International Journal of Social Science Archives

ISSN: 2707-8892

Available at *www.ijssa.com*

International Journal of Social Science Archives, July-September, 2024, 7(3), 1211-1226

An investigation of the impact of foreign aid on economic growth of Pakistan

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***Abstract*:** This research study is aimed to examine the impact of foreign aid on economic growth of Pakistan. It covers a detailed introduction to the topic under discussion, highlighting the history of foreign aid received by Pakistan and the positive and negative effects it has on the different sectors of the economy. The study takes real growth rate as endogenous variable and investigates whether it is significantly or insignificantly related to foreign aid. The endogenous variables taken to study this relationship are per capita foreign aid receipt, balance of payments, budget deficits, financial depth, human capital base and the variable trend has been taken to control for the policy variable. Regression and correlation analysis show that real per capita foreign aid and real per capita GDP has a strong and positive association as indicated by correlation coefficient of 0.884. However, to the contrary of common understanding human capital and real per capita GDP has a very strong and negative association. The evidence shows that foreign aid does not have a positive impact on economic growth of Pakistan. Foreign aid has a negative and insignificant relationship with per capita gross domestic product (GDP). Therefore, instead of foreign aid, Pakistan economy may focus on growing foreign and domestic investments. With stable and sustainable sources of internal and external financing like foreign direct investment (FDI) and exports, the economic development of the country can be stimulated.

Key Words: Foreign aid, Gross domestic product, Developing countries.

1. Introduction

Developing countries, such as Pakistan, face numerous socio-economic challenges, including poverty, unemployment, illiteracy, trade deficits, and environmental degradation. In addressing these issues, foreign aid plays a crucial role by bridging the gap between the demand and supply of financial and technical resources. This influx of external capital is seen as a key driver of economic growth in developing nations. Foreign aid refers to any form of financial, economic, or technical assistance provided by developed countries or international monetary agencies to developing or less developed nations. A detailed definition of foreign aid, specific to Pakistan, is discussed in the literature review section of this paper.

In recent years, foreign aid has emerged as a vital source of foreign investment for many developing countries, including Pakistan. It is often regarded as a significant means of stimulating economic growth by filling the gap between domestic savings and investment, thus facilitating productivity improvements and the transfer of modern technologies. Since the 1970s, Pakistan has increasingly relied on international borrowing to finance its economic development, becoming heavily dependent on external resources.

The relationship between foreign aid and economic growth has become a topic of intense debate among development experts. While some researchers argue that foreign aid effectively reduces poverty and stimulates economic growth in less developed countries (Burnside & Dollar, 2000; Hansen & Tarp, 2001; Feeny & Ouattara,

2009), others have found minimal or even negative impacts. The complexity of this relationship underscores the need for a deeper understanding of how foreign aid influences economic development, which is essential for crafting effective poverty reduction strategies and addressing the broader economic challenges faced by developing nations.

Pakistan's experience with foreign aid since the 1970s has been largely disappointing. Despite receiving substantial amounts of aid, the country's economy remains stagnant and heavily reliant on external assistance. Much of the foreign aid has been used to service existing debt rather than fuel new development. Additionally, the economic conditions and strategies imposed by donors often shape Pakistan's economic policies, which further complicates the country's development trajectory. Each successive government in Pakistan has leaned heavily on foreign aid to finance imports and investments, but this dependence has done little to foster long-term, sustainable growth.

Over the decades, Pakistan has received foreign aid in varying forms and amounts, depending on the political, strategic, and economic interests of donor countries and international agencies. For instance, aid flows surged during the 1980s due to Pakistan's involvement in the Afghan conflict, while sanctions related to Pakistan's nuclear program in the 1990s caused a sharp decline in foreign assistance. After the 9/11 attacks, aid to Pakistan increased once again as the country became a key ally in the "war on terror."

While foreign aid has undoubtedly provided Pakistan with significant financial resources, the country's heavy reliance on this external support has not translated into consistent economic growth. Factors such as political instability, corruption, and poor governance have limited the effectiveness of foreign aid in addressing Pakistan's developmental challenges. The failure to prioritize human development and social welfare has left Pakistan struggling with poor social indicators, placing it among the least developed nations in Asia.

This study aims to examine the impact of foreign aid on Pakistan's economic growth by analyzing the trends and effectiveness of aid inflows over time. It seeks to contribute to the ongoing debate on the role of foreign aid in economic development and provide insights into how aid can be better utilized to achieve sustainable growth in developing countries. The following sections outline the objectives of the study, the hypotheses under investigation, and the organization of the research.

1.1 Statement of the Research Problem

Pakistan lacks financial and economic capital as well as political and macroeconomic stability which has greatly hindered its economic development. The country has relied on non-traditional aid to support its development programs since circumcision. It receives foreign assistance from many developed countries and international financial institutions. Yet, the economic growth of the country does not seem to be stimulated as much. Apart from that Pakistan faces the issue of serious resource problems and the ongoing battle with severe debt burden. Being strictly dependent on foreign aid, there is a sheer need to find whether foreign aid helps in stimulating the economic growth of Pakistan. This fact raises an intense need to discuss the impact of foreign aid on Pakistan's economic development, which subject to an extensive investigation of the relationship between foreign aid and economic growth. Economic research does not show a unique relationship among foreign aid and financial growth of Pakistan. This paper tries to approach the ongoing issue from various perspectives, to find a definite answer.

1.2 Research Objectives

i. The focus of this study was to investigate the effect of foreign aid on economic growth of the country controlling for other growth promoting factors.
ii. This study tried to explore the impact of foreign aid on economic growth of Pakistan.
iii. It explained foreign aid in the light of literature, the factors that affect foreign aid, the terms and conditions of foreign aid and the pros and cons associated with foreign aid.
iv. The study tried to estimate the effects of foreign aid on economic growth of the country during 1980 and 2013.

2. Review of Literature

2.1 Foreign Aid

According to Chang, Fernandez-Arias, and Serven (1998), official development assistance (ODA) defines foreign aid as a combination of loans and grants provided by developed nations to developing and underdeveloped countries as financial and technical support. Grants refer to non-repayable funds allocated for specific purposes, such as endowments and donations, while loans are repayable debts that incur periodic interest payments. This definition implies that foreign aid encompasses both grants and loans, ultimately contributing to the growing debt burden of recipient countries. Additionally, recipient nations are often required to adhere to the terms and conditions set by the donors, which typically serve the geopolitical and strategic interests of the aid providers

(Chang et al., 1998).

Based on the literature, this study assumes that foreign aid includes all forms of assistance provided to a country in times of need, whether in the form of food, financial resources, or technical expertise. It can be broadly defined as the transfer of resources—whether government grants or guaranteed loans, in cash or kind—for the purpose of economic development and income distribution. Ideally, foreign aid should be interest-free and should not place an additional debt burden on the recipient country. Moreover, it should offer mutual benefits to both donors and recipients, enabling the latter to address immediate challenges while fostering the long-term development of their own economic and financial resources. This raises important questions: Can debt be considered a form of foreign aid? Are interest-bearing loans truly beneficial to countries already struggling with debt? And is the debt burden in Pakistan a direct result of foreign aid? These are the key inquiries this study seeks to explore.

2.2 Net bilateral aid flows from DAC donors

Net bilateral assistance from DAC donors refers to the net expenditure on public aid provided by members of the Development Assistance Committee (DAC). This net expenditure is calculated by subtracting the repayment of previous loans from the total amount spent on grants and loans. Official Development Assistance (ODA) includes concessional loans with a discount rate of 10% and a subsidy element of at least 25%, aimed at promoting economic development and prosperity in various countries and regions. Data collection on government aid flows and other resources from DAC members extends until 2004. The DAC consists of members such as Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, the United Kingdom, the United States, and EU institutions (WDI, 2013).

2.3 Net Official Development Assistance (ODA)

Net Official Development Assistance (ODA) encompasses disbursements of concessional loans (net of repayments and principal) and grants provided by official agencies to foster economic growth and development in various countries and regions. Development Assistance (DA) includes grants from non-DAC countries, NGOs, and DAC organizations, as well as concessional loans that have a subsidized portion of at least 25% and are offered at favorable terms, typically with a 10% down payment (WDI, 2013).

2.4 Net Official Aid Received

Net official aid, often referred to as "special assistance," represents the flow of aid (net of fees) provided by official donors to countries and territories listed by the Development Assistance Committee (DAC). This aid includes contributions to various developing countries, including those in Central and Eastern Europe and the former Soviet Union, as well as many other developing nations. The terms and conditions of this aid align with those for official support under the General Resource Pool (GRP) (WDI, 2013).

2.5 Other Forms of Foreign Aid

Development aid is a form of assistance provided by developed countries to promote overall development, including economic and social progress, with the long-term goal of reducing poverty. Humanitarian assistance, also known as emergency aid, is delivered during or after natural disasters (including wars) and is aimed at providing immediate relief to those suffering. Grants are often awarded for specific projects, such as providing teaching materials for schools. Program assistance, on the other hand, targets specific sectors, like education, and may come in the form of budget support, which is integrated directly into the recipient country's financial system.

The sector-wide approach (SWAP) combines program assistance and budget support, focusing on specific sectors such as education by funding both infrastructure projects (e.g., school buildings) and educational content (e.g., textbooks). Food assistance can be delivered by supplying food directly, purchasing it locally, or providing cash in exchange for food. Mutual aid allows recipient countries the flexibility to decide how to allocate the funds. Tied aid, however, is restricted to purchasing goods from the donor country or a pre-determined set of countries.

In humanitarian aid, professionals such as doctors are often sent to developing countries to implement aid programs, which may be structured as grants or projects. Bilateral aid refers to direct aid from one country to another, while multilateral aid is distributed through international organizations like the World Bank, which collects funds from donor countries and redistributes them to beneficiaries (WDI, 2013).

2.6 Effects of Foreign Aid in Pakistan

Foreign aid is a contentious topic, especially regarding its impact on the economic development of recipient

countries, its objectives, and the conditions attached to it. While foreign aid is vital for sustainable economic growth in less developed nations, the strategic and economic motives of donors often reduce its effectiveness. Effective foreign aid depends on the donors' purposeful allocation and the recipients' resourceful utilization. In Pakistan's case, foreign aid is undermined by unsound macroeconomic policies, corruption, political instability, and terrorism. Additionally, the harsh conditions attached to aid increase the debt burden, limiting its constructive impact (GoP, 2013).

Easterly (2001) highlights that despite foreign aid, Pakistanis still lack access to basic services like education and healthcare. While foreign aid might promote economic growth, the resulting higher incomes often exacerbate monopolies and social issues, including political instability, corruption, and inequality. This section outlines the positive and negative impacts of foreign aid on economic development.

2.7 Positive Effects of Foreign Aid

Foreign aid can accelerate economic growth by improving infrastructure, supporting key industries such as manufacturing and agriculture, and introducing new technologies. It also strengthens crucial sectors like politics, health, education, and the environment, contributing to the social and human development of less developed countries. Additionally, foreign aid can support subsistence needs like food, medical care, and shelter. When used efficiently, foreign aid has the potential to stabilize economies and raise global standards (Burnside & Dollar, 2000; Hansen & Tarp, 2000; Feeny & Ouattara, 2009).

2.8 Negative Effects of Foreign Aid

In the long run, foreign aid can foster aid dependency, limiting a country's ability to develop its own resources. In Pakistan, this dependence can lead to widespread corruption and mismanagement across economic sectors. Aid conditions often force recipient countries to prioritize donors' interests over national needs. Interest-bearing loans, in particular, increase the debt burden, pushing countries into debt traps (Paul, 2006; Brautigam & Knack, 2004; Angeles & Neanidis, 2009).

2.9 Positive Aid-Growth Relationship

Burnside and Dollar (2000) argue that foreign aid, when integrated with efficient financial, legal, and political systems, can significantly contribute to a country's economic development. Their research demonstrates that aid, when based on the quality of programs and governance, promotes growth in developing countries. Improved policies in these nations create better opportunities for effective aid utilization. For instance, their model shows that political conditions for aid effectiveness improved between 1982 and 1993, despite declining foreign aid from OECD countries after 1997.

Simon (1987) and other researchers suggest that foreign aid effectiveness is highly dependent on state policies, with additional factors like fiscal and monetary policies playing crucial roles in determining outcomes. Burnside and Dollar developed key equations to model this relationship.

$$g_{it} = y_{it}\beta_y + a_{it}\beta_a + \mathbf{p}'_{it}\boldsymbol{\beta}_p + a_{it}\mathbf{p}'_{it}\boldsymbol{\beta}_p + \mathbf{z}'_{it}\boldsymbol{\beta}_z + g_t + \varepsilon^g_{it} \quad (2.1)$$

$$a_{it} = y_{it}\gamma_y + \mathbf{p}'_{it}\boldsymbol{\gamma}_p + \mathbf{z}'_{it}\boldsymbol{\gamma}_z + a_t + \varepsilon^a_{it} \quad (2.2)$$

Where i indexes countries, t indexes time, g_{it} is per capita real GDP growth, y_{it} is the logarithm of initial real per capita GDP, a_{it} is aid receipts relative to GDP, $\mathbf{p}'_{it}$ is a P X 1 vector of policies that affect growth, $\mathbf{z}'_{it}$ is a K X 1 vector of other exogenous variables that might affect growth and the allocation of aid, g_t and a_t are fixed time effects and, ε^g_{it} and ε^a_{it} are mean zero scalars.

Hansen and Tarp (2000) examined the relationship between foreign aid and economic growth, focusing on real GDP per capita and population growth indicators in developing countries. They used a standard growth model to explore the indirect effects of aid on growth, arguing that the technical factors driving aid effectiveness are better supported by data than political considerations. They cautioned against relying on political symbols for aid allocation, as suggested by Burnside and Dollar (2000), and emphasized the complexity of non-linear factors and critical decisions that influence aid effectiveness. Their study revealed mixed results in cross-country growth regressions, with some showing patterns while others lacked robustness. Hansen and Tarp highlighted the importance of socio-economic conditions in developing countries and the role of aid in improving social and economic outcomes.

Their findings indicated that aid, when allocated effectively, could promote growth, but they also observed that excessive reliance on aid might harm economies. As aid imports decrease and aid volume increases, its impact tends to diminish. The study also found that aid effectiveness is highly sensitive to the choice of control variables

and statistical methods used.

McGillivray (2005) showed that foreign aid contributes to both economic growth and poverty reduction, particularly in sub-Saharan Africa. He warned that growing poverty in the region threatens the achievement of the Millennium Development Goals. His analysis of data from 1988 to 1999 underscored the role of political regimes, inflation, and trade openness in determining aid allocation.

Ouattara (2006) examined the impact of foreign aid on Senegal's finances from 1970 to 2000, finding that 41% of aid is used for debt financing, while 20% of government resources are allocated to debt servicing. He concluded that debt relief could be a more effective policy for securing additional credit.

Feeny and Ouattara (2009) found that foreign aid positively impacts agricultural GDP per capita but has less effect on industrial GDP. They argued that aid should be more focused on the industrial sector while ensuring efficient allocation to both sectors.

Devarajan and Swaroop (1998) explored the role of aid in generating economic growth, concluding that directing a significant portion of foreign aid toward economic policy reforms could help recipient countries develop more successful economies.

Karras (2006) analyzed 71 aid-receiving developing countries from 1960 to 1997, finding a positive and statistically significant relationship between foreign aid and per capita GDP growth. He argued that foreign aid has a measurable and consistent influence on economic growth and should be continually supported.

$$\text{growth}_{it} = \frac{y_{it} - y_{it-1}}{y_{it-1}} \quad (2.4)$$

$$(\text{oda/pop})_{i,t} = \frac{\text{oda}_{i,t}}{N_{it}} \quad (2.5)$$

$$(\text{oda/gdp})_{i,t} = \frac{\text{oda}_{it}}{\text{GDP}_{it}} \quad (2.6)$$

In this model, the variable \(\text{growth}_{it} \) represents the real GDP per capita growth rate for country \(i \) in year \(t \) (in constant dollars), while \(\text{oda/pop} \) is foreign aid per capita (official development assistance), and \(\text{oda/gdp} \) is foreign aid as a percentage of GDP.

Asteriou (2008) analyzed five South Asian countries over 23 years, finding strong evidence of a positive relationship between foreign aid and GDP growth. Using panel data econometrics, he employed strategies like panel pooling and covariance methods.

Njoupouoggnigni and Ndambendia (2010) studied 36 sub-Saharan African countries from 1980 to 2007, examining the long-term connection between foreign aid, foreign direct investment, and economic growth. Their findings highlighted the need for simultaneously promoting domestic factors like savings and employment, alongside foreign aid and investment, to drive economic growth. They used an economic growth framework and an aggregate production function.

$$Y_t = A_t K_t^{1-\theta} L_t^{\theta} \quad (2.7)$$

In the model, \(Y_t \) represents output, while \(K_t \) and \(L_t \) denote capital stock and labor input, respectively.

Peter, Meriel, & Peter (2012) found mixed evidence on foreign aid's impact in Nigeria. While foreign aid can support economic functioning, they observed a negative effect on GDP growth due to external debt. A large debt burden lowers growth as resources are diverted to debt servicing. They emphasized that the effect of aid depends on the country's economic, political, and institutional conditions.

$$\text{LnODA} = \partial_0 + \partial_1 \text{FDI/GDP} + \partial_2 \text{INST} + \partial_3 \text{EXR} + \partial_4 \text{EDT} + \partial_0 \text{PN} + \mu_{1t} \quad (2.8)$$

$$\text{LnEDT} = b_0 + b_1 \text{GDP} + B_2 \text{INF} + B_3 \text{GFCF} + b_4 \text{EXR} + b_5 \text{OPN} + \mu_{2t} \quad (2.9)$$

$$\text{LnGDP} = C_0 + C_1 \text{EDT} + C_3 \text{INST} + C_4 \text{EXR} + C_5 \text{ODA} + \mu_{3t} \quad (2.10)$$

Official development assistance (ODA), foreign direct investment (FDI/GDP), inflation (INF), institutional quality (INST), gross fixed capital formation (GFCF), exchange rate (EXR), external debt (EDT), and trade openness (OPN) are key variables in economic growth models. Abidemi et al. (2001) found that foreign aid significantly boosts Nigeria's growth, but channeling public funds to productive sectors is essential. Fasanya & Onakoya (2012) highlighted political stability and governance as vital for aid effectiveness in Nigeria.

Moreira & Bayraktar (2008) stressed that, while Niger needs more aid to reduce poverty, excessive aid may cause inflation and destabilize the economy. Ang (2010) emphasized financial liberalization's role in boosting foreign aid effectiveness in India, showing long-term economic benefits.

Overall, foreign aid positively impacts economic development if the recipient country's governance, policies, and economic conditions align favorably. Proper utilization and governance are crucial to prevent over-reliance on aid.

2.10 Negative aid-growth relationship

This section highlights perspectives that view foreign aid as detrimental to recipient economies, fostering dependency and corruption. Gyimah and Camacho (2006) argue that corruption obstructs financial development, leading to inefficient resource allocation and reduced economic productivity. Paul (2006) emphasizes that effective aid depends on strong institutional management, noting that poor governance and misallocation hinder growth. Brautigam and Knack (2004) suggest that aid incentivizes weak institutions, increasing corruption and undermining economic progress.

Angeles and Neanidis (2009) highlight how recipient elites influence aid effectiveness, while Casper (2006) points out that significant foreign aid to sub-Saharan Africa has not notably improved economic growth, often exacerbated by corruption. Some studies recognize temporary economic benefits from aid, but long-term effects tend to be negative, including the risk of "Dutch disease," where reliance on aid undermines competitiveness (Rajan and Subramanian, 2005; Young, 1992).

Easterly (2004, 2006) provides evidence that foreign aid does not enhance growth even in favorable conditions, finding no significant differences in growth between countries receiving varying aid levels. Kiefer and Knack (2000) find that higher aid levels weaken institutional quality, fostering dependency and rent-seeking behaviors.

Overall, the evidence suggests that reliance on foreign aid undermines the developmental capabilities of countries like Pakistan. A sound policy environment and collaborative efforts among nations are essential for achieving sustainable economic development.

2.11 Neutral aid-growth relationship

The literature on aid and economic growth often features neutral studies. Schwalbenberg (1998) found that unknown guidelines did not support positive financial development. Peter Boon's 1996 study concluded that while foreign aid leads to higher consumption for poor households, it has little impact on investment or economic growth. Masud and Yoncheva (2005) reported that while Official Development Assistance (ODA) positively affected poverty reduction, it did not address issues like income and social inequality.

Rajan and Subramanian (2008) suggested that aid is generally ineffective in promoting economic growth, often influenced by geopolitical factors rather than economic objectives. Headey (2007) found that government aid had no effect on growth during the Cold War, while post-Cold War aid was more impactful. Bubba and Powell (2007) identified strong evidence that foreign aid positively affects growth in recipient countries, though it has a negative impact on political allies.

Dahlgaard, Hansen, and Tarp (2004) found no effect of foreign aid on economic growth after controlling for population. Their 2007 follow-up confirmed no significant relationship. Despite this, some scholars argue that institutional reforms can enhance the aid-growth link. Asiedu and Nandwa (2007) found that the effectiveness of aid varies with education levels and the recipient country's income status, while Ranis (2011) noted that foreign aid might not significantly impact growth but could foster long-term economic development potential.

Overall, the literature suggests that foreign aid has minimal impact on financial growth and development. This raises questions about the aid-growth relationship in Pakistan, which this study aims to address by exploring reasons for the ineffectiveness of foreign aid in the country.

3. Research Methodology

3.1 The Econometric Model and Variables

This study builds on the foundational research of Burnside and Dollar (2000) and Easterly (2004) to develop an econometric model. The dependent variable is economic growth, while foreign aid serves as the independent variable. The study examines the impact of foreign aid on economic growth, controlling for several exogenous variables that influence development, including economic policies, political structure, inflation rate, donor interests, debt burden, and debt-to-GDP ratio. Definitions of these variables are provided in the following section.

3.2 Definitions of Endogenous and Exogenous Variables Used

3.2.1 Endogenous Variable

The dependent variable in this study's econometric model is the real growth rate of Pakistan. Its value is influenced by the functional relationships within the model.

3.2.2 Real Growth Rate

GDP is defined as the total value added by all producers in the economy, divided by the population. It does not account for the depletion of natural resources or the depreciation of manufactured goods.

3.2.3 Exogenous Variables

Exogenous variables are independent of changes in the econometric model; their values are determined by external factors outside the study's causal system. These variables are discussed below:

3.2.4 Foreign Aid

Easterly (2003) defines foreign aid as the per capita inflow measured in real US dollars, primarily received as bilateral aid, official aid, and official development assistance.

3.2.4 Foreign Aid/GDP

This measures per capita foreign aid received relative to GDP (Burnside & Dollar, 2000), assessing the impact of foreign aid on economic growth in terms of per capita GDP.

3.2.5 Human Capital Base

Defined by Agbola (2013) as the population growth of individuals aged 15-64, this indicator suggests that population growth can stimulate economic growth by expanding the tax base and workforce. However, Castrillo (2011) argues that rapid population growth negatively impacts economic growth by straining household resources and government service provision.

3.2.6 Balance of Payments

This reflects the difference between annual imports and exports, with an open trade regime significantly affecting financial growth (Agbola, 2013).

3.2.7 Financial Depth

Easterly (2003) measures financial depth as the ratio of money supply (M2) to GDP per capita, indicating the economy's liquidity through cash and quasi-cash components.

3.2.8 Budget Deficits

A budget deficit occurs when a country's expenditures exceed its revenues, indicating financial health. This term typically refers to government spending but can apply to other sectors, with debt being the cumulative value of deficits over time.

3.3 The Econometric Model

Following is the main form of model the to be employed in the stud;

$$PCGDP_t = \beta_0 + \beta_1 FA_t + \beta_2 HC_t + \beta_3 BOP_t + \beta_4 FD_t + \beta_5 BD_t + \beta_6 T_t + \varepsilon_t \qquad (3.1)$$

Where \(t \) represents the time period, \(\text{PCGDP}_t \) indicates per capita real GDP growth for Pakistan, \(\text{FA}_t \) refers to per capita foreign aid receipts, \(\text{HC}_t \) denotes the human capital base, \(\text{BOP}_t \) is the balance of payments, \(\text{FD}_t \) represents financial depth, \(\text{BD}_t \) indicates budget deficits, \(T_t \) is the trend variable for policy measures, and \(\epsilon_t \) is the error term.

3.4 Data Collection and Analysis

3.4.1 Sources of Data

The study utilized data from 1980 to 2013, sourced from the Economic Survey of Pakistan, International Monetary Fund, Pakistan Bureau of Statistics, and the World Bank.

3.4.2 Problems in Data Collection

Data unavailability was a significant challenge, causing delays in the collection process. Gaps in available data required extensive searches to fill, leading to rigorous efforts to make the study feasible.

3.4.3 Statistical Tools Used in the Analysis

Data from various sources were analyzed using SPSS (Statistical Package for Social Sciences). Regression and correlation tests were conducted, addressing issues of non-stationarity and autocorrelation common in financial and economic time series data. A unit root test was employed to assess data stationarity, and appropriate tests were applied for regression and correlation analysis to determine suitable model specifications.

4. Results and Discussion

4.1 Descriptive Statistics of the Variables

4.1.1 Bilateral Aid

The average bilateral aid from 1980-1984 was $354.84 million, with a standard deviation of 71.04, indicating consistent aid receipts ranging from $262.65 million to $443.53 million. In contrast, from 1985-1989, the average aid rose to $638.82 million, but with a higher standard deviation of 234.34, reflecting less reliability (minimum: $428.87 million, maximum: $1005.59 million).

From 1990-1994, the average aid received was $541.48 million, with a standard deviation of 72.22 (minimum: $496.69 million, maximum: $668.85 million), showing consistent values. However, from 1995-1999, the average dropped to $370.61 million, with a standard deviation of 169.37 (minimum: $100.61 million, maximum: $556.69 million), indicating decreased consistency.

For 2000-2004, the average aid increased to $683.11 million, with a high standard deviation of 293.52 (minimum: $426.40 million, maximum: $1164.47 million). From 2005-2009, the average further rose to $1100.71 million, with a standard deviation of 504.62 (minimum: $837.10 million, maximum: $1429.45 million). In the early 2010s (2010-2013), the average soared to $2277.70 million, with a standard deviation of 549.89, and a range from $1784.95 million to $2892.34 million.

Table 1: Bilateral Aid to Pakistan, 1980 to 2013 (US$ Million)

Statistics	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	2010-2013
Mean	354.84	638.82	541.48	370.61	683.11	1100.71	2277.70
Standard Deviation	71.04	234.34	72.22	169.37	293.52	226.94	549.89
Maximum	443.53	1005.59	668.85	556.69	1164.47	1429.45	2892.34
Minimum	262.65	428.87	496.69	100.61	426.40	837.10	1784.95

4.1.2 Official Development Assistance and Official Aid

During 1980-1984, the average Official Development Assistance (ODA) and Other Aid (OA) received was $873.75 million, with a standard deviation of $188.37 (minimum: $726.05 million, maximum: $1180.88 million). In the latter half of the 1980s (1985-1989), the average increased to $1052.06 million, but with a higher standard deviation of 306.36 (minimum: $767.49 million, maximum: $1410.71 million), indicating less consistency.

From 1990-1994, the average aid received rose to $1247.47 million, with a standard deviation of 253.94 (minimum: $1023.03 million, maximum: $1606.23 million). In contrast, from 1995-1999, the average dropped to $911.81 million, with a lower standard deviation of 136.55 (minimum: $741.29 million, maximum: $1057.90 million).

For 2000-2004, the average aid was $1452.57 million, with a standard deviation of 586.08 (minimum: $702.69 million, maximum: $2105.44 million). In 2005-2009, the average increased to $2076.68 million, with a standard deviation of 504.62 (minimum: $1549.71 million, maximum: $2769.06 million), reflecting greater variability.

Finally, during 2010-2013, the average aid was $2678.44 million, with a standard deviation of 704.39 (minimum: $2019.06 million, maximum: $3507.54 million), showing significant inconsistency in aid receipts.

Table 2: Official Development assistance and Official Aid to Pakistan, 1980 to 2013 (US$ Million)
Per Capita Gross Domestic Product

Statistics	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	2010-2013
Mean	873.75	1052.06	1247.47	911.81	1452.57	2076.68	2678.44
Standard Deviation	188.37	306.36	253.94	136.55	586.08	504.62	704.39
Maximum	1180.88	1410.71	1606.23	1057.90	2105.44	2769.06	3507.54
Minimum	726.05	767.49	1023.03	741.29	702.69	1549.71	2019.06

The average gross domestic product (GDP) per capita from 1980-1984 was $340.4 million, with a standard deviation of 24.2 (maximum: $368.3 million, minimum: $303.4 million). From 1985-1989, the average per capita GDP increased slightly to $355.2 million, with a standard deviation of 24.4 (maximum: $384.3 million, minimum: $335.0 million), indicating stagnation in economic growth during the 1980s.
In the early 1990s (1990-1994), the average per capita GDP rose to $441.8 million (standard deviation: 27.8; maximum: $441.6 million, minimum: $371.8 million), but significant growth was still lacking. The period from 1995-1999 saw an average per capita GDP of $492.1 million (standard deviation: 15.8; range: $465.9 to $503.7 million), indicating continued stagnation.
The average per capita GDP during 2000-2004 was $588.9 million (standard deviation: 60.5; range: $501.2 to $652.0 million), showing slight momentum. The subsequent period of 2005-2009 recorded an average of $985.3 million (standard deviation: 130.9; range: $714.0 to $1042.8 million), reflecting increased economic growth compared to previous decades.
From 2010-2013, the average per capita GDP was $1204.0 million (standard deviation: 108.8; range: $1043.3 to $1243.3 million), indicating a modest improvement in economic development.

Table 3: Per Capita GDP of Pakistan, 1980 to 2013 (US$ Million)

4.1.3 Budget Deficits

Statistics	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	2010-2013
Mean	340.4	355.2	441.8	492.1	588.9	985.3	1204.0
Standard Deviation	24.2	24.4	27.8	15.8	60.5	130.9	108.8
Maximum	368.3	384.3	441.6	503.7	652.0	1042.8	1275.4
Minimum	303.4	335.0	371.8	465.9	501.2	714.0	1043.3

The average budget deficit for Pakistan from 1980-1984 was $8,079.0 million, with a standard deviation of $4,190.1, and values ranging from a minimum of $2,982.0 million to a maximum of $12,810.0 million. In 1985-1989, the average budget deficit rose significantly to $32,575.4 million (standard deviation: $11,472.4; range: $17,262.0 to $48,093.0 million).
During 1990-1994, the average budget deficit increased further to $70,026.8 million (standard deviation: $25,066.6; range: $17,262.0 to $89,653.0 million), reflecting a substantial debt burden. In 1995-1999, the average deficit reached $145,214.4 million (standard deviation: $24,327.5; range: $104,095.0 to $163,505.0 million), indicating little change in the debt burden.

From 2000-2004, the mean budget deficit was $163,467.8 million (standard deviation: $59,377.0; range: $85,792.0 to $218,327.0 million), marking a peak in the debt burden. However, the years 2005-2009 saw a significant decrease, with an average deficit of $45,759.7 million (standard deviation: $101,175.1; range: $322.4 to $226,747.0 million).
In 2010-2013, the average budget deficit dropped to $186.4 million (standard deviation: $370.2; range: $1.2 to $741.8 million), indicating a substantial reduction in Pakistan's debt burden during this period. Table 4.4 presents the descriptive statistics of Pakistan's budget deficits from 1980 to 2013.

Table 4: Budget Deficits of Pakistan, 1980 to 2013 (US$ Million)

Statistics	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	2010-2013
Mean	8079.0	32575.4	70026.8	145214.4	163467.8	45759.7	186.4
Standard Deviation	4190.1	11472.4	25066.6	24327.5	59377.0	101175.1	370.2
Maximum	2982.0	17262.0	28254.0	104095.0	85792.0	322.4	1.2
Minimum	12810.0	48093.0	89653.0	163505.0	218327.0	226747.0	741.8

4.1.4 Balance of Payments

The average balance of payments (BOP) for Pakistan from 1980-1984 was $3,381.8 million, with a standard deviation of $446.5, and values ranging from $2,945.1 million to $4,069.2 million, indicating significant deviation. In 1985-1989, the average BOP decreased to $3,167.4 million (standard deviation: $346.4; range: $2,642.9 million to $3,581.0 million).
From 1990-1994, the average BOP rose to $3,404.3 million (standard deviation: $390.2; range: $3,015.3 million to $3,927.4 million), showing further improvement. In 1995-1999, the average increased significantly to $3,592.9 million (standard deviation: $993.7; range: $2,620.0 million to $5,099.0 million).
During 2000-2004, the average BOP was $2,066.6 million, with a standard deviation of $2,295.2 and a range of $408.0 million to $5,980 million, indicating a notable rise. In 2005-2009, the average soared to $15,132.7 million (standard deviation: $4,585.7; range: $10,170.2 million to $22,456.5 million), reflecting that imports far exceeded exports.
For 2010-2013, the average BOP was $16,717.7 million (standard deviation: $3,742.4; range: $11,960.0 million to $20,220.0 million), consistent with earlier trends. Descriptive statistics are summarized in Table 4.5.

Table 5: Balance of Payment of Pakistan, 1980-2013 (US$ Million)

Statistics	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	2010-2013
Mean	3381.8	3167.4	3404.3	3592.9	2066.6	15132.7	16717.7
Standard Deviation	446.5	346.4	390.2	993.7	2295.2	4585.7	3742.4
Maximum	4069.2	3581.0	3927.4	5099.0	5980.0	22456.5	20220.0
Minimum	2945.1	2642.9	3015.3	2620.0	408.0	10170.2	11960.0

4.1.5 Financial Depth

The average financial depth in Pakistan from 1980-1984 was $41.0, with a standard deviation of $1.9 and a range of $39.0 to $43.9, indicating significant financial depth. In 1985-1989, the average increased slightly to $41.9

(standard deviation: $2.4; range: $39.0 to $45.3).
From 1990-1994, the average financial depth was $42.5, with a standard deviation of $3.3 and a range of $39.1 to $45.8, showing stability. The average for 1995-1999 remained at $43.2 (standard deviation: $4.3; range: $38.6 to $48.4), indicating similar trends.
For 2000-2004, the average financial depth was again $43.2 (standard deviation: $4.3; range: $38.6 to $48.4), reflecting stagnation. In 2005-2009, the average rose to $46.9 (standard deviation: $3.5; range: $41.8 to $50.5), indicating a slight increase.
From 2010-2013, the average financial depth decreased to $40.1 (standard deviation: $1.5; range: $38.0 to $41.3), showing a slight decline. Descriptive statistics for financial depth are provided.

Statistics	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	2010-2013
Mean	41	41.9	42.5	43.2	43.2	46.9	40.1
Standard Deviation	1.9	2.4	3.3	4.3	4.3	3.5	1.5
Maximum	43.9	45.3	45.8	48.4	48.4	50.5	41.3
Minimum	39	39	39.1	38.6	38.6	41.8	38

4.1.6 Primary School Enrollment

Between 1980 and 1984, the average primary school enrollment was 5.8 million (SD: 0.5 million), with a range of 5.2 to 6.4 million, indicating significant deviation from the mean. In 1985-1989, enrollment rose to an average of 7.6 million (SD: 0.6 million), ranging from 6.8 to 8.3 million, showing increased deviation. From 1990 to 1994, the average enrollment further increased to 8.8 million (SD: 0.6 million), with values ranging from 8.6 to 9.1 million. The 1995-1999 period saw an average of 13.2 million (SD: 0.5 million), with a range of 12.9 to 13.5 million, indicating uniform enrollment rates.
In 2000-2004, the average was 14.8 million (SD: 0.09), with values from 14.0 to 16.2 million. For 2005-2009, the mean enrollment rose to 17.7 million (SD: 0.7 million), ranging from 16.7 to 18.5 million, reflecting minimal growth. Finally, between 2010 and 2013, the average enrollment was 18.3 million (SD: 0.3), with a range of 18.1 to 18.8 million, suggesting a lack of investment in the education sector during this period.

Table 7: Primary School Enrollment in Pakistan, 1980-2013 (Million)

Statistics	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	2010-2013
Mean	5.8	7.6	8.8	13.2	14.8	17.7	18.3
Standard Deviation	0.5	0.6	0.3	0.5	0.9	0.7	0.3
Maximum	6.4	8.3	9.1	13.5	16.2	18.5	18.8
Minimum	5.2	6.8	8.6	12.9	14	16.7	18.1

4.1.7 Labor Force

From 1980 to 1984, the average labor force employed in Pakistan (ages 15 and above) was 50.2 million (SD: 0.9), with a range of 49.3 to 51.2 million. In contrast, 1985 to 1989 saw a decline to an average of 45.8 million (SD: 7.6), ranging from 32.2 to 49.5 million, indicating insufficient employment during this period.
For 1990 to 1994, the average employment was 49.4 million (SD: 0.3), with values from 49.1 to 49.7 million, reflecting stagnancy. The average for 1995 to 1999 was slightly higher at 49.6 million (SD: 0.7), ranging from 48.4 to 50.1 million.
In 2000-2004, the average increased to 50.5 million (SD: 0.1), with a range of 50.4 to 50.7 million. The mean for 2005 to 2009 rose to 52.5 million (SD: 0.6), with a range of 51.5 to 53.1 million. Finally, between 2010 and 2013,

the average was 53.3 million (SD: 0.2), ranging from 53.1 to 53.5 million, indicating no significant increase in labor force employment.

Table 8: Labor Force (ages 15+) of Pakistan, 1980-2013 (Million)

Statistics	**1980-1984**	**1985-1989**	**1990-1994**	**1995-1999**	**2000-2004**	**2005-2009**	**2010-2013**
Mean	50.2	45.8	49.4	49.6	50.5	52.5	53.3
Standard Deviation	0.9	7.6	0.3	0.7	0.1	0.6	0.2
Maximum	51.2	49.5	49.7	50.1	50.7	53.1	53.5
Minimum	49.3	32.2	49.1	48.4	50.4	51.5	53.1

4.2 Correlation Analysis

Correlation measures the extent and strength of the relationship between two variables, ranging from 0 to 1, where higher values indicate a stronger relationship. Tables 4.9 and 4.10 present correlation coefficients for variables in the regression analysis. Table 4.11 shows primary enrollment as a measure of human capital, while Table 4.12 represents the labor force as a measure of human capital. A strong positive correlation (0.884) exists between real per capita foreign aid and real per capita GDP. Conversely, there is a strong negative correlation between human capital and real per capita GDP, which weakens when labor force is considered, although the relationship direction remains unchanged.

While correlation indicates the direction and strength of a relationship, it does not establish causation or the effect of one variable on another. For instance, it is unclear whether an increase in per capita GDP leads to higher per capita foreign aid or vice versa. Additionally, correlation does not account for the influence of other variables, such as the positive impact of a balanced payment on real per capita GDP growth, which may affect the observed associations. Therefore, regression analysis is necessary to provide further insights, as presented in the following tables.

Table 9: Partial correlation between the variables used in regression analysis considering primary enrollment as human capital

	Log of Real Per Capita GDP	Log of Real Per Capita Foreign Aid	Log of Human capital (Primary Enrollment)	Balance of Payment	Financial Depth	Budget Deficit
Log of Real Per Capita GDP	1					
Log of Real Per Capita Foreign Aid	0.8843	1				
Log of Human capital (Primary Enrollment)	-0.9657	-0.8654	1			
Balance of Payment	-0.5528	-0.5201	0.7017	1		
Financial Depth	-0.2284	-0.3712	0.297	0.0918	1	
Budget deficit	0.2971	0.3228	-0.1434	0.4668	-0.2735	1

Table 10: Partial correlation between the variables used in regression analysis considering labor force as human capital

	Log of Real Per Capita	Log of Real Per Capita	Log of Human capital (Labor	Balance of Payment	Financial Depth	Budget deficit

	GDP	Foreign Aid	Force)			
Log of Real Per Capita GDP	1					
Log of Real Per Capita Foreign Aid	0.8843	1				
Log of Human capital (Labor Force)	-0.4187	-0.4415	1			
Balance of Payment	-0.5528	-0.5201	0.4476	1		
Financial Depth	-0.2284	-0.3712	0.175	0.0918	1	
Budget deficit	0.2971	0.3228	0.1034	0.4668	-0.2735	1

4.3 Regression Analysis

Equation 3.1's results, detailed in Tables 4.9 and 4.10, reveal the only variation lies in the measure of human capital. Using data from 1980 to 2013, the F-statistics in both tables are highly significant, rejecting the hypothesis that all exogenous variables, except the intercept, do not collectively influence real per capita GDP growth. The R-squared values are also notably high, indicating that about 99% of the variance in slope variance is explained by the independent variables.

When primary investment serves as the measure of human capital, foreign aid positively and significantly impacts real GDP per capita, with a 10% increase in real foreign aid correlating to a 0.6% rise in national income, assuming other variables remain constant. This effect diminishes when the labor force is used as a proxy for human capital. Control variables like the balance of payments and trend account for government policies affecting per capita GDP.

The trend variable is included to manage the co-movements of economic variables, where a linear trend indicates a unit change per year and an exponential trend shows percentage growth in the dependent variable. Incorporating a trend in OLS regression models with time series data is crucial, as omitting it could lead to spurious regression. The time trend allows for a clearer understanding of the relationship between the dependent and independent variables, netting out time's influence.

Stationarity analysis confirms all variables are stationary. This study contributes to the discussion on foreign aid's effects on economic growth, illustrating that the relationship can be statistically significant or insignificant based on the measurement of other variables, specifically human capital. Tables 4.11 and 4.12 follow in their respective order.

Table 11: Estimating the effect of foreign aid on per capita GDP growth considering primary enrollment as a measure of human capital

Variable	Coefficient	Standard Error	t-statistics	Probability
Log of Real Per Capita Foreign Aid	0.0660	0.0347	1.9000	0.0680
Log of Human capital (Primary Enrollment)	0.0000	0.0000	-0.3200	0.7540
Balance of Payment	0.0000	0.0000	4.8000	0.0000
Financial Depth	0.0087	0.0033	2.6000	0.0150
Budget deficit	0.0000	0.0000	1.5000	0.1450
Trend	-0.0531	0.0086	-6.1400	0.0000
Constant	2.8086	0.2337	12.0200	0.0000
Summary Statistics				
F-Statistics	493.36 (0.000)			
R-Squared	0.991			
Adjusted R-Squared	0.989			
Number of Observations	34			

Table 12: Estimating the effect of foreign aid on per capita GDP growth considering labor force as a measure of human capital

	Coefficient	Standard Error	t-statistics	Probability
Log of Real Per Capita Foreign Aid	0.056	0.034	1.640	0.113
Log of Human capital (Labor Force)	-0.004	0.003	-1.410	0.170

Balance of Payment	0.000	0.000	5.050	0.000
Financial Depth	0.009	0.003	2.900	0.007
Budget deficit	0.000	0.000	1.750	0.092
Trend	-0.056	0.002	-22.540	0.000
Constant	3.049	0.284	10.740	0.000
Summary Statistics				
F-Statistics	528.06 (0.000)			
R-Squared	0.9916			
Adjusted R-Squared	0.9897			
Number of Observations	34			

5. Conclusion

This study examines the role of foreign aid in the growth of Pakistan's economy, highlighting the limitations imposed by urban sprawl, overcrowding, and inadequate provision of basic needs like water and food. Castrillo (2011) argues that population growth negatively impacts financial development by reducing household savings and hindering government capacity to meet basic needs.

The research begins by assessing how effectively Pakistan utilizes its resources before investigating the relationship between economic performance and foreign aid influx. The findings indicate both positive and negative effects of foreign aid on economic growth. Foreign aid has helped repair economic infrastructure, strengthen the industrial and agricultural sectors, and provide technical assistance and modern technology, which are essential for overcoming economic challenges and partially financing expansion programs.

Regression analysis shows a beneficial impact of foreign aid on Pakistan's GDP; however, GDP growth decreases as foreign aid inflows increase. Despite substantial foreign aid, sectors like education, health, and employment have stagnated, adversely affecting overall economic growth.

The increase in debt appears correlated with the aid received, suggesting a shift in household savings behavior. Various debt indicators reveal a growing debt burden on Pakistan, leading to severe financial crises. The regression and correlation analyses produced mixed results, emphasizing the need for further investigation with additional variables. Ultimately, this study suggests that foreign aid's impact on economic growth is influenced by multiple factors, warranting more extensive research.

5.1 Policy Implications

The results obtained from this study suggested that the more the foreign aid is received the more dependent Pakistan becomes on external sources. It has an immense work force available only waiting to be exploited. There should be such kind of economic and financial policies that support the efficient and effective exploitation of the country's own resources so that productivity can be increased. But it is also important that such policies be implemented with proper follow up and should not be just limited to the black and white of the records. There should be measures for the control of mass spread corruption as well as political transparency.

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