



Governance as a Stimulator for Foreign Direct Investment in Pakistan: A Non-Linear ARDL Approach

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ABSTRACT

This paper aims to emphasize governance as the driving force for foreign direct investment in the case of Pakistan. The research occupies times series data over the time frame 2000 to 2021 for analysis. Based on unit root approximation, the research employs the non-linear autoregressive distributed lagged modeling (NARDL) approach for empirical investigation. The research regresses governance effectiveness, population growth, domestic savings, and remittances on foreign direct investment. According to NARDL statistics, an increase in governance effectiveness will lead to a 45 percent increase in foreign investment inflows, while a decline in governance effectiveness may incur a 39 percent decline in foreign investment inflows. The study concludes that foreign direct investment in developing economies like Pakistan largely depends on governance and its effectiveness. Besides, population growth sustains a strong static influence on foreign investment inflows. All remaining variables such as domestic savings and remittances have also confirmed their statistical significance

1 Introduction

For the past two decades, exploring static drivers of foreign direct investment inflows is one of the popular tasks among researchers and scholars. Literature proved that foreign direct investment increases production capacity, amplifies or efficiently utilizes scarce resources, and helps in achieving economic stability in an economy. With the help of increased foreign direct investment inflows developing economies such as Pakistan can easily transform into developed ones. A rise in FDI inflows plays a static role in eradicating the level of poverty. Besides, it amplifies residents' welfare by assisting human capital formation, generating more employment opportunities, reducing unemployment levels, and also raising the standard of living (or purchasing power parity) in an economy (Samargandi et al., 2022). FDI inflows are somehow directly related to technological spillovers.

Foreign direct investment is far better than foreign aid or debt. As the debt incurs a static negative effect on terms of trade (TOT) which in turn deteriorates the economic growth rate. Henceforth, for capital formation economists and policymakers usually favor foreign direct investment in aid (Danish & Akram, 2014). After considering the attached benefits of foreign direct investment inflows, when we check the current level of foreign direct investment inflows, the researchers discovered that the present inflow rate does not meet the required level for boosting the economic growth. Therefore, with the help of this paper, the researchers try to assimilate the role of some static, significant, and reliable empirically recognized factors that can uplift the current FDI inflows level in Pakistan.

Most of the past literature stressed the role of population growth, gross savings, investment level, inflation, employment rate, poverty level, R&D, financial stability and inclusion, trade liberalization, education, consumption pattern, imports, per-capita income level, infrastructural development, urbanization, Co2 emissions, terrorism, interest rate as a detrimental factor for FDI inflows. However, in this regard, the role of government has been usually ignored. Hence, this paper tries to incorporate the role of governance along with the greatly recognized other economic factors, discussed above. From all these factors selection of the primal components is surely a difficult and also time-consuming job. Therefore, the researchers embrace only the studies which cover the same features as the examined economy of this article. After a detailed review of the literature, governance, human capital, domestic savings, and remittances are utilized as the key drivers of foreign direct investment inflows in the case of Pakistan. This paper has been grounded on the following main objective:

- To explore the role of governance in motivating foreign direct investment inflows in Pakistan.
- Integrate the role of increased population in determining foreign inflows in the case of Pakistan.
- To explore the association between domestic savings and foreign investment inflows in Pakistan.

This article has been organized in a precise manner. Firstly, after documenting the significance, purpose, and objectives of this study a brief literature review has been detailed. Then, after the data and methodology section, a conclusion based on the empirical statistics of this research has been plotted.

2 Literature Review

Aqeel and Nishat (2004) discussed some key determinants of FDI inflows for the economy of Pakistan. To empirically examine the problem, researchers utilized time series data of Pakistan's economy, over the time frame of 1961-2002. Key determinants of this research were a corporate tax, GDP per capita, tariff, wages, exchange rate, general share price index, and credit to the private sector. This research examined Johansson's cointegration approach as a statistical technique. All variables (except share price index and wages) confirmed statistically significant affiliation with FDI inflows. However, estimates of the general share price index and wages confirmed insignificant affiliation with FDI.

Ali and Guo (2005) integrated key determinants of foreign direct investment in the case of China. For empirical examination, 22 foreign firms operating in China were selected. A questionnaire of eleven (11) questions related to FDI (that was divided into two parts) was prepared. Market size, economic growth, government incentives, globalization, exchange rate, labor cost, exports, industrial infrastructure, Chinese connections, and political stability. Overall, estimates disclosed that market size and economic growth significantly contribute to the determination of foreign direct investment inflows.

Haile and Assefa (2006) analyzed determinants of FDI inflows for the economy of Ethiopia. The main focus of this research was on the macroeconomic regime, institutional setup, and trade openness. Researchers utilized time series data from 1974-2001. Ordinary least square was used as a main statistical approach. The findings of this research, disclosed the positive association of real GDP growth, trade liberalization, and export orientation with FDI. However, Macroeconomic instability, inflation, telephone lines, GFCF, and poor infrastructure confirmed the negative association. In the end, researchers suggested that improved infrastructure, political stability, and trade liberalization will provoke FDI inflows, for the economy of Ethiopia.

Palit and Nawani (2007) examined the role of technological capability in determining foreign investment inflows. For empirical examination, India and developing Asia (Southeast, East, and South Asia). Time series data covered in this research ranged from 1991-2005. Researchers considered the developing southeast because FDI inflows in these economies changing remarkably in past few

years. Political stability, technological innovation, FDI, infrastructure, and equity flow were the considered variables of this research. Furthermore, results confirmed that technological innovation performs a static role in the stimulation of foreign direct investment inflows in the developing southeast and also in India.

Williams and Deslandes (2008) integrated motivation for FDI in the services sector, mainly for the tourism industry. For empirical examination, emerging economies such as Jamaica were chosen. Researchers conducted face-to-face interviews with policymakers, hotel managers, and ambassadors of investing economies, for collecting data, and to examine quantitative analysis. Results revealed that intense competition in the home country provoked investors to invest abroad. Furthermore, investors prefer Jamaica, only because of its proximity to the US economy, and also because of its developed infrastructure.

Masron and Abdullah (2010) validated the impact of institutional quality on the inflows of foreign direct investment. Time series data were collected over the time break from 1996-2003 and 2004-2008. Panel regression was employed as an estimation approach. GDP, trade, FDI, institutional quality, Human capital development, wages, education expenditures, and market uncertainty were the observed variables of this study. ASEAN countries were selected for empirical checking. All the considered variables significantly determine the inflows of FDI. Additionally, institutional quality ominously determines foreign investment inflows.

Vijayakumar *et al.* (2010) emphasized primal determinants of foreign direct investment inflows in BRICS economies. The study employed panel data estimation over the time flow from 1975 to 2007. Data has been composed for the labor force, currency value, market size, industry sector production, infrastructure, trade openness, gross fixed capital formation, inflation, and FDI. All variables statistically confirmed their significant association with FDI. Radić (2018) integrated terrorism as the driver of foreign investment inflows. A panel of 50 countries was taken from 2000 to 2016. Terrorism, tourism arrival, GDP, FDI, and political stability were the considered variables along with a few control variables. Statistically, it was proven that terrorism does affect foreign direct investment inflows.

Saleem and Shabbir (2020) recognized dynamics amid FDI, trade openness, and economic growth in South Asian economies. Foreign direct investment, trade openness, and GDP growth were significantly interlinked with each other. Ali, Soharwardi and Sadiq (2020) claimed that level of corruption in host economy is one of the major determinants of inward FDI in case of developing Asia. By utilizing the data of 31 developing Asian economies, the study concluded that in the case of developing economies corruption has grease the wheel role for inward FDI.

Mehmood, Batool, and Ishtiaq (2021) also explored the ramification of governance infrastructure (measuring as, political stability, quality of governance and control of corruption) for inward FDI. By utilizing the data of Pakistan economy from 1980 to 2018, study employed ARDL technique to explore the hypothesized relationship. It was found that governance infrastructure can enhance the FDI inflow for Pakistan economy.

Yang *et al.* (2021) highlighted institutional quality & tourism's asymmetrical impact on FDI. This paper incorporated CS-NARDL bound testing, and the asymmetrical causality approaches. The time series data set was arranged from 1996 to 2018. Findings disclosed that institutional quality, tourism, & FDI inflows are significantly correlated.

Samargandi *et al.* (2022) considered the forces affecting the inflows of FDI in Saudi Arabia. Time series data has been collected from 1984-2018. Results revealed that institutional quality, WTO membership, and financial stability are the main drivers determining FDI inflows. Li, Qu, Wang, and Zheng (2022) synthesized institutional linkage and regional institutions' influence on FDI. Findings disclosed that institutional linkage and the regional institutes both considerably determine foreign direct

investment. In this study, the researcher put special consideration on the affiliation between FDI and institutional quality.

3 Data Collection and Methodology

This research mainly integrates long-run cointegration between foreign direct investment (FDI), governance (GOV), human capital (HC), gross savings (GS), and remittances (REM). Here, FDI is examined as a dependent variable while GOV, HC, GS, and REM are integrated as explanatory variables. For empirical observation, the economy of Pakistan has been scrutinized. This paper utilizes time series data over the period 2000 to 2021. Except for governance, all data series have been gathered from World Development Indicators (WDI). Governance data has been collected from the World Bank report, 2022. For statistical examination, the Non-Linear Autoregressive Distributed Lagged (NARDL) bound testing approach has been utilized after checking unit root possession. For statistical analysis, the following econometric model has been taken into consideration:

$$FDI_t = \beta_0 + \beta_1 GOV_t + \beta_2 POP_t + \beta_3 GS_t + \beta_4 REM_t + \epsilon_t \dots\dots\dots (3.1)$$

Here, above mentioned abbreviations shows:

- FDI = Foreign Direct Investment
- GOV = Government Effectiveness
- HC = Population growth as a proxy for human capital
- GS = Gross savings
- REM = Remittances
- ϵ_t = Error term

With the help of the subsequent table, the data source, expected signs and the unit of measurement for the examined dependent and independent variables have been displayed.

Table 1
Description of Variables & List of Explanatory Variables

Variables	Data source's	Relationship	Unit
Dependent Variable			
Foreign Direct Investment	World Development Indicators		%
Independent variables			
Governance	World Development Indicators	+	%
Human Capital	World Development Indicators	+	%
Domestic Savings	World Development Indicators	+	%
Remittance	World Development Indicators	+	%

Source: Author's calculations

3.1 Procedure of Estimation

This section integrates statistical estimations followed by the researchers of this study.

3.1.1 Descriptive Analysis

Descriptive statistics are utilized for displaying salient features of examined data series. It highlights the features and characteristics of examined gross data in an organized manner (Fisher, & Marshall, 2009).

Table 2
Descriptive Statistics

Statistics	FDI	GOV	GS	HC	REM
Mean	1.0832	10.7414	17.4224	2.3813	4.7617
Median	0.8051	10.9725	17.1960	2.2932	4.1386
Maximum	3.6683	14.263	22.7766	2.8701	11.4222
Minimum	0.3755	7.3467	12.4318	1.9403	1.3106
Std. Dev.	0.8160	1.7948	3.0130	0.3160	2.4536
Skewness	2.0939	-0.3084	0.1855	0.3834	0.7976
Kurtosis	6.4517	2.4304	2.0899	1.6106	3.2571
Probability	0.0000	0.0342	0.5359	0.1966	0.1851
Sum	33.58	332.98	540.09	73.82	147.61
Observations	31	31	31	31	31

Source: Author's calculation using Eviews-9

From the above table, descriptive statistics of examined variables have been exhibited. The mean and median values show the average tendencies of the data series, also the maximum and minimum values are detailed here. Except, for governance (GOV) all examined variables are positively skewed. Conversely, foreign direct investment (FDI), and remittance are (REM) plenty-kurtic, while governance (GOV), gross savings (GS), and human capital (HC) are lepo-kurtic. In the end, the total number of observations is documented which is 31 units.

3.1.2 Correlation Matrix

The correlation matrix replicates the nature and degree of association between any two factors. Particularly, it shows the degree of influence such as to what extent 'x' may influence 'y'. Along with this correlation matrix also transpire the presence of high or multi-collinearity. Analyzers integrated different techniques and approaches for inspecting the correlation between the examined variables. Although, most researchers prefer Pearson's correlation method for this estimation. Hence, we also apply the Pearson correlation technique (Steiger, 1980).

Table 3
Correlation Matrix

Variables	FDI	GOV	GS	HC	REM
FDI	1	0.1668	0.0957	0.0460	0.1669
GOV	0.1668	1	0.2804	0.1631	0.2950
GS	0.0957	0.2804	1	0.4490	-0.3991
HC	0.0460	0.1631	0.4490	1	-0.8466
REM	0.1669	0.2950	-0.3991	-0.8466	1

Source: Author's calculation using Eviews-9

In the above-displayed table, the correlation matrix of examined variables is exhibited. The Diagonal number (1) reflects the correlation of each variable with itself that is perfectly collinear. While the correlation with other factors ranges between 0 and 1. A correlation value near 1 predicts the presence of high or multi-collinearity while a correlation value near 0 predicts low or weak cointegration. In our data set all variables affirms the normal range of correlation and refused the presence of multi-collinearity. FDI asserts a positive effect on all examined factors. Furthermore, GOV also confirmed a positive correlation with all other examined factors. Except for REM, GS causes a positive influence on all variables of the study. Besides, HC causes a positive influence on all variables, except the REM. On the other hand, REM confirmed a negative correlation with GS and HC while positive with the other variables.

3.1.3 Unit Root Test

The unit root test is a common hypothesis which states that the examined time series are either stationary or not. The unit root is a stochastic process, whose un-conditional joint probability does not vary over the timeframe. In simple words, a series is said to be stationary merely if its mean, covariance, and variance values are time-invariant or constant with time. However, in any of the condition violations, a series will tend to possess a unit root and that series is called spurious (Leybourne, & McCabe, 1994). Several techniques are introduced for checking data stationery. The augmented dickey fuller test is one of the common tests that we applied in this study.

The following table exhibits the stationary of the time series data under consideration. Estimates disclosed that the foreign direct investment (FDI) data series is stationary at 1st difference (I₁), while insignificant at level (I₀). Although, governance (GOV) is stationary at the level and 1st difference. Here, gross savings (GS) is stationary at 1st difference (I₁). Nonetheless, human capital (HC) is stationary at level (I₀). Besides, remittances (REM) are stationary at the level and 1st difference. From the results reported in table 04, it is concluded that we have data series that is cointegrated of both orders level (I₀) and 1st difference (I₁). Hence, we are going to apply NARDL, which requires data series containing a combination of both orders.

Table 4
Unit Root Test

Variables	Level	1 st Difference		Conclusion	
	Intercept	Intercept & Trend	Intercept & Trend		
FDI	-2.4403 (0.1441)	-2.7666 (0.2238)	-2.8708* (0.0666)	-2.8427* (0.0997)	I(1)
GOV	-2.3170 (0.1701)	-4.2914** (0.0431)	-8.8571* (0.0000)	-8.0852* (0.0000)	I(0,1)
GS	-1.4327 (0.5467)	-2.4754 (0.3351)	-4.8572* (0.0011)	-4.7694* (0.0059)	I(1)
HC	-0.7732 (0.8188)	-2.1168** (0.0525)	-3.0365* (0.0016)	-5.4183* (0.0001)	I(0)
REM	-1.9312 (0.2939)	-2.8461* (0.0073)	-4.6990* (0.0015)	-4.8972* (0.0046)	I(0,1)

Source: Author's calculation using Eviews-9

3.1.4 Non-Linear-Auto-Regressive Distribution Lagged Model (NARDL)

ARDL is a quite popular classical estimation approach between researchers and scholars. After ARDL, a new term NARDL has been introduced, which is the modified form of ARDL. The abbreviation "NARDL" reflects the 'non-Linear-Auto-Regressive-Distributed-Lagged model. In this estimation lagged value of both dependent and independent variables is considered. The notion, of nonlinear, reflects two ways of association between examined variables. Furthermore, ARDL bound testing method signifies the presence of long-run cointegration. Additionally, this estimation method measures both short and long-run affiliation between examined variables (Nkoro & Uko, 2016).

Table 5
Short Run Result of NARDL (Dependent Variable: FDI)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDI(-1))	0.1457	0.1518	0.9598	0.3598
D(GOV.POS)	0.5644	0.1550	3.6399	0.0045
D(GOV.POS(-1))	-0.1250	0.1900	-0.6580	0.5254
D(GOV.NEG)	0.5073	0.2631	1.9275	0.0828
D(GOV.NEG(-1))	-0.0786	0.2048	-0.3839	0.7091
D(GS)	0.1117	0.0657	1.7005	0.1199

Table 5 (Continued)

D(GS(-1))	0.0109	0.0809	0.1346	0.8955
D(HC)	0.5521	6.7861	-1.3191	0.2165
D(HC(-1))	0.4098	7.0972	1.7485	0.1109
D(REM)	0.2936	0.1549	-1.8948	0.0874
D(REM(-1))	0.2425	0.2014	1.2043	0.2562
CointEq(-1)	-0.7028	0.1498	-4.6900	0.0009

Source: Author's calculation using Eviews-9

Table 5 demonstrates short-run NARDL estimation. According to the above statistics, governance causes static and strong influence in the short run, and the effect is statistically significant shown by 'GOV.POS' and 'GOV.NEG' values revealing that an improvement or deterioration in governance effectiveness will assert a static effect in the short run. Besides, remittances also confirm a significant influence in the short run. However, not all variables postulate significant association in the short run which is because of the short time period, in the short run change in any variable can't be fully explained. Hence, the researcher relay mostly on long-run estimation. From the short run table, we check whether there's a long-run association or not by checking the CointEq value.

Table 6
Long Run Results of NARDL (Dependent Variable: FDI)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GOV.POS	0.4556	0.4351	3.3447	0.0074
GOV.NEG	-0.3934	0.3455	4.0328	0.0024
GS	0.5785	0.1393	4.1509	0.0020
HC	-0.2242	4.0788	-3.3647	0.0072
REM	0.3126	0.3794	-4.8260	0.0007
C	0.4277	13.1815	2.8394	0.0176

Source: Author's calculation using Eviews-9

If the cointegration value is statistically significant then long-run association exists otherwise not. The value of CointEq coefficient confirm the long-run association among study variables.

In Table 6, NARDL long run cointegration between examined variables of this research has been exhibited. One percent increase in governance (GOV) effectiveness will cause an increase in foreign direct investment inflows up to 45% and that change has confirmed its statistical significance. Although, if governance performance or effectiveness deteriorates (decreases) by one percent then it will assert a 39% decline in foreign direct investment inflows. Researchers ascertained the presence of long run affiliation between FDI inflows and governance. The reason behind this positive association is that government is one of the strong pillars of an economy that influences economic activities.

For promoting investment level government usually initialize different policies which favor investors, besides foreign investment government also formulate some static policies. Therefore, there's a strong correlation between governance and FDI inflows. In the case of Pakistan, the government has initialized some policies (which favors foreign investors by giving text exception) in areas where local investors do not show interest to promote economic activities (Jan *et al.* 2019; Khushnood *et al.* 2020; Samargandi *et al.* 2022; & Li *et al.* 2022). Here, gross savings also signifies strong affiliation with FDI inflows, a one percent increment in gross savings will cause a 57% increase in FDI inflows to Pakistan.

As the increase in saving level will surely result in the form of increased investment. Hence, it asserts a positive role in determining FDI inflows (Ali *et al.*, 2019; Khan *et al.*, 2022). However, human capital postulates a negative association with FDI inflows as by an increment in human capital (population

growth) there will be a 22% decline in FDI inflows. This negative association transpires that increased population growth does not provide static evidence that whether this increase is in favor of an economy or not. If the increased population results in the form of a burden (depending on employed labor) it will cause a static decline in overall economic growth and so as in FDI inflows.

Also, foreign investors seek skilled labor, but if the increased population is unskilled, it's worthless (Khan & Nawaz, 2010; & Azeem *et al.*, 2012). According to the long-run Ali *et al.* statistics, a one percent increase in remittance will cause a 31% increment in FDI inflows to Pakistan. The money received from abroad, will get spent or either invested in the home country which in turn accelerates economic activities by improving consumption and investment pattern. Therefore, remittances causes a positive influence on the determination of FDI inflows (Vijayakumar *et al.*, 2010). In the long run, all examined variables of this study confirmed statistically significant affiliation with FDI inflows. Besides, the constant term is also statistically significant here.

3.1.5 Bound Test

In NARDL bound testing approach, the bound test reflects the presence of long run cointegration amid observed variables. Here, statistical significance is tested at three significance levels 10, 5, and 1 percent. F-statistics need to be greater than the upper (I1) and lower (I0) bound range.

Table 7
Bound Test Results

Test Statistic	Value	K
F-statistic	4.768857	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: Author's calculation using Eviews-9

The subsequent table exhibits the bound test for examined model. According to the above statistic, the F-statistics value which is '4.78' is greater than the upper bound value 'of 4.68' and lower bound value 'of 3.41' at a 1% significance level. So, there exists cointegration. As we see the critical value of F-statistics is greater than the both upper bound and the lower bound values at all three significance levels. Therefore, the researcher confirmed the presence of long-run cointegration and rejects the null hypothesis of no cointegration.

4 Conclusion and Policy Implications

The literature revealed plenty of factors influencing or accumulating foreign direct investment inflows in an economy. Although, the role of governance in this regard, remains concealed. Hence, with the help of the present study, the researcher tries to integrate the role of governance effectiveness in the accumulation of foreign direct investment inflows in the case of Pakistan. Besides, this paper attempts to unleash the contribution of financial stability (gross savings), human capital (population growth), and macroeconomic stability (remittances) in this regard. Time series data for selected research indicators have been collected from World development indicators and World governance indicators over the time flow 2000-2021. Based on unit root examination the study finalized the non-linear-autoregressive-distributed-lagged (NARDL) bound testing approach. Obtained results of NARDL disclosed that governance asserts a positive effect in determining foreign direct investment inflows in Pakistan. The composite index of governance effectiveness (GOV), if increases by one percent there will be a 45% increase in FDI inflows. On the other hand, a one percent decline in governance effectiveness (GOV) will cause a 39% decline in FDI inflows. Hence, it is confirmed that for stimulating FDI inflows level, governance effectiveness is required. Except for human capital, all

examined variables publicized positive cointegration with FDI inflows. This negative association transpires that increased population growth does not provide static evidence that whether the increase is in favor of an economy or not. If the increased population results in the form of a burden (depending on employed labor) it will cause a static decline in overall economic growth and so as in FDI inflows. Also, foreign investors seek skilled labor, but if the increased population is unskilled, it's of no value.

Based on empirical findings obtained from this study, the researchers stressed considering the following suggestions while forming policies:

1. Particularly for developing economies like Pakistan, the role of governance effectiveness is remarkable. Hence, policymakers must integrate it while forming policies concerning FDI inflows.
2. Financial stability is required for boosting investment inflows. Therefore, there is a need to increase the current saving level which in turn stimulates the FDI inflows in Pakistan.
3. Policymakers need to address policies concerning controlling overpopulation. As the increased population will increase the burden on the economy.

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