



## Pakistan's Development Dilemma: An Empirical Analysis of Aid, Governance, and Human Development

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**Abstract:** This study examines the role of foreign aid and governance in Pakistan's human development from 1991 to 2021 utilizing the autoregressive distributed lag (ARDL) technique. It not only explores the individual impact of foreign aid and governance but also investigates how good governance affects human development. A governance indicator has been constructed by employing Principal Component Analysis based on six different governance dimensions. It is found that both good governance and foreign aid have significant and positive relationships with human development in Pakistan and good governance facilitates and reinforces the contribution of foreign aid in advancing human development. The results show that trade openness, income growth, and government expenditure also have a positive impact on human development. The Granger Causality test further verifies the causality running from foreign aid and governance to human development. The analysis implies that enhancing governance quality is important to optimizing the positive impact of foreign aid on human development. Likewise, policies to stimulate trade openness, boost government expenditure on social sectors, and more consistent income growth can play an important role in improving human development in Pakistan.

**Keywords:** Aid, Governance, Development.

**JEL Classification:** O1, F35, D73.

# **Pakistan's Development Dilemma: An Empirical Analysis of Aid, Governance, and Human Development**

## **Introduction**

There has been an ongoing debate over the efficacy of foreign aid in recent decades in developing countries. Numerous cross-country studies suggest that foreign aid generally has a significant impact on economic growth (Gopalan & Rajan, 2016). Foreign aid aims to promote welfare and economic development and is described as the transfer of real resources from rich countries to poor countries on concessional terms primarily for developmental purposes, including poverty eradication, augmenting social spending, and filling saving-investment gaps. However, in many recipient countries, foreign aid does not seem to have achieved these objectives, thus raising questions about the effectiveness of foreign aid in accomplishing the goal of human development (Khan & Ahmad, 2007). In most developing countries, the political elite is the major beneficiary of aid, so aid has not led to any significant improvements in human development (World Bank, 1998). This argument has given rise to debates on rules and regulations, institutional quality, and governance practices in recipient countries, in determining aid effectiveness (Burnside & Dollar, 2000).

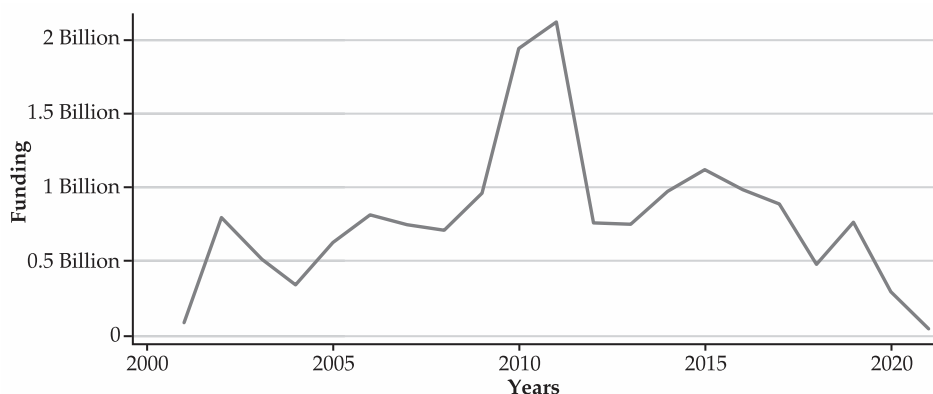
Aid effectiveness has often been discussed in the context of the aid-growth relationship, since foreign aid can facilitate economic growth in the recipient country by helping to overcome financial constraints. Hence, foreign aid may lead to economic growth in terms of GDP but does not necessarily ensure economic and human development. As described by Sen (1999) development includes much more than just GDP growth.

Over time the focus of foreign aid has, in various forms, shifted toward welfare and human development (Williamson, 2008), and the aid effectiveness debate has similarly changed focus. Some studies emphasize the positive role that foreign aid can play in human development through poverty eradication programs, provision of health facilities, and imparting skills and education (Collier & Dollar, 2001; Chatterjee & Turnovsky, 2005). However, aid volatility can negatively impact the development process (Hudon, 2015; Pallage & Robe, 2011). In the recent literature, we find more emphasis on the implications of foreign aid for human development and the political economy of aid (Williamson, 2008; Masud & Yontcheva, 2005).

Pakistan has been receiving substantial amounts of foreign aid since its inception in 1947, but has yet to experience significant economic development. Despite the billions of dollars in the form of foreign aid, Pakistan's economy has stagnated, with significant levels of poverty, unemployment, and a fragile infrastructure. This raises questions about the effectiveness of foreign aid in achieving economic development objectives. According to the World Bank, Pakistan has been one of the largest recipients of foreign aid in the world, with over \$67 billion in aid received between 1951 and 2011 (CGD, 2013). Despite this, Pakistan has been unable to sustain economic development, with growth rates below its potential and persistent balance of payment crises. Other studies have also pointed out the limitations of foreign aid in Pakistan's economic development, such as the lack of ownership and coordination among donors, the diversion of aid funds towards non-development purposes, and the negative impact of aid on governance and institutions.

Soon after the inception of Pakistan, the United States started giving military and economic aid. Between 1951 and 2011, the United States gave Pakistan a total of almost \$67 billion (in constant 2011 dollars). Since the US's geopolitical interests in the region have changed throughout the years, the levels have fluctuated annually. The US completely stopped providing aid at several points, most recently in the 1990s. As a result, the United States has become increasingly less of a consistent ally for Pakistan over time (CGD, 2013).<sup>1</sup>

**Figure 1: USAID Received by Pakistan (2001-2021)**



Source: Open Data

<sup>1</sup> Center for Global Development, Aid to Pakistan by Numbers, Available at <https://www.cgdev.org/page/aid-pakistan-numbers>

The trend of USAID (in US billion dollars) received by Pakistan from the US over the past 20 years is presented in Figure 1. Pakistan has received foreign aid from the US in varying amounts over the past two decades; however, this aid has not translated into significant improvements in the Human Development Index (HDI). Despite efforts to improve standards of living and overall development, the HDI has remained relatively unchanged. This can be attributed to various factors such as the inefficient utilization of aid funds, widespread corruption, or the lack of emphasis on critical development issues. To address this issue, there is a need for a more effective and targeted approach towards transforming foreign aid into a driver of sustainable human development in Pakistan.

Pakistan continues to struggle with poverty, lack of health and education facilities, and high gender inequality. Even with receiving nearly \$19 billion in the form of aid since 2002 from the US alone, Pakistan's economic growth rate remains low and poverty persists, with a literacy rate of just 50 percent, and 38 percent of the population living below the poverty line. Pakistan has relied heavily on external aid since gaining independence in 1947. From 1960 to 2002, the nation received \$73.1 billion in foreign development support. Furthermore, Pakistan's socioeconomic indicators show a lack of health and education facilities, high unemployment rates, low per capita income, rising income inequality, and a high illiteracy rate. Despite the implementation of development projects in sectors such as infrastructure, education, and health, the country on average has grown at a rate of 3 percent per year since 2007. According to the UNDP Human Development Report 2021, Pakistan ranks 161<sup>st</sup> out of 192 countries in terms of HDI. Additionally, the country's governance is plagued by poor quality institutions, a lack of accountability, a weak rule of law, and rising corruption (Conceição, 2021).

**Table 1: Pakistan's Socioeconomic Indicators**

Economic Indicators		Social Indicators	
GDP	\$376.493 billion	Literacy Rate	58.9% in 2023
GDP Growth Rate	4% in 2022	Life Expectancy	67.79 in 2023
Inflation	36.4% in April 2023	Health Expenditure	3% of GDP in 2022
Poverty Rate	37.2% in 2023	Government	1.77% of GDP in 2022
		Education Expenditure	
Foreign Reserves	\$ 8.7 billion Feb 10, 2023	Infant Mortality	55.77 deaths per 1000 live births

*Source:* Economic Surveys of Pakistan

The economy of Pakistan is now experiencing major challenges, as shown in Table 1. GDP was estimated to be \$376.493 billion, but in 2022 it

grew by just 4 percent. As the economy stabilizes, Pakistan's gross domestic product (GDP) growth is predicted to fall to 0.6 percent in 2023. Similarly, Pakistan witnessed severe inflation, with a rate of 36.4 percent in April 2023. Pakistan's life expectancy in 2023 was estimated to be 67.79 years, and its literacy rate was 58.9 percent. Only 3 percent of the nation's GDP is allocated to healthcare, and just 1.77 percent to education. Pakistan's infant mortality rate, which is 55.77 fatalities for every 1000 live births, is also a source of concern.

Because of this, there is a need to investigate the factors that can hinder aid's effectiveness and limit its role in human development. In recent literature, there is an increased focus on the role of good governance in amplifying the benefits of foreign aid for human development which is the actual goal of economic activity. It is argued that aid given to corrupt governments only fuels corruption and undermines government institutions, rather than increasing economic growth.

There is a significant research gap on this important issue in the case of Pakistan. Some studies have analyzed the impact of foreign aid on human development and governance separately (Parveen et al., 2015; Mehmood et al., 2015; Zahoor & Ayesha, 2014; Shirazi et al., 2009, Mohey-ud-din, 2005). Similarly, some studies have analyzed the impact of foreign aid on education, health, or standard of living (Masood et al., 2016; Anwar et al., 2020). However, almost no research has examined the collective impact of governance and foreign aid on human development. It is in this context that the current study intends to examine the collective as well as individual impact of foreign aid and governance on human development in Pakistan.

## **Review of the Literature**

Developing countries can significantly benefit from foreign aid by adopting effective monetary, fiscal, and trade policies. Staicu & Barbulescu (2017) explored the relationship between human development and foreign aid in Africa and concluded that official development assistance (ODA), polity score, and the economic freedom index (ILE) have very partial and constructive consequences on the indicator of life school expectations. Gross national income (GNI) is found to be negatively related to ODA while polity and ILE confirms the view economic and political institutions are very important for economic growth.

Haider & Qayyum (2012) examine the relationship between economic growth, aid, and external debt in a panel of countries facing challenges of poor governance from 1984 to 2010. The results are significant and in line with expectations, and conclude that good governance and foreign aid both have positive effects on output, while external debt was found to have a significant negative impact on output. Carnegie & Marinov (2017) introduce a novel approach to investigate whether foreign aid works as an effective incentive or conditionality to promote human development and democracy in the recipient states. It concludes that aid has a positive relationship with democracy and human rights, but these effects are short-term and vanish with a drop in the volume of aid. Donor countries should ensure consistent aid flows to ensure persistent and irreversible reforms in the recipient countries.

Good governance is now considered vital to create an enabling environment for economic growth, and human development (Haq & Zia, 2009). International donor agencies, such as the World Bank, International Monetary Fund (IMF), and Asian Development Bank (ADB) have begun to re-evaluate their aid policies and tie them to the goal of promoting the welfare and development of the people in beneficiary countries. Dollar and Pritchett (1998) recommended that aid should not be distributed solely on a need basis, but should also be linked to effective policies and their implementation mechanisms in the recipient country. It is now common practice that donor agencies/countries link aid to a set of conditionalities such as public sector reforms, transparency, and judicial and legal reforms. There is an increased emphasis on the role of effective governance in the optimal utilization of funds and maximizing the resultant socio-economic benefits (Sharma, 2007; Santiso, 2001). However, integrating these objectives and conditions into aid policies remains a challenging task for development organizations (Santiso, 2001).

The remarkable growth of China and India is attributed to their large markets and abundant labor force, as well as significant improvements in governance in the 1970s and early 1980s. The experiences of these countries highlight the importance of limiting arbitrary government decision-making as a necessary factor for growth. Despite average governance outcomes in both countries, it is difficult for a government to even achieve these outcomes (Keefer, 2006). Similarly, in Pakistan, corruption could be reduced by endorsing pro-poor policies that would decrease poverty and inequality in the long run (Haq & Zia, 2009).

Sheehan & Young (2014) analyze the relationship between foreign aid, institutional quality, and economic progress, using panel data analysis of 116 countries from 1970 to 2010. The findings suggest that aid harms both economic and political institutions in recipient countries, impacting their legal systems, property rights, and trade openness. However, the study finds that aid is strongly correlated with economic growth. However, once an institution's quality is controlled for, aid has no significant effect on growth. Similarly, Stevic et al. (2016) investigate the impact of good governance on certain socioeconomic indicators of sustainable human development in 215 countries belonging to different categories (developed, transitioning, developing, non-developed, and small islands) from 2000 to 2012. The findings suggest that good governance has a positive relationship with economic growth and a moderately strong negative relationship with the poverty headcount ratio. Additionally, good governance is shown to have a statistically significant negative association with inequality.

The aid effectiveness debate continues with conflicting findings. Some studies suggest that aid leads to growth in recipient countries, while others claim it hinders growth and weakens governance through corruption. A sound governance structure and favorable economic policies appear to be key to utilizing aid effectively. Despite this, most research has focused on regional or national data, and more specific sector-based studies, such as the impact of aid on education or health, are still needed.

### **Empirical Methodology and Data**

To analyze the impact of governance and foreign aid on human development, we have utilized the econometric specification as suggested by Keser et al. (2018). The model has been modified by adding more variables. Considering the existing literature and basic economic interactions, the model we use to explore the impact of governance and foreign aid on human development can be written as:

$$\text{Human Development} = f(\text{Governance, Foreign Aid, Foreign Aid* Governance, Foreign Direct Investment, Government expenditures, Trade Openness, Income}) \quad (1)$$

Where Human Development (*HD*) is the dependent variable and Governance (*GOV*), Foreign Aid (*FA*), Foreign Direct Investment (*FDI*), Government Expenditure (*GE*), Income (*Y*), and Trade Openness (*TO*), are explanatory variables, which are examined as possible determinants of



human development in Pakistan. The interaction term Foreign Aid\* Governance is added to capture how governance influences the marginal effect of foreign aid dollars on human development. To address the multicollinearity (correlation among independent variables) concerns, variance inflation factors (VIF) are used. The results are reported in the Appendix and confirm the absence of multicollinearity. Generally, a value of VIF less than 5 is considered acceptable showing a low level of multicollinearity. The results show that almost all variance inflation factors are less than 2.5.

### Data Description and Time Frame

The study is based on time series data for the period from 1991 to 2021. The variables used in our paper, the data sources from which we obtained this data and the justification for including them in the model is explained in Table 2.

**Table 2: Description of the Variables**

Variable	Description /justification/data sources
<b>Human Development</b>	<b>HD</b> The present study utilizes the Human Development Index (HDI) calculated annually by UNDP to capture the levels of Human Development. It is the most widely used and accepted, approach to assessing progress in Human Development (Seth & Villar, 2017). The index is based on the dimensions of health, education, and standard of living. The HDI scores range between zero and one reflecting the lowest and highest levels of human development respectively. We have used the natural logarithm of HDI to make interpretations easier and clearer.
<b>Governance</b>	<b>GOV</b> Kaufmann et al. (2005) introduced six composite indicators of governance, namely, rule of law, government effectiveness, political stability, voice & accountability, control of corruption, and regulatory quality. These indicators range from -2.5 to +2.5 where a higher value reflects better performance. These estimates can be rescaled to compare individual country performance in percentile ranks ranging from 0- 100. Data on governance is collected from the World Governance Indicators developed by the World Bank. For the current study, an overall governance indicator is constructed using the principal component analysis (PCA) technique. The data for governance indicators was available from 1996 onward and the current study is based on time series data so the missing values for initial years were imputed using the most frequent values.
<b>Foreign Aid</b>	<b>FA</b> Foreign aid reduces poverty through the channel of economic growth and hence aids in human development and well-being (McGillivray & Noor Bakhsh 2007). Data on Official Development Assistance (ODA) as a percentage of GDP is collected from the World Bank.

<b>Variable</b>	<b>Description /justification/data sources</b>
<b>Foreign Direct Investment</b>	<b>FDI</b> FDI can play a vital role in a country's economic development by bridging the resource gap and technology transfer. Lehnert et al. (2013) observed that FDI benefits cannot be maximized without effective government policies relating to market entry and other incentives for investors. FDI can play a vital role in the development of human resources in recipient countries if supplemented with needed incentives. FDI is taken as an explanatory variable and data on net inflows of foreign direct investment is collected from the World Development Indicators (WDI).
<b>Trade Openness</b>	<b>TO</b> Davies and Quinlivan (2006) observed that trade has significant positive implications for human development and acts as an engine of growth. For the current study, trade openness is measured by trade intensity ratio that is (imports + exports)/ GDP and data on relevant variables is collected from the WDI.
<b>Government Expenditures</b>	<b>GE</b> Government expenditure is an important fiscal policy tool that can be utilized to enhance human capabilities and functioning and hence can make individuals more productive (Stewart et al., 2018). Similarly, Gupta et al. (1998) observed that government spending on education and health leads to human capital formulation, poverty reduction, and economic growth. Considering the role of public expenditure in human resource development, the current study has incorporated it as an explanatory variable. Annual government expenditure data as a percentage of GDP is taken from WDI.
<b>GDP</b>	<b>(Y)</b> Economic growth is vital for human development as it provides requisite financial resources for investment in human capital formation and poverty reduction (Smith, 2007). We have incorporated GDP data in current international dollars, which is taken from WDI.

*Source:* World Bank, World Development Indicators (WDI).

## **Econometric Methodology**

Principal Component Analysis (PCA) is widely used to construct developmental indices (De & Ghosh, 2005; Dorosh et al., 2010) in economic research. PCA is particularly useful for large datasets containing variables that have multiple dimensions. It works through dimension reduction by converting the data into a new coordinate system preserving maximum variation, dimensions, and patterns. Hence, PCA is a very helpful tool to reduce large datasets in an efficient and meaningful manner and in avoiding multicollinearity. The components are arranged in ascending order based on their variability. It creates variables in descending order of significance to explain the optimal amount of variance in the data (Haq & Zia, 2013). PCA methodology takes linear combinations of  $N$  variables  $X_1, X_2, \dots, X_n$ , and discovers the linear combinations of these variables to generate principal components  $P_1, P_2, \dots, P_n$ , that are uncorrelated. We

have used PCA<sup>2</sup> to construct an overall governance index based on six different dimensions of governance namely voice and accountability (VA), political stability (PS), government effectiveness (GE), regulatory quality (RQ), control of corruption (CC), and rule of law (RL). To construct the governance index, the six governance indicators are transformed into principal components and then selected the principal component which nets the majority of total variation from the governance indicators. The loadings of the principal components for the overall governance indicators are summarized in Table 3.

**Table 3: Principal Component Analysis (PCA)**

Governance Indicators	PC1	PC2	PC3	PC4	PC5	PC6
VA	0.7948	0.2313	0.4891	0.0193	0.0314	0.0204
PS	0.8023	0.4921	-0.2763	-0.0047	-0.0016	-0.0021
GE	0.9234	-0.1721	-0.1487	-0.1493	-0.0760	0.0872
RQ	0.9516	-0.1572	-0.1572	-0.0055	0.19321	-0.0256
CC	0.9035	-0.1266	-0.1137	-0.0057	-0.0085	-0.0214
RL	0.9643	-0.0916	-0.0491	-0.0384	0.0025	0.0245
Cumulative proportion of variance	0.8440	0.9032	0.9371	0.9831	0.993	1.0000
Eigenvalues	4.823	0.541	0.309	0.171	0.112	0.044

*Source:* Authors' calculations.

The eigenvalue of the first loading is greater than 1, so it is retained to construct the overall governance index and it captures almost 84 percent of the total variance for globalization index.

### ARDL Modelling

The relationship among human development, aid, and governance is investigated by utilizing the Autoregressive Distributed Lag (ARDL) framework propagated by Pesaran & Shin (1995, 1999), Pesaran et al (1996), and Pesaran (1997). The ARDL methodology provides reliable results for both long-run and short-run relationships and is considered a more robust technique for small samples consisting of 30 to 80 observations. The general form of the ARDL model with  $n$  lags for variable  $Y$  and  $m$  lags for variable  $X$  is as follows.

<sup>2</sup> PCA was validated by pre-estimation and post-estimation tests. The calculated value of KMO was  $0.73 \gg 0.5$  and the Probability of Bartlett's test was 0.001. In post-estimation, we removed the outliers and computed the Cronbach Alpha coefficient to confirm the validity of the results. The calculated value was  $0.893 \gg 0.7$  (the reliability benchmark), hence validating the results.

$$Y_t = \delta_0 + \sum_{i=1}^n \delta_i Y_{t-i} + \sum_{i=0}^m \beta_i X_{t-i} + U_t \quad (2)$$

Whereas the general form of the ARDL error correction model is as follows:

$$Y_t = \delta_0 + \sum_{i=1}^n \beta_j Y_{t-i} + \sum_{i=0}^m \beta_j X_{t-j} + \psi ECM_{t-1+\varepsilon_t} \quad (3)$$

In the above equation,  $\psi$  shows the speed of adjustment parameter, and for significant ECM models,  $\psi$  must be negative. The error correction term explains how much deviation from the long-run is corrected in each period and the time it will take to return to the long-run equilibrium position.

### Estimated ARDL Models

Following is a description of the estimated model used to analyze the impacts of globalization and foreign aid on human development.

### MODEL

$$\begin{aligned} \Delta \ln(HD)_t = & \beta_0 + \sum_{i=0}^n \beta_1 \Delta \ln(HD)_{t-i} + \sum_{i=0}^n \beta_2 \Delta \ln(FA)_{t-i} + \\ & \sum_{i=0}^n \beta_3 \Delta \ln(GOV)_{t-i} + \sum_{i=0}^n \beta_4 \Delta \ln(FA * GOV)_{t-i} + \sum_{i=0}^n \beta_5 \Delta \ln(FDI)_{t-i} + \\ & \sum_{i=0}^n \beta_6 \Delta \ln(GE)_{t-i} + \sum_{i=0}^n \beta_7 \Delta \ln(TO)_{t-i} + \sum_{i=0}^n \beta_7 \Delta \ln(Y)_{t-i} + \\ & \delta_1 \ln(HD)_{t-1} + \delta_2 \ln(FA)_{t-1} + \delta_3 \ln(GOV)_{t-1} + \delta_4 \ln(FA * GOV)_{t-1} + \\ & \delta_5 \ln(FDI)_{t-1} + \delta_6 \ln(GE)_{t-1} + \delta_7 \ln(TO)_{t-1} + \delta_7 \ln(Y)_{t-1} + \varepsilon_t \end{aligned} \quad (4)$$

t	The time period between 1990-2021
(HD) <sub>t</sub>	Human development at time period t
(Y) <sub>t</sub>	GDP at time t
(FA)	Foreign Aid at time t
(GOV) <sub>t</sub>	Governance at time t
(FA* GOV)	Interaction term
(GE) <sub>t</sub>	Government Expenditure at time t
(TO) <sub>t</sub>	Trade Openness at time t
(FDI) <sub>t</sub>	Foreign direct investment at time t

All the variables are taken in natural log form as the log transformation not only reduces the skewness of our original data but also improves linearity between dependent and independent variables. It also enhances the cogency of statistical analyses and coefficients on the natural-log scale are directly interpretable as approximate proportional differences. The first part of the model with  $\beta$  terms represents the short-run dynamics whereas the second part with  $\delta$  terms represents the long-run relationship. The decision rule is:

$$\mathbf{H0:} \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \delta_6 = \delta_7 = \delta_8 = 0$$

(There is no long-run relationship.)

$$\mathbf{H1:} \delta_1 \neq \delta_2 \neq \delta_3 \neq \delta_4 \neq \delta_5 \neq \delta_6 \neq \delta_7 \neq \delta_8 \neq 0$$

(At least one is different from zero.)

The long-run elasticities are computed as follows:

$$\alpha_1 = -\delta_2/\delta_1, \alpha_2 = -\delta_3/\delta_1, \alpha_3 = -\delta_4/\delta_1, \alpha_4 = -\delta_5/\delta_1, \alpha_6 = -\delta_6/\delta_1, \alpha_7 = -\delta_7/\delta_1,$$

Where  $\delta_1$  is the lagged Error Correction Model (ECM) term,  $ECM_{t-1}$ ,  $\delta_2$ ,  $\delta_3$ ,  $\delta_4$ ,  $\delta_5$ ,  $\delta_6$ ,  $\delta_7$  depict the long-run coefficients of and  $\alpha$  is the elasticity. The absolute value of the adjustment parameter lies between zero and one. The larger the error correction coefficient, the faster it adjusts back to its long-run equilibrium after a short-run shock.

## Empirical Results and Discussion

### The Unit Root Tests

The first step to proceed with the ARDL model is to establish the order of integration of each variable to confirm that none of the variables is integrated at order 2. If any of the variables in the model are stationary at the second difference the resultant F-statistics are not rational (see Sezgin & Yildirim 2003, Ouattara 2004) as the bounds test requires the variables to be either I (0) or I (1). In this regard, standard Augmented Dickey-Fuller (ADF) test and Phillips Perron (PP) tests are utilized. The results of both ADF and PP unit root tests are provided in the Appendix. Schwartz Bayesian Criteria is used for optimal lag selection.

Table 4 provides information about the order of integration of each variable. It shows that various variables are either I (0) or I (1). However, none of them is integrated of order 2 or I (2) or higher implying that it is possible to use the ARDL modeling approach for the estimation of the models.

**Table 4: Order of Integration of the Variables**

Variables	ADF Test	PP Test
<i>ln</i> HD	I(0)	I(0)
<i>ln</i> GOV	I(1)	I(1)
<i>ln</i> FA	I(1)	I(1)
<i>ln</i> TO	I(1)	I(1)
<i>ln</i> FDI	I(1)	I(1)
<i>ln</i> GE	I(1)	I(1)
<i>ln</i> Y	I(1)	I(1)

Source: Authors' calculations.

### Bounds Test for Cointegration

As the order of integration of each variable is established, the next step is to check the existence of long-run association among variables to determine the relationship among human development, aid, and governance in Pakistan. The bounds testing approach is used to test for long-run relationships among variables. The results are summarized in Table 5.

**Table 5: Bounds Test for Co-integration**

	F-Statistic	Lower bound*	Upper bound**	Decision
Model	6.2438	3.81	4.92	Co-integrated

Source: Authors' calculations.

\* and \*\* are the 1% critical bound values. For a long-run relationship, the F-statistic should lie above the upper bound. The test is otherwise inconclusive.

The results of the test indicate that there exists a long-run relationship among the variables in the model. The long-run estimates of the model are summarized in Table 6.

**Table 6: Long run Estimation using Human Development as Dependent Variable**

Variables	Long-run Coefficient ( <i>p-value</i> )
Governance	0.13654* (0.0411)
Foreign Aid	0.07651** (0.07121)
Foreign Aid x Gov	0.0049* (0.0012)]
Trade Openness	0.1076** (0.0875)

Variables	Long-run Coefficient ( <i>p-value</i> )
Foreign Direct Investment	-0.0419 (0.2845)
Government Expenditure	0.01914** (0.05876)
Income	0.0231** (0.0624)

*Source:* Authors' calculations.

\*indicates 1% level of significance. \*\* indicates significance levels of up to 10%.

The dependent variable is Human Development while *GOV*, *FA*, *FDI*, *TR*, *GE*, and *Y* are the independent variables. The long-term coefficients estimated through the ARDL model are summarized in Table 6. The long-run coefficient for governance is positive and significant and shows that a 1 percent increase in overall governance leads to a 0.14 percent increase in human development. This result is consistent with Banda (2022). Effective governance in Pakistan is essential for fostering sustained human development. Basic services such as access to education, healthcare facilities, and infrastructure provision contribute to enhancing individual welfare standards. Adhering to policies guaranteeing accountability and transparency aids resource distribution arrangements, fostering social inclusion and economic growth. By itself, foreign aid leads to growth in human development. Foreign aid, when combined with good governance, can have an even more positive effect on human development in Pakistan than either alone as evidenced by the positive coefficient on the *GOV\*FA* term. Good governance ensures that foreign aid is effectively utilized, transparently managed and targeted toward the areas of greatest need. Studies have shown that when foreign aid is coupled with good governance practices, it can lead to significant improvements in human development indicators, such as increased access to education, reduced poverty rates, and improved healthcare services.

Many studies in the existing literature conclude that sound and effective governance is a prerequisite for the effective utilization of foreign economic assistance Kaya & Kaya (2020). Brautigan & Knack (2004) asserted that foreign aid cannot effectively improve social indicators unless accompanied by effective and good-quality governance. These findings are further verified by the significant and positive coefficient on the interaction term *GOV\*FA*. It reveals that foreign aid in the presence of good governance has a stronger effect on human development.

If *ODA* increases by one percent, *HDI* increases by 0.07 percent. This finding is in line with an economic theory about the aid and human

development relationship as foreign aid can directly promote human development through enhanced investments in the social sectors and indirectly through economic growth. Many previous studies like McGillivray & Bakhsh (2007), Shirazi & Manap (2011), and Maqsood & Sami (2014) found a positive and significant impact of foreign aid on human development. However, the size of this effect is relatively small as reflected by the value of the long-run coefficient.

Trade openness has a significant positive impact on human development as a 1 percent increase in trade openness leads to an increase of 0.10 percent in human development as it promotes economic growth, job creation, access to goods and services, technological advancement, knowledge transfer, and productivity gains. Studies have shown an association between trade openness and human development indicators, such as health indicators and educational attainment. Trade can also foster social development by reducing poverty, empowering women, and enhancing social inclusiveness. Promoting trade openness can help Pakistan stimulate economic development and create opportunities that positively impact human development outcomes (Zehra & Alam, 2015; Jawaid & Waheed, 2017).

The coefficient on foreign direct investment is negative and insignificant. Government expenditure has a significant positive effect on human development, since when government expenditure increases by 1 percent it leads to a 0.019 percent increase in human development. Stewart et al. (2018) and Arshad et al. (2021) highlighted the significant role a government can play in developing human resources by efficiently utilizing its resources. Higher literacy rates, better skill development, and improved access to basic education are all possible because of increased education expenditures. Better healthcare facilities, lower mortality rates, and better health outcomes result from investments in healthcare. Government spending and human development have a positive relationship. Governments may create an environment that promotes human development and paves the path for sustained economic growth by giving priority to and funding these sectors. GDP growth also has a significant positive impact on human development. This finding strengthens the idea that income growth is essentially a means to achieve the goal of human development.

### **Short-run Dynamics of the Model**

Table 7 provides short-run coefficient estimates of the ECM version of the ARDL model. Coefficients on governance and foreign aid show that



they impact human development not only in the current period but also have a lagged positive effect. Trade openness and government expenditure have no significant impact on human development in the short run. However, trade openness has a significant positive effect on human development with a lag. Income turns out to be a significant determinant of human development both in the short run and long run.

The coefficient on the ECM term describes the speed of adjustment back to long-run equilibrium after a short-run shock. The Error Correction term is negative and significant. Bannerjee et al. (1998) argued that a highly significant error correction term is proof of the existence of a stable long-run relationship. It is reasoned that testing the significance of a negative error correction term is an efficient way to test for the existence of a long-run relationship.

**Table 7: Error Correction Representation of the ARDL Model**

Variables	Model
$\Delta$ GOV	0.0216* (0.0009)
$\Delta$ GOV (-1)	0.0125** (0.0742)
$\Delta$ FA	0.006* (0.0326)
$\Delta$ FA (-1)	0.00723** (0.09512)
$\Delta$	0.1242 (0.2950)
$\Delta$ (-1)	0.06523** (0.0842)
$\Delta$ FDI	-0.00509* (0.0003)
$\Delta \geq$	0.0181 (0.5610)
$\Delta \geq$ (-1)	0.02971** (0.07745)
$\Delta$ Y	0.0007* (0.0075)
Y(-1)	0.03957* (0.02213)
ECM (-1)	-0.6107* (0.0021)
Adjusted R <sup>2</sup>	0.5621
No. of observations	30

Source: Authors' calculations.

\*indicates 1% level of significance. \*\* indicates significance levels of up to 10%.

The outcome of this paper aligns with prior research that suggests that foreign aid alone is not sufficient for promoting growth and must be accompanied by good governance. As Werlin (2005) states, "Developing states cannot help the poor without better governance, no matter how much aid they receive." Our results are particularly relevant considering recent discussions on the limitations of external aid in recipient countries and growing concerns from global donors about governance issues.

### Diagnostic Tests

The model estimated for the present analysis is tested for multicollinearity, autocorrelation, heteroscedasticity, normality, and stability. Firstly, the model is tested for multicollinearity by utilizing the Variance Inflation factor (VIF) to ensure that independent variables are not correlated. The results of the VIF test are reported in Table 8. Generally, a VIF is indicative of the presence of multicollinearity if its value is less than 0.25 or greater than 4. In the test results, there is no evidence of the existence of multicollinearity.

**Table 8: Variance Inflation factors (VIF)**

Variable	Coefficient Variance	Centred VIF
Y	0.09134	1.4967
FA	0.00123	2.0693
GOV	0.00786	1.8428
GE	0.03954	0.6725
TO	0.04296	0.8095
FDI	0.00854	1.7832
Constant	3.2395	2.7892

*Source:* Authors' calculations.

**Table 9: Diagnostic tests<sup>a</sup> (p-values)**

	Model
Serial correlation <sup>b</sup>	0.3912
Heteroscedasticity <sup>c</sup>	0.2564
Normality <sup>d</sup>	0.6223

*Source:* Authors' calculations.

<sup>a</sup> Diagnostic tests are based on the residuals from the ARDL model.

<sup>b</sup> Breusch–Godfrey LM test is used to test for serial correlation. If the value of the LM statistic is greater than the Critical Value, the errors have autocorrelation. (If  $p \geq 0.05$ , the error terms have no serial correlation)

<sup>c</sup> Breusch-Pagan-Godfrey test is used to detect heteroscedasticity. If the value of the test statistic is greater than critical values, the errors have heteroscedasticity. ((If  $p \geq 0.05$ , the error terms are homoscedastic)

<sup>d</sup> For normality, the Jarque-Bera test (Lutkepohl, 1991) was applied. Under the null of normally distributed

Residuals the test statistic is asymptotically distributed  $\chi^2$  with 2 degrees of freedom. (If  $p \geq 0.05$ , the error are normally distributed)

Table 9 suggests the absence of residual autocorrelation, heteroscedasticity, and non-normality. Results of the stability test are provided in the Appendix.

To further explore the interactions among foreign aid, human development, governance, and other variables, pair-wise Granger causality analysis is also conducted and results are reported in Table 10. It is important to mention that the test was conducted on all the variables included in the model. However, only the relevant results are reported here.

**Table 10: Pair-wise Granger Causality Test**

Null Hypotheses	F-Stat	Conclusion
FA does not granger cause HD	6.2356**	Unidirectional causality from FA to HD.
HD does not granger cause FA	0.0591	HD.
GOV does not granger cause HD	4.0587*	Bi-directional causality between Gov to HD
HD does not granger cause GOV	8.2471**	to HD
GDP does not granger cause HD	9.6521**	Bi-directional causality between GDP to HD
HD does not granger cause GDP	5.1127**	to HD
FA does not granger cause GOV	7.2639**	Bi-directional causality between FA to Gov
GOV does not granger cause FA	5.2348**	Gov
FA does not granger cause GDP	11.4237***	Unidirectional causality from FA to GDP.
GDP does not granger cause FA	0.0641	GDP.
GOV does not granger cause GDP	13.2561***	Unidirectional causality from GOV to GDP.
GDP does not granger cause GOV	0.0355	GDP.

Source: Authors' calculations.

\*\*\*, \*\*, and \* indicate significance at 1%, 5% and 10% respectively

The Granger causality test shows unidirectional causality from foreign aid to human development meaning that foreign aid contributes towards human development. Foreign aid, if utilized properly, can enhance human development by reducing poverty, improving access to health facilities, and enhancing educational attainment. We find a bidirectional causality between governance and human development. It suggests that not only does good governance improve human development, but that human development also leads to better governance outcomes. As the level of human development improves in a country, we

have more specialized and trained individuals and it is relatively easier to ensure the rule of law and control corruption. There is bidirectional causality from GDP to *HD*. Income is vital to finance human development and a better-developed labor force with high productivity can contribute to a higher GDP growth rate. Granger causality results also reveal a bidirectional causality between governance and foreign aid. Foreign aid can help to develop strong institutions and a set of rules. Similarly, good governance is vital for the optimal utilization of foreign aid. The results also reveal a unidirectional causality from foreign aid to GDP, suggesting that foreign aid facilitates GDP growth. We have found a unidirectional causality from governance to GDP, implying the role of good governance in GDP growth.

### **Conclusion and Policy Implications**

This study investigated the determinants of human development in Pakistan with a particular focus on foreign aid and governance. The results of the econometric analysis suggest that both governance and foreign aid play important roles in improving human development. These findings are further confirmed by a positive significant aid governance interaction term. Trade openness, government expenditure, and income also come up as important determinants of human development in Pakistan. The results of pairwise Granger causality tests further reveal the nature of association among foreign aid, governance, and human development. There is a unidirectional causality from foreign aid to human development and bidirectional causality between GDP and human development, governance and human development, and foreign aid with governance.

Based on these findings it can be concluded that both foreign aid and good governance facilitate human development; hence there is a need to promote effective governance practices to ensure optimal benefits of foreign aid for human development. Also, our results support the literature that finds free trade acting as an engine of growth, which means that the government should articulate policies to enhance trade openness which will lead to human development by creating productive employment opportunities and transfer of technology. The results also imply that public spending should be more focused on human welfare and development. This can be done by increasing development spending and enhancing the budget allocated for health and education. And last but not least there is a need to introduce macroeconomic reforms to ensure stable and sustainable economic growth which is a prerequisite for human development.

### **Limitations and Avenues for Further Research**

This study fills an important gap in the analysis of the interactions between foreign aid, governance, and human development in Pakistan. This research work, however, has certain limitations and can be further extended in various directions. Firstly, in the case of Pakistan, it is always challenging to find complete and correct data sets. So, certain data values had to be imputed and the results can be further improved by the availability of better data. Secondly, in the case of Pakistan, the literature on interactions between governance, aid, and human development is scarce making it difficult to completely understand the background of the problem. Similarly, in the latest literature on this topic, we find that there is an increased usage of micro-data to understand the actual impacts of aid on human development keeping in view the local governance structures. The study can be extended by investigating the impact of individual governance indicators on various indicators of human development.

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*Appendix*

**Variance Inflation Factors (VIF)**

Variable	Coefficient Variance	Centred VIF
Y	0.09134	1.4967
FA	0.00123	2.0693
GOV	0.00786	1.8428
GE	0.03954	0.6725
TO	0.04296	0.8095
FDI	0.00854	1.7832
Constant	3.2395	2.7892

**Results of stability test (CUSUM and CUSUM squared)**

