# Communications Networks and Foreign Direct: Investment in Developing Countries

Lydon, Reamonn and Williams, Mark

Communications  Strategies

June 2005

# Communications Networks and Foreign Direct Investment in Developing Countries

**Reamonn LYDON & Mark WILLIAMS** [*]
Frontier Economics, London

*Abstract:* It is widely accepted that investment is essential for the long-term economic growth of developing countries. There is some evidence that Foreign Direct Investment (FDI) in developing countries provides spill-over benefits through technology and skills transfer. Understanding the determinants of FDI inflows into developing countries is therefore an important policy objective. This paper shows that average FDI inflows into developing countries are greater in countries that have better telecommunications networks. In more recent years, this relationship can also be detected between FDI and mobile networks. The analysis has been refined to take account of countries' endowment of natural resources and the an attempt has been made to deal with the problem of endogeneity.
*Key words:* Africa, capital flows, foreign direct investment, investment risk, developing countries and telecommunications.

Higher investment is central to achieving long-term sustainable economic growth and poverty reduction in developing countries. Foreign investors are often seen as an important source of capital finance and some types of foreign investment may also bring spill-over benefits to the recipient country in the form of transfer of skills, tax revenues and formal employment. Understanding the determinants of the level of foreign investment therefore has potentially important policy implications.

In this study, we investigated the relationship between one type of foreign investment – Foreign Direct Investment (FDI) – and the characteristics of the recipient countries. We have focused, in particular, on the relationship between FDI flows into developing countries and the penetration of telecommunications networks in the recipient country. We found that both fixed and mobile communications networks are positively linked with inward FDI. The level of fixed network penetration in a county is also related to the extent and quality of other types of infrastructure, such as roads, developed over a long period of time. Mobile networks in developing countries are a

much more recent phenomena and therefore the relationship between mobile network penetration and FDI may give a better indication of the significance of communications networks as a determinant of FDI flows.

## ■ Foreign direct investment

Capital flows from abroad fall into two categories: official finance and private finance. Private flows, in turn, can be divided into three categories: loans from banks or other private sector lenders, portfolio capital flows for the purchase of securities such as bonds and equities and foreign direct investment, namely overseas capital invested as equity in businesses in the recipient country. FDI involves a long-term relationship between the investor and the entity in which the investment is made and often includes some management control by the foreign investor [1]. In practice, FDI includes a range of different activities and transactions. The privatisation of state-owned firms in developing countries is often included, as are programmes of investment in branches or subsidiaries of transnational corporations (TNCs). Another major type of FDI particularly important in Africa is related to concessions for exploring and developing natural resources such as oil, gas or mineral reserves.

The evidence on the impact of FDI in developing countries is mixed. Its developmental impact depends on the form of the investment, the sector of the economy concerned, and the policy environment in the host country. Even so, it is generally accepted that FDI can have a number of positive effects on the economies of developing countries. It can increase formal sector employment in countries where it is often scarce. Research indicates that access to employment in the formal sector is the most important factor in shifting poor people out of poverty (JENKINS & THOMAS, 2002). FDI usually involves the transfer of skilled personnel to the destination country. Companies also employ and train significant numbers of local staff. FDI is therefore often associated with the transfer of new technologies and skills to nationals of the destination country, which helps to raise productivity and incomes. It also involves medium- to long-term commitments by foreign investors. These investments are tied up with physical capital (plant and machinery, fixed assets etc.) and are therefore harder for the investor to

---

[1] The precise definitions of FDI vary between countries, usually according to the degree of share-ownership that is involved.

withdraw than portfolio investments. This reduces the volatility of foreign exchange movements and helps to limit exchange rate fluctuations.

In many developing countries, capital is scarce because there is very little domestic saving and access to international financial markets is either limited or non-existent. FDI in such cases can provide a vital source of capital. There is also some evidence to suggest that FDI stimulates domestic investment in developing countries (BOSWORTH & COLLINS, 1999). Lastly, foreign-owned enterprises in developing countries are often significant sources of tax revenue in countries where public finance is often severely constrained.

These potential benefits mean that governments in many developing countries have gone to considerable efforts to design policies to attract FDI. Key to designing such policies is a sound understanding of the determinants of FDI flows into developing countries.

## ■ The determinants of FDI

The volume of FDI varies significantly between countries and regions, as shown in figure 1, with poorer countries typically attracting the least inward investment as a proportion of their GDP.

There is substantial variation in the amount of FDI between countries within these country groups [2]. This is shown in figure 2, which indicates the variation in FDI inflows for each of the countries included in this study. The sample includes 32 of the 48 countries in Sub-Saharan Africa, and 39 other less developed countries [3].

---

[2] The country groupings in the figure are based on the following definitions: Least developed countries, UN definition; Middle Income Countries, World Bank definition - GNI per capita (2003) between USD 765 and USD 9,385;(Non-) OECD high income countries, World Bank definition - GNI per capita (2003) greater than or equal to USD 9,386.

[3] In constructing a sample of developing countries for the analysis that follows, we are constrained by data availability. The full list of countries included in the analysis is shown in table 3. The average income per capita for the countries included in the sample is USD 4,370 in 2002.

COMMUNICATIONS
&STRATEGIES

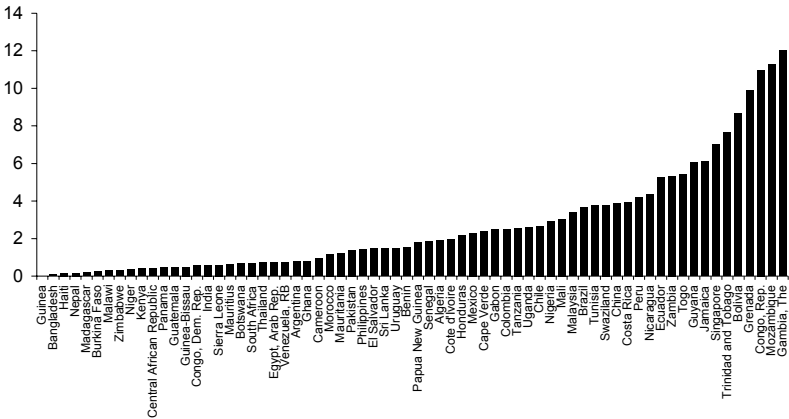**Figure 1: Foreign direct investment, net inflows (% GDP, 2002)**
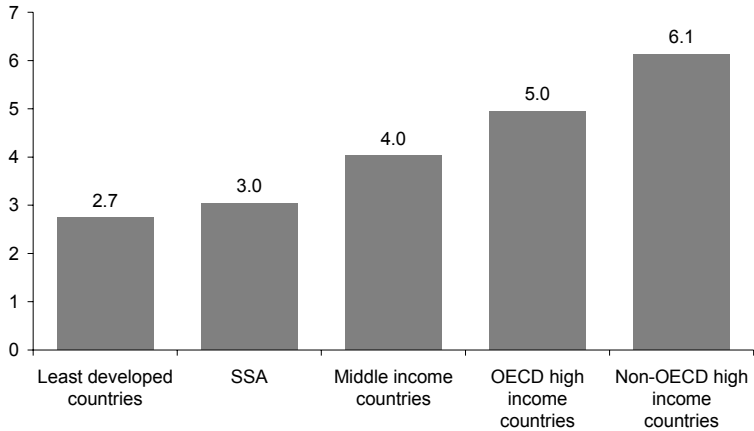
**FDI, % GDP 2002**



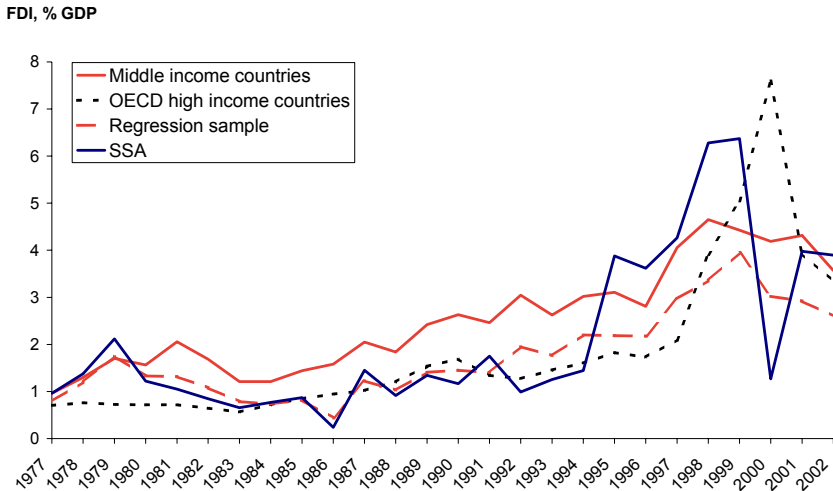*Source: World Development Indicators, World Bank (WDI, 2004)*

**Figure 2: Foreign direct investment by country, net inflows (% GDP 2002)**

**FDI/GDP (%) 2002**



*Source: World Development Indicators, World Bank (WDI, 2004)*

FDI flows also vary significantly over time. This is shown in figure 3, which provides an indication of the relationship between FDI flows and the global economic upturn of the late 1990s and the subsequent decline in FDI.

**Figure 3: Foreign direct investment, inflows 1977 – 2002**

**FDI, % GDP**



*Source: World Development Indicators, World Bank (WDI, 2004)*

Understanding the variation in FDI inflows between countries is an important issue for developing countries. Recent research on this question has been based on statistical (regression) analysis, using data from a large number of countries over a number of years, to assess the empirical importance a range of potential determinants of FDI flows. Each of the potential determinants is included as an explanatory variable in the regression analysis.

The majority of the empirical studies focus on average net FDI flows, specified as FDI/GDP in order to account for the impact of the scale of the host country. Furthermore, as FDI tends to vary significantly from year to year, studies using historical data have generally analysed average FDI over a number of years. MORISSET (2000) also takes account of the natural resource endowment of the country [4].

The majority of studies consider a range of explanatory variables including measures of economic openness (the importance of trade), the extent and quality of infrastructure, GDP, GDP growth, indicators of political

---

[4] MORISSET does this by calculating a variable referred to as the Foreign Direct Investment Climate. This is defined as FDI/ (GDP*Natural Resource). This is formally equivalent to assuming that both GDP and the natural resource endowment are determinants of FDI with an elasticity of one.

stability and measures of macroeconomic stability. Several studies have also investigated the relationship between additional specific variables and the level of FDI flows. For example, ASIEDU (2002) includes the inverse of GDP per capita as a measure of the return on capital. The rationale for this is that (the inverse of) GDP capita is a proxy for economic output per worker. High GDP per capita is an indication that there are high levels of capital per worker in the country, and that the returns to capital are relatively low.

Despite similar analytical frameworks, the overall results in the literature are mixed, depending on the periods chosen, the specification of the regression equations and varying between studies. Table 1 summarises the results of previous studies on the determinants of FDI.

**Table 1 - Determinants of FDI – Summary of the literature**

| Determinant of FDI/GDP | Positive | Negative | Insignificant |
|---|---|---|---|
| Openness | EDWARDS (1990) GASTANAGA et al (1998) HAUSMANN & FERNADEZ-ARIAS (2000) | | |
| Infrastructure quality | WHEELER & MODY (1992) KUMAR (1994) LOREE & GUISINGER (1995) | | TSAI (1994) LOREE & GUISINGER (1995) LIPSEY (1999) |
| Real GDP per capita | SCHNEIDER & FREY (1985) TSAI (1994) LIPSEY (1999) | EDWARDS (1990) JASPERSEN, AYLWARD, & KNOX (2000) | LORE & GUISINGER (1995) WEI (2000) HAUSMANN & FERNANDEZ-ARIAS (2000) |
| Labour cost | WHEELER & MODY (1992) | SCHNEIDER & FREY (1985) | TSAI (1994) LOREE & GUISINGER (1995) LIPSEY (1999) |
| Taxes and tariffs | | LOREE & GUISINGER (1995) GASTANAGA et al (1998) WEI (2000) | WHEELER & MODY (1992) LIPSEY (1999) |
| Political instability | | SCHNEIDER & FREY (1985) EDWARDS (1990) | LORE & GUISINGER (1995) JASPERSEN, AYLWARD & KNOX (2000) FERNANDEZ-ARIAS (2000) |

*Source: ASIEDU (2002)*

Morrisset finds that GDP growth and trade openness are both correlated with FDI, over and above the impact of GDP and natural resources. Political stability, illiteracy and infrastructure (as proxied by the number of telephone

lines) are not significant in all specifications. Asiedu also finds that openness to trade is positively associated with FDI and finds a positive relationship between FDI and infrastructure in non-Sub Saharan Africa (SSA). One of Asiedu's key findings is that FDI is generally lower in SSA than in other regions, and that the effect of the explanatory variables is lower in non-SSA regions than in SSA. REYNOLDS *et al* (2003) focus their analysis on the impact of telephone lines on FDI flows and find that having more mainlines than would be expected, given the size of the economy, is linked to a higher level of FDI.

The variables which emerge as unambiguously positively related to FDI flows are economic openness and infrastructure. In all the cited studies, the quality and extent of infrastructure is proxied by the number of main telephone lines per 1000 population.

This use of main telephone lines as a proxy for infrastructure does not address the issue of whether it is communications networks that are the key determinant of FDI flows or the general extent of a country's infrastructure that is important. No research that we are aware of has investigated the impact of different forms of infrastructure on FDI.

In this study, we have attempted to isolate the effect of a communications network on FDI flows by attempting to isolate the effect of mobile networks. Mobile penetration in developing countries has increased dramatically during the past 10 years. The extent of this growth is shown in table 2.

**Table 2 - Growth in Mobile penetration by country grouping, 1995-2000**

|  | Mobile phones per 1,000 population 1995 | Mobile phones per 1,000 population 2002 | Average annual growth rate (%) 1995 - 2002 |
|---|---|---|---|
| *Least Developed Countries* | 0.13 | 21.88 | 109% |
| *SSA* | 0.74 | 61.68 | 90% |
| *Middle Income Countries* | 5.73 | 191.29 | 66% |
| *OECD high income countries* | 87.33 | 765.01 | 37% |
| *Sample used in this study* | 5.28 | 122.83 | 58% |

*Source: World Development Indicators, World Bank (WDI, 2004)*

The recent rapid growth in mobile penetration in developing countries has come about largely as a result of the liberalisation of telecommunications markets.  There is therefore less reason to think that mobile penetration is

related to the extent of general infrastructure in the country. By examining the relationship between mobile networks and FDI, this study is therefore more likely to capture the effect of communications networks on FDI flows.

## ■ Analytical framework and data

We investigate the links between communications networks and FDI flows in developing countries by considering the following relationship:

$$\frac{NetFDI}{GDP} = f\left(Variables\right)$$

Where:
Net FDI   = net inflow of FDI;
GDP        = Gross Domestic Product; and
*Variables* = a range of possible explanatory variables, including mobile penetration.

We included a wide range of possible explanatory variables, in a number of different combinations, using data on the value of FDI flows and the other variables for the period 1993 to 2002. A common result in the literature is that parameter values can be sensitive to the choice of time period. This is likely to be even more important for the analysis in this paper, as growth in mobile networks accelerated in most developing countries towards the end of the period. We therefore focus our analysis and presentation of the results on more recent years.

In analysing the determinants of FDI flows over time and between countries, a number of methodological issues arise. FDI values typically vary significantly from year to year, particularly in developing countries. The data can be dominated by flows relating to specific large projects. For this reason, most studies are based on data averaged over several years, although this has the disadvantage of reducing the number of data points in the analysis. We explored the effect on the results of using different periods for averaging, in addition to using data for 2002 only.

Our analysis is based on a data for developing countries, and we identified seprately the countries that are in Sub-Saharan Africa (SSA). Except where stated, all of the explanatory variables are taken from the World Bank's *World Development Indicators* (WDI, 2004). The data on fixed

and mobile penetration in the WDI is supplied by the International Telecommunications Union.

## ■  Results

As outlined above, there are a number of important methodological issues that arise when estimating the empirical relationship between FDI flows and telecoms infrastructure. Several of these issues can be dealt with by making use of the panel nature of the data set we have constructed, that is, estimating the determinants of changes in FDI flows over time.  In this section we present the key results from our analysis, for reasons of expediency we do not present all our regression results [5].

### Basic results

Many of the existing studies find that the openness of an economy (defined as the sum of Imports and Exports divided by GDP) is positively related to FDI flows. One explanation of this result is that foreign companies are likely to be investing in developing countries with the intention of exporting the products. Countries with open economies are therefore likely to attract more foreign investment for this type of production. An alternative explanation is that the openness of an economy is related to the quality of general economic management and well-managed economies attract FDI.

We confirmed that there is a stable, statistically significant and positive relationship between economic openness and net FDI inflows. This effect is present in most regression specifications and the value of the coefficient remains stable. This robustness is a good indication that economic openness is indeed significantly related to FDI.

We next looked at the significance of telecom penetration as an explanatory variable for FDI flows. The results are shown in table 3. The table shows the results from estimating three specifications. In the first specification we look at the relationship between fixed line penetration (measured as the number of fixed line subscribers per 1,000 member of the

---

[5] Where we have carried out further analysis we indicate this in the text, and the full set of results from the analysis are available from the authors on request.

COMMUNICATIONS
&STRATEGIES

population) and FDI flows. The second specification looks at the relationship between mobile penetration and FDI flows. The third specification looks at both fixed and mobile penetration. All regressions are for the period 2000-2002.

The key result from the basic regression is that that fixed penetration dominates the telecoms effect. In the specifications that consider fixed and mobile independently, both variables are significant. However, when we include both variables together in the estimation, mobile becomes insignificant and fixed dominates [6].

Table 3: The determinants of average FDI flows 2000 - 2002

| Dependent variable: FDI inflows/GDP | | | |
|---|---|---|---|
| Openness | 0.019 | 0.023 | 0.019 |
| | (2.39)*[10] | (2.47)* | (2.37)* |
| Log (fixed) | 1.035 | | 1.019 |
| | (2.29)* | | (2.18)* |
| Log (mobile) | | 0.577 | 0.370 |
| | | (1.75)+ | (1.12) |
| Log (1/GDP per capita) | 0.840 | 0.548 | 1.348 |
| | (1.47) | (0.99) | (2.12)* |
| Dummy variable for SSA | 0.401 | -0.532 | 0.374 |
| | (0.53) | (0.91) | (0.49) |
| Constant | 3.397 | 3.157 | 5.719 |
| | (1.23) | (1.03) | (1.80)+ |
| Observations | 67 | 67 | 67 |
| Period (average) | 2000-2002 | 2000-2002 | 2000-2002 |
| R-squared | 0.24 | 0.21 | 0.27 |

* indicates significant at 5% and + indicates significant at 10%.

Not only do we find that the correlation between fixed penetration and FDI flows is statistically significant, but the magnitude of the coefficient is also relatively large. The coefficient of around one indicates that for a given increase in fixed line penetration, we would expect to observe a similar proportionate increase in FDI flows, (i.e. an 'elasticity' of around one). In the regression that considers mobile penetration only (the second column in

---

[6] The estimation also included an analysis of the residual values of the telecom's variables. These are residuals from a regression of telecom penetration on GDP/capita. This has the effect of removing the effect of collinearity between GDP and telecom penetration. It can also be interpreted as being a measure of countries with 'unexpectedly' high rates of fixed-line penetration. This is the approach taken by REYNOLDS *et al* (2004). We find that the substantive results presented in the paper are not significantly affected by considering either the 'residual' measure of the telecoms penetration variable, or the actual level, as we report here. The full set of results is available from the authors on request.

table 3), we find an elasticity of around 0.5 [7], however, as we pointed out, the fixed line effect tends to dominate the mobile effect when they are both considered together.

In general, the analysis indicated that the coefficient on fixed penetration rates in our sample was higher than for mobile penetration rates. However, as we outlined in introduction, interpretation of the coefficient on fixed line penetration is complicated by the fact that fixed line penetration is also likely to proxy for other forms of infrastructure that affect FDI flows. This is illustrated in figure 4, which shows the correlation between fixed line penetration and the quality of road networks in developing countries.

**Figure 4: Relationship between telephone mainlines and road quality**
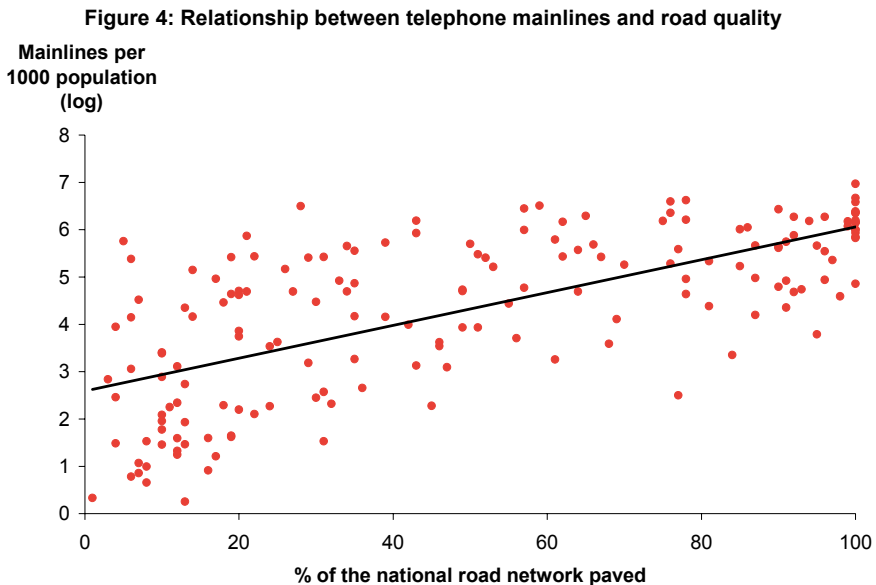


*Source: World Development Indicators, World Bank (WDI, 2004). The data refers to mainline penetration and road infrastructure in 1999, the latest year for which data is available*

One way to deal with this problem is to assume that the quality of non-telecoms infrastructure is unlikely to change significantly over a relatively short period of time, and is therefore adequately captured by country fixed

---

[7] We get a similar result for the effect tof mobile penetration on FDI flows when we look at 2002 data only.  However, we did not find a similar relationship when we included data from the earlier period (1993-1999). It is likely that this is due to the absence of mobile networks for most of the countries in our sample for much of this period.

effects. We therefore estimate regressions that consider the determinants of changes in FDI flows over the 2000-2002 period. The results from this analysis in differences are shown in table 4. These indicate that that the effect of fixed lines is statistically insignificant. It is likely that this is because the entent of mainline penetration typically does not change significantly in many developing countries during the period. However, the results show that changes in FDI flows are positively correlated with changes in mobile penetration.  Furthermore, the coefficients are similar to those we found for the un-differenced specifications in table 3. That is, a 1% increase in mobile penetration growth is correlated with around a 0.5% increase in changes in FDI flows over time.

**Table 4: Regression results - changes in FDI inflows over the 2000–2002 period**

| Dependent variable: Change in FDI inflows/GDP 2000 - 2003 | | | |
|---|---|---|---|
| Openness | 0.032 | 0.030 | 0.014 |
|  | (1.45) | (1.40) | (1.00) |
| Log (fixed) | -0.118 |  | -0.631 |
|  | (1.29) |  | (1.31) |
| Log (mobile) |  | 0.577 | 0.542 |
|  |  | (1.83)+ | (1.88) |
| Log (1/GDP per capita) | -1.26 | -0.250 | -0.339 |
|  | (0.38) | (0.99) | (0.10) |
| Constant | -0.519 | -1.052 | -1.028 |
|  | (2.24) | (3.03) | (2.91)+ |
| Observations | 67 | 67 | 67 |
| Period (average) | 2000-2002 | 2000-2002 | 2000-2002 |
| R-squared | 0.07 | 0.06 | 0.07 |

## Results from the IV estimation

Finally, the impact of endogeneity on the estimated parameters was considered.  It might be the case that FDI is affected by mobile penetration rates and mobile penetration rates are simultaneously affected by GDP, which is, in turn; a function of FDI. This problem was addressed by instrumenting the growth in mobile penetration in the estimation, i.e. by using the exogenous (instrumented) estimate of mobile penetration growth in the FDI equation.

Given the limited amount of data available, the choice of a suitable instrument is not straightforward. The instrument chosen for the growth in mobile penetration between 2000 and 2002 was average annual private telecoms investment over the 1990-1999 period. The intuition behind this choice of instrument is as follows.

A key driver of the rapid increase in mobile phone penetration in developing countries shown in table 2 was the failure of fixed operators in these countries to meet demand for communications services. It is therefore reasonable to expect that, *ceteris paribus*, countries with lower historical rates of telecommunications investment and lower rates of fixed line penetration during the 1990s would experience higher rates of mobile growth than countries with higher rates of fixed line penetration. This is demonstrated in figure 5.

**Figure 5: The relationship between growth in mobile penetration (2000-2002) and lagged telecoms investment (1990-2000)**
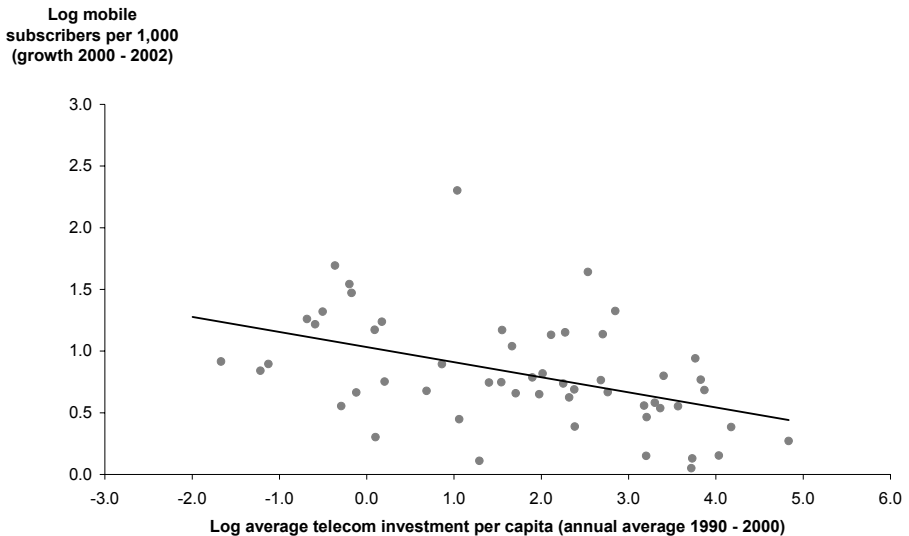


The horizontal axis in figure 5 shows the log of average annual private telecoms investment per capita over the 1990-2000 period. The vertical axis shows the change in (log) mobile penetration over the 2000-2002 period. There is a clear negative correlation between the two series. The reduced form equation, which relates growth in mobile penetration over the 2000-2002 period to lagged investment in telecoms, is shown in table 5.

It is possible that FDI flows in the period 2000-2002 were correlated with the level of private telecoms investment (i.e. countries with a history of high levels of investment in the telecommunications sector would attract FDI in the later period). However, there is there is little reason to suspect that changes in FDI between 2000 and 2002 would be correlated with investment in the earlier period. This is confirmed by the data.

COMMUNICATIONS
&STRATEGIES

**Table 5: Reduced form growth in mobiles equation**

| Reduced form equation for growth in mobile penetration 2000-2002 | Dependent variable: Change in log of mobile penetration 2000-2002 |
|---|---|
| Instrument<br><br>Log of telecoms investment per capita 1990-2000 | -0.213 |
| | (4.51) |
| Change in log GDP per capita | 0.471 |
| | (0.34) |
| Change in openness | -0.011 |
| | (1.33) |
| Log of total population size, 2000 | 0.268 |
| | (4.28) |
| Constant | 0.372 |
| | (0.44) |
| Observations * | 55 |
| Period | 2000-2002 |
| R-squared | 0.29 |

The estimation sample to date consisted of 67 countries. However, consistent data on the value of lagged telecom investment is only available for 55 of these countries. We have re-estimated all of the regressions presented thus far for this sub-sample of 55 countries, and find that the substantive results are unchanged.

**Table 6: IV Regression results – change in FDI inflows 2000-2002**

| | Non-IV regression<br>Dependent variable:<br>Change in FDI inflows/GDP | IV regression<br>Dependent variable:<br>Change in FDI inflows/GDP |
|---|---|---|
| Change in openess | 0.036 | 0.051 |
| | (1.31) | (1.88) |
| Change in log mobile penetration | 0.614 | |
| | (1.89)+ | |
| Change in log mobile penetration instrumented | | 1.726 |
| | | (2.44) |
| Change in log fixed penetration | -1.539 | -2.556 |
| | (0.92) | (1.53) |
| Change in log (1/GDP per capita) | -7.699 | -9.721 |
| | (1.79)+ | (2.23) |
| Constant | -0.835 | -1.878 |
| | (1.80)+ | (2.72) |
| Observations | 55 | 55 |
| Period | 2000-2002 | 2000-2002 |
| R-saquared | 0.10 | 0.18 |

   The IV estimation takes the fitted values for growth in mobile penetration from the regression in table 5, and uses this as an explanatory factor for the regression that tries to explain changes in FDI flows over the 2000-2002 period. The results of the IV estimation are shown in table 6. The IV estimation shows that, when the problem of endogeneity is controlled for

using IV estimation, the coefficient on the (change in) mobile penetration increases significantly.

## ■ Conclusions

Attracting FDI is a key policy objective in many developing countries. Understanding the determinants of FDI flows into these counties therefore potentially has significant policy implications. The flow of Foreign Direct Investment into developing countries is related to a number of different country characteristics, including the country's GDP, the openness of the economy and its infrastructure.

The extent and quality of the communications infrastructure in the host country may also be a significant factor in determining the level of FDI flows. The penetration rates of fixed and mobile networks are positively correlated with average FDI flows into developing countries over the past few years. The basic regression analysis appears to indicate that fixed networks are more important than mobile networks in determining FDI flows. However, the effect of fixed networks may also be capturing the role of other non-telecoms infrastructure in determining FDI flows.

We found that in some specifications mobile network penetration was positively correlated with FDI flows. In particular, growth in mobile penetration is positive and statistically significant in a regression that estimates the determinants of changes in FDI flows over the 2000-2002 period. The same regression specification found no effect for changes in fixed network penetration over time.

This form of regression analysis potentially suffers from problems of endogeneity arising from the fact that mobile network penetration and FDI may be determined simultaneously. One approach to dealing with this problem is using Instrumental Variables estimation. The instrument used for an analysis of the relationship between the change in mobile penetration rates and the change in levels of FDI is the levels of telecommunications investment in the period 1990 to 2000. This variable is correlated with changes in mobile penetration between 2000 and 2002, but not correlated with the change in FDI during the period. It is therefore a suitable instrument. This analysis indicates that, when endogeneity is controlled for, the relationship between mobile penetration rates and FDI flows is stronger than was found in the non-IV regression.

Taken together, these results serve to support the hypothesis that higher rates of communications infrastructure in developing countries are associated with higher rates of FDI. This relationship is even stronger when problems of endogeneity are controlled for.

## References

ASIEDU E. (2002): 'On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different?' in *World Development*, Vol. 30, no.1, pp. 107-119.

BOSWORTH B.P. & COLLINS S.M. (1999): 'Capital flows to developing economies: implications for saving and investment', Brookings Papers on Economic Activity: 1, Brookings Institution, pp. 143-169.

EDWARDS S. (1990): 'Capital flows, foreign direct investment and debt – equity swaps in developing countries', NBER working paper no. 3497, Cambridge, MA: NBER.

GASTANGA V. NUGENT J.B. & PASHAMOVA B (1998): 'Host country reforms and FDI inflows: How much difference do they make ?', in *World Development*, 26(7), 1299-1314.

HAUSMANN R. & FERNANDEX-ARIAS E. (2000): 'The new wave of capital inflows: Sea change or just another title ?', Inter-Amercian Development Bank working paper no. 417.

JASPERSEN F.Z., AYLWARD A.H. & KNOX A.D. (2000): 'The effects of risk on private investment: Africa comprared with other developing areas', In P. Collier & C. Pattillo (Eds.), *Investment and risk in Africa* (pp. 71-95). New York: St. Martin's Press.

JENKINS C. & THOMAS L. (2002): 'Foreign Direct Investment in Southern Africa: Determinants, Characteristics and Implications for Economic Growth and Poverty Alleviation'.

KUMAR N. (1994): 'Determinants of export orentitation of foreign production by US multinationals: an inter-country analysis', in *Journal of International Business*, 25(1), 141-156.

LIPSEY R.E. (1999): 'The location and characteristics of US affiliates in Asia', NBER working paper no. 6876.

LOREE D.W. & GUISINGER S.  (1995): 'Policy and non-policy determinants of US equity foreign direct investment', in *Journal of Business Studies*, 26(2), pp. 281-299.

MORISSET J. (2000): 'Foreign Direct Investment in Africa Policies Also Matter', in *Transnational Corporations,* Volume 9, Number 2.

REYNOLDS R., KENNY C., LIU J. & ZHEN-WEI QIANG C. (2004): 'Networking for foreign direct investment: the telecommunications industry and its effect on investment', in *Information Economics and Policy*, Vol 16, pp. 159-164.

SCHNEIDER F. & FREY B.S. (1985): 'Economic and political determinants of foreign direct investment', in *World Development* 13(2), pp. 161-175.

TSAI P.-L. (1994): 'Determinants of foreign direct investment and its impact on economic growth', in *Journal of Economic Development*, 19, pp. 137-163.

WIE S.-J. (2000): 'How taxing is corruption on international investment location decisions: The case of US firms', in *Journal of International Economics*, 33, pp. 57-76.

Wheeler D. & Mody A. (1992): 'International investment location decisions: The case of US firms', *in Journal of International Economics*, 33, pp. 57-76.