Impact of Foreign Loan on Economic Growth of Pakistan: A Time Series Analysis

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ABSTRACT

This study examines effect of foreign loan on economic growth in Pakistan. The study uses time series data for the period of 1972-2022 and collects data from Economic Survey of Pakistan, SBP and WDI. ADF test results shows that variable inflation is stationary at level, while gross domestic product growth rate, foreign loan, and FDI are stationary at 1st difference. So, the study uses ARDL approach to detect the relationship between variables because integration order mixed. The ARDL model results shows that there is existence of long run relationship among all variables. The study results show that foreign loan has negative, FDI has positive, and inflation has negative effect on economic growth of Pakistan. This study recommends that Pakistan should overcome foreign loan and give friendly environment to foreign investors so that more and more FDI comes to country, that will help to improve economic growth of Pakistan.

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1.   Introduction

Economic growth is increase in GDP of a country or state during a specific time period. Foreign Loan is a loan take from another country or any foreign institutions on interest (Awan & Qasim, 2020). For many years, foreign loan has been proved to be a challenge of higher magnitude for Pakistan. These are the interest-including loans. Often, Pakistan takes loans from international giants like IMF, World Bank, ADB, US and many other European and Gulf countries in dollar form. In the list of foreign loan, Pakistan stands at 59 as a borrower. Pakistan is very fast in developing but also foreign loan problems are there that it faces. Debt servicing consumes about 70% of the total revenue and the remaining sum total of 30% is allocated to other services of national importance. Pakistan's foreign loan is boosting since its independence in 1947 and it is regularly increasing because of borrowing on large scale and the continuous currency devaluation. Successive governments have resorted to foreign loans in spite of utilising national resources and this is the main cause of increased foreign loan on Pakistan. Pakistan takes loans from internal and external sources. A cost is required by a government that is borrowing irrespective of the nature of that cost. Decreasing cost and minimizing risks pertaining to foreign loan are the main objectives which the government account to. Regarding internal loan, it is less risky because it has to be paid in local currency. In 2017, domestic loan of Pakistan stood at Rs 14,849 billion. To limit inflation and small-scale outcomes for private venture, it seems attractive for governments to take foreign loans. However, the increasing loan obligations are deteriorating the economy badly. Usually, the nations who barrow money spend it on developmental projects ant to upgrade their country infrastructure and to fill budgetary deficits and trade deficits etc. Countries that have low Tax-GDP ratio are using the foreign loan for unproductive purposes that pose a great danger. In

2001, IMF classified Pakistan as the most foreign loan taking country when debt services were so much high as stood at 29% of the official liquid reserve of the country. Foreign loan incurred on Pakistan rose raised to Rs 6559 billion in 2017 from Rs 86 billion in 1980. In 2017, the foreign loan in US dollar was around 56.4 billion and principal and interest debt services were USD 6.4 Billion (Economic Survey of Pakistan, 2019). The loan taken in external currency is always vulnerable to the risk of exchange rate (Awan & Qasim, 2020).

Overcoming fiscal deficit proves to be a problem for developing economies as there are many other problems that they face. Different ways are used by these economies to lesson unnecessary expenditures, to decrease and maintain the current account deficit, boosting revenue collection and creating opportunities for investment. As they have no sufficient resources to fund the developmental projects, these economies turn towards foreign resources for completing their developmental projects. The saving rate is very low in these developing countries and this is the main cause of their underdevelopment, because they have no other option except taking loans. These borrowed amounts are either external or internal. Accessing foreign loan is not easy sometimes and is often costly. (Ogunmuyiwa, 2011) gave two different views regarding loan; (a) economic potential of a country may be increased by loan, and (b) Loan taken cannot increase the economic potential of a country. According to him, if cost is greater than benefit, then authorities concerned may restrict it. Economies which are developing like India, Bangladesh and Pakistan etc. are facing numerous challenges of improving their economic growth through minimizing their entire burden of loan. Highly indebted countries are to paid their loans in higher interest rate by giving their insufficient resources to pay off their loan. Like other countries, unfortunately, Pakistan too is facing that problem. Pakistan is included in the list of highly indebted countries according to World Bank reports of 2001 and 2011. If a country crosses the debt limits, it is considered as highly indebted poor country. Since its inception in 1947, Pakistan is facing a worse type of debt conditions day by day. In order to fill the budget deficit, a huge amount of loan is taken every year by Pakistan. In present scenario, Pakistan is receiving foreign loan against different collaterals, as a motive for government building that might cause severe problems of state sovereignty. Pakistan's external debt stood at $19.200 billion in the year 1990, $33.60 billion in 1999, and $37.362 billion in 2007. The figure reached its current level in 2007. Between January 2014 and July 2014, the amount borrowed from abroad climbed from 60 612 USD to 65 365 USD. From January 2015 to January 2016, the total amount of loans increased from $63,994 to $68,452 Million, and similarly, it reached its peak in July, 2016, at $74,638 (Economic Survey of Pakistan, 2019). This indicates that the credit issue is not under control. However, in order to circumvent this issue of loan debt limitation law, various governments employed a variety of measures, such as rescheduling their debt payments, writing off debt, and so on. According to (Siddique, Ullah, & Haq, 2017), we need to develop our industrial sector as well as our agriculture sector in order to increase our exports and cut down on our imports in order to reduce our reliance on loans from other countries.

The actual cause of foreign loan for developing economies is fulfilling the lack of saving investment gap. Countries which are developing faced current account deficit and these countries were encouraged to take loans from foreign developed counties and global communities to help increase their economies (Awan & Qasim, 2020). (Kasidi & Said, 2013) stated that nations that take loans from exterior sources because of many causes like having low income, budget deficit and/or less investments. And added that countries turn towards foreign loan for 2 motives; macro-economic causes or to funding the temporary balances of payment shortages because of the initiative too improvement the financial growth and decrease poverties. In this case borrowing is necessary for economic growth. This study has ample evidence to show that countries that have taken loans regularly in many forms. The present study elaborates the causes and the rationale regarding economic growth due to which countries go to foreign loans. The problem of foreign loan is a challenge for many emerging nations like Tanzania, Pakistan etc. (Karagol, 2012) revealed that the refund generates many problems for developing countries as the repayment is to be done more than for actual amount that was taken. So, the debt services of higher magnitude are imposing many constraints on growths of nation. It drains out the limited natural resources of that country and restricts the financial resources to the internal needs of the development. (A. Ali, 2022) suggested that external loan has a constructive effect on growth of a nation and investment to a verge level just, but the foreign loan may possibly impact the investment and growths has a large sum of that amount goes in the refund of the loan. Also, (Ahmad, 2015)

found in his research that foreign loan shifts the expenditure gone from societal sector; health and education. It is evidently proved the goal of attractive foreign loan is not just the claim of development but being depressed by debt repayment that cuts the entire resources of development. Consequently, it greatly hampers the economic growth of the country because of high interest repayment of foreign loan, high public expenditures and the risk of FX to pay that loan. WDI of 2011 shows that the emerging nations hurt a lot from external loan load and debit servicing then the advanced and developed and the organization of the economic cooperation and development (OECD) nations. Take for example, US, UK and Japan never paid nothing in debt servicing in the period of 1990-2010(Kasidi & Said, 2013).

Problem statement highlights the need to understand the complex interplay between foreign loans and a nation's economic growth. It implies that there is a lack of clarity or consensus on how foreign loans influence economic development and that various factors and mechanisms may play a role in shaping this impact. To address this problem, researchers and policymakers may investigate a range of questions, such as;

Quantifying the impact: What is the quantitative impact of foreign loans (both in terms of size and terms) on a country's economic growth over different time frames? Does the impact vary across different types of loans (e.g., concessional vs. commercial) or sources (e.g., bilateral vs. multilateral lenders)?

Mediating factors: What are the key mediating factors that influence the relationship between foreign loans and economic growth? These factors could include governance quality, policy effectiveness, institutional capacity, and the country's level of development.

Debt sustainability: How does the accumulation of foreign debt affect a country's long-term debt sustainability and fiscal stability? What are the implications of high levels of debt for economic growth prospects?

Understanding the relationship between foreign loans and economic growth is critical for both policymakers and economists. It helps in making informed decisions regarding borrowing, managing debt, and designing policies that promote economic development while ensuring fiscal sustainability (H. Ali, Farooq, & Mumtaz, 2016; Awan & Qasim, 2020; Jokolelono, 2023). The primary purpose of the research was to determine the extent to which a foreign loan influences the rate of economic expansion in Pakistan. This study is organized as the 1st section is introduction of the study, 2nd section is literature review, 3rd is data and methodology, 4th is results of the study and 5th is conclusion of the study.

2. Literature Review

Malik, Hayat, and Hayat (2010) investigated the effect that debt owed to outside parties had on the rate of economic growth in Pakistan between the years 1972 and 2005. The ADF unit roots test was employed in the research, and the results demonstrated that the variables are stationary at level. Therefore, the OLS method was utilised in the research to determine the association between external debit and growths. The findings of this study indicated that Pakistan's trade deficit with other countries had a detrimental effect on the country's economic growth.

Akram (2011) explored the impact of exterior debit on the GDP growths in South Asia over dated 1975-2011. This study used A.D.F tests which showed variable is stationery at 1st differences. So, the study used Johansen Co-integration technique to find the relationship of exterior debit with the GDP growths. This paper result showed the exterior debit have negative impact with GDP growths of South Asia.

Nawaz, Qureshi, and Awan (2012) investigated the effect of foreign loan on growths in Pakistan during period 1980 to 2010. The study used A.D.F unit roots tests which showed variables are stationary at 1st differences. So, the study used Johnson Co-integration technique to find the relationship of foreign loan on the growths. This study results showed foreign loan have negative effect on the growths of Pakistan.

Atique and Malik (2012) described the effect of internal and exterior debit on growth of Pakistan, during the dated of 1981-2011. The study used ADF unit roots tests which showed variables are stationery at levels. So, the study recycled O.L.S method to find relationship of internal and exterior debit on the growth. This study, result presented exterior debit slow down growths as compare to internal debit, both have negative effect on the growth in Pakistan.

Rais and Anwar (2012) delved into the effect of public debit on growth in Pakistan during 1972-2010. This study uses A.D.F tests which showed variables are stationery at level. So, this study uses O.L.S method discovery relationship public debit on growth. This study result showed that public debt has adverse effect on the economic growth of Pakistan.

Kasidi and Said (2013) investigated effect of foreign loan on the growths of Tanzania during dated 1991 to 2010. This study used ADF unit roots tests which showed variables are stationery at level. So, the study used O.L.S technique find relationship of foreign loan with growths. The study result showed that the foreign loan has progressive effect with growth of Tanzania.

Shahzad, Zia, Ahmed, Fareed, and Zulfiqar (2014) investigated the impact of foreign loan with growths on Pakistan during dated 1980-2013. This research uses A.D.F tests which showed that some is stationery at level, and some are at 1st differences. So, this paper uses A.R.D.L technique to find relationship foreign loan with the growths. The study result showed that the foreign loan has adverse effect with growths of Pakistan.

Zaman and Arslan (2014) thrashed out the effect of external debit with growth in Pakistan during dated 1972-2010. This paper uses A.D.F tests which showed stationery at level. So, this study used OLS method to find the relationship of exterior debit with growth. This study result showed the exterior debit have negative impact with growth of Pakistan.

Ahmad (2015) inquired out the impact of external loan on growth of Pakistan during dated of 1988-2007. This study enforced A.D.F unit roots tests which showed that some variable stationery at level and some are 1st differences. So, this study applied A.R.D.L technique to find relationship of foreign loan on growths. The study result showed that the foreign loan has adverse effect the growths of Pakistan.

Udeh, UGWU, and Onwuka (2016) analysed the impact exterior debt with growths in Nigeria during dated 1980-2013. This paper uses A.D.F unit roots tests which showed variable is stationery at level. So, this study used OLS method to find the relationship of exterior debt with growth. This paper result showed the exterior debt has negative impact with growth of Nigeria.

H. Ali et al. (2016) explored effect external debt with growth in Pakistan during 1974-2015. This study used ADF unit roots tests which showed that some variable is stationery at level and some are at 1st differences. So, this study used ARDL technique to find the relationship of exterior debit with growths. This paper result showed the exterior debit have negative impact with growths of Pakistan.

Siddique et al. (2017) investigated the impact that Pakistan's external debt had on the country's economic growth between the years 1975 and 2015. The ADF test was used in the research, and the results showed a mixed order of integration. In order to determine the nature of the connection between international debt and overall economic expansion, the research employed the ARDL methodology. According to the findings of this study, Pakistan's economic expansion is stunted by its high level of external debt.

Iqbal and Malik (2018) investigated the effect of external debt with growths Pakistan during dated 1970-2015. This study used ADF tests. So, study used ARDL technique to find the relationship of exterior debit with growths. This paper result showed the exterior debit have negative impact with growths of Pakistan.

Sajjad (2018) described the effect of external debt with growths in Pakistan during dated 1980-2015. This study used ADF tests. So, this paper A.R.D.L technique find

relationship exterior debit with growths. This study result showed exterior debit have negative effect with growths of Pakistan.

Mustafa, Ahmed, and Ahmed (2019) delved into the effect of exterior debit with growths in Pakistan during period 1986 to 2017. The study used ADF tests. So, the study uses O.L.S method discover relationship exterior debit on the growths. This paper result showed exterior debit have adverse effect with growths of Pakistan.

Awan and Qasim (2020) investigated the impact of Pakistan's growing external debt on the country's overall economic expansion from 1980 to 2017. This study employs A.D.F tests, the results of which demonstrated that some variables are constant at the level while others are first differences. Therefore, the ARDL method was employed in the research to determine the connection between external debt and growths. The findings of this article demonstrated that Pakistan's growth was negatively impacted by its external debt.

Ali (2022) conducted research during the period of 1985-2020 to study how South Asian nations' economic growth was affected by their level of external debt. In the study, both the panel unit root test and the ARDL technique were utilised. According to the findings of the study, the economic development of South Asian states is positively affected by factors such as currency rate and physical capital, but negatively impacted by foreign loans.

Jokolelono (2023) conducted research throughout the years 2008-2018 to investigate the elements that impact the rate of economic growth in Indonesia. The ADF unit root test was utilised in the study to determine whether or not the variables were stationary. The GARCH approach, which stands for generalised auto-regressive conditional heteroscedasticity, was utilised in the research. According to the findings of the study, exports, foreign debt, and foreign investment all have a major impact—and a good one—on the expansion of Indonesia's economy.

The authors Haque, Iftikhar, and Rizvi (2023) investigated the impact of foreign loans on the rate of economic growth in countries with lower incomes between the years 1999 and 2019. The GMM approach was used for the investigation. According to the findings of the study, economies in nations with lower middle-incomes are hurt by the impact of foreign loans on economic growth. This study is superior among all previous studies like this study estimates effect of foreign loan on economic growths of Pakistan. The study uses time series data for estimation, for the period of 1972-2022. No other study of this nature explores this long time period.

3. Data and Methodology

This study practises time series data from the period 1972 to 2022. The study is using following variables; Gross domestic product growth rate (GDPGR), Foreign loan (FL), Inflation (Inf) and Foreign direct investment (FDI), among these variables GDP growth rate uses as dependant variable and foreign loan, inflation and FDI are used as independent variables. The data has collected from SBP, Pakistan Economic Survey and World Bank. The empirical model:

$$GDPGR_t = \beta 0 + \beta 1 FL_t + \beta 2 Inf_t + \beta 3 FDI_t + u_t$$

Where, GDPGR is gross domestic product growth rate, FL is foreign loan, Inf is inflation, FDI is foreign direct investment, u is random variable and t is time period.

4. Results
4.1. Unit Root Test

This study applies the non-stationary unit root test to the time series data in order to create a stationary version of it. There are a number of different tests that may be used to determine whether or not stationarity is present, but the ADF unit roots test is the one that is most frequently applied. In order to get rid of auto-correlation, Dicky and Fuller dragged out the testing procedure that they were using and suggested using an expanded version of the test that included additional lagged terms of the dependent variable. Lags lengths on these extra terms is either determined by the A.I.C or S.B.C for residuals. When A.D.F unit roots tests apply then compare the calculated value of t-statistic with tabulated value. Null

hypothesis of unit root test will reject if augmented dickey fuller value is more negative than tabulated value.

4.2. ADF Unit Root Test Table

The first step in empirically results is to find out unit root of variables that variable is stationery at level and at 1st difference. The paper uses A.D.F test of unit roots tests find stationarity variables. Table 1 portrays that Inflation (INF) is stationary at level, while gross domestic product growth rate (GDPGR), Foreign Loan (FL) and FDI variables are stationary at 1st difference.

Table 1: Shows Variables Stationarity

Variables	Deterministic (LEVEL)		T statistic	Critical value	P-value	T statistic	Critical value (DIFFERENCE)	P-value	Conclusion
GDPGR	Intercept		-2.926	-5.119	0.73	-2.928	-12.028	0.81	
	Intercept	& Trend	-3.510	-5.546	0.64	-11.865	-3.513	0.00	I (1)
Log FL	Intercept		-0.496	-2.926	0.88	-1.382	-3.421	0.76	
	Intercept	& Trend	-1.494	-3.510	0.81	-5.306	-3.513	0.00	I (1)
Inf	Intercept		-5.546	-3.510	0.00	-2.959	-3.101	0.06	I (0)
	Intercept	& Trend	-3.432	-4.543	0.10	-3.753	-4.745	0.18	
FDI	Intercept		-3.255	-3.543	0.09	-3.766	-3.965	0.11	
	Intercept	& Trend	-3.258	-3.513	0.08	-4.589	-3.513	0.00	I (1)

4.3. Optimal Lag Selection

It is necessary to select optimal lag for dependent and independent variables. The most popular method in time series analysis data are AIC and SC. Table 2 portrays the optimal lag selection, which selects AIC in which optimal lag is one.

Table 2: Optimal Lag Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-152.6329	NA	0.004375	8.757385	8.977318	8.834147
1	23.78582	294.0312*	9.87e-07*	0.345232*	1.664832*	0.805808*
2	47.24330	32.57984	1.17e-06	0.430928	2.850193	1.275316
3	66.74512	21.66868	2.00e-06	0.736382	4.255313	1.964583

Note: * indicate lag selection criteria.

4.4. Autoregressive Distributed Lag (ARDL) Model

The autoregressive distributed lag models were fundamentally established, Pesaran, Shin, and Smith (2001). There are many benefits of ARDL model in comparison with other co-integration approaches for time series annual data for example Johansen's approach (1988) which is use to check the L.R relations between variables more than two, the Engle and Granger co-integration (1987) which is use to find long run relationship between two variables. But Engle and Granger co-integration is only use for two variables and the Johansson's approach is use only in case when all variables are stationery at 1st differences I (I) while A.R.D.L can be used for mixed order and also use in case of small sample size. ARDL can uses find both SR & LR relations. ARDL cannot use when a variable is stationary at second difference. If ARDL apply in case of 2nd difference than the results will be invalid(Pesaran et al., 2001).

4.5. ARDL Results

Note that to check long run relationship in ARDL technique, it is necessary to relate the F-statistics to critical value. F-statistic > critical values it means that lung run relationship occurs. Table 3 portrays ARDL results, F-statistics value > critical values at I (1) and it indicates the presence of long run (L.R) relations between variables.

Table 3: ARDL results

F-Bounds-Test		Null-Hypothesis: No-level-relationship		
Test-Statistic	Values	Significant	I (0)	I (1)
k	3	Asymptotics: n=1000		
F- statistics	10.15	1%	4.219	5.601

4.6. Long run Co-efficient for ARDL Approach

Table 4 portrays the results of long run coefficient for ARDL Approach indicate that foreign loan (FL) has significant and negative impact on economic growth. FL coefficient indicates that one percent increase in external loan would fall the economic growth by 5.36%. It would increase debt servicing burden, reduced investment, fiscal imbalance, exchange rate vulnerability, and risk of default for Pakistan. The results show that inflation (INF) has insignificance and negative impact on economic growth. INF coefficient indicates that 1% increase in inflation, decrease the economic growth by 0.04%. The above results also indicate that F.D.I has significance and positive impact on the economic growth. FDI coefficient indicates 1% increase in F.D.I would increase the economic growth in Pakistan by 2.32%. R-squared shows that 85% changes GDP growth rate is due to the change in foreign loan, inflation and FDI. Durbin Watson statistic shows here is no problem of auto-correlation in model.

Table 4: Long run coefficient for ARDL

Variables	Co-efficient	Standard error	t-statistic	Probability
FL	-5.36	2.03	-2.64	0.01
INF	-0.04	0.09	-0.20	0.85
FDI	2.32	0.40	-2.82	0.04
R-square = 0.85				
Durbin-Watson stat = 2.13				

4.7. Error-Correction-Model

To check short run relationship among variables this study applied ECM. Table 5 portrays the results of error correction coefficient which is significance and negative that indicate speeds of adjustments towards equilibrium is very high.

Table 5: Error correction

Variable	Co-efficient	Probability
Coint E(-1)	-0.86	0.003

4.8. Heteroskedasticity Tests

The Breusch–Pagan–Godfrey test is utilised for the analysis of heteroscedasticity in this work. Since the likelihood of Chi-squared is 0.96, which is greater than 0.050, as shown in Table 6, this study does not contradict the null hypothesis. This indicates that there are no issues with heteroscedasticity.

Table 6: Breusch Pagan Godfrey

F statistics	0.32	Prob, F(11,31)	0.97
Obs* R square	4.83	Prob, Chi-Squares (11)	0.96

4.9. Misspecification of Model

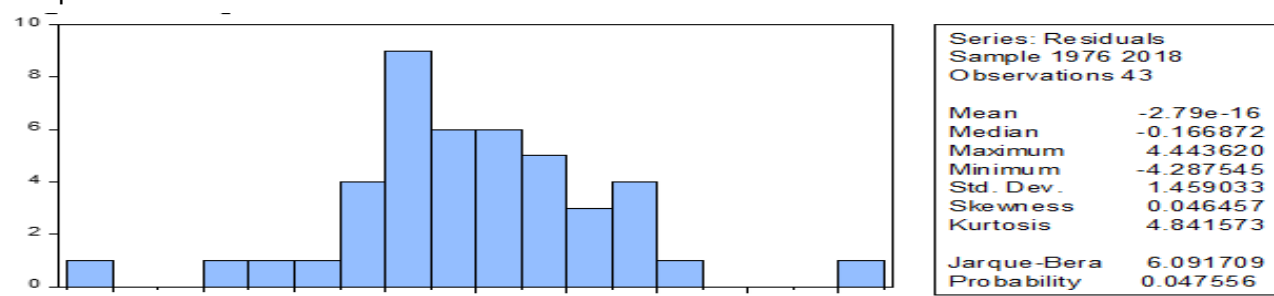Figure 1 portrays the results of misspecification model, which shows that probability of Jarque-Bera 6.09 > 0.05.

Figure 1: Misspecification of model

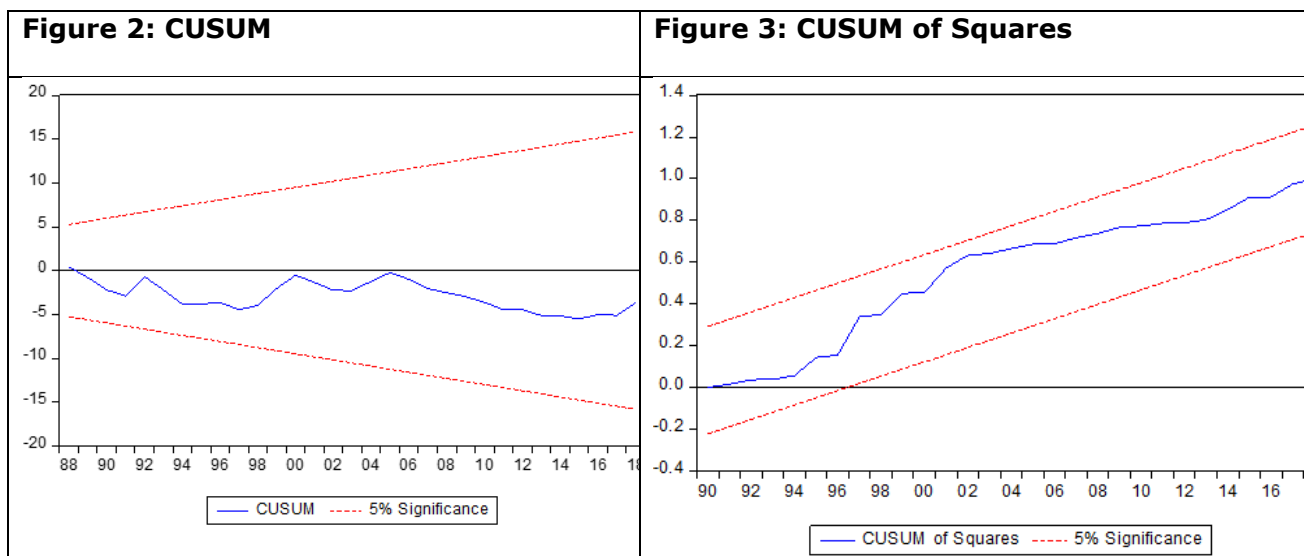So, we have to accept the null-hypothesis, which indicates residuals are normally-distributed.

Figure 2: CUSUM	**Figure 3: CUSUM of Squares**

Figure 2: portrays CUSUM   **Figure 3 portrays CUSUM of squares**

To check coefficient stability, the CUSUM and CUSUM of Squares are used. In both figures blue lines are within the red lines and not touching red lines so it means that coefficients are stable.

4.10. Consistency of Results

Awan and Qasim (2020); Malik et al. (2010); Nawaz et al. (2012); Sajjad (2018); Shahzad et al. (2014) and this study have result consistency that foreign loan have negative and significance effect on the economic growth of Pakistan.

5. Conclusion & Policy Implications

This study looks at the relationship between growth in Pakistan and the impact of foreign loans from 1972 through 2022. This research makes use of the ARDL methodology, which demonstrates the presence of both short run and long run relationships between the variables. According to the findings of this study, economic progress in Pakistan is significantly hindered by the impact of foreign loans. The coefficient for foreign loans reveals that a one percent increase in foreign loans has a negative impact on economic growth in Pakistan of 5.36 percent. The findings of the study indicate that inflation has a negative and relatively insignificant impact on the expansion of the Pakistani economy. According to the inflation coefficient, a one percent increase in inflation is associated with a 0.04% loss in economic growth in Pakistan. The findings of the study indicate that foreign direct investment has a significant and increasing effect on growths in Pakistan. The FDI coefficient indicates that a one percent increase in FDI will result in an increase of 2.32% in Pakistan's economic development. The policy implication or recommendation of this study is that the Government of Pakistan should overcome its reliance on foreign loans and create an environment that is both easy and welcoming to the businesses and investors of other countries. This will encourage an increase in the amount of foreign direct investment (FDI) that Pakistan receives, which in turn will help improve and stimulate the country's overall economic growth.

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