US FOREIGN AID AND ECONOMIC GROWTH: A POST-9/11 CASE STUDY OF PAKISTAN AS A KEY ALLY IN THE WAR AGAINST TERRORISM

Published in the Proceedings to the Pennsylvania Economic Association Conference Summer 2004

Haider Mullick
Department of Economics
Indiana University of Pennsylvania
Indiana, PA 15705 – 1087
(724) 357-9204
H.A.Mullick@iup.edu

ABSTRACT

This paper examines GDP growth of Pakistan using economic and socio-economic indicators after the terrorist attacks of September 11, 2001. The sample consists of time series data from the years 1980 to 2003. The dependent variable is the percentage change in real GDP and the independent variables include economic aid from the US (US-FAID), total investment, foreign reserves, unemployment rate, stock exchange index etc. Log-Log Ordinary Least Squares analysis of the sample suggests that the dependent variable is positively affected by economic factors, such as US-FAID and development expenditure, while some socio-economic indicators show little bearing on GDP growth. The data also illustrates that the economic cost of becoming a pioneer in the war against terrorism has exceeded the benefits indicating that more financial compensation in the form of economic aid is vital from the US to ignite higher economic growth in Pakistan. This study also suggests that supporting Pakistan"s economic growth is in the best interest for both countries.

INTRODUCTION

Pakistan has provided the United States with logistical and military support to curb the threat of terrorism, but has received, in the last four years, the meager sum of $2.4 billion in foreign aid[1] from the United States. An amount between $10 billion to $15 billion is necessary to reduce Pakistan"s external debt of $35 billion and bring the economy into the mainstream of developed nations (The News 2003). Pakistan averaged a 3.1% growth in real GDP in the last three years (2001-2003), almost three percentage points below target and much below the „boom" period of the 1980s that averaged 6.1% growth (Pakistan Economic Survey 2003). The Pakistan Economic Survey 2001-2003 Report states that Foreign Direct Investment (FDI) decreased by 66.5% in 2001, and has since staggered to grow. In just the first three months after the terrorist attacks (October-December 2001), billions of rupees were lost in Pakistani export and import orders that increased unemployment and deteriorated capital and current account deficits (Khan 2001).

While other factors such as the retaliatory military build-up on the line of control (LOC) against India and the brief unprecedented drought did affect the budget spending; the data used in this study shows that these factors were negligible. The immense change in economic indicators took place after the terrorist attacks in 2001. At present Pakistan has a per capita income of less than $600, $35 billion in external debt, 8% unemployment, 4% inflation (Pakistan Economic Survey 2002) and a 15% increase in population since 1997 (Census Report of Pakistan 1998). Consequently, more US-AID is

[1] For this paper, foreign aid is defined as all kinds of financial and military aid given to a country in the form of grants

needed in the form of military compensation and economic grants, to put the economy on a solid footing.

Human resources in the form of military services, numerous logistical and intelligence capital have been spent to weigh down the threat of terrorism. This paper will examine the correlation between GDP growth and US foreign aid. While this topic is very vast, the focus will be on real GDP growth as the dependent variable, with total investment, foreign reserves, economic aid from the US, trade deficit, budgetary deficit financing, inflation, unemployment, development expenditure, health expenditure, stock market and poverty, as the independent variables. Data analysis of these variables will show that although many sectors of the economy are relatively growing after the financial support granted by the US, the cost of fighting terrorism is much higher. International and domestic political instability requires the US to provide more foreign aid.

2. LITERATURE REVIEW

2.1 Foreign Aid, Economic Growth and Investment

In 2000, the British Department for International Development, concluded, based on the research of Burnside and Dollar (Burnside et. al. 2000) that "development assistance can contribute to poverty reduction in countries pursuing sound policies." These two economists argued that foreign aid had a positive impact on growth in developing countries with good fiscal, monetary and trade policies. These macroeconomic policies regarding trade and domestic finances were also accompanied by infrastructure building and curbing corruption. James Wolfensohn, the president of World Bank, in 2001, said, "We have learned that corruption, bad policies, and weak governance will make aid ineffective."

The World Bank provided empirical evidence in which foreign aid to a country was linked to higher levels of investment, which in turn led to higher economic growth rates, in the presence of sound policy, over the last three decades (World Bank Statistics on Countries, Pakistan 2000-2002). One can argue about the success stories versus the failures, but the data shows that in more cases than not, selective foreign aid has helped raise per capita income and lower infant mortality rates in under-developed nations (Easterly 2003). Selective foreign aid, which is a relatively new methodology for disbursing foreign aid in under-developed nations, focuses on the direction of aid that can ignite more economic growth. As a result, donor countries and institutions put conditions on nations receiving foreign aid before the aid is disbursed. These austerity measures include "macroeconomic stability" (low-budget deficits and inflation), noninterference with market pricing, privatization of state-owned enterprises and openness to international trade (Easterly 2003).

The United States has been one of the chief contributors to international financial institutions (IFIs), such as the IMF and World Bank; however, it has the "lowest aid-to-GDP ratio of any rich country" (Easterly 2003). As a result, in late 2002 at the Inter-American Development Bank, the President of the United States called for "a new compact for global development, defined by new accountability for both rich and poor nations alike. Greater contributions from developed nations must be linked to greater responsibility from developing nations." This speech, led to the creation of The Millennium Challenge Account to administer $5 billion in foreign aid to under-developed nations (The US White House). The donors have used, loan evaluation as a strong component of financial accountability. After surrendering to liability advocates, major

IFIs have setup watch-dog committees which oversee the disbursement of financial aid to various institutions under local government supervision. This has made selective financial aid to developing nations more effective by implementing governmental accountability.

2.2 US-AID and Pakistan

After the terrorist attacks of September 11, 2001, many rich donor countries have realized that foreign aid to under-developed nations has become more important than previously perceived. If under-developed nations are left isolated in the global wave of international trade and economic growth, they have a high risk of falling into the hands of religious and ideological extremists.

The new paradigm of world politics has also brought about a new era of economic aid. Pakistan has acted as a pioneer in the war against terrorism by sidelining with the United States to curb the threat of Taliban in Afghanistan and then hamper the spread of fundamentalists at home. Due to Pakistan"s decision to help the US and NATO forces to defeat the Taliban in Afghanistan, they have won the war in an expedited and planned manner. The advantage of allying with a militarily superior neighbor of Afghanistan has ended in a great triumph for the US and its allies. This success has come with a heavy price tag for both countries. Just three months after the terrorist attacks, and the public announcement of allying with the United States, by the Pakistani President, Pakistan had incurred a loss of $1.8 billion which included decline in net export and reduction in overall business optimism (Khan 2001). This included a trade balance deterioration of $500 million as the country was put on war watch from its trade partners, followed by increases in trade insurance and transportation costs.

The director general of the Debt Office, Ministry of Finance, Pakistan, has argued that economic growth which was targeted to be above 5.0% per year, has in actuality shown an average of 3.0% from 1999 to 2002 and less than 4% from 2002 to 2003, mainly because of Pakistan"s role in the war against terrorism (Central Bank of Pakistan: Third Quarterly Report 2002-2003). The terrorist attacks were orchestrated at the worst time of Pakistan"s growth cycle. The golden era of 6.1% economic growth in the 1980s had plummeted into the dark ages of the late 1990s when total deficit financing accounted for 118% of the GDP.

This happened due to many geo-political reasons; the Afghan-Russian war from 1981-89; widespread bureaucratic and political corruption; stagnation of all democratic institutions; introduction of strict Islamization and reduced monetary and fiscal accountability. After the military coup in October 1999, President Musharaff implemented stabilization and growth-inducing policies to reduce fiscal deficit, bring down the external debt, control currency depreciation, promote Pakistani exports and increase the tax net. This demonstrates that Pakistan has been following stable economic policies and political reforms to become more attractive to foreign aid donor countries, especially the US.

2.3 US Foreign Aid to Pakistan (1980-2002)

Observing the data collected for this study, from 1980 to 2002, 5 major phases of economic change can be observed in Pakistan"s economy.

2.31 Russian-Afghan War (1980-1989)

This phase represents the war fought by the Afghan fighters (*mujahideen*), funded by the Pakistani ISI and the US CIA, against the Russian invasion of Afghanistan. During

this period Pakistan was a key ally of the US and rigorously provided arms and tactical training to Afghani fighters[2]. As observed in Appendix 1, Graph 1, US-AID to Pakistan averaged $0.8 billion per annum, one of the highest in the history of US-Pak relations. This US-AID was divided into economic aid and military aid. The graph also shows the positive correlation between GDP growth and US-AID.

2.32 Economic Growth in the Absence of Foreign Aid (1989-1997)

After experiencing a robust economic growth rate of 6.8% from 1986 to 1988, Pakistani economy plummeted to 4.8% in 1989. At this time the first democratically elected government took office, after General Zia-ul-Haq, a key US alley, in the war against the Russian Invasion of Afghanistan, died in a plane crash. The new government began a slow recovery and was soon dismissed by then president of Pakistan, on charges of corruption. The new prime minister, under pressure from IMF and World Bank, enacted austerity measures by reducing state ownership of enterprise and promoting privatization. This pushed the growth rate to 7.8%, with almost no US-FAID, as shown in Appendix 1, Graph 2. This shows that US-FAID is imperative but not a major variable behind economic growth. This boom was very short lived, due to rigid bureaucracy, wide spread corruption and declining education and health services. The second economic boom in the absence of US-FAID, was observed in 1996, right before the nuclear tests of 1997, when Pakistan"s economic growth rate grew from 2.1% in 1993 to 6.7% in 1996.

2.33 Nuclear Sanctions 1997-1999

In 1997, Pakistan tested its nuclear power by detonating underground nuclear bombs, which resulted in strict sanctions from the US, European Union, IMF and World

[2] Rashid, Ahmed. *Taliban*. 2001.

Bank. The economic growth rate hit its lowest point, 1.8% in 1997 (Appendix 1, Graph 3).

2.34 Military Coup: Major Change in Government (1999-2001)

In October 1999, General Pervaiz Musharraf led a military coup to topple the elected prime minister, and seized power as the sole proprietor of authority in Pakistan. His government increased the tax net, promoted privatization, enacted devolution of power by local body elections, stabilized the exchange rate, introduced technocrats and professionals in the government and increased accountability to curb wide spread corruption. These changes, however, were not quick enough to bring economic growth (Appendix 1, Graph 4).

2.35 Terrorist Attacks And The Road Towards Economic Recovery (2001-2003)

The terrorist attacks of September 11, 2001, pushed economic growth to 2.1% in 2001 from 4.1% in 2000. After Pakistan's public announcement of allying with the US in the war against terrorism, US-FAID was disbursed at an average of $0.8 billion per annum from 2001 to 2003. This increased economic growth to 4.8% by 2003 (Appendix 1, Graph 5).

After analyzing the State Bank of Pakistan's Annual Report 2001-2002[3], accounting for the events of September 11, the war against terrorism and US-FAID; Pakistan's GDP growth decreased from 3.9% in 1999-2000 to 2.5% in 2001, much below the target of 4.0%. The manufacturing sector, which is now 25% of the agrarian economy of Pakistan, suffered by registering a growth of 4.4% in 2001, completely missing the target of 7.6 %. The total aid package released right after September 11, 2001 was $600

[3] This is by far the most reliable source of data available for Pakistan's economy but unavoidable discrepancies resulting from poor data collection have been interpolated with the World Bank annual report.

million, which was ironically the exact amount of the loss caused by the canceling of export orders, war watch and increases in freight charges and insurance. However, some indicators did show positive signs, when the balance of payments registered a $2.7 billion surplus which was predominantly brought about by (1) a phenomenal increase in remittances due to added insecurity for Pakistani immigrants (2) appreciation of the Pakistani rupee (3) greater credibility of economic policies (4) re-scheduling of external debt by Paris Club creditors, and (5) assistance from IFIs. The total deficit financing also fell from 113.2% in 2001 to 102% in 2002 and more funds were available for rural development projects. As mentioned above, these positive signs in micro and macro economic factors were brought about chiefly by austerity measures from the government. During this period, US-FAID and GDP growth show a strong positive correlation (Appendix 1, Graph 5). Consequently it is reasonable to say that more US-FAID will increase Pakistan"s economic growth.

3.36 More US-AID Required For Sustainable Development

M. Sharif (2002) argued that real GDP growth had been well below the target of 5.1% in the last three years, largely due to Pakistan"s participation in the war against terrorism, costing the country much more than the gains in the form of US-FAID. He said that unless economic growth is attained "any improvement in macro-economic indicators (will) tantamount to practically achieving little". While the economic indicators paint a progressive picture for 2002 in light of where the economy stood in 1999, more important is the analysis of where Pakistan could"ve been if more financial and trade support was granted. The stagnation of exports to merely $9 billion, among other factors, has pushed the economy into a „forced" slow recovery.

3. DATA

The data used for this paper consists of twelve independent variables that affect the percentage change in real GDP growth. The data is acquired from the World Bank Statistics on Countries, Pakistan 2000-02, Work Bank Report - Pakistan 2003, Central Bank of Pakistan - Monetary Policy Statement for 2002-04, Central Bank of Pakistan Annual Report 2001 -2002, and Central Bank of Pakistan - Third Quarterly Report 2002-03. The sample consists of twenty-four years (1980 to 2003). The dependent variable used is the percentage change in real GDP (GDP). Independent variables are US foreign aid from the United States in billions of dollars (US-FAID); the percentage change in consumer price index (CPI); the percentage change in budgetary debt financing (DEBTF), the development expenditure as a percentage of GDP (DEXPEN); the expenditure on education as a percentage of GDP (EDUCAT); Pakistani foreign reserves in billions of dollars (FRESERVE); the expenditure on health as a percentage of GDP (HEALTH); the percentage change in total investment (INVEST); the percentage of population living under $1 a day income (POP); the percentage change in stock market (STOCK); the percentage change in the trade deficit as a percentage of GDP and the unemployment rate (UNEMP)[4].

3.1 Descriptive Statistics

Percentage change in real GDP was chosen as the dependent variable because it most clearly indicates economic progress in a country. This variable ranged from a minimum of 1.7% in 1997 to 8.7% in 1985. The mean percentage change in GDP in the sample turned out to be 5.31% economic growth (Appendix 2, Table 1).

[4] Most of the data was collected from the sources mentioned but data from 1982 to 1984 and 1986 to 1988 was interpolated with the support of corresponding data points.

Independent variables were chosen to represent the various monetary economic and socio-economic factors that affect GDP growth. The economic factors that affect GDP growth are US-FAID, INVEST, TRADE, FRESERVE, DEBTF and STOCK. Socio economic factors include CPI, POP, UNEMP, EDUCAT, HEALTH and EXPEN. These were chosen on the basis of Keynesian aggregate demand theory[5].

The following are some descriptive statistics regarding the economic and socio-economic indicators employed in this study. With respect to economic indicators, the mean of US-FAID was $0.346 billion. US-FAID was at a minimum of $10 million from 1995 to 2000 and reached its highest in 2001 at $0.8 billion.

INVEST was at a maximum of 20.7% in 1993 and at a minimum of 13% in 2002. The mean total investment was 17.8%. DEBTF and STOCK had means of 5.4% and 7.7%, respectively.

With respect to socio-economic indicators, the CPI had a mean of 9.1%, POP increased from 30% in 2000 to 35% in 2001. A total of 7.2 million people were pushed under the poverty line in 2001.

The steady improvement in foreign reserves from a minimum of $7 billion in 2000 to $11 billion in 2003 helped stabilize the currency exchange rate. DEXPEN was the lowest in 2001 at 2.1% and had a mean of 5.7% (Appendix 1, Graph 6). EDUCAT and HEALTH had means of 2.0% and 0.7%, respectively.

[5] GDP growth = Consumption + Investment + Government Spending + Net Exports

4. HYPOTHESES

First Hypothesis

H_o US-FAID has a negative correlation with GDP growth in Pakistan from 1980-2003

H_A US-FAID has a positive correlation with GDP growth in Pakistan from 1980-2003

Second Hypothesis

H_o Economic growth will not be sustained by increasing US-AID to Pakistan

H_A Economic growth will be sustained by increasing US-AID

The hypothesized signs are represented in the (Appendix 2, Table 2). This paper hypothesized that US-FAID will have a positive coefficient because more US foreign aid leads to more economic growth. As the expenditures on development, health, and education increase, GDP growth will increase. Consequently the expected signs of DEXPEN, HEALTH and EDUCAT are positive. This is because expenditure on development, both rural and urban, health services and education will have a positive effect on the labor force which will in turn increase national productivity. As total investment, which includes public savings and public investment increases, GDP growth will increase and have a positive expected sign. This is because total investment shows there is desire for increase in plant sizes, leading to decrease in the unemployment rate and eventually increase in all goods and services produced in the country. As FRESERVE increases so does GDP growth and the expected sign is positive. Foreign reserves from Pakistanis abroad increase the foreign exchange account of the country,

which helps in stabilizing the exchange rate. This in turn positively affects foreign direct investment and purchasing power. The negative expected signs include POP, TRADE, CPI and DEBTF which all have a negative effect on GDP growth. Population growth, resulting from high fertility rate and a relatively low mortality rate, can result in lower GDP per capita, thus showing a negative sign. Increase in trade deficit deteriorates the capital account, negatively effecting GDP growth. CPI, inflation rate, can make people save more and invest less, decreasing retail sales and total investment, which in turn decreases GDP growth. Finally DEBTF, budget debt financing, can result in less budget for development, education and health services which in turn negatively effects GDP growth.

5. MODEL

This study relied on an Ordinary Least Squares (OLS) regression to generate estimates. Model 1 with expected signs for coefficients is below:

$$(LOG)GDP_i = \beta_{0i} + \beta_1 US\text{-}FAID_i - \beta_2 CPI_i - \beta_3 DEBTF_i + \beta_4 (LOG)DEXPEN_i + \beta_5 EDUCAT_i + \beta_6 FRESERVE_i + \beta_7 HEALTH_i + \beta_8 INVEST_i - \beta_9 POP_i - \beta_{10} TRADE_i + \beta_{11} STOCK_i - \beta_{12} UNEMP_i + \epsilon_i \quad \textbf{(1)}$$

This functional form was chosen with the support of literature and the type of data being used for this paper. Since some variables are absolute while others are in percentage form, to derive a better functional form, a log-log model was utilized. Some percentage terms, including the dependent variable, were converted into their respective logarithms. Consequently, ceteris paribus, if independent variables with absolute terms increase by one unit, the dependent variable will increase by β_k*100 percentage points. On the other hand, ceteris paribus, when the independent variables in the form of

percentage increase by one unit, the dependent variable will increase by β_k percentage units.

6. RESULTS

Upon examining the regression results from the aforementioned model (Appendix 2, Table 3), one will notice that the signs for variables INVEST and HEALTH contradict their hypothesized values and are statistically significant. This is due to omitted variable bias, since many more factors effect GDP growth of a nation, and because of the limitations of this study only the major ones were selected. After running a correlation matrix it was clear that there was no correlation between any of the independent variables as shown in Appendix 2, Table 4. Therefore, none of the twelve independent variables were removed from the model and model 1 was regressed as the final model for this study. The R^2 was 0.896139 and the adjusted R^2 was 0.782837. For this study, one-tailed testing was utilized. The USAID variable was significant at the 5% level and its actual sign matched the expected sign. However, the size of the coefficient was very small, because US-FAID was calculated in absolute terms and has a relatively small effect, ceteris paribus, on GDP growth. US-FAID and GDP growth show a significant positive correlation, which is the main focus of this paper. The Durbin Watson statistic was 2, which showed a high probability of no serial correlation for this study. The F statistic was 7.9, which is significant and demonstrated an overall for model 1. EDUCAT was significant at the 0.5% level. CPI and DEBTF were significant at the 2.5% level and 0.5% level respectively, and both matched their hypothesized signs. LOG(DEXPEN) was significant at the 2.5% level and matched the hypothesized sign. This means that, holding all else constant, a 1% increase in development expenditure will increase (LOG) GDP,

the dependent variable, by 0.39%. EDUCAT was significant at the 0.5% level and matched the hypothesized sign. FRESERVE matched the hypothesized sign but was not statistically significant in this study and had almost no bearing on the dependent variable. POP and TRADE were statistically insignificant. STOCK matched the hypothesized sign and was significant at the 5% level. This means that if the Pakistani stock market increased by 1%, GDP growth would increase by 0.002%, thus demonstrating negligible affect on the dependent variable. UNEMP did not match the hypothesized sign and was statistically insignificant. Akaike info criterion was -0.046118 which shows a better fit of the data used in this study (Appendix 2, Table 3).

7. CONCLUSION

This study has found attention-grabbing results regarding factors effecting GDP growth in Pakistan from 1980-2003. Whereas it was believed that economic factors impacted GDP growth, with the exception of FRESERVE, it was determined that most socio-economic factors have irrelevant bearing on GDP growth, with the exception of CPI, DEXPEN and EDUCAT. All three of these socio-economic factors were highly significant and could been seen as greatly responsible for economic growth in Pakistan from 1980-2003. For example, the relationship between EDUCAT and GDP growth is visible in Appendix 1 Graph 6.

There are other economic and socio-economic factors such as literacy rate, mortality rate, fertility rate, number of internet users, GNP growth etc., which were omitted due to relative importance and lack of data. However an extensive econometric study of these factors, spread over 57 years of Pakistan"s independence, could reveal more insight into the relationship between US-FAID and Pakistan"s GDP growth.

According to the results, it is clear that this study accepts both hypotheses. The first alternative hypothesis, US-FAID has a positive correlation with GDP growth in Pakistan from 1980-2003, is not rejected. The second hypothesis, Economic growth will be sustained by increasing US-FAID, is also not rejected. The study shows that US-FAID has indeed a positive correlation with GDP growth, and more US-FAID will promote GDP growth and sustainable development in Pakistan. Moreover, it suggests that US-FAID, though a small determinant of GDP growth, can play a significant role in GDP growth, due to a multiplier effect on overall economic growth.

There are imperative economic reasons for the United States to provide more aid to Pakistan. With more US foreign aid, economic infrastructure could improve which could provide a safe and profitable environment to invest. Pakistan is a labor-intensive country that can produce inexpensive quality goods through its rich agrarian economy. For example Pakistan cotton and textile industry is one of the vital cloth imports for the US. Lowering tariffs on these imports from Pakistan would greatly increase sales and profitability. Decreasing tariffs can be interpreted as indirect financial aid. Other than agricultural products, Pakistan is rapidly developing numerous information technology institutes heavily investing in social capital to become the next "Silicon Valley" after India. Already Microsoft CEO, Bill Gates is planning future endeavors in Pakistan to promote technology. Pakistan is also an active and essential partner in the Central Asian oil search. Most of the large pipe lines coming from central Asia are converging at the Gwarder port, south of Pakistan.

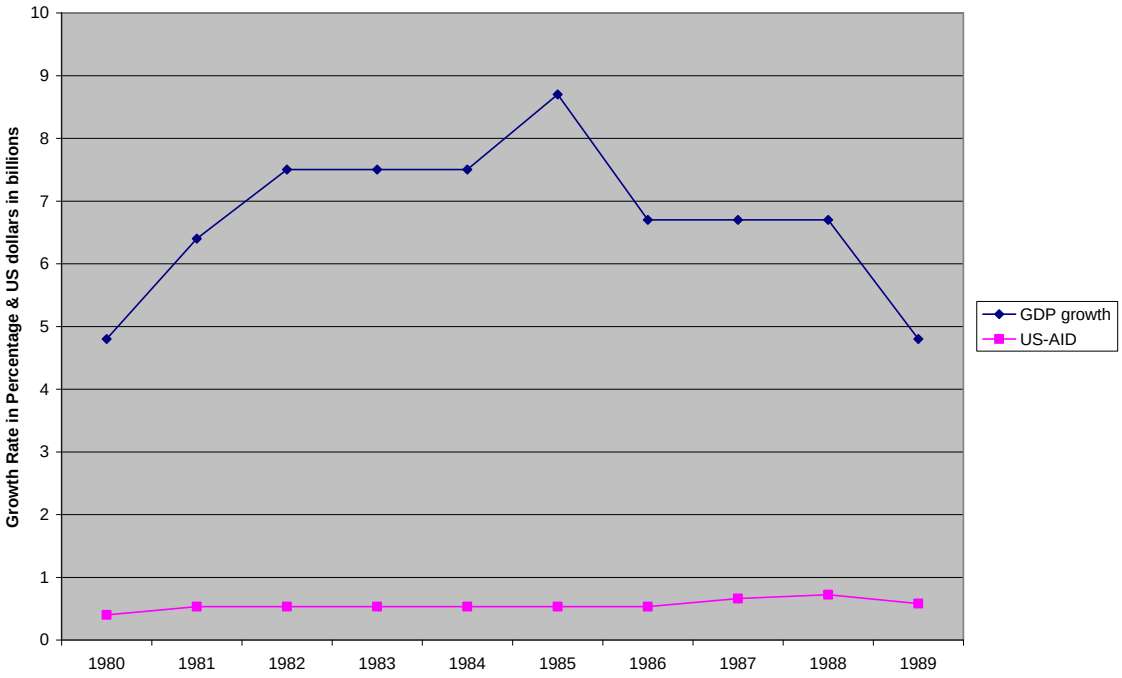
This study will be extended in the future with the use of more time series data (1947-2003). Preferably, more socio-economic and monetary economic factors will be

added to decrease the stochastic error term. This research will then become a resourceful tool for US and Pakistani foreign-aid policy makers, which will in turn evaluate benefits of US-FAID to Pakistan in the long run, for both countries. This study will also help US policy makers to better understand GDP growth in Pakistan, accountability of US grants, and its effects on the war against terrorism. A stable nuclear Pakistan is a mutual concern. Pakistan has great potential to become a long lasting ally of the US, so that these countries can mutually benefit from economic and military resources and promote sustainable development in the region.

APPENDIX 1

GRAPH 1

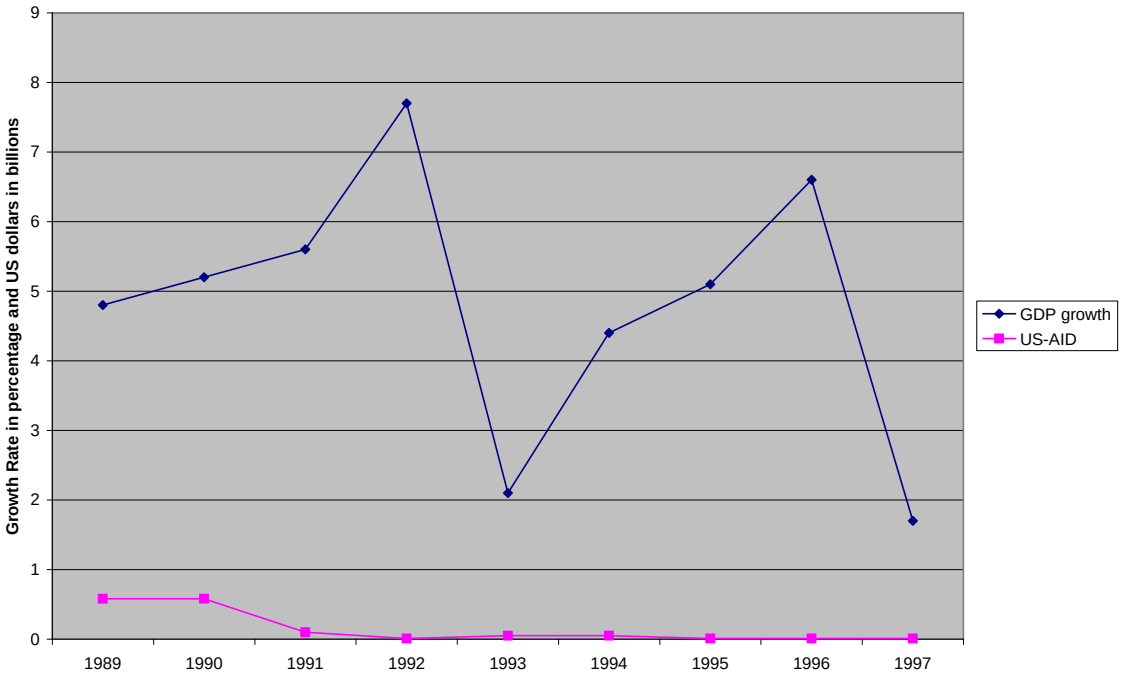
Russian-Afghan War (1980-1989)



APPENDIX 1

GRAPH 2

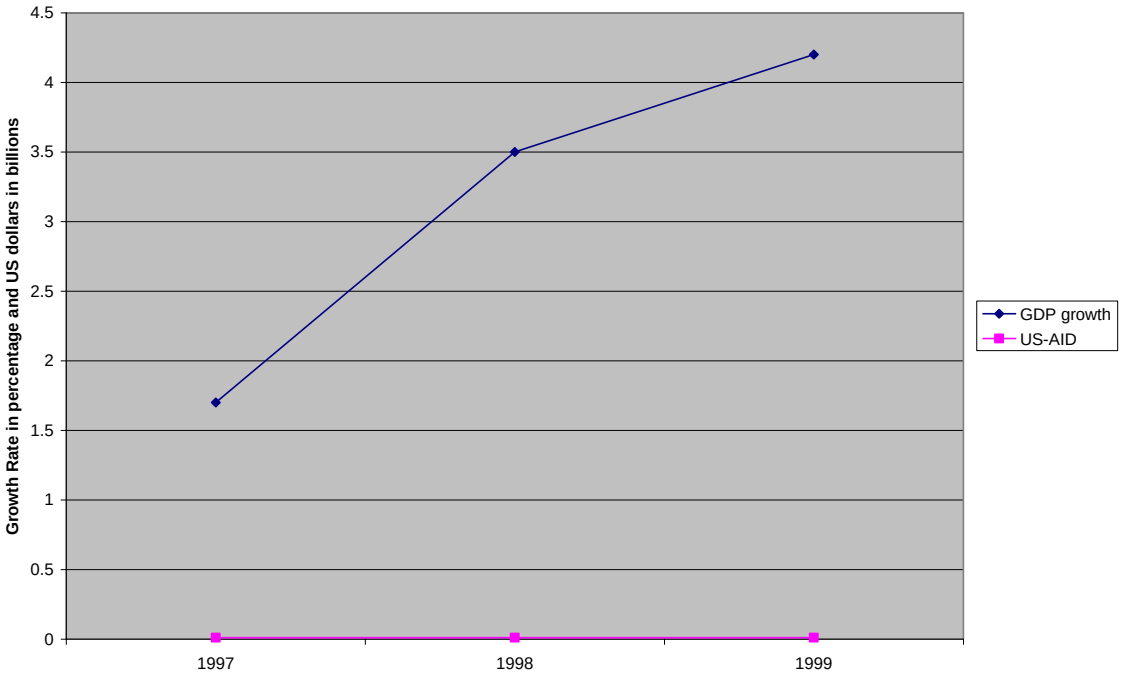
Economic Growth In The Absence of US Foreign Aid



APPENDIX 1

GRAPH 3

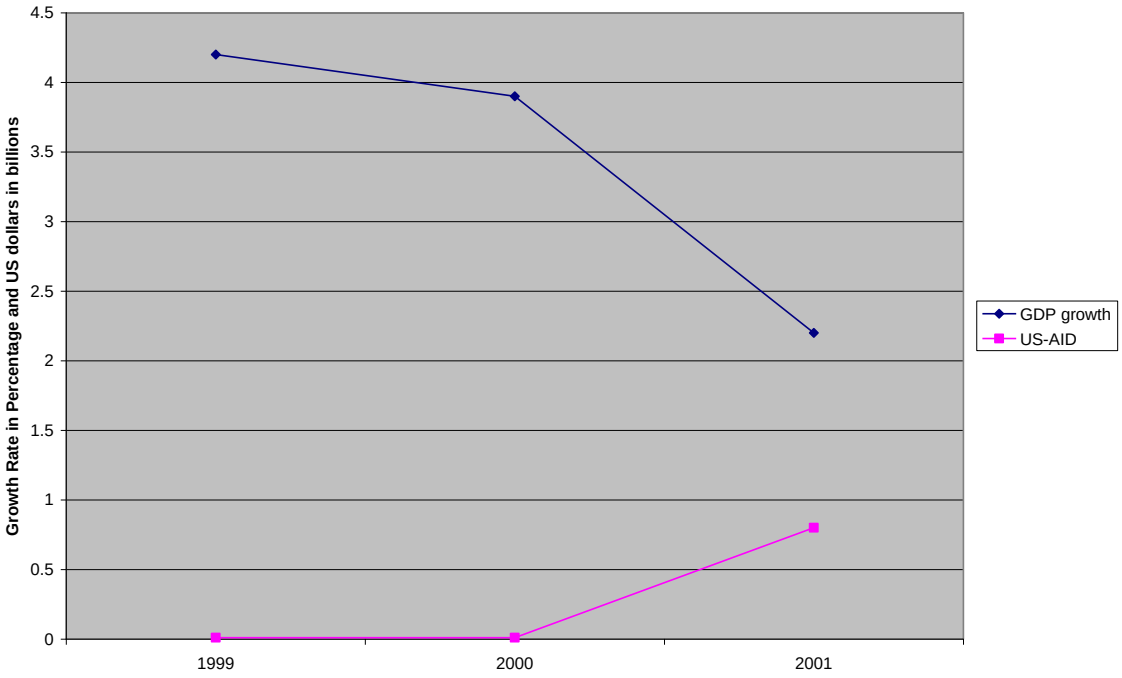
Nuclear Sanctions (1997-1999)



APPENDIX 1

GRAPH 4

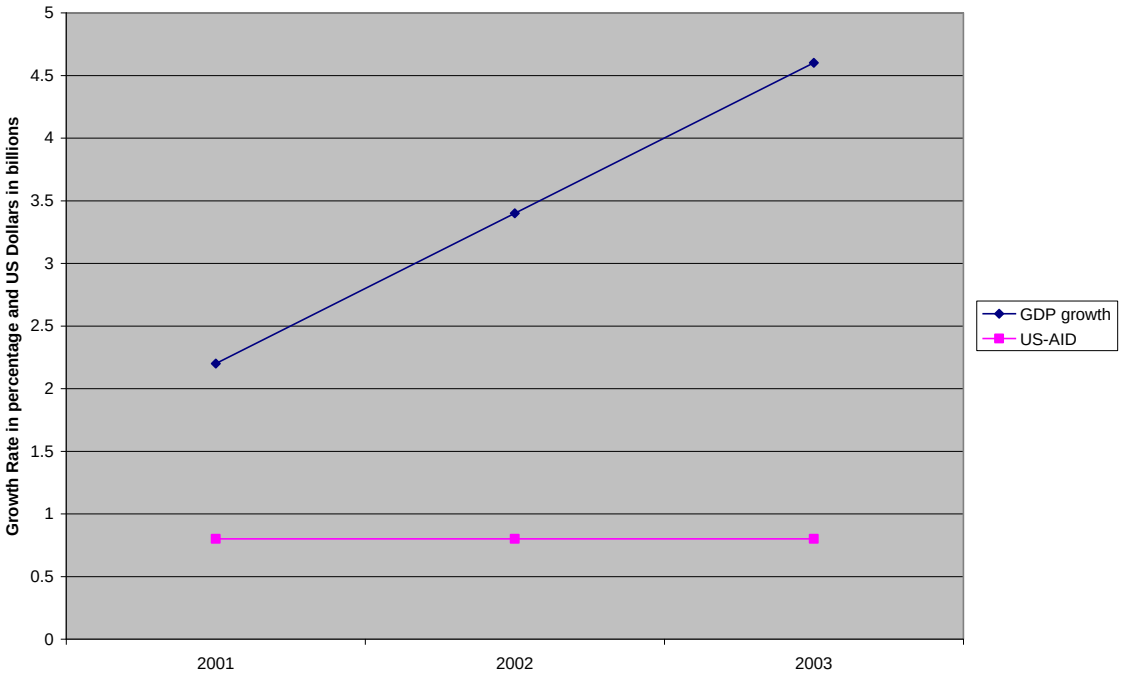
Military Coup: Major Change in Government (1999-2001)



APPENDIX 1

GRAPH 5

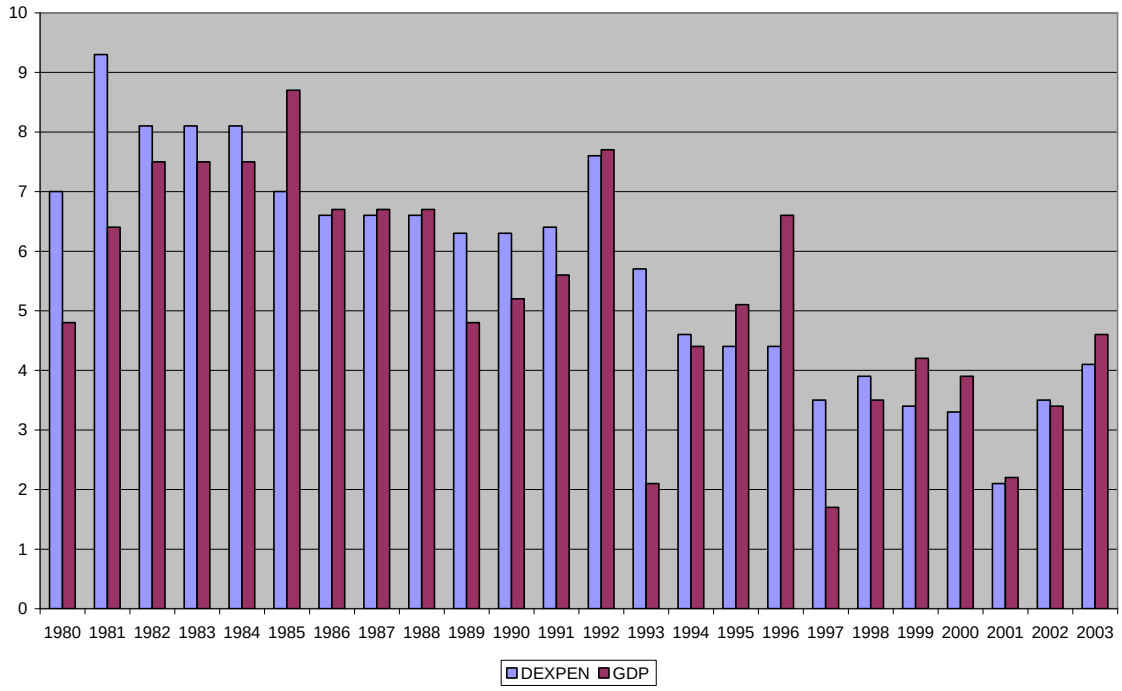
Terrorist Attacks And The Road Towards Economic Recovery (2000-2001)



APPENDIX 1

Graph 6

GDP and DEXPEN (1980-2003)



APPENDIX 2

TABLE 1

Descriptive Statistics

	CPI	DEBTF	DEXPEN	EDUCAT	FRESERVE	GDP	HEALTH	INVEST
Mean	9.091667	5.45	5.704167	2	2.16E+09	5.3125	0.704167	17.89583
Median	9.8	5.1	6.3	2.1	5.00E+08	5.15	0.7	18.5
Maximum	13.9	9.5	9.3	2.5	1.12E+10	8.7	0.9	20.7
Minimum	3.5	2	2.1	0.7	5.00E+08	1.7	0.5	13
Std. Dev.	3.102722	2.08702	1.921838	0.411783	3.01E+09	1.926771	0.09079	1.796489
Skewness	-0.38824	0.319559	-0.05203	-1.4388	1.88721	-0.20897	-0.0814	-1.24075
Kurtosis	2.066747	2.273304	1.958989	5.134201	5.381345	2.138275	2.873378	4.166968
Jarque-Bera	1.47389	0.93656	1.09453	12.83543	19.91705	0.917235	0.042535	7.519622
Probability	0.478574	0.626078	0.57853	0.001632	0.000047	0.632157	0.978957	0.023288
Observations	24	24	24	24	24	24	24	24

APPENDIX 2

TABLE 2

Expected Signs of Variables

Variable	Expected Signs
US-FAID	POSITIVE
CPI	NEGATIVE
DEBTF	NEGATIVE
LOG(DEXPEN)	POSITIVE
EDUCAT	POSITIVE
FRESERVE	POSITIVE
HEALTH	POSITIVE
INVEST	POSITIVE
POP	NEGATIVE
TRADE	NEGATIVE
STOCK	POSITIVE
UNEMP	NEGATIVE

APPENDIX 2

TABLE 3

Regression Results

Dependent Variable: LOG(GDP)					
Method: Least Squares					
Date: 12/02/03 Time: 19:50					
Sample: 1980 2003					
Included observations: 24					
Variable	**Expected Signs**	**Coefficient**	**Std. Error**	**t-Statistic**	**Significance Level**
US-FAID	POSITIVE	5.28E-10	2.63E-10	**2.006442**	**5%**
CPI	NEGATIVE	-0.087407	0.036659	**-2.384355**	**2.5%**
DEBTF	NEGATIVE	-0.528598	0.13917	**-3.798212**	**0.5%**
LOG(DEXPEN)	POSITIVE	0.931791	0.389921	**2.389693**	**2.5%**
EDUCAT	POSITIVE	1.729103	0.339123	**5.098745**	**0.5%**
FRESERVE	POSITIVE	4.29E-11	4.57E-11	0.938748	NS[6]
HEALTH	**POSITIVE**	**-3.984744**	0.991881	**-4.01736**	**0.5%**
INVEST	**POSITIVE**	**-0.227107**	0.066855	**-3.396992**	**0.5%**
POP	NEGATIVE	-0.039356	0.059098	-0.665957	NS
TRADE	NEGATIVE	-0.088201	0.061111	-1.443286	**10%**
STOCK	POSITIVE	0.004038	0.002232	1.809181	**5%**
UNEMP	NEGATIVE	0.06044	0.089007	0.679046	NS
C		8.195862	3.057065	**2.680957**	
R-squared		**0.896139**	Mean dependent var		1.590755
Adjusted R-squared		**0.782837**	S.D. dependent var		0.436036
S.E. of regression		0.203196	Akaike info criterion		-0.046118
Sum squared resid		0.454174	Schwarz criterion		0.591995
Log likelihood		13.55341	F-statistic		**7.909263**
Durbin-Watson stat		**2.001711**	Prob(F-statistic)		**0.000849**

[6] Not statistically significant

APPENDIX 2

TABLE 4

Correlation Matrix

	LOG(GDP)	US-AID	CPI	DEBTF	LOG(DEXPEN)	EDUCAT
LOG(GDP)	1	0.180630662	0.184470349	-0.592637009	0.732907785	-0.304794419
USAID	0.180630662	1	-0.429543066	0.037013462	0.078042219	-0.322630542
CPI	0.184470349	-0.429543066	1	-0.67989308	0.549440814	-0.128292792
DEBTF	-0.592637009	0.037013462	-0.67989308	1	-0.863052692	0.506926394
LOG(DEXPEN)	0.732907785	0.078042219	0.549440814	-0.863052692	1	-0.442551348
EDUCAT	-0.304794419	-0.322630542	-0.128292792	0.506926394	-0.442551348	1
FRESERVE	-0.407358982	0.317788691	-0.66503078	0.80760762	-0.687846669	0.012277548
HEALTH	-0.194446077	0.147070159	-0.124890993	0.281090066	-0.16115021	0.697780566
INVEST	0.31384576	-0.378476335	0.721042264	-0.709638083	0.638050604	0.099326673
POP	-0.36840552	0.369278456	-0.667183294	0.490437447	-0.633379654	-0.173173924
TRADE	0.624757015	0.19321658	0.390448912	-0.899094043	0.833378122	-0.478477673
STOCK	0.221772251	-0.087051804	0.038808235	0.084178435	0.134971998	0.038239283
UNEMP	-0.570935977	-0.079092443	-0.462636349	0.874164792	-0.799994118	0.284774141

	FRESERVE	HEALTH	INVEST	POP	TRADE	STOCK	UNEMP
LOG(GDP)	-0.407358982	-0.194446077	0.31384576	-0.36840552	0.624757015	0.221772251	-0.570935977
USAID	0.317788691	0.147070159	-0.378476335	0.369278456	0.19321658	-0.087051804	-0.079092443
CPI	-0.66503078	-0.124890993	0.721042264	-0.667183294	0.390448912	0.038808235	-0.462636349
DEBTF	0.80760762	0.281090066	-0.709638083	0.490437447	-0.899094043	0.084178435	0.874164792
LOG(DEXPEN)	-0.687846669	-0.16115021	0.638050604	-0.633379654	0.833378122	0.134971998	-0.799994118
EDUCAT	0.012277548	0.697780566	0.099326673	-0.173173924	-0.478477673	0.038239283	0.284774141
FRESERVE	1	-0.026450718	-0.873317551	0.676457759	-0.702616813	0.00329499	0.808340296
HEALTH	-0.026450718	1	0.034765182	-0.222019355	-0.250925992	0.116267388	0.044566002
INVEST	-0.873317551	0.034765182	1	-0.754242299	0.572020809	0.109752941	-0.673371099
POP	0.676457759	-0.222019355	-0.754242299	1	-0.311886357	-0.380641787	0.503730825
TRADE	-0.702616813	-0.250925992	0.572020809	-0.311886357	1	-0.22431239	-0.879731876
STOCK	0.00329499	0.116267388	0.109752941	-0.380641787	-0.22431239	1	0.157739869
UNEMP	0.808340296	0.044566002	-0.673371099	0.503730825	-0.879731876	0.157739869	1

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