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Human Capital as Determinant of Foreign Direct Investment (FDI) in Pakistan

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Abstract: This study examines the effect of human capital on the inflow of foreign direct investment (FDI) in Pakistan by using regression analysis over 1975–2007. The base for measuring human capital is the population of a community, including its number, age and gender structure. This form of capital can be further measured by attributes of the population such as overall health and educational attainment. For all these human capital indicators Human Capital Index (HDI) is used that is published by the United Nations. The main finding is that a gross inflow of FDI is positively influenced by Human Capital in Pakistan. There is evidence that per capita income exerts a negative impact on inward FDI. From a policy point of view, the results suggest that increases in the level of human development and trade openness promote FDI. To sum up, the findings of this study and literature on human capital as a determinant of FDI indicates that human capital is an important determinant of FDI and for the developing countries seeking to attract higher value-added FDI, it is necessary to upgrade human capital.

Key words: FDI · Human Capital · Human Capital Index · Pakistan

INTRODUCTION

FDI has become an increasingly important source of financing worldwide. During the past two decades, global inflows of foreign direct investment (hereafter FDI) have soared: from $59 billion in 1982 to $651 billion in 2002 [1]. Attracting FDI is important for countries at all stages of development. It has been argued, however, that inducing greater FDI inflows is of more importance to developing countries given their lower savings rates and income levels. Indeed, FDI now represents the largest component of net resource flows to developing countries, surpassing Official Development Assistance (ODA), portfolio investments and bank loans [2].

FDI resulted from the needs and opportunities present in an imperfect market. Sufficient literature is also available on how to predict the outcome of such an investment and choose the best alternative. Despite the difficulties in defining FDI, there are generally accepted characteristics of FDI that correspond with the following definitions taken from several sources [3].

According to IMF:

> "Direct investment is a category of international investment made by a resident entity in one economy (direct investor) with the objective of establishing a lasting interest in an enterprise resident in an economy other than that of the investor (direct investment enterprise). 'Lasting interest' implies the existence of a long-term relationship between the direct investor and the enterprise and a significant degree of influence by the direct investor on the management of the direct investment enterprise.
> Direct investment involves both the initial transaction between the two entities and all subsequent capital transactions between them and among affiliated enterprises, both incorporated and unincorporated." (FDI Glossary – IMF)

For developing countries, FDI became especially important as a source of funding in the wake of the debt crisis, given the significant reduction in the flows of

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official and other private capital. In an environment with more vigorous capital flows, FDI is a means to balance loan and equity capital in private foreign capital inflows. FDI is also less volatile than other types of capital flows [4].

According to the neoclassical assumptions (where output is produced by capital and labor), capital is predicted to flow from wealthy to poor countries until capital–labor ratios equalize across countries. The observed pattern of FDI, with most capital flowing from one wealthy country to another, is thus an apparent paradox. Lucas [5] argues that differences in human capital could explain this paradoxical pattern.

Recently, there has been renewed interest in the idea that human capital might play a role in encouraging foreign investment. To the extent that physical capital and skills are complementary inputs, the presence of a healthy and more highly educated workforce can increase the productivity of capital. This is driven in part by economic activity shifting first from the primary goods to manufacturing sectors and then toward services, which are successively more knowledge intensive. For example, in the early 1970s, the services sector accounted for only 25% of the world FDI stock.

In the present study, the focus is whether human capital is a valid determinant of FDI attractiveness. We respond to a relative scarcity of empirical studies specifically investigating on the importance of human capital as a FDI determinant in Pakistan.

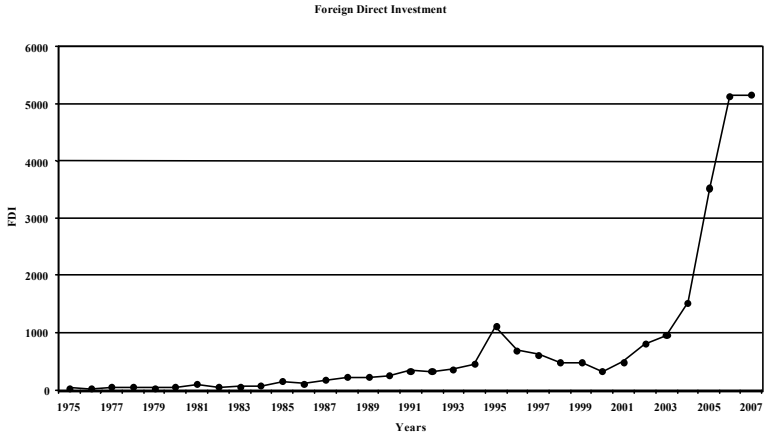
For Pakistan, to the best of our knowledge, no similar study exists. The themes of FDI and human capital development are particularly relevant to Pakistan. The country has been encouraging FDI inflows (lately more proactively, through various and sizeable FDI incentives); at the same time, it is a country with a recognized deficit in qualifications and with some of the poorest education indicators in Europe and in the developed world. Pakistan's sluggish economic growth, prevalence of low value-added activities, its difficulties and challenges as a FDI host economy and relatively low stock of human capital make this study timely, by tackling these critical issues for the country's development.

Policy descriptions and FDI flow in Pakistan

- All sectors are open to FDI with equal treatment of local and foreign investors
- Foreign investment on repatriable basis is now also allowed in agriculture, services, infrastructure and social sectors subjects to:
  - Joint venture basis (60:40).
  - Amount of foreign equity shell be at least US$ 1 million.
  - Foreign companies registered in Pakistan will be allowed.

- 100% foreign equity allowed and royalties, franchise fees, capital, profits, dividends etc all fully repatriable
- Attractive tax / tariff incentives package
- Low cost of doing business, one-window facilitation
- Reduction in corporate tax rate for private companies
- Tariff rationalization at both provincial and federal level to facilitate foreign investment.
- Labor laws would be amended to enhance emphasis on productivity, skills and discipline.
- The sources of investment will not be probed by any official agency.

Below figure traces the trends in FDI over the past 35 years. Pakistan has been introducing reforms to attract the inflow of investment since the early 1980's but FDI has crossed the one billion dollar mark only once in 1995-1996. During the 2002-2003, FDI is striving to reach the one billion dollar mark and in 2005 FDI is likely to cross that magic number and rise from 1524 million in 2004 to 5153 million in 2007.



The remainder of the paper is structured as follows. The next section will contain a literature review on human capital as a FDI determinant. Section 3 will be focused on the methodology, explaining the data, the proxies for the variables used in the econometric models estimated and the results will be presented in Section 4. Section 5 will synthesize the key findings and conclusion of the paper.

Literature Review On: Human Capital as Foreign Direct Investment (FDI) Determinant: Foreign Direct Investment (FDI) and human capital are two aspects of supreme relevance to the economic growth and prosperity of any developed nation. These topics have been widely studied and commanded two very rich bodies of literature. The links between these two 'engines of growth' have been less explored, though. It is widely acknowledged that human capital availability may boost a country's attractiveness as a recipient of FDI projects [6].

The level of education and skills of the workforce is bound to influence both the magnitude of FDI inflows and the activities undertaken by MNEs in the host country [7]. Lucas [5] conjectured that lack of human capital discouraged foreign investment in less-developed countries. This latter finding contrasts with a former result, also for a sample of developing countries, obtained by Root and Ahmed [8], who did not find human capital as an important FDI determinant. However, here the period used as a basis for the empirical analysis may yield the key to understand these conflicting results, as Root and Ahmed's study focused in the period 1966-1970 and it could be fairly hypothesized that in the 1960s human capital did not have the same importance as a location advantage as it has more recently.

Dealing specifically with this issue, Pfeffermann and Madarassy [9] concluded that, as a result of technological progress and the concomitant shift of FDI toward more capital-, knowledge- and skill intensive industries, the presence of a well-educated pool of labor has become increasingly attractive for MNEs relative to low labor costs *per se*. Therefore, the relative importance of the motivations for FDI is changing, but these changes vary according to several factors, including sector-specific patterns.

The motivations underlying FDI are dynamic and their relative importance changes over time [10]. For instance, human capital tends to matter considerably when strategic asset-seeking is an important investment motivation, but may not matter much when outright cheap labor-seeking, or efficiency-seeking (emphasizing low costs per se) are paramount reasons underlying inward investment.

Dunning [10] pointed out that the principal objective of firms in undertaking foreign production is to advance their long-term profitability. In addition to the profitability motives, some firms may undertake FDI as part of their corporate strategies. For instance, some firms may try to spread or reduce risks and to match competitors' actions. In general Dunning identified three possible motives for FDI:

- Market seeking FDI: refers to FDI for the purpose of serving local and regional markets. Host countries' characteristics that can attract market-seeking FDI include market size of the host country, per capita income and growth (potential) of the market.
- Resource/asset seeking FDI: refers to FDI for the purpose of acquiring resources which are not available in the home country. Such resources include natural resources, availability of raw materials and productivity and availability of skilled and unskilled labor.
- Efficiency seeking FDI: This kind of FDI occurs when the firm can gain from the common governance of geographically dispersed activities, especially in the presence of economics of scale and scope and diversification of risk.

Shamsuddin [11] argues that the poor explanatory power of human capital accumulation is attributed to the fact that education creates externalities and spillover effects in production, which are hard to capture using standard set of variables. More explanatory power can be achieved by identifying the role of human capital augmentation, rather than human capital accumulation, which may be poor explanatory variable in growth models because the crucial role of educational variables is difficult to be captured in using standard growth accounting. Further Krueger & Lindahl, [12] argue that the reason for the poorly determined coefficient could be measurement error in the data on education that biases the estimated coefficient toward zero.

Narula [13] states that FDI into developed economies is increasingly aimed at seeking complementary created assets. Therefore, the availability of human capital plays an increasingly relevant role as countries move along the ladder of development. However, this is not to claim that it is the only determinant, or necessarily the most important.

Hanson [14] provides further evidence in support of the hypothesis that the level of human capital in host economies may influence the geographical distribution of FDI.

Various studies have focused the case of developing countries. Lewis [15] also provides support to the proposition that human capital in host countries is a key determinant of foreign direct investment in developing countries. He notes that education, especially in technical discipline, provides least developed countries with the skills that are required by the multinational companies.

Countries that rely exclusively on low-cost low-skill labor or natural resources to attract FDI will find it difficult to induce FDI into high value-added industries and may suffer slower economic growth. Lall [16] argues that, given minimum levels of skills and infrastructure, low labor costs may now matter only in a handful of low-technology activities, such as low-end garments, since semiconductors have become highly automated and capital intensive.

Mody *et al*. [17] found for Japanese FDI in Asia that it is mainly driven by high-quality labor and not merely by cheap labor abroad, the coefficients of which are, in fact, insignificant. Measuring labor quality by secondary schooling rates may, as they argue, be misleading, as quality is more related to industrial experience – i.e. on-the-job performance – rather than formal educational attainments. Also, one should not underestimate the time lag with which improvements in school enrollment are manifested in a more productive workforce.

Testing for effects of secondary school enrollment on FDI inflows to 36 developing countries, Noorbakhsh *et al*. [6] report strong significance for this skill variable – but only if productivity-adjusted wages are excluded from the regression. While educational attainment does seem to matter, this particular finding leads to the conclusion that a skill variable may not add a great deal of new information in the presence of labor productivity measures.

Zhang, Kevin Honglin [18] explained the link between foreign direct investment (FDI) and economic growth in developing countries by using data for 11 economies in East Asia and Latin America and argued that FDI tends to be more likely to promote economic growth when host counties adopt liberalized trade regime, improve education and thereby human capital conditions, encourage export-oriented FDI and maintain macroeconomic stability.

Obwona [19] has analyzed globalization-induced changes in the relative importance of foreign direct investment in developing countries. His findings indicate that traditional market-related determinants are still dominant factors but the availability of local skills has become a relevant pull factor of FDI in the process of globalization. Salisu [20] also finds low level of human capital, as measured by the illiteracy rate, having a discouraging effect on FDI in Nigeria.

Steven Globerman and Daniel Shapiro [21] utilize newly developed indices to examine the role of other forms of infrastructure including human capital and the environment and indicate that governance infrastructure and human capital are an important determinant of both FDI inflows and outflows. Investments in governance infrastructure and human capital not only attract capital, but also create the conditions under which domestic multinational corporations emerge and invest abroad.

Jost [22] run cross-section and pooled regressions for German FDI in more than 60 developing countries between 1989 and 2000. Apart from the usual results for host country per-capita GDP and population, they found good scores for country risk as measured by the Euro-money index and an openness measure (adjusted for country size) as well as, in separate regressions, low political risk and a skill variable (rate of secondary schooling) to exert a strong positive influence on FDI stocks. Interestingly, the importance of country risk and a skill variable is shown to rise over the course of the last decade.

Furthermore Blomström and Kokko, [23] argued that FDI device to knowledge- and skill-intensive industries may imply that countries with higher levels of human capital are more attractive to investors. Miyamoto [2] concludes that not only is human capital a key prerequisite for benefiting from FDI, it is also very important for attracting FDI in the first place. Accordingly, polices that strengthen the stock of domestic human capital serve as useful FDI promotion strategies.

Head and Reis [24] noted that until recently, the most sought after internationally mobile resource (IMR) has been foreign direct investment (FDI), particularly new manufacturing facilities of MNEs. The desired set of IMRs has now widened to include a variety of activities of MNEs such as R&D and access to highly skilled professionals. The authors argued that the location decisions of FDI, research and development (R&D) and skilled professionals are jointly determined: success at attracting one resource draws more of each.

Schneider [25] argued that the positive impacts of FDI on host country depend on the action taken by the host government. In order to generate positive FDI contributions, host governments have to understand the determinants of FDI and guide it in such a way to achieve their national interests.

Slaughter [26] indicated that FDI does not always make a positive contribution to both economic growth and factor productivity. This is often because host countries are not able to capture the bulk of benefits associated with FDI without a certain threshold level of absorptive capabilities.

Drawing on a large-scale survey of firms located in Portugal and controlling for firms' structural (i.e. size, age and industry), strategic (R&D and export intensities) and linkages (density of university contacts) variables, Tavares and Teixeira [27] concluded that, indeed, human capital exerts a positive and significant influence on FDI attraction.

Alsan *et al*. [28] explored the effect of population health on gross inflows of foreign direct investment (FDI) by using panel data analysis of 74 industrialized and developing countries over 1980–2000 and concluded that gross inflows of FDI are strongly and positively influenced by population health in low- and middle-income countries.

Data and Methodology: This section presents a general description of the data and the empirical methodology used in this study.

Data Description and Source: Secondary data is employed in the present study for the period 1975-2007 and the data sources are Pakistan economic survey (various issues) and Pakistan social and living standard measurement survey2009. The dependent variable FDI is measured by net FDI inflow and the indicator of independent variable human capital is Human Development Index (HDI), the size of the market measured by GDP per capita and trade openness measured by trade (imports + exports) because openness is required not only with respect to exports, but also for imports, because many FDI ventures may require the purchase of intermediate inputs from abroad.. Explanation of the main variables included in this study is reported below.

Foreign Direct Investment (FDI): The World Bank World Development Indicators [1] defined FDI as the net amount invested or reinvested by non-residents to acquire a lasting interest (10 percent or more of voting stock) in enterprises in which they exercise significant managerial control. It has become an important source of private external finance for developing countries. It is the sum of equity capital, reinvestment of earnings, other long-term capital and short-term capital [29]. Pakistan has been introducing investment policy in 1997 to attract the inflow of investment. During the 2002-2003, FDI is striving to reach the one billion dollar mark and in 2005 FDI is likely to cross that magic number.

Attracting FDI is important for countries at all stages of development. It has been argued, however, that inducing greater FDI inflows is of more importance to developing countries given their lower savings rates and income levels. Indeed, FDI now represents the largest component of net resource flows to developing countries, surpassing official development assistance (ODA), portfolio investments and bank loans [2].

Human Capital: Human capital is the knowledge, skills and capabilities of the members of a community that can be used to create a flow of useful work for the community, the environment and the economy. The base for measuring human capital is the population of a community, including its number, age and gender structure. This form of capital can be further measured by attributes of the population such as overall health and educational attainment. For all these human capital indicators Human Capital Index (HDI) is used that is published by the United Nations. This index is now available for 168 countries, although not for every year. HDI is derived from three sub indices: GDP/population, educational literacy and enrolment and life expectancy at birth. The health and education components are direct measures of human capital. The GDP/population component is a measure of wealth that we use as a proxy measure for the amount of market size.

Human capital is considered to be an important factor for location strategies of multinational companies. When investing for the long term in another country, multinational companies have in mind the human resources in the host country. Large, efficient, educated population is a requirement for an attractive investment. The more educated the population is, the more likely it is for a country to attract more FDI [15].

Methodology: The work undertaken is intended to evaluate the empirical relevance of human capital in determining FDI attractiveness. Ordinary Least Square (OLS) regression analysis is used for empirical analysis. A regression error in estimated equation is tested for autocorrelation with the help of Durbin Watson (D-W) test and to remove autocorrelation AR (1) MA (1) is used. The general form of the model estimated has the following form:

$$FDI = f(HDI, EXP, IMP, PCI)$$

In order to assess the influence of the variables described, a foreign direct investment equation may be built up in the following linear form.

$$FDI_t = \alpha + \beta_1 PCI_t + \beta_2 HDI_t + \beta_3 IMP_t + \beta_4 EXP_t + \varepsilon_t$$

where

PCI = Per Capita Income
HDI = Human Development Index
IMP = Imports
EXP = Exports

Results and Findings:

$$\text{Log } (FDI)_t = 4.75 - 0.0099\log(PCI)_t + 0.0499\, HDI_t + 0.1712\log (IMP)_t + 0.446\log (EXP)_t$$

(2.78) (-0.99) (4.8) (1.75) (3.77)

R-Squared =0.99 Adjusted R-S= 0.99

Above equation reports results for an ordinary least square analysis. The coefficient on PCI is negative but not strongly significant. But the coefficients of HDI, exports and imports are positive and strongly significant.

The HDI demonstrates that human capital is a statistically significant predictor of gross FDI inflows at the 1% level. Results shows positive link between FDI inflows and measures of physical infrastructure that is consistent with the recent literature, which tends to find a positive and statistically significant effect. FDI gear to knowledge- and skill-intensive industries may imply that countries with higher levels of human capital are more attractive to investors [2, 6].

Estimations show that GDP per capita has inverse relation with FDI inflow in Pakistan.

According to the literature, the relationship between GDP per capita and FDI is far from unanimous because Edward (1990) concludes the inverse relation between FDI and GDP per capita but Schneider and Frey (1985) find positive relation between both variables. The argument here is that host country's market size, which is usually measured by GDP per capita, plays an important role in attracting FDI, but this is valid for market seeking FDI. Trade openness has positively effected on FDI inflow in Pakistan that is consistent with literature. Openness of the economy to trade is especially important for firms seeking to export products from the host country to the global market, as tariffs, quotas and other forms of capital controls will diminish firms' profits [31].

CONCLUSION

In this study an attempt has been made to look at the human capital as a determinant of FDI in Pakistan [32-34]. To this end, we have reviewed relevant literature pertaining to the human capital as a determinant of FDI in the context of developing and developed countries. The empirical analysis shows that human capital has a significant positive impact on FDI. In addition, this study examines the role of other determinants of FDI in FDI inflow such as trade openness and market size. The argument here is that host country's market size, which is usually measured by GDP per capita, plays an important role in attracting FDI, but this is valid for market seeking FDI. Trade openness has positively effected on FDI inflow in Pakistan that is consistent with literature. The main finding is that a gross inflow of FDI is positively influenced by Human Capital in Pakistan. Our estimations suggest that raising Human Development Index 100% increases gross FDI inflows by 0.5%, after controlling for other relevant variables. There is evidence that per capita income exerts negative impact on inward FDI. From a policy point of view, the results suggest that increases in the level of human development and trade openness promote FDI.

The positive and significant effect of HDI on FDI emphasizes the crucial role of human capital in stimulating investment by foreign investors as well as domestic investors. High rate of health, education and PCI signals a country's economic prospects and encourages foreign investors. In this regard, market size ensuring the quality of institutions as well as improving the quality of human capital are some of the important measures by way of ensuring the inflow of FDI.

These findings are consistent with the view that HDI is an integral measurement of human capital and suggest that the payoff to improved population health and education is also likely to include an elevated rate of FDI inflows.

To sum up, the findings of this study and literature on human capital as a determinant of FDI indicates that human capital is an important determinant of FDI and for the developing countries seeking to attract higher value-added MNEs, it is necessary to upgrade human capital.

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