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HUMAN HEALTH AND FOREIGN DIRECT INVESTMENT NEXUS: EVIDENCE FROM SOUTH ASIA

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ABSTRACT

Foreign direct investment (FDI) is essential to obtaining a clear view of the prevailing economic landscape within the target country. FDI has also a very close relationship with human health and income. This study is an attempt to investigate empirically the relationship between health, FDI and income in South Asia between 1990 and 2016. The study applied panel ordinary least square (OLS) and fixed effects models. The results of panel OLS showed that FDI, urbanization and education have positive associations with life expectancy. The results also indicate an inverse relationship between income and education with infant mortality. However, FDI and the number of physicians have mixed relations with infant mortality. The outcomes of the fixed effects (FE) model showed that income, FDI, urbanization, education and the number of physicians are factors increasingly affecting the life expectancy rate. The application of the FE model also exposed an inverse association of FDI, income and the number of physicians with infant mortality.

Contribution/ Originality: This study analyzes the nexus between foreign direct investment and health in six South Asian countries: Pakistan, India, Bangladesh, Bhutan, Sri Lanka and Nepal. There is a research gap in the existing literature on the nexus between FDI and human health in South Asia. This study is the first one which has considered the importance of FDI for human health in South Asia.

1. INTRODUCTION

FDI creates employment opportunities in the target country which increase income and buying power of the people. As a result, their standard of living is raised, with improved food quality and better health facilities. FDI has a very close relationship with human health. In the last decade, a number of empirical studies tried to highlight a strong correlation between FDI and life expectancy (Alsan *et al.*, 2006; Herzer and Nunnenkamp, 2012; Burns *et al.*, 2017). FDI can have positive or negative impact on health depending on the country. It has positive effects on health primarily by increasing the supply of health-related goods and services. Burns *et al.* (2017) concluded a positive impact of FDI on health. Herzer and Nunnenkamp (2012) explored the negative relationship between FDI and health in developed countries. Alsan *et al.* (2006) investigated a link between FDI and overall population health between 1980 to 2000 in 74 countries. The empirical inferences showed that there is a positive relationship between

health and FDI for lower- and middle-income countries (LMICs). This study also showed that health is an important component of human capital in LMICs. The outcome was that a one-year enhancement in life expectancy amounted to about a nine percent increase in gross FDI inflows in LMICs.

Burns *et al.* (2017) discovered the relationship between FDI and life expectancy in LMICs using a group of 85 countries between 1974 and 2012. OLS and fixed effects models are used to find the relationship between FDI and health. This study found a positive impact of FDI on health, no relationship between infant mortality and FDI, but a strong relationship between adult mortality and FDI.

Borensztein *et al.* (1998) examined the relationship between growth and FDI for 69 developing and industrial countries between 1970 and1989. The results suggested that FDI plays significant role in promoting economic growth by using different technologies as compared to domestic investment. The results indicate that FDI has a positive effect on economic growth, although the magnitude of this effect depends on the stock of human capital available in the host economy. Results also showed that FDI is more effective in boosting economic growth than domestic investment. Nagel *et al.* (2015) analyzed the relationship between FDI and health in 179 countries between 1980 and 2011 using the fixed-effects model. Their findings showed a positive effect of FDI on health in low-income economies, and a negative impact of FDI on health in high-income countries. Similarly, the study of Alam *et al.* (2016) confirmed the presence of short and long-run positive links between FDI, trade and health over the period of 1972 to 2013 in Pakistan, using both the ARDL approach and the VECM Granger causality test.

Shahbaz *et al.* (2016) checked the influence of FDI on life expectancy (proxy of health) for 1972 to 2012 in Pakistan. They applied the VECM Granger causality test, the structural break unit root test, and the ARDL co-integration test to explore the relationship between the variables. The study used health spending, food supply, economic misery, illiteracy, urbanization and life expectancy. Outcomes demonstrate that health spending improved life expectancy, urbanization enhanced life expectancy, but illiteracy reduces it.

Azemar and Desbordes (2009) conducted an empirical study for 70 developing countries including 28 Sub-Saharan African countries to examine the bond between governance, FDI and health between 1985 and 2004, using the fixed effect model. They found that certain FDI deficits are due to insufficient provision of public services, especially education and health. Herzer and Nunnenkamp (2012) descriptively analyzed the relationship of health and FDI for 1970 to 2009 using a sample set of 14 countries. They used life expectancy as a proxy for health. The statistical results showed a significant, negative bond between FDI and health. Similarly, Golkhandan (2017) found the impact of FDI on health between 1995 and 2014 in 25 developing countries. The continuously-updated and fully modified (Cup-FM) estimator was used to empirically confirm the relationship within the variables. Health was indicated by infant mortality. Results confirmed that in the long-run, a one percent increase in FDI will decrease infant mortality by 0.07 percent. Magombeyi and Odhiambo (2017) analyzed the relationship between FDI and poverty reduction for 1980 to 2014 in Tanzania. Poverty reduction is indicated by three variables: infant mortality, life expectancy and household consumption expenditure. Results of the ARDL test showed that FDI has a short-run positive impact on poverty reduction when infant mortality rate is used as a proxy for poverty reduction. On the other hand, FDI has no impact on poverty when life expectancy was used as a proxy for poverty reduction. Likewise, Osemwengie and Sede (2013) discovered the influence of FDI to poverty reduction between 1981 and 2010 by using co-integration and VECM in Nigeria. They employed HDI and life expectancy as proxies for poverty mitigation in two different models. Results verified the relationship between FDI and poverty reduction in both long and short-runs.

This study analyzes the connection between FDI and health in six South Asian countries: Pakistan, India, Bangladesh, Bhutan, Sri Lanka and Nepal for the period1990 to 2016. The hypotheses of the study are:

H_a: There is no relationship between life expectancy and FDI;

H_{1a}: There is evidence of a positive relationship between life expectancy and FDI;

H_b: There is no relationship between FDI and infant mortality; and

H_{1b}: There exists a positive nexus between FDI and infant mortality.

The study has six sections:

1. Introduction;
2. Review of previous studies;
3. Theoretical framework and methodologies;
4. Discussion of data;
5. Results;
6. Conclusions.

2. THEORETICAL FRAMEWORK

Health is not only an outcome, but also a potential source of high income and growth. A healthy worker is more productive and able to actively participate in economic activity leading to economic growth. FDI has also a very close relationship with human health and economic growth.

By following previous research, we utilize health as proxies for two indicators. The first is life expectancy, used as indicator of health by Siddique *et al.* (2018) Burns *et al.* (2017) and Herzer and Nunnenkamp (2012). The second is infant mortality, used as proxy variable for health by Nagel *et al.* (2015) and Magombeyi and Odhiambo (2017).

Health is mandatory for economic growth. The main focused indicator is FDI. The study uses an equation to determine the impact of FDI and some other factors on health in South Asia.

$$Helath = f(Economic\ indicators, Foreign\ direct\ investment, social\ indicators)$$

$$H = (EI, FDI, SI) \quad (1)$$

In Equation1, health is a dependent variable, while others are independent factors that affect health. Economic indicators contain GDP per capita, as used by Alsan *et al.* (2006) and Nagel *et al.* (2015). Social index has education, urbanization, and the number of physicians as indicated by Azemar and Desbordes (2009) and Shahbaz *et al.* (2016). Health is the dependent factor which is indicated by two different variables: life expectancy used by Burns *et al.* (2017) and Alam *et al.* (2016); and infant mortality used by Ghorbani (2016) and Malik (2006). By incorporating these variables into Equation1:

$$H = f(Y, FDI, EDU, URB, PHY) \quad (2)$$

Equation 2 contains health as a dependent variable, while income, FDI, education, urbanization and the number of physicians are independent variables. By expressing Equation 2 into a Cobb Douglas production form:

$$H = Y^{\alpha}\ FDI^{\beta}\ EDU^{\gamma}\ URB^{\theta}\ PHY^{\varphi} \quad (2a)$$

Equation 2a can be converted into a model by using natural log:

$$lnH = \alpha lnY + \beta lnFDI + \gamma lnEDU + \theta lnURB + \varphi lnPHY \quad (3)$$

Equation 3 can be expressed as:

$$h = \beta_1 y + \beta_2 fdi + \beta_3 edu + \beta_4 urb + \beta_5 phy \quad (4)$$

where,

$$lnH = h,\ lnY = y, lnFDI = fdi,\ ln\ EDU = edu,\ lnURB = urb,\ ln\ PHY = phy$$

From previous studies we define health in terms of life expectancy (Alam *et al.* (2016)) and infant mortality (Magombeyi and Odhiambo (2017)) and FDI (Nagel *et al.* (2015)).

Equation 4 is converted into an empirical model for South Asia between 1980 and 2016.

$$h_{it} = \beta_1 y_{it} + \beta_2 fdi_{it} + \beta\alpha_3 edu_{it} + \beta_4 urb_{it} + \beta_5 phy_{it} + \varepsilon_{it} \quad (5)$$

Now, both the proxies of the dependent variable are applied to Equation 5.

$$le_{it} = \gamma_1 y_{it} + \gamma_2 fdi_{it} + \gamma_3 edu_{it} + \gamma_4 urb_{it} + \gamma_5 phy + \mu_{it} \quad (6)$$

$$im_{it} = \theta_1 y_{it} + \theta_2 fdi_{it} + \theta_3 edu_{it} + \theta_4 urb_{it} + \theta_5 phy_{it} + \acute{u}_{it} \quad (7)$$

where, *le* is life expectancy, *im* infant mortality, *y* GDP per capita used as income, *fdi* foreign direct investment, *edu* education, *urb* urbanization, and *phy* the number of physicians. The term *i* and *t* are used for cross-section and time respectively. The terms μ and ú are used for error terms, γ_o and θ_o . The intercepts, γ_1 and θ_1 show the elasticity of income with respect to health, γ_2 and θ_2 are used for the elasticity of FDI, γ_3 and θ_3 show the elasticity of education, γ_4 and θ_4 are the parameters of urbanization, and γ_5 and θ_5 show the elasticity of physicians with respect to health.

3. METHODOLOGY

The study asked whether reducing the mortality rate with the concomitant of increasing life expectancy, along with an increase in investment could lead to increase income per capita? It contributes by uncovering the benefits of improvements in the population's health and increases in external investment. Various techniques are applied to determine the link between per capita income, FDI, and health. The study used panel data from six countries: Pakistan, India, Bangladesh, Nepal, Bhutan and Sri Lanka. The basic techniques - panel ordinary least square (OLS) and fixed effect (FE) models - are used for panel data analysis on the basis of the Hausman test applied to South Asia.

4. DATA

The study attempts to empirically investigate the relationship between health, FDI and income. This section details the data and variables construction, and the relationship between them. The data is derived from World Development Indicators (WDI) as shown in Table 1.

Table-1. Description of Variables.

Variables	Used for	Source
GDP per capita (constant 2010 US$)	Income	World Development Indicator (2019)
FDI (Net inflows %)	FDI	
Infant mortality (per 1000 live births)	Health	
Life expectancy	Health	
School enrollment, secondary (% gross)	Secondary Education	
School enrollment, tertiary (% gross)	Education	
Urban population (% of total)	Urbanization	
Physicians (per 1,000 people)	No of physician	

Source: https://data.worldbank.org

FDI is an investment by a firm or individual in one country into business interests located in a different country. FDI was used as independent variable by following Saqib *et al.* (2013) and Albu (2013). Khan and Khan (2011) found FDI is positively related to real output.

A growing economy leads to a situation where the country faces certain increases in per capita income. GDP per capita was used by studying the impact of health on economic growth (Narayan *et al.*, 2010; Ilori and Ajiboye, 2015; Siddique and Majeed, 2015; Siddique *et al.*, 2018). GDP per capita was used as an independent variable. Erçelik (2018) suggested that there is a long-term relationship between health expenditure and economic growth.

In this context, health is defined as a state in which an individual is not merely free from illness or injury, but a condition of complete bodily, mental and social well-being. A healthy labor force can be a catalyst to increased production. The two proxies for health in this study are the life expectancy rate at birth, and infant mortality. Life expectancy is defined as the average number of years from birth to death. Infant mortality means the death rate for children under one year of age. The empirical model used in this study employs health as dependent variable (also used in Alam *et al.*, (2016) and Magombeyi and Odhiambo (2017)).

Education is a form of human capital necessary for economic growth. Human capital means all factors that enhance human skills and productivity. Education adds significant value to labor, so increasing productivity. An educated, skilled and experienced worker can better understand how to play a significant role in producing labor-saving technologies. According to literature (Narayan *et al.*, 2010; Magombeyi and Odhiambo, 2017) education is used as dependent variable in both of the empirical models used in this study. There are two proxies for education: school enrollment, secondary (percentage gross); and school enrollment tertiary (percentage gross). Rivera and Currais (1999) argued that education enhances labor force productivity. By contrast, Nagel *et al.* (2015) declared that education had an insignificant effect on growth.

Urbanization is employed as an independent variable, with its proxy being urban population (percentage of total – see Siddique *et al.*, (2016)). Urbanization was found to enhance life expectancy (Shahbaz *et al.*, 2016). The number of physicians per 1000 people was used as an independent variable to verify its impact on life expectancy and infant mortality (see also Mohan and Mirmirani (2007) and Gilligan and Skrepnek (2014)).

4.1. Descriptive Stats

This section explains the descriptive statistics of employed variables. Table 2 indicates the maximum, minimum, standard deviation and mean values of data for six South Asian countries between 1990 and 2016. GDP's highest value is 3768.66, and its lowest 357.20. FDI has a maximum value of 6.1747, and a minimum value of -0.1912. The maximum value of life expectancy is 75.284, and its minimum is 49.192. 106.40 is the maximum value of infant mortality, and its minimum 52.8790.

Table-2. Descriptive Stats.

Variables	Obs.	Mean	Median	Max.	Min.	St. dev.
Infant Mortality	162	54.161	54.850	106.40	7.800	26.998
Life expectancy	162	65.2974	65.4010	75.284	52.8790	5.14267
GDP per capita	162	1134.02	869.817	3768.66	357.20	740.70
FDI	155	0.9163	0.6918	6.1747	-0.1912	0.9040
Secondary schooling	110	52.6350	48.2282	99.6937	20.3737	17.9966
Tertiary schooling	94	10.0562	8.5188	26.9285	2.1330	5.9239
Urbanization	162	24.9064	25.8810	39.4280	8.8540	7.6878
Physicians	102	0.4423	0.4670	1.2250	0.0230	0.2512

Source: No need to write sources of tables because I have taken data from WDI and find the results from estimation in Eviews

4.2. Correlation among Variables

This section contains the results of the correlations that exist among all the variables over the period 1990 to 2016.

Table 3 has life expectancy as the dependent variable and shows it is positively correlated to all of the explanatory variables. Table 4 has infant mortality as the dependent variable. In Table 3, negative correlations of

all the explanatory variables exist with the dependent variable, except for the number of physicians which is positively correlated to infant mortality.

Table-3. Correlation Matrix.

Variables	LE	Y	FDI	SEDU	TEDU	URB	PHY
LE	1						
Y	0.5462	1					
FDI	0.2156	0.4096	1				
SEDU	0.7129	0.6899	0.174	1			
TEDU	0.476	0.3479	0.079	0.7037	1		
URB	0.4175	0.4589	0.4483	0.0471	0.1782	1	
PHY	0.2942	0.1391	0.1254	0.089	0.459	0.5476	1

Table-4. Correlation Matrix.

Variables	IM	Y	FDI	SEDU	TEDU	URB	PHY
IM	1						
Y	-0.6232	1					
FDI	-0.2042	0.4096	1				
SEDU	-0.883	0.6899	0.1744	1			
TEDU	-0.5241	0.3479	0.07908	0.7037	1		
URB	-0.1473	0.4589	0.4483	0.0471	0.1782	1	
PHY	0.0252	0.1391	0.1254	0.089	0.459	0.5476	1

5. EMPIRICAL RESULTS AND DISCUSSION

The results of panel OLS, Hausman test and fixed effects approach are discussed in this section.

5.1 Results of Panel OLS

Table 5 shows the results of pooled OLS to check the impact of FDI on health (life expectancy and infant mortality).

In the case of the life expectancy model, it was concluded that the results of income, urbanization and the number of physicians have mixed (positive and negative) effects on life expectancy, whereas FDI and education have positive effects on life expectancy. Income's coefficients (-0.021 and 0.03) show that a one percent increase in income causes a 0.08 percent and 0.03 percent increase in life expectancy, while one of -0.021 percent decreases life expectancy. Coefficients of FDI are 0.004 and 0.007. These show that if FDI expands by one percent, the result in terms of life expectancy increases by 0.004 to 0.007 percent. Burns *et al.* (2017) and Alam *et al.* (2016) also examined whether there was a positive linkage between FDI and life expectancy. The coefficients of education (both secondary and tertiary) are 0.14 and 0.04. Their application indicates that a one percent increase in education increases life expectancy by 0.14 percent and 0.04 percent.

Urbanization (0.071, 0.029) has positive effects on life expectancy. When life expectancy increases by 0.071 percent and 0.029 percent, there is a one percent increase in urbanization. The number of physicians has coefficient of 0.003, which show a one percent increases in the number of physicians results in life expectancy by 0.003 percent.

In second scenario, when infant mortality is used as dependent variable, we see that income and education having negative impacts, indicating an inverse relationship with dependent variable. FDI and the number of physicians have mixed relationships with infant mortality. Mixed relationships show the combinations of direct and inverse linkage among dependent and independent variables. Urbanization has completely positive and direct relationships with the mortality rate. The results demonstrate that a one percent increase in income causes a one percent, 0.33 percent, and 0.70 percent decrease in infant mortality. FDI with coefficients of 0.002 and -0.0001 suggests that a one percent increase in FDI reduces infant mortality by 0.0001 percent. Golkhandan (2017) also investigated whether FDI reduces life expectancy. The coefficients (-0.96 and -0.29) of secondary and tertiary education show a one percent increase in education lessens the mortality rate by 0.95 percent and 0.96 percent

respectively. The coefficients (0.36 and 0.59) of urban population determined that a one percent increase in urbanization increases infant mortality by 0.36 percent and 0.59 percent.

Table-5. Results of Panel OLS.

Variables	Dependent variable			
	Life expectancy		Infant Mortality	
	(1)	(2)	(3)	(4)
Income	-0.0214	0.0333	-0.3315	-0.7030
	(0.1813)	(0.0594)	(0.0019)	(0.0000)
FDI	0.0040	0.0078	0.0024	-0.0001
	(0.0783)	(0.0363)	(0.9454)	(0.9982)
Secondary education	0.1402		-0.9654	
	(0.0000)		(0.0000)	
Tertiary education		0.0459		-0.2994
		(0.0027)		(0.0021)
Urbanization	0.0713	0.0291	0.3610	0.5938
	(0.0049)	(0.3464)	(0.0242)	(0.0038)
Physicians	0.0031	-0.0025	0.0198	0.0363
	(0.6685)	(0.8037)	(0.6689)	(0.5782)
Constant	3.5580	3.7590	8.7402	7.4559
	(0.0000)	(0.0000)	(0.0000)	(0.0000)

5.2. Hausman Test Outcomes

The basic purpose of the Hausman test is to check the most appropriate model: fixed effect (FE); or random effect (RE)?. The Null hypothesis of the Hausman test is that RE is "appropriate" and FE is "good". Table 6 shows that the FE model is suitable for income with secondary and tertiary education when FDI and life expectancy are the main explanatory variables. It was found that that FE model is also good for infant mortality with all the proxies of education.

Table-6. Hausman Test Results.

Dependent Variables	Education Proxy	Chi sq.	Prob.	Status
Life expectancy	Secondary Education (SEDU)	748.439	0.0000	Fixed Effect Model is suitable
	Tertiary Education (TEDU)	951.373	0.0000	
Infant mortality	SEDU	1881.566	0.0000	
	TEDU	2570.401	0.0000	

Null hypothesis: Random effect model is appropriate.

5.3. Results of Fixed Effect Model

Table 7 expresses the results of FE model. When we have life expectancy as a dependent variable, we see that the coefficients of income are 0.04 and 0.03. These coefficients indicate that by increasing income by one percent causes 0.03 to 0.04 percent increase in life expectancy. Djafar and Husaini (2011) suggested there was a causality link between income and health over the long-term. FDI is the basic variable which also shows a positive relationship with life expectancy. FDI has coefficients as 0.004 and 0.005 which indicate that a one percent increase in FDI causes a 0.004 to 0.005 percent increase in life expectancy (see also Burns *et al.* (2017)). Secondary and tertiary education have coefficients of 0.02 and 0.01 respectively, which shows education increases life expectancy rate. Urbanization has 0.23 and 0.24 coefficients, which means a one percent increase in urbanization results in 0.23 percent and 0.24 percent increases in life expectancy. The number of physicians also demonstrates that a one percent increase causes 0.006 percent and 0.003 percent changes in life expectancy. These results also show that all the explanatory variables have a positive linkage with life expectancy

The relationship between infant mortality and FDI and other control variables are defined in Table 7. The outcomes show all the explanatory variables express a negative impact on our dependent variable: infant mortality. Income has coefficients of -0.54 and -0.48. These show that a one percent incline in income, results in 0.054 percent

and 0.48 percent declines in infant mortality. Strittmatter and Sunde (2013) exposed an adverse connection between infant mortality and income. FDI has coefficients of -0.005 and -0.006. These indicate that a one percent increase in investment reduces infant mortality by 0.005 percent and 0.006 percent in South Asia. The coefficients of secondary and tertiary education are -0.04 and -0.07. They indicate that a one percent enhancement in education reduces mortality rates by -0.04 percent and -0.07 percent respectively. Urbanization coefficients of -0.89 and -0.87 indicate that a one percent increase in urban population decreases infant mortality by 0.89 percent and 0.87 percent. The number of physicians has coefficients of 0.036 and -0.033. These indicate that a one percent rise in number of physicians causes a reduction in infant mortality by 0.036 percent and 0.033 percent.

Table-7. Results of FE Model.

Variables	Dependent Variable			
	Life Expectancy		Infant Mortality	
	(1)	(2)	(3)	(4)
Income	0.0431	0.0386	-0.5450	-0.4802
	(0.0001)	(0.0207)	(0.0000)	(0.0000)
FDI	0.0044	0.0051	-0.0053	-0.0063
	(0.0185)	(0.0197)	(0.4813)	(0.4508)
Secondary education	0.0254		-0.0407	
	(0.0318)		(0.3943)	
Tertiary education		0.0138		-0.0767
		(0.1146)		(0.0279)
Urbanization	0.2304	0.2497	-0.8980	-0.8784
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Physicians	0.0061	0.0032	-0.0362	-0.0333
	(0.0854)	(0.4242)	(0.0160)	(0.0402)
Constant	3.0410	3.0720	10.6799	10.2165
	(0.0000)	(0.0000)	(0.0000)	(0.0000)

6. CONCLUSION

The study is an attempt to empirically investigate the relationship between health, FDI and income in South Asia over the period 1990 to 2016. Various techniques were used to discover the nexus between indicators First, the study applied the Panel OLS. Second, the Hausman test was applied to choose between the fixed effects and random effects models. According to the Hausman test, the fixed effects model was the most appropriate.

The results of the panel OLS show that income and the number of physicians have both positive and negative (aka "mixed") effects on life expectancy rates. By contrast, FDI, urbanization and education have positive associations with life expectancy. The results also indicate an inverse relationship between income and education with infant mortality. However, FDI and the number of physicians have mixed impacts on infant mortality, and urbanization has completely positive and direct relationships with the mortality rate.

The outcomes of the fixed effects model show that an increase in income of one percent causes an incremental increase of 0.03 to 0.04 percent in life expectancy. FDI is the basic variable that shows a positive relationship with life expectancy. Secondary and tertiary education is the increasing factors of life expectancy. Results also indicate that urbanization and number of physicians are vital to increase life expectancy rate. Results also revealed an adverse connection between infant mortality and income. The study exposed that FDI, urbanization, physicians and education are reducing infant mortality in South Asia.

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REFERENCES

Alam, M.S., S.A. Raza, M. Shahbaz and Q. Abbas, 2016. Accounting for contribution of trade openness and foreign direct investment in life expectancy: The long-run and short-run analysis in Pakistan. Social Indicators Research, 129(3): 1155-1170.Available at: https://doi.org/10.1007/s11205-015-1154-8.

Albu, L., 2013. Foreign trade and FDI as main factors of growth in the EU. Journal for Economic Forecasting, 2: 7-17.

Alsan, M., D.E. Bloom and D. Canning, 2006. The effect of population health on foreign direct investment inflows to low-and middle-income countries. World Development, 34(4): 613-630.Available at: https://doi.org/10.1016/j.worlddev.2005.09.006.

Azemar, C. and R. Desbordes, 2009. Public governance, health and foreign direct investment in Sub-Saharan Africa. Journal of African Economies, 18(4): 667-709.Available at: https://doi.org/10.1093/jae/ejn028.

Borensztein, E., J. De Gregorio and J.W. Lee, 1998. How does foreign direct investment affect economic growth? 1. Journal of International Economics, 45(1): 115-135.

Burns, D.K., A.P. Jones, Y. Goryakin and M. Suhrcke, 2017. Is foreign direct investment good for health in low and middle income countries? An instrumental variable approach. Social Science & Medicine, 181: 74-82.Available at: https://doi.org/10.1016/j.socscimed.2017.03.054.

Djafar, F. and D.H. Husaini, 2011. The nexus between health and economic growth in selected Asian countries. International Journal of Business & Society, 12(2): 109-126.

Erçelik, G., 2018. The relationship between health expenditure and economic growth in Turkey from 1980 to 2015. Journal of Politics Economy and Management, 1(1): 1-8.

Ghorbani, Z.A., 2016. An association between health and economic growth in India. International Journal of Innovative Research and Development, 5(13): 119-126.

Gilligan, A.M. and G.H. Skrepnek, 2014. Determinants of life expectancy in the Eastern Mediterranean Region. Health Policy and Planning, 30(5): 624-637.Available at: https://doi.org/10.1093/heapol/czu041.

Golkhandan, A., 2017. The impact of foreign direct investment on health in developing countries. Health Research, 2(4): 235-243.Available at: https://doi.org/10.29252/hrjbaq.2.4.235.

Herzer, D. and P. Nunnenkamp, 2012. FDI and health in developed economies: A panel co-integration analysis. (No. 1756). Kiel Working Paper.

Ilori, I.A. and M.O. Ajiboye, 2015. The impact of health expenditure on the growth of the Nigerian economy: The ARDL approach. International Journal of Economics, Commerce & Management United Kingdom, 3(12): 361-389.

Khan, M.A. and S.A. Khan, 2011. Foreign direct investment and economic growth in Pakistan: A sectoral analysis. Working Papers & Research Reports, 2011.

Magombeyi, M.T. and N.M. Odhiambo, 2017. Does foreign direct investment reduce poverty? Empirical evidence from Tanzania. SPOUDAI-Journal of Economics and Business, 67(2): 101-116.

Malik, G., 2006. An examination of the relationship between health and economic growth. Working Paper No. 185.

Mohan, R. and S. Mirmirani, 2007. An assessment of OECD health care system using panel data analysis. MPRA Paper, No. 6122.

Nagel, K., D. Herzer and P. Nunnenkamp, 2015. How does FDI affect health? International Economic Journal, 29(4): 655-679.Available at: https://doi.org/10.1080/10168737.2015.1103772.

Narayan, S., P.K. Narayan and S. Mishra, 2010. Investigating the relationship between health and economic growth: Empirical evidence from a panel of 5 Asian countries. Journal of Asian Economics, 21(4): 404-411.Available at: https://doi.org/10.1016/j.asieco.2010.03.006.

Osemwengie, P.K. and P.I. Sede, 2013. Foreign direct investment and poverty reduction in Nigeria: Evidence from cointegration and error correction modeling methodology. Peace and Environment Africa: Special Edifion, 9(1): 93-109.

Rivera, B. and L. Currais, 1999. Income variation and health expenditure: Evidence for OECD countries. Review of Development Economics, 3(3): 258-267.Available at: https://doi.org/10.1111/1467-9361.00066.

Saqib, D., M. Masnoon and N. Rafique, 2013. Impact of foreign direct investment on economic growth of Pakistan. Advances in Management & Applied Economics, 3(1): 35-45.

Shahbaz, M., N. Loganathan, N. Mujahid, A. Ali and A. Nawaz, 2016. Determinants of life expectancy and its prospects under the role of economic misery: A case of Pakistan. Social Indicators Research, 126(3): 1299-1316.Available at: https://doi.org/10.1007/s11205-015-0927-4.

Siddique, H.M.A. and M.T. Majeed, 2015. Energy consumption, economic growth, trade and financial development nexus in South Asia. Pakistan Journal of Commerce and Social Sciences, 9(2): 658-682.

Siddique, H.M.A., M.T. Majeed and H.K. Ahmad, 2016. The impact of urbanization and energy consumption on CO2 emissions in South Asia. A Research Journal of South Asian Studies, 31(2): 745-757.

Siddique, H.M.A., G. Mohey-ud-din and A. Kiani, 2018. Health, education, and economic growth nexus: Evidence from middle income countries. Global Social Sciences Review, 3(4): 68-86.Available at: https://doi.org/10.31703/gssr.2018(iii-iv).05.

Siddique, H.M.A., S. Usman and J. Ishaq, 2018. Financial development and economic growth: The role of energy consumption. Journal of Quantitative Methods, 2(2): 43-55.Available at: https://doi.org/10.29145/2018/jqm/020204.

Strittmatter, A. and U. Sunde, 2013. Health and economic development—evidence from the introduction of public health care. Journal of Population Economics, 26(4): 1549-1584.Available at: https://doi.org/10.1007/s00148-012-0450-8.