

DO MACROECONOMIC DETERMINANTS SUBSTANTIALLY AFFECT UNEMPLOYMENT?

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Abstract: *Bangladesh is a developing country that wants support for economic growth from other countries. This is would accomplish by receiving a large amount of foreign direct investment (FDI) that leads to a higher rate of jobs. Higher jobs contribute to better Bangladeshi life while rising its gross domestic product (GDP). However, unemployment remains one of the major problems facing the world today. The research analyzed the long-run and short-run relationships between unemployment and its macroeconomic determinants over the period 1991-2018/19, including industry value-added, inflation rate, foreign direct investment (FDI), urban population growth, and real gross domestic product (RGDP). This research employed the Johansen co-integration, Vector Auto Regression (VAR) testing method, the Augmented Dickey-Fuller (ADF) to unit root. The outcome of the regression indicates that the long-run unemployment rate explained by foreign debt, inflation, FDI, population growth, and RGDP. Therefore, we propose some economic proposals that the outcome of this study.*

Keywords: *ADF, Economic Growth, FDI, GDP, Inflation, Unemployment.*

JEL: *B22, B23, E24, E26, E31, J24, R23*

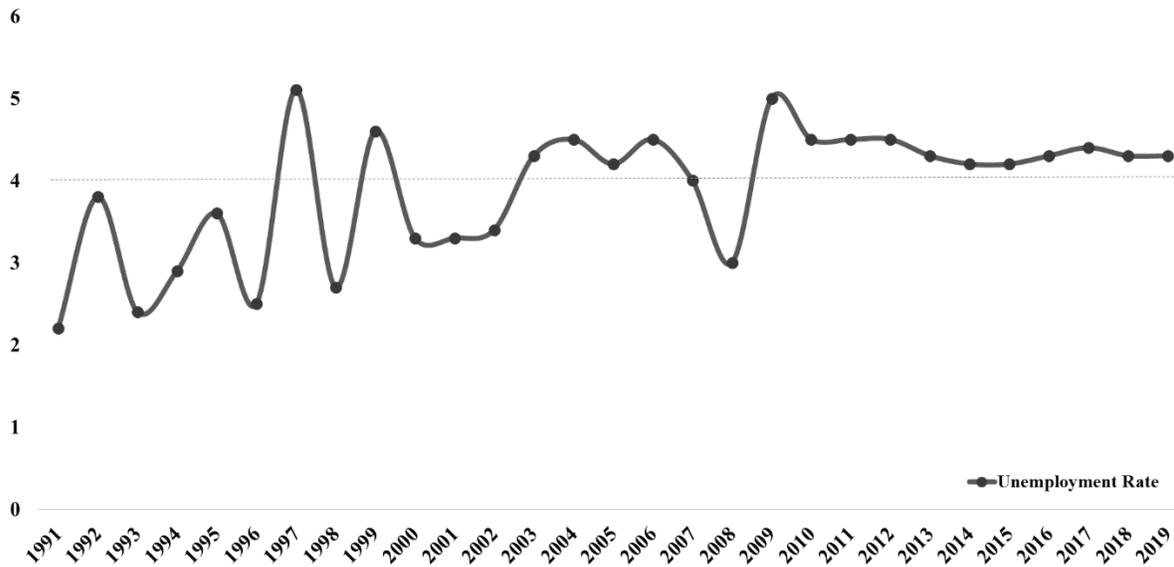
INTRODUCTION

Unemployment remains one of the world's greatest issues. It is the most persistent challenge affecting all countries that are technologically advanced and weak. 5.7 percent of the global population is unemployed, according to the International Labor Organization (ILO) survey (2017). Nonetheless, Bangladesh faces an austere problem. The unemployment rate measures the number of inactive citizens in Bangladesh, but it is the work force rate that effectively searches into it. 4.18 percent of the country's population is reportedly unemployed, according to the 13th Quarterly Labor Force Survey (QLFS) reported by the Bangladesh Bureau of Statistics in March 2017. The youth unemployment crisis is critical for the economic development of Bangladesh. Over the years, the youth unemployment rate has risen. The World Bank data shows that in 2017, the youth unemployment labor force aged (15-24) was 11.4%. Unemployed graduates in Bangladesh are - in a surprising way.

A big challenge in Bangladesh has been the unemployment situation for university graduates. In some cases, male graduates get more incentives than female graduates. According to the 2015-2016 Quarterly Labor Force Survey of the Bangladesh Bureau of Statistics, the unemployment rate for female graduates is 16.8 percent, almost 2.5 times greater than that for male graduates (QLFS). Growth in the economy helps alleviate unemployment. In 2016, Bangladesh achieved an economic growth rate of 7.11 percent (WDI revised 4-19-2018), according to the Bangladesh Bureau of Statistics (BBS), which

beats all previous milestones in the country's economic history. However, despite economic development in Bangladesh, the unemployment crisis has not been resolved. In Bangladesh, the evolution of unemployment is seen by the following figure.

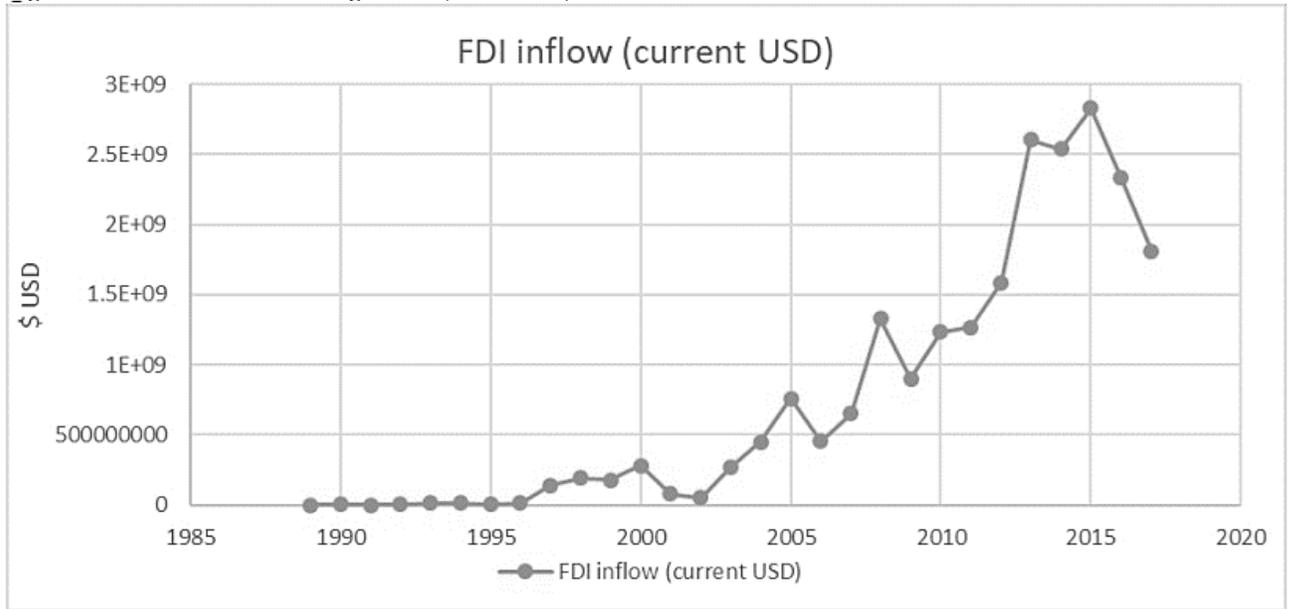
Figure 1. Trend of Unemployment



Source: World Development Indicator

Figure 1, shows that the unemployment rate oscillated frequently between 1991 and 2000 and reached an all-time high of 5.1% in 1997; due to political chaos and a newly formed government. It then shows an upward trend until 2004 and fluctuations from 2004 to 2006. After 2006, the unemployment rate started to decrease until 2008 and was 5% in 2009. It was the second level the higher. The unemployment rate remained constant at 4.5% between 2010 and 2012. After that, consequent years of 2018 and 2019, it's unchanged and touched 4.3% in 2019. A country's total production measurement scale GDP is one of the recognized parameter recording the state of an economy. In this research, GDP growth (annual %) coined as economic growth. From the time of its liberation in 1971, Bangladesh economy has experienced notable progresses. However, the country's growth has been hampered by political uncertainty and dangerous natural disasters. The following figure shows the trend of economic growth in Bangladesh over the period 1991 to 2019.

Figure 2. FDI inflows into Bangladesh (1989-2018)



Source: World Bank (2018)

After the policy reforms to encourage new investment and reward schemes in 1990 and 1995, foreign direct investment inflows have risen dramatically. The lifting of limits on capital and benefit tunnels in the country of origin and the opening up of almost all manufacturing industries to potential foreign buyers was another possible factor. The authorities formed an Investment Board in 1989 (BOI). The primary aim is to construct tunnels and encourage international investment (Mondal 2003). A linear point of view is that foreign direct investment (FDI) immensely significant for economic growth. Economic activity and development expedite by the foreign capital. Developing countries have had experience with foreign direct investment and see it as one of the fastest forms of economic change (Makki and Somwaru, 2004). Neoclassical and endogenous growth models establish the most empirical work on the growth parity of FDI. In certain economic state macroeconomic study implies a positive relations with FDI and economic state. Though, both are arguable factors in various cases. (Lean and Tan, 2011; Alshehry, 2015; Adhikary, 2015; Gandelman, N., & Hernández-Murillo, R. 2009).

Unemployment is a problem of considerable importance to leaders in developed and affluent countries both. About 34 million people have lost their jobs globally due to the global recession of 2007. After the economic recession, the number of unemployed young people has grown from 73.5 million in 2007 to 77.7 million in 2010, from 73.5 million in 2007 (ILO, 2011). Inflation and unemployment, socially and economically annexed, usually sought to establish a relationship between them that is inversely linked when unemployment is toe to tip while inflation is down. If the money supply changes, it indicates to inflation. If the money supply increases, this has a multiplier effect on the prices of goods and services in the economy, which also leads to increase. Goods and services become changes due to inflation of prices. The classic economist indicated that the long-term Phillips curve shaped the natural unemployment rate in the economy. It is

said that inflation and unemployment should have no relationship in the long run (Phillips, 1958) & (Friedman, 1968).

The inflow of foreign direct investment into Bangladesh started in 1994 to interrupt the steady influx of previous years, rising from \$11 million to \$231 million almost twenty times in 1995 and 1996. So this rise in Swift is the product of a set of rewards for hedging. Buyers of foreign direct investment have been granted financial sovereignty for innumerable years, consisting of tax exemptions for innumerable years, a non-binding facility for the import of machinery, 100% goods to abroad and a 100% income return facility, reinvestment of income or dividends as foreign direct investment, some visas, work allows executives abroad, permanent residence or even citizenship to invest a single post, export processing area (EPZ) facility and hassle-free, easy exit facility (Abedin, M. J. 2015).

OBJECTIVE OF THE STUDY

The study will explore the short and long-term relationships between macroeconomic factors and unemployment in Bangladesh. The macroeconomic variables taken into account are GDP, inflation and foreign direct investment. The following hypothesis is made

H1: The long-term relationship between unemployment and macroeconomic factors is at a significant level in Bangladesh.

H2: In Bangladesh, there is a major long-term association between unemployment and GDP.

H3: The short-term relationship between unemployment and inflation in Bangladesh persists at a substantial level.

H4: In Bangladesh, there is a major short-term association between unemployment and GDP.

H5: In Bangladesh, there is a substantial degree of short-term linkage between unemployment and FDI supply.

SIGNIFICANCE OF THE RESEARCH

There has been no major analysis in Bangladesh that logically illustrates the challenges of unemployment. Previous studies is not adequate. This study projected that it would include those policy elements to alleviate a large portion of the population's jobs. In addition, in order to undertake research in this field, the researcher of the future would have a clear and developed concept.

LITERATURE REVIEW

The Samiyah and Sakib (2018), Bangladesh case study focuses on foreign direct investment, trade transparency, and economic development. Data for the introduction of detailed Dickey Fuller (ADF), Granger causal checks and trade ties (TRD), foreign direct investment, Phillips-Perron (PP), inflation (INF) and GDP in Bangladesh were seen by the author between 1980 and 2015. At this point, GDP, trade flexibility by volume of trade as

a percentage of GDP, Calculated inflation by the consumer price index and foreign direct investment (net flows) are shown on the basis of data from the balance of payments. This article examines the correlation and direction of causality between foreign direct investment, trade and growth in Bangladesh, taking into account macroeconomic stability. The results show that there is a unidirectional causality ranging from trade openness to GDP, trade openness to inflation and a mutual causal relationship between foreign direct investment and GDP in Bangladesh. The above results do not suggest a causal link between inflation and foreign direct investment, trade and foreign direct investment, inflation and GDP. In this study, the assumption turned out to be partially true because the Granger's causal relationship of the guidelines was found between foreign direct investment and GDP. Though, no causal link between openness to trade and foreign direct investment or inflation was found. Meanwhile, foreign direct investment and trade are two key reasons for economic growth in Bangladesh which is based on the results of this experiment, a favorable investment and trade policy is recommended. Dey .S and Awal .H (2017) study implied the effects of foreign direct investment on GDP growth in Bangladesh using OLS (Ordinary Least Square). In this study various diagnostic tests performed such as normality, residual tests, heteroskedasticity and autocorrelation tests.

Main hypothesis of the multiple regression analysis. GDP considered as dependent variable, in this study detected as a negative relationship with foreign direct investment and economic growth. There implied a unidirectional or bidirectional causality between the dependent and independent variables (foreign direct investment inflows, total exports and imports, public development expenditure, gross domestic investment, gross fixed capital formation, human capital, national bank loans) or no Granger causality test was used. The result shows that foreign direct investment in Bangladesh is an ambiguous factor for economic growth.

Noor, Ali, Nirob and Islam (2016) study suggest that unemployment has a positive magnitude on the wage rate, but inflation has no positive effect on the wage rate. Jaradat (2013) examine that GDP influenced by unemployment and inflation on Jordanian economy. The researcher collected World Bank data set and applied time series data from 2000-10, to evaluate the relationship between the dependent and independent variables. Its results shows that if we increase inflation by 0.906%, GDP will increase by 1%, but if unemployment decreases by 0.697%, GDP will increase by 1%. The overall results suggest that GDP and unemployment have a significant negative relationship, while GDP and inflation have a strong, significant positive relationship.

Table 1. Several Authors Study and Results

Authors & years	Topics	Results
Adamu, J., Idi, A., & Hajara, B. (2015)	Remittance, Aid, Foreign Direct Investment, Financial Development and Economic Growth in Nigeria: A Time Series Analysis	An effective and excellent relationship between foreign direct investment and real GDP, an indicator of Nigeria's economic development. The existence of this positive link therefore requires a commitment to implement strategies that attract foreign direct investment, particularly in Nigeria's non-oil sectors.

Adhikary, 2015; Ghatak and Halicioglu, 2007; Lean and Tan, 2011; Alshehry, 2015	Dynamic Effects of FDI, Trade Openness, Capital Formation and Human Capital on the Economic Growth Rate in the Least Developed Economies: Evidence from Nepal	An empirical enquiry suggests that economic growth influence by FDI.
Bibhuti (2020); Abdullahi et al. (2012); Nwaogu, U. G., & Ryan, M. J. (2015); Makun, K., & Azu, N. P. (2015).	Nexus between foreign direct investment and economic growth in Bangladesh: an augmented autoregressive distributed lag bounds testing approach; The impact of FDI on economic growth in South Asia and Fiji	The experiment has suggested that foreign direct investment as well as other variables for instance- human capital, economic infrastructure and capital formation have positive and important effects on economic growth. Also, commended more open economies, more investments in economic infrastructure and more political engagement in the fight against corruption.
Borensztein et al. (1998)	How does foreign direct investment affect economic growth?	Measured of foreign direct investment in 69 developing countries during the period 1970-1989 in developed nations. This demonstrations that foreign direct investment is an important route for technology transfer and that it contributes extraordinarily much more to growth than domestic investment. However, FDI only promotes economic growth if the host country can properly absorb the technology.
Authors & years	Topics	Results
Wu Jyun-Yi and Hsu Chih-Chiang (2008)	Does foreign direct investment promote economic growth? Evidence from a threshold regression analysis	The record of 1975-2000 for 62 countries shows the effects of foreign direct investment on economic growth according to different absorption capacities. It's implies that FDI influenced by the initial GDP and human capital factors.
Kornecki and Borodulin, 2011	State-Based Determinants of Inward FDI Flow in the US Economy	The study shows that, based on FDI and its importance in the IP, the significant factors are: real income per capita, real spending per capita on education, employment, research and development in foreign direct investment and investment having a significant positive impact on foreign direct investment.
Mohammed Ershad Hussain and Mahfuzul Haque (2016); Tang, D. (2018).	Foreign Direct Investment, Trade, and Economic Growth: An Empirical Analysis of Bangladesh	Applied VECM, in this enquiry shows that the variables of trade and foreign investment have a major impact on the growth of GDP per capita. Because foreign direct investment and trade are the two essential tools for economic growth in 2006 Bangladesh.

Umar and Razaullah (2013) and Thayaparan, A. (2014) examine that the effect of Gross Domestic Product and inflation on Pakistan and applied time series data since 2000 to 2010 and calculated regression analysis through SPSS. The results point toward that the F-test value which is very low and below the value of 4.00. The R-squared has a limited variation of 0.70% & 22.8% in GDP inflation and unemployment. The experiment shows a negative effect on GDP and negative correlation with unemployment. Khan, Khattak and Hussain (2012) have examined the correlation between growth in gross domestic product

and unemployment in Pakistan. According to their results, if an increase of 1% reduces unemployment by 0.63%. However, a 1% drop in unemployment will increase GDP growth by 7.25%. The results suggest that long-term GDP growth has a negative impact on unemployment.

RESEARCH METHODOLOGY

This study purposes to observe the relationship with unemployment and macroeconomic parameters in the distinctive economic operation of Bangladesh from 1991 to 2018 by using the following model which are impacting on unemployment rate in Bangladesh. The annual data depending on the unemployment rate and other independent variables such as inflation, economic growth and foreign direct investment, measured in terms of GDP and the GDP deflator, come from the annual reports of the Bank of Bangladesh and the World Bank (1991-2019).

The primary model showing the relationship among Unemployment, Growth, Inflation, FDI. As follows:

$$UNEMP = f(GROWTH, INF, FDI, IND, PREMIT, AGEDR, URP,)$$
$$UNEMP_t = \beta_0 + \beta_1 GROWTH_t + \beta_2 INF_t + \beta_3 FDI_t + \beta_4 IND_t + \beta_5 PREMIT_t + \beta_6 AGEDEP_t + \epsilon_t$$

Where, GROWTH = GDP growth (annual %) as a proxy economic growth

UNEMP = Unemployment rate, FDI_t = Foreign Direct Investment

INF = Inflation Rate, IND = Industry value added (annual % growth)

PREMIT = PERSONAL REMITTANCES RECEIVED

AGEDEP = Age dependency ratio (% of working age population)

β_0 = Intercept term, β_1 , β_2 , β_3 , β_4 , β_5 , β_6 = Partial regression coefficient

t = Time period (1991-2019), ϵ = Error term

The empirical research reveals that most time series aren't stationary. In fact, visual inspection of all the variables considered for use in this study at their level suggests that they are trending and therefore not stationary. In other words, their mean and their variances depend on time. From the econometric theory displays, ordinary least squares (OLS) cannot be used if there are non-stationary variables because there may be an incorrect regression that affects the performance of predictions. As an illustration, econometric theory shows that ordinary least squares cannot be used when the variables are not stationary, as there may be an incorrect regression that affects the performance of predictions. Therefore, we must use a time series regression model. Because our data are multivariate time series, the visible regression analysis method is a vector automatic regression (VAR) or vector error correction (VECM) model. Follow the steps below to do this:

METHOD OF ANALYSIS

In this study the method of analysis considering in below test. There are-
Lag selection of Variables

2. Stationarity Check
3. Test for Co-integration
4. If Co-integration is not present

We use vector auto-regression (VAR) and if there is co-integration present, we use the vector error correction model (VECM), 5. Diagnostic tests and forecasting. The ordinary least squares (OLS) regression model is considered a weak statistical test and, based on variables and data, an automated vector regression (VAR) model should be used. This co-integration analysis model is created in conjunction with the Augmented Dickey-Fuller test, Johansen co-integration tests, co-integration equations and Johansen normalization constraints.

RESULTS AND DISCUSSIONS

Lag Selection Of Variables

The yearly data set shows data set max optimal lag level 2. We have used four parameters to find the optimal lag. Those are- Final Prediction Error (FPE), Akaike Information Criterion (AIC), Hannan Quinn Information Parameters (HQIC) and Schwartz Information Parameters (SBIC). Varsoc Unemployment GDP_GR FDI Infl, maxlag (2)
 Endogenous: Unemployment GDP_GR FDI Infl
 Exogenous: _cons
 Selection-order criteria
 Sample: 1993-2018
 Number of observation=26

Table 2. Lag selection of Variables

lag	LL	LR	df	P	FPE	AIC	HQIC	SBIC
0	-688.968				1.70E+18	53.3052	53.361	53.4988
1	-645.056	87.823*	16	0.000	2.0e+17*	51.1582	51.4369*	52.126*
2	-633.998	22.118	16	0.139	3.20E+17	51.5383	51.5383	53.2803

In this table we can find that all four parameters are indicating that lag 1 is the optimal lag with the sign '*'. So we are putting 1 as our optimal lag.

2. Stationarity Check

The data on time series is generally non-stationary. However, in order to run a successful regression test for time series data, these must be configured as stationary, since time series cannot have a standard mean value and no standard variance. Augmented Dickey Fuller's test aids to examine the stationarity of time series data. An important assumption for this test is that the error term is not correlated. Therefore, Augmented Dickey Fuller (ADF) test is performed in our study. It checks the correlation of errors by adding lags.

To test the stationarity of data we have the following hypothesis

H0: The data is non-stationary.

H1: The data is not non-stationary

A significance level of 1%, 5% or 10% is included in the analysis when making a decision. If the absolute value of the test state is greater than the critical value, we can reject

the null hypothesis. However, if the absolute value of the test statistics is less than the critical value, we cannot reject the null hypothesis.

Table 3. Lag selection of Variables

Differentials	Level Form		1st Differentials		2nd Differentials		3rd Differentials		4th Differentials		Integrated Level
	Cal. Value	95% C.I (P-Value)	Cal. Value	95% C.I (P-Value)	Cal. Value	95% C.I (P-Value)	Cal. Value	95% C.I (P-Value)	Cal. Value	95% C.I (P-Value)	
Unemployment	-2.29	-3.6 (0.4374)	-6.02	-3.600 (0.000)							I (1)
GDP	-2.886	-3.600 (0.1672)	-3.174	-3.600 (0.0897)	-3.607	-3.600 (0.0293)					I (2)
Inflation	-3.833	-3.600 (0.0150)									I (0)
FDI	-2.076	-3.600 (0.5597)	-2.753	-3.600 (0.2149)	-3.244	-3.600 (0.0759)	-3.247	-3.600 (0.0754)	-4.000	-3.600 (0.0088)	I (4)

In this chart we see that in the level data on unemployment, GDP, inflation and foreign direct investment, the absolute value of the test statistics is smaller than the critical value. We therefore do not reject the null hypothesis that the data are not available. To place them, we first transformed these variables to differentiate them. Once the data has been converted into the first one, the ADF test shows that the absolute value of the test statistic is greater than the critical value. We can then reject the null hypothesis according to which the data are not available. In the case of INFLATION and GDP, it can be seen that in the level data, the absolute value of the test statistic is greater than the critical value. We therefore reject the null hypothesis that data are not available.

3. Test for Co-integration

The Johansen co-integration test is often used to test co-integration. The test offers an integration scale. The order of integration a series is provide the number of time series, the set has to be separated in order to create a stationary series. The series generated by the first difference is integrated in order 1, designated I (1). So if a time series is I (0), it is stationary; if it is I (1), its change is stationary and its level is not stationary. Johansen's co-integration test is based on the maximum likelihood method which provides two main statistics, they are- Trace statistics and maximum statistics. If the rank is zero, it means that there is no co-integration relation, and if the rank is one (1), it means that there is a co-integration equation and so on. The null and alternative hypotheses are as follows:

H0: There is no co-integration.

H1: There is co-integration.

Trend: Constant
 Number of obs. =26
 Lags=2
 Sample: 1993-2019

Table 4. Johansen Tests

Maximum Rank	Parms	eigenvalue	Trace Statistics	Critical Value	Max Statistics	Critical Value
0	20	-	36.5436*	47.21	20.8236	27.07
1	27	0.55108	15.72	29.68	12.4673	20.97
2	32	0.38091	3.2527	15.41	3.1645	14.07
3	35	0.1146	0.0881	3.76	0.881	3.76
4	36	0.00338	-	-	-	-

*denotes the rejection of null hypothesis at 5% significance level.
 No co-integration. Going for VAR.

4. Vector Auto Regression (VAR)

Vector auto regression

Sample: 1993-2018

Log likelihood=-633.9976

FPE= 3.20e+17

Det (sigma_ml) =1.78e+16

No. of obs. =26

AIC=51.53828

HQIC=52.03991

SBIC=53.28026

Table 5. Vector Auto Regression (VAR) Test

Equation	Parms	RMSE	R-Sq.	chi2	P>chi2
Unemployment	9	0.424981	0.7820	36.14632	0.0000
GDP_GR	9	0.587846	0.8000	29.08123	0.0003
Infl	9	3.79148	0.0672	1.871623	0.9847
FDI	9	3.50E+08	0.9139	276.1061	0.0000

The table above illustrates the regression equations using "unemployment" as dependent and lagged values of GDP, inflation and foreign direct investment as independent variables. The interpretation is as follows: "L1" means co-integration equations. To determine the long-term causality between "unemployment" and GDP, inflation and foreign direct investment, the "L1" must have a negative coefficient and a significant p-value.

Table 6. Vector Auto Regression (VAR) Test

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
Unemployment L1	0.5409495	0.1759018	3.08	0.002	0.1961884	0.8857106
GDP GR L1.	0.0159349	0.1091217	0.15	0.884	-0.1979397	0.2298094
Infl L1.	-0.0038424	0.0219717	-0.17	0.861	-0.046906	0.0392213
FDI L1.	4.92E-10	2.35E-10	2.09	0.037	3.07E-11	9.52E-10
cons	0.278891	0.6503582	0.43	0.668	-0.9957877	1.55357

We can see there is a long term relation between the variables in equation ‘L1’ as it has a negative coefficient and a significant p-value. In equation ‘L1’ though the p-value is significant but the coefficient is non negative, thus does not show any long-term relationship among the variables. Furthermore, to ascertain the short-term causality between variables, the individual lag coefficients need to be negative with significant p-Values for each independent variable. As per this criterion we can see that lagged value of SCALE has short term causality with Unemployment at 10% significant level.

VECTOR AUTOREGRESSIVE ANALYSIS

Slope Coefficient: The slop coefficient of about .0159349 suggests that if the GDP goes up by 1%, the Unemployment goes up, on about by 1.59349 %. The slop coefficient of about -.0038424 suggests that if the Inflation goes down by 1%, the Unemployment decrease, on about by -0.38424 %. The slop coefficient of about 4.92e-10 suggests that if the FDI goes up by \$1, the Unemployment goes up, on about by 4.92e-8 unit.

Significant Test: GDP is important since the p-value is 0.2 percent smaller than 5 percent, which means that unemployment is clarified by GDP as a meaningful variable. Since the p value is 86.1 percent higher than 5 percent, inflation is not important. To describe unemployment, it is not a major variable. Due to its P importance, direct investment is essential. Direct investment is important since its p value is 3.7 percent smaller than 5 percent, which means that an important element in explaining unemployment is direct investment. There is unavailable research on the effects of unemployment on economic growth, foreign direct investment and inflation in Bangladesh. This study shows the recent situation of the effect of unemployment on economic growth, foreign direct investment and inflation in Bangladesh. In this reason this research is so noteworthy. This study found that alternative hypothesis applies to GDP and inflation, which is true. The null hypothesis applies to foreign direct investment, which is also true.

R Squared: The desired square R value is 0.80. But I find R squared = 0.7820 in the regression analysis, which is very similar to the target amount. The square R value of about 0.782 means that our three independent variables, such as GDP, inflation and foreign direct investment, will collectively justify the 78 percent fluctuation in unemployment. Other factors that are not triggered by GDP, inflation and foreign direct investment will explain the remaining 22 per cent of unemployment fluctuations. This model is built beautifully. Well calibrated are the data or variables.

Regression Model is Good Fit: The probability value is 0.002, which is smaller than 0.05. So we say it is significant for GDP, inflation and foreign direct investment which work together to affect the unemployment. Still according to the value R squared, we must say that this model fits well, and therefore we can reject the null hypothesis.

RECOMMENDATIONS

The implications of this study have shown that economic growth, foreign direct investment and the inflation sector have a significant impact on unemployment, but only GDP and foreign direct investment should be linked to unemployment. The study offers some recommendations, which are given below:

The study explained a positive and insignificant link between unemployment and economic growth, which is unwelcome in the case of Bangladesh. Economic growth will not affect the unemployment rate despite its gradual increase. The government of Bangladesh should therefore pursue a policy, so that economic growth can affect the unemployment rate.

Development of labor-intensive projects and consolidate with new entrepreneurial entrants of current entrepreneurship operations to build more opportunities and absorb a wide pool of unemployed people. Due to tradeoff between inflation and unemployment, the government should increase aggregate supply.

Inflation turns out to be harmful to unemployment according to the results of this study. However, this is statistically non-significant. Fiscal and monetary policy makers need to formulate policies to achieve the required inflation, which can affect the unemployment rate.

The study indicates that economic growth is not sufficient enough to draw more unemployed people, so the government can discuss the appropriateness of each economic sector to attract unemployed people. Through implementing the joint venture scheme, the government must monitor the penetration of foreign investment into the local economy. To give local farmers the ability to learn new technology and innovations, as well as to share the profits they receive.

Foreign direct investment generates employment, more socio-economic growth sectors such as agriculture, education, IT, pharmaceuticals, fisheries, cattle farming, ready-made clothes, electricity, gig economy, entrepreneurship, etc should be funded by the government of Bangladesh, and private investors should also be allowed to spend more in the economy.

It is important to prioritize foreign direct investment and domestic investment to reinvigorate our economy. To some point, where we are less concentrated on it, our neighboring country relies more on FDI. We should apply policies to develop our economy in order to keep pace with the global trade pace. We have seen a vast influx of economic growth in Bangladesh in recent years. Expecting potential researchers to improve FDI and the form of policies or interventions that can raise FDI flows.

CONCLUSION

Unemployment is one of the key problems of globalization, particularly in less developed countries. In certain nations, it has become a very stable topic and remains

difficult to deal with. Unemployment can be viewed from different perspectives, but the determinants of unemployment are highlighted in this article. Unemployment factors that are statistically important. The negative association with unemployment was shown by foreign direct investment and inflation, while the work force had a positive effect on unemployment. This research explores the determinants of Bangladesh's unemployment, using annual data for the period from 1991 to 2019. Unemployment is influenced by economic growth, inflation and foreign direct investment, according to the report. The regression results show that economic growth has only a negligible and positive impact on unemployment, which shows an undesirable situation for Bangladesh. The findings of the regression reveal that economic development has only a marginal and optimistic effect on unemployment, which suggests that Bangladesh has an unfavorable situation. Although unemployment is inversely connected to inflation, it is not a substantial predictor. The Phillips curve in Bangladesh was however, confirmed by the negative correlation. GDP is an important component in the study of unemployment. Inflation is a non-significant vector in this analysis that describes unemployment. International direct investment in jobs is an important variable in the explanation. By having reasonably good results, the R-squared value is moderate, making this model a good model. The global model, as shown by Statistics F, is significant.

References

1. Abedin, M. J. (2015). Foreign Direct Investment (FDI) in Bangladesh: Trends, Challenges and Recommendations. *International Journal of Economics Management Sciences*, vol. 4, no. 8, pp. 1–5, doi:10.4172/21626359.1000276.
2. Abdullahi, Y. Z., Aliero, H. M., & Yusuf, M. A. (2012). Does FDI cause economic growth? Evidence from selected Countries in Africa and Asia. *African Journal of Social Sciences*, 2(4), 114–124. Available at <http://www.sachajournals.com/user/image/yahya2012vol4 ajss002.pdf>
3. Adamu, J., Idi, A., & Hajara, B. (2015). FDI and Economic Growth Nexus: Empirical Evidence from Nigeria (1970-2012). *Journal of Economics and Sustainable Development*, 6(6), 87–89. Available at <https://iiste.org/Journals/index.php/JEDS/article/view/21053/21670>
4. Adhikary, B. K (2015). Dynamic Effects of FDI, Trade Openness, Capital Formation and Human Capital on the Economic Growth Rate in the Least Developed Economies: Evidence from Nepal. *International Journal of Trade, Economics and Finance*, vol. 6, no. 1, pp. 1–7. doi:10.7763/IJTEF.2015.V6.432.
5. Alshehry, A. S. (2015). Foreign Direct Investments and Economic Growth in Saudi Arabia: A Cointegration Analysis. *Developing Country Studies*, vol. 5, no. 6, 2015, pp. 69–76. Available at: <https://www.iiste.org/Journals/index.php/DCS/article/view/20922>. Available at: <http://www.eajournals.org/wp-content/uploads/Economic-Growth-And-Unemployment-In-Fiji.pdf>
6. Bangladesh Bureau of Statistics (2015-2016). Key Findings Quarterly Labor Force Survey (QLFS) 2015-16. Available at: http://bbs.portal.gov.bd/sites/default/files/files/bbs.portal.gov.bd/page/96220c5a_5763_4628_9494_950862accd8c/QLFS_2015.pdf.
7. Bibhuti, S. & Khan, F. (2020). Nexus between foreign direct investment and economic growth in Bangladesh: an augmented autoregressive distributed lag bounds testing approach. *Financial Innovation*, 6(1). doi: 10.1186/s40854-019-0164-y
8. Borensztein, E., De Gregorio, J., & Lee, J.-W. (1998). How does Foreign Direct Investment Affect Economic Growth. *Journal of International Economics*, 45(1), 115–135. doi: [https://doi.org/10.1016/S0022-1996\(97\)00033-0](https://doi.org/10.1016/S0022-1996(97)00033-0)
9. Dey, S., & Awal, B. H. (2017). Impacts of Foreign Direct Investment on Economic Growth of Bangladesh: An Econometric Exercise. *Asian Business Review*, 7(2), 71–78. doi: 10.18034/abr.v7i2.13

10. Friedman, M. (1977). "Nobel Lecture: Inflation and Unemployment." *Journal of Political Economy*, vol. 85, no. 3, pp. 451–72. doi: 10.1086/260579.
11. Gandelman, N., & Hernández-Murillo, R. (2009). The impact of inflation and unemployment on subjective personal and country evaluations. *Federal Reserve Bank of St. Louis Review*, 91(3), 107–126. Available at: <https://files.stlouisfed.org/files/htdocs/publications/review/09/05/Gandelman.pdf>
<http://www.ukm.my/fep/perkem/pdf/perkemV/PERKEM2010-2-06.pdf>
12. Ghatak, A. and Halicioglu, F. (2007). Foreign direct investment and economic growth: some evidence from across the world. *Global Business and Economics Review*. Vol. 9, No. 4, 381-394. doi: 10.1504/GBER.2007.015101
13. Hussain, M. E., & Haque, M. (2016). Foreign direct investment, trade, and economic growth: An empirical analysis of Bangladesh. *Multidisciplinary Digital Publishing Institute*, 4(7), 1–14. <https://doi.org/10.3390/economies4020007>
14. International Labor Organization (ILO) (2011). Global employment trends. *International Labor Organization*, Geneva. Available at: https://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_150440.pdf
15. International Labor Organization (ILO) (2017). *World Employment Social Outlook*, Trend 2017. Available at: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/--publ/documents/publication/wcms_541211.pdf
16. Kornecki, L., & Borodulin, V. (2011). FDI Contributes to Output Growth in the U.S. Economy. *Journal of US-China Public Administration*, 8(1), 104–109. Available at: <http://www.davidpublisher.org/index.php/Home/Journal/index.html>
<https://core.ac.uk/download/pdf/35338353.pdf>
17. Khan, A. Q. K., Khattak, N. U. R. K., & Hussain, A. H. (2008). Inter-dependencies and Causality in the Macroeconomic Variables: Evidence from Pakistan (1960–2005). *Sarhad Journal of Agriculture*, 24(1), 199–206. Available at: https://mpra.ub.uni-muenchen.de/42034/1/MPRA_paper_42034.pdf
18. Kyei, K. A., & Gyekye, K. B. (2011). Determinants of Unemployment in Limpopo Province in South Africa: Exploratory Studies. *Journal of Emerging Trends in Economics and Management Sciences*, 2(1), 54–61. Available at: https://journals.co.za/content/sl_jetems/2/1/EJC133847
19. Lean, H. H., & Tan, B. W. (2011). Linkages between Foreign Direct Investment, Domestic Investment and Economic Growth in Malaysia. *Journal of Economic Cooperation and Development*. 32(4), 75–96. Available at: <http://www.ukm.my/fep/perkem/pdf/perkemV/PERKEM2010>
20. Makki, S. S., and A. Somwaru (2004). "Impact of Foreign Direct Investment and Trade on Economic Growth: Evidence from Developing Countries." *American Journal of Agricultural Economics*, vol. 86, no. 3, pp. 795–801. doi:<https://doi.org/10.1111/j.0002-9092.2004.00627.x>.
21. Makun, K., & Azu, N. P. (2015). Economic Growth and Unemployment in Fiji: A Co integration Analysis. *International Journal of Development and Economic Sustainability*, 3(4), 49–60. Available at: <http://www.eajournals.org/wp-content/uploads/Economic-Growth-And-Unemployment-In-Fiji.pdf>
22. Mondal, W. I. (2003). Foreign Direct Investment in Bangladesh: An Analysis of Perceptions of Prospective Investors. *Studies in Economics and Finance*, 21(1), 105–115. doi: <https://doi.org/10.1108/eb028771>
23. Noor, M. T., et al (2016). Significance of Foreign Direct Investment on Economic Growth in Bangladesh. *International Journal of Scientific & Engineering Research (IJSER)*, vol. 7, no. 9, 2016, pp. 495–503. Available at: <https://www.ijser.org/onlineResearchPaperViewer.aspx?Significance-of-Foreign-Direct-Investment-on-Economic-Growth-in-Bangladesh.pdf>
24. Nwaogu, U. G., & Ryan, M. J. (2015). Foreign Aid, Remittance and Economic Growth in Developing Countries. *Rev. Dev. Econ.* 2015, 19, 100–115. Available at: *Review of Development Economics*, 3(1), 100–115. doi: <https://doi.org/10.1111/rode.12130>
25. Orji, A., Orji-Anthony, I., & Okafor, J. (2015). Inflation and Unemployment Nexus in Nigeria: Another test of the Phillip's Curve. *Asian Economic and Financial Review*, 5(5), 766–778. doi: <https://doi.org/10.18488/journal.aefr/2015.5.5/102.5.766.778>

26. Phillip, Aruppillai , & Gnanachandran. (2014). The effect of unemployment on socio economic status of the people in Jaffna district, Sri Lanka. *Journal Article - Social Sciences and Humanities*. Available at: <https://catalog.ihsn.org/index.php/citations/66855>
27. Phillips, A. W. (1958). The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861–1957. *Economica*, 25(100), 283-299. doi: <https://doi.org/10.1111/j.1468-0335.1958.tb00003.x>
28. Samiyah & Sakib (2018). Foreign direct investment, trade openness and economic growth: The case of Bangladesh. Available at: <https://zantworldpress.com/wp-content/uploads/2018/10/9.-Sakib.pdf>
29. Tang, D. (2018). Has the Foreign Direct Investment Boosted Economic Growth in the European Union Countries? *International Journal of Economics and Finance Studies*, 10(1), 21–50. Available at: [https://www2.southeastern.edu/orgs/econjournal/index_files/JIGES%20JUNE %202015%20Donny%20Tang%207-20-2015%20RV1.pdf](https://www2.southeastern.edu/orgs/econjournal/index_files/JIGES%20JUNE%202015%20Donny%20Tang%207-20-2015%20RV1.pdf)
30. Thayaparan, A. (2014). Impact of Inflation and Economic Growth on Unemployment in Sri Lanka: A Study of Time Series Analysis. *Global Journal of Management and Business Research: B Economics and Commerce*, 13(5), 44–54. Available at: https://globaljournals.org/GJMBR_Volume14/5-Impact-of-Inflation-and-Economic.pdf
31. Umair, M., & Ullah, R. (2013). Impact of GDP and Inflation on Unemployment Rate: A Study of Pakistan Economy in 2000-2010. . *International Review of Management and Business Research*, 2(2), 388–400. Available at: <http://irmbrjournal.com/papers/1371452025.pdf>
32. Umaru, A., & Zubairu, A. A. (2012). Effect of Inflation on the Growth and Development of the Nigerian Economy: An Empirical Analysis. *International Journal of Business and Social Science*, 3(10), 183–191. Available at: https://ijbssnet.com/journals/Vol_3_No_10_Special_Issue_May_2012/19.pdf
33. World Bank Group (2019). *World Development Indicators (WDI)* Trend of Unemployment Rate in Bangladesh. Available at: <https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS>
34. World Bank Publication. (2017). *Open Knowledge Repository*. Available at: <https://openknowledge.worldbank.org/handle/10986/26447>
35. Wu Jyun-Yi & Hsu Chih-Chiang (2008). Does Foreign Direct Investment Promote Economic Growth? Evidence from a Threshold Regression Analysis. *Economics Bulletin*. Vol. 15, No. 12. Available at: <https://ideas.repec.org/a/ebl/ecbull/eb-08o10014.html>



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