

## Causality Test between Foreign Aid and Economic Growth: The Case of Afghanistan



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**ABSTRACT:** This study examines all available data to determine if ODA has a long-term beneficial impact on GDP, identify the significant issues with ODA expenditure and aid dependency in Afghanistan, and improve economic growth prospects in Afghanistan. Database for the period 2002-2021 is considered for this study. The study uses time series analysis using the EViews 12 software. These tests were conducted using ADF and Phillips-Perron (PP), the Johansen cointegration test, and the Granger causality test. Johansen's cointegration test revealed the presence of two cointegration relationships between GDP and ODA variables. This suggests that GDP and ODA move together in the long run, indicating a mutual relationship or interdependence between the two variables. Moreover, Granger causality test results suggest that neither ODA nor GDP Granger causes the other.

**KEYWORDS:** Foreign Aid, Foreign assistance, Economic Growth, Afghanistan

### 1. INTRODUCTION

For the last two decades, Afghanistan's economy has been maintained by public sector employment, development initiatives, and state procurement of products and services (all primarily funded by aid). In 2020 (the Islamic Republic of Afghanistan's final full-year budget), The projected budget was AFN 428.4 billion (USD 5.53 billion), most of which (USD 3.73 billion) was for development initiatives (People's TREASURE, 2020). Interim Taliban Administration (ITA) to Afghanistan on August 2021, Taliban government announced their first budget of the country was 231 billion AFN (US\$2.6 billion) at the beginning of the year 2022, "The entire budget, including expenditures on education, health, development, defence and other sectors, will be funded from national revenue sources without foreign contributions (Afghanistan, 2023) Foreign assistance, the foreign transfer of capital, products, or services from a country or international organization for the benefit of the receiving country or its population. Assistance may be economic, military, or humanitarian in nature (Veiderpass et al., 2007). The ODA (Official development assistance) is the most prevalent sort of foreign aid which is described as "government help that encourages and explicitly targets the economic growth and welfare of poor nations. ODA is supplied to combat poverty and promote development; these assistances take many forms, such as grants, and are delivered through international non-profit organizations such as the IMF, UNICEF, and others. The reasons that developed countries provide that assistance to developing or least developed countries are as follows: to protect their land from outside terrorist activities or to maintain peace in their countries, to maintain good diplomatic relationships with those countries, to have allies in the region for having their support in time of need, to form army bases in those countries and sell their exports, to spread their language, religion, and culture, and to further develop their economies (ÇEVİK Abdul Hasib AMANAT, 2020). Activities financed by foreign aid from foreign governments and international organizations are now widespread and well-known in many of the world's poorest countries. Billion-dollar rehabilitation projects in war-torn nations like Iraq and Afghanistan, as well as microenterprise loans of \$50 or less to destitute women in Bangladesh and El Salvador, are among them. These include worldwide research to identify more productive crops and less polluting energy sources, PhD economics scholarships at world-class universities, and elementary education expansion in rural Uganda. The assistance helps to fund the Ministry of Education's budget in Ghana and promotes girls' education in Peru. Children in Guatemala, Indonesia, and Ethiopia, among other places, are immunized using aid-funded vaccinations. Couples in Latin America, Asia, and Africa use aid-subsidized family planning services. Assistance funds HIV/AIDS research and prevention, as well as the delivery of life-saving antiretrovirals. It supports Malawian economic reforms, Mozambican debt alleviation, and Russian company development. Foreign assistance is used to promote political party and media training, elections, judicial reform, and civil society growth in several African, Asian, and Latin American nations, as well as humanitarian relief for natural and artificial disasters worldwide (Foreign Aid: Diplomacy, Development,

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Domestic Politics, 2007). Since 2002, Congress has authorized over \$144.98 billion for Afghanistan rebuilding and associated operations, almost \$120.32 billion of which has been allocated to the eight central active reconstruction funds. Around \$6.68 billion of the sum allotted to the eight major active rebuilding programs remained available for pay-out as of middle year 2021, the eight most active US funds contributing to these initiatives. SIGAR formerly reported on the top nine active funds. However, one of them, the Public Law 480 Title II account, is no longer utilized to deliver food aid to Afghanistan and has thus been deleted from this area of SIGAR's reporting. The eight most active US funds contributing are listed below. The amount provided to the eight most prominent is: first, ASFF: Afghanistan Security Forces Fund; second, CERP: Commanders' Emergency Response Program; third, DICDA: Drug Interdiction and Counter-Drug Activities; fourth, ESF: Economic Support Fund; fifth, IDA: International Disaster Assistance, sixth, INCLE: International Narcotics Control and Law Enforcement, seventh, MRA: Migration and Refugee Assistance and eight, NADR: Non-Proliferation, Antiterrorism, Demining, and Related Programs ('2021-07-30qr-Section2-Funding American Fundings', 2021).

**Table 1: war and reconstruction costs in Afghanistan, FY 2002 to FY 2021 Q2 in \$ billions**

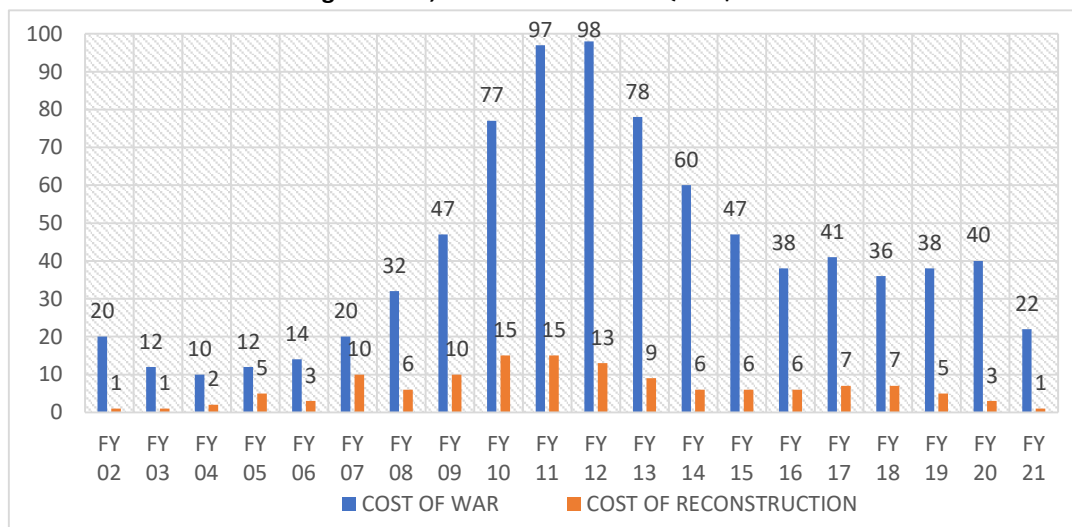


Table 1 shows war and reconstruction costs in Afghanistan, annual and cumulative obligations from FY 2002 to FY 2021 Q2 in \$ billions, the Cumulative obligations through March 31, 2021 cost of War Department of defence 837.3 billion dollars and the cost of reconstruction of Department of Defence 83.3 billion dollars, USAID 25.2 billion dollars, Department of State 22.8 billion dollar and other Agencies 1.6 billion dollars ('2021-07-30qr-Section2-Funding American Fundings', 2021). The banking system in Afghanistan is still in crisis. Due to the suspension of foreign assets and its inability to print fresh Afghani (AFN) notes, the central bank, Da Afghanistan Bank (DAB), can no longer control payment networks and implement monetary policy. International sanctions and the ensuing shortage of US dollars (USD) and AFN currency notes have led to a crisis of trust in the banking industry. For the first quarter (Q1) of 2022, all banks but one reported significant losses, mainly as a result of the failure to collect interest revenue and foreign currency losses. Sanctions on the ITA government and international aid freeze brought economic crisis and poverty. The United States stated on September 14, 2022, that the Afghanistan Fund will be created with USD 3.5 billion in frozen assets.

An impartial board will manage this fund, which will be kept at the Bank for International Settlements. Modalities are still a mystery, however. In order to allay fears about sanctions and aid distribution, the US government has also provided permits. However, due to AML/CFT worries, foreign banks hesitate to resume correspondent relationships with Afghan banks. Official payments for essential imports like energy, food, and medication remain difficult for all parties—including the Interim Taliban Administration (ITA), humanitarian organizations, and the commercial sector (World Bank, 2022). The Afghan government has depended on aid from several nations for many years; a 2019 World Bank study states that donations from foreign partners financed 75% of the government's public spending. Following the Taliban takeover, several of these nations cut off help, raising fears of further economic unrest. Nonetheless, aid increased in 2022, with donors contributing over \$2.6 billion. The United States has donated more than \$1.1 billion in help since the coup. However, according to UN authorities, the pledges fell short of the nation's humanitarian requirements (World Bank, April 2022). According to World Bank data from 2002 to 2021, Afghanistan received an enormous amount of ODA, more than 100 billion. Despite this, Afghanistan remains one of the world's most impoverished nations despite having access to a wealth of natural resources in the area. As was mentioned above, Afghanistan has received an enormous amount of ODA since 2002. This study examines all available data to determine if ODA has a long-term beneficial impact on GDP and to identify the significant issues with ODA expenditure and aid dependency in Afghanistan. Using

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data spanning two decades, from 2002 to 2021, we econometrically examine the first question. The answer to the second issue is examined in light of the empirical findings of this study and the pertinent literature. The rest of the essay is divided into the following sections. A review of the literature is included in the next section. The data and procedure for the empirical analysis are explained in section three. The outcome of an econometric study is then presented. The last portion brings everything to a close.

### 2. LITERATURE REVIEW

The link between foreign aid and economic growth has gotten much attention for years, but the empirical results are equivocal. There is currently a considerable body of literature on the link between aid and growth. E. M. Ekanayake and Dasha Chatrna's (2010) research investigate the impact of foreign aid on developing countries' economic growth. The analysis focuses on 1980-2007 and 83 aid-receiving developing nations. To better understand the influence of aid on growth and any changes in its effect over time, three distinct models for shorter periods, namely 1980-1989, 1990-1999, and 2000-2007, were calculated. The model was then calculated for several areas, including Asia, Africa, Latin America, and the Caribbean. Lastly, the model was estimated for various income levels, including low income, low middle income, upper middle income, and all income levels. The foreign aid variable has a positive sign in African countries, while the variable is negative for low-middle-income countries, indicating that foreign aid hurts economic growth. The main finding of this study was that foreign aid had a mixed influence on developing country's economic progress (Ekanayake & Chatrna, 2010). According to Yiew Thian Hee and Evan Lau (2018), the influence of foreign aid on economic growth is studied. Interestingly, the link between foreign aid and economic development revealed a U-shape using data from 95 developing nations from 2005 to 2013. Furthermore, we discovered a favourable association between population foreign direct investment and economic growth. Importantly, the findings support the assumption that FDI and POP are more important predictors of GDP, meaning that GDP is less likely to depend on ODA. This effectively contradicts the premise that recipient nations are dependent on donors. This is not to say that aid does not support growth; rather, it was not the most significant factor of growth for this group of nations (Yiew & Lau, 2018). Aye, Mengistu Alemu and Jin-Sang Lee's (2015) research elaborates that foreign aid's influence is highly tied to the receiving countries' socioeconomic climate and political condition. Their research aimed to use many factors connected to economic production. It used statistics from key African countries, categorizing them as low-income or middle-income based on per capita income. The findings found that FDI and money derived from the sale of natural resources (mostly oil exports) had a stronger influence on middle-income nations' economic growth, but foreign aid had a bigger impact on low-income countries. Consequently, the analysis demonstrates that, at least in the case of low-income African countries, criticism of foreign aid is misguided. Foreign aid, in reality, has played a crucial role in boosting economic growth by augmenting indigenous sources of finance such as savings, hence increasing the quantity of investment and capital stock in low-income African nations (Alemu & Lee, 2015). A study by Nihar Ranjan Jena and Narayan Sethi (2020) tried to empirically investigate the impact of foreign aid in increasing economic growth prospects in Sub-Saharan Africa (SSA) countries over the period 1993–2017. Many cointegration tests, including the Pedroni Panel cointegration test, Kao's residual cointegration test, and Johansen-Fisher cointegration tests, were utilized to confirm the presence of long-run correlations among the variables under discussion. Foreign assistance transfers to the SSA area have helped improve the region's economic situation. As a result, governments in the region should adopt appropriate policy measures to reduce bottlenecks so that assistance flows may be handled more prudently, resulting in optimal utilization of available resources (Jena & Sethi, 2020). An article written by Seng Sothan (2018) attempts to examine the growth impact of foreign aid in Cambodia from 1980–2014. The result from Sothan shows that foreign aid has only been shown to have a positive and meaningful influence on economic growth in the short run. This demonstrates that foreign aid's benefit to economic growth is temporary or lasts for a short time. Unfortunately, the long-run coefficient of foreign assistance is negative; hence, insufficient data suggests that foreign aid may help Cambodia achieve long-run growth (Sothan, 2018). Folega Zounogo Abdou-Razak, Zhang Lian Cheng and Abdou M. T. Watara (2019) conducted empirical research on the effect of official development assistance (ODA) and foreign aid on Togo's economy. After using the unrestricted vector auto-regression model, they found a negative and insignificant relationship between ODA and GDP in Togo. The Granger causality test revealed no causal relationship between ODA and GDP. However, the causality test has shown evidence of unidirectional causality between trade openness and GDP. They found strong evidence favouring the thesis that official development assistance does not work for Togo's case. Togo's dependence on foreign aid might hurt the country's growth. As a recommendation, policymakers should implement policies that will help the country move away from aid dependence and promote trade to sustain growth and enhance industrialization (Razak et al., 2019). Dang Ngoc Duc (2019) evaluated ODA and Provincial Economic Growth in Vietnam, and the empirical results show that any efforts to attract more ODA from the localities impact economic growth. In contrast, localities' economic growth will help consolidate ODA donors' confidence. In the coming time, Vietnam should continue to improve the institutional environment, transparency and increased accountability for the receipt and use of ODA by the government and local government. The government should carefully select ODA projects to enhance the

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spillover effect of ODA projects with socioeconomic development. The effective use of ODA will promote local economic growth, which will help improve the position and potential of localities for donors. ODA is not the main source of local budgets, but it will be effective when there are institutional reforms and financial management of local governments (Duc & Ngoc Lan, 2019).

**Table 2: Summary of Literature Review**

Author	Period	Country	Variables	Method	Results
Ekanayake and Dasha Chatrna (2010)	1980-2007	83 aid-receiving developing countries	ODA&GDP	Panel least squares estimation Method.	Foreign aid variable has a positive sign in African countries and a negative effect on low-middle-income countries
Yiew and Lau (2018)	2005-2013	95 Developing countries	GDP, GDP and POP	Pooled OLS, Random Effects, Fixed Effects, and Fixed Effects Robust Models Regression	In the short term, ODA negatively affects the GDP; however, in the long term, it is positively affecting the GDP
Aye Mengistu Alemu and Jin-Sang Lee (2015)	1995-2010	20 middle-income and 19 low-income African countries	ODA, GDP, FDI, Inflation index.... etc	Dynamic Generalized Method of Moments (GMM) Model	foreign aid had a more significant impact on low-income countries
Nihar Ranjan Jena and Narayan Sethi (2020)	1993-2017	45 Sub-Saharan Africa (SSA) countries	ODA, GDP, investment, financial deepening, price stability and trade openness	Pedroni and Kao's cointegration test, Johansen-Fisher Panel cointegration test, FMOLS and PDOLS	Foreign assistance transfers to the SSA area have helped improve the economic lot of the region
Seng Sothan (2018)	1980-2014	Cambodia	GDP, ODA, Investment and Trade Openness	Autoregressive distributive lag (ARDL) bounds Testing approach	Positive effect in the short run but a negative effect in the long run
Folega Zounogo Abdou-Razak, Zhang Lian Cheng and Abdou (2019)	1970-2018	Togo	ODA and GDP	vector autoregression (VAR) model	The results reveal that foreign aid has hurt the economy in Togo. The Granger causality test reveals no causal relationship between official development assistance and economic growth in Togo.
Dang Ngoc Duc ((2019)	2005).-2015	Vietnam	ODA and GDP	Granger Causality test	ODA has a causal effect on economic growth (GDP) and vice versa; economic growth decides to attract ODA in provinces in Vietnam

### 3. RESEARCH METHOD

This research is conducted using a quantitative descriptive method. This research uses the quantitative descriptive method to test the city's causa between foreign aid and the economic mic growth period 2002-2021. The research data used is yearly time series data for 2002-2021. This study uses secondary data. The data regarding this research is taken from different sources; the GDP data is taken from the Country's Economy (2021) and World Development Indicators of the World Bank (2021). The ODA data are also taken from the World Bank (2021). The dataset consists of 21 yearly observations from 2001 to 2021. This research determines the population in this research as foreign aid and GDP of Afghanistan period 2002-2021. The sample used in this research is the foreign aid and GDP dataset consisting of 20 yearly observations to 2021 from 2002. The sampling technique in this study is total sampling. Total sampling is a sampling technique if the entire population is used as a sample. The sample used is 20 years of foreign

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aid to Afghanistan from 2002 to 2021 and has complete data according to research needs. This study examines foreign aid and GDP for Afghanistan between 2002 and 2021 by time series analysis. For this purpose, the logarithms of the series were first taken in the EViews 12 package program, and the following tests were performed. Firstly, the logarithms of the series will be taken from the EViews 12 package program. ADF and Phillips-Perron (PP) unit root tests will be carried out to stabilize the series used. Then, if it is found that the variables meet the same degree of stasis condition, the next step is to examine the long-term relationship between the variables. Johansen's cointegration test will be conducted to test whether these two variables act together in the long run. In addition, the Granger causality test based on the error correction model will be performed to investigate the causality relationship between these two variables. To determine the stationarity of time series data or to stabilize the series used. When time series is used in econometric analysis, the series must first be stationary. When working with non-stationary series, although there is no real relationship between the series, it can be met with the result that there is a real relationship. Therefore, when non-stationary series are used in the analysis, this may lead to spurious regression (Dettling, 2020). In the study, fixed and trend ADF and PP unit root tests will be performed since both variables have an increasing trend after a specific time. Next, Lag length selection involves testing a range of lag lengths and selecting the lag length that produces the best model performance, as measured by a chosen criterion such as the Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), or mean squared error (MSE) (TIME SERIES ANALYSIS, 2016). to test whether these two variables act together in the long run. Next, Cointegration refers to the situation where two or more non-stationary variables are combined in such a way that they become stationary. In other words, Cointegration occurs when there is a stable, long-run relationship among non-stationary variables, which means it can help determine how many variables are connected by a common trend (Thome et al., 2014). based on the error correction model will be performed to investigate the causality relationship between these two variables. Lastly, The Granger causality test is a statistical hypothesis test used to determine whether a one-time series helps forecast another time series. The Granger causality test examines whether the past values of one variable can help predict the future values of another variable, considering the past values of both variables.

### 4. RESULTS AND DISCUSSION

**Table 3: Augmented Dickey-Fuller test and PP Unit Root Test of GDP and ODA**

Variables			ADF P-value	PP P-value
GDP	In Level	Trend and Intercept	0.9980	0.9973
	First Difference	Trend and Intercept	0.2250	0.2518
	2nd DifferenceDifference	Trend and Intercept	0.0060	0.0055
ODA	In Level	Trend and Intercept	0.1591	0.7573
	First Difference	Trend and Intercept	0.7943	0.0197
	2nd DifferenceDifference	Trend and Intercept	0.0000	0.0000

As a result of the ADF and PP unit root tests performed in Table 3, it is seen from the p-values that the GDP and ODA variables are not stable in the level values and first difference. If the p-value is more significant than 5%, the null hypothesis cannot be rejected, meaning the series is not stationary. On the other hand, if the p-value is less than 5%, the null hypothesis is rejected, and the H1 hypothesis is accepted; the series is stationary (Herranz, 2017). Looking at Table 3, the P values of GDP and ODA variables are more significant than 5% in level values, and the first difference is that the variables are not stable at the level. After taking the 2nd DifferenceDifference of these changes, the probability value p-value was less than 5%; both variables became stationary at the 2nd DifferenceDifference. For this reason, after the lag length is determined, a cointegration test is performed to examine whether these two variables act together in the long run. According to the test performed to determine the lag length in Table 3, it is seen that the appropriate lag length is one because the asterisks \*, \*\*, and \*\*\* in the table show 1%, 5% and 10% significance levels, respectively.



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Table 4: Selection of Lag length

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-451.0415	NA	1.35e+22	56.63019	56.72677	56.63514
1	-427.7722	37.81262*	1.22e+21*	54.22153*	54.51125*	54.23637*
2	-424.2508	4.842009	1.34e+21	54.28135	54.76422	54.30607
3	-422.0703	2.452998	1.83e+21	54.50879	55.18481	54.54341
4	-417.5096	3.990608	2.02e+21	54.43871	55.30787	54.48321

A cointegration test can be performed in time series analysis after determining that the series has reached the first-order stationary and that the number of lags has been determined.

Table 5: Johansen Cointegration Test Results

### Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.663252	26.69316	18.39771	0.0028
At most 1 *	0.326005	7.101583	3.841465	0.0077

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

### Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.663252	19.59158	17.14769	0.0217
At most 1 *	0.326005	7.101583	3.841465	0.0077

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

In the Johansen cointegration test, the null hypothesis is that there are no cointegrating relationships between the variables. The alternative hypothesis is that the variables have one or more cointegrating relationships. Suppose the test statistic is greater than the critical value at a given significance level. In that case, we reject the null hypothesis of no cointegration and conclude that there is evidence of Cointegration among the variables. This suggests that at least one long-run relationship among the variables can be modelled as a linear combination.

On the other hand, if the test statistic is less than the critical value at a given significance level, we fail to reject the null hypothesis of no cointegration. This suggests that there is no evidence of Cointegration among the variables and that they may be unrelated in the long run (Hjalmarsson & Österholm, 2010). As a result of the Johansen cointegration test performed in Table 5, the cointegration relationship between these two variables was determined, and GDP and ODA variables moved together in the long run. After the applied cointegration test, the Granger causality test based on the Vector error correction VEC model was conducted to reveal whether there is a causality relationship between these two variables. The error correction model applied in question automatically takes the first DifferenceDifference between both variables. The results of the Granger causality test based on the VEC model are shown in Table 6.

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Table 6: Granger Causality Test Results

Dependent variable: D(GDP)			
Excluded	Chi-sq	df	Prob.
D(ODA)	0.773502	1	0.3791
All	0.773502	1	0.3791

Dependent variable: D(ODA)			
Excluded	Chi-sq	df	Prob.
D(GDP)	0.610485	1	0.4346
All	0.610485	1	0.4346

The results of the Granger causality test are decided according to the null hypothesis. If the null hypothesis is accepted, it implies no causal relationship between these variables. On the other hand, if the null hypothesis is rejected, it indicates a causality relationship between these variables (Mahembe & Mbaya Odhiambo, 2019). Therefore, due to the Granger causality test, the null hypothesis was accepted because the probability value of both ODA and GDP variables were higher than 0.05 (0.3791) and (0.4346), meaning that the null hypothesis was accepted for both variables, which would mean that neither ODA nor GDP Granger-cause the other.

### 5. CONCLUSION

Based on the results of the Johansen cointegration test and the Granger causality test, several conclusions can be drawn regarding the relationship between GDP (Gross Domestic Product) and ODA (Official Development Assistance): Cointegration Relationship: The Johansen cointegration test revealed the presence of two cointegration relationships between GDP and ODA variables. This suggests that GDP and ODA move together in the long run, indicating a mutual relationship or interdependence between the two variables. Lack of Granger Causality: The Granger causality test results indicate that neither ODA nor GDP Granger causes the other. The null hypothesis was accepted for both variables, which implies that there is no evidence to suggest that changes in ODA cause changes in GDP or vice versa. Therefore, there is no directional causality between ODA and GDP. These results imply that while ODA and GDP are linked in the long run, ODA does not singularly drive changes in GDP. Other factors and variables within and outside the ODA framework likely play significant roles in influencing Afghanistan's economic growth. Afghanistan's limited institutional capacity and infrastructure have posed challenges in effectively absorbing and utilizing ODA funds. Weak governance, corruption, and lack of transparency have hindered the efficient implementation of development projects.

### 6. SUGGESTION

As a researcher, the writer realizes that conducting research must always be done continuously improvement; the authors suggest to further researchers as follows: Afghanistan aid dependency will decrease if Afghanistan brings changes and uses its internal dynamism as follows

1. Economic Diversification: Encourage economic diversification by promoting sectors beyond aid-dependent industries. Focus on developing sectors such as agriculture, manufacturing, infrastructure, tourism, and services. This will help create a more robust and diverse economy, reducing reliance on a single source of income.
2. Private Sector Development: Foster a conducive environment for growth by improving the business climate, reducing bureaucratic hurdles, and implementing investor-friendly policies. Encourage entrepreneurship, innovation, and foreign direct investment to stimulate economic activities and create employment opportunities.
3. Good Governance and Anti-Corruption Measures: Implement effective governance mechanisms and anti-corruption measures to ensure transparency, accountability, and efficient use of public resources. Strengthen institutions, promote the rule of law, and enforce policies discouraging corruption. This will foster investor confidence and improve the business environment.
4. Social Safety Nets and Poverty Alleviation: Implement targeted social safety net programs and poverty alleviation measures to support vulnerable populations. These initiatives can help reduce poverty, improve social welfare, and contribute to a more inclusive and resilient economy.

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