The Impact of Foreign Direct Investment and Exports on the Real GDP Growth Rate of Pakistan (1971 – 2017)

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Introduction

Pakistan came into being after the separation of British India in 1947. Decades of internal disputes in political ideologies and low levels of foreign investment has led to underdevelopment in Pakistan. The country has faced many obstacles over the years in the shape of a challenging security climate and energy shortages. Despite some progress in recent years, a burdensome investment climate has traditionally dissuaded investors from investing in Pakistan.

Agriculture accounts for one-fifth of output and two-fifths of employment. Pakistan's failure to diversify its exports has left the country defenseless against shifts in world demand. Pakistan's GDP growth rate has gradually increased since 2010 from 1.61% to 5.70% in 2017. Official unemployment was 4.04% in 2017, but this fails to capture the true picture as much of the economy is informal and underemployment remains high. On a better note, inflation has fallen from 13.9% in 2010 to 4.1% in 2017.

In 2013, Pakistan embarked on a $6.3 billion IMF Extended Fund Facility, which focused on reducing energy shortages, stabilizing public finances, increasing revenue collection, and improving its balance of payments position. The program concluded in September 2016. Although Pakistan missed several structural reform criteria, it restored macroeconomic stability, improved its credit rating, and boosted growth.

Given demographic challenges, Pakistan's leadership is pressed to implement economic reforms, promote further development of the energy sector, and attract foreign investment to support sufficient economic growth necessary to employ its growing and rapidly urbanizing population, much of which is under the age of 25.

Much recently, in an effort to boost development, Pakistan and China are implementing the "China-Pakistan Economic Corridor" (CPEC) with $60 billion in investments targeted towards energy and other infrastructure projects. Pakistan believes CPEC investments will enable growth rates of over 6% of GDP by laying the groundwork for increased exports. China investing $60 billion in Pakistan's economy in the past 3 to 4 years is one of the reasons I decided to study the impact of foreign direct investment on GDP growth rate. China; the world's second largest economy must have a solid reason for investing a considerable amount of money into Pakistan and I would like to see how previous FDI's has impacted that decision.

Over the years, Pakistan has established itself as a strong trading partner with countries like United States, United Kingdom, China, Germany, UAE, Spain and is known for exporting textiles, rice, leather goods, sporting goods, chemicals, manufactures, surgical instruments, carpets and rugs among other goods. In terms of imports, the country biggest import in terms of dollar value is petroleum and petroleum products from Kuwait, Oman, and Netherlands. Other imports include machinery, plastics, transportation equipment, edible oils, paper and paperboard, iron and steel, and tea from countries such as China, Japan, Indonesia, and United States.

In this paper, I will study the impact of foreign direct investment and Pakistan's exports and how that affects the real GDP growth rate of the country. I will be running four regressions and analyzing them to their full extent. Pakistan has gone through some major political turmoil and faced backlash on many fronts but that has not stopped the country from growing economically even if it is at a slower pace than neighboring countries. In this paper, we will see how impactful were foreign direct investments and exports in growing the GDP over the past forty six years.

Literature Review

Ahmad, Alam, Butt (2003) – In their paper they examine FDI influence on the export-growth relationship. The rapid growth in foreign direct investment over the last few decades, 5 percent of world GDP in 1980 to 10 percent in 1995 has spurred a large body of literature examining the determinants and its effects on FDI. The effects of FDI can be wide reaching, with evidence suggesting that FDI impacts significantly on trade. The authors believe that the relationship between GDP growth and openness is extremely complex and the liberalization process in developing countries has increased not only trade but also FDI flows. In their paper, they conclude that FDI can be a catalyst for development for developing countries. They analyzed the existence of causality between export, FDI and domestic output in Pakistan over the period of 1972 – 2001 and found long run relation between foreign direct investment, export and domestic growth. They found significant spillover effect from FDI to domestic output. This suggests that most of multinational firms' investment in Pakistan are not export-orientated investment. Lastly, the paper suggests that Pakistan's capacity to progress on economic development will depend on their performance in attracting foreign capital.

Iqbal, Shaikh, Shar (2010) – In their paper, the authors study the causality relationship between FDI, and trade economic growth in Pakistan. The paper examines the causality relationship between foreign direct investment, international trade and economic growth. FDI has been an imperative aspect for growth in Pakistan. The growth of FDI in Pakistan is one of the most dramatic consequences of Pakistan's change in economic policy from a planned economy towards a market oriented economy. The paper presents facts of patterns of FDI inflows, international trade and economic growth in Pakistan. This shows that both international trade and economic growth are increasing over time. The paper shows the two way casual

connection exists between economic growth, export and FDI. This concludes that FDI invested in Pakistan was attracted by its economic growth and its foreign trade strategy. FDI and trade are two important factors that enhance the effect of economic growth in Pakistan.

Economic Theory and Framework

When a country exports goods, it sells them to a foreign market, that is, to consumers, businesses, or governments in another country. Those exports bring money into the country, which increases the exporting nation's GDP. When a country imports goods, it buys them from foreign producers. The money spent on imports leaves the economy, and that decreases the importing nation's GDP.

Net exports can be either positive or negative. When exports are greater than imports, net exports are positive. When exports are lower than imports, net exports are negative. If a nation exports, say, $100 billion dollars' worth of goods and imports $80 billion, it has net exports of $20 billion. That amount gets added to the country's GDP. If a nation exports $80 billion of goods and imports $100 billion, it has net exports of minus $20 billion, and that amount is subtracted from the nation's GDP.

Foreign direct investment (FDI) is essentially an investment made by a firm or an individual in a foreign country into startup businesses or established companies. By definition, FDI takes place when an investor establishes foreign business operations or acquires foreign business assets, including ownership or controlling interest in a foreign company.

Foreign direct investments are most commonly made in open economies that offer a skilled workforce and above-average growth prospects for the investor. Foreign direct investment often involves more than just a capital investment. It may include supplies of

management and/or technology as well. The key feature of foreign direct investment is that it establishes either effective or substantial control over the decision-making process of a foreign business.

Pakistan has been in transition from a centrally planned economy to a market oriented economy since December 1996, and from that time until now, Pakistan has seen remarkable economic achievements in growing GDP, GDP per capita, foreign direct investment and important trade and economic agreements.

Since policies were implemented in 1986, FDI has been imperative to growing the economy. The growth of FDI in Pakistan is one of the factors that caused Pakistan's change in economic policy from a planned economy to a market-oriented economy. Nevertheless, the effect of FDI on economic growth is an empirical question and is dependent upon a set of conditions in the host country's economy.

According to the chairman of Pakistan's Board of Investment, Pakistan expects net foreign direct investment (FDI) to jump about 60 percent in 2017/2018. This is mostly due to the Chinese investments in Pakistan in recent years. Chinese companies are building roads, power stations and a deep-water port in Pakistan after Beijing offered more than $60 billion in funding for Pakistani infrastructure as part of China's vast Belt and Road initiative. Chinese investment has helped spur Pakistan's economic growth to more than 5 percent, its highest in a decade, while also increasing Beijing's clout in Pakistan. According to latest reports, FDI for the financial year 2017/2018 (July-June) is expected to reach about $3.7 billion, with Chinese companies providing up to 70 percent of the new investment.

Trade Openness in its simplest terms is the ratio of trade to GDP. It is calculated by adding the value of exports and imports and dividing that sum by the GDP. It can be calculated on monthly, quarterly or yearly basis. According to studies, in the long run, trade openness promotes economic growth in Pakistan. Moreover, results show that the impact of trade openness on economic growth is not clearly visible in short run. However, studies suggest that developing countries like Pakistan need to consider trade openness policy as a long term plan.

Data and Empirical Model

The main purpose of this research is to investigate the causality between FDI, exports and economic growth rate of Pakistan. The study uses annual data from 1971 – 2017. The main source of data is The Global Economy. The data used in the analysis is based on six variables; real GDP growth rate, Foreign Direct Investment, Exports, Inflation, Unemployment Rate and Trade Openness. The sample consists of 47 observations.

The empirical model used to test the relationship between real GDP growth rate and FDI and Exports can be specified as follows:

$$Y = \alpha + \beta_1 FDI + \beta_2 X + \mu \quad \text{(Main Equation 1)}$$

Where Y: real GDP growth rate; FDI: Foreign Direct Investment; X: Exports and μ is the error term.

Another set of four equations will be used in the analysis to study the effect of secondary factors on the GDP growth rate. The secondary equations that I will be analyzing are as follows:

$$Y = \alpha + \beta_1 FDI + \beta_2 X + \beta_3 TO + \beta_4 IN + \beta_5 UR + \mu \quad \text{(Equation 2)}$$

Where Y: real GDP growth rate; FDI: Foreign Direct Investment; TO: Trade Openness, X: Exports, IN: Inflation Rate, UR: Unemployment Rate and μ is the error term.

$Y = \alpha + \beta_1 FDI + \beta_2 X + \beta_3 TO + \mu$ (Equation 3)

Where Y: real GDP growth rate; FDI: Foreign Direct Investment; X: Exports, TO: Trade Openness and μ is the error term.

$Y = \alpha + \beta_1 FDI + \beta_2 X + \mu$ when Year >= 2000 (Equation 4)

Where Y: real GDP growth rate; FDI: Foreign Direct Investment; X: Exports and μ is the error term.

The Data Set consist of 6 variables and each of them are explained below in the table:

growth_rate	Economic growth: the rate of change of real GDP
fdi	Foreign Direct Investment, billion USD
exports	Exports of goods and services, billion USD
trade_openness	Trade openness: exports plus imports as percent of GDP
inflation	Inflation: percent change in the Consumer Price Index
unemployment_rate	Unemployment rate

Results and Analysis

The first regression we run gives us the following equation: Y = 0.955 FDI – 0.0418 X + 4.714. The regression shows that for a 0.955 billion increase in the value of FDI, the growth rate will increase by 1%. Oddly, an increase in exports of 0.0418 billion will decrease the GDP growth rate by 1%. This is not a result we expect to get and I will get into the reasons for this later in the paper. The R^2 value for this regression is a staggering 8.32 % which is extremely low.

From this we can safely assume that FDI and exports do not have a major effect on the growth rate of GDP.

The second regression we run gives us the following equation: Y = 0.925 FDI + 0.0638 X – 0.0656 TO – 0.0226 IN + 0.154 UR + 5.641. In this regression, I added trade openness, inflation and unemployment rate to see how they factor into our model of growth rate. The regression shows that for a 0.925 billion increase in the value of FDI, the growth rate will increase by 1%. This is slightly lower than when we just regressed FDI and exports on the growth rate. An increase in exports of 0.0638 billion will increase the GDP growth rate by 1%. This is in keeping with basic economic theory which suggests that an increase in exports should increase the growth rate. Trade openness has a negative coefficient of – 0.0656. This suggests that an increase in the trade ratio as a percentage of GDP will decrease GDP. According to this result, increased trade is decreasing the GDP growth rate but might not decrease the GDP itself. The coefficient of inflation is – 0.0226. The negative sign confirms our belief that as increase in inflation will cause the GDP growth rate to decrease. Finally, the 0.154 coefficient of unemployment suggests that although the unemployment is increasing, the growth rate is also increasing. The R^2 value for this regression is 28.6% which is still quite low but at least higher than our previous regression. This leads me to believe that if I keep adding more variables that affect growth, my R^2 value will keep on increasing.

The third regression we run gives us the following equation: Y = 0.946 FDI – 0.130 X + 0.109 TO + 1.195. The regression shows that for a 0.946 billion increase in the value of FDI, the growth rate will increase by 1%. This coefficient value is similar to our previous regressions. Strangely enough, an increase in exports of 0.130 billion will decrease the GDP growth rate by 1% just like our first regression. The new variable we tested in this regression is trade openness.

The coefficient of 0.109 suggests that an increase in trade openness will increase the GDP growth rate. This is in keeping with the studies conducted by economists to study the relation between trade openness and growth rate in Pakistan which states that an improved trade conditions will lead to trade getting a greater share of the GDP pie and will help raise the growth rate. The R^2 value for this regression is 11.61 % which is extremely low. We will need to take some major steps in order to increase the R^2 value which I will delve into later.

For the last regression, I run the same regression at the main one but with the condition that it only uses the values for the years 2000 and above. The equation I obtain is: Y = 0.933 FDI – 0.118 X + 4.304. The regression shows that for a 0.933 billion increase in the value of FDI, the growth rate will increase by 1%. This is 0.022 billion less than the regression where we use the whole 47 years of data. Also, an increase in exports of 0.118 billion will decrease the GDP growth rate by 1%. This in an increase of 0.0762 billion coefficient of exports which suggests that increasing exports will lower the GDP in a greater proportion than before. The R^2 value for this regression is 32.91 % which is slightly reasonable. Other than that, there are not any major changes which leads us to believe that the economy over 47 years is similar to that of the last 17 years.

Reverse Causality: An interesting thing to consider is the reverse causality in this model. As of now, we have assumed that an increase or decrease in FDI will increase GDP. But, what if there is an instrumental variable; a variable that only affects FDI but has no effect on GDP. An instrumental variable for my model can be location of the country. The location of a country can affect investment from foreign countries. A place with political instability and higher sanctions is not as attractive to potential investors as a country with higher potential of return and less

instability. The location of a country does not directly affect its GDP in our model. Hence, we can think of location as an instrumental variable in our model.

As we can clearly observe from the table, we see that exports has a negative sign in three of our models. One way to explain this is initially when a country starts to export, it moves resources from other manufacturing projects and focuses it on the products that will be exported. This might cause the growth rate to fall in the short run but eventually, the growth rate will pick up and the coefficient with turn positive. This can be observed in model 2. When we take into consideration other factors such as trade openness, inflation and unemployment, we see a positive coefficient for exports. As the economy grows and gets dependent on more factors, our coefficients start to behave that is in accords with basic economic theory.

GDP Growth Rate

	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
fdi	0.955	0.925*	0.946	0.933*
	(0.478)	(0.424)	(0.475)	(0.354)
exports	-0.0418	0.0638	-0.130	-0.118
	(0.227)	(0.202)	(0.236)	(0.178)
trade_open~s		-0.0656	0.109	
		(0.134)	(0.0859)	
inflation		-0.0226		
		(0.122)		
unemployme~e		0.154		
		(0.182)		
_cons	4.714***	5.641	1.195	4.304***
	(0.333)	(3.666)	(2.800)	(0.401)
N	47	27	47	18
R-sq	0.083	0.286	0.116	0.329

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Unfortunately, the data for unemployment was only available from 1991 onwards. Therefore, the number of observations I ran in my regression fell by a considerable amount. This could be one of the reasons that I got a positive coefficient for unemployment. Another reason could be that although unemployment is increasing, the GDP growth rate also increases because as the country is in a development phase, the current labor work force is enough to meet the needs of the employers. Increasing the work force beyond this point will decrease productivity. In other words, firms have reached their maximum value of Marginal Product of Labor (MPL) and hiring more workers will decrease productivity. At the same time, due to the increase in population, more youngsters are entering the labor market but are unable to find a job as employers are already fully meeting their production requirements. This could be one of the reasons as to how the growth rate increases even when unemployment is rising.

The negative coefficient of trade openness in model 2 is an interesting result as one would expect it to be positive. But all it really means that trade as a percentage of GDP does not have a positive effect on growth rate. It could mean that although the country is trading more, it is draining the country's resources which could be focused on production for domestic use. Also, as I mentioned earlier trade openness is a tool to increase growth in the long run. In model 2, we only run the regression for 27 observations as opposed to the 47 in model 3. In model 3, we get a positive coefficient for trade openness as the number of observations have increased and we are in the 'long run'.

Conclusion

In this research paper, I studied the effect of foreign direct investment and exports on the real GDP growth rate of Pakistan. China invested roughly $50 billion into Pakistan's economy in the last 3 to 4 years and after running my analysis, I am comfortable saying that China made the

right decision investing in Pakistan as Pakistan has always had a positive growth rate as a result of foreign investments. Other than that, the effect of exports is not extremely apparent on the growth rate. According to economic theory, increased exports should positively effect growth, but I need to run further regressions with a higher number of observations for better results. Inflation had the desired result in my model, but unemployment needs more observations. Trade openness is an instrument to measure growth in the long run but does not have a huge impact on our growth rate in the short run.

Last but not least, I want to express my gratitude towards my capstone advisor, Professor Wemy who guided me through the whole process and assisted me in improving my research. Also, I am glad I decide to write my research paper on the economy of my home country. Through this paper, I learned a significant amount about my own country which I hope will prove beneficial to me one day or another.

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