FOREIGN DIRECT INVESTMENT IN HEALTH CARE SECTOR AND ECONOMIC GROWTH IN INDIA

K.K. Sahu[1], S.K. Tarai[2], A. Bhukta[3] and S. Patra[4]*
[1]Department of Economics, MSCB University, Baripada, Odisha, India
[2,3,4]Berhampur University, Odisha, India
Corrosponding Author: [4]sudhakarpatra65@gmail.com

ABSTRACT

***Background**: The economic growth potential of a country can be possible by a strong demographic dividend which is required proper health care services. However, a nation needs to have well health infrastructure so that the population of that nation can access this adequately. Which in turn, their socio-economic condition will be better. Hence the efficiency in productivity will be increased. More or less the nation will be grown positively. Since India is a nation of low investment in the health sector needs proper capital inflows from abroad. So this paper analyses the FDI in this sector and economic growth in India has the objective. The present paper discusses the role of FDI in the health sector and GDP in India. **Materials and Methods**: The annual data from 1990 to 2020 are used in the study to examine the relationship between FDI in the health sector and economic growth in the context of the Indian economy with the calculation of descriptive statistics further the Unit Root test has been performed for testing the stationarity of the variables by which the co-integration test and VECM model have been performed to find the short-run and long-run dynamic relationship between the variables and Granger Causality test to identify the direction of causality. **Results**: There is a causality relationship between economic growth to net FDI and health expenditure. Finally, it can be said that in our country, economic growth leads to higher net FDI as well as health expenditure. **Conclusion:** The empirical result reveals that there is no long-run co-integrating relationship between Health Expenditure and Economic Growth in India. We found that there is no long-run causality between Health Expenditure and Economic Growth. But in the short-run unidirectional causality is running from Economic Growth to Health Expenditure. It means in the short-run Economic Growth leads to higher Health Expenditure in India.*

Keywords: *FDI, Health, Economic Growth, Regression, Ganjar Causality*
Declaration: No conflict of Interest exist.

Introduction

There is immense scope for enhancing healthcare services penetration in India, thus presenting ample opportunity for the development of the healthcare industry. Rising income levels, ageing population, growing health awareness and changing attitude towards preventive healthcare is expected to boost healthcare services demand in future. The low cost of medical services has resulted in a rise in the country's medical tourism, attracting patients from across the world. Moreover, India has emerged as a hub for R&D activities for international players due to its relatively low cost of clinical research. Conducive policies for encouraging FDI, tax benefits, favourable government policies coupled with promising growth prospects have helped the industry attract private equity, venture capitals and foreign players. The demand for hospital services has been consistently soaring in the country, with every class of the society demanding better quality and standards of healthcare which has resulted in the continuous growth of the healthcare industry. The overall Indian healthcare market is worth around US$ 100 billion and as per a report of IBEF. health expenditure as a share of GDP increased from 0.96 per cent in 2004-05 to just 1.01 per cent in 2008-09 as compared to five per cent for high-income countries (Chanda, 2002).

The health sector is plagued by inefficiencies and a lack of physical infrastructure. The mismatch between demand and supply of healthcare services and infrastructure has triggered the emergence of private participation in the provision of healthcare. For example, the private sector accounts for around 80 per cent of healthcare delivery in India. An estimated 60 per cent of hospitals, 75 per cent of dispensaries, and 80 per cent of all qualified doctors are in the private sector (Chanda, 2008). Outreville (2007) identifies some of the determinants of foreign investment of the largest MNCs operating in the healthcare industry. The sector-wise decomposed FDI has a bearing on the impact it would exert on the economic growth process (Alfaro, 2003; Borensztein, De Gregorio, & Lee, 1998; Hirschman, 1958). Therefore, high cross-sectoral versatility in the economic activity varied contribution towards growth, and heterogeneity in individual characteristics require specific treatment for each sector while correlating with FDI (Aykut & Sayek, 2007).

According to World Investment Report (United Nations Conference on Trade and Development [UNCTAD], 2001), in an economy, the linkage potential differs across sectors, and it is reasonably found the highest in the case of the service sector followed by manufacturing and primary sector. Therefore, there are obvious reasons as to why the effect of FDI can vary with sectoral or even industry specifications (Chakraborty & Nunnenkamp, 2008). In this point, it is noteworthy that the economic studies on total FDI to aggregate growth relationship were based on a tenuous assumption that FDI in different sectors would exert equal impact on the economic growth (Wang, 2009), and they are of homogeneous characteristics. Thus, a more stringent analysis of this relationship requires appropriate treatment of FDI before linking it to economic growth.

Theoretical Framework

Foreign Direct Investment (FDI) is an investment "made by a company or entity based in one country, into a company or entity based in another country. The FDI differ substantially from indirect investments such as portfolio flows, wherein overseas institutions invest in equities listed on a nation's stock exchange". It is taken as a percentage of GDP.

Health Expenditure (HE) has been steadily rising over the last decade to cater to its growing population. In the fiscal year 2018, the value of public health expenditure by states and union territories together amounted to around 1.58 trillion Indian rupees. This was estimated to be around 1.28 per cent of the country's GDP. In comparison, the United States' budget estimates showed an outlay of over 17 per cent of the GDP to public health expenditure in its fiscal year 2018.

Objective

To analyse the relationship between FDI in the health sector and GDP in India.

Hypothesis

Null hypothesis (H_0): There is no relationship between FDI in the health sector and health sector growth in India;

Methodology

The annual data from 1990 to 2020 are used in the study to examine the relationship between FDI in the health sector and economic growth in the context of the Indian economy. Firstly the descriptive statistics have been calculated for getting an idea of nature and the basic characteristics of the variables used in this study. Further for testing the stationarity of the variables, the Unit Root test has been performed by which the co-integration test and VECM model have been performed in an easy way to find the short-run and long-run dynamic relationship between the variables and Granger Causality test to identify the direction of causality.

Data

To analyze different determinants and parameters of FDI in the Health care sector in India, data on FDI in the Health care sector was taken from 1990 to 2020. This study investigates the impacts of the FDI and Health expenditure on the GDP growth of India by using time series data over the period 1990-2020. The data used in this study are taken from the World Bank's World Development Indicators. In this study, the dependent variable is the real GDP in India and the independent variables are the FDI and Health expenditure. We used E-views software for aforesaid estimation. The explanations of the independent variable are as follows.

Table-1: Total Growth Rate of GDP, FDI and Health Expenditure in India

Year	ln GDP	ln Net FDI	ln Health Expenditure
1990	0.00	0.00	0.00
1991	-4.48	-0.04	-0.72
1992	4.43	0.06	0.02
1993	-0.73	0.11	-0.06
1994	1.91	0.08	-0.04
1995	0.92	0.29	0.11
1996	-0.02	-0.01	-0.03
1997	-3.50	0.28	-0.05
1998	2.13	-0.22	-0.05
1999	2.66	-0.16	0.13
2000	-5.00	0.20	-0.23
2001	0.98	0.18	0.23
2002	-1.02	-0.07	-0.02
2003	4.06	-0.36	-0.23
2004	0.06	0.10	-0.05
2005	0.00	0.06	-0.17
2006	0.14	0.07	-0.16
2007	-0.40	0.04	-0.12
2008	-4.57	1.34	0.00
2009	4.78	-0.56	-0.03
2010	0.64	-0.77	-0.21
2011	-3.26	0.63	-0.03
2012	0.22	-0.47	0.08
2013	0.93	0.58	0.42
2014	1.02	-0.30	-0.13
2015	0.59	0.61	-0.02
2016	0.26	-0.02	-0.08
2017	-1.21	-0.63	0.02
2018	-0.92	0.04	0.01
2019	-1.94	0.17	0.00
2020	3.52	-0.42	0.06

Sources: World Bank Database

The actual number of the three variables like GDP, FDI and Health in India from 1990 to 2020 has been depicted in above that is table-1. It is clearly visible that all three variables are at an increasing level.

Results And Discussion

Table-2: Lag selection

Regarding lag selection criteria based on VAR lag selection criteria, the optimum lag would be as shown in the following table.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-69.24	NA	0.04	5.35	5.49	5.39
1	-33.51	60.86*	0.01*	3.37*	3.95*	3.54*
2	-28.52	7.40	0.01	3.67	4.68	3.97
3	-22.13	8.05	0.01	3.86	5.30	4.29
4	-12.59	9.90	0.01	3.82	5.69	4.38

Source: Using E-views Software

Since maximum lag selection criteria indicate that the star mark is one, so the optimum lag would be one both in the Johanson test and in the Vector Error Correction model. Now we should proceed with the Johansen Test of Co-integration.

Johansen Test of Co-integration

Since as per the guideline, the variables must be non-stationary at level but be stationary at first difference means integrated at same order, so that we can run the Johansen Test of Co-integration.

Unit Root Test and Stationary Test

Table-3: Panel Unit Root Test Result

Variables	Level Value (Probability)		1st Difference (Probability)	
	Intercept	Trend & Intercept	Intercept	Trend & Intercept
Net FDI	0.99	0.62	0.00*	0.00*
Health Expenditure	0.97	0.50	0.00*	0.00*

Source: Computed by Author by Using E-Views software, note: * indicates stationary.

Table-3 provides clear information about the level probability values of the two independent variables which are higher than 0.05 both in intercept and trend & intercept. It shows that these variables have unit-roots. Since the Null hypothesis is the series is having unit-roots. Therefore, the first-order difference of these variables is taken into the consideration. And it is clearly seen that both variables are stationary at 1st difference.

Moreover, it shows the Augmented Dicky-Fuller Test Statistics of X_1 variable that is net FDI which is 99.23 % that is more the critical value 5% level leads to accepting the null hypothesis. Since H_0 is the series is having unit root so after accepting the series is non-stationary.

While considering these aspects, it is summarized that the unit root test result satisfies the precondition of co-integration analysis. After stationary analysis, a co-integration test is performed to find the relationship among these variables. Before taking the co-integration test we need to have proper lags of each variable. So we will use VAR lag selection criteria for checking the proper lags.

Johansen Cointigration Test

Table-4: Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.59	43.49	29.80	0.00
At most 1 *	0.48	19.35	15.49	0.01
At most 2	0.06	1.67	3.84	0.20

Source: Computed by Author by Using E-Views software

Table-5: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.59	24.14	21.13	0.02
At most 1 *	0.48	17.68	14.26	0.01
At most 2	0.06	1.67	3.84	0.20

Source: Computed by Author by Using E-Views software

In Johnsen's Co-Integration Test there are two statistics like **Trace Statistics** and **Max-Eigen Statistics.** So we shall be checking both. First, we check Trace Statistics. So here **Null Hypothesis** is no of the co-integrated equation, which is None. Or there is no co-integration among the three variables. That is the "none". Here the p-value or Probabilistic value is 4.8%, which is less than 5%. we will reject the null Hypothesis. So here null hypothesis is, there is no co-integration among the three variables. So H_1 is, there is co-integration among the three variables. And the second one is **At most 1.** This means there is at least one co-integrated equation. So here the H_0 is accepted because the P-value is 26.8%, which is more than 5%. This means there is co-integration among the three variables**.** Or these three variables have long run association-ship. Meaning that, in long run, they move together. All these three variables move together. So here the Trace Statistics indicates one co-integrated equation. The next one, we should not go for at most 2, because already we got the first one.

So the second test, **Max-Eigen Statistics** tells about the rejection of the null hypothesis. In total, here the guideline is if series are co-integrated then we will go for appropriate estimations, that is, **VAR or VECM (Vector Error Correction Methods).** If not, then we will go for only **VECM.**

So the guideline is if the variables are co-integrated or have a long-run association ship then we can run restricted VAR, i.e, the VECM model. But if the variables are not co-Integrated, we cannot use the VECM model rather we shall run unrestricted VAR. So here all the three variables are co-integrated, we can go for the VECM model.

VECM (Vector Error Correction Estimation Model)
Table- 6: Error Correction model

Vector Error Correction Estimates			
Cointegrating Eq:	CointEq1		
GDP(-1)	1.00		
Net FDI(-1)	17.53 (3.80) [4.61]		
Health Expenditure(-1)	16.60 (4.16) [3.99]		
C	-85.48		
Error Correction:	D(GDP)	D(Net FDI)	D(Health Expenditure)
CointEq1	-0.06 (0.13) [-0.45]	-0.07 (0.02) [-3.06]	-0.01 (0.01) [-1.57]
D(GDP(-1))	-0.26 (0.27) [-0.97]	0.01 (0.05) [0.23]	-0.03 (0.02) [-2.01]
D(GDP(-2))	-0.46 (0.29) [-1.58]	0.05 (0.05) [1.06]	-0.01 (0.02) [-0.44]
D(GDP(-3))	-0.41 (0.26) [-1.57]	0.02 (0.05) [0.47]	0.01 (0.02) [0.66]
D(Net FDI(-1))	3.43 (1.88) [1.83]	0.22 (0.33) [0.68]	-0.05 (0.11) [-0.42]
D(Net FDI(-2))	1.18 (1.91) [0.61]	0.33 (0.34) [0.98]	0.06 (0.11) [0.58]
D(Net FDI(-3))	-0.44 (1.46) [-0.30]	0.20 (0.26) [0.78]	-0.06 (0.08) [-0.66]
D(Health Expenditure(-1))	-3.96 (4.41) [-0.90]	0.74 (0.78) [0.95]	0.26 (0.25) [1.02]

D(Health Expenditure(-2))	3.74 (3.83) [0.98]	0.64 (0.67) [0.94]	0.06 (0.22) [0.27]
D(Health Expenditure(-3))	1.02 (3.57) [0.29]	0.87 (0.63) [1.39]	0.18 (0.21) [0.87]
C	0.07 (0.48) [0.14]	0.06 (0.09) [0.76]	-0.00 (0.03) [-0.12]
R-squared	0.48	0.54	0.50
Adj. R-squared	0.15	0.25	0.18
Sum sq. resids	76.90	2.39	0.26
S.E. equation	2.19	0.39	0.13
F-statistic	1.47	1.87	1.58
Log likelihood	-52.44	-5.56	24.61
Akaike AIC	4.70	1.23	-1.01
Schwarz SC	5.23	1.75	-0.48
Mean dependent	0.11	0.03	-0.02
S.D. dependent	2.38	0.45	0.14
Determinant resid covariance (dof adj.)		0.01	
Determinant resid covariance		0.00	
Log-likelihood		-22.26	
Akaike information criterion		4.32	
Schwarz criterion		6.04	

Source: Computed by Author by Using E-Views software

So here D(Y) is the target variable and the VECM model automatically converts the variables into 1st difference. For example, the variables are coming with D(y), D(x_1) and D(x_2). Furthermore, here each variables is having four lags, according to the lag criteria selection. So here the ***target model*** is as follow:

$Y_t = 119.41 - 1.35Y_{t-1} - 1.69Y_{t-2} + 0.23Y_{t-3} + 0.44Y_{t-4} + 116.57X_{1t-1} + 140.77X_{1t-2} - 115.18X_{1t-3} - 18.63X_{1t-4} + 28.56X_{2t-1} + 3.24X_{2t-2} - 10.08X_{2t-3} - 3.80X_{2t-4} + U_t$ ……(1)

And the ***system equation models*** are as follow:

System Equation Models

D(Y) = C(1)*(Y(-1) - 81.95*X1(-1) - 4.18*X2(-1) - 167.71) + C(2)*D(Y(-1)) + C(3)*D(Y(-2)) + C(4)*D(Y(-3)) + C(5)*D(Y(-4)) + C(6)*D(X1(-1)) + C(7)*D(X1(-2)) + C(8)*D(X1(-3)) + C(9)*D(X1(-4)) + C(10)*D(X2(-1)) + C(11)*D(X2(-2)) + C(12)*D(X2(-3)) + C(13)*D(X2(-4)) + C(14) …………..(2)

D(Y)= target variable,
C(1) = the coefficient of co-integrating model and **C(1)** is also an Error Correction Term or Speed of adjustment towards equilibrium.
So there are two issues.

1. Long-run causality
2. Short-run causality

Long-Run Causality

If this **C(1)** is negative in sign and significant, then we can say that there is a long-run causality running from X_1 and X_2 to Y. So here the p-value of **C(1)**is 0.4824 which is more than 5%. This is not significant. It means there is no long-run causality running from net FDI and health expenditure to GDP. And the second issue is as follow

Short Run Causality

Here the coefficients of all the four lags of 1st independent variable that is net FDI are C(6), C(7), C(8), C(9). So if they are zero (**H_0=C(6)=C(7)=C(8)= C(9)=0**), it can be said there is no short-run causality running from net FDI to GDP. So to check it we will go to the **Wald test (Wald Chi-Squared Test)**

Wald Test (Wald Chi-Squared Test)

The null hypothesis for the test is some parameter = some value. For example, if GDP is affected by net FDI. “GDP” would be our parameter. The value could be zero (indicating that GDP is affected by net FDI). If the null hypothesis is rejected, it suggests that the variables in question can be removed without much harm to the model fit. That is illustrated as follow:

Table- 7: Wald Test (short run)
Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	0.63	(4, 10)	0.65
Chi-square	2.51	4	0.64
Null Hypothesis: C(6)=C(7)=C(8)= C(9)=0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)		Value	Std. Err.
C(6)		116.57	100.46
C(7)		140.76	115.18
C(8)		-115.17	94.20
C(9)		-18.63	50.04
Restrictions are linear in coefficients.			

Source: Computed by Author by Using E-Views software

Here the p-value is 64%, which means the null hypothesis cannot be rejected. Hence C(6)=C(7)=C(8)= C(9)=0. Therefore, there is no short-run causality running from net FDI to GDP.

And the second independent variable, i.e., health expenditure does cause GDP or not. Here is the coefficient of all lags of these variables in C(10), C(11), C(12), C(13). Again the null hypothesis is C(10)= C(11)= C(12)= C(13)=0. Where this is zero or not we check the Wald test.

Table- 8: Wald Test: (long run)
Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	0.71	(4, 10)	0.60
Chi-square	2.83	4	0.59
Null Hypothesis: C(10)= C(11)= C(12)= C(13)=0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)		Value	Std. Err.
C(10)		28.56	31.12
C(11)		3.24	17.17
C(12)		-10.08	21.50
C(13)		-3.80	26.07
Restrictions are linear in coefficients.			

Source: Computed by Author by Using E-Views software

The p-value is 59% which makes the null hypothesis accepted. This means all the coefficients of X2 variables are zero. Therefore, there is no short-run causality from health expenditure to GDP. Hence, it can be said that no Long-run or short-run causality is running from health expenditure and net FDI to GDP. This means there is no association ship from X1 and X2 to the Y variable. Moreover, we applied the least-squares method.

Table-9: Least Squares Method

Dependent Variable: D(GDP) Method: Least Squares (Gauss-Newton / Marquardt steps) Sample (adjusted): 1990- 2020 Included observations: 27 after adjustments				
D(GDP) = C(1)*(GDP(-1) + 17.53*Net FDI(-1) +16.60*Health Expenditure(-1) - 85.48) + C(2)*D(GDP(-1)) + C(3)*D(GDP(-2)) + C(4)*D(GDP(-3)) + C(5) *D(Net FDI(-1)) + C(6)*D(Net FDI(-2)) + C(7)*D(Net FDI(-3)) + C(8)*D(Health Expenditure(-1)) + C(9)*D(Health Expenditure(-2)) + C(10)*D(Health Expenditure(-3)) + C(11)				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.06	0.13	-0.45	0.66
C(2)	-0.26	0.27	-0.97	0.35
C(3)	-0.46	0.29	-1.58	0.13
C(4)	-0.41	0.26	-1.57	0.14
C(5)	3.43	1.88	1.83	0.09
C(6)	1.18	1.91	0.61	0.55
C(7)	-0.44	1.46	-0.30	0.77
C(8)	-3.96	4.41	-0.90	0.38
C(9)	3.74	3.83	0.98	0.34
C(10)	1.02	3.57	0.29	0.78
C(11)	0.07	0.48	0.14	0.89
R-squared	0.78	Mean dependent var		0.11
Adjusted R-squared	0.78	S.D. dependent var		2.38
S.E. of regression	2.19	Akaike info criterion		4.70
Sum squared resid	76.90	Schwarz criterion		5.23
Log likelihood	-52.44	Hannan-Quinn criter.		4.86
F-statistic	1.47	Durbin-Watson stat		2.05
Prob(F-statistic)	0.24			

Source: Computed by Author by Using E-Views software

Here the R-squared value is more than 60%, so the model is a good fit. Again regarding the residuals diagnostic, we further check the Breusch-Godfrey Serial Correlation test

Table-10: Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.98	Prob. F(2,8)	0.41
Obs*R-squared	4.74	Prob. Chi-Square(2)	0.09

Source: Computed by Author by Using E-Views software

Here the null hypothesis is there is no serial correlation. And the p-value is 9.32%, which is more than 5% makes the H_0 accepted. Therefore, in this model no serial correlation in the residuals.

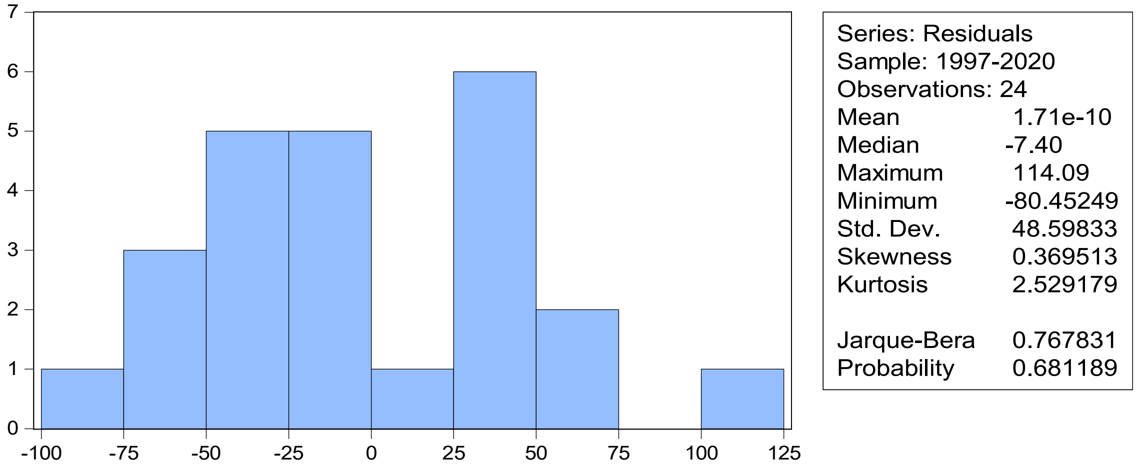
Table-11: Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.67	Prob. F(15,8)	0.76
Obs*R-squared	13.34	Prob. Chi-Square(15)	0.58
Scaled explained SS	1.77	Prob. Chi-Square(15)	1.00

Source: Computed by Author by Using E-Views software

Here the p-value is more than 5%, which leads towards accepting the null hypothesis. This means there is no heteroscedasticity in the residuals, which is desirable in a model.

Figure-1: Normality Test



Source: Computed by Author by Using E-Views software

Here the value of Jarque-Bera is 76.78% and the p-value is 68.12% which is more than 5%. Hence we cannot reject H_0 rather we accept the null hypothesis. This means residual is normally distributed. So overall the model is a good fit.

Estimation and Empirical Analysis of the Results

During the investigation of a long-run relationship among the variables such as **GDP (Y)** as a dependent variable, **net FDI (X_1)** and **Health Expenditure (X_2)** as independent variables, first of all, the series is tested for stationarity, since the data used in the present study is time-series in nature. If there is the unit root, the series is non-stationary. The tests of unit roots were performed using Augmented Dickey-Fuller Test. The null hypothesis is that the series has a unit root against the alternative. The result of the unit root test is reported in table-2. The result shows that the variables are non-stationary at level but are stationary at first difference. Hence, the Johansen test for co-integration is applied to find co-integration between **GDP (Y)** as a dependent variable, **net FDI (X_1)** and **Health Expenditure (X_2).** Since they are integrated of the same order, thus ensuring the condition to apply Johansen co-integration test the existence of co-integration between these variables. Since the result of VAR analysis is also affected by the number of lag periods, appropriate lag is selected based on Akaike information criteria (AIC) shown in table-3.

Thus, to estimate the long-run relationship between the variables we applied the Johansen co-integration. The result is summarized in table-3a and 3b. Table 3a provides the result of trace statistics. Starting with the null hypothesis of no co-integration among the variables, trace statistics is 15.25741 which is less than the 5 % critical value of 15.49471. Thus we accept the null hypothesis of no co-integration among these variables at 5 per cent. We find a similar result from the Maximum Eigen Statistics table. In this table, we again find that the Maximum Eigenvalue is less than the critical value for no co-integration and accept at no co-integration at a 5 per cent level of significance. Thus, we may conclude that per capita planned expenditure and per capita domestic income are not cointegrated, and hence, there is no long-run equilibrium relationship between per-capita planned expenditure and per capita domestic income in the case of India. This implies that an increase in health expenditure since 1980 has no relation with an increase in income. This may be due to some other socio-economic or political factors.

Using Johnsen's co-integration relationship, the paper has examined the existence of a long-run relationship between net FDI and

GDP, and health expenditure and GDP. The result shows that net FDI and health expenditure are integrated into a different order. Hence, these two variables will not have a cointegration relationship. The result of cointegration between net FDI and health expenditure rejects the hypothesis of the existence of a long-run relationship between these two. Thus we may conclude that the growth of planned health expenditure overtime period may have occurred due to other reasons than to increase in per capita income of the country.

Table-12: Panel Causality Analysis Results

The way of the Relationship	Lag	Probability Values	Results
Net FDI→ Economic Growth	1	0.74	Net FDI does not Cause Economic Growth
	2	0.62	
	3	0.56	
	4	0.42	
Economic Growth → net FDI	1	0.04*	Economic Growth is the main cause of Net FDI
	2	0.00*	
	3	0.00*	
	4	0.00*	
Health Expenditure → Economic Growth	1	0.00*	Health Expenditure does not cause Economic Growth
	2	0.23	
	3	0.69	
	4	0.51	
Economic Growth → Health Expenditure	1	0.00*	Economic Growth is the main of Health Expenditure
	2	0.00*	
	3	0.00*	
	4	0.01*	

Source: Computed by Author (* mark indicates significant)

Table-12 shows that there is no causality relationship from net FDI to economic growth, due to the main reason of having all lag values are greater than 0.05. This scenario is also similar concerning the relationship between health expenditure to economic growth. As a result the null hypothesis which is “no causality relationship” is accepted. Moreover, in the case of health expenditure to economic growth, the first lag showing a significant probability value that is less than 5% but except first lag the rest four lags are greater than 5%. Hence null hypothesis “no causality relationship” cannot be rejected.

Regarding economic growth to net FDI and health expenditure, in both these cases, the probabilistic values are less than 5% in the case of all four lags, as the result, showing the significant value leads to reject the null hypothesis. So there is a causality relationship from economic growth to both net FDI and health expenditure. Finally, it can be said that in our country, economic growth leads to higher net FDI as well as health expenditure.

Conclusion

The health sector is predominantly privatized and accounts for more than 80% of total healthcare spending in India with almost 75 to 80 % of hospitals being managed by the private sector. The Government of India Policy to encourage investment in the health care sector, the government of India has allowed 100% FDI under the automatic route. The government has also accorded the infrastructure status to the hospitals and Lower tariffs on medical equipment. The government has also announced a tax holiday for five years for the hospitals in rural areas Market Drivers of Health Care Sector Health awareness is raising. The health insurance sector is also on the rise. Private sector companies are growing fast in terms of owning and managing hospitals.

References

1. Alfaro, L. (2003). Foreign direct investment and growth: Does the sector matter, Boston: Harvard Business School, 1(11);1-31.
2. Aykut, D., & Sayek, S. (2007). The role of the sectoral composition of foreign direct investment on growth. International Economics and Foreign Trade Politics, 2(3):33-64.
3. Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does a foreign direct investment affect economic growth? Journal of International Economics, 45(1):115–135.
4. Chakraborty, C., & Nunnenkamp, P. (2008). Economic reforms, FDI and economic growth in India: A sector-level analysis. World Development, 36(7):1192–1212.
5. Chanda, R (2001). Trade-in health services, Commission on Macroeconomics and Health WHO, Geneva.
6. Hirschman, A. (1958). The strategy of economic development, New Haven, CT: Yale University Press.
7. Sunitha, L. F. & Ajil, B. R. (2013). Role of FDI in India's Health Care Sector: Major Issues and Challenges. International Journal of Humanities and Social Science Invention, 2(5):37-40.
8. Outreville, J. F. (2007). Foreign direct investment in the health care sector and most-favoured locations in developing countries, Eur J Health Econ, 8(1):305-312.
9. Sagar, R. & Praveena, P. L. (2013). An Analytical Study of FDI in Indian Health Care Sector, International Journal of Social Science & Interdisciplinary Research (IJSSIR), Vol. 2 (8):29-38.
10. Khan, A., Hussain, J., Bano, S. & Chenggang, Y. (2019). The repercussions of foreign direct investment, renewable energy and health expenditure on environmental decay: An econometric analysis of B&RI countries. Journal of Environmental Planning and Management, 1(1):1-22.
11. United Nations Conference on Trade and Development (UNCTD). (2001). World investment report. Geneva: United Nations Conference on Trade and Development.
12. Wang, M. (2009). Manufacturing FDI and economic growth: Evidence from Asian economies. Applied Economics, 41(8), 991-1002.
13. Waqas, J. (2016). Impact of Foreign Direct Investment on Economic Growth of Pakistan: An ARDL-ECM Approach, Handledare: Anh Mai Thi Van Södertörns högskola, Department of Economics, Magisteruppsats 30 hp, Spring, 1(1):1-47.