JOURNAL OF ECONOMIC DEVELOPMENT 111
Volume 48, Number 3, September 2023

DOES FOREIGN AID PROMOTE HUMAN DEVELOPMENT? EVIDENCE FROM SOUTH ASIAN COUNTRIES *

RANJAN KUMAR DASH AND DEEPA JITENDRA GUPTA

Symbiosis International (Deemed University)

This research examines the efficacy of foreign aid in promoting human development in South Asian countries from 1990 to 2019. The study uses panel data analysis (cointegration, causality, and the GMM-system model) to assess the efficacy of foreign aid on human development. The study also examines the role of the conditioning factor in the interplay between aid and investment. Overall, the findings of this paper show that the effects of aid on human development are: directly negative and indirectly positive for three channels (trade, infrastructure, and corruption). Further, the study finds one-way causality from human development to foreign aid, indicating that higher human development attracts higher aid, not vice-versa. Therefore, by following open oriented trade regime, improving infrastructure facilities, and reducing corruption, aid effectiveness could be enhanced for South Asian countries.

Keywords: Aid, HDI, South Asia, Panel Data, Causality
JEL Classification: F35, F50, O55

1. INTRODUCTION

Development assistance or foreign aid to developing countries has been stirred by a mix of economic interests, geopolitical interests, and humanity. The OECD countries have been the largest donor to developing economies, particularly in South Asia. Grants, soft loans, and other kinds have been South Asia's primary sources of foreign resources. Despite the rise in FDI inflows in recent times, the importance of aid has remained relatively high, especially for small countries like Nepal, Maldives, Pakistan, and Bangladesh. The aid flows started being directed to the industrialization agenda in the recipient countries. Lately, with the development agenda 2030, aid flows are being

* We sincerely thank the anonymous referees of the journal for excellent comments which helped us to improve the manuscript substantially. All errors and emissions are the authors responsibility.

directed to social sectors, like education, human development, and health, to achieve SDGs (Moyer and Hedden, 2020). Further, aid extended as technical assistance and for the specific sector such as education and health potentially foster human development (Kargbo, 2012; Kargbo and Sen, 2014; Gyimah-Brempong and Racine, 2014).

Notwithstanding the theoretical prediction of aid, the empirical literature suggests ambiguous results. Most of the studies focused on the macroeconomic impact of aid and found mixed results. Moreover, the studies that have documented positive effects have been criticized for their methodological deficiencies. One stream of the literature suggests that foreign aid leads to higher economic growth and human development (Hansen and Tarp, 2000; Karras, 2006; Arndt et al., 2010; Juselius et al., 2013) and others (Boone, 1996; Easterly, 2003; Moyo, 2010; Easterly et al., 2004; Asongu and Joseph, 2018) find that aid may not foster economic growth and human development, thus could negatively affect both. Further, few other studies argue that aid impact depends on many country-specific factors such as good policy (Burnside and Dollar, 2000), democracy (Kosack, 2003), public expenditure (Gomanee et al., 2005), corruption (Okada and Samreth, 2012; Asongu, 2012) and governance (Asongu and Nwachukwu, 2015; Elayah, 2016). The conflicting results have raised many questions about the existing aid policy and argued for a rethinking of the policies and the mechanism.

These debates in the empirical studies motivated this paper to assess the efficacy of aid in South Asian countries as this region is less focused. The present study contributes to the existing literature in the following ways: (1) in the context of inconclusive results, this study examines the impact of aid on human development for six South Asian countries, bringing new evidence to the aid-development literature; (2) This study not only assess the direct impact but also examines various channel impact including institutions that facilitate aid efficiency for human development; (3) The study also contributes methodologically by applying advanced panel methodology (second generation unit root, cointegration, and causality) and therefore, take care the issues of endogeneity and cross-section dependency; (4) The study also considers the Maldives, a small country in our sample previously not included in the literature. Finally, only a few studies examine the direction of causality between aid and human development, which is significant research. This study fills the same by conducting panel causality between the two.

The outline of this study is as follows: Section 2 focuses on the literature survey. Section 3 analyses the trends and importance of aid for South Asia. Section 4 presents data sources, methodology, and model specifications; results and discussion are provided in Section 5. Section 6 present the conclusion and policy implications.

2. SURVEY OF LITERATURE

2.1. Theoretical Considerations

The aid effectiveness has been highlighted by two gap theories advocated by

Chennery and Strout (1966). The theory propounds that developing countries are facing a saving-investment gap and foreign exchange constraints. Foreign aid supplements domestic savings and helps developing countries overcome savings constraints (resource gap). Similarly, foreign aid provides vital foreign exchange required for importing raw materials and critical capital goods or technology for domestic industrial development (Hansen and Tarp, 2001).

Endogenous growth models developed in the early 1990s recognize many other factors such as technology, human capital, new intermediate goods, R&D activities, foreign capital, fiscal policy, trade policy, social capital, and institutional quality and their contribution to economic growth (Easterly, 2003). These growth models have recognized the effect of aid on economic growth and human development in the recipient country. In particular, the endogenous growth model assumes increasing returns to capital; thus, foreign aid could foster growth in the long run. (Kargbo, 2012). Based on this model, aid contributes to development by transferring technology, increasing public spending on infrastructure and the social sector, reducing the tax burden on corporate, and improving governance and accountability (Hansen and Tarp, 2001; Morrisey, 2001; Kargbo, 2012). The importance of foreign aid in enhancing human capital is, therefore, recognized in the endogenous growth model. Aid extended as technical assistance and for health and education purposes shall foster human competence and enhance production outcomes (Hansen and Tarp, 2001; Morrisey, 2001; Kargbo, 2012).

Further, the role of foreign aid is recognized in the "fiscal gap" literature, where aid is considered a vital source of expenditure that paves the way for public investment in infrastructure and the social sector (Hansen and Tarp, 2001). Similarly, foreign aid affects the level of human development through the "labor-gap-filling process". The technical assistance that donor countries provide in the form of highly skilled workers helps the effective utilization of aid and results in better economic development (Kargbo, 2012). With the changing development priority, some studies have argued in favour of changing the nature of development assistance from financial resources to technical assistance, knowledge sharing, and technology transfer (UNESCAP, 2018). This will help to achieve the aid objectives.

2.2. Previous Empirical Studies

The relationship between foreign aid and economic development in recipient countries has been extensively debated in the literature. The empirical evidence shows mixed results. For example, Burnside and Dollar (2000) investigated the relationship between foreign aid and economic growth in 56 developing countries. Using the 2SLS model, the study finds a positive impact on growth in developing countries with good policies (fiscal, monetary, and trade policies). Developing countries with poor policy environments do not benefit from aid flows (Asongu and Nwachukwu, 2015). In contrast, studies (Easterly et al., 2004; Rajan and Subramanian, 2008) find no significant

impact of aid on growth even after considering various conditional factors. Similarly, a study on African countries found aid is unattractive to the institutional quality, unrelatedly to the initial levels of institutional development (Asongu, 2013)

Compared to aid-growth literature, very few studies examine the impact of aid on human development. The empirical literature can be divided into three strands. The first set of literature finds that aid positively affects human development; hence, aid is a vital source of economic development (Fielding et al., 2006; Kosack and Tobin, 2006; Moe, 2008; Asiama and Quartey, 2009; Gillander, 2011). The second view asserts that aid does not improve human development as aid leads to more unproductive expenditure, corruption, and rent-seeking activities (Boone, 1996; McGillivary and Noorbaksh, 2007; Williamson, 2008; Asongu and Joseph, 2018). The third view is that aid's impact on human development depends on many country-level conditional factors (Kosack, 2003; Gomanee et al., 2005; McGillivary et al., 2006).

One of the critical studies on aid and human development was undertaken by Kosack (2003) for 56 developing countries over 1975- 85. The study concluded that HDI and aid work together in democratic countries. Further, the study concluded that countries low on HDI, with a democratic setup, can reverse the low level of human development through foreign Aid. Another study by Tobin (2006) finds that the efficacy of aid increases with the rise in FDI inflows. Conversely, FDI played a key role compared to aid in fostering human development and economic growth in emerging countries (Aurangzeb and Thanasis, 2014)

The aspect of human development has been associated with SDGs. The focus of studies has shifted from aggregate aid to disaggregating aid and its impacts. Studies (Sadek, 2012; Ardnt et al., 2015, Mohmeda and Mzeea, 2017; Sumida, 2017) have focused on social indicators like infant mortality rate, education attainment, and health. They have concluded that aid improved all the social indicators in the recipient country. Other studies have also revealed the role of government policies in aid effectiveness. Further, aid spent on infrastructure building and supplementing public expenditure on education, health, and social services is very effective for economic development. A few studies (Arndt et al., 2015; Mahembe and Odhiambo, 2019) widened the scope of evaluation of the effectiveness of aid by studying the impact of aid on infant mortality rate and poverty reduction.

For South Asia, only a few studies are available. For example, Shirazi et al. (2010) examined the role of ODA in promoting growth and human development in Pakistan. This study's results suggest a two-way causality between ODA and growth and a unidirectional relationship between ODA and human development. Therefore, aid has a significant impact on economic development in Pakistan. Das and Sethi (2019) examine the role of aid and FDI in the economic growth of South Asian countries from 1980-2016. The study finds that aid harms economic growth. Against this background, the motivation for this study is manifold: first, to examine the impact of aid on human development; second, to identify conditional complementary factors that increase aid effectiveness.

3. TRENDS AND IMPORTANCE OF AID FOR SIX SOUTH ASIAN COUNTRIES

Foreign aid to developing countries increased from $57 billion to over $129 billion in 2010 and over $166 billion in 2018. However, the distribution of aid is uneven as Africa accounts for the largest share, followed by Asia and the Middle East. Aid flow towards South Asia improved from a meager $5 billion in 1990 to $15 billion in 2010, and thereafter it declined to $13 billion mainly due to a reduction of aid inflows to India. In South Asia, Bangladesh is now the largest receiver of foreign aid followed by India and Pakistan (See Table 1).

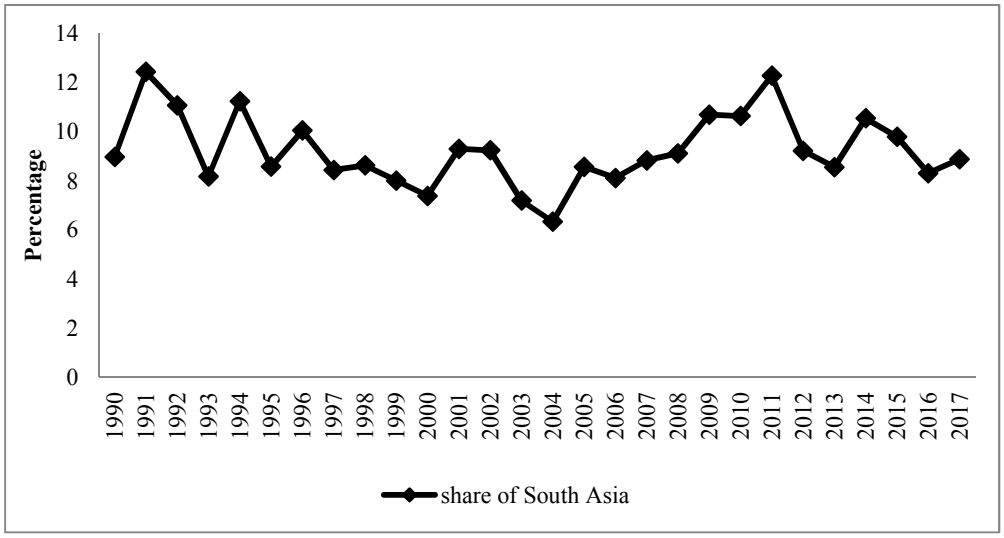
Table 1. Foreign Aid Inflows into Selected regions and countries (Billon of US$)

Region	1990	1995	2000	2005	2010	2014	2015	2016	2017	2018
Developing Countries	57.29	57.8	48.99	107.52	129.2	161.1	146.7	158.8	165	166
Africa	26.18	21.43	15.58	35.81	47.89	54.02	50.06	50.37	53.79	55.22
America	5.08	6.18	4.78	6.44	9.70	9.95	10.21	11.30	8.68	10.44
Asia	17.39	17.46	15.19	45.70	35.89	53.80	40.49	44.07	49.47	49.22
Middle East	5.00	2.93	2.47	25.50	9.44	25.00	14.05	20.51	23.90	27.37
Oceania	1.31	1.89	0.792	1.14	1.89	1.89	1.91	1.80	1.90	2.86
Europe	1.53	2.27	3.72	4.01	5.90	8.51	6.73	8.14	8.41	6.48
South Asia	5.40	4.70	3.70	9.08	14.8	15.4	15.5	13.7	14.7	12.45
India	1.35	1.72	1.30	1.85	2.81	2.91	3.14	2.68	3.19.	2.41
Pakistan	1.12	0.80	0.76	1.60	3.02	3.60	3.70	2.90	2.20	1.60
Bangladesh	1.78	1.03	0.96	1.21	1.39	2.91	2.52	2.52	3.71	3.03
Nepal	0.37	0.38	0.31	0.47	0.77	0.83	1.24	1.04	1.69	1.41
Sri Lanka	0.65	0.47	0.22	1.03	0.58	0.49	0.45	0.37	0.31	-0.25
Maldives	0.02	0.06	0.03	0.12	0.05	0.01	0.01	0.02	0.05	0.15

Source: OECD, International Development Statistics online.

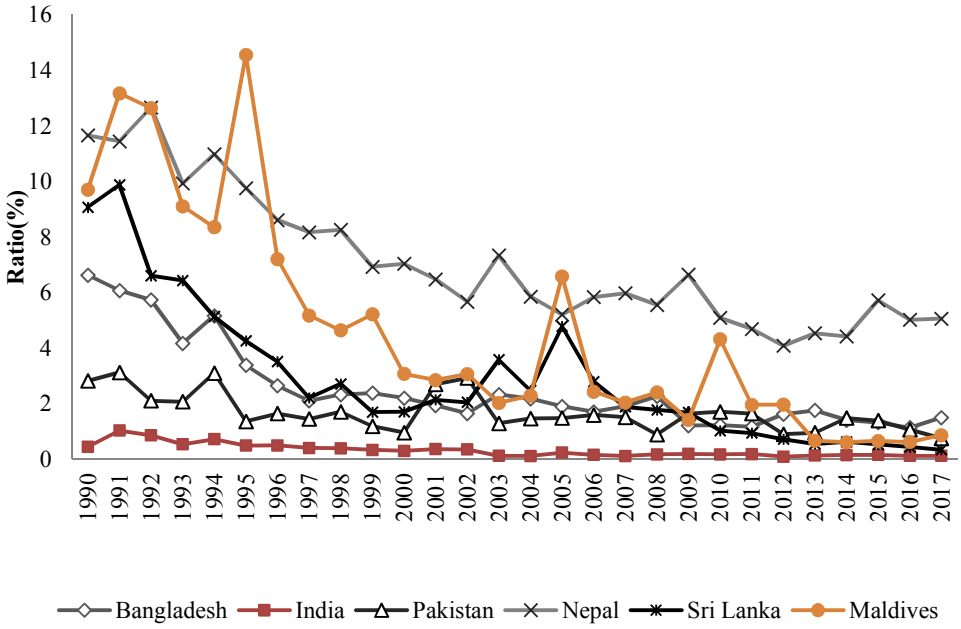
Despite the recent increase in foreign aid to South Asia, its share remained more or less stagnant over the period 1990-2018. For instance, in the 1990s share of South Asia in total aid was roughly around 9 percent and declined slightly to 8 percent in the 2000s but increased to 9 percent post-2010 period (Figure 1).

Foreign aid as the ratio of GDP indicates that the importance of foreign aid for South Asian countries has declined over time. However, it is still a vital source of foreign capital for small countries like Nepal, the Maldives, and Bangladesh (Figure 2).



Source: OECD, International Development Statistics online.

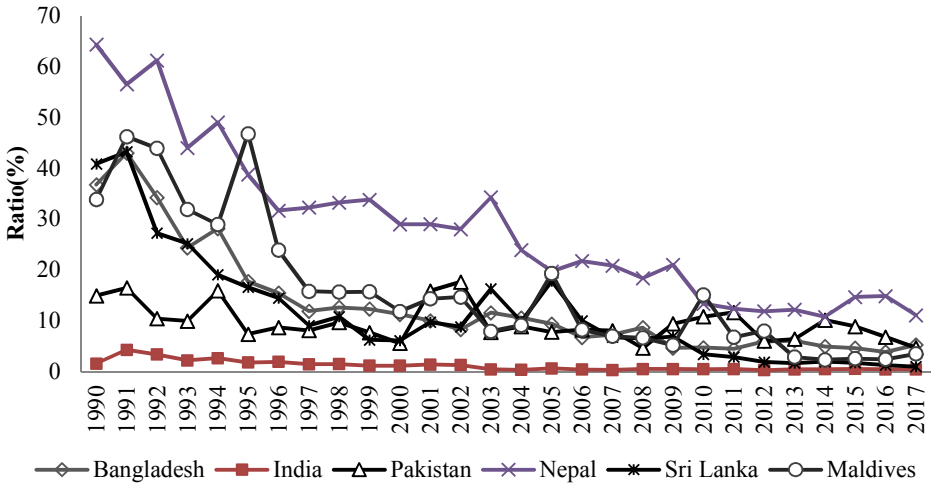
Figure 1. South Asia's Share in Total Aid Inflows (Percentage)



Source: World Bank Development Indicators and OECD, International Development Statistics online.

Figure 2. Foreign Aid Inflows as a Percentage of GDP

Further, the share of foreign aid in gross capital formation (GCF) is examined to assess aid's importance in productive capacities. Figure 3 presents aid flows as the ratio of gross fixed capital formation (GCF) for six countries. The importance of aid in capital formation has declined significantly for all the south Asian countries from 1990 to 2017 but is still significant for Nepal, Pakistan, and the Maldives.



Source: World Bank Development Indicators and OECD, International Development Statistics online.

Figure 3. Foreign Aid Inflows as a Percentage of GCF

Table 2. HDI Score and Rankings of South Asian Countries

Country	HDI Score						HDI score and Rank, 2019	Improvement or deterioration of rankings between 2005 and 2019
	1990	2000	2010	2015	2017	2018	2019	
Sri Lanka	0.629	0.691	0.754	0.772	0.775	0.779	0.782 (72)	(+2)
Bangladesh	0.394	0.478	0.557	0.595	0.616	0.625	0.632 (133)	(+8)
India	0.429	0.495	0.579	0.624	0.64	0.64	0.645 (131)	(+3)
Nepal	0.387	0.453	0.537	0.583	0.588	0.593	0.602 (142)	(+6)
Maldives	0.496	0.622	0.685	0.724	0.731	0.734	0.74 (96)	(+4)
Pakistan	0.402	0.447	0.512	0.536	0.55	0.552	0.557 (154)	(-8)

Source: Human Development Reports, UNDP, 2020. The figures in the brackets represent improvement or deterioration in HDI Rank between 2005 to 2019.

Having discussed the trend and significance of foreign aid, we now discuss the HDI performances of South Asian countries (see Table 2).

Table 2 reveals that all the countries have improved their HDI score and rankings except Pakistan. For instance, between 2005 and 2019, Pakistan lost 8 positions, whereas Bangladesh gained 8 positions in the HDI ranking. As per the classification, India, Bangladesh, Nepal, and Pakistan are classified as medium human development countries while Sri Lanka and the Maldives are grouped as high human development (UNDP, 2019).

4. SOURCES OF DATA, METHODOLOGY AND MODEL SPECIFICATION

4.1. Data Sources

Data on gross fixed capital (GCF) as a percentage of GDP, trade as the ratio of GDP, lagged real GDP growth rate, Broad money (M2) to GDP, and Telephone density (fixed and mobiles) per 100 subscribers are collected from World Bank database, World Development Indicators. Data on government expenditure to GDP was collected from the IMF outlook database. Data on the Human Development Index (HDI) is taken from United Nations Development Programme website. Data on official development assistance (net foreign aid to GDP) is taken from the International Development Statistics of OECD database. Finally, data on corruption (corruption perception index) is taken from Transparency International[1]. The study period covers from 1990 to 2019 for six South Asian countries namely Bangladesh, India, the Maldives, Nepal, Pakistan and Sri Lanka.

4.2. Model Specification and Methodology

4.2.1. Pearson Correlation Analysis

This study aims to investigate the contribution of foreign aid to human development, the System GMM model is applied using the following equation in level (1) and first difference (2):

$$HDI_{it} = \alpha_0 + \alpha_1 HDI_{it-\tau} + \alpha_2 AID_{it} + \alpha_3\, INT_{it} + \sum_{h-1}^{k} \beta_h X_{hit-\tau} + \gamma_i + \mu_t + \vartheta_{it}, \quad (1)$$

$$\text{for } HDI_{it} - HDI_{it-\tau} = \alpha_1 (IHD_{it-\tau} - IHD_{it-2\tau}) + \alpha_2 (AID_{it} - AID_{it-\tau}) + \sum_{i=}^{k} \beta_h \, (X_{hit-\tau} - X_{hit-2\tau}) + (\mu_t - \mu_{t-\tau}) + \varepsilon_{it-\tau}, \quad (2)$$

[1] Corruption Perception Index (CPI) measures level of corruption on a scale 0 to 100 where 0 is highly corrupt and 100 is very clean for 18 countries. Corruption is used as the proxy for institutional quality in this study.

where HDI is the human development Index, AID represents the net foreign aid to GDP, X is a vector of the other control variable that influences HDI, INT is the interaction term to capture the channel effects, μ is the time-specific constant, γ_i is country-specific factors, ϑ_{it} and ϵ_{it} are random error terms and i, t denotes the number of countries and the number of time periods respectively.

Based on the previous literature, several control variables are included in the model. They are gross fixed capital (GCF), financial development (Broad money to GDP) (FD), trade, infrastructure (telecom density), GDP growth rate (GR), and government expenditure (GEXP). Gross fixed capital is expected to positively impact human development as higher investment boosts economic growth, improves the standard of living, and creates better education and health facilities for citizens in the country (Barro and Lee, 1994). The higher investment provides better access to essential infrastructure such as electricity and water, which has a positive and significant effect on human development. Trade is expected to positively impact human development by promoting economic growth and indirectly by promoting technology spillover (Davies and Ouinlivan, 2006).

The role of infrastructure cannot be undermined in promoting human development as it facilitates people to participate in various economic activities and contributes immensely to the living standard (Sapkota, 2014). Access to infrastructure facilities significantly benefits individuals and households, communities, and firms (World Bank, 1994). Empirical literature also suggests a positive relationship between financial development and human capital as financial development reduces liquidity constraints and provides access to better education and health facilities (Demirguç-Kunt and Levine, 2009). Access to financial services raises consumers' and producers' welfare and productivity levels (Claessens, 2006). Economic growth is also expected to positively impact human development as it increases income, which in turn enhances the capabilities and choices of people (Ranis et al., 2000).

Furthermore, productive government expenditure may lead to higher economic growth and sustainable human development (UNDP, 2013). Finally, foreign aid promotes growth and human development by supplementing domestic capital accumulation. Technical and sectoral aid in assistance, trade promotion, educational and health development, and institutional development potentially fosters human capacity building in the recipient country (Kargbo, 2012).

To capture indirect effect, the study included various interaction terms such as $AID \times FD$, $AID \times TRADE$, $AID \times GEXP$, $AID \times INFRA$, and $AID \times COR$. The net effect is calculated using the following formula:

$$\frac{\partial HDI}{\partial AID} = \alpha_2 + \alpha_3 INCT. \tag{3}$$

If the net effect is positive, there is complementarity between foreign aid and the conditioning variable, suggesting that foreign aid increases HDI through the channel effect. On the other hand, a negative net effect indicates that foreign aid reduces HDI through the substitute channel effect.

4.3. Identification and Exclusion

Having specified the model, we now discuss the identification and exclusion restrictions vital to the validity of GMM results. In line with the existing literature, the study considers all the explanatory variables to be endogenous but years are strictly exogenous (Roodman, 2009; Asongu and Acha-Anyi, 2019). The lags of the dependent and independent variables are used as instruments to control the endogeneity. For exclusion restrictions, the study assumes time-invariant variables (years) affect HDI exclusively through suspected endogenous variables. The validity of the exclusion restriction is examined by using the difference in the Hansen Test for the relevance of instruments. The null hypothesis that the time-invariant variables affect the HDI exclusively should not be rejected to validate the exclusion restriction.

5. ANALYSIS OF RESULTS

5.1. Unit Root Test

Before we present GMM results, the variables are checked for stationery properties using a panel unit test proposed by Pesaran (2007), and the results are presented in Table 3. It is clear from Table 3 is that most of the variables non-stationary at level but stationary at first difference or I (1) process. However, growth rate and infrastructure are stationary variables as test statistics do not reject the null of a unit root. Hence, the conclusion of the panel unit root test suggests that we have a mixture of I (0) and I (1) variables (Table 3).

Table 3. Results of CPIS Panel Unit Root Test

Variables	Level variable		Difference series	Results
	Only intercept	Intercept with time trend	Only intercept	
HDI	-0.78	-1.47	-3.22*	Non-stationary
TRADE	-1.21	-1.65	-3.15*	Non-stationary
GCF	-1.35	-1.44	-4.05**	Non-stationary
GR_{t-1}	-2.91*			Stationary
AID	-1.68	-2.16	-3.37**	Non-stationary
FD	-1.65	-1.67	-2.96*	Non-stationary
INFRA	-3.99**			Stationary
Cor	-1.61	-1.81	-3.62**	Non-stationary
GEXP	-2.19	-2.32	-3.64**	Non-stationary

Notes: "** and *" denotes rejection of null of unit root at 1 and 5 percent levels respectively.

5.2. Panel Cointegration

After establishing the variables' properties, cointegration or long-run relationship is investigated using the panel cointegration test proposed by Westerlund (2007). The test results are presented in Table 4. All the four-panel cointegration tests (G_t, G_a, P_t, and P_a) reject the null of no-cointegration at a 5 percent level, establishing a long-run stable relationship between HDI and its determinants (Table 4).

Table 4. Results of Westerlund Panel Cointegration Tests

Statistics	Test Value
G_t	-4.08*
G_a	-11.25*
P_t	-9.77*
P_a	-12.88*

Notes: H_0: no cointegration, * indicates rejection of H_0 at 5 percent level. I (0) variables are excluded from the cointegration test. The cointegration regression is fitted with constant and one lead and lag.

5.3. The Contribution of Foreign Aid to Human Development

In the third step, the study applies the GMM-System model to assess the impact of foreign aid on human development. The panel GMM-System model is appropriate as it accounts for country-specific heterogeneity and potential endogeneity issues. In addition, this model is appropriate when there is a high level of persistence in the dependent variable (Asongu et al., 2017). The results of GMM-system estimations are presented in Table 5. It is clear that the results are valid as it passes through the required diagnostic tests such as Sargan and Hansen test for over-identification restrictions, and the first-order, and second-order serial correlation test. In addition, the difference in the Hansen test exogeneity of instruments is also applied to validate the results[2]. Total six different specifications of equations (1 and 2) are estimated and presented in Table 5. While column 1 presents the baseline results and the rest of the column provides the channel effect or net effect.

Table 5 reports the system GMM results. Results indicate that lagged human development has a positive impact on current HDI indicating the presence of an inertia effect. This indicates that the system GMM model is appropriate. Turning to our main variables, the study finds a significant negative impact of foreign aid on human development in South Asia, implying that foreign aid inflows reduce human development directly. The negative impact indicates that aid is not being utilized effectively and may have promoted unproductive expenditure, corruption, and rent-seeking activities as found in other countries and regions (Bonne,1996; McGillivary et al., 2006; Kumler, 2007; Williamson, 2008; Asongu and Joseph, 2018).

[2] To reduce instrument proliferation, the study uses principal component analysis on the instrument matrix and the component score are used as instruments using the Stata pac2 command (Bontempi and Mammi, 2015).

Table 5. Contribution of Foreign Aid to Human Development

Variables	1	2	3	4	5	6 (1995-2019)
Constant	0.46** (6.45)	0.15** (3.11)	0.22** (5.05)	0.39** (4.12)	0.01* (2.14)	0.04 (1.28)
HDI_{t-1}	0.95** (42.45)	0.94** (42.77)	0.97** (41.45)	0.96** (38.45)	0.97** (43.45)	0.97** (43.45)
GCF	0.004 (1.11)	0.002 (1.24)	-	0.005* (2.08)	-	0.002* (2.12)
TRADE	0.001* (2.74)	0.0003* (2.14)	0.002* (2.58)	0.001* (2.82)	0.0013 (1.46)	0.003** (2.45)
AID	-0.004* (-2.24)	-0.004** (-3.64)	0.002* (2.38)	-0.006** (-3.01)	-0.005 (-1.42)	0.006* (2.13)
GEXP	0.003* (2.56)	0.003 (1.39)	0.002* (2.15)	0.003** (2.66)	0.003* (2.55)	0.002* (2.78)
FD	0.002* (2.35)	0.003** (3.62)	0.002** (3.12)	0.002** (3.08)	0.003* (2.02)	0.003** (3.00)
INFRA	0.001* (2.59)	0.0003* (2.16)	0.0002* (2.36)	0.0002 (1.28)	0.0006* (2.51)	-
GR_{t-1}	0.004 (0.85)	-	-	0.005* (2.07)	0.004* (2.14)	0.003* (2.11)
AID*Trade		0.0002* (2.43)				
AID*GEXP			-0.0005* (-2.34)			
AID*INFRA				0.0005* (2.32)		
AID*FD					0.0003 (1.02)	
AID*COR						-0.006* (-2.27)
Net Effect		0.0082	-0.0087	0.0091	NA	0.0043
Serial correlation (AR1)	(0.05)	(0.04)	(0.07)	(0.04)	(0.06)	(0.04)
Serial correlation (AR2)	(0.41)	(0.71)	(0.29)	(0.78)	(0.78)	(0.45)
SOIR	(0.17)	(0.13)	(0.31)	(0.17)	(0.47)	(0.32)
HOIR	(0.23)	(0.25)	(0.42)	(0.54)	(0.56)	(0.45)
DHT for Instruments: (a) For levels						
H excluding groups	(0.44)	(0.21)	(0.15)	(0.26)	(0.43)	(0.42)
Diff. (null H = exogenous):	(0.151)	(0.09)	(0.11)	(0.17)	(0.15)	(0.23)
(b) IV (years, Eq.(diff))						
H excluding groups	(0.65)	(0.47)	(0.59)	(0.66)	(0.69)	(0.74)
Diff. (null H = exogenous)	(0.08)	(0.16)	(0.15)	(0.07)	(0.12)	(0.31)
Instruments	5	5	5	5	5	5
Number of Countries	6	6	6	6	6	6
Total observations	174	174	174	174	174	158
Wald Stat. (P-values)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Notes: ** and * indicates significance at 1 and 5 percent level respectively. T-statistic values are provided in brackets, SOIR: Sargan over-identification test, HOIR: Hansen over-identification test, and collapse command used to account for the instrument proliferations. Na is not applicable as both conditional and unconditional coefficient is not significant.

The indirect impact of aid was tested by including various interaction terms as discussed earlier. The net effect is computed to assess the complementarity or substitutability between human development and the conditioning factor. For example, the net effect of the interaction between aid and trade is 0.0082 ([-0.004] + [0.002 × 61.1]), where the mean value of trade is 61.1. Since the net effect is positive, it is concluded that foreign aid promotes human development through trade channels. Using the above formula, the net effect of conditioning factors such as government expenditure, infrastructure development, financial development, and corruption is computed and presented in the lower panel of Table 5. The net effect of the interaction of foreign aid and infrastructure development and corruption is found positive suggesting foreign aid promotes human development through these two channels. In contrast, the net effect of the interaction of foreign aid and government expenditure is negative indicating that aid negatively affects human development through government expenditure. So foreign aid promotes human development by complementing trade, infrastructure, and corruption channels and substitutes with government expenditure to reduce human development. The impact of the financial channel is insignificant as both conditional and unconditional effect is not significant.

It is clear that aid's impact on human development mainly works through infrastructure, trade and corruption channels as respective net effects are positive and significant for South Asia. The results indicate that adequate infrastructure facilities are required for the effectiveness of aid for development in the recipient country (Arndt et al., 2015). Open trade regime is also more beneficial as aid promotes human development through trade (Morrissey, 2006; Helble et al., 2012). Similarly, corruption undermines the effectiveness of aid, and hence, lowering corruption will improve the developmental outcome of foreign aid in South Asia (World Bank, 2000; Ndikumana, 2006; Asongu, 2012). As per the Corruption Perception Index (CPI), 2020, most South Asian countries ranked lowered, indicating the presence of a high level of corruption and this undermines the effectiveness of aid. Further, since aid reduces human development through government expenditure, reducing the unproductivity of the expenditure and redirecting them to for infrastructure development will increase aid effectiveness and promote human development (Gomanee et al., 2005). Overall, the study finds that directly, aid reduces human development but promotes human development through infrastructure, trade, and corruption channels in South Asia.

5.3. Panel Causality between Foreign Aid and Human Development

Although a number of studies (Gomanee et al., 2005; Gyimah-Brempong and Asiedu, 2008; Shirazi et al., 2010; Mohmeda and Mzeea, 2017) among others document a positive relationship between aid and human development, however, the direction of causality is neglected which is vital for a suitable policy for effective utilization of foreign aid. The causality between aid and HDI may run in either direction.

Causality from aid to human development due to through higher capital

accumulation, technical assistance and investment in education, trade promotion, health care system, and institutional development (Kargbo, 2012). On the other hand, as the country improves its human development, aid flow may decline, suggesting that higher HDI may attract lower aid (Mohmeda and Mzeea, 2017). The direction of causality is examined using Dumitrescu and Hurlin (2012) panel causality method. For this purpose, the following regression model is estimated:

$$DHDI_{i,t} = \mu_i + \sum_{j=1}^{j} \mu_i{}^k \, DHDI_{i,t-j} + \sum_{j=1}^{j} \gamma_i{}^k \, DAID_{i,t-j} + \varepsilon_{it}, \quad (4)$$

$$DAID_{i,t} = \mu_i + \sum_{j=1}^{j} \mu_i{}^k \, DAID_{i,t-j} + \sum_{j=1}^{j} \gamma_i{}^k \, DHDI_{i,t-j} + \vartheta_{it}, \quad (5)$$

where D is the first difference, μ_i is the country specific fixed effect, and γ_i is heterogenous slope parameter. Granger causality from aid to HDI is examined by testing the following null hypothesis: $H_0: \gamma_i = 0$ for all $i = 1, \cdots, N$.

The alternative hypothesis assumes the presence of causality for some individuals but not necessarily for all. Therefore, the alternative hypothesis is specified as: Ha: $\gamma_i \neq 0$ for some $i \in \{1, \cdots, N\}$, against the null $\gamma_i = 0$ for all i. The granger causality is carried out using two steps. First, the Wald (W_i) statistics is calculated by estimating Equation (4) and (5 for each country. Second, the average of the Wald statistics ($\bar{W}$) is computed as:

$$\bar{W} = \frac{1}{N} \sum_{i=1}^{N} W_i. \quad (6)$$

Dumitrescu and Hurlin (2012) show that the average Wald statistic $\bar{W}$ is asymptotically and normally distributed across individuals, can be written as ($\bar{Z}$) :

$$\bar{Z} = \sqrt{\frac{\mathrm{N}}{2K}} (\bar{W} - k) \xleftarrow{d} N(0,1). \quad (7)$$

However, if T is small (fixed with $T > 5 + 2K$) but $T < N$, the alternative statistic $\tilde{Z}$ is proposed to test the causality:

$$\tilde{Z} = \sqrt{\frac{\mathrm{N}}{2K} \times \frac{T - 2K - 5}{T - K - 3}} \left[\frac{T - 2K - 3}{T - 2K - 1} (\bar{W} - \mathrm{K}) \right] \xrightarrow{d} N(0,1). \quad (8)$$

The panel causality result between aid and HDI are presented in Table 6.

It is clear that we have evidence of one-way causality running from human development to foreign aid as the hypothesis of no-causality null is rejected by Z-bar

statistics at the 1 percent level. On other hand, the study finds no causality running from aid to human development as both $\bar{Z}$ and $\tilde{Z}$ could not reject the null. This indicates that higher HDI will attract higher aid flows from donors to South Asian countries, not vice-versa.

Table 6. Results of Dumitrescu and Hurlin Causality between HDI and AID

Null Hypothesis	Statistics	Test value
Aid does not cause HDI	$\bar{Z}$	0.62
	$\tilde{Z}$	0.46
HDI does not cause Aid	$\bar{Z}$	2.54**
	$\tilde{Z}$	0.07

Notes: ** indicates rejection of null at 1% level. Lag-length is chosen using the AIC criteria.

6. CONCLUSION AND POLICY IMPLICATION

Theoretical literature suggests that foreign aid may promote human development by augmenting domestic investment, providing technical assistance, institutional capacity building, and promoting trade. However, the empirical literature on the impact of aid on human development is limited and inconclusive, particularly in the South Asia region. In this context, this study empirically examines the direct and indirect effects of aid on human development by using the GMM system model for a panel of six South Asian countries from 1990 to 2019. Panel cointegration and causality method are applied to study the long-run and short-run impact of aid on human development.

The result of this study suggests that there is evidence of a stable long-run relationship between human development and its determinants. The empirical analysis based on the GMM model suggests that aid harms human development. However, when the study considers indirect or channels effect, the results indicate that foreign aid promotes human development through its complementary channel effects such as trade, infrastructure, and corruption. On the other hand, the study established a negative net effect of the interaction of foreign aid with government expenditure. More importantly, the study finds a one-way causality running from human development to foreign aid, indicating higher HDI attracts higher aid not vice-versa.

The above results have certain policy implications. First, the direct negative effect of aid on human development indicates that aid is not effectively utilized and there is a need for a review of the aid implementation program and the institution implementing it. Second, governments in South Asia need to improve the infrastructure facilities to benefit from aid inflows. Third, further trade reform is required to improve human development as aid complements human development through trade. Policies need to be in place to reduce corruption and improve the institution to increase the efficiency of foreign aid in promoting growth and welfare. For effective use of aid for social sector

development like education, health, sanitation and infrastructure, the government should provide incentives on raw materials and human resources support to implementing agency. Government expenditure need to redirected to infrastructure social sector development. This will complement aid effectiveness in promoting development in South Asia.

REFERENCES

Arndt, C., S. Jones and F. Tarp (2010), "Aid, Growth, and Development: Have We Come Full Circle?" *Journal of Globalization and Development*, 1(2), Article 5.

Arndt, C., S. Jones and F. Tarp (2015), "Assessing Foreign Aid Long Run Contribution to Growth and Development," *World Development*, 69, 6-18.

Asiama, P.J., and P. Quartey (2009), "Foreign Aid and the Human Development Indicators in Sub- Saharan Africa," *Journal of Developing Societies*, 25(1), 57-83.

Asongu, S. (2012), "On the Effect of Foreign Aid on Corruption," *Economic Bulletin*, 32(3), 2174-2180.

_____ (2013), "On the Effectives of Foreign Aid in Institutional Quality," *Economic Letters*, 2(1), 12-19.

Asongu, S. and J. Nwachukwu (2015), "Foreign Aid and Governance in Africa," *International Review of Applied Economics,* 30(1), 69-88.

Asongu, S., S. Roux and N. Biekpe (2017), "Environmental Degradation, ICT and Inclusive Development in Sub-Saharan Africa," *Energy Policy*, 111(C), 353-361

Asongu, S and N. Joseph (2018), "Foreign Aid and Sustainable Inclusive Human Development in Africa," AGDI Working Paper, No. WP/18/044, African Governance and Development Institute (AGDI), Yaoundé.

Asongu, S. and P. Acha-Anyi (2019), "The Murder Epidemic: A Global Comparative Study," *International Criminal Justice Review*, 29(2), 105-120.

Asongu, S. and S.V. Tchamyou (2019), "Foreign Aid, Education and Lifelong Learning in Africa," *Journal of the Knowledge Economy*, 10, 126-146.

Aurangzeb, Z. and S. Thanasis (2014), "The Role of Foreign Direct Investment (FDI) in a Dualistic Growth Framework: A Smooth Coefficient Semi- Parametric Approach," *Borsa Istanbul Review*, 14(3), 133-144.

Barro, J. and J. Lee (1994), "Sources of Economic Growth," *Carneigie-Rochester Conference Series on Public Policy*, 40, 1-46.

Boone, P. (1996), "Politics and the Effectiveness of Foreign Aid," *European Economic Review*, 40, 289-329.

Bontempi, M.E. and I. Mammi (2015), "Implementing a Strategy to Reduce the Instrument Count in Panel GMM," *Stata Journal*, 15(4), 1075-1097.

Burnside, C. and D. Dollar (2000), "Aid, Policies and Growth," *American Economic Review*, 90(4), 847-868.

Collier, P. and D. Dollar (2001), "Can the World cut Poverty in Half? How Policy Reform and Effective Aid Can Meet International Development Goals," *World Development*, 29(11), 1787-802.

_____ (2004), "Development Effectiveness: What Have We Learnt?" *Economic Journal*, 114, 244-271.

Chenery, H.B. and A.M. Strout, (1966), "Foreign Assistance and Economic Development," *American Economic Review*, 56(4), 679-733.

Claessens, S. (2006), "Access to Financial Services: A Review of the Issues and Public Policy Objectives," *World Bank Research Observer*, 21(2), 207-240.

Demirguc-Kunt, A. and R. Levine (2009), "Finance and Inequality: Theory and Evidence," *Annual Review of Financial Economics*, 1(1), 287-318.

Das, A. and Sethi, N. (2019), "Effect of Foreign Direct Investment, Remittances, and Foreign aid on Economic Growth: Evidence from Two emerging South Asian Economies," *Journal of Public Affairs*, 20(3), e2043.

Davies, A. and M.G. Quinlivan (2006), "A Panel Data Analysis of the Impact of Trade on Human Development," *Journal of Socio-Economics*, 35(5), 868-876.

Dumitrescu, E.-I. and C. Hurlin (2012), "Testing for Granger Non-causality in Heterogeneous Panels," *Economic Modelling*, 29, 1450-1460.

Easterly, W. (2003), "Tropics, Germs and Crops: How Endowments Influence Economic Development," *Journal of Monetary Economics*, 50(1), 3-39.

Easterly, W., R. Levine and D. Roodman (2004), "Aid, Policies, and Growth: Comment," *American Economic Review*, 94(3), 774-780.

Elayah, M. (2016), "Lack of Foreign Aid Effectiveness in Developing Countries Between a Hammer and an Anvil," *Contemporary Arab Affairs*, 9(1), 82-99.

Feeny, S. and M. McGillivray (2011), "Scaling up Foreign Aid: Will the 'Big push' work?" *World Economy*, 34(1), 54-73.

Fielding D., M. McGillivray and S. Torres (2006), "A Wider Approach to Aid Effectiveness: Correlated Impacts on Health, Wealth, Fertility and Education," in Mavrotas, G., A. Shorrocks (eds), *Advancing Development. Studies in Development Economics and Policy*. Palgrave Macmillan, London.

Gomanee, K., S. Girma and O. Morrissey (2005), "Aid and Growth in Sub-Saharan Africa: Accounting for Transmission Mechanisms," *Journal of International Development*, 17(8), 1055-1075.

Gomanee, K., O. Morrissey, P. Mosley and A. Verschoor (2005), "Aid, Government Expenditure, and Aggregate Welfare," *World Development*, 33(3), 355-370.

Gillanders, R. (2011), "The Effects of Foreign Aid in Sub-Saharan Africa," School of Economics, Working paper No. 201116, University College Dublin.

Gyimah-Brempong K. and E. Asiedu (2008), "Aid and Human Capital Formation: Some Evidence," Paper presented at African Development Bank - United Nations Economic Commission for Africa Conference on Globalization, Institutions and

Economic Development in Africa, Tunis, Tunisia.
Gyimah- Brempong, K. and J. Racine (2014), "Aid and Economic Growth: A Robust Approach," *Journal of African Development*, 16(1), 1-35.
Hansen, H. and F. Tarp (2000), "Aid Effectiveness Disputed," *Journal of International Development*, 12, 375-398.
_____ (2001), "Aid and Growth regressions," *Journal of Development Economics*, 64, 547-570.
Helble, M., L.C. Mann and J. Wilson (2012), "Aid for Trade Facilitation," *Review of World Economics*, 148(2), 357-376.
Hudson, J. (2004), "Aid and Development," *Economic Journal*, 114(496), F185-F190.
Juselius, K., N. Farmroze-Meller and F. Tarp (2013), "The Long Run Impact of Foreign Aid in 36 African Countries: Insights from Multivariate Time Series Analysis," *Oxford Bulletin of Economics and Statistics*, 76(2), 153-184.
Kumler, T. J. (2007), "The Impact of Foreign Aid on Development and Aggregate Welfare in Developing Countries," Illinois Wesleyan University Honors Projects Paper 19.
Karras, G. (2006), "Foreign Aid and Long-run Economic Growth: Empirical Evidence for a Panel of Developing," *Journal of International Development*, 18(1), 15-28.
Kargbo, P. (2012), "Impact of Foreign Aid on Economic Growth in Sierra Leone: Empirical Analysis," WIDER Working Paper, No. 2012/07.
Kargo, P. and K. Sen (2014), "Aid Categories that Foster Pro-poor Growth: The Case of Sierra Leone," *African Development Review*, 26(2), 416-429.
Kosack, S. (2003), "Effective Aid: How Democracy Allows Development Aid to Improve the Quality of Life," *World Development*, 31(1), 1-22.
Kosack, S. and J. Tobin (2006), "Funding Self-sustaining Development: The Role of Aid, FDI and Government in Economic Success," *International Organization*, 60(1), 205-243.
Lessmann, C. and G. Markwardt (2012), "Aid, Growth and Devolution," *World Development*, 40(9), 1723-1749.
Mahembe, E. and N. Odhiambo (2019), "Foreign Aid and Poverty reduction: A Review of International Literature," *Cogent Social Sciences*, 5(1), 1625741.
McGillivray, M., S. Fenny, N. Hermes and R. Lensink (2006), "Controversies over the Impact of Development Aid It works; It doesn't; It can but that Depends," *Journal of International Development,* 18(7), 1031-1050.
McGillivray, M. and F. Noorbakhsh (2007), "Aid, Conflict and Human Development," Working Papers 2007-03, Department of Economics, University of Glasgow.
Moe, T. (2008), "An Empirical Investigation of Relationships between Official Development Assistance (ODA) and Human and Educational Development," *International Journal of Social Economics*, 35(3), 202-221.
Mohmeda, R.M. and S.S. Mzeea (2017), "Foreign Aid and Human Development: A Quantile Regression Approach," *International Journal of Economics, Management and Accounting*, 25(1), 27-41.

Morrisey, O. (2001), "Does Aid Increase Growth?" *Progress in Development Studies*, 1(1), 37-50.

_____ (2006), "Economic Development: Trade or Aid? Aid or Trade, or Aid and Trade," *Australian Economic Review*, 39(1), 78-88.

Moyo, D. (2010), *Dead Aid: Why Aid Makes Things Worse and How There Is Another Way for Africa*, London: Penguin Books.

Moyer, J. and S. Hedden (2020), "Are We on the Right Path to Achieve the Sustainable Development Goals?" *World Development*, 127, 104749.

Mustafa, G., M. Rizov and D. Kernohan (2017), "Growth, Human Development, and Trade: The Asian Experience," *Economic Modelling*, 61, 93-101.

Ndikumana, L. (2006), "Corruption and Pro-poor Growth Outcomes: Evidence and Lessons for African Countries," Working paper series No.120, Political Economy Research Institute.

Okada, K. and S. Samreth (2012), "The Effect of Foreign Aid on Corruption: A Quantile Regression Approach," *Economic Letters*, 11, 240-243.

Pesaran, H.M. (2007), "A Simple Panel Unit Root Test in Pressure of Cross-section Dependence," *Journal of Applied Econometrics*, 22, 265-312.

Rajan, R.G. and A. Subramanian (2008), "Aid and Growth: What does the Cross-Country Evidence Really Show?" *Review of Economics and Statistics*, 90(4), 643-665.

Ranis, G., F. Stewart, and A. Ramirez (2000), "Economic Growth and Human Development," *World Development*, 28(2), 197-219.

Roodman, D. (2009), "How to Do xtabond2: An Introduction to Difference and System GMM in STATA," *Stata Journal*, 9(1), 86-136.

Sadek, A.S. (2012), "Impact of Health Aid on Infant Mortality Rate," MPRA Paper No.42945.

Sapkota, J. (2014), "Access to Infrastructure and Human Development: Cross-country Evidence," in Hiroshi Kato (eds), *Perspectives on the Post 2015 Development Agenda*, JICA Research Institute.

Shirazi, S.N., T. Ali, A. Mannap and M. Ali (2010), "Effectiveness of Foreign Aid and Human Development," *Pakistan Development Review*, 48(4), 853-862.

Sumida, S. (2017), "Donor's Motivation of the Educational Aid," *International Journal of Educational Development*, 55, 17-29.

UNDP (2013), *Climate Change and Human Development, Harnessing Emerging Opportunities,* United Nations Development Programme, UNDP Kenya.

UNESCAP, (2018), *Achieving the Sustainable Development Goals Through Enhanced Development Cooperation in East and North East Asia,* United Nations.

Westerlund, J. (2007), "Testing for Error Correction in Panel Data," *Oxford Bulletin of Economics and Statistics*, 69, 709-748.

Williamson, R.C. (2008), "Foreign Aid and Human Development: The Impact to the Health Sector," *Southern Economic Journal*, 75(1), 188-207.

World Development Report (1994), *Infrastructure for Development*, Oxford University

Press.
World Development Report (2000), *Attacking Poverty*, Oxford University Press.

Mailing Address: Deepa Jitendra Gupta, Associate Professor, Symbiosis School of Economics, Symbiosis International (Deemed University), Email: deepa.gupta@sse.ac.in.

Received September 26, 2020, Revised February 03, 2023, Accepted August 30, 2023.