
**HUMAN CAPITAL AND FOREIGN DIRECT INVESTMENT:
LESSONS FOR PAKISTAN**

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ABSTRACT

Foreign direct investment plays a key role in economic development of all countries. Because of its enormous importance, a large number of empirical studies has focused on finding out the factors determining foreign direct investment. Level of human capital development is one of the major factors influencing foreign inflows. However, earlier studies examining impact of human capital on foreign investment inflows has majorly used literacy rate, school enrolment and government spending on education as its proxies. This paper also examines the impact of human capital as determinant of foreign direct investment. Contrary to earlier empirical studies, it uses cognitive skills as proxy for human capital. Cognitive skills measure the quality of education instead of literacy rate or government spending on education as proxy for human capital. Results indicate that human capital has significant positive effect on foreign direct investment for sample countries. This result is robust to disaggregated data for developed and developing countries. Other factors that determine foreign direct investment inflows are inflation, capital account openness, trade account openness and real income. Based on empirical results, it is recommended that the relevant authorities must make human capital as part and parcel of strategies aimed at augmenting economic growth in the country. There is also a lesson for a developing country like Pakistan to focus more on quality of education instead of school enrolment or education spending for attracting foreign direct investment to boost economic activity (J.E.L Classification Codes: O4, O15, P22).

Keywords: Cognitive Skills, Human Capital, Economic Growth.

INTRODUCTION

Foreign Direct Investment (FDI) is an investment made by a firm or individual of one country into business interests located in another

country. Foreign investment is considered to be an integral part of an economy as it helps in accelerating the economic development. By creating a favorable environment for foreign investors, the host country benefits from faster development goals, modernization of infrastructure equipment and technology inflows. Competitive and innovative advantages, generation of employment, contribution to growth in exports, global market access for domestic players, improves consumer welfare by reducing costs, improving choice and quality are some of the benefits of foreign direct investment.

FDI inflows have always remained an important part of developing countries' growth strategy. The impact of foreign direct investment (FDI) on growth of the economy has therefore been researched extensively, as many assume that greater inflows of FDI will bring greater benefit to the economy of developing countries in particular (DeMello, 1997). However, the impact of FDI as a source of capital depends on several factors, such as the form it takes, type of FDI, level of human capital, the host sector, the scale, the duration, its location, etc. Furthermore, absorptive capacity of the host country has major effect on foreign direct investment contribution to the economic growth. According to Te Velde (2003) FDI's positive impact on developing economies needs a perspective that is more than just appealing but must also include the application of FDI for meeting sustainable growth objectives.

The emergence of globalization in the 1970s underlined the role of FDI as an important source of financing for developing countries. However, a minimum human capital threshold was required for technological transfers and spillovers from FDI activities.

In addition, there is evidence that human capital plays an important role in growth and development of less developed countries. Although there is some discrepancy in the empirical findings regarding the exact relationship between human capital and economic growth, there is still a wealth of evidence suggesting some positive effects between these variables. Finally, it was suggested that FDI and human capital levels may have a symbiotic relationship whereby the type and level of human capital may dictate the type of FDI inflows, whereas the level of FDI inflows can lead to technological advances and growth that in turn can stimulate human capital.

Becker (1964) floated the idea of human capital in his book titled ‘Human Capital’. According to him, human capital embodies skills to work more efficiently and produce more. According to Mincer (1984) human capital refers to capabilities acquired through formal and informal education at home and in schools, on job training, understanding and flexibility in work market. Level of human capital can be increased by spending more on people’s education, training and health. During the decade of 1980s and 1990s, researchers around the world started giving more attention to differences in economic growth across the world (Hanushek, 2013). Based on empirical findings, it was concluded that human capital is a major factor explaining these differences. Human capital is viewed as factor of production along with other determinants of economic growth. In earlier empirical literature, different proxies are used for human capital and include school enrolment, adult literacy rate and government spending on education.

In this paper, we also examine the impact of human capital on foreign direct investment. However, contrary to earlier empirical literature that uses school enrolment, adult literacy and government spending, this paper uses cognitive skills as proxy for human capital in attracting foreign direct investment in cross section of seventy-three countries. This proxy is used because education given at educational institutions has major bearing on labor force skills. Quality education if given sharpens labor skills and thus acts as catalyst in attracting foreign inflows. East Asian countries particularly Singapore, Taiwan, Malaysia, Thailand, Hong Kong (SAR) and South Korea are living examples of role of human capital in attracting foreign direct investment and initiating economic growth. Due to its enormous importance, most of the countries and international organizations have made quality education as part of their development strategy. Cognitive skills are core skills that brain uses to think, read, learn, remember, reason, and pay attention. Working together, they take incoming information and move it into the bank of knowledge we use every day at school, at work, and in life. Each of cognitive skills plays an important part in processing new information. In case of weak cognitive skills, grasping, retaining, or using the information that comes on our way is impacted. In fact, most learning struggles are caused by one or more weak cognitive skills. Given this background,

this paper focuses on human capital as determinant of foreign direct investment in panel of seventy-three countries. Contrary to earlier empirical literature that uses school enrolment, literacy rate and government spending on education, this paper uses cognitive skills as proxy for human capital and examines its importance in attracting foreign direct investment in the sample countries. Results indicate significant positive effect of cognitive skills on foreign direct investment of sample countries. This result hold true for developing and advance economies as well. Other factors that determine inflows are inflation, capital account openness, trade account openness and real income.

The rest of the paper follows as: literature review is given in section two followed by data discussion in section three. In section four research methodology and results are discussed and section five concludes.

LITERATURE REVIEW

This section contains review of the studies that have examined the impact of human capital on foreign direct investment across the world.

Root and Ahmed (1979) focused human capital in attracting foreign direct investment for 58 developing economies. They used literacy rate, school enrolment and government spending as proxies for human capital. Results indicate none of these proxies of human capital have significant effect on foreign direct investment inflows in sample countries.

Hanson (1996) examined the effect of human capital as a determinant of foreign direct investment in a sample of 105 developing countries. The results show that adult literacy which is used as proxy for level of human capital is an insignificant determinant of foreign direct investment in sample countries.

Narula (1996) also focused on the effect of human capital on foreign direct investment for a sample of 22 countries. The results show that tertiary education per population– a proxy for human capital has no effect on foreign direct inflows of sample countries.

Bissooni (2011) analyzed 45 developing countries from different regions of the world like Latin American, Asian and African countries. He found that quality institutions have key role in attracting inward foreign direct investment.

Hussain and Kimuli, (2012) focused the factor that explain variation in inward foreign direct investment inflows. Their findings emphasized the importance of trained and skilled labor force, stable macroeconomic conditions, and established financial sector explain much of the variation in foreign direct investment inflows in developing countries.

Hanushek (2013), human capital is considered driving force for economic growth in developing countries. Developing countries have considerably covered the gap in school achievement with developed countries but still huge gap in terms of quality education remains between both. Without improving Cognitive Skills (quality of education), developing countries would never achieve long run economic goals. This work focuses on how school financial resources and other social factors affect the outcomes of the students. The general idea is that knowledge is assessed by successes which can be used as a direct indicator of a country's human capital. Model of this research study itself does not say that education is meaningless, but he says that somehow the part of schooling directly related to skills has an impact on cross- country economic growth disparities. Eventually, the potential effect of cognitive abilities on growth is very massive.

Azam et.al., (2015), focused on human capital and tried to create consensus on the importance of human capital, because HC was vital cause of economic growth, advancement and progress for poor and emerging countries of the world, Scholars and researchers of developed countries have shown great concern for human capital for development of their countries. Empirical and theoretical research have now recognized the role of human capital in financial progress (Mincer, 1974; Romer, 1986 and Lucas, 1988). Human capital is well-defined by Mincer (1981:2) as, "Human capital deals with learned skills which are established through official and easy education at school and at home, and via training, life experience and social mobility. Fixed effect method was used for finding out the impact of human capital on foreign direct investment for sample of 34 countries. The findings show positive association between human capital and foreign direct investment".

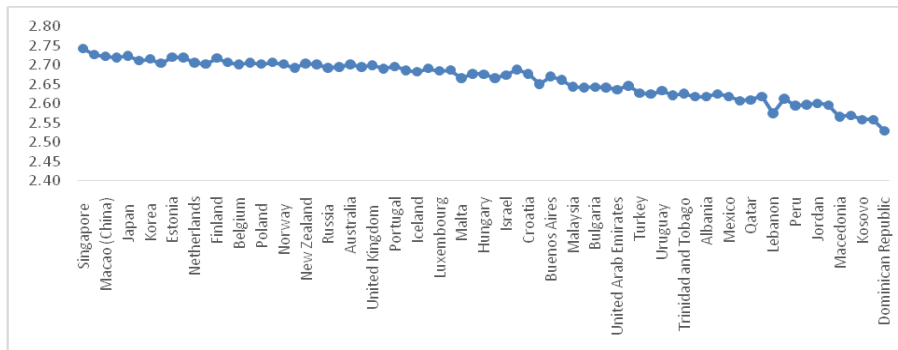
Kheng et.al., (2016) examined the interaction between foreign direct investment and human capital using panel data for 55 developing countries from 1980 to 2011. Results based on

simultaneous equation fixed effects estimation indicate significant bidirectional causality between foreign direct investment and human capital. Based on empirical findings, the authors recommend coordination of foreign direct investment and human capital development policies.

DATA ANALYSIS

Secondary data is used for conducting the analysis. Cross section consists of seventy-three countries. Data on cognitive skills is taken from Programme for International Students Assessment (PISA) Report, 2016 prepared by Organization of Economic Cooperation and Development (OECD). Sources of data on other variables are World Bank World Development Indicators, Taiwan Central Bank Annual Reports, UNCTD, World Investment Report, 2018. Trade account openness variable is constructed by scaling sum of exports plus imports of each country. Real GDP refers to nominal GDP adjusted with GDP deflator. Chin and Ito (2018) is used for representing capital account openness. Chin and Ito (2018) use capital account restrictions reported in IMF's Annual Reports on Exchange Rate Arrangements and Exchange Restrictions for constructing capital account openness index. It is two step procedures. First, a dummy variable is allotted to four major external account categories. These categories include multiple exchange rates, capital account payment limitations, current account transactions restrictions and the relinquish of export proceeds. Second, they use standardized principal component for assigning weights to components of Capital Account Openness Index (Akram and Byrne, 2015). Contrary to dummy variable approach, Chin and Ito (2008) is a continuous variable that measures intensity of capital account restrictions.

FIGURE-1
COGNITIVE SKILLS AND FOREIGN DIRECT INVESTMENT
COGNITIVE SKILLS



FOREIGN DIRECT INVESTMENT

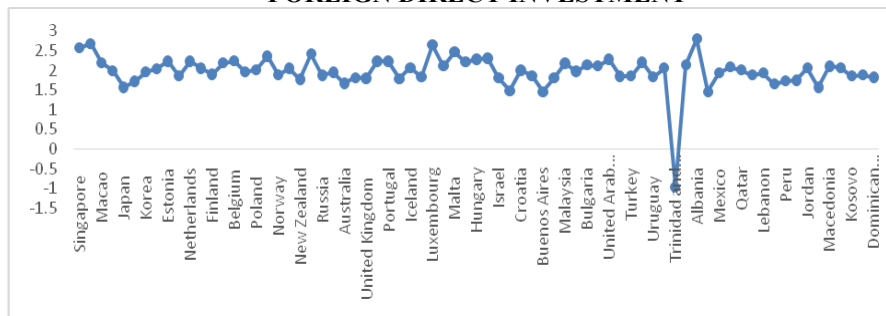


Figure-1 shows data on cognitive skills and foreign direct investment for sample countries. It is apparent from the data that cognitive skills and foreign direct investment move in the same direction. The countries having high score on cognitive skills also have the highest foreign direct investment inflows (see for example Hong Kog, Albania and Trinidad and Tobago).

RESEARCH METHODOLOGY

Ordinary least square method is used for estimating following multivariate regression equation. This method is adopted because the data used for conducting the analysis is cross section. Since cross section estimation suffer from heteroscedasticity therefore, standard errors of the estimated parameters are adjusted with Newey-West heteroscedasticity test. Following multiple regression model is estimated for evaluating the effect of cognitive skills on FDI inflows:

$$fdi_i = \alpha + \beta_1 cpi_i + \beta_2 csk_i + \beta_3 kao_i + \beta_4 s_i + \beta_5 tao_i + \beta_6 y_i + u_i$$

(1)

Where fdi = foreign direct investment. Subscript i shows cross section data is used for analyzing relationship among the variables. α is intercept, β s are coefficients of regression and u represent stochastic disturbance in the model. cpi = consumer price index (proxy for inflation), csk = cognitive skills, kao = capital account openness, s_i = nominal exchange rate, tao = trade account openness and y = real income.

An increase in inflation reflects macroeconomic instability in the economy. This results in uncertainty about profits from future investment projects in countries suffering from rise in price. Hence β_1 is expected to be negative. An increase in quality education is expected to attract more capital inflows in the country. This is because quality education increases absorptive capacity of new technology and knowledge spillover of foreign direct investment hence predictable impact of cognitive skills on FDI is expected to be positive that is $\beta_2 > 0$. Similarly $\beta_3 > 0$. Investors will increase their investment in those countries where restrictions on withdrawal of capital are low or at their minimum level. Hence absence of restriction on capital movement leads to increase foreign direct investment inflows. Exchange rate changes are positively associated with FDI inflows. Depreciation of domestic currency against foreign currency result in reduction in value of domestic assets for multinational corporations to invest in. Hence an increase in exchange rate is expected to attract more foreign capital inflows ($\beta_4 > 0$). Trade liberalization increase exporting firms' propensity to export more. Hence countries having trade account more open with rest of the world are likely to attract more foreign capital inflow. Thus, we expect positive effect of trade openness on FDI that is $\beta_5 > 0$. An increase in national income of the country result in increased demand for goods and services produced. In order to take advantage of increased aggregate demand, multinational corporations may increase their investment in those countries. Hence expected effect of increase in GDP on foreign capital inflows is expected to be positive ($\beta_6 > 0$). Based on theoretical relationship of foreign direct investment with its covariates in equation 1, following hypotheses are tested:

H_{01} : There is no effect of inflation on FDI.

H_{a1} : There is negative effect of inflation on FDI.

H_{02} : There is no effect of cognitive skills on FDI.

H_{a2} : There is positive effect of cognitive skills on FDI.

H_{03} : There is no effect of capital account openness on FDI.

H_{a3} : There is positive effect of capital account openness on FDI.

H_{04} : There is no effect of nominal exchange rate on FDI

H_{a4} : There is positive effect of nominal exchange rate on FDI

H_{05} : There is no effect of trade account openness on FDI

H_{a5} : There is positive effect of trade account openness on FDI

H_{06} : There is no effect of real income on FDI.

H_{a6} : There is positive effect of real income on FDI.

RESULTS

Table-1 indicates descriptive statistics of all countries that include mean value, median value, maximum and minimum value (Minimum), Standard Deviation (STD) and Jarque Berra Normality (JB) Test. Table show that average value for cpi_i , csk_i , fdi_i , kao_i , s_i , tao_i and y_i are 2.059, 2.662, 1.969, 1.416, 0.915, 1.110 and 9.163 respectively. Median values for cpi_i is 2.044 (Austria), for csk_i is 2.677 (Lithuania) fdi_i is 1.991 (Taiwan), kao_i is 2.374 (39 countries), s_i is 0.565 (United Arab Emirates), tao_i is 0.921 (Qatar) and y_i is 9.265 (Chile). Maximum and minimum values that represent lowest and highest values for cpi_i , csk_i , fdi_i ,

TABLE-1
DESCRIPTIVE STATISTICS OF ALL COUNTRIES

	cpi_i	csk_i	fdi_i	kao_i	s_i	tao_i	y_i
Mean	2.059	2.662	1.969	1.416	0.915	1.110	9.163
Median	2.044	2.677	1.991	2.374	0.565	0.921	9.265
Max	2.180	2.742	2.795	2.374	4.336	5.596	11.218
Min	1.992	2.531	-0.959	-1.903	-0.184	0.001	6.786
STD	0.044	0.049	0.442	1.340	1.083	0.925	0.843
JB Test	14.953 (0.00)	5.744 (0.056)	2031.971 (0.00)	15.132 (0.00)	23.910 (0.00)	286.555 (0.00)	0.217 (0.897)

Note: Probability values are given in parentheses.

kao_i , s_i , tao_i and y_i are 2.180 (Russia) and 1.992 (Switzerland), 2.742 (Singapore) and 2.531 (Dominican Republic), 2.795 (Italy) and -0.959 (Trinidad & Tobago), 2.374 (40 countries) and -1.903 (Argentina), 4.336 (Vietnam) and -0.184 (United Kingdom), 5.5996 (Albania) and 0.001 (Trinidad & Tobago), 11.218 (United States) and 6.786 (Moldova) respectively. Standard deviation represents dispersion around mean value. Its values range between 0.004 (lowest for consumer price index) and 1.340 (highest for capital account openness). Jarque Berra normality results indicate that except real income and to some extent cognitive skills, none of the variable appear to be normally distributed. This is normal because the data is cross section and non-normal distribution of this kind of data is not an exception.

Table-2 represents descriptive statistics of advance countries data on relevant variables. It shows that average values for cpi_i , csk_i , fdi_i , kao_i , s_i , tao_i and y_i are 2.698, 2.032, 9.504, 2.047, 0.441, 1.281 and 2.087 respectively. Median values for the same variables are 2.701 (Iceland), 2.701 (Belgium), 2.044 (Switzerland), 2.374 (27 countries), 0.045 (18 countries), 0.994 (Taiwan) and 9.545 (Austria). Maximum and minimum values are 2.089 (Hong Kong) and 1.992 (Switzerland), 2.742 (Singapore) and 2.641 (Cyprus), 2.680 (Hong Kong) and 1.482 (United States), 3.053 (Korea) and -0.184 (United Kingdom), 4.102 (Luxembourg) and 0.279 (United States) and 11.217 (United States) and 7.979 (Malta). Standard deviation represent dispersion around mean and is proxy volatile behavior of the variable. Its values range between 0.018 (lowest for consumer price index) and 0.943 (for trade account openness).

TABLE-2
DESCRIPTIVE STATISTICS OF ADVANCE COUNTRIES

	cpi_i	csk_i	fdi_i	kao_i	s_i	tao_i	y_i
Mean	2.698	2.032	9.504	2.047	0.441	1.281	2.087
Median	2.071	2.700	2.044	2.374	0.045	0.994	9.545
Max	2.089	2.742	2.680	2.680	3.053	4.102	11.217
Min	1.992	2.641	1.482	1.482	-0.184	0.279	7.979
STD	0.018	0.020	0.287	0.701	0.752	0.943	0.773
JB Test	6.023 (0.049)	2.146 (0.342)	0.932 (0.628)	269.037 (0.00)	36.547 (0.00)	23.088 (0.00)	0.395 (0.821)

Note: Probability values are given in parentheses.

Table 3 shows descriptive Statistics of emerging / developing countries. The average values of cpi_i , csk_i , fdi_i , kao_i , s_i , tao_i and y_i are 2.084, 2.629, 1.898, 0.763, 1.352, 0.954 and 8.848 respectively. Median values for same variables are 2.072 (Peru), 2.625 (Moldova), 1.953 (Romania), 1.082 (Poland), 0.936 (Macau), 5.596 (Albania) and 8.885 (Hungary). Maximum and minimum values for same variables are 2.180 (Russia) and 1.998 (Kosovo), 2.722 (Macau) and 2.531 (Dominic Republic), 2.795 (Albania) and -0.959 (Trinidad and Tobago), 2.374 (13 countries) and -1.904 (Buenos Aires), 4.336 (Vietnam) and -0.149 (Jordan), 5.596 (Albania) and 0.001 (Trinidad and Tobago) and 10.981 (China) and 6.786 (Moldova) respectively. Standard deviation that represents dispersion around mean is lowest for cognitive skills (0.045) and highest for capital account openness (1.492). Jarque Berra results indicate that except foreign direct investment and trade account openness rest of the variables are normally distributed.

TABLE-3
DESCRIPTIVE STATISTICS OF EMERGING DEVELOPING COUNTRIES

	cpi_i	csk_i	fdi_i	kao_i	s_i	tao_i	y_i
Mean	2.084	2.629	1.898	0.763	1.352	0.954	8.848
Median	2.072	2.625	1.953	1.082	0.936	0.784	8.885
Max	2.180	2.722	2.795	2.374	4.336	5.596	10.981
Min	1.998	2.531	-0.959	-1.904	-0.149	0.001	6.786
STD	0.046	0.045	0.542	1.492	1.164	0.892	0.789
JB Test	2.129 (0.345)	0.294 (0.863)	651.373 (0.00)	3.143 (0.208)	5.349 (0.07)	576.595 (0.00)	0.918 (0.632)

Table-4 shows correlation matrix for all countries. It is evident from the table that FDI is negatively associated with consumer price index, and capital account openness and positively associated with cognitive skills, nominal exchange rate, trade account openness and real income. However, correlation of FDI with all variables except trade account openness does not appear strong.

TABLE-4
CORRELATION MATRIX OVERALL COUNTRIES

	cpi_i	csk_i	fdi_i	kao_i	s_i	tao_i	y_i
cpi_i	1	0.117	-0.291	-0.239	0.255	-0.357	0.061
csk_i	0.117	1	0.091	0.229	0.050	0.084	0.324
fdi_i	-0.291	0.091	1	-0.062	0.093	0.556	0.093
kao_i	-0.239	0.229	-0.062	1	-0.286	0.008	0.077
s_i	0.255	0.050	0.093	-0.286	1	0.071	0.052
tao_i	-0.357	0.084	0.556	0.008	0.071	1	-0.307
y_i	0.061	0.324	0.093	0.077	0.052	-0.307	1

Table-5 shows advance countries correlation matrix. It is evident from the table that FDI is positively associated with all variables except capital account openness, nominal exchange rate and real income. However, trade account openness, real income and to some extent consumer price index appear to be strongly correlated with FDI. With rest of the variables, FDI is not significantly correlated.

TABLE-5
CORRELATION MATRIX FOR ADVANCE COUNTRIES

	cpi_i	csk_i	fdi_i	kao_i	s_i	tao_i	y_i
cpi_i	1	0.260	0.324	0.107	0.094	0.376	0.113
csk_i	0.260	1	0.071	0.166	0.227	0.109	0.378
fdi_i	0.324	0.071	1	-0.127	-0.109	0.939	-0.587
kao_i	0.107	0.166	-0.127	1	0.063	-0.033	0.152
s_i	0.094	0.227	-0.109	0.063	1	-0.119	0.044
tao_i	0.376	0.109	0.939	-0.033	-0.119	1	-0.442
y_i	0.113	0.378	-0.587	0.152	0.044	-0.442	1

Table-6 shows correlation matrix for emerging / developing economies. It appears from the table that FDI is negatively associated with consumer price index, nominal exchange rate and real income and positively associated with cognitive skills, capital account

openness, and trade account openness. Except trade account openness, FDI appear insignificantly associated with rest of the determinants.

TABLE-6
CORRELATION MATRIX EMERGING / DEVELOPING COUNTRIES

	cpi_i	csk_i	fdi_i	kao_i	s_i	tao_i	y_i
cpi_i	1	-0.359	-0.248	-0.436	0.438	-0.208	-0.222
csk_i	-0.359	1	0.176	0.484	-0.307	0.173	0.465
fdi_i	-0.248	0.176	1	0.022	-0.041	0.662	-0.131
kao_i	-0.436	0.484	0.022	1	0.407	0.082	0.258
s_i	0.438	-0.307	-0.041	0.407	1	-0.083	-0.128
tao_i	-0.208	0.173	0.662	0.082	-0.083	1	-0.281
y_i	-0.222	0.465	-0.131	0.258	-0.128	-0.281	1

Table-7 shows estimates of FDI equation for all countries, advance economies and emerging / developing countries. While estimating the equation, the general to specific approach was used. In accordance with this approach, the FDI equation was first estimated in general form and insignificant variables were dropped and the equation re-estimated. The process continued until the parsimonious equation with all estimated parameters significant was obtained. Findings show that consumer price index, cognitive skills and real income are the significant determinants of foreign direct investment when the equation is estimated for all countries. Both consumer price index and cognitive confirm their theoretical prediction that is any increase in these variables retards and attract foreign capital inflows. Real income estimate although significant yet does not confirm its theoretical prediction – that is an increase in the size of economy is positively associated with foreign direct investment.

Emerging / developing economies results indicate that FDI is attracted by consumer price index and cognitive skills. Cognitive skills attract foreign direct investment while consumer price index affect FDI negatively. So, all these estimated parameters are significant at a defined level of ten percent. Advance countries result reveal that FDI is influenced by cognitive skills, capital account openness, trade account openness, and real income. Cognitive skills and trade account

openness affect FDI positively while estimates of real income and capital account openness are negatively signed implying that they retard foreign capital inflows in the country. Hence estimates of capital account and real income do not confirm their theoretical predictions. Lower part of table 4.7 shows that model explains fifteen and thirteen percent of variation in the dependent variable for all countries and emerging / developing economies. However, for developed economies model explains ninety-three percent variations of the dependent variable. Since cross section data is used in the analysis hence low values of coefficient of determination are not an issue. Probability of obtaining F statistic are quite low which shows that all estimated parameters of the model are not equal to zero. Further Durbin Watson and heteroscedasticity test show that the residuals for all models do not suffer from serial correlation and heteroscedasticity issue. Hence the estimated models are well fitted.

TABLE-7
REGRESSION RESULTS OF FDI AND ITS DETERMINANTS

Variables	Overall results	Emerging /Developing Countries	Advanced Countries
Constant	2.050 (0.474)	5.791 (1.257)	-0.718 (-0.412)
cpi_i	-2.663 (-2.068) **	-4.321 (-1.705) ***	
csk_i	2.554 (2.105) **	1.898 (1.906) ***	1.256 (1.774) ***
kao_i			-0.031 (-3.016) **
s_i			
tao_i			0.249 (11.591) *
y_i	-0.158 (-2.319) **		-0.092 (-3.849) **
R^2	0.15	0.13	0.93
F-Stat	2.927 (0.000)	1.732 (0.18)	99.53 (0.000)
DW	2.033	2.096	1.951
$F\text{ Statistic}_{(Hetero)}$	1.013 (0.407)	0.532 (0.663)	1.753 (0.164)

Note: *, ** and *** represent significance of the estimated parameters at one, five and ten percent significance level respectively. DW and Hetero refers to Durbin Watson tests statistics and heteroscedasticity.

CONCLUSION

Human capital plays an important role in economic development of a country. Empirical research focusing on economic growth differences across countries during the decade of 1990s underline the importance of human capital in explaining them. It indicates human capital as a major factor explaining economic growth differences across different countries. Due to its importance, majority of the countries around the world started giving importance to human capital in their growth strategies. Earlier empirical work focusing on human capital as determinants of foreign direct investment has used literacy rate, school enrolment and government spending on education as proxies for human capital.

In this paper, we also focused on human capital as determinant of foreign direct investment in a panel of seventy-three countries. Contrary to earlier empirical literature, this paper used cognitive skills as a proxy for human capital. Results indicate significant positive effect of cognitive skills on foreign direct investment of sample countries. This finding is robust to change in the sample countries- that is cognitive skills estimate is positive for both developing and advanced economies. Other factors that determine foreign direct inflows are inflation, capital account openness and real income. Based on empirical findings, it is recommended that the relevant authorities must focus on imparting quality education. Also, they should make quality education part and parcel of their economic growth strategies. For a developing country like Pakistan, there is a lesson in this study to focus more on cognitive skills – quality of education – instead of enrollment, literacy or government education spending for attracting foreign direct investment to boost economic growth.

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APPENDIX: 1**PROGRAMME FOR INTERNATIONAL STUDENT ASSESSMENT ¹**

SN	Country	MS	SN	Country	MS	SN	Country	MS	SN	Country	MS
1	Singapore	551.67	20	Austria	492.33	39	Israel	472	58	Argentina	422
2	Hing Kong	532.67	21	New Zealand	505.67	40	United States	487.67	59	Mexico	415.67
3	Macao	527.33	22	Vietnam	502.33	41	Croatia	475.33	60	Georgia	405.33
4	Taiwan	523.67	23	Russia	492	42	Kazakhstan	447.67	61	Qatar	407.33
5	Japan	528.67	24	Sweden	495.67	43	Buenos Aires	468.67	62	Costa Rica	415.67
6	China	514.33	25	Australia	502.33	44	Greece	458.67	63	Lebanon	367.33
7	Korea	519	26	France	495.67	45	Malaysia	440	64	Colombia	410.33
8	Switzerland	506.33	27	United Kingdom	499.67	46	Romania	437.67	65	Peru	394
9	Estonia	524.33	28	Czech Republic	490.67	47	Bulgaria	439.67	66	Indonesia	395.33
10	Canada	523.67	29	Portugal	497	48	Cyprus	437.67	67	Jordan	399
11	Netherland	508	30	Italy	485.33	49	UAE	432.67	68	Brazil	395
12	Denmark	504.33	31	Iceland	481	50	Chile	443	69	Macedonia	369
13	Finland	522.67	32	Spain	491.67	51	Turkey	424.33	70	Tunisia	371.33
14	Slovenia	509.33	33	Luxembourg	483.33	52	Moldova	421.33	71	Kosovo	362.33
15	Belgium	502.67	34	Latvia	486.67	53	Uruguay	430	72	Algeria	362
16	Germany	508	35	Malta	463.67	54	Montenegro	418.67	73	DR	339.33
17	Poland	503.67	36	Lithuania	475	55	Trinidad & Tobago	423			
18	Ireland	509.33	37	Hungary	474.67	56	Thailand	415			
19	Norway	504.33	38	Slovak Republic	463	57	Albania	415			

NOTE: SN, MS, UAE and DR refers to serial number, mean score, United Arab Emirates and Dominican Republic respectively.

¹ PISA mean score for all countries is taken from <https://www.oecd.org/pisa/pisa-2015-results-in-focus.pdf>