Relationship between trade openness and unemployment: empirical evidence for Bangladesh

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Abstract

Objectives: Whether unemployment is affected by trade openness in Bangladesh is the main objective of this study. We further determine the relationship between the public expenditure on education and unemployment. **Methods/Statistical Analysis**: Applying VECM we find the relationship between unemployment and trade openness taking time series data from 1990 to 2016 for Bangladesh. Here, public expenditure on education used as control variable. ADF test use for unit root and Johansen co-integration test to find the co-integration among the variables. Finally, we consolidate our results using Jarque Bera test for normality assumption and Breush-Godfrey Serial Correlation LM test for measuring autocorrelation.
Findings: The findings reveal that there is significant co-integration between trade openness and unemployment. In the long run, public frequent expenditure on education lead to a decline in unemployment, but trade openness policy is associated with an increase in unemployment. However, the initial impact of openness captured by short-term dynamics is observed also to increase unemployment while public expenditure on education cannot impact the country's unemployment in short run. Again further analysis finds that the short term shock is restoring to the equilibrium and the most effective response to restore the system to equilibrium is trade openness. But public expenditure on education has been founded no influence on restoring equilibrium.
Application/Improvements: So, following the result, the policy maker should divert from trade liberalization to reduce unemployment from the country and public education expenditure should have more consideration.
*Keywords***:** Bangladesh, Co-integration, Trade Openness, Unemployment, VECM**.**

1. Introduction

In the post period of the global financial crisis of 2007 to 2012, two important burning economic issues are rising unemployment rates (UNRs) and greater openness to trade by developing countries. Because of the support from the international financial institutes like International Monetary Fund (IMF) and World Bank on trade liberalization over the world as a process of globalization concept and for taking steps to overcome from the import substitution based development strategies, trade liberalization has become widespread over the past three decades, particularly among developing and transition economics [1]. One study [2] also supported the concept of increasing rate of unemployment in developing countries. Again from the World Bank [3] data in the post global financial crisis period, trade percentage of world GDP is decreasing gradually while world GDP is decreasing after a slight increment and unemployment rate is increasing from past 3 years. These might be the important topics for the research. The situation after global crisis has been developing from 2012 but still this crisis is influencing in increase the unemployment rate in the developing countries. This can be explained by following tenets. In the case of large country, when economy collapse, as a result of spillover effect, the demand for exports fall and the inflow of foreign capital and investment decrease in developing countries [4]. And then as its further impact, the productivity of labour, employment generation and overall economic performance also decrease [5]. Here, the risen question has been 'Does opening up to international trade create or destroy jobs [6-8]?' It is a matter of pugnacious debate about the effect of trade openness on the economic performance of developing countries. There might be the beneficial effects of trade openness on economic performance [9-11] or negative effects of trade openness on economic performance [8,12,13].

In one side some authors have argued that trade enhances productivity by enlarging capital availability for intermediate goods, fostering technological innovations and generating increasing returns to scale [9]. On the other side, doubters [12,13] have maintained that the volatile nature of international prices of raw materials in the world market widens the disparity between the rich and the poor, since developing countries are primary-sector driven, and their comparative advantage lies in primary production. In this logic, some authors [14-16] found a positive relationship between trade liberalization and unemployment, while another study [8] found a negative relationship. Secretariat and Government summaries Bangladesh [17] mentioned that Bangladesh has continued making efforts to simplify and rationalize its trade regime since 1992. The two main trade policies of Bangladesh are now the custom tariff and the para tariff. The report also noted that Bangladesh has continued to liberalize its trade regime by greatly decreasing tariffs and sorting out some quantitative restrictions on imports and also by export diversification. Continuing various trade and economic reforms, particularly in the 1990s, Bangladesh is becoming increasingly dependent on trade. About two fifths of its economy is now related to the global economy through export and import of goods and services. For a labour intensive country of 163 million people, the jostle of the improvement in labour productivity, higher output, poverty reduction and a reducing the unemployment are very important [18].

According to latest labour force survey [19], about 45.10% of the population of the country involved in agriculture, forestry and fishery sectors, while 33.24% are in the informal and unorganized sectors. Therefore, existing jobs in these sectors could be dismantled by the openness to trade, which would result to a high UNR, or hatch more amenities through spillover effects. Besides that, while the growth rate of gross domestic product (GDP) of Bangladesh has risen in recent decades from 5.62% in the 1990s to about 7.11% in 2016 [13], the national UNR had also been increasing from 2.2% in 1990 to about 4.0% in 2017 [13] with dramatic ups and down through the years. So, ignoring the general sagacity that trade openness would inspire greater economic output, thus decreasing unemployment, recent Bangladesh statistics have shown reverse scenery. In this manner, this study empirically queries the effect of the vindication of trade openness policies in the economy. Research on trade openness should be guided towards country-specific studies as it is very difficult to compare countries because of their large variation in population sizes, institutional arrangements and also economic policies [20]. Bangladesh is the chosen case study in the research discussed in this article because of its status as one of the flourishing readymade garments producing countries and the important economy in South Asian region. An inquiry of the impact of national trade policies on the domestic economy is therefore likely to be conducted to the consideration of resource utilization, unemployment reduction and economic growth. Variables used in this study include unemployment as endogenous variable and trade openness and public frequent expenditure on education as exogenous variables. The findings reveal that in the long run, growth in public frequent expenditure on education lead to a decline in the unemployment, but trade openness policy is associated with an increase in unemployment. Therefore, this article offers a three-fold contribution to existing empirical work. First, to the best of our knowledge, a Bangladesh case study has not yet been undertaken. Second, the data covering 1990–2016 has been adequately captured. Third, the VECM statistical program for our time series analysis has been used due to its special feature of detecting long run and short run relationship among variable. The following whack brings a literature review of relevant literature and descriptive statistics associating to the Bangladesh economy. The remaining parts navel on the study's methodology, empirical findings and conclusions.

2. Literature Survey

Undoubtedly it is clear that trade has enacted a noticeable character in the world economy, taking in the account that the growth of real trade has overpasses that of world GDP. Global trade expansion during the 1995–2005 periods was nearly 6% per year, almost twice as high as the growth in global GDP [2]. The ratio of world exports of goods and services to GDP increased from 19.46% in 1990 to 28.52% in 2016 with recent ups and downs [3] and many economies perceived an increase of trade growth over output growth [21].

Classical economists support this fact that is specialization and division of labour increase productivity and from trade a comparative advantage can be attainable because of the transferring of scarce resources from a region of abundance to a region of scarcity. After taking the liberalization policies trade patterns in the world economy have been changing even though the financial crisis trade has not leaden. This has developed many theoretical and empirical studies, focusing on both developed and developing economies [8,22-24]. For example, trade liberalization is welcome development because in the short term, it increases labour turnover in terms of the reallocation of workers from dwindling to expanding sectors [25]. This development has the ability to improve a national economy, by increasing productivity and generating income from world economies. Empirically, over the long term, greater trade openness is associated with a lower structural rate of unemployment [8]. This conclusion is based on the outcome of panel and cross-sectional data analysis of 20 Organization for Economic Co-operation and Development (OECD)-member countries. It indicates that trade openness has a way of encouraging production, which in turn repositions the utilization of labour, thereby reducing the level of unemployment. Regarding developing economies, there has been found mixed results in the question of the relationship between trade openness and unemployment. In a study of Malaysia, it is found that an increase in the trade balance had negative Granger non-causality effects on the rigidity of unemployment dynamics [23]. This implies that trade liberalization is able to increase aggregate productivity in various sectors. Consequently, economic performance and efficiency raise the rate of labour utilization.

In a study of the trade balance and UNR in Jordan, using quarterly data for the 2000–2012 periods, his major finding is the absence of a long term relationship between the two factors [26]. These results reveal that in the short term, a trade balance deficit leads to unemployment and vice versa. Indicators of trade openness significantly play a role in labour market churning in most industries affected by the North American Free Trade Agreement (NAFTA) such as the automobile, chemicals and apparel sectors [27]. This result reveals the argument that trade openness promotes export and ushers in restructuring by some firms, often resulting in the decline of labour use in some sectors and its increase in others. The results of the study of India [28] show no evidence of unemployment decrease due to trade reforms; on the other hand, urban unemployment falls with trade liberalization in states with flexible labour markets and increases the employment share in net exporter industries. These findings are similar to the cross country estimation for 90 developing countries [29], even after excluding control variables. However, this also found a weak support for the Heckscher–Ohlin postulates that the relationship between trade openness and unemployment changes from negative to positive in labour-abundant and capital-abundant countries, respectively.

A study [30] explained the impact of Bangladesh trade liberalization and investment policy reforms and reported the following findings. Trade liberalization accelerates aggregate output growth. Trade openness promotes investment. But there is little evidence of relation between trade openness and income distribution or investment and income distribution. Again post-independence period investment has significant posit impact on trade liberalization. However, with large market of Bangladesh for all types of goods and services, trade openness as an important indicator of globalization, is anticipated to support fetch an inflow of businesses that might help in decreasing the unemployment rate. Similar works associating the economy of Bangladesh are still cryptic.

3. Overview of Bangladesh economic performance

Bangladesh economy has been developing gradually over the years. Globalization and trade liberalization have a positive impact on increasing real GDP, capital inflow, technological advances and manufacturing value added in GDP. After established democratic election system in the country, domestic policies have played an important role in the development of the country's economy which also represents the positive aim of the various leaders. Figure 1-2 give an overview of the Bangladesh economy in the recent past. Figure 1 shows that the export, import and GDP increase over the years.

This scenery of increasing trade actually is resulting from globalization and trade liberalization of the economy. The World Bank's [3] development indicators show a recent growth in Bangladesh real output to about 7.1% per year.

Figure 1. Real gross domestic product, Exports and Imports (1990–2016)
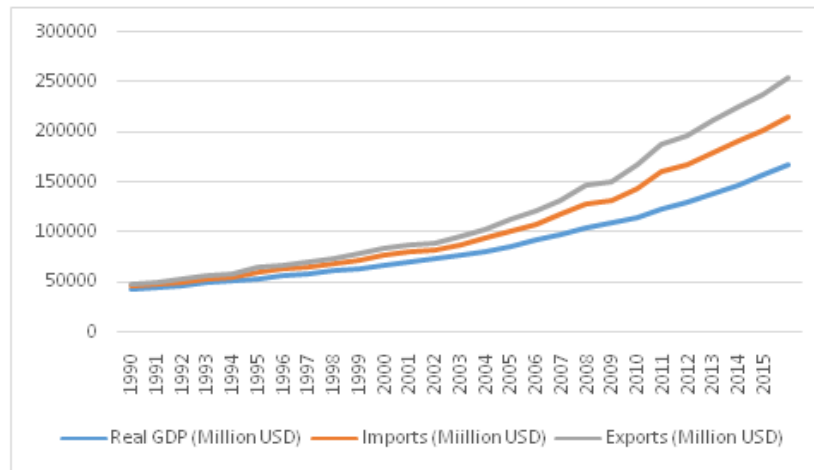
Source: World Bank (2017)

The three main sectors of Bangladesh Economy are 1) Agriculture 2) Industry and 3) Service. We see, the agriculture sector increases its value addition with irregularity. There was a slight decline 1991 to 1994. Agriculture sector contributed 32.753% of total GDP in 1990 which is now decreased to 14.78% in 2016. It is very much concerning issue for our country because still most of the village people of the country depend on agriculture. Contribution of industry sector has been increasing and it has good impact on our economy and our movement towards the urbanization and modern fast world. The sector has jumped to 28.8 % from 20.7% in 1990-2016. However there was a small decline in Industrial Sector's value addition in 2001. Moreover, the service sector has exhibited noticeable uplift, materially due to the government's consideration, while employment in this sector is gently increasing. However, it might be achieved more improvement if there was not involvement of political imbalance during the periods of caretaker government in several times, basically from 2008-2010. In total, it is good symbol of the country because in developed countries, service sector contributes more shares in total GDP than other sectors. The three sectors contribution in the economy as % share of the GDP also gives us a complete situation of the economy which is given in the Figure 2. The figure shows that agriculture is losing its share upon the total GDP while Industrial and service sectors are increasing their contributions.

*Figure 2. Sector wise value added (% of GDP) (1990-2016)*
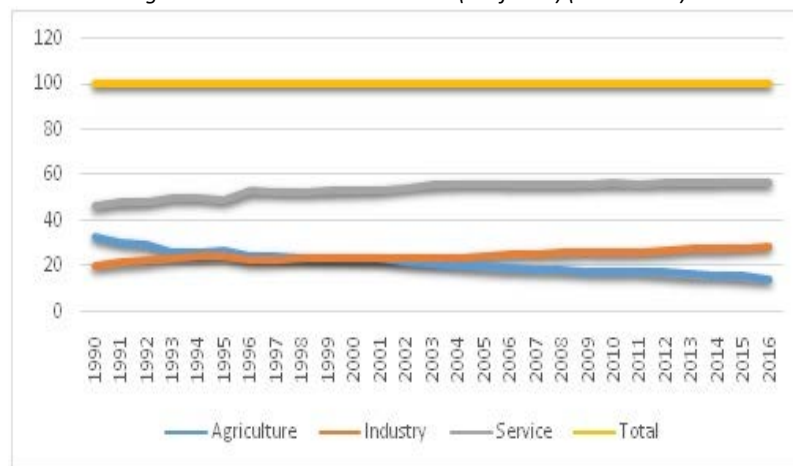
Source: World Bank (2017)

Again although, Bangladesh has experienced increasing unemployment rate over the years, as shown by the Figure 3, the increasing rate is slow and still the rate is around 5%.

The imbalance between the job creation and increasing graduates in the country with increasing population is the basic reason behind this increasing unemployment rate. The unemployment rate was highest in the 1997 while it was averagely 3.31 % in 1991-2000, 4.07% in 2001 – 2010 and 5.05% in 2011-2016.

Figure 3. Average Unemployment Rate (% of total labour force) (modeled ILO estimate
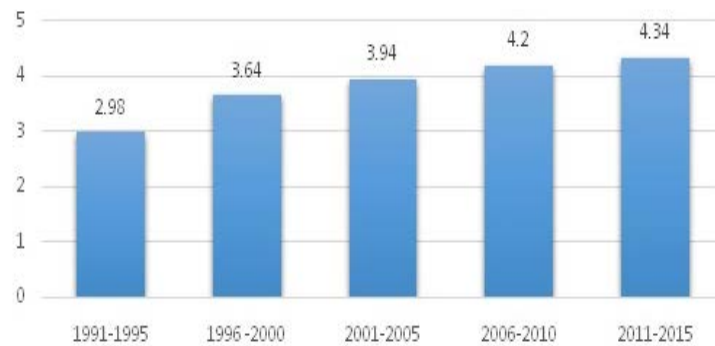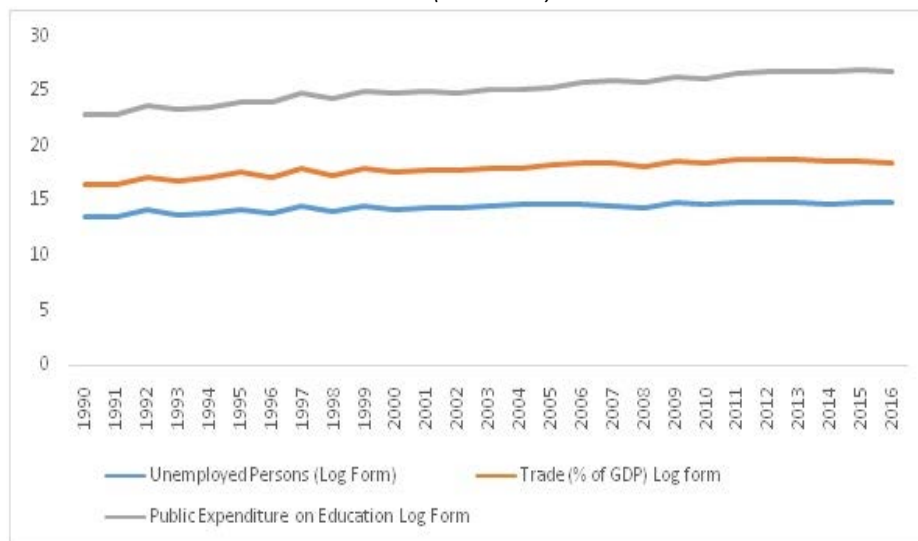

Source: World Bank (2017)

4. The data

In this study we have used yearly data from 1990 to 2010, sourced from the Bangladesh Bureau of Statistics 2015 [19], Bangladesh Economic Review 2016 [31] and the development indicators dataset of World Bank's 2017[3]. The vector of variables included total unemployed persons (UNP), public expenditure on education (PEEd), and the trade percentage of GDP as openness measures (OPEN). PEEd were included as control variables. Here, it was assumed that PEEd would validate that the increased public expenditure on education would improve the quality of human capital and thus reduce unemployment.

All variables were in their natural log forms. E views 9.5 students lite was the statistical software used in the estimation and analysis. Graphs of the key variables express certain specialties. The log number of unemployed persons (UNP) and the trade openness are shown in Figure 4. We have also included public expenditure on education in Figure 4.

Figure 4. Number of unemployed persons log form, trade openness (%) measure log form and public expenditure on education log form (1990-2016)

Source: World Bank (2017)

From 1990 to 2016, trade openness shows ups and downs with decreasing trend from 2012 after a fast increase in 2010 to 2012. Reflecting the caretaker government regime from 2008 to 2010 trade openness shows a rapid downward trend (Figure 4).

Moreover the upward trend of trade openness from 2010 to 2012 indicates the less effect of global financial crisis during that period in the country's economy.

In this respect, an investigation of the dynamic relationship among these variables calls for the need in determining whether the variables are integrated or not, which naturally lead to capturing the long run equilibrium if any.

5. Methodology

We used the time series approach with the vector autoregressive regression in searching for the relationship between trade openness and unemployment in Bangladesh. This method was based on the article on openness and growth in East Asian countries [32] and the article on Trade openness and unemployment: Empirical evidence for Nigeria [2]. However, our study differs remarkably from the former work running the unit root and co-integration tests and also differs from the later work stated above by ignoring structural changes in the series while our study used different variables and case study.

For our model specification we have further used Breusch-Godfrey LM test for serial correlation and Jarque-Bera test for normality assumption of residuals. Therefore, in order to avoid spurious correlation among variables of interest which would affect our results and conventional statistical inference, the first concern is to determine whether the time series for the variables used are co-integrated processes. In this respect, the following section will describe the unit root tests and then co-integration tests.

1. Unit root tests

Most macroeconomic time series variables have a basic unit root property [33]. So the primary step would have been to test the variability of the mean and variance of the variables over time, using the testing procedure of the Augmented Dickey–Fuller (ADF) test [34]. After becoming all variables integrated in the same order, co-integration tests would also be conducted [35].

2. Vector error correction model

If there is at least one co-integration equation between the exogenous and endogenous variables, it would be applied vector error correction model. It basically shows both the long-run and the short-run dynamic relationships, using the restricted, generalized least squares (GLS) method. These restrictions are performed to allow for precision and a more robust estimate. The model is represented as:

$$\Delta UNP_t = \beta_0 + \sum_{i=1}^{n} \beta_i \Delta UNP_{t-i} + \sum_{i=0}^{n} \delta_i \Delta PEEd_{t-i} + \sum_{i=0}^{n} \gamma_i \Delta OPEN_{t-i} + \varphi z_{t-1} + u_t \quad (1)$$

Here, z is the error correction term and is the OLS residuals from the following long-run co-integrating regression:

$$UNP_t = \beta_0 + \beta_1 PEEd_t + \beta_2 OPEN_t + \varepsilon_t \quad (2)$$

And is defined as,

$$z_{t-1} = ECT_{t-1} = Y_{t-1} - \beta_0 - \beta_1 PEEd_{t-1} - \beta_2 OPEN_{t-1} \quad (3)$$

In this model, Δ as the differencing notation and u_t as the white noise stochastic disturbance term. The term, error-correction, means that last period deviation from long-run equilibrium (the error) influences the short-run dynamics of the dependent variables. Thus, the coefficient of ECT is speed of adjustment, because it measures the speed at which Y returns to equilibrium after a change in X.

Residual analysis of the model was tested for adequacy of the estimated model, especially for serial correlation and normality assumption.

6. Empirical analysis

A unit root test was conducted [36-38]. The summary of the test results is presented in Table 1. Here, at level absolute value of ADF test statistics of all variables are less than the absolute value of 5% critical level and also their p-values are greater than 0.05 significance level which indicates the not rejection of null hypothesis of existing unit root.

Table 1. Unit root test including intercept term

Variable's Name	At Level				At First Difference			
	Lag Length*	ADF Test statistic	5% Critical Value	Prob**	Lag Length*	ADF Test statistic	5% Critical Value	Prob**
Ln UNP_t	1	-2.430 885	-2.986 225	0.143 9	0	-11.916 29	-2.986 225	0.000
Ln $PEEd_t$	0	0.286 296	-2.981 038	0.972 9	0	-5.622 663	-2.986 225	0.000 1
Ln $Open_t$	0	-1.748 007	-2.981 038	0.396 5	0	-4.824 791	-2.986 225	0.000 7

Source: Calculated using E views 9.0 Student Lite Version, Null Hypothesis: Variable has a unit root.*Lag length is automatic based on SIC, max lag=6** Mackinnon (1991) one-sided p values

Again, at first difference, absolute value of ADF test statistics of all variables are much greater than the absolute value of 5% critical level and also their p-values are less than 0.05 significance level which indicates the rejection of null hypothesis of existing unit root. Moreover, all variables have a unit root at the levels (before taking the first differences) but became stationary after taking the first differences. Thus, all variables are integrated into order 1, I (1). This implies that we need to check for the presence of co-integration relationships among the variables. The co-integration test results (Table 2), indicate one co-integrating relation in the equation. Lag length was determined using the Akaike Information Criterion (AIC) and that is lag 3.

Table 2. Johansen co-integration test: unrestricted co-integration rank test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None*	0.562 364	32.623 15	29.797 07	0.023 0
At most 1	0.304 545	13.616 69	15.494 71	0.094 1
At most 2*	0.204 546	5.263 359	3.841 466	0.021 8

Source: Calculation by Eviews 9.0 Student Lite Version, Trace test indicates 1 co-integration equations at the 0.05 level, *denotes rejection of the null hypothesis of existing co-integration. **Mackinnon (1991) p-values Lag Intervals at first difference: 1-3.

1. Estimation applying the VECM

Having established a single co-integration relationship among the variables, a VECM was estimated, based on rank r = 1 and three lagged differences, for the 1990–2016 sample period. All lag lengths were determined by minimizing the information criteria of Akaike Information Criterion (AIC). The estimated, long-run co-integration relationship is presented in Table 3.

Table 3. Estimated long-run co-integration vector

Ln UNP_{t-1}	Ln $PEEd_{t-1}$	Ln $OPEN_{t-1}$	C
1.0000	7.904 5	-16.151 5	-15.516 7
	(2.446 1)	(5.353 6)	
	{3.231 5}	{3.016 9}	
	[2.787]	[2.787]	

Source: Calculation by E views 9.0 Student Lite Version

Co-efficients indicate significance at the 1% level. Figures in ( ) show standard errors, { } show the t-statistics and [ ] show the critical values at 1% level of significance.

The null hypothesis of zero coefficient will be rejected if the condition of $t_{cal} > t_{critical}$ is fulfilled.

From Table 3, our long run regression equation is –

$$ln\widehat{UNP}_{t-1} = 15.516\,7 - 7.904\,5 ln\widehat{PEEd}_{t-1} + 16.151\,5\ ln\widehat{OPEN}_{t-1} + \widehat{u_{t-1}}(4)$$

Se   (-----)   (2.4461)   (5.3536)

As observed, in Table 3, the coefficient of the first variable is normalized to unity. Estimates of the error correction model in the above equation shows that public expenditure is significant in reducing national unemployment. Trade openness increases unemployment, given the significant and positive sign of the estimated coefficients. This result is consistent with the other research findings [16,39,40-42], where in a frictional labour market conditions, trade openness leads to an economy-wide unemployment. Its significance is not negligible at about 16.15% increase in unemployment. Considering the speed of adjustment parameters, the error correction term is said to be significant in the equation, except for PEEd and UNP.

This implies that for any discrepancy from the long-run equilibrium, these two variables are unresponsive in reverting the relationship to equilibrium. In the equation, only open variable can react to return the system to equilibrium. The loading matrix estimates are reported in Table 4.

Table 4. Speed of adjustment coefficients (1990–2016)

	Coefficient	Standard. Error	t-statistic	Prob.
C_1 **	-0.124 350	0.033 761	-3.683 284	0.003 1
C_2 *	-0.958 314	0.186 112	-5.149 120	0.000 2
C_3	-0.355 290	0.261 820	-1.356 999	0.199 8
C_4	0.062 017	0.162 589	0.381 434	0.709 5
C_5	0.421 534	0.333 215	1.265 054	0.229 9
C_6	-0.091 674	0.328 479	-0.279 087	0.784 9
C_7	0.200 082	0.351 501	0.569 221	0.579 7
C_8 *	-2.643 066	0.529 056	-4.995 810	0.000 3
C_9 ***	-1.186 185	0.575 692	-2.060 450	0.061 7
C_{10} *	-1.466 937	0.440 422	-3.330 751	0.006 0
C_{11} *	0.232 637	0.076 081	3.057 778	0.009 9

Source: Calculation by Eviews 9.0 Student Lite Version, The test statistics are significant if p values are less than 0.01 (*) or less than 0.05 (**) or less than 0.10 (***)

Here, the equation is –

$$\Delta \ln UNP = C_1 (\ln UNP_{t-1} + 7.9045 \ln PEEd_{t-1} - 16.1515 \ln OPEN_{t-1} - 15.5157) + C_2 \Delta \ln UNP_{t-1} + C_3 \Delta \ln UNP_{t-2} + C_4 \Delta \ln UNP_{t-3} + C_5 \Delta \ln PEEd_{t-1} + C_6 \Delta \ln PEEd_{t-2} + C_7 \Delta \ln PEEd_{t-3} + C_8 \Delta \ln OPEN_{t-1} + C_9 \Delta \ln OPEN_{t-2} + C_{10} \Delta \ln OPEN_{t-3} + C_{11}(5)$$

C_1 is the error correction term which is negative here and also significant. Negative sign means the short term shock is restoring to the equilibrium at the speed of 12.44%. It also implies that it will take around 8 years to back in the equilibrium level.

The estimates indicate that in the case of a discrepancy in one lagged period deviation from the long-run equilibrium, the most effective response to restore the system to equilibrium is trade openness. The short-run relationships further show that unemployment is significantly explained by its own first lag, while openness is significant and negative in all lags and public expenditure on education is insignificant in all lags.

2. Diagnostic tests

Here, we have conducted two residual diagnostics such as normality assumption and serial correlation, for adequacy of the model.

In Jarque Bera test for normality assumption of the residuals shows that the test statistics cannot be rejected as P-value is much higher than even 0.10. Here, Null Hypothesis is the residuals are normally distributed. So, in our model residuals are normally distributed. In Breush-Godfrey Serial Correlation LM test, the chi square test statistics has the p value that is greater than 0.10 levels. That means null hypothesis of there is no serial correlation cannot be rejected. It implies that in our model there is no serial correlation. Here, lag is 3 taken as the AIC criteria. All the test results are given in the Table 5. So, from the Table 5 results our model is adequate and specified.

Table 5. Tests for model adequacy

Theory	Name of the Test	Null Hypothesis H_0	Test Statistic	Prob.	Decisions
Normality Assumption of Residuals	Jarque-Bera test	Residuals are normally distributed	0.096 827	0.952 74	H_0 cannot be rejected at 1%, 5% and 10% level of significance
Serial Correlation	Breusch-Godfrey Serial Correlation LM test (lag 3)	There is no serial correlation	1.228 083	0.746 3	H_0 cannot be rejected at 1%, 5% and 10% level of significance

Source: Calculation by E views 9.0 Student Lite Version

7. Findings and Recommendations

The empirical findings show that there is significant co-integration between the variables. Here, trade openness variable reacts to any disequilibrium in the long run. It is also observed that public expenditure on education in Bangladesh has long run effects in national unemployment though its short term effect is not realizable. So, public education expenditure should have more consideration to reduce unemployment from the country. Thus Educational reform is imperative to implement effective standards for admitting prospective students into areas of study in which they have high aptitudes and inclination. Skills development should be a major emphasis of education, not merely obtaining the certificate. Consequently, and over the long term, school graduates will be relevant in one sector or the other to minimize over-dependence on white collar jobs that are not sufficiently available. Moreover the government has to plan job creation in line with graduations from schools. Trade openness has raised the unemployment instead of reducing it, contrary to expectations. Additionally, trade openness has increased the capital flight and brain drain from developing countries. Moreover, export should be encouraged as well as development in the agriculture sector should be continued as a process in the Bangladesh economy.

8. Conclusion

The study empirically examined the impact of trade openness policy on nationwide unemployment in Bangladesh over two and half decades (1990–2016), a crucial period in the country's economic history. Opening the economy to international trade would help the transfer of resources, mainly labor, from low productivity areas of production or the informal sector to highly productive sectors, such as manufacturing and tradable sectors, thus creating jobs for the unemployed. The sample also covered the global financial crisis, which spread rapidly within the globalized world, reducing the demand for international trade, savings and investments, and increasing unemployment.

In the light of the above framework, the rising unemployment, despite the recent economic growth statistics in Bangladesh provides the motivation for exploring the impacts of the trade liberalization policy on unemployment. Following the argument that studies of trade openness and unemployment constitute 'an empirical issue', we applied the VECM after establishing a long-run relationship using the Johansen method of co-integration.

The estimated model suggests that trade openness policy had encouraged unemployment during the period under investigation. Our findings, including those of others in the literature review, relay some vital tendencies in developing countries. First, despite the abundant natural resources found in Bangladesh, the effects of such an open trade policy are still not so much larger. This presents quite a different picture from that in developed countries. Second, the level of unemployment reduction expected from trade openness has not been achieved in Bangladesh. Moreover, Bangladesh has to embark on necessary reforms and adopt policies relevant for repositioning the economy before it can enjoy the benefits associated with trade openness. And also a more functional institutional arrangement needs to be established to guarantee the effective monitoring and supervision of trade flows in the economy.

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