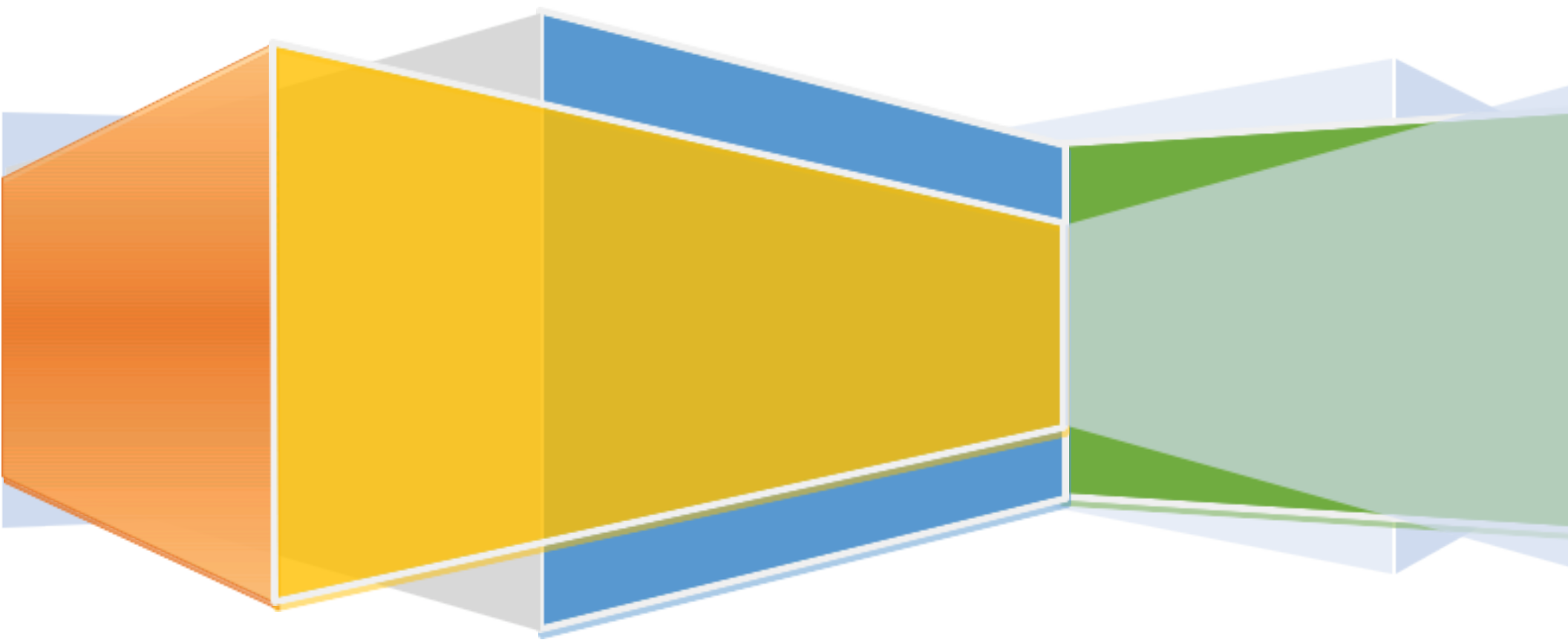# Determinants of Exchange Rate in Bangladesh

Determinants of Exchange Rate in Bangladesh

Submitted to:

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Date of Submission:

July 2021

Foreword

I would like to thank my supervisor, Dr Wahida Yasmeen, Head & Associate Professor, Department of Economics United International University, for guiding me and giving me the opportunity to initiate this thesis paper.

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Abstract:

This research paper, have tried to figure out which determinants positively affect the exchange rate of Bangladesh. This paper analysed which variable plays a major role in making a variation or has a great influence on the trade rate. For the establishment of this academic work., used a basic single linear regression model from 1987 to 2019 which includes 32 years' time series data and Interest rate, Inflation rate and GDP growth rate as independent variables and for the dependent variable exchange Rate (LCU US $) of Bangladesh. To enrich the quality of this paper yearly exchange rate data and all independent variables data for Bangladesh was used. The yearly exchange rate data and all independent variables data was also added for both Pakistan and India. All these dependent variables play a major role as determinants of the exchange rate. This paper stated that in Bangladesh GDP development rate incorporates a positive influence on the exchange rate. Expansion and GDP have a positive Impact on trade rate, but the genuine Intrigued rate incorporates a negative have an effect on the trade rate. Surprisingly, India has too a positive act on the trade rate change in GDP growth rate, but for Pakistan, the interest rate has positive dominance on the exchange rate.

Key Words: **GDP growth Rate, Inflation rate, Real Interest Rate, Exchange rate**

CHAPTER 1

1.1 Introduction:

Bangladesh, found on the Narrows of Bengal, could be a little nation in South Asia with a populace of over 163 million. It is the world's eighth-most populated locale (57,320 sq. mi). In terms of exchange rates, Bangladesh is the world's 39th largest economy (wiki). The price of one currency in favour of another currency is known as the exchange rate. In international trade, the exchange rate is crucial. Bangladesh shares a slight boundary with India to the west, north, and east, and is almost surrounded by India. India could be a nation in South Asia that is formally recognized as the Republic of India. It is the world's moment most populous economy, the seventh biggest by arrive region, and the world's most populous vote-based system (wiki). Pakistan may be a nation in South Asia that is formally recognized as the Islamic Republic of Pakistan. With a populace of over 212.2 million occupants, it is the world's fifth most populated nation and domestic to the world's second-largest Muslim populace. (Wiki). Set or floating trade rates are accessible. Settled trade rates are set by a country's central bank, whereas coasting trade rates are decided by market request and supply. For numerous components, the trade rate is significant: It acts as a crucial association between the household and international markets for a assortment of items, administrations, and financial properties. We may compare costs of items, administrations, and properties quoted in different monetary standards by utilizing the trade rate. A high exchange rate is widely viewed as a measure of economic resilience, as well as an indicator of economic progress. Since exchange rates are essential economic prices, their degree and flexibility have an impact on resource allocation and development. Depending on, among other things, the monetary regime chosen and the growth of the financial system, countries can attempt to control the level of exchange rates and limit their flexibility. Such decisions mean actual trade-offs, with short- and long-term consequences. The degree of exchange rate

stability has an influence on the real economy. In this study, it is going to be analysed that how much the fluctuation of exchange rate is influenced by the variables taken which are inflation rate, interest rate, and GDP growth, respectively. So many aspects can be seen in exchange rate which built a trading connection with another country. Exchange rate connected and will indicates as a contrast of the currencies of two countries. Contrasting in inflation, Dissimilar in real Interest Rate, current Account Deficits, Open Obligation, Terms of Exchange, Solid Financial execution are some of the vitals determinants which plays vital part in nations exchange rate

1.2.1. Research Objective:

In this research, paper an attempt to try and check -

1. To identify which determinants, have significant impact on the Exchange Rate.

1.2.2. Research Question:

1. Which determinants have a major positive impact on the exchange rate among inflation rate, Real Interest Rate, and GDP growth rate?
2. Which variable is highly influencing the determinants of Exchange Rate?

1.2.3. Research limitation:

1. Limitation of previous research studies on this topic.
2. Limited access of data.
3. Lack of sources of data.
4. Data for statistical measurements are not sufficient.

CHAPTER 2

2. Literature review

Md Tanjil and Shafiur (2014) investigated the determinants of Exchange Rate of Bangladesh. They analysed which determinants affect most on the exchange rate of Bangladesh. In their research, they took swelling rate intrigued rate and current account balance and trade rate as subordinate variable. They stated that GDP growth rate has a major affect an exchange rate than other determinants. However, the results were found by applying simple single equation linear regression (SLSR) model, which is a 21 years' time series data from the period of 1990 to 2011. In their research finding, they also found that other variable has a positive impact.

Tauhidul (2013) investigated the Trade Rate and Economic Development in Bangladesh (an econometric examination). He recognized the relationship between the trade rate and the GDP development rate of Bangladesh (an econometric examination). Time-series information from the period of 1891 to 2013 and the ordinary least square (OLS) method were used to estimate the results of this research model. In addition, export and GDP growth rate were used as independent variables, and exchange rate as the dependent variable. They concluded that the GDP growth rate has a positive relationship with the exchange rate of Bangladesh. They added that when the exchange rate increases the export GDP growth rate of Bangladesh also increases.

Manuel Benazic (2016) had a study on the determinants of Exchange Rate in Croatia. The essential reason of this paper was to examine the effect of advertise shifts, costs, the ratio of deposits in foreign currency to overall time and savings deposits, the ratio of outside money- recorded Kuna loans and by and large credits, CNB worldwide reserve funds, export/import coverage, foreign coordinate venture, and outside obligation at the ostensible trade rate of Kuna to the euro, interior Croatia. For examination, this term paper applied the

autoregressive dispersed slack (ARDL) and utilize quarterly premise information from the period of December 1998 to Walk 2013. The finding of this research paper is that in the long run the relationship between foreign currency inflow – outflow and country exchange rate has a positive impact on each other and in the short run this impact remains the same as well. They also stated that an increase in the variables causes a rise in the exchange rate.

Bazlul, Bidisha and Razzaque (2012) investigated on the Trade Rate and Economic development (an experimental appraisal on Bangladesh). They attempted to figure the effect of trade rate shifts on financial improvement in Bangladesh. For examination, they utilized the yearly information period of 1980 to 2012 and connected Vector Autoregressive (VAR) strategy a Keynesian analytical framework to gauge an observational determination to set up a genuine exchange rate 6 arrangement, utilizes a cointegration handle to decide the output reaction to the deterioration of Bangladesh money TAKA. This paper concluded that decreasing in the real exchange rate leads to an increasing in GDP growth of the economy. However, there is also a negative effect found in this paper that in the short run the percentage of increasing rate in GDP growth would befall by half present.

.Bristy, Jannatul Ferdous (2017) published a paper term paper on variables Influencing the Assurance of Exchange Rate in Bangladesh. Point of this paper was to discover out factors impacting the resoluteness of Bangladesh trade rate by considering the US dollar esteem of the BDT. This investigation was taken put by utilizing time series data from the period of (1999- 2013). To look at the comes about, they utilized the correlation and straightforward slightest square relapse (SLSR) strategy. For the independent variable, they took sixteen macroeconomic factors for this study. The result of this think about stated that government use may be a major factor within the determinants of the trade rate but other components of money such as supply, net capital, essential wage

instalments, GDP, external obligation stock and GNI play a great part. They moreover included that an increase in loaning rate and essential wage receipt is a reason for appreciation in other factors reasons to depreciation in the exchange rate in terms of US dollars.

Sheetal Maurya (2017) researched variables affecting the Trade Rate and its effect on the economy of India. This consider has attempted to recognize the impact of GDP and different financial factors on the Rupee-USD trade rate. By utilizing authentic yearly information of past 42 years starting from the year 1972 to 2012 was utilized. Trade Rate was utilized as a dependent variable and as autonomous variables inflation differential, interest rate differential, wide cash supply, Outside Trade Save, current account shortage, net financial shortage, GDP, purport, trade and connected statistical package for the social sciences (SPSS)was utilized for getting the results. This think about appeared that the relationship among cash supply, short-run yield differentials, CAD, and expansion are not factually noteworthy with the exchange rate. Rising the exchange rate would not produce a significant rise in GDP, but the exchange rate has a favourable effect on both imports and exports. She also added that, when there is a decrease in the rate of the rupee, there is a rise in exports and a reduction in imports would the GDP increase by a large amount. However, imports are found to have a favourable exchange rate, but the net send out esteem has diminished in this matter.

 Mohammad Zayed (2019) attempted to examine the strategic determinants and stability of the Real Exchange Rate in Bangladesh. The reason of this study was to investigate the determinants of the genuine trade rate and stability circumstance that impacted Bangladesh's expansion rate and overall economy from 1976 to 2017. This paper portrays a collection of variables that made a difference to clarify the choice of the trade rate in Bangladesh taking a time arrangement information of period of (1990 to 2011). For testing comes about,

the Johansen long run Cointegration procedure and for autonomous factors swelling Rate, GDP development Rate was utilized. Intrigued Rate, Genuine GDP, Steadiness against the dependent variable of trade Rate, this consider recognizes that swelling rate, interest rate, Genuine GDP features a noteworthy effect on Trade Rate. If all these variables rate fall then the exchange rate also decreases and in the long run this variable has a relationship with the exchange rate.

Mita Suthar (2008) tried to find the Determinants of Exchange Rate in India. This study aims to find the Validity of this speculation in affiliation with the change price among the Indian rupee and the USA dollar. For the study, she took a monthly time series from April 1996 to June 2007, and for independent variables, the researcher took Foreign exchange rate, interest yield differentials and for dependent variables, the analysis tests the feasibility of this theory in comparison to the Indian rupee – Us Dollar Exchange Rate. This study concludes that monetary delimited by the central bank the long - run, Short-run discrimination in a domestic interest rate and imbalance in growth in an interest rate and a Change in the effects on the month-to-month average of the change among the exchange rate of the Indian rupee and us dollar and quite constant with the financial principle.

 Saeed, Awan, Sial, and falak(2012) researched an Econometric Examination of Determinants of Exchange rate in Pakistan. This proposition carried out an econometric examination of US Dollar trade rate determinants in terms of Pakistani Rupee inside the monetary arrangement framework. For this investigate, they took month to month information from January 1982 to April 2010. They examined the long – term and short-term actions of the PKR/USD exchange compared to The USA Rate and interaction with relative monetary variables of exchange rate activity, by using co-integration, Error Correction Model, ARDL, they found that stock of money, debt, and foreign exchange

reserve balance and the exchange rate has a significant relationship between them, and political flimsiness incorporates a significant bad impact on the esteem of household forex.

Syed Ali, Sahar (2017) had Determinants of Exchange Rate in Pakistan. They endeavored to analysed the effects of The Determinants on the Exchange Rate of Pakistan by Utilizing the Time series data from 1972 to 2013 and tested the study results by Applying the autoregressive distributed lag bound research co-integration approach, the co-integration approach of Johansen and Juselius, and the systemic split co-integration approach of Gregory and Hansen. They substantiated the germane long-run relationship between a few variables considered. They examined that the explanatory variables inflation mazuma supply has a positive and paramount impact on the exchange rate in the long run but the term of trade and trade openness and economic magnification harms exchange rate. Both long-run and short-run term of trade and trade openness had a consequential negative relationship with the exchange rate.

CHAPTER -3

3.1. Methodology:

For this analysis, all the data are collected from secondary sources from World Bank, Org IMF data of Bangladesh, and the statistics bureau of Bangladesh. To make a good experimental research this paper took additionally two nearest countries of Bangladesh to analysis which determine the effect most the exchange rate of that country. All these resources of Data are trustworthy and valuable. This paper checked the conversion scale of Bangladeshi taka with U.S. information over 32 years (1987 to 2019). In addition to that, this paper took the data of India and Pakistan (1987-2019). The conversion scale of Indian and Pakistani rupees with U.S. transformation over 32 years was also checked. For this study, this inspection collected time-series data of Exchange Rate (LCV of US $), Growth rate Inflation rate, and Interest rate from World Bank data. However, IBM, spss Statistic Data Editor, Linear regression to visually perceive the consequentiality and relationship of these determinants. In this exploration paper, it estimated a linear regression model, which is

$EXR_t = B1 + B2\ INF_t + B3\ GDP_t + B4\ INR_t + U_i$

EXR = Exchange Rate

GDP =GDP Growth Rate

IFR = Inflation Rate

INR = Interest Rate

Ui = Error term

Estimation of this model came from using ordinary least square technique and formal t-test[1].

3.2. Research analysis:

3.2.1. Analysis of result (Bangladesh) by using linear regression model given below:

1. Coefficients

Model	Standardized Coefficients Beta	t	Sig
(Constant)		411	.684
INR	-.088	-.823	.417
INF	.002	.020	.984
GDP	.810	7.682	.000

From the above table this can exploited that the estimated coefficient has all the expected signals. The t-estimate of the coefficient if GDP is statistically significant is 7.682. This means an increase in the GDP growth rate by one unit as a result of the exchange rate increase by 0.810 units. Estimate t (if the value of t is 2, then we can say that the value of t is significant) for the inflation rate factor is not a large estimate value is .020 and we can see that the real interest rate increases by 1 unit as a result of the exchange rate decreases by 0.88 units and vice versa.

2 Model Summary

Model	R	R Square	Adjusted R Square	F change	Sig F Change
1	.841	.707	.676	23.290	.000

From the above table it is clear that the fit line is reasonably acceptable, where fitness R and estimate are 676. This is demonstrated in practice with the 67% correctness of the swap scale in Bangladesh by GDP growth rate, inflation rate and real interest rate. The result of this regression model is statistically good.

3. Anova table

Model	Sum of Square	Mean Square	F	Significant
Regression	7113.526	2371.175	23.290	.000
Residual	2952.499	101.810		

From the above table it can expressed that the value of F is 23.290 but the critical fuses for F are 3.32 at 5% and 5.39 at the 1% significance level. f- The value 23.290 showed that square R is statistically significant. This means that the results of this study are significant. And the p-value is .001 which showed that the effects of each independent or constant variable GDP, IFR, INR) on the dependent variable (EXR) and is significant over all outcome estimates that can be say that this model is important in general.

3.2.2. (India) analysis Result of assess by using linear regression model given below:

1. Coefficients

Model	Standardized Coefficients Beta	T	Sig
(Constant)		4.996	.000
INR	-.408	-2.886	.006
INF	-.456	-3.298	.002
GDP	.387	2.899	.006

From the above table it can see that our dependent variable exchange rate has a positive relationship with the independent growth rate GDP (GDP). This means that if the GDP rate increases by 1 unit as a result of the exchange rate increase by .387 units as usual. The other two independent variable inflation rate (INF) and interest rate (INR) have a negative relationship. This means that if the inflation rate and the interest rate increase by 1 unit, the exchange rate will decrease by -3.298 or 3 units and -2.886 or 2 units. respectively and vice versa. This research finds a t-estimation value is 2 only for gdp growth rate so that it can define that gdp growth rate has a statistically significant effect on exchange rate.

2 Model Summary

Model	R	R Square	Adjusted R Square	Std Error of the Estimate	F Change
1	.593	.351	.300	16.663239 4182	6.863

From this table it can be stated that the decency of fit R square assessed is .351. That is essentially 35% of the verity within the swapping scale in India is clarified by GDP development Rate, Swelling Rate and genuine intrigued rate. In addition, noteworthy esteem of this result is .001. We discover f test here 6.863.

Therefore, finding all these comes about ready to conclude this show rundown by saying this this result is not great. Positive relationship within the evaluated residuals is not empowering since R square is as well low.

3. Anova table

Model	Sum of Squares	Mean Square	F	Sig
1 Regression	5716.716	1905.572	6.863	.001
Residual	10551.215	277.664		

From the over table we will see the F-value is 6.863 but the basic valves for F are 3.32 at 5% and 5.39 at 1% level of importance but F- 6.863 esteem showed that R square is factually isn't noteworthy.

Which means our ponder discoveries are critical. That means this study findings are significant.

3.2.3. (Pakistan) analysis Result of assess by using linear regression model given below:

1. Coefficients

Model	Standardized Coefficients Beta	t	Sig.
(Constant)		7.140	.000
INR	.030	.145	.887
INF	-1.072	-3.933	.002
GDP	-1.029	-4.681	.001

The finding of this table is the relationship with coefficient free variable that swelling rate, intrigued rate and GDP development rate and the subordinate variable trade rate does not have a great relationship. As it intrigued rate incorporates a positive relationship with trade rate this cruel in case intrigued rate raises by 1 unit at that point trade rate moreover raise by .03 units but exceptionally ineffectively positive and other two coefficient have a negative relationship with trade rate, seen will by seeing this B esteem INF, GDP -1.072, and -1.029 individually.

This cruel in case INF and GDP developed up by 1 unit bought -1.072 and -1.029 units down in trade rate. T esteem of factors of this table appear that only interest rate (t=.145) encompasses a somewhat factually noteworthy since (we know if t value=2 that cruel usually critical) so the relationship this demonstrate appeared that's not sufficient great or noteworthy.

2. Model Summery

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig F Change
1	.850a	.723	.653	17.7600956555	.001

In this table able, to see there's a reasonable representation of reality. R2 esteem is .723 That is in rate frame is 72%. This esteem is made to say that

this show is nice. This demonstrate is accepted as a great show.

CHAPTER- 4

4.1. Summary of Analysis of Bangladesh India and Pakistan

This paper has examined the determinants of Bangladesh India and Pakistan, which influence the exchange rate including three independent variables, such as inflation rate, interest rate, and GDP growth rate. This paper has discovered that the GDP growth rate in Bangladesh has a positive impact on the exchange rate using linear regression. The GDP growth rate in India has a categorical positive impact on the exchange rate. In Pakistan, the rate of interest has a definitive impact on the exchange rate. As a result, this research paper can conclude that GDP growth rate is one of the most important determinants of exchange rate for both Bangladesh and India. Also, this paper can be added that, the interest rates are a positive barrier to the exchange rate in Pakistan.

3. Anova table

Model	Sum of Squares	Mean Square	F	Sig
Regression	9866.395	3288.798	10.427	.001b
Residual	3785.052	315.421		

4.2. Figure of Bangladesh, India and Pakistan impact of GDP growth on exchange rate
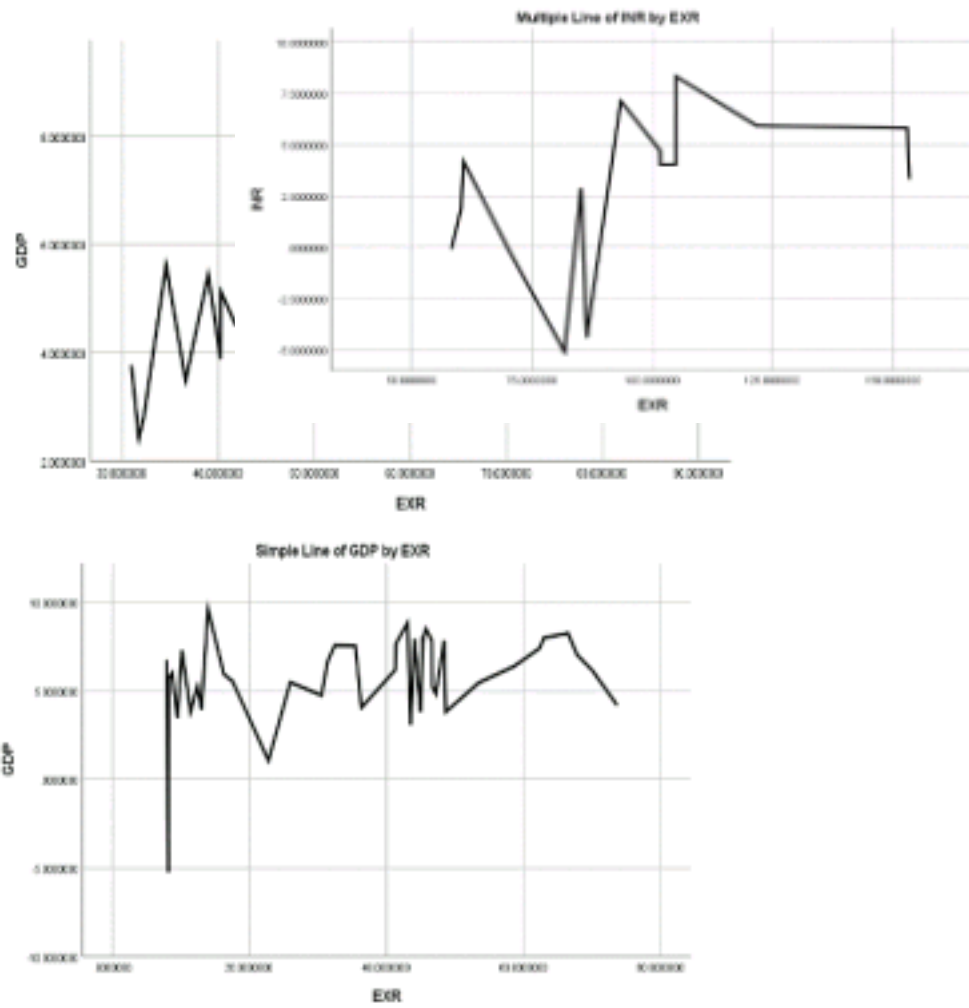
We can see it though graph:

Fig: Pakistan

Conclusion

Through this research , this paper has present a variety in the exact estimation of the exchanged rate of Bangladesh by using time series data for analysing this paper study. The paper characterizes a set of data that helped to clarify the decision of exchange rate in Bangladesh. For the (1987 -2019) study, this paper has used periods by using simple linear regression model. Study shows that GDP growth rate and inflation Rate have positive relation with Exchange Rate (LCU US$). To make a proficient thesis paper this paper has took two nearby countries of Bangladesh India and Pakistan to give a look which determinant has positive effect on both countries exchange rate. After the research this research paper have conclude that in India GDP growth rate has a positive effect in exchange rate and in Pakistan interest rate play positive role in exchange rate growth. However, interest rate has a negative relation with exchange rate is high and we can say GDP growth rate is the egregious determinants of exchange rate in Bangladesh. The exchange rate variable is supposed to have a favourable relationship with the GDP variable in principle. The higher the exchange rate, the greater the production level. GDP play leading role in the variation of exchange rate in Bangladesh.

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