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A Quantitative Study Of The Impact Of Foreign Aid On Economic Growth And Human Development Index In Afghanistan From 1960-2020

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A QUANTITATIVE STUDY OF THE IMPACT OF FOREIGN AID ON ECONOMIC GROWTH AND HUMAN DEVELOPMENT INDEX IN AFGHANISTAN FROM 1960 TO 2020.

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Abstract

The aim of this thesis is to study the impact of aggregate foreign aid (FAID), foreign direct investment (FDI) and exports on economic growth measured by real gross domestic product (GDP) and Human development index (HDI) in Afghanistan from 1960 to 2020. The effectiveness of foreign aid on economic growth is highly contested among scholars and it is open to further research. The existing literature also lacks a comprehensive analysis on Afghanistan; thus, this study will add significant findings to this debate by using Afghanistan as a case study. After the 9/11 attacks on the World Trade Center, the U.S. and its European allies invested heavily in Afghanistan to promote democracy and establish a functioning state. In addition, many other nations such as Japan, Canada, India, and Australia also provided humanitarian assistance to the war-ravaged economy of Afghanistan. This study uses time series regression (1960-2020) and an auto-regressive distributed lag model (ARDL) to explore relationships between foreign aid and economic growth and foreign aid and human development index. ARDL is utilized because it includes the lag effect which allows the use of lagged values of the dependent variable. Other variables such as exports and foreign direct investment are also included to make the analysis more comprehensive. Findings suggest foreign aid has a positive and significant impact on GDP in the long-run and short-run. However, foreign aid didn't impact HDI in Afghanistan. Foreign aid did increase the income and livelihood of many Afghans. However, it was not sustainable as data shows that since the U.S. withdrawal from Afghanistan in August 2021, the GDP has contracted almost 30%.

Dedication

I dedicate this study to the people of Afghanistan who have been the source of inspiration for me throughout this process.

Table of Contents

List of tables and figures

CHAPTER 1: COMPREHENSIVE LITERATURE REVIEW

The concept of transferring funds to poorer countries has existed for a while now. One significant project worth mentioning is the Marshall Plan- financial assistance of the U.S. to Europe post World War II- which covered the period between 1948 to 1952 (Trebat, 2018). The purpose of this act was to revive European economy based on liberal capitalism and to expand American exports to Western Europe (Amerian, 2015). According to some estimates, European exports increased from $0.71 billion in 1947 to $1.81 billion in 1951 (Bolocan, 2018). Scholars have debated the effectiveness of the Marshall Plan, and it is not something this paper will focus on. Thus, however, it is worth mentioning as a reminder that rich nations have helped poorer ones in times of need. Different growth theories have existed for a long time a economist have put forth theories and models to advance human societies.

One of the first empirical studies was done by Roy Harrod in 1939 and Evsey Domar in 1946 (Dragoi, 2019). Their model is based on the assertion that economic growth rate depends on the function of the saving and investment rate (Dragoi, 2019). The Harrod-Domar model has been used widely since the 1950s and growth in this model is based on the quotient of savings and capital-output ratio g=s/v (Boianovsky, 2018). According to the Harrod-Domar model, if we double the saving-investment quota, it will double the long-term growth rate of a developed or developing country (Boianovsky, 2018). However, this model has been widely criticized for its lack of consideration of other factors in the development of nations such as the diminishing

returns to capital (Boianovsky, 2018) and its lack of consideration of inflation in analyzing growth. Walt Rostow, who is the author of the STAGES OF ECONOMIC GROWTH, believes that the Harrod-Domar model is well suited for showing the inherent instability of a growing economy, but not for investigating the determination of the growth rate itself (Boianovsky, 2018).

Later, Robert Solow with Trevor Swan (1956) developed a new model, which is based on the Harrod-Domer model. The Solow-Swan model indicates that the GDP growth is based on four factors: the accumulation of capital, the increase of the saving rates, population growth and technical progress. In addition, the proportion of labor and capital is not fixed in the Solow-Swan model compared to the Harrod-Domer approach where they have a fixed proportion of capital and labor (Boianovsky, 2018). These are some of the earliest works on this topic and remain influential today (Zhou, Mingchun, et al, 2007), (Cai, Donghan, et al, 2014) . Researchers started to put these expanded theories to the test after World War II.

Here it is worth mentioning a few studies that are focused on economic growth and foreign aid. Tavares (2003) did a study evaluating the impact of foreign aid on corruption. Since corruption is an extremely challenging phenomenon to the developing world, it is hard to ignore it in the analysis. Tavares found that foreign aid decreases corruption (Tavares, 2003). He found that “an increase in aid inflows of 1% of GDP leads to a decrease in corruption of ~0.2 points out of a possible range of 10.” (Tavares, 2003). One reason he outlines that aid reduces corruption is that donor

organizations will demand accountability from the recipient countries and thus reduce corruption.

Fasanya and Onakoya (2012) studied the impact of foreign aid on economic growth in Nigeria between the periods of 1970 to 2010. They have used the unit root test and reached the conclusion that foreign aid is beneficial to Nigeria (Fasanya and Onakoya, 2012). They also emphasize the importance of good management and sound policies as a determinant to growth. Some pro-aid economists like Rosenstein-Rodan (1961) states that each dollar of aid will increase the total savings and investment of the recipient countries by exactly one dollar (Hansen and Tarp, 2000). Hansen and Tarp (2000) performed a survey analysis of the empirical literature to study the effects of aid on savings (Hansen and Tarp, 2000). Their survey is based on 131 cross-country regressions from literature published between late 60s to 1998 (Hansen and tarp, 2000). According to Hansen and Tarp's survey, 60 percent of these studies indicate a negative coefficient from aid to savings, meaning that aid cannot be assumed to increase total savings on a one-to-one basis (Hansen and Tarp, 2000). However, the evidence from these studies is that aid leads to an increase in total savings, although not as much as the aid flows. Hansen and Tarp also established a positive relationship between aid and investment based on the survey of the literature.

The World Bank asserts that aid works better in countries with good policies and donors should focus more on countries with good economic policies (World Bank, 1998). Morrissey, (2001) rejects this statement in his paper and argues that there is a positive association between aid and growth and that growth is not conditional on

policy (Morrissey, 2001). Morrissey also connects aid with investment in human and physical capital. Aid is also associated with technology transfer that increases the productivity of capital and promotes technical change (Morrissey, 2001). It is worth mentioning that there are some studies that have established a negative correlation between foreign aid and economic growth.

Numerous studies reject the idea that foreign aid generates economic growth. For instance, Griffin and Eons wrote a paper analyzing who aids whom. Second, discussing the motives and objectives of the donor and third by studying the consequences of the aid on the recipient country. Their conclusion is that foreign aid is counter-productive and does not advance economic growth. They also believe that foreign aid will increase consumption more than saving in the recipient countries (Griffin and Enos, 1970). They also state that most powerful nations donate to weaker nations to exert political influence. In another study by Feeny (2005) who studied the effect of aid on economic growth in Papua New Guinea from the period 1965 to 1999. His analysis divided foreign aid into different categories. He found no evidence that the aid promotes economic growth. Ranis and Mahmood (1992) argue that the availability of external resources tends to promote irresponsible behaviors (Svensson, 2000). Mallik (2008) used co-integration analysis to study the impact of foreign aid on economic growth in six African countries namely the Central African Republic, Malawi, Mali, Niger, Sierra Leone, and Togo. He found that the long-run effect of aid on growth to be negative for most of these countries (Mallik, 2008).

Burke and Ahmad-Esfahani used simultaneous equation model to study the impact of aid on economic growth in Thailand, Indonesia, and the Philippines. They found that aid had an insignificant impact on growth (Burke, Ahmadi-Esfahani, 2006). In addition, there are many other criticisms from academics. For instance, some authors on the left believe that the purpose of "aid is the perpetuation and extension of international capitalism and support for the political motives of neo-colonial power". (White, 1992). Thus, they believe that aid hurts the poor.

However, Ekanayake and Chatrna (2010) found mixed effects of foreign aid on economic growth. These are the different studies done on economic growth and foreign aid in different countries. The results vary based on different models and variables used. The debate about the effectiveness of foreign aid is an open question and there are no solid findings that apply to every country. The impact of foreign aid could bring some positive outcomes which depends on the sound management of the funds and the availability of functioning institutions. On the other hand, it has been proven in some cases that foreign aid doesn't impact growth in recipient countries at all. In some cases, foreign aid can be detrimental to growth. The studies done by Mallik, Griffin and Enos demonstrate this. And in some cases, foreign aid could be neutral with no impacts on growth. It is also worth mentioning that no empirical study has been done on Afghanistan to evaluate the impact of foreign aid on economic growth. Thus, this study tries to find the impact of foreign aid on economic growth as measured by real GDP using Auto Regressive Distributed Lag Model (ARDL). I am using ARDL since it provides consistent and efficient estimators as compared to other

methods (Pesaran, et al, 2001). And most importantly, ARDL will include the lagged impact which is crucial for the analysis. This study adds to the literature by adding exports alongside FDI and FAID to study their impacts on economic growth in Afghanistan.

Many scholars have criticized the use of GDP as the sole measure of development. For instance, Amartya Sen proposes the idea of freedom as the means and ends to development. For Sen, development means increasing people's freedom so they can choose a life they value. GDP doesn't include equity or fairness in the distribution of economic outcome. Thus, the second part of my paper focuses on Human Development Index (HDI) in Afghanistan to investigate if foreign aid has increased or decreased HDI.

The first time the Human Development Index (HDI) was reported was in a United Nations Development Program (UNDP) in 1990. The HDI is composed of three components: Long and Healthy Life (LHL), Access to Knowledge (ATK), and the Decent Standard of living (DSL) (Carvalhal, Requel, Pereira, and Costs, 2018). A Pakistani economist by the name of Mahbub-ul-Haq formulated the index for HDI (Bilbao-Ubillos, 2013). Since the time HDI was first used, it has been under criticism from academics and researchers alike. Some researchers suggest that new dimensions like political freedom and human rights should be added to the indices (Carvalhal et al, 2018). One of most important critiques and contributors to the betterment of the HDI measurement comes from Amartya Sen. He proposes the theory of functioning and capabilities (Lopez-Calva, Luis, Ortiz-Juarez, 2012).

Sen's theory focuses on people's choice and freedom rather than just outcome/economic growth. Sen's theory is more comprehensive because historically the term "Development" has strict economic interpretation. For instance, according to the classical concept of development, a country that is experiencing a higher income and per capita GDP is considered developed (Myint, 1958). Sen's theory is very fundamental because it covers other dimensions of life such as having the freedom to work wherever you like or having access to good education and freedom of choice. Sen was not the only person who critiqued the income-development paradigm. Other authors such as Cesar Furtado (1967), Haq (1973), Streeten (1981, 1994), Bhagwati (1993), Anand and Sen (1993, 2000), Griffin and Knight (1989) were all champions of proposing new ways to measure development contrary to the already existent measurement of GDP as the sole indicator of progress and development (Bilbao-Ubillos, 2013).

The relationship between HDI and foreign aid is a complex one. Foreign aid is intended to help people achieve higher HDI. Aid money is mostly used to finance projects that will increase income and thus lead to higher HDI. With higher incomes people can afford to go to doctors and receive an education which will help improve their life standard. However, the literature on this phenomenon is vast and contradictory.

Boone (1996) found no significant relationship between aid and infant mortality rates as one of the indicators of HDI (Mohamed and Mzee, 2017). Following Boone's study, some other papers also tried to find this correlation.

For instance, Mosley and Hudson (2001) and Kalwilj and Verschoor (2002) indicate that aid has an impact on poverty reduction as well as indirect impact on well-being (Mohamed and Mzee, 2017). Gomanee et al. (2005) investigated the effect of aid on government expenditure and aggregate human development welfare measured by infant mortality rate and HDI for 38 countries. The results suggested that aid improved HDI of recipient countries with great impact on low-income countries (Mohamed and Mzee, 2017). Feeny (2003) found evidence suggesting that sectoral allocation of aid is consistent with poverty reduction strategy (Mohamed and Mzee, 2017). Hassan (2000) reported declining relationship between HDI and GDP at higher income levels. He argued that improvement in HDI tends to lag-behind income growth. Bahmani-Oskooee and Oyolola (2009) investigated the impact of aid on aggregate welfare by using cross-country regression. The results supported that foreign aid is effective in increasing aggregate welfare by reducing poverty rates in recipient countries (Mohamed and Mzee, 2017). Some other authors suggest that aid is more effective if directed to rural areas (Duncan, 2001).

A study by Clemes and Gani (2003) supports that aid for education and health has positive correlation with HDI in lower-middle income countries (Maqsood, Fauzia, and Sami Ullah, 2014). Some other authors argue that aid alone is not helpful for HDI, and some other factors are also necessary to study. Kosack (2003) has examined the relationship between aid democracy and HDI and found a positive relationship between aid democracy and HDI but only through its interaction with various measures of democratization (Maqsood, Fauzia and Sami Ullah, 2014).

This section highlights some important points on the human development situation in Afghanistan. Afghanistan is an agrarian and traditional society with strong family and social codes. The land is not very arable due to the harsh climate and the high altitude makes it hard to navigate water canals to the land. Agriculture is the main source of income for 85 percent of the population (Tavva et al, 2013). Yet only 12 percent of the land is arable (Tavva et al, 2013). Of this 12 percent, only half is irrigated, and the other half is rain-fed (Tavva et al, 2013). Men are mostly involved with agriculture while the women are usually doing housework, such as raising kids and cleaning. Thus, they have no to very little socio-economic power in decision making. The average life of Afghan women is about 44 years, about 20 years lower than the global average (Tavva et al, 2013). Afghanistan has been involved in war and political turmoil since the 1980's. The nearly four decades of war has destroyed the infrastructure for almost everything including education, industry and trade. Thus, creating a very hostile environment for Afghan citizens to live long lives and pursue their goals. Health conditions are very bad in rural and some also in some urban areas. About 74 percent of Afghans live in rural areas with very limited access to education, health care and access to clean water. For instance, 39 percent of people in urban areas and 69 percent in rural areas do not have access to clean water (Lancet report, 2005).

In 2001 when the U.S. attacked Afghanistan to eliminate the Taliban and Al-Qaeda forces, the country had nothing in terms of infrastructure. Everything had been destroyed in the last three decades or so of war and chaos.

The arrival of the American troops ushered in a huge infusion of financial aid. After almost 20 years of support from international community, Afghanistan is still one of the most fragile countries in terms of human development. The income per capita in Afghanistan is around $560 (UNDP report, 2020). Economic progress took a turn in 2014 when the US withdrew its troops and significantly cut down on different projects. Between 2007-2008 and 2016-2017, the poverty rate rose from 34 percent to 55 percent (UNDP report, 2020). We also must count the number of people who are not included in these statistics due to the shortage of data and technical issues. The actual number could be even higher. In 2016-2017, around 13 million rural Afghans lived below poverty line (UNDP report, 2020). Most of these poor families will have to postpone education or completely quit in order to make a minimal income. Thus, poverty directly leads to more deterioration in human development.

The other component of development is whether people can access education. Afghanistan still has one of the highest illiterate populations in the world. According to UNDP reports, around 9.7 million people are illiterate, of which 61 percent are women and 39 percent are men (UNDP report, 2020). There are many reasons why so many people are illiterate. First, the most important factor is the continuance of the war in many parts of the country. War has destroyed the infrastructure for education and has forced many not to attend schools. Second, is the absence of infrastructure and the shortage of trained teachers. For instance, about 41 percent of schools do not have buildings and toilets (UDNP report, 2020). This forces many women and girls not to attend schools further increasing illiteracy rates and limits access to knowledge.

Girls and women are kept away from education due to some old and traditional cultural practices too. Some very conservative tribes have excluded women from education altogether and the Taliban have banned women and girls from attending schools and universities since 2021.

The social and political climate is fragile in Afghanistan. However, one can't say it hasn't improved at all. That would be misleading because there have been gains in every index of human development. Certainly, the humanitarian aid from the international community has contributed to this development. Thus, the purpose of this paper is to evaluate how much the humanitarian aid and financial aid from international community has had positive impact on human development in Afghanistan. Secondly, the sustainability of this aid will be evaluated.

This study is focused on finding any significant correlation between foreign aid and economic growth as measured by GDP. The question I am investigating is whether foreign aid has increased GDP in Afghanistan? Although there have been several studies focusing on foreign aid and its impact on recipient countries, it is hard to generalize those findings to different nations. Since every aid receiving nation is fundamentally different from one another, and the socio-economic realities are different. This study thus contributes to the literature by establishing a correlation between foreign aid and GDP in Afghanistan. The results of this study indicate that foreign aid has a positive impact in the long-run and short-run. So, we can conclude that foreign aid does impact GDP in Afghanistan. The table below is a summary of

literature review on studies that focus on economic growth and human development index.

TABLE 1 LIST OF LITERATURE REVIEW ON ECONOMIC GROWTH AND HDI.

Study/Authors	Dependent variable (s)	Predictor Variable (s)	Model	Findings (Increase+, Decrease -, Neutral +/-)	Gaps/Assumptions
Zohid Askarov and Hristos Doucouliagos (2015)	Growth rate of per capita GDP	Policy, Aid, Aid and Policy	Burnside and Dollar model	Aid had positive and significant impact on GDP	Aid to be more effective for countries starting from scratch.
Ismail Fasanya and Adegbemi Onakoya (2012)	GDP growth	Output, Capital, Labor, Knowledge of labor	Neo Classical growth model	+	The policy variables reverse the positive effect of aid
Tomiwa Adebayo and Demet Kalmaz (2020)	Economic growth	Aid, Gross fixed capital formation, Trade openness, inflation rate	$y = \beta_0 + \beta_1(FAID) + \beta_2(TR) + \beta_3(ln) + \beta_4(INF) + u$	+	Implement an appropriate tax system. Healthy economic policies will make FAID work better
Tomitope Leshoro (2012)	Real GDP	Labor, Capital and Foreign aid.	GDPPC=$\beta_0 + \beta_1(LBF) + \beta_2(CAP) + \beta_3(AID) + u$	-	Foreign aid is conditional on policies

Study/Authors	Dependent variable (s)	Predictor Variable (s)	Model	Findings (Increase+, Decrease -, Neutral +/-)	Gaps/Assumptions
Aakif Hussain, Muhammad Tariq, Fazli Qadir, Imran Ullah, Saeed (2018)	Growth rate of GDP	Initial GDP per capita, official development assistance, population growth rate, inflation rate, education and gross capital formation	Fixed effect method	−	One of the reasons for the absence of catch up can be structural, institutional, political, social and cultural constraints.
Kalpana Sahoo and Narayan Sethi, (2013)	Economic growth and economic development	Foreign aid, call money rate, trade openness, money supply, GDP, gross domestic capital formation, gross domestic savings, per capital national income	$Y = \beta_0 + \beta_1(FA) + \beta_2(GDS) + \beta_3(GDCF) + \beta_4(TRO) + \beta_5(CMR) + \beta_6(M3) + u$	+	

Study/Authors	Dependent variable (s)	Predictor Variable (s)	Model	Findings (Increase+, Decrease -, Neutral +/-)	Gaps/Assumptions
Paul J. Burke and Ahmad-Esfahani (2006)	Real growth rate of GDP	Capital, labor and exports	$Y = \beta_0 + \beta_1(S) + \beta_2(X) + \beta_3(l) + \beta_4(ODA) + \beta_5(FDI) + \beta_6(Crisis) + u$	−	Poor nations can improve their growth prospect by establishing export-oriented economies
Hasret Balcioglu (2016)	Real gross national product	Turkish Aid	Panel Cointegration	+	Aid receiving nations should develop capacities to better utilize foreign aid
Mohammad Tahir, Mario Estrada Muhammad Asim Afridi (2019)	Economic growth	Aid, trade, FDI, debt, and remittance	$y = \beta_0 + \beta_1(Trade) + \beta_2(Remit) + \beta_3(Debt) + \beta_4(FDI) + \beta_5(AID) + u$	+	Developing countries should attract more foreign aid.

Study/Authors	Dependent Variable (s)	Predictor variable (s)	Model	Finding(Increase+, Decrease-, Neutral (+/-)	Gaps/ Assumptions
Javier Bilbao-Ubillos (2012)	HDI	Inequality, poverty, gender issues, environmental sustainability, and personal safety	$ICDDI_2: (\sum c_{ji}) \times D^F j$		Different countries will take different places when CDHDI is used
Nashim Shah Shirazi, Turkhan Ali Abdul Mannap, and Muhammad Ali (2009)	HDI	Foreign aid in percentage of GDP, loans and grants	Vector error correction approach	+	Insufficient monitoring and evaluation mechanism
Eskander Alvi and Aberra Senbeta, (2012)	Poverty	Foreign aid	Dynamic panel estimation	+	Aid mitigates poverty separately from the effects of aid on income
Claudia R. Williamson (2008)	Health	Foreign aid	Fixed effects regression	—	Important role of institutions in determining HDI.

Study/Authors	Dependent Variable (s)	Predictor variable (s)	Model	Finding(Increase+, Decrease-, Neutral (+/-)	Gaps/ Assumptions
Foreign aid and Human Development index	Health	Foreign aid	Household panel data	+	The impact of aid is greater in countries with low HDI.
Tonny Odokonyero, Robert Marty, Tony Muhmuza, Alex Ijjo (2016)	HDI	Foreign aid in percentage of GDP, loans and grants	Vector error correction approach	+	Proximity to health aid projects are paramount for increased effectiveness
Gafar Tljaiya and Muftau Ijaiya (2004)	Poverty	Foreign aid, social and political instability	Multiple regression analysis	-	Policy measures to combat corruption and price stability must be put in place

CHAPTER 2: FOREIGN AID AND ECONOMIC GROWTH IN AFGHANISTAN

Afghanistan has been receiving significant amount of foreign aid for state building, countering terrorism, and for the revival of the economy after the 9/11 attacks in the United States. The U.S. was not the only country to commit to provide aid; other big donors include Japan, EU, India and China. Afghanistan was the center of all attention from the world for almost twenty years. However, the situation in Afghanistan remains fragile with many fundamental problems such as lack of security and an absence of industry, has made the country a very fragile nation. Afghanistan has developed in certain areas such as establishing a democratic government and allowing girls to go to school. For instance, in 2001, there were no girls enrolled in schools and only one million boys were enrolled. By 2012, according to World Bank reports, there are 7.8 million pupils attending schools, including 2.9 million girls (BBC, 2014). In addition, the foreign military and financial assistance enabled the Afghan government to establish the Afghan national army. In addition, the most important achievement has been the protection and establishment of free media and freedom of speech.

Joel Brinkley, 2013 published a paper by the title “Money PIT: The monstrous failure of US Aid in Afghanistan”, in which he takes a pessimistic view on the development in Afghanistan. He argues that the amount of aid allocated to Afghanistan since 2001 has not promoted a lot of progress.

He points out that most of the aid has been lost in corruption and other non-essential purposes. His argument is that most of these projects failed because of the lack of supervision from donors. For instance, one Afghan contractor built a $130,000 shower/bathroom facility without holes in the wall or drains (Brinkley, 2013). Another contractor built a dining facility without a kitchen. Lastly, they built a $2.4 million compound of five buildings in the wrong location and the buildings could not be used. This is just a hint to the big failures in development projects in Afghanistan.

In another article, Hekatmullah Fayez 2012 discusses the U.S. aid to Afghanistan, and he gives some historical background on the aid flows to Afghanistan in different periods starting in the early 19th century to today (Fayez, 2012). After the Bonn conference on Afghanistan, the world pleaded to provide funds for the reconstruction of the different institutions in Afghanistan. According to the estimates of World Bank and Asian Development Bank, Afghanistan would need around $14.6 to $18.1 billion over 10 years (Fayez, 2012). The U.S. dominates other countries in terms of the aid to Afghanistan. The U.S. military spent around $36 billion every year, which is approximately $100 million a day (Fayez, 2012). Fayez mentions another interesting point that many donors did not fulfill their promises. For instance, different donors have publicly pledged to provide $39 billion by 2011, but the actual amount disbursed was $14.74 billion (Fayez, 2012). He also points out some shortcomings of the policies in regards to the allocation of aid. For instance, the agricultural sector, which is a primary source of income for about 80% of the population, received only $400-$500 million (Chandrasekhar, 2003).

Furthermore, some of the donor organizations have operated independently from the Afghan government and have provided funds for their own purposes. For instance, the Afghan government still does not know how one-third of aid since 2001 has been spent (Fayez, 2012).

In another study under the title “Foreign inflows and economic growth: An empirical study of the SAARC region”, Afghanistan is included as one of the other SAARC region countries. This paper studied the impact of selected foreign inflows (aid, trade, FDI, debt and remittances) on economic growth on the South Asian association for regional cooperation. The study used panel data techniques on macroeconomic data for the period of 2008-2015 (Tahir, Estrada and Afridi, 2019). They found that these specific inflows have a positive impact on economic growth. However, not all of them have a positive correlation. For instance, the study found that remittances have no impact on economic growth. Debt and trade inflows have adversely affected economic growth (Tahir, Estrada, and Afridi, 2019). There hasn’t been any dynamic analysis done for Afghanistan, and the study of lagged impacts is crucial. The graph below is a summary of the inflows of foreign aid to Afghanistan since 1960. As depicted in the graph, foreign aid to Afghanistan increased significantly after the U.S. invasion but has been declining since 2010 and it has virtually dropped to pre 9/11 era after the U.S. withdrawal from Afghanistan in August 2021.

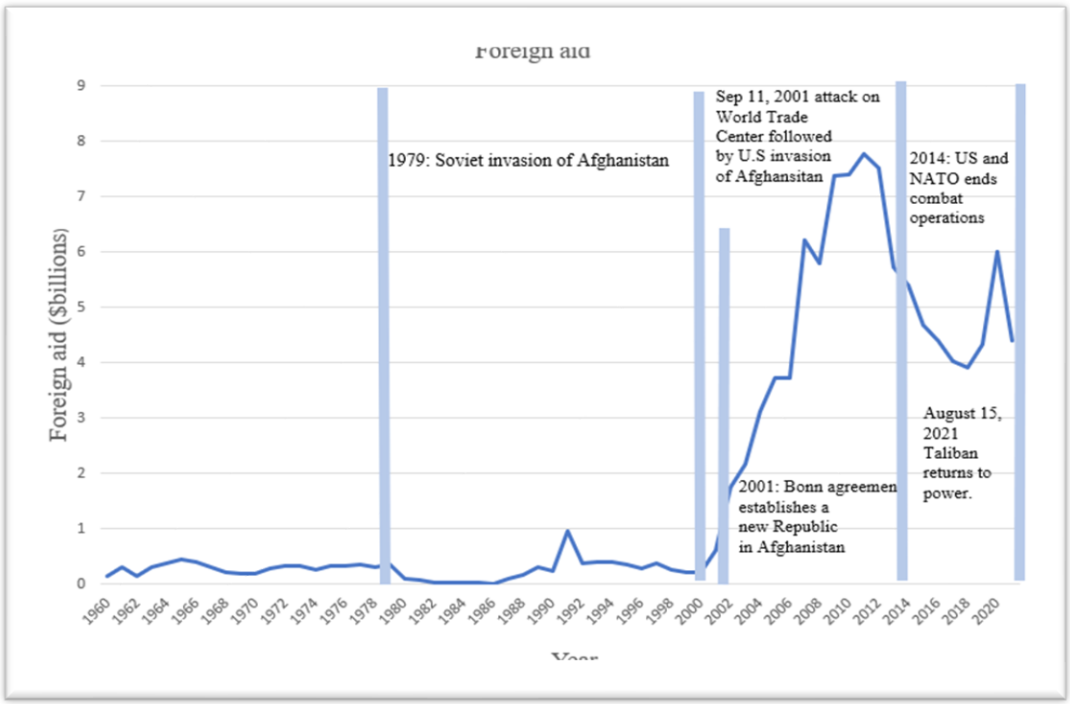

FIGURE 1 FOREIGN AID INFLOWS TO AFGHANISTAN FROM 1960-2020

The conceptual diagram below will help understand the association between the variables of the study. The null hypothesis is that foreign aid doesn't have any impact on economic growth. The alternative hypothesis is that foreign aid decreases economic growth in the long run (Griffin and Enos, 1970), (Feeny, 2005). In the literature review economic growth is measured as real GDP. However, some other economists have proposed other ways of capturing growth such as an increase in someone's freedom of choice. Amartya Sen is a prominent figure in this area. One topic that I didn't include in my conceptual diagram is corruption and its role in hindering growth. Two reasons that I

didn't include corruption on my diagram is that it is extremely hard to measure corruption and secondly there are no reliable data on corruption in Afghanistan.

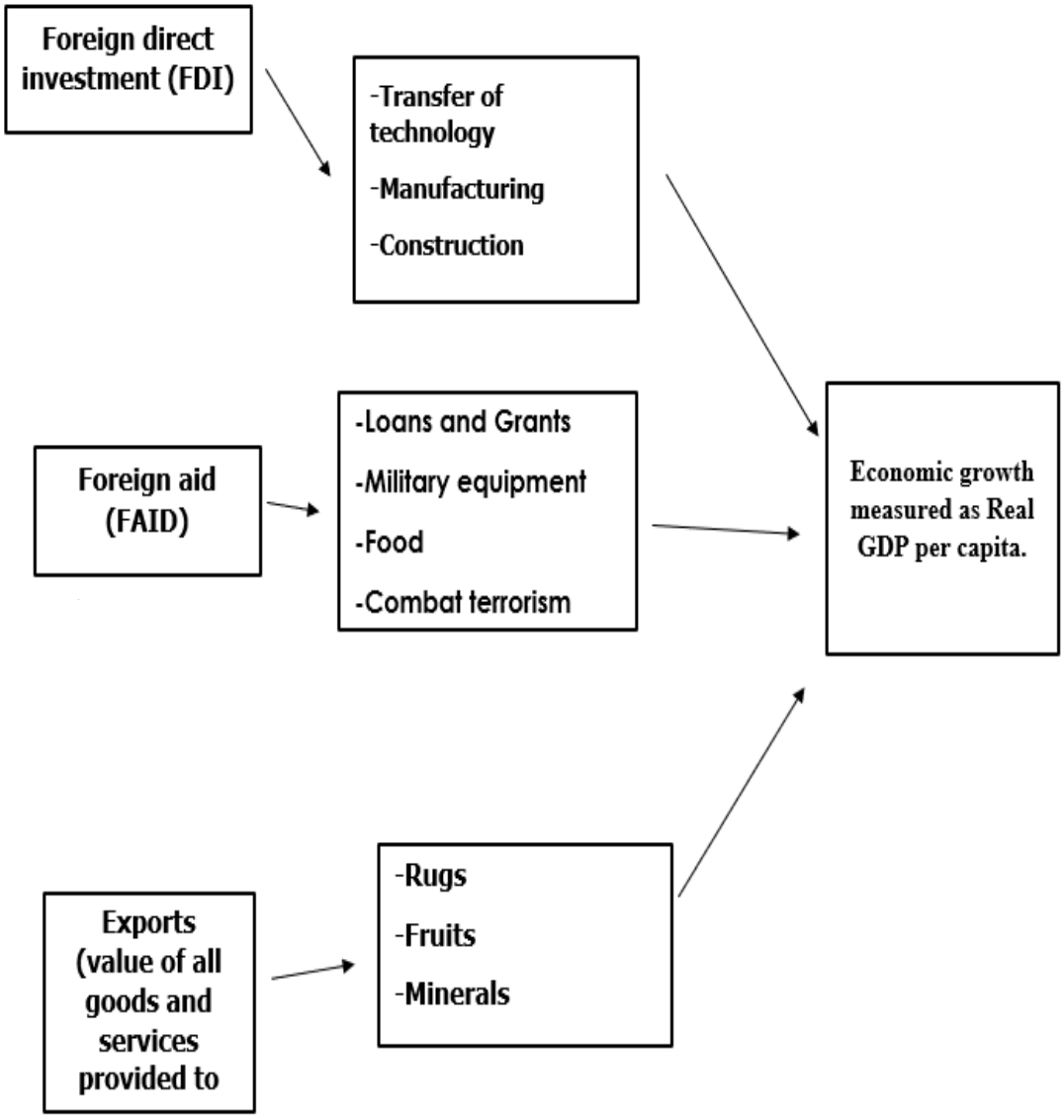

FIGURE 2 CONCEPTUAL DIAGRAM OF THE FOREIGN AID AND ECONOMIC GROWTH

DATA:

The data on foreign aid to Afghanistan by the international community is from 1960 to 2020. The secondary data on GDP, foreign aid, and foreign direct investment is collected from the World Bank database. The GDP is measured as the gross value added by all resident producer in the economy plus any product taxes and minus any subsidies not included in the value of the products (World Bank). The table below outlines the variables and provides a definition of the variables.

TABLE 2 DEFINITION OF VARIABLES

Variable	Source	Measurement
GDP	World Bank	Gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.
Exports	World Bank	Exports represent the value of all goods and services provided to the rest of the world. They included the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services.
Foreign direct investment (FDI)	World Bank	FDI is the net inflows of investment.
Foreign aid (FAID)	World Bank	Net official development assistance (ODA) consists of disbursements of loans made on concessional terms and grants by official agencies of the members of the Development Assistance Committee (DAC),

METHODOLOGY:

The most common econometric models used in recent studies on foreign aid and economic growth are ordinary least squares (OLS), and autoregressive distributed lag model (ARDL). Some other methods are also available and have been used by different authors. The null hypothesis is that foreign aid doesn't have impact on economic growth and the alternative hypothesis is that foreign aid decreases economic growth in the long run.

Here is an outline of the most common models studying the impacts of foreign aid on economic growth. Zohid Askarov and Hristos Doucouliagos used the Burnside and Dollar specification (Doucouliagos and Askarov, 2015). In this model they tried to find if aid is effective in generating growth. Second, they tried to answer if aid effectiveness is conditional on good policy and, finally, if the Burnside and Dollar model is fragile to changes in data (Doucouliagos and Askarov, 2015). The predictor variables are policy variables (budget surplus, inflation and openness), aid, A*P represents the interaction between aid and policy. The most important factor in this model is the policy index, which is defined as the weighted sum of budget surplus, inflation rate and openness index. Jensen and Paldam find the aid-policy interaction to be negative and statistically significant and conclude that BD model lacks robustness.

For panel or longitudinal data, fixed effects and random effects procedures are suggested (Afridi, Estrada, and Tahir, 2019). Fixed effects estimators control serial correlation between independent variables and the error term.

However, it is unable to control the dummy variables (Afridi, Estrada and Tahir, 2019). The random effects estimator is inefficient if there is a serial correlation between the regressors and the disturbance term (Afridi, Estrada and Tahir, 2019). In this model, the dependent variable is growth, and the independent variables are trade, remittance, debt, and foreign direct investment. Ordinary least squares (OLS) are also commonly used in many published papers. OLS minimizes the sum of squared vertical distances between the observed responses in the dataset and the responses predicted by the linear approximation. There are some problems with OLS. First, OLS can perform very badly when some points in the data have excessively large or small values for the dependent variables compared to the rest of the data. Second, OLS attempts to fit a line through one dimensional data set. However, in real world relationships tend to be more complicated than simple lines.

There are some advantages in using ARDL compared to other conventional methods such as OLS. First, ARDL provides unbiased and efficient estimators of the model (Narayan, 2004). Second, with ARDL approach it is easy to capture different optimum number of lengths for different variables (Nasiru, 2012). Third, ARDL is a more statistically significant approach to determine the cointegration relation in small samples (Pesaran et al, 2001). Also, ARDL is advantageous to use because it can be applied whether the regressors are purely order zero, purely order one or mixture of both. And most importantly ARDL is the best method to study the dynamics and lagged effects. Given the advantages of ARDL, I have utilized ARDL for my study for time series data from 1960 to 2021. Also, ARDL captures seasonality.

Considering all the pros of using ARDL, this study thus chooses to use ARDL.

For this study, ARDL is used in STATA and will utilize this equation.

$$y = \beta_0 + \beta 1(FAID) + \beta 2(FDI) + \beta 3(exports) + \epsilon \qquad (1)$$

Where Y stands for economic growth as measured by GDP, β_0 denotes a constant, $\beta 1(FAID)$ denotes the foreign aid, $\beta 2(FDI)$ denotes foreign direct investment and $\beta 3(exports)$ denotes exports from Afghanistan to other countries. And ϵ denotes the error term. The mathematical equation for ARDL is:

$$y = c_0 + c_1 t + \sum_{i=1}^{p} \phi_i y_{t-1} + \sum_{i=0}^{q} \beta_i' x_{t-1} + u_t \qquad (2)$$

This is a general ARDL (p, q.q) model with intercept c_0, linear trend $c_1 t$, and lag orders $p \in \{1, p^*\}$ $q \in \{0, p^*\}$. We need to choose the maximum lag order conservatively to ensure that there are enough degrees of freedom available to estimate the model's coefficients (Kripfganz and Schneider, 2022). A data driven approach for maximum lag selection can be based on Akaike information criterion (AIC) or Schwarz/Bayesian information criterion. AIC is used in this paper to select the maximum lag order. This is especially relevant if the number of observations in the data set (T) is relatively small.

$$AIC = -2In(\mathcal{L}) + 2k^*$$

$$BIC = -2In(\mathcal{L}) + In(T^*)k^*$$

In the above formula, ln ($\mathcal{L}$) is the value of the log-likelihood function from the estimated regression. $T^* = T - p^*$ is the effective sample size, and $K^* = 2 + p + K(q+1) + L$ is the number of estimated coefficients in equation (2). Higher values of ln($\mathcal{L}$) indicate a better fit of the model. Thus, we prefer models that deliver a smaller value of the AIC or BIC (Kripfganz and Schneider, 2022). The following table presents the values of AIC, and BIC.

TABLE 3 AKAIKE INFORMATION CRITERION AND BAYESIAN INFORMATION CRITERION

Lags	*AIC*	*BIC*	*P>ch* i^2	$ch\ i^2$
1	452.88	465.55	0.07	7.32
2	442.89	457.55	0.02	7.52
3	438.79	453.45	0.03	8.68
4	419.81	440.42	0.15	6.61
5	419.81	440.42	0.22	6.88
6 **	416.92	435.46	0.30	7.19
7	412.96	437.47	0.07	12.76
8	408.30	438.68	0.06	21.55
9	412.96	437.47	0.02	19.53
10	364.15	432.44	0.00	32.36

** indicate the maximum lag order selection based on AIC and BIC.

In order to estimate the long run coefficients, we need to present the model in error correction form.

$$\Delta y_t = c_0 + c_1 t - \alpha(y_{t-1} - \theta x_{t-1}) + \sum_{i=i}^{p-1} \psi yi \Delta yt - 1 + \omega' \Delta x_t + \sum_{i=1}^{q-1} \psi'_{x_i \Delta} x\, t - 1 + y' z_t + u_t \quad (4)$$

The algebraic form of the coefficients in equation (4) can be written as follows:

$\alpha = 1 - \sum_{i=i}^{P} \phi i, \qquad \theta = \frac{\sum_{j=0}^{q} B_j}{a} \qquad \psi yi = -\sum_{j=i+1}^{P} \phi j \qquad \omega = \beta_0$

$\psi xi = \sum_{j=i+1}^{q} \beta j$

Estimating the long-run coefficients needs one more step which is called the bounds test. For bounds test, we need to use the F-statistics to test the joint null hypothesis $H_{0^F:(a=0)} \cap \left(\sum_{J=i}^{q} \beta_j = 0\right)$ versus the alternative hypothesis $H_{1^F:(a\neq 0)} \cup \left(\sum_{J=0}^{q} \beta_j \neq 0\right)$. If the H_{0^F} is rejected, we use the t-statistic to test the single hypothesis $H_0^t: \alpha = 0 \; Versus \; H_1^t: \alpha \neq 0$. If the null hypothesis in steps 1 and steps 2 are both rejected, we can use conventional Wald tests for the joint to test whether the elements of θ are individually or jointly statistically significantly different than zero (Kripfganz and Schneider, 2022). There is statistical evidence for the existence of a long run/cointegrating relationship if the null hypothesis is rejected in all three steps. The test decisions for the existence of long -run relationships depend on the values of F-statistics and T-statistics. We do not reject $H_0^F \; or \; H_0^t$, respectively, if the test statistic is closer to zero than the lower bound of the critical values. We reject the $H_0^F \; or \; H_0^t$, respectively, if the test statistic is more extreme than the upper bound of the critical values. Table 4 presents the lower and upper bound values for the H_0^F and H_0^t.

TABLE 4 LOWER AND UPPER BOUND CRITICAL VALUES FOR GDP

Intercept/Time trend $H_0 f$	F-statistics	T-statistics	I(0) I(1) 10%	I(0) I(1) 5%	I(0) I(1) 1%	I(0) I(1) p-value
No Trend Unrestricted intercept	6.46	-4.36	2.72 3.77	3.23 4.35	3.69 4.89	4.29 5.61
Restricted	5.26	-4.36	2.37 3.2	2.79 3.67	3.15 4.08	3.65 4.66
Trend-Restricted	5.54	-4.55	2.97 3.74	3.38 4.23	3.80 4.68	4.3 5.23
Trend	6.91	-4.55	3.47 4.45	4.01 5.07	4.52 5.62	5.17 6.36
$H_0 t$						
No Trend Unrestricted intercept	6.46	-4.36	-2.57--3.46	-2.86-3.78	-3.13-4.05	-3.43-4.37
Restricted	5.26	-4.36	-2.57 -3.46	-2.86-3.78	-3.13-4.05	-3.43-4.37
Trend-Restricted	5.54	-4.55	-3.13 -3.84	-3.41-4.16	-3.65-4.42	-3.96-4.73
Trend	6.91	-4.55	-3.13 -3.84	-3.41-4.16	-3.65-4.42	-3.96-4.73

The F-statistics as shown in the table above is greater than the I(1) bound for all the critical values and thus we can reject the null hypothesis meaning there is cointegration. And the T-statistics is smaller than I(1) bound that also confirms that there is long run relationship between the variables.

RESULTS:

The bounds test was performed to estimate the long-run coefficients for the variables in this study which are real GDP, exports, foreign direct investment and foreign aid. The bounds test indicates to us the existence of a long-run relationship between real GDP and the independent variables. The long-run coefficients using ARDL model are reported in Table 5. The R-squared value tells us that 98% variation in real GDP is explained by the variables included in the model.

Table 5 presents the summary of the results of the regression for the variables. It shows that the estimated coefficients for foreign aid and exports are statistically significant while the coefficient for FDI is not statistically significant. A coefficient is significant if the corresponding P values is smaller than 0.05. Foreign aid is the central variable in this study, and as shown in Table 5 it has a positive significant impact on the economic growth in Afghanistan. This finding is consistent with Tadesse (2011), Duresa (2022), and Girma and Tilahun (2022). The estimated coefficient of the long-run relationship shows that a 1% increase in foreign aid will lead to approximately 16.74% increase in real GDP.

The other variable that has a significant coefficient is exports. Exports of goods do play a vital part in the Afghan economy. The most common goods exported are rugs, dried fruit and agricultural goods. The other variable in this study was FDI. The estimated coefficients for FDI are not significant based on the 95% confidence interval. The short-run coefficients are represented in Table 6.

The short-run error correction model (ECM) indicates the speed of adjustment to restore equilibrium in the model. The short-run coefficients show how quickly variables converge to equilibrium. The only variable that has a significant coefficient in the short-run is real GDP. Other variables in this study are not significant in the short run. That could be because of many reasons. For instance, it takes longer time for exports or FDI to impact the economy. And exports in Afghanistan haven't been modernized as the banking system is not updated to speed up the process. Based on the ECM, in the short run a 1% increase in foreign aid will increase real GDP by 0.47%.

TABLE 5 ESTIMATED LONG-RUN COEFFICIENTS FOR GDP

Estimated long-run coefficients using the ARDL approach.
ARDL (4,1,0,0) selected based on the Akaike Information Criterion (AIC)
Dependent variable Real GDP.
58 Observations used from 1964 to 2021.
** indicate statistical significance at 95% confidence interval.

Regressors		**Coefficients**	**St. Error**	**P>T|**	**95% Conf**
FAID	No Trend	**15.73	5.45	0.00	4.76
	Restricted	**15.73	5.45	0.00	4.76
	Trend-Restricted	**16.74	5.03	0.00	6.62
	Trend	**16.74	5.03	0.00	6.62
Exports	No Trend	**174.70	33.46	0.00	107.45
	Restricted	**174.70	33.46	0.00	107.45
	Trend-Restricted	**143.25	35.35	0.00	72.16
	Trend	**143.25	35.35	0.00	72.16
FDI	No Trend	100.61	88.56	0.26	-77.35
	Restricted	100.61	88.56	0.26	-77.35
	Trend-Restricted	59.47	83.72	0.48	-108.86
	Trend	59.47	83.72	0.48	-108.86

Table 6 Estimated short-run coefficients for GDP.

Estimated short-run coefficients using the ARDL approach.
ARDL (4,1,0,0) selected based on the Akaike Information Criterion (AIC)
Dependent variables Real GDP.
58 Observations used from 1964 to 2021.
** indicate statistical significance based on 95% confidence interval.

Regressors		**Coefficients**	**St. Error**	**P>IT|**	**95% Conf**
No Trend	**LD**	** 0.47	0.10	0.00	0.25
Real GDP	**L2D**	**-0.26	0.11	0.02	-0.50
	L3D	** 0.39	0.11	0.00	0.16
Restricted	**LD**	** 0.47	0.10	0.00	0.25
Real GDP	**L2D**	**-0.26	0.11	0.02	-0.50
	L3D	** 0.39	0.11	0.00	0.16
Trend/ Restricted	LD	** 0.46	0.10	0.00	0.24
	L2D	**-0.26	0.11	0.02	-0.50
Real GDP	L3D	** 0.38	0.11	0.00	0.15
Trend	**LD**	** 0.46	0.10	0.00	0.24
Real GDP	**L2D**	**-0.26	0.11	0.02	-0.50
	L3D	** 0.38	0.11	0.00	0.15

DISCUSSION:

Based on this model, foreign aid does have an impact on economic growth in the long and short run. The Afghan economy received huge sums of foreign aid and it increased the funds available for developmental projects. However, there are a few important points to mention here about the implications of these funds. First, the inflow of these funds increased the money supply in the Afghan economy. This led to more consumption as the consumers felt wealthier. However, the problem with this scenario is the issue of sustainability. Foreign aid in Afghanistan was not focused on investing in production sectors such as mining or even agriculture. Most of the funds were focusing on governance and the salary for the government personnel. For instance, about 75% of government expenditures and almost 40% of GDP was dependent on aid flow. And now that the US has limited its aid disbursement to Afghanistan since the Taliban took over in August 2021, the Afghan economy has virtually collapsed. According to the reports from IMF and the United Nations Development program, the Afghan economy as measured by GDP has contracted 20-30% in 2021. It also doesn't help that the US has frozen the $7 billion dollar in Afghan assets and is planning to give half of that sum to the survivors of 9/11.

The second point that I want to mention here is the issue of equity in relation to GDP. A higher GDP doesn't necessarily indicate that everyone gets a fair share in the economy. For instance, between 2007-2008 to 2011-2012, the GDP in Afghanistan had a

6.9% growth yet 36% of Afghans remained poor in 2007-2008 and one in three Afghans couldn't afford to cover their basic needs (World Bank). Afghanistan is a poor country as almost two-thirds of the population are not able to afford food. Poverty has intensified after the Taliban took overpower in 2021 and combined with years of drought have left the Afghan population very vulnerable to poverty and hunger. At the same time, the inequality gap increased as the poorest 20% of the population experienced a 2% decline in their real per capita expenditure, at the same time the richest 20% saw a 9% increase in the real per capital expenditure. Other researchers could possibly study how much the foreign aid has been contributing to widening the inequality gap in Afghanistan.

The third point I want to focus on is the complicated issue of corruption at state and local levels. The Afghan government has been very corrupt in their dealings with its citizens. People with more money and power have access to public services or jobs that most ordinary people don't. Daron Acemoglu and James Robinson in their famous book "WHY NATIONS FAIL" state that there is a correlation between poor decisions of those in political power to increased inequality in a society. They also emphasize the responsibility of the states to create incentives for people to invest and innovate through securing private property rights. In other words, the state is responsible for creating inclusive economic institutions. In Afghanistan, the elite and rich had access to services that ordinary Afghans didn't and that created a disharmony in the resource allocation in society. The Taliban actively used this problem to recruit fighters to take over the corrupt government in Kabul which they ultimately did.

CONCLUSION:

Foreign aid has been beneficial for Afghanistan. One of the main objectives of this study was to find if there is a positive or negative relationship between foreign aid and GDP growth, and if the relationship is statistically significant. Though there have been much debate on this topic, in case of Afghanistan the impact of foreign aid is positive. Foreign aid is a global initiative to fight poverty and stimulate economic growth. The effectiveness of aid to promote economic growth has been widely contested as some scholars argue that foreign aid does not spur economic growth while other scholars believe it does. Accordingly, this study was conducted to evaluate the macroeconomic impact of foreign aid on economic growth in Afghanistan. I employed the ARDL model and used the error correction form to study the long run impacts of foreign aid on economic growth. The results are statistically significant. However, the coefficients of FDI are not significant on economic growth.

I have used the aggregate of foreign aid to evaluate its impact on economic growth. As I have mentioned before, most of the foreign aid was used to sustain the government personnel and since Afghanistan was in war with the U.S. since 2001, most of the money was spent on military operations. Other researchers could separate foreign aid into different sectors and then study its impact on economic growth. The issue of sustainability of foreign aid is also worth mentioning since the U.S. left Afghanistan, foreign aid has declined and so has the GDP.

The graph below shows the real GDP and the fitted values. The fitted values describe how accurately the model explains the relationship between GDP and the other variables.

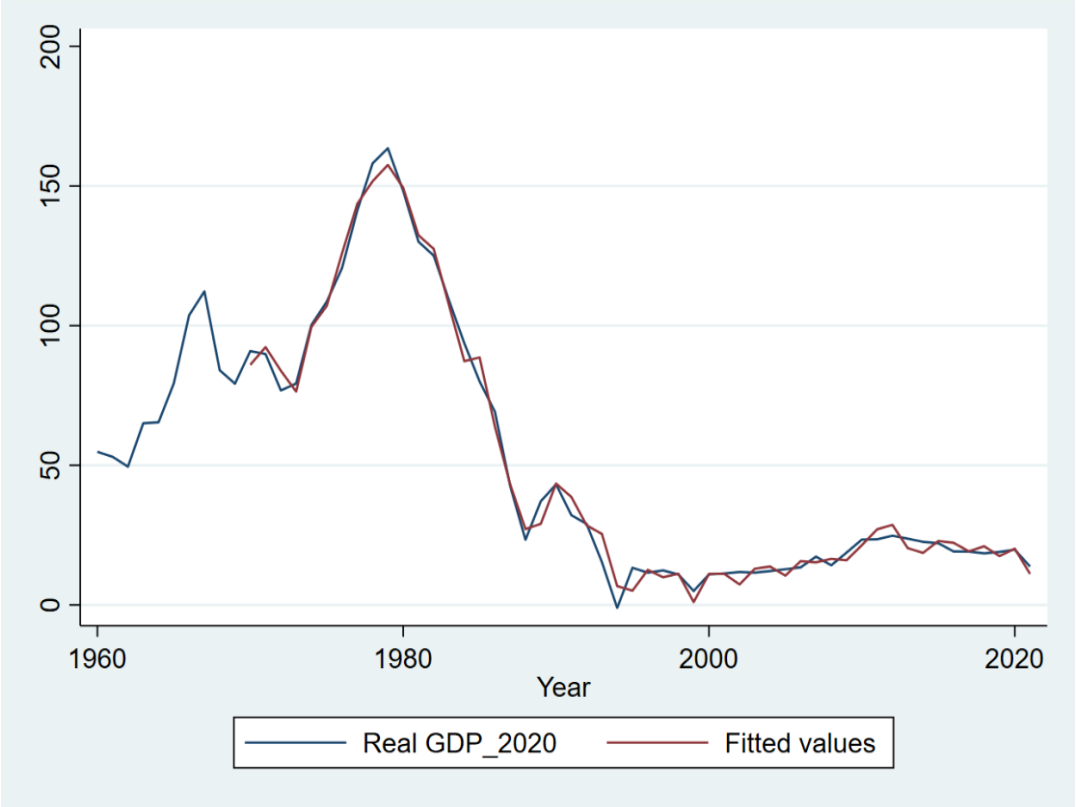

FIGURE 3 GRAPH OF REAL GDP AND FITTED VALUES

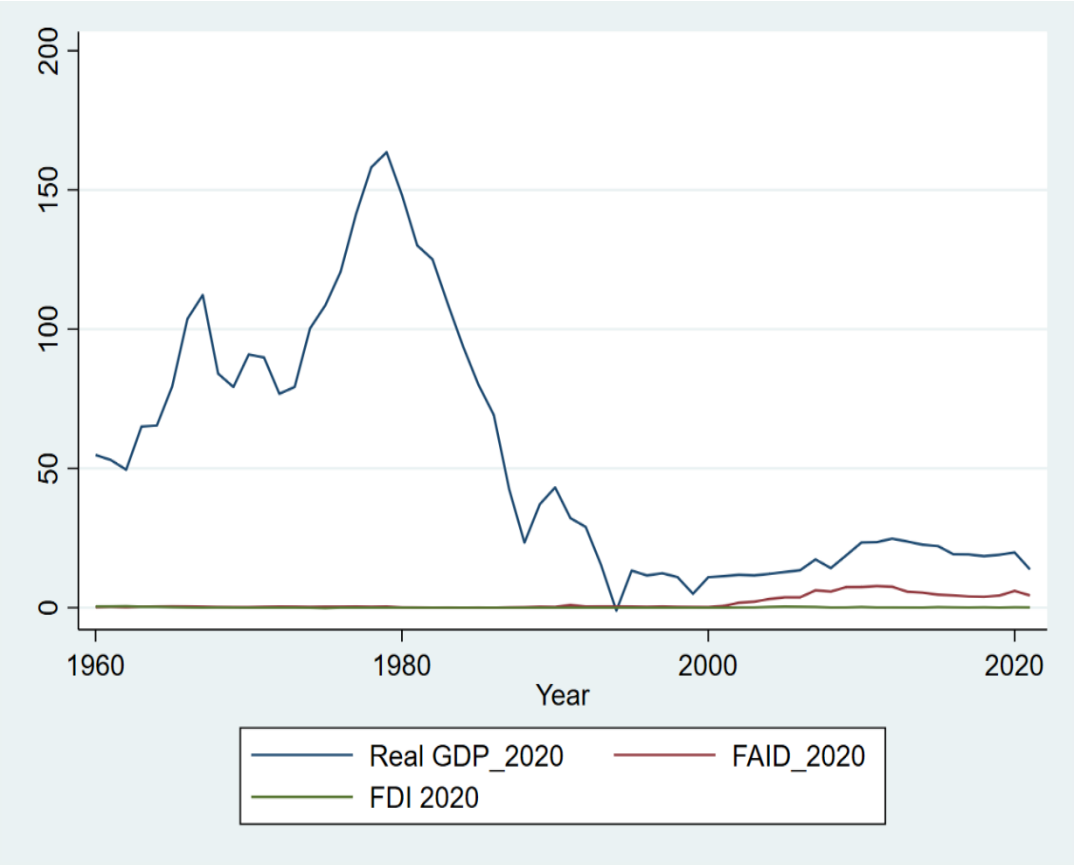

FIGURE 4 GRAPH OF GDP, FDI AND FAID

The graph above shows the fluctuations in GDP, FDI and FAID in Afghanistan from 1960-2020.

CHAPTER 2: FOREIGN AID AND HUMAN DEVELOPMENT INDEX IN AFGHANISTAN

Afghanistan has been the center of aid disbursement for many years and the most recent period starts post 9/11 when the U.S. military got involved in defeating Al-Qaeda and other terrorist organizations. With the military operation, came many financial packages too. For instance, the total amount of non-military funds Washington has appropriated since 2002 is about $100 billion (Brinkley, 2013). Now the question is how much that aid has achieved? One will get different responses depending on who is being asked this question. Some analysts say that it has not achieved much or as much as it should. On the other hand, some people believe there has been a lot of progress with this budget. For instance, one can point to a few major highways that are the lifeline for commerce in the country that was built from this budget.

Before 2001, Afghanistan was a very rural country with very limited access to modern transportation or even electricity. Most of the population is spread around the country with very little access to technology. According to the World Bank and CIA reports, Afghanistan has the world's highest infant mortality rate and fifty-nine percent of the children are malnourished in their early life (Brinkley, 2013). After almost twenty years of extensive aid allocation from many countries, Afghanistan still has lowest income per capita, the lowest life expectancy, the lowest electricity usage and internet penetration (Brinkley, 2013). It is hard to say that nothing has been achieved in Afghanistan in terms of Human development Index. There are now more schools for boys and girls and many public and private universities have started admitting new students.

One can see many changes in terms of gender balance in the workplace. Women was almost non-existent in the government and NGOs during the Taliban regime. However, since the Taliban takeover of Afghanistan in August 2021, the social and cultural realities have changed and, yet again, women are banned from schools and workplaces. This paper covers the period before the Taliban takeover. Afghanistan is used as case study and the question is if foreign aid has been beneficial for the HDI and other development indexes in Afghanistan. The purpose of this paper is to critically evaluate the relationship between foreign aid and Human development index (HDI) in Afghanistan by studying the dynamic and lagged effects.

DATA:

The independent variable is foreign aid, and the dependent variables are HDI, poverty and inequality. The table below describes the variables and their definitions. The secondary data is downloaded from the World Bank database and other reliable sources.

TABLE 7 DEFINITION OF VARIABLES FOR HDI

Variable	Source	Measurement
Foreign aid	World bank	Net official development assistance (ODA) consists of disbursements of loans made on concessional terms and grants by official agencies of the members of the Development Assistance Committee (DAC), by multilateral institutions, and by non-DAC countries to promote economic development and welfare in the countries in DAC list.
Inequality	World Inequality Database	Bottom 50% of national income share
FDI	World Bank	FDI is the net inflows of investment It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital.
HDI	United Nations developing	The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions.

This conceptual diagram shows the association between variables in this study.

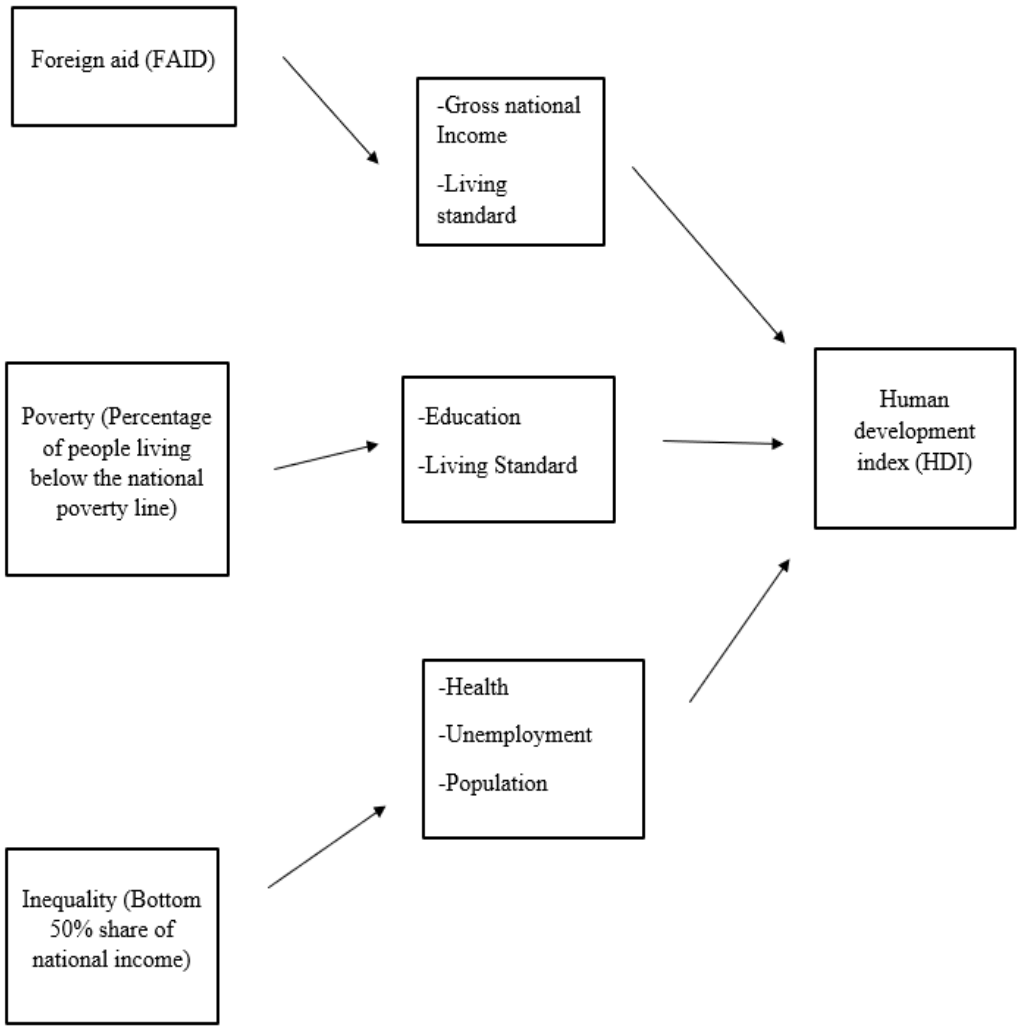

FIGURE 5 CONCEPTUAL DIAGRAM FOR HDI

METHODOLOGY:

The regression used in this study is:

$$y = \beta_0 + \beta 1(FAID) + \beta 2(Inequality) + \beta 3(FDI) + \epsilon \qquad (6)$$

Y denotes HDI, β_0 is the constant and $\beta 1(FAID)$ is foreign aid and $\beta 2(Inequality)$ denotes income inequality in Afghanistan. Income inequality is measured as the bottom 50% of the national income share. $\beta 3(FDI)$ denotes foreign direct investment. And ϵ is the error term. The mathematical equation for ARDL model is: $y = c_0 + c_1 t + \sum_{i=1}^{p} \phi_i y_{t-1} + \sum_{i=0}^{q} \beta_i' x_{t-1} + u_t \qquad (7)$

This is a general ARDL (p, q,.,q) model with intercept c_0, linear trend $c_1 t$, and lag orders $p \in \{1, p^*\}$ $q \in \{0, p^*\}$. We need to choose the maximum lag order conservatively to ensure that there are enough degrees of freedom available to estimate the model's coefficients (Kripfganz and Schneider, 2022). A data driven approach for maximum lag selection can be based on Akaike information criterion (AIC) or Schwarz/Bayesian information criterion. AIC is used in this paper to select the maximum lag order. This is especially relevant if the number of observations in the data set (T) is relatively small.

$$AIC = -2In(\mathcal{L}) + 2k^*$$

$$BIC = -2In(\mathcal{L}) + In(T^*)k^*$$

In the above formula, ln ($\mathcal{L}$) is the value of the log-likelihood function from the estimated regression. $T^* = T - p^*$ is the effective sample size, and $K^* = 2 + p + K(q + 1) + L$ is

the number of estimated coefficients in equation (2). Higher values of ln($\mathcal{L}$) indicate a better fit of the model. Thus, we prefer models that deliver a smaller value of the AIC or BIC (Kripfganz and Schneider, 2022). The following table presents the calculated values of AIC, and BIC.

TABLE 8 AKAIKE INFORMATION CRITERION AND BAYESIAN INFORMATION CRITERION

Lags	*AIC*	*BIC*	*P>ch* i^2	$ch\ i^2$
1	-411.14	-400.59	0.64	0.21
2	-405.14	-390.48	0.81	0.41
3	-416.73	-395.96	0.41	2.82
4	-416.73	-395.96	0.47	3.54
5	-416.73	-395.96	0.57	3.85
6	-394.52	-351.98	0.34	6.73
7	-394.42	-338.21	0.18	10.10
*8***	-393.65	-331.99	0.12	12.68
9	-404.02	-335.06	0.00	22.90
10	-409.20	-338.95	0.00	26.23

** indicate the maximum lag order selection.

In order to estimate the long run coefficients, we need to present the model in error correction form.

$$\Delta y_t = c_0 + c_1 t - \alpha(y_{t-1} - \theta x_{t-1}) + \sum_{i=i}^{p-1} \psi yi \Delta yt - 1 + \omega' \Delta x_t + \sum_{i=1}^{q-1} \psi'_{x_i \Delta} x\, t - 1 + y' z_t + u_t \quad (8)$$

The algebraic form of the coefficients in equation (8) can be written as follows:

$$\alpha = 1 - \sum_{i=i}^{P} \phi i, \qquad \theta = \frac{\sum_{j=0}^{q} B_j}{a} \quad , \quad \psi yi = -\sum_{j=i+1}^{P} \phi j \quad , \qquad \omega = \beta_0$$

$$\psi xi = \sum_{j=i+1}^{q} \beta j$$

Estimating the long-run coefficients needs one more step which is called the bounds test. For bounds test, we need to use the F-statistics to test the joint null hypothesis $H_{0^F:(a=0)} \cap \left(\sum_{J=i}^{q} \beta_j = 0\right)$ versus the alternative hypothesis $H_{1^F:(a\neq 0)} \cup \left(\sum_{J=0}^{q} \beta_j \neq 0\right)$. If the H_{0^F} is rejected, we use the t-statistic to test the single hypothesis $H_0^t: \alpha = 0 \; Versus \; H_1^t: \alpha \neq 0$. If the null hypothesis in steps 1 and steps 2 are both rejected, we can use conventional Wald tests for the joint to test whether the elements of θ are individually or jointly statistically significantly different than zero (Kripfganz and Schneider, 2022). There is statistical evidence for the existence of a long run/cointegrating relationship if the null hypothesis is rejected in all three steps. The test decisions for the existence of long -run relationships depend on the values of F-statistics and T-statistics. We do not reject $H_0^F \; or \; H_0^t$, respectively, if the test statistic is closer to zero than the lower bound of the critical values. We reject the $H_0^F \; or \; H_0^t$, respectively, if the test statistic is more extreme than the upper bound of the critical values. The table below presents the lower and upper bound values for the H_0^F and H_0^t. We can see that the F-statistics is smaller than I(0) series and T-statistics is above the lower bound values thus there is no-long run relationship between HDI and Foreign aid, inequality and FDI.

TABLE 9 LOWER AND UPPER BOUND CRITICAL VALUES FOR HDI

Intercept/ Time trend $H_0 f$	F-statistics	T-statistics	I(0) I(1) 10%	I(0) I(1) 5%	I(0) I(1) 1%	I(0) I(1) p-value
No-Trend/ Unrestricted intercept	1.62	-2.09	2.72 3.77	3.23 4.35	3.69 4.89	4.29 5.61
Restricted	1.58	-2.09	2.37 3.20	2.79 3.67	3.15 4.08	3.65 4.66
Trend-Restricted	1.74	-2.44	2.97 3.74	3.38 4.23	3.80 4.68	4.30 5.23
Trend	2.18	-2.44	3.47 4.45	4.01 5.07	4.52 5.62	5.17 6.36
$H_0 t$						
No-Trend/ Unrestricted intercept	1.62	-2.09	-2.57--3.46	-2.86-3.78	-3.13-4.05	-3.43-4.37
Restricted	1.58	-2.09	-2.57 -3.46	-2.86-3.78	-3.13-4.05	-3.43-4.37
Trend-Restricted	1.74	-2.44	-3.13 -3.84	-3.41-4.16	-3.65-4.42	-3.96-4.73
Trend	2.18	-2.44	-3.13 -3.84	-3.41-4.16	-3.65-4.42	-3.96-4.73

RESULTS:

The ARDL method starts with the testing of lagged values of the variables in the error correction form using F-statistics. In order to avoid the problem associated with the non-standard nature of the asymptotic distribution of the computed F-statistics, Pesaran et al .(1996) presented the tabulated appropriate critical values for different numbers of regressors to overcome this difficulty (Adu, Omobola, Oghogho, Abiola, and Felicia, 2019).

Table 10 presents the long-run coefficients for the variables in this study. The coefficients for FDI and FAID are not significant as the p-values is greater than 0.05. The only significant coefficient is inequality, which is measured as the bottom 50% of national income share. According to the results in Table 10, a 1% increase in foreign aid will lead to a 0.09% increase in inequality. This means that a minority population in the country will get most of the benefits from the foreign aid and these are the people who are connected to the NGO's or government agencies. According to recent estimates 47% of the Afghan population live in poverty. The increased in the poverty rates is intensified as the foreign aid is reduced with the withdrawal of the U.S. troops from Afghanistan in August 2021.

Table 11 presents the short-run coefficients for the variables in this study. The coefficient for inequality is significant as the p-value is smaller than 0.05. Based on this result, a 1% increase in foreign aid will decrease HDI by 3% only in the short run. This finding is in line with the findings of Chong et al (2009) whose study observed that foreign aid had a non-significant negative impact on income

inequality. This finding is also in line with Magnon (2000) (Kunofiwa, Tsaurai 2023).

Table 10 Estimated long-run coefficients for HDI.

Estimated long-run coefficients using the ARDL approach.
ARDL (1,8,3,0) selected based on the Akaike Information Criterion (AIC)
Dependent variable HDI.
54 Observations used from 1968 to 2021.
** indicate statistical significance at 95% confidence interval.

Regressors		**Coefficients**	**St. Error**	**P>T|**	**95% Conf. Interval**
FDI	No Trend	0.09	0.05	0.07	-0.00
	Restricted	0.09	0.05	0.07	-0.00
	Trend-Restricted	0.07	0.04	0.08	-0.00
	Trend	0.07	0.04	0.08	-0.00
Inequality	No Trend	** 0.14	0.01	0.00	0.11
	Restricted	** 0.14	0.01	0.00	0.11
	Trend-Restricted	** 0.09	0.03	0.02	-0.01
	Trend	** 0.09	0.03	0.02	0.01
FAID	No Trend	0.00	0.00	0.08	-0.00
	Restricted	0.00	0.00	0.08	-0.00
	Trend-Restricted	0.00	0.00	0.00	0.00
	Trend	0.00	0.00	0.00	0.00

Table 11 Estimated short-run coefficients for HDI

Estimated short-run coefficients using the ARDL approach.
ARDL (1,8,3,0) selected based on the Akaike Information Criterion (AIC)
Dependent variables HDI.
54 Observations used from 1968 to 2021.
** INDICATES STATISTICAL SIGNIFICANCE AT 95% CONFIDENCE INTERVAL

Regressors		**Coefficients**	**St. Error**	**P>T|**	**95% Conf**
No Trend					
Inequality	**LD**	** -0.03	0.01	0.03	-0.06
FAID	**L2D**	** 0.01	0.00	0.01	0.00
Restricted					
Inequality	**LD**	** -0.03	0.01	0.03	0.06
FAID	**L2D**	** 0.01	0.00	0.01	0.00
Trend-Restricted					
Inequality	**LD**	-0.03	0.01	0.06	-0.06
Trend					
Inequality	**LD**	-0.03	0.01	0.06	-0.06

DISCUSSION:

ARDL was utilized to study the impacts of foreign aid on HDI in Afghanistan. The data was collected from the World Bank and other reliable sources to establish any significant relationship between foreign aid and HDI. The model shows that there is no significant correlation between foreign aid and HDI in Afghanistan. This is a surprising finding since the international community has invested a lot of resources in schools, public health and infrastructure. Here I want to mention some important points that could explain why foreign aid didn't impact HDI in Afghanistan.

First, most of the Afghan population lives in the rural places where they have limited access to school or public health services. According to reports from UNICEF about 71% of the population in Afghanistan lives in rural places. Only 24% live in urban areas. Rural areas in Afghanistan are generally underserved and they lack access to market and other vital services such as hospitals and clinics. Rural areas have limited access to internet and phone coverage, which is essential to connect to services. A study done by Khan et al investigating the determinants of HDI in Pakistan established a positive correlation between information and communication technology on HDI in Pakistan (Khan, Noor Hashim, Yangbin Ju, Syed Tauseef Hassan, 2019). Accessibility to public services is very important, especially for the most vulnerable population.

Second, is the issue of poverty that is crippling the Afghan society. Based on the reports from World Bank, poverty rate was 47% in 2019-2020, and by mid-2020, two thirds of the Afghan population could not afford food or other basic non-food items. Again, this shows that the international community failed to create inclusive economic institutions to lift the poor from poverty. Further studies could be done on how to create inclusive economic institutions in Afghanistan to help alleviate the poverty rate. The increase in poverty rate since the U.S. withdrawal is a sign that foreign aid was not very sustainable to increase the GDP and lower poverty rate in Afghanistan.

Third, is the topic of literacy in Afghanistan. The international community did invest heavily in establishing schools for boys and girls. However, it was not enough as only 37% of the population can read and write. There is a significant gap between women and men literacy rate as the literacy rate for men is about 55%, for women, its only 29.8% (UNESCO). And since the Taliban took over Afghanistan women have been excluded from almost every social and cultural activities including attending schools and public universities. The Taliban ban on women imposes a lot of restrictions on women to pursue their goals and dreams. Amartya Sen in his seminal book “Development as Freedom” mentions that the goal of development should be to increase the freedom of individuals. Individual freedom is the most fundamental element of development according to Sen, countries with more individual freedom tend to do better in most development

metrics such as HDI. Until the restriction on individual freedom is not abolished, the Afghan society will suffer, and it will affect women disproportionately.

CONCLUSION:

ARDL was used for this study and based on this model, foreign aid doesn't have a positive relationship with HDI in Afghanistan. As I have mentioned before, the most crucial element of development, which is freedom of individuals, is non-existent in Afghanistan. However, it is worth mentioning that HDI did improve in Afghanistan in early years of 2000s. But since the U.S. withdrawal it has been decreasing rapidly due to the lack of funding and resources available to run schools and public services. It disproportionately affects the poor population. Afghanistan ranks 169th out of 187 countries and the gender development index (GDI) puts Afghanistan in group five, which is the lowest group of countries in terms of gender equality.

The U.S. foreign aid strategy in Afghanistan was poorly executed and very unaligned with the needs and wants of the people. The absence of a significant positive effect in this case study does not necessarily mean that aid does not work at all, but rather in this case there were real problems with the approach taken by the U.S. and Afghan government. Some expert have mentioned that the situation would have been worse in Afghanistan if there was not foreign aid at all. I want to make a distinction here that foreign aid did help materialize some short-term benefits during crisis, but it failed in the long-term. As foreign aid has decreased

since 2021, the GDP in Afghanistan has contracted almost 30% (World Bank, 2023). The problem in Afghanistan was multidimensional as the Afghan government was one of the most corrupt states in the world.

The graph below represents the HDI and the linear prediction line in red. It shows how accurately the model describes the relationship between the variables.

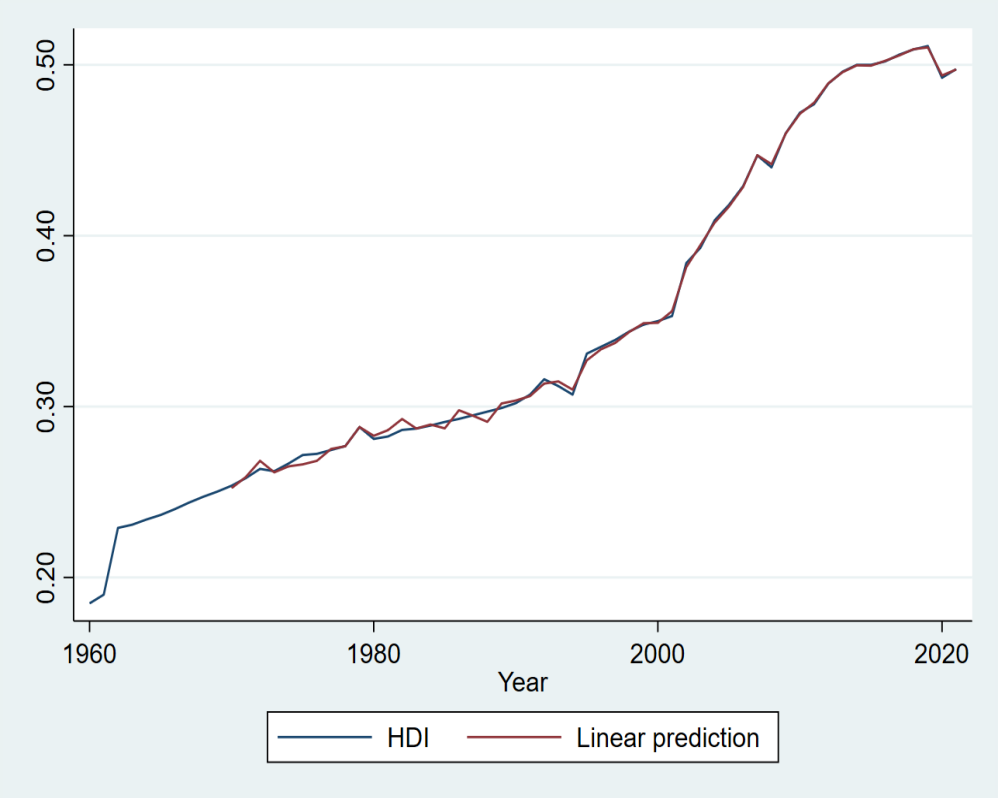

FIGURE 6 GRAPH OF HDI AND ITS LINEAR PREDICTION

REFERENCES:

Adelmann, Bob. “The Marshall Plan: the Post-WWII Marshall Plan, Long Touted as the Aid Plan That Reinvigorated Europe, Didn't Have as Its First Priority Actually Helping the Citizens of Europe.(HISTORY--PAST AND PERSPECTIVE).” The New American (Belmont, Mass.), vol. 28, no. 14, 2012, p. 34.

Adu, Omobola, Oghogho Edosomwan, Abiola Ayopo Babajide, and Felicia Olokoyo. "Industrial Development and Unemployment in Nigeria: An ARDL Bounds Testing Approach." International Journal of Social Economics 46.1 (2019): 83-96. Web.

Allen C. Kelley. "The Human Development Index: "Handle with Care"." Population and Development Review 17.2 (1991): 315-24. Web.

Alkire, Sabina. "Dimensions of Human Development." World Development 30.2 (2002): 181-205. Web.

Amerian, S. (2015). Buying European. Diplomatic History, 39(1), 45-69.

Askarov, Zohid, and Hristos Doucouliagos. "Development Aid and Growth in Transition Countries." World Development 66 (2015): 383-99. Web.

Alvi, Eskander, and Aberra Senbeta. “DOES FOREIGN AID REDUCE POVERTY?” *Journal of International Development*, vol. 24, no. 8, 2012, pp. 955–976.

Bernhofen, D., & Brown, J. (2018). Retrospectives. The Journal of Economic Perspectives, 32(4), 227-240.

Bilbao-Ubillos, Javier. "Another Approach to Measuring Human Development: The Composite Dynamic Human Development Index." Social Indicators Research 111.2 (2013): 473-84. Web.

Biscaye, P., Reynolds, T., & Anderson, C. (2017). Relative Effectiveness of Bilateral and Multilateral Aid on Development Outcomes. Review of Development Economics, 21(4), 1425-1447.

Brinkley, Joel. "MONEY PIT: The Monstrous Failure of US Aid to Afghanistan." World Affairs 175.5 (2013): 13-23. Web.

Brown, Stephen. “Foreign Aid and Democracy Promotion: Lessons from Africa.” European Journal of Development Research, vol. 17, no. 2, 2005, pp. 179–198.

Boone, P. (1996). “Politics and the Effectiveness of Foreign Aid.” *European Economic Review* 40, no. 2 (1996): 289-329.

Boianovsky, Mauro. "Beyond Capital Fundamentalism: Harrod, Domar and the History of Development Economics." Cambridge Journal of Economics 42.2 (2018): 477-504. Web.

Bolocan, M. (2018). MARSHALL PLAN: CONCLUSIONS. Revista Română De Studii Eurasiatice, 14(1-2), 119-130.

Burke, Paul J, and Fredoun Z Ahmadi-Esfahani. "Aid and Growth: A Study of Southeast Asia." Journal of Asian Economics 17.2 (2006): 350-62. Web

Cai, Donghan, et al. “A Generalized Solow-Swan Model.” Abstract and Applied Analysis, vol. 2014, 2014, pp. 1–8.

Çakıt, Erman, and Waldemar Karwowski. "Understanding Patterns of Infrastructure Development in the Active War Theater of Afghanistan Over the Period 2002-2010." Procedia Manufacturing 3 (2015): 3876-882. Web.

Carvalhal Monteiro, Raquel, Lourenço Pereira, and Valdecy Costa. "A Multicriteria Approach to the Human Development Index Classification." Social Indicators Research 136.2 (2018): 417-38. Web.

Cai, D., Ye, H., & Gu, L. (2014). A Generalized Solow-Swan Model. Abstract and Applied Analysis, 2014, 1-8.

Chandrashekar, CP (2003): “The Post-War Afghan Economy”, 23 July.

Chong, A.; Gradstein, M. & Calderon, C. (2009). Can foreign aid reduce income inequality and poverty? Public Choice, 140, pp. 59-84.

Clemens M. A. Radelet S. and Bhavnani R. (2004). Counting chickens when they hatch: The short-term effect of aid on growth.
Centre for Global Development Washington DC Centre for Global Development (Working Paper No. 44).

Doina Drăgoi. "HARROD – DOMAR ECONOMIC GROWTH MODEL IN CLASSICAL AND NEOCLASSICAL THEORY." Analele Universităţii Constantin Brâncuşi Din Târgu Jiu: Seria Economie 6 (2019): 281-87. Web.

Duncan, R.C. “Papua New Guinea: Poverty Analysis, Poverty Reduction and the Appropriateness of AusAID’s Development Assistance.” National Centre for Development Studies, Australian National University, 2001.

Easterly, William. "The Ghost of Financing Gap: Testing the Growth Model Used in the International Financial Institutions." Journal of Development Economics 60.2 (1999): 423-38. Web

Fasanya, I. O., & O Onakoya, A., B. (2012). Does foreign aid accelerate economic growth? an empirical analysis for Nigeria. *International Journal of Economics and Financial Issues, 2*(4), 423-n/a. Retrieved from https://search-proquest-com.ezproxy.uvm.edu/scholarly-journals/does-foreign-aid-accelerate-economic-growth/docview/1125838354/se-2?accountid=14679.

Fayez, Hikmatullah. "The Role of Foreign Aid in Afghanistan's Reconstruction: A Critical Assessment." Economic and Political Weekly 47.39 (2012): 65-70. Web.

Gebresilassie, Belay Asfaw et al. "Impact of Foreign Aid on Economic Growth in Ethiopia." *Journal of the Knowledge Economy*, 1–19. 17 Apr. 2023, doi:10.1007/s13132-023-01303-y

Gomanee, K., O. Morrissey, P. Mosley, and A. Verschoor. "Aid, Government Expenditure, and Aggregate Welfare." *World Development* 33, no. 3 (2005): 355-70.

Griffin, K. B., and J. L. Enos. "Foreign Assistance: Objectives and Consequences." Economic Development and Cultural Change 18.3 (1970): 313-27. Web.

Harris, D. J. (n.d.). *The classical theory of Economic Growth - Stanford University*. The classical theory of economic growth. Retrieved February 15, 2022, from https://www.web.stanford.edu/~dharris/papers/The Classical Theory of Economic Growth.pdf

Hansen, Henrik, and Finn Tarp. "Aid Effectiveness Disputed." Journal of International Development 12.3 (2000): 375-98. Web.

Hasan, Zubair. "Determinants of Human Resource Development: An Empirical Analysis." *IIUM Journal of Economics and Management* 8, no. 2 (2000): 157-87.

Hasret Balcioglu. "Foreign Aid and Economic Growth: A Panel Cointegration for Selected Turkic Republics." International Journal of Business & Social Research 6.6 (2016): 17-23. Web.

https://www.worldbank.org/en/topic/poverty/publication/poverty-reduction-in-afghanistan-despite-economic-growth-widening-inequality

The Lancet. "A Crucial Time for Afghanistan's Fledgling Health System." The Lancet (British Edition) 365.9462 (2005): 819-20. Web.

Kripfganz, Sebastian and Daniel C. Schneider. "ardl: Estimating autoregressive distributed lag and equilibrium correction models." (2022).

Khan, Noor Hashim, Yanbing Ju, and Syed Tauseef Hassan. "Investigating the Determinants of Human Development Index in Pakistan: An Empirical Analysis."

Environmental Science and Pollution Research International 26.19 (2019): 19294-9304. Web.

Kurz, H. (2010). Technical progress, capital accumulation and income distribution in Classical economics: Adam Smith, David Ricardo and Karl Marx. The European Journal of the History of Economic Thought, 17(5), 1183-1222

Kosack S. (2003). Effective aid: How democracy allows development aid to improve the quality of life. World Development 31(1) 1-22.

Kusago, Takayoshi. "Rethinking of Economic Growth and Life Satisfaction in Post-Wwii Japan – A Fresh Approach." Social Indicators Research 81.1 (2007): 79-102. Web.

Kunofiwa Tsaurai. "Impact of Foreign Aid on Income Inequality in Emerging Markets." *Acta Universitatis Danubius. Œconomica*, vol. 19, no. 3, 2023, pp. Acta Universitatis Danubius. Œconomica, 2023, Vol.19 (3).

Lowe, A. (1984). The Classical Theory of Economic Growth. Social Research, 51(1/2), 111-142.

Luis F. Lopez-Calva, and Eduardo Ortiz-Juarez. "A Household-Based Distribution-Sensitive Human Development Index: An Empirical Application to Mexico, Nicaragua and Peru." Social Indicators Research 109.3 (2012): 395-411. Web.

Mallik, Girijasankar. "Foreign Aid and Economic Growth: A Cointegration Analysis of the Six Poorest African Countries." Economic Analysis and Policy 38.2 (2008): 251-60. Web.

Magnon, K. A. (2012). Foreign aid, inequality and poverty: Is the effect in Sub-Saharan Africa different? Research Papers Number 221.

Masoud Rashid Mohamed and Said Seif Mzee. "FOREIGN AID AND HUMAN DEVELOPMENT: A QUANTILE REGRESSION APPROACH." International Journal of Economics, Management and Accounting 25.1 (2017): 27. Web.
Maqsood, Fauzia, and Sami Ullah. "Foreign Aid Volatility and Socio-Economic Dimensions of Human Development Index: A Case Study of Pakistan." Pakistan Journal of Social Sciences 34.1 (2014): 59-67. Web.

McGillivray, Mark. "The Human Development Index: Yet Another Redundant Composite Development Indicator?" World Development 19.10 (1991): 1461-468. Web.
Mosley, P., and J. Hudson. *Aid, Poverty Reduction and the New Conditionality*. OECD International Development Statistics CD Rom, Paris, 2001.

Morrissey, Oliver. "Does Aid Increase Growth?" Progress in Development Studies 1.1 (2001): 37-50. Web.

Murray, J. L. (1993). Development data constraints and the Human Development Index. In D. G. Westendor & D. Ghai (Eds.), Monitoring social progress in the 1990's (pp. 40–44). Aldershot: Avebury.

Nayaran, K., 2004. Reformulating Critical Values for the Bounds F-statistics Approach to Co integration: An Application to the Tourism Demand Model for Fiji". Discussion Papers No 02 Monash University, Victoria,
Australia.

Nicolae MOROIANU, & Daniela MOROIANU. (2012). Models of the Economic Growth and their Relevance. *Theoretical and Applied Economics, XIX* (6), 135-142.

Nigusse, Tekeber, Tekilu Tadesse, and Tesfaye Melaku Merra. "Supply and Demand Side Determinants of Inflation in Ethiopia Auto-regressive Distributed Lag Model (ARDL)." International Journal of Commerce and Finance 5.2 (2019): 8-21. Web.

Oumar Bouare. (2009). AN EVALUATION OF DAVID RICARDO'S THEORY OF COMPARATIVE COSTS: DIRECT AND INDIRECT CRITIQUES. Journal of Economic Development, 34(1), 99-125.

Pereira, Débora Viana E Sousa, Pereira, Débora Viana E Sousa, Mota, Caroline Maria De Miranda, and Mota, Caroline Maria De Miranda. "Human Development Index Based on ELECTRE TRI-C Multicriteria Method: An Application in the City of Recife." Social Indicators Research 125.1 (2016): 19-45. Web.

Ranis, G., Mahmood, S.A., 1992. The Political Economy of Development Policy Change, Basil Blackwell, Oxford.

Ricardo, D. (1817). On the principles of political economy and taxation. By David Ricardo, esq. London: J. Murray.

Robert M. Solow. (2000). The neoclassical theory of growth and distribution. PSL Quarterly Review, 53(215), 349-381.

Rosenstein-Rodan PN. 1961. International aid for underdeveloped countries. Review of Economics and Statistics 43(2): 107±138.

Ruffin, R. (2002). David Ricardo's Discovery of Comparative Advantage. History of Political Economy, 34(4), 727-748.

Smith, A. (1776). An inquiry into the nature and causes of the wealth of nations. By Adam Smith ... London: W. Strahan and T. Cadell.

Sperling, James, and Mark Webber. "NATO's Intervention in the Afghan Civil War." Civil Wars, vol. 14, no. 3, 2012, pp. 344–372.

Shirazi, Nasim Shah, et al. “Effectiveness of Foreign Aid and Human Development.” *Pakistan Development Review*, vol. 48, no. 4, 2009, pp. 853–862.

Srinivasan, T. N. (2012). Human development: A new paradigm or reinvention of the wheel? *American Economic Review, 84*(2), 238–243.

Swinnen, Johan. "The Impact of Aid on Economic Growth in Transition Economies: An Empirical Study." IDEAS Working Paper Series from RePEc (2003): IDEAS Working Paper Series from RePEc, 2003. Web.

Svensson, Jakob. "Foreign Aid and Rent seeking." Journal of International Economics 51.2 (2000): 437-61. Web.

Tavva, Srinivas, Abdelali-Martini, Malika, Aw-Hassan, Aden, Rischkowsky, Barbara, Tibbo, Markos, and Rizvi, Javed. "Gender Roles in Agriculture: The Case of Afghanistan." Indian Journal of Gender Studies 20.1 (2013): 111-34. Web.

Tadesse, Tasew. "Foreign Aid and Economic Growth in Ethiopia." IDEAS Working Paper Series from RePEc (2011): IDEAS Working Paper Series from RePEc, 2011. Web.

Tavares, José. "Does Foreign Aid Corrupt?" Economics Letters 79.1 (2003): 99-106. Web.

Tahir, Muhammad & Estrada, Mario Arturo Ruiz & Afridi, Muhammad Asim, 2019. "**Foreign inflows and economic growth: An emiprical study of the SAARC region**," Economic Systems, Elsevier, vol. 43(3).

Temitope Leshoro. "Foreign Aid and Economic Growth in South Africa: An Empirical Analysis Using Bounds Testing." Journal of Economic and Financial Sciences 6.1 (2013): 55-66. Web.

Trani, Jean-Francois, et al. “Multidimensional Poverty in Afghanistan: Who Are the Poorest of the Poor?” Oxford Development Studies, vol. 44, no. 2, 2016, pp. 220–245.

Trebat, N. (2018). The United States, Britain and the Marshall Plan: Oil and finance in the early postwar era. Economia E Sociedade (Sao Paulo, Brazil), 27(1), 355-373.

Williamson, Claudia R. “Foreign Aid and Human Development: The Impact of Foreign Aid to the Health Sector.” *Southern Economic Journal*, vol. 75, no. 1, 2008, pp. 188–207.

World Health Organization. (2015). Millennium development goals (MDGs). https://www-who-int.ezproxy.uvm.edu/topics/millennium_development_goals/about/en/. Accessed September 2019.

World Bank. (2019). World development indicators. Washington, DC: World Bank. https://databank-worldbank-org.ezproxy.uvm.edu/source/world-development-indicators#. Accessed June 2019.

White, Howard. "The Macroeconomic Impact of Development Aid: A Critical Survey." The Journal of Development Studies 28.2 (1992): 163-240. Web.

Zhou, Mingchun, et al. “A Solow-Swan Model with Technological Overflow and Catch-Up.” Wuhan University Journal of Natural Sciences, vol. 12, no. 6, 2007, pp. 975–978.

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