | 0.169 | 0.175 | 0.185 | 0.182 | 0.159 | 0.156 |
| Guatemala          | 0.100 | 0.092 | 0.103 | 0.091 | 0.102 | 0.092 | 0.128 | 0.122 | 0.112 | 0.147 | 0.148 | 0.137 | 0.138 | 0.129 | 0.147 |
| Guyana             | 0.204 | 0.264 | 0.294 | 0.356 | 0.266 | 0.175 | 0.194 | 0.257 | 0.386 | 0.020 | 0.266 | 0.075 | 0.198 | 0.167 | 0.233 |
| Honduras           | 0.160 | 0.182 | 0.162 | 0.129 | 0.127 | 0.142 | 0.168 | 0.187 | 0.173 | 0.210 | 0.273 | 0.269 | 0.211 | 0.211 | 0.211 |
| Jamaica            | 0.211 | 0.207 | 0.225 | 0.163 | 0.180 | 0.235 | 0.245 | 0.223 | 0.204 | 0.244 | 0.269 | 0.259 | 0.275 | 0.281 | 0.276 |
| Mexico             | 0.160 | 0.171 | 0.181 | 0.181 | 0.176 | 0.174 | 0.161 | 0.170 | 0.172 | 0.186 | 0.174 | 0.170 | 0.127 | 0.149 | 0.163 |
| Paraguay           | 0.200 | 0.217 | 0.205 | 0.236 | 0.237 | 0.230 | 0.225 | 0.205 | 0.223 | 0.201 | 0.209 | 0.213 | 0.220 | 0.211 | 0.203 |
| Peru               | 0.233 | 0.208 | 0.181 | 0.203 | 0.198 | 0.312 | 0.173 | 0.160 | 0.166 | 0.161 | 0.164 | 0.143 | 0.203 | 0.166 | 0.211 |
| Uruguay            | 0.132 | 0.109 | 0.098 | 0.093 | 0.106 | 0.130 | 0.125 | 0.117 | 0.132 | 0.141 | 0.141 | 0.137 | 0.127 | 0.133 | 0.139 |
| Egypt, Arab Rep.   | 0.279 | 0.245 | 0.218 | 0.190 | 0.251 | 0.311 | 0.275 | 0.253 | 0.217 | 0.180 | 0.137 | 0.145 | 0.153 | 0.151 | 0.176 |
| Morocco            | 0.244 | 0.230 | 0.232 | 0.215 | 0.201 | 0.202 | 0.222 | 0.234 | 0.212 | 0.210 | 0.210 | 0.190 | 0.205 | 0.186 | 0.171 |
| Tunisia            | 0.293 | 0.304 | 0.265 | 0.241 | 0.206 | 0.198 | 0.216 | 0.299 | 0.288 | 0.286 | 0.236 | 0.236 | 0.224 | 0.218 | 0.228 |
| Turkey             | 0.147 | 0.142 | 0.151 | 0.170 | 0.246 | 0.257 | 0.222 | 0.224 | 0.233 | 0.231 | 0.262 | 0.242 | 0.234 | 0.248 | 0.261 |
| China              | 0.286 | 0.292 | 0.291 | 0.299 | 0.307 | 0.302 | 0.249 | 0.248 | 0.266 | 0.295 | 0.321 | 0.302 | 0.299 | 0.297 | 0.291 |
| Fiji               | 0.181 | 0.152 | 0.174 | 0.140 | 0.167 | 0.113 | 0.140 | 0.079 | 0.114 | 0.044 | 0.065 | 0.076 | 0.077 | 0.077 | 0.079 |
| India              | 0.188 | 0.196 | 0.206 | 0.210 | 0.214 | 0.216 | 0.223 | 0.229 | 0.220 | 0.224 | 0.213 | 0.217 | 0.238 | 0.222 | 0.208 |
| Indonesia          | 0.248 | 0.218 | 0.224 | 0.252 | 0.247 | 0.250 | 0.259 | 0.274 | 0.259 | 0.250 | 0.253 | 0.282 | 0.269 | 0.271 | 0.262 |
| Korea, Rep.        | 0.297 | 0.292 | 0.292 | 0.291 | 0.292 | 0.297 | 0.319 | 0.374 | 0.391 | 0.371 | 0.364 | 0.364 | 0.371 | 0.372 | 0.354 |
| Malaysia           | 0.313 | 0.291 | 0.272 | 0.245 | 0.214 | 0.231 | 0.255 | 0.274 | 0.285 | 0.281 | 0.319 | 0.372 | 0.398 | 0.390 | 0.395 |
| Pakistan           | 0.169 | 0.163 | 0.164 | 0.168 | 0.173 | 0.162 | 0.169 | 0.167 | 0.169 | 0.180 | 0.186 | 0.172 | 0.159 | 0.160 | 0.152 |
| Papua New Guinea   | 0.244 | 0.195 | 0.164 | 0.195 | 0.177 | 0.221 | 0.178 | 0.130 | 0.272 | 0.228 | 0.167 | 0.172 | 0.066 | 0.057 | 0.147 |
| Philippines        | 0.296 | 0.245 | 0.174 | 0.164 | 0.156 | 0.154 | 0.195 | 0.219 | 0.189 | 0.196 | 0.222 | 0.216 | 0.202 | 0.217 | 0.231 |
| Sri Lanka          | 0.283 | 0.252 | 0.233 | 0.231 | 0.224 | 0.219 | 0.213 | 0.217 | 0.219 | 0.223 | 0.234 | 0.253 | 0.251 | 0.231 | 0.215 |
| Thailand           | 0.276 | 0.276 | 0.267 | 0.252 | 0.273 | 0.289 | 0.322 | 0.375 | 0.397 | 0.375 | 0.383 | 0.394 | 0.404 | 0.403 | 0.314 |
| Cameroon           | 0.183 | 0.193 | 0.134 | 0.258 | 0.237 | 0.203 | 0.192 | 0.185 | 0.169 | 0.143 | 0.167 | 0.155 | 0.144 | 0.151 | 0.158 |
| Congo, Rep.        | 0.358 | 0.288 | 0.297 | 0.282 | 0.178 | 0.182 | 0.148 | 0.165 | 0.185 | 0.205 | 0.141 | 0.295 | 0.285 | 0.230 | 0.185 |
| Cote d'Ivoire      | 0.172 | 0.126 | 0.114 | 0.110 | 0.109 | 0.110 | 0.102 | 0.083 | 0.093 | 0.092 | 0.076 | 0.101 | 0.107 | 0.126 | 0.110 |
| Ghana              | 0.037 | 0.068 | 0.094 | 0.092 | 0.103 | 0.111 | 0.129 | 0.141 | 0.155 | 0.124 | 0.217 | 0.183 | 0.195 | 0.296 | 0.234 |
| Kenya              | 0.153 | 0.146 | 0.137 | 0.155 | 0.160 | 0.153 | 0.145 | 0.155 | 0.178 | 0.133 | 0.169 | 0.160 | 0.169 | 0.163 | 0.142 |
| Mauritius          | 0.177 | 0.174 | 0.175 | 0.185 | 0.195 | 0.237 | 0.252 | 0.266 | 0.291 | 0.292 | 0.283 | 0.283 | 0.268 | 0.242 | 0.249 |
| Zimbabwe           | 0.182 | 0.171 | 0.143 | 0.149 | 0.170 | 0.160 | 0.143 | 0.185 | 0.207 | 0.221 | 0.231 | 0.210 | 0.231 | 0.177 | 0.168 |

Table A11 : continued

| S/Y                | 1983  | 1984  | 1985  | 1986  | 1987  | 1988  | 1989  | 1990  | 1991  | 1992  | 1993  | 1994  | 1995  | 1996  | 1997  |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Argentina          | 0.242 | 0.228 | 0.231 | 0.193 | 0.199 | 0.220 | 0.220 | 0.197 | 0.162 | 0.152 | 0.167 | 0.169 | 0.175 | 0.174 | 0.171 |
| Brazil             | 0.191 | 0.214 | 0.244 | 0.216 | 0.256 | 0.279 | 0.280 | 0.214 | 0.205 | 0.214 | 0.223 | 0.225 | 0.205 | 0.189 | 0.189 |
| Chile              | 0.125 | 0.126 | 0.196 | 0.219 | 0.251 | 0.297 | 0.298 | 0.284 | 0.270 | 0.252 | 0.241 | 0.254 | 0.276 | 0.247 | 0.245 |
| Colombia           | 0.171 | 0.184 | 0.203 | 0.248 | 0.231 | 0.231 | 0.227 | 0.242 | 0.234 | 0.187 | 0.190 | 0.198 | 0.196 | 0.165 | 0.161 |
| Costa Rica         | 0.234 | 0.231 | 0.241 | 0.261 | 0.230 | 0.226 | 0.226 | 0.205 | 0.144 | 0.156 | 0.144 | 0.145 | 0.154 | 0.125 | 0.142 |
| Dominican Republic | 0.172 | 0.167 | 0.086 | 0.107 | 0.124 | 0.158 | 0.174 | 0.153 | 0.145 | 0.109 | 0.191 | 0.160 | 0.161 | 0.141 | 0.150 |
| El Salvador        | 0.066 | 0.052 | 0.033 | 0.089 | 0.053 | 0.063 | 0.049 | 0.012 | 0.021 | 0.022 | 0.038 | 0.046 | 0.042 | 0.023 | 0.042 |
| Guatemala          | 0.095 | 0.094 | 0.105 | 0.118 | 0.075 | 0.079 | 0.083 | 0.098 | 0.107 | 0.091 | 0.089 | 0.084 | 0.089 | 0.079 | 0.080 |
| Guyana             | 0.027 | 0.202 | 0.220 | 0.332 | 0.199 | 0.168 | 0.150 | 0.140 | 0.179 | 0.169 | 0.217 | 0.142 | 0.208 | 0.239 | 0.206 |
| Honduras           | 0.099 | 0.101 | 0.117 | 0.115 | 0.135 | 0.168 | 0.137 | 0.195 | 0.200 | 0.190 | 0.216 | 0.270 | 0.271 | 0.259 | 0.263 |
| Jamaica            | 0.149 | 0.171 | 0.145 | 0.199 | 0.210 | 0.195 | 0.178 | 0.221 | 0.230 | 0.276 | 0.207 | 0.213 | 0.188 | 0.179 | 0.167 |
| Mexico             | 0.303 | 0.277 | 0.263 | 0.224 | 0.254 | 0.240 | 0.229 | 0.220 | 0.204 | 0.183 | 0.171 | 0.169 | 0.225 | 0.252 | 0.258 |
| Paraguay           | 0.213 | 0.167 | 0.178 | 0.195 | 0.165 | 0.219 | 0.275 | 0.166 | 0.168 | 0.124 | 0.120 | 0.048 | 0.075 | 0.072 | 0.073 |
| Peru               | 0.245 | 0.246 | 0.249 | 0.200 | 0.197 | 0.298 | 0.208 | 0.184 | 0.150 | 0.144 | 0.154 | 0.189 | 0.191 | 0.179 | 0.196 |
| Uruguay            | 0.163 | 0.173 | 0.170 | 0.171 | 0.167 | 0.190 | 0.179 | 0.176 | 0.180 | 0.162 | 0.152 | 0.153 | 0.153 | 0.151 | 0.152 |
| Egypt, Arab Rep.   | 0.178 | 0.140 | 0.145 | 0.138 | 0.159 | 0.171 | 0.173 | 0.161 | 0.132 | 0.154 | 0.132 | 0.114 | 0.122 | 0.108 | 0.119 |
| Morocco            | 0.150 | 0.147 | 0.181 | 0.165 | 0.167 | 0.205 | 0.182 | 0.193 | 0.170 | 0.165 | 0.165 | 0.153 | 0.141 | 0.162 | 0.174 |
| Tunisia            | 0.251 | 0.245 | 0.241 | 0.195 | 0.225 | 0.211 | 0.206 | 0.255 | 0.271 | 0.274 | 0.217 | 0.215 | 0.207 | 0.235 | 0.240 |
| Turkey             | 0.122 | 0.121 | 0.134 | 0.161 | 0.235 | 0.262 | 0.219 | 0.201 | 0.199 | 0.209 | 0.219 | 0.225 | 0.210 | 0.186 | 0.193 |
| China              | 0.345 | 0.344 | 0.336 | 0.348 | 0.361 | 0.357 | 0.353 | 0.379 | 0.381 | 0.377 | 0.418 | 0.431 | 0.431 | 0.417 | 0.430 |
| Fiji               | 0.157 | 0.179 | 0.187 | 0.204 | 0.192 | 0.180 | 0.191 | 0.151 | 0.140 | 0.140 | 0.127 | 0.143 | 0.114 | 0.114 | 0.107 |
| India              | 0.176 | 0.201 | 0.212 | 0.213 | 0.207 | 0.222 | 0.225 | 0.226 | 0.219 | 0.230 | 0.213 | 0.231 | 0.253 | 0.206 | 0.213 |
| Indonesia          | 0.298 | 0.303 | 0.297 | 0.285 | 0.317 | 0.315 | 0.354 | 0.323 | 0.332 | 0.334 | 0.325 | 0.322 | 0.306 | 0.301 | 0.315 |
| Korea, Rep.        | 0.280 | 0.302 | 0.308 | 0.344 | 0.376 | 0.388 | 0.361 | 0.365 | 0.368 | 0.358 | 0.356 | 0.354 | 0.357 | 0.338 | 0.332 |
| Malaysia           | 0.284 | 0.321 | 0.299 | 0.294 | 0.347 | 0.337 | 0.342 | 0.345 | 0.341 | 0.367 | 0.391 | 0.396 | 0.397 | 0.429 | 0.439 |
| Pakistan           | 0.077 | 0.067 | 0.059 | 0.080 | 0.114 | 0.099 | 0.110 | 0.111 | 0.175 | 0.171 | 0.147 | 0.168 | 0.159 | 0.145 | 0.133 |
| Papua New Guinea   | 0.122 | 0.133 | 0.095 | 0.120 | 0.140 | 0.185 | 0.111 | 0.161 | 0.175 | 0.255 | 0.333 | 0.398 | 0.412 | 0.310 | 0.227 |
| Philippines        | 0.231 | 0.209 | 0.174 | 0.199 | 0.180 | 0.201 | 0.198 | 0.184 | 0.172 | 0.164 | 0.155 | 0.178 | 0.146 | 0.152 | 0.144 |
| Sri Lanka          | 0.138 | 0.202 | 0.102 | 0.121 | 0.132 | 0.120 | 0.115 | 0.138 | 0.139 | 0.150 | 0.161 | 0.153 | 0.154 | 0.153 | 0.173 |
| Thailand           | 0.228 | 0.252 | 0.255 | 0.279 | 0.284 | 0.312 | 0.325 | 0.338 | 0.363 | 0.360 | 0.358 | 0.354 | 0.354 | 0.355 | 0.351 |
| Cameroon           | 0.272 | 0.286 | 0.267 | 0.260 | 0.210 | 0.210 | 0.201 | 0.207 | 0.220 | 0.165 | 0.176 | 0.179 | 0.195 | 0.173 | 0.191 |
| Congo, Rep.        | 0.446 | 0.464 | 0.311 | 0.156 | 0.228 | 0.188 | 0.278 | 0.238 | 0.186 | 0.244 | 0.236 | 0.155 | 0.377 | 0.357 | 0.378 |
| Cote d'Ivoire      | 0.197 | 0.252 | 0.273 | 0.214 | 0.161 | 0.152 | 0.119 | 0.113 | 0.104 | 0.107 | 0.094 | 0.224 | 0.189 | 0.208 | 0.228 |
| Ghana              | 0.033 | 0.042 | 0.066 | 0.058 | 0.039 | 0.054 | 0.056 | 0.055 | 0.073 | 0.013 | 0.060 | 0.125 | 0.116 | 0.212 | 0.042 |
| Kenya              | 0.178 | 0.159 | 0.211 | 0.182 | 0.157 | 0.149 | 0.145 | 0.144 | 0.190 | 0.137 | 0.238 | 0.196 | 0.113 | 0.132 | 0.079 |
| Mauritius          | 0.161 | 0.178 | 0.201 | 0.252 | 0.278 | 0.265 | 0.246 | 0.235 | 0.239 | 0.254 | 0.252 | 0.236 | 0.234 | 0.238 | 0.243 |
| Zimbabwe           | 0.113 | 0.168 | 0.180 | 0.206 | 0.177 | 0.221 | 0.167 | 0.175 | 0.158 | 0.110 | 0.210 | 0.218 | 0.170 | 0.187 | 0.111 |

Table 11 : continued

| NFR/Y              |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                    | 1983   | 1984   | 1985   | 1986   | 1987   | 1988   | 1989   | 1990   | 1991   | 1992   | 1993   | 1994   | 1995   | 1996   | 1997   |
| Argentina          | -0.013 | -0.047 | -0.025 | -0.035 | -0.024 | -0.023 | -0.032 | -0.031 | -0.010 | -0.005 | 0.033  | 0.020  | 0.002  | 0.021  | 0.006  |
| Brazil             | -0.025 | -0.013 | -0.035 | -0.028 | -0.028 | -0.031 | -0.023 | -0.010 | -0.004 | 0.008  | 0.025  | 0.005  | 0.001  | 0.011  | 0.004  |
| Chile              | -0.023 | -0.049 | -0.039 | -0.042 | -0.042 | -0.013 | -0.032 | 0.006  | -0.038 | -0.028 | -0.006 | -0.001 | -0.047 | -0.008 | 0.025  |
| Colombia           | 0.000  | 0.008  | 0.002  | 0.003  | -0.060 | -0.033 | -0.061 | -0.067 | -0.064 | -0.054 | -0.022 | 0.005  | 0.000  | 0.021  | 0.018  |
| Costa Rica         | -0.061 | -0.013 | -0.007 | -0.031 | 0.004  | -0.013 | -0.012 | -0.032 | -0.010 | -0.039 | -0.040 | -0.027 | -0.038 | -0.018 | -0.032 |
| Dominican Republic | -0.006 | 0.017  | 0.025  | -0.012 | 0.001  | -0.002 | -0.011 | -0.010 | -0.024 | -0.038 | -0.065 | -0.083 | -0.061 | -0.058 | -0.061 |
| El Salvador        | 0.093  | 0.048  | 0.039  | 0.023  | 0.046  | 0.040  | 0.054  | 0.009  | 0.023  | 0.036  | 0.113  | 0.003  | 0.000  | 0.024  | 0.011  |
| Guatemala          | 0.014  | -0.007 | 0.003  | -0.015 | -0.019 | -0.005 | -0.001 | 0.002  | -0.005 | -0.020 | -0.008 | 0.006  | -0.005 | -0.011 | 0.003  |
| Guyana             | 0.015  | -0.005 | 0.089  | 0.098  | 0.103  | 0.068  | 0.096  | 0.231  | 0.481  | 0.013  | 0.102  | -0.009 | -0.025 | 0.060  | 0.209  |
| Honduras           | 0.033  | 0.042  | 0.064  | 0.021  | 0.013  | 0.022  | 0.021  | 0.077  | 0.149  | 0.038  | 0.080  | -0.011 | -0.028 | -0.017 | 0.031  |
| Jamaica            | 0.054  | 0.046  | 0.055  | -0.076 | -0.038 | -0.042 | -0.022 | -0.061 | -0.003 | -0.064 | 0.006  | -0.084 | -0.072 | -0.066 | -0.043 |
| Mexico             | -0.042 | -0.053 | -0.056 | -0.062 | -0.033 | -0.057 | -0.048 | 0.012  | 0.006  | -0.009 | 0.012  | -0.005 | 0.014  | -0.014 | -0.021 |
| Paraguay           | 0.026  | 0.015  | 0.029  | 0.015  | 0.004  | -0.036 | 0.017  | -0.046 | -0.018 | -0.071 | -0.029 | -0.005 | -0.006 | -0.001 | 0.003  |
| Peru               | 0.043  | 0.027  | -0.005 | 0.008  | 0.010  | 0.010  | 0.007  | 0.007  | -0.008 | -0.001 | 0.040  | 0.028  | -0.001 | -0.034 | -0.001 |
| Uruguay            | 0.031  | -0.053 | -0.056 | -0.025 | -0.008 | -0.036 | -0.019 | -0.043 | -0.015 | 0.008  | 0.001  | 0.002  | -0.008 | 0.004  | 0.016  |
| Egypt, Arab Rep.   | 0.075  | 0.066  | 0.058  | 0.039  | 0.034  | 0.031  | -0.001 | 0.079  | 0.080  | 0.031  | 0.000  | -0.001 | -0.012 | 0.000  | 0.008  |
| Morocco            | 0.006  | 0.042  | 0.035  | 0.027  | 0.007  | -0.002 | -0.006 | 0.023  | -0.007 | -0.063 | -0.030 | -0.041 | -0.046 | -0.032 | -0.051 |
| Tunisia            | 0.022  | -0.006 | -0.005 | 0.001  | -0.032 | -0.006 | -0.015 | -0.014 | -0.007 | -0.003 | -0.010 | -0.027 | -0.007 | -0.009 | 0.002  |
| Turkey             | -0.012 | 0.003  | -0.013 | 0.005  | -0.002 | 0.011  | -0.015 | -0.006 | -0.007 | 0.002  | 0.017  | -0.020 | -0.021 | -0.010 | -0.001 |
| China              | 0.002  | 0.002  | 0.011  | 0.015  | 0.019  | 0.018  | 0.011  | 0.012  | 0.007  | 0.024  | 0.033  | 0.018  | 0.003  | -0.001 | 0.004  |
| Fiji               | -0.002 | -0.017 | -0.024 | -0.033 | -0.040 | -0.026 | -0.077 | -0.076 | -0.073 | -0.053 | -0.052 | -0.071 | -0.057 | -0.048 | -0.048 |
| India              | 0.011  | 0.014  | 0.012  | 0.014  | 0.014  | 0.024  | 0.010  | 0.002  | 0.005  | 0.006  | 0.010  | 0.013  | -0.006 | 0.001  | -0.002 |
| Indonesia          | -0.011 | -0.024 | -0.033 | -0.027 | -0.013 | -0.013 | -0.015 | -0.006 | -0.004 | -0.001 | -0.026 | 0.015  | -0.002 | 0.009  | -0.022 |
| Korea, Rep.        | 0.012  | 0.011  | -0.002 | -0.039 | -0.083 | -0.014 | -0.018 | -0.005 | 0.007  | 0.013  | 0.017  | 0.024  | 0.018  | 0.031  | 0.034  |
| Malaysia           | 0.034  | -0.008 | -0.078 | -0.063 | -0.108 | -0.161 | -0.095 | -0.089 | -0.070 | -0.011 | 0.115  | 0.048  | 0.011  | -0.025 | -0.099 |
| Pakistan           | 0.007  | 0.016  | 0.005  | 0.012  | 0.012  | 0.019  | 0.020  | 0.015  | 0.019  | 0.030  | 0.023  | 0.029  | 0.003  | 0.017  | 0.021  |
| Papua New Guinea   | 0.157  | 0.060  | 0.084  | 0.079  | 0.022  | -0.005 | 0.036  | 0.070  | 0.011  | 0.112  | -0.120 | -0.071 | -0.120 | 0.014  | -0.013 |
| Philippines        | 0.023  | 0.002  | 0.007  | -0.013 | -0.033 | -0.042 | -0.014 | -0.008 | -0.018 | -0.020 | 0.021  | 0.012  | -0.027 | 0.028  | 0.011  |
| Sri Lanka          | 0.074  | 0.067  | 0.061  | 0.062  | 0.035  | 0.035  | 0.045  | 0.049  | 0.069  | 0.013  | 0.025  | 0.021  | 0.027  | 0.021  | 0.030  |
| Thailand           | 0.014  | 0.017  | 0.018  | -0.025 | -0.018 | -0.010 | 0.026  | 0.006  | 0.015  | 0.005  | 0.030  | 0.008  | 0.032  | 0.042  | 0.044  |
| Cameroon           | 0.028  | -0.006 | -0.071 | -0.002 | -0.009 | -0.011 | 0.058  | 0.038  | 0.018  | 0.038  | 0.009  | 0.051  | -0.012 | -0.011 | -0.014 |
| Congo, Rep.        | 0.073  | 0.050  | 0.024  | -0.002 | -0.018 | 0.088  | -0.074 | -0.051 | -0.082 | -0.005 | 0.195  | -0.029 | -0.073 | -0.056 | 0.026  |
| Cote d'Ivoire      | -0.037 | -0.050 | -0.084 | -0.083 | -0.037 | -0.015 | 0.006  | 0.027  | 0.008  | 0.008  | 0.005  | 0.092  | 0.007  | -0.010 | -0.077 |
| Ghana              | 0.021  | 0.028  | 0.037  | 0.067  | 0.059  | 0.073  | 0.073  | 0.115  | 0.119  | 0.075  | 0.076  | 0.181  | 0.089  | 0.114  | 0.064  |
| Kenya              | 0.031  | 0.018  | 0.012  | 0.020  | 0.040  | 0.054  | 0.075  | 0.106  | 0.082  | 0.028  | 0.005  | -0.048 | 0.003  | -0.015 | -0.015 |
| Mauritius          | -0.037 | 0.025  | 0.003  | -0.002 | 0.029  | 0.043  | 0.005  | 0.026  | 0.008  | -0.021 | -0.002 | 0.014  | 0.060  | 0.000  | 0.007  |
| Zimbabwe           | 0.028  | 0.023  | 0.006  | -0.013 | -0.006 | -0.010 | 0.006  | 0.015  | 0.027  | 0.079  | 0.037  | 0.010  | 0.026  | -0.004 | -0.012 |

Table A11 : continued

|                    | 1983   | 1984   | 1985   | 1986   | 1987   | 1988   | 1989   | 1990   | 1991   | 1992   | 1993   | 1994   | 1995   | 1996   | 1997   |
|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Argentina          | 0.002  | 0.003  | 0.010  | 0.006  | -0.001 | 0.009  | 0.013  | 0.013  | 0.013  | 0.014  | 0.009  | 0.010  | 0.016  | 0.020  | 0.019  |
| Brazil             | 0.006  | 0.007  | 0.006  | 0.001  | 0.004  | 0.008  | 0.001  | 0.001  | 0.000  | 0.005  | 0.002  | 0.003  | 0.005  | 0.015  | 0.022  |
| Chile              | 0.010  | 0.010  | 0.010  | 0.014  | 0.026  | 0.034  | 0.035  | 0.022  | 0.020  | 0.013  | 0.013  | 0.033  | 0.034  | 0.054  | 0.051  |
| Colombia           | 0.013  | 0.015  | 0.029  | 0.018  | 0.008  | 0.004  | 0.014  | 0.012  | 0.010  | 0.013  | 0.015  | 0.016  | 0.008  | 0.029  | 0.045  |
| Costa Rica         | 0.018  | 0.014  | 0.017  | 0.013  | 0.017  | 0.026  | 0.018  | 0.028  | 0.024  | 0.026  | 0.025  | 0.028  | 0.028  | 0.036  | 0.031  |
| Dominican Republic | 0.006  | 0.007  | 0.007  | 0.008  | 0.015  | 0.020  | 0.016  | 0.019  | 0.019  | 0.020  | 0.019  | 0.019  | 0.033  | 0.006  | 0.028  |
| El Salvador        | 0.008  | 0.003  | 0.003  | 0.006  | 0.005  | 0.004  | 0.004  | 0.000  | 0.005  | 0.003  | 0.002  | 0.000  | 0.004  | -0.001 | 0.005  |
| Guatemala          | 0.005  | 0.004  | 0.006  | 0.010  | 0.021  | 0.042  | 0.009  | 0.008  | 0.010  | 0.009  | 0.012  | 0.005  | 0.007  | 0.005  | 0.004  |
| Guyana             | 0.010  | 0.010  | 0.004  | -0.018 | 0.012  | 0.005  | -0.005 | 0.020  | 0.037  | 0.403  | 0.149  | 0.197  | 0.120  | 0.133  | 0.071  |
| Honduras           | 0.007  | 0.006  | 0.008  | 0.008  | 0.009  | 0.012  | 0.014  | 0.014  | 0.017  | 0.014  | 0.015  | 0.012  | 0.019  | 0.022  | 0.027  |
| Jamaica            | -0.005 | 0.005  | -0.004 | -0.002 | 0.016  | -0.003 | 0.013  | 0.030  | 0.032  | 0.038  | 0.016  | 0.016  | 0.014  | 0.014  | 0.020  |
| Mexico             | 0.015  | 0.008  | 0.010  | 0.013  | 0.009  | 0.011  | 0.012  | 0.009  | 0.015  | 0.010  | 0.011  | 0.024  | 0.035  | 0.030  | 0.033  |
| Paraguay           | 0.001  | -0.001 | 0.002  | 0.000  | 0.001  | 0.002  | 0.002  | 0.015  | 0.014  | 0.018  | 0.011  | 0.012  | 0.011  | 0.015  | 0.024  |
| Peru               | 0.004  | 0.001  | 0.001  | 0.002  | 0.001  | 0.001  | 0.001  | 0.001  | 0.000  | 0.004  | 0.020  | 0.069  | 0.038  | 0.058  | 0.027  |
| Uruguay            | 0.005  | 0.001  | -0.002 | 0.006  | 0.008  | 0.005  | 0.004  | 0.005  | 0.003  | 0.001  | 0.007  | 0.009  | 0.008  | 0.007  | 0.005  |
| Egypt, Arab Rep.   | 0.017  | 0.023  | 0.034  | 0.034  | 0.023  | 0.034  | 0.031  | 0.017  | 0.005  | 0.011  | 0.025  | 0.021  | 0.009  | 0.009  | 0.010  |
| Morocco            | 0.001  | 0.001  | -0.001 | -0.002 | 0.001  | 0.002  | 0.006  | 0.006  | 0.011  | 0.014  | 0.017  | 0.017  | 0.010  | 0.008  | 0.035  |
| Tunisia            | 0.025  | 0.017  | 0.017  | 0.009  | 0.010  | 0.008  | 0.009  | 0.007  | 0.013  | 0.037  | 0.045  | 0.034  | 0.018  | 0.014  | 0.019  |
| Turkey             | 0.001  | 0.002  | 0.001  | 0.002  | 0.001  | 0.004  | 0.006  | 0.005  | 0.005  | 0.005  | 0.003  | 0.004  | 0.005  | 0.003  | 0.003  |
| China              | 0.002  | 0.004  | 0.003  | 0.005  | 0.006  | 0.008  | 0.008  | 0.007  | 0.009  | 0.017  | 0.054  | 0.059  | 0.048  | 0.047  | 0.046  |
| Fiji               | 0.028  | 0.019  | 0.008  | 0.007  | -0.011 | 0.027  | -0.016 | 0.078  | 0.009  | 0.076  | 0.070  | 0.049  | 0.055  | 0.019  | 0.032  |
| India              | 0.000  | 0.000  | 0.000  | 0.000  | 0.001  | 0.000  | 0.001  | 0.001  | 0.000  | 0.001  | 0.002  | 0.003  | 0.006  | 0.006  | 0.009  |
| Indonesia          | 0.003  | 0.002  | 0.003  | 0.003  | 0.005  | 0.006  | 0.006  | 0.010  | 0.011  | 0.008  | 0.010  | -0.007 | 0.015  | 0.025  | 0.021  |
| Korea, Rep.        | -0.001 | 0.001  | -0.004 | -0.007 | 0.001  | 0.002  | 0.002  | -0.001 | -0.001 | -0.001 | -0.002 | -0.004 | -0.004 | -0.005 | -0.003 |
| Malaysia           | 0.034  | 0.016  | 0.015  | 0.008  | 0.006  | 0.015  | 0.036  | 0.056  | 0.079  | 0.085  | 0.070  | 0.030  | 0.037  | 0.035  | 0.036  |
| Pakistan           | 0.001  | 0.002  | 0.001  | 0.002  | 0.002  | 0.002  | 0.004  | 0.006  | 0.006  | 0.007  | 0.007  | 0.008  | 0.012  | 0.014  | 0.012  |
| Papua New Guinea   | 0.054  | 0.044  | 0.020  | 0.014  | 0.016  | 0.011  | 0.082  | 0.121  | 0.008  | -0.011 | 0.018  | 0.016  | 0.129  | 0.115  | 0.008  |
| Philippines        | 0.003  | 0.000  | 0.000  | 0.004  | 0.009  | 0.024  | 0.013  | 0.012  | 0.012  | 0.013  | 0.016  | 0.020  | 0.020  | 0.017  | 0.014  |
| Sri Lanka          | 0.007  | 0.005  | 0.004  | 0.005  | 0.009  | 0.006  | 0.003  | 0.005  | 0.007  | 0.012  | 0.018  | 0.013  | 0.005  | 0.009  | 0.028  |
| Thailand           | 0.009  | 0.010  | 0.004  | 0.006  | 0.004  | 0.018  | 0.024  | 0.028  | 0.019  | 0.018  | 0.013  | 0.006  | 0.007  | 0.008  | 0.023  |
| Cameroon           | 0.028  | 0.001  | 0.038  | -0.010 | 0.008  | 0.005  | -0.010 | -0.011 | -0.003 | 0.000  | -0.001 | -0.001 | 0.001  | 0.002  | 0.004  |
| Congo, Rep.        | 0.027  | 0.016  | 0.006  | 0.012  | 0.019  | 0.004  | -0.003 | 0.007  | 0.012  | 0.000  | 0.148  | 0.002  | 0.058  | 0.029  | 0.033  |
| Cote d'Ivoire      | 0.005  | 0.003  | 0.004  | 0.008  | 0.009  | 0.005  | 0.001  | 0.002  | -0.007 | -0.007 | 0.002  | 0.010  | 0.021  | 0.022  | 0.035  |
| Ghana              | 0.001  | 0.000  | 0.001  | 0.001  | 0.001  | 0.001  | 0.003  | 0.003  | 0.003  | 0.004  | 0.021  | 0.043  | 0.016  | -0.004 | 0.005  |
| Kenya              | 0.002  | 0.001  | 0.004  | 0.004  | 0.001  | 0.000  | 0.007  | 0.007  | 0.002  | 0.001  | 0.000  | 0.000  | 0.002  | -0.001 | 0.003  |
| Mauritius          | 0.001  | 0.005  | 0.008  | 0.006  | 0.010  | 0.012  | 0.016  | 0.017  | 0.003  | -0.010 | -0.005 | 0.006  | 0.004  | 0.008  | 0.012  |
| Zimbabwe           | -0.001 | -0.001 | 0.000  | 0.001  | -0.009 | -0.005 | -0.003 | -0.003 | -0.001 | 0.002  | 0.005  | 0.004  | 0.015  | 0.003  | 0.013  |

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