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Ready-Made Garments (RMG) Export Earnings and Economic Development of Bangladesh: Empirical Analysis Using Vector Error Correction Model

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Abstract

Ready-made Garments (RMG) export earnings, which are almost 80% of the total exports of Bangladesh, have been recognized as one of the main catalysts for the recent development of the country. Therefore, the need to determine whether the RMG export had served as a mechanism for increasing the GDP growth as well as the economic development of the country is topical and pressing. We have applied the Johansen Co-integration test and Vector Error Correction Model (VECM) to reveal the linkage of RMG export earnings and other variables with the GDP growth rate in Bangladesh. Using data from 1990 to 2020 for Bangladesh, we have found long-run as well as short-run associations among RMG Export earnings, Foreign Direct Investment (FDI), and GDP growth. A co-integration among the variables is validated through the Johansen Co-integration test. Moreover, a causal correlation running from RMG export earnings to GDP was revealed by the Granger causality test in the long run. Finally, we estimated impulse response functions to observe the variations of model variables in response to a shock. Our result supports the proposition that RMG export earnings are one of the main growth engines in Bangladesh and this sector leads growth in other sectors also in the long term.

Keywords: Ready-made Garments Exports, GDP, FDI, Vector Error Correction Model

JEL Classification Code: C22, E27, F43, O47

1. Introduction

International trade i.e., imports and exports have been recognized as one of the core drivers of economic development for the nations. The everlasting theory of comparative advantage of David Ricardo (1817) suggested countries should produce more of the products in which they need minimum resources. As such, the rapid development

of globalization processes results in the introduction of new economic opportunities for countries from different corners of the globe. Fullerton and Kendrick (2017) argue, to strengthen their competitive position in the international economic system, states develop varied specializations that allow them to focus on promoting specific products and services in line with the country concept. International trade, according to many scholars, encourage slow cost production and enhances effectiveness through engaging wealth in appropriate industries where the nation enjoyed a comparative advantage, which in turn promotes economic growth (Bhagwati, 1978; Begum & Shamsuddin, 1998; Alimi & Muse, 2012).

Every single country in the world faces the same vulnerable state after their independence, Bangladesh was also no exception to that. After a long 9 months of the blood-shed war, the country was literally in a state of famine. Most western countries predicted a doubtful future about the prospect of Bangladesh. Many scholars also held the view of a 'below poverty level equilibrium trap' for the country. But to the utmost surprise, after 50 years of its

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establishment, Bangladesh stands with astonishing GDP growth of 6.76% over the last 10 years (Bangladesh Bureau of Statistics, 2020). Despite so many ups and downs ranging from political instability to natural disasters, the country has achieved remarkable development. Roughly half of the economy is now coupled with the world economy by means of international trade. Bangladesh has set up quite an exemplary example of being a trading nation from a predominantly aid-receiving nation.

According to Traverso (2016), there are 4 (four) main drivers of this transformation. They are- the revolution of agricultural production, the rapid reduction of the fertility rate, the inflow of migrant remittances, and the rise of the garments industry. Quibria (2019) also suggested 4 (four) drivers; the initiation of the readymade garment industry, the commencement of international labor exports, the huge boost in agricultural growth, and the successful operation of non-governmental organizations.

No doubt that the export-looking garments sector has played a crucial role in this aforementioned revolution of the economy. On one side, is the persistent and spirited role of the owners; on the other side, the policy support including local fiscal and financial backing as well as the incentives initiated by successive governments have constructed this transformation (Bhattacharya et al., 2002). In addition to these, the chances created in the world market and the emergence of backward-forward linkage activities within the country have proliferated the industry by a thousand miles. These overarching and aspiring efforts transposed the macroeconomic volatility of the country and produced export resonances in the 1990s. Despite being a long-established agricultural country, it was losing its position by only exporting jute and jute-related goods, and then the Ready-Made Garments (RMG) sector come forward as a feasible solution by bringing a significant quantity of foreign exchange and brought up diversification in the country's economy.

From the very beginning of the country, the RMG sector has been the main foreign currency earner of the country. The diversified impact of the sector on society is limitless; employment generation, women empowerment, and eradication of poverty are a few of them. Nowadays, the country has been identified as the RMG brand to the world and thus become a major investment destination as well as a tourist spot (Bhattacharya et al., 2002). This results in a latent improvement to the flight of higher living standards and obviously the growth. Despite several issues and worries like natural calamities, fragile infrastructure, shaky corporate culture, and political disputes, the industry has been absolutely firm in making sure of sturdy economic development, public obligation, and competitive efficacy. The post-Multi-Fiber Arrangement (MFA) period was a concern for Bangladesh, but the country has maintained sustainable growth of the industry even though

there are some kinds of shifting of trade preferences (Curran & Nadvi, 2015).

The contribution of export of the RMG industry in relation to total export has increased from 0.5% to 82.03% from 1980–1981 to 2015–2016. This industry is aiming to receive 50 billion USD by the end of 2025 (Shimu & Islam, 2018). The portion of export of the RMG sector from 2013–14 to 2017–18 in the country was 78.11% (BBS, 2018).

Whereas the RMG sector demonstrates impressive growth in the country, there is no agreement among scholars concerning the industry's impact on the quality of living of the people. The academic literature suggests that exports usually positively correlate with the quality of living. Such conclusions, in particular, could be made based on the findings of Gurel-Atay et al. (2007), Sultanuzzaman et al. (2019), and Subhan et al. (2021). But with the huge amount of population and disturbing economic and social problems faced by the country, Bangladesh presented a different story. In 2016, 14.3% of the population lived on less than \$1.9 a day, whereas 23.3% of residents lived under the national poverty line (World Bank, 2018). Therefore, the need to determine whether the RMG export had served as a mechanism for increasing the GDP growth as well as the economic development of the country is topical and pressing.

The present study aims to reveal the causal relationship between RMG export earnings, GDP growth rate, and other related variables. The causality between the growth rate of GDP and export earnings of the RMG sector will be identified by this study. We will also investigate the impact of RMG export earnings on the growth rate of GDP in Bangladesh. Later this study will estimate the Impulse Response Function (IRF) to show how shocks to any one variable affect every other variable in the model.

2. Literature Review

The correlation and rapport between export and economic growth have been broadly discussed by researchers at different times. They used various methods to observe the correlation between the two variables in different countries. However, most of them frequently got similar results. For Portugal, Ramos (2001) applied the Johansen co-integration and VECM technique to investigate the causality among import, export, and economic development during 1865–1998. His investigation could not establish any unidirectional causality among the variables.

Using annual data from 1984 to 2014 Malaysia, Abdullah et al. (2017) attempted to find any association and causality among export, economic growth, and other variables in Malaysia. Applying Vector Autoregressive Model (VAR), they established a bi-directional relationship between export and economic growth. They also concluded that export plays

a vital role in determining economic growth and economic growth is also a determinant for export in Malaysia.

Saeed and Altaee (2017) used the random effects model (REM), fixed effects model (FEM), and pooled ordinary least squares (POLS) to investigate the outcome of export on economic development for Qatar, Bahrain, Oman, UAE, Saudi Arabia, and Kuwait. Their result showed a strong correlation between economic growth and exports for these countries over the period 1990 to 2014. Furthermore, their results showed that growth in the labor force and investments in capital formation is also required for economic growth.

Chia (2015) found a strong affiliation in long-run between economic growth and exports for some of the Sub-Saharan African (SSA) countries by applying Ordinary Least Square (OLS) methods namely Fully Modified OLS (FMOLS) and Dynamic OLS (DOLS). Using data from 1985 to 2014, the study established a strong effect of export, investment, and government expenditure on the economic development of SSA countries. Alhajhoj (2007) examined the association among exports, economic development, and other related variables for the period of 1970–2005 in Saudi Arabia. Applying Vector Auto Regression (VAR), he proved that exports had a helpful outcome on economic growth. His analysis also showed there was a long-run stable relationship among those variables. Several studies on Vietnam (Do et al., 2022; Nguyen, 2020; Nguyen & Do, 2020) showed FDI increased the export performance of the country and later contributed to economic growth.

Using VECM from 1970 to 2009 for India, Mishra (2011) established a long-run relationship between exports and economic development. In his study, he revealed that real GDP has a positive impact on the growth of exports in the long run. In other words, his study proved growth-driven exports and rejected the export-led growth hypothesis in India. Guntukula (2018) found a long-run relationship between exports, exports, and economic growth in India based on a monthly dataset from April 2005–March 2017. He also found a bi-directional causality between exports and economic growth which supported the export-led growth and growth-led export hypothesis.

Sultanuzzaman et al. (2018) applying Johansen cointegration and VECM, established a positive long-run stable relationship between economic growth and exports in Bangladesh for the period of 1986–2016. In the short run, they also found a strong causality among those variables. Ahmed and Uddin (2009) investigated the connection among the variables like import, export, remittance, and economic development of the country for the period of 1976–2005. In their study, they revealed that exports, imports, and remittance cause GDP growth in the short run but have no long-run impact. They also concluded that their study found limited support in favor of the export-led growth hypothesis for Bangladesh.

Most of the literature so far, we have discussed are mainly concerning the relationship between overall export and economic development or growth in the GDP of a country. Empirical work on the relationship between the main portion of a country's export i.e., study on RMG export earnings and economic growth is somewhat limited.

Sultan and Haque (2018) examined the relationship between oil exports and other related variables with the economic development of Saudi Arabia for the period 1984–2015. Applying VECM, they found a positive long-run association among economic growth, oil exports, imports, and consumption expenditure by the government. In their study, they revealed exports of oil had a considerable positive effect on economic progress both in the short run and long run, but they found a negative long-run relationship between economic development and imports in Saudi Arabia.

The export sector of Bangladesh has been heavily concentrated by the RMG industry for a very long period of time, i.e., from 1990 (Hossain et al., 2016). The industry has played a pivotal role to eradicate poverty as well as introducing a means of income for the illiterate female labor force of the country (Mottaleb & Sonobe, 2011). Moreover, the sector has also made the backward and forward linkage of the supply chain for other industries in Bangladesh (Yunus & Yamagata, 2012). The number of people directly or indirectly involved with the industry is more by many times compared to any other industry.

Shimu and Islam (2018) examined the relationship between the growth of RMG sector exports and macroeconomic related variables in Bangladesh. Using a multiple regression model, they found that the growth of the official exchange rate and inflation rate negatively affects the RMG sector export. They also revealed that RMG sector export is also negatively affected by the growth of real interest rate and female unemployment rate.

Using the Fully Modified Ordinary Least Squares (FMOLS) model, Majumder and Ferdous (2020) revealed that exports of the RMG sector considerably increase the GDP growth of Bangladesh. Using the Granger causality test they also proved that a bidirectional causal association exists between ready-made garments export and gross domestic product growth in Bangladesh. Islam (2021) used ARDL bound testing technique to explore the relationship among foreign direct investment (FDI) inflow, RMG export earnings, and economic growth rate in Bangladesh for the period 1986–2018. He found the existence of short and long-run relationships among those variables. He also revealed that RMG export earnings have a significant positive effect on the growth rate of GDP in the short run as well as in the long run. On the other hand, in the short run, a significant negative effect was found on the economic growth rate by the FDI inflow. But in long run, FDI inflow did not have any significant effect on economic growth.

Much research and discussions have been made about the contribution of the RMG sector to Bangladesh’s economy. But the analysis of the empirical relationship regarding economic growth and RMG export earnings using advanced econometric techniques is very limited. We have targeted to examine the connection and rapport among RMG export earnings, the growth rate of GDP, and foreign direct investment, as various literature proved that economic growth is generated by the FDI. We will also reveal the direction of causality between the GDP growth rate and RMG export earnings.

3. Data and Model Specification

3.1. Data

Our study seeks to assess the influences of RMG sector exports on economic development in Bangladesh from 1990 to 2020 based on annual data. It also attempts to discover the causal association between economic growth and RMG export earnings in Bangladesh. We have collected the data of RMG Exports earnings (denoted by RMG_EXP) from the Bangladesh Garment Manufacturers and Exporters Association (BGMEA). The data on economic growth (denoted by GDP) and Foreign Direct Investment (denoted by FDI) have been collected from the World Development Indicators (2022), managed by the World Bank. We have taken the natural logarithms of all variables to avoid the problem of heteroscedasticity. Using this data, we have estimated a vector error correction model (VECM) for investigating the effects of RMG export earnings on the economic development of Bangladesh. We have used EViews software (Version 11.0) for analyzing and estimating the data.

3.2. Model Specification

The empirical model that we developed for our study can be written as:

$$GDP = f(RMG_EXP, FDI)$$

where,

GDP = Gross Domestic Product,

RMG_EXP = Export earnings from RMG sector,

FDI = Foreign Direct Investment.

A log-log time series specification of our model is given below:

$$L_GDP_t = \alpha + \beta_1 * L_RMG_EXP_t + \beta_2 * L_FDI_t + \hat{\epsilon}_t \quad (1)$$

where,

L_GDP = Natural logarithm of Gross Domestic Product,

L_RMG_EXP = Natural logarithm of total Export earnings from the RMG sector,

L_FDI = Natural logarithm of Foreign Direct Investment.

After applying the Johansen Co-integration test, we estimated the Vector Error Correction Model (VECM) and the notation of VECM can be written as follows:

$$\Delta Y_t = \sum_{i=1}^m \beta_j \Delta Y_{t-j} + \epsilon_t \quad (2)$$

where,

Y_t = Time-series variables in vector form (GDP, RMG_EXP, FDI).

Δ = first difference operator.

β_j = VAR parameters with lags i .

ϵ_t = Vector of error terms.

The steps of our entire estimation procedure are: firstly, a test of unit root; secondly, a test of cointegration; thirdly, the estimation of the error correction model; and fourthly, the Impulse Response Function (IRF); and lastly, the diagnostic test to check the robustness of the model.

4. Empirical Results

4.1. Unit Root Test

First, we conducted the unit root test of all variables of our study to verify the stationarity of the variables (Table 1). The estimated results will be spurious and biased if the variables are non-stationary (shows the stochastic trend). In our study, Augmented Dickey-Fuller (ADF) test

Table 1: Results of ADF Test and Phillips–Perron Test (PP)

Variable	Parameter	ADF test		Phillips–Perron test (PP)		Inference
		t-statistics	P-value	t-statistics	Asymptotic P-value	
1_gdp	Level	-0.916487	0.9412	-0.916487	0.9412	I(1)
	First diff.	-3.848931	0.0063	-4.418857	0.0073	
1_rmg_exp	Level	-2.004325	0.5762	-2.069361	0.5419	I(1)
	First diff.	-3.793820	0.0072	-5.187724	0.0011	
1_fdi	Level	0.094861	0.9956	-2.958380	0.1594	I(1)
	First diff.	-6.444443	0.0000	-22.87176	0.0000	

was applied to examine the stationarity of all variables at the level and first difference. We also used the Philip-Perron test to validate the results of the ADF test.

Using the ADF (Augmented Dickey-Fuller) and PP (Phillips-Perron) tests at level, we first tested the stationarity of the series for all those variables that we used in our model. Both the tests showed that data are nonstationary, or in other words, all the variables have a unit root. Therefore, we also conducted both tests at the first difference of those variables, and from the results; the null hypothesis of the unit root has been rejected at a 5% level of significance. Therefore, at the first difference, these series are stationary; therefore, all the variables are I(1). Hence, the variables are proved to be integrated into order 1 (one).

4.2. Cointegration Test

After the unit root test of those variables, we applied Johnsen’s cointegration (Johansen 1988) test to estimate the cointegration among RMG export earnings, GDP growth, and FDI in Bangladesh. The following table represented the result of the Johansen co-integration test (Table 2):

From the above table, we see both Trace and Max-Eigen statistics tests reject the null hypothesis of no cointegration among the variables at 5% significance and accept the alternative hypothesis. Hence, we confirm that there exists cointegration among the variables. The Trace Statistic and Max-Eigen test also indicate that there exists 1(one) cointegrating equation among RMG export earnings, GDP growth, and FDI in Bangladesh. Therefore, the test supports that there is a long-term relationship between RMG export earnings and the GDP growth rate in Bangladesh. Alternatively, we can say that the cointegration test confirms that the RMG export earnings contribute to the GDP growth in Bangladesh.

4.3. Estimation of VECM

Engle and Granger (1987) and Granger (1983) suggested if co-integration is found among the variables, we can employ

Vector Error Correction Model (VECM) for estimating the short-run dynamics among the variables. From the above result of the Johansen co-integration test, we confirmed that a long-run equilibrium exists among those variables of our model. But there might be fluctuations in the short-run and by employing VECM we can validate whether such fluctuations converge to the long-run equilibrium or not. We can also get information regarding the quantity of the fluctuations that are corrected in the next period from the VECM result. Before estimating the VECM equation, the optimal lag was chosen based on “VAR Lag Order Selection Criteria” through AIC, SC, and HQ. All these criteria suggest the optimum lag two. The VECM estimation is represented as follows (Table 3):

By using the VECM, we then can estimate long-run causality among RMG export earnings, GDP, and other explanatory variables. From the above result, we see that the long-run relationship or the co-integration equation among the variables can be represented as follows:

$$EC_{t-1} = -10.56297 + 1.000000 * L_GDP_{t-1} - 2.168037 * L_RMG_EXP_{t-1} + 0.238135 * L_FDI_{t-1} \quad (3)$$

From the above table, we also observe that the error correction term (ECT) is found negative (-0.020188) and the *t* statistic is 2.11317 which is highly significant. This implies the validity of a long-run equilibrium relationship among the variables in Equation 1. The estimated coefficient of the error correction term is -0.020188, which means the disequilibrium from the previous year’s shock corrects by 2.01% in the current year. Alternatively, we can say that the speed of adjustment of disequilibrium is 2.01%. The presence of co-integration among variables is confirmed by the negative sign of the coefficient and *t*-statistic value.

4.4. Granger Causality Test

The pairwise granger causality test was employed for finding the causality among the variables. The following table presented the Granger Causality test’s result (Table 4):

Table 2: Johansen Co-Integration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Test			Max-Eigenvalue Test		
		Trace Statistic	0.05 Critical Value	Prob.**	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.519092	37.22561	29.79707	0.0058	22.69443	21.13162	0.0299
At most 1	0.363866	14.53118	15.49471	0.0695	14.02272	14.26460	0.0545
At most 2	0.016268	0.508458	3.841465	0.4758	0.508458	3.841465	0.4758

Trace test and Max-eigen test indicate 1 cointegrating eqn(s) at the 0.05 level; *denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) *p*-values.

Table 3: VECM Estimation

Error Correction	D(L_GDP)	D(L_RMG_EXP)	D(L_FDI)
CointEq1	−0.020188 (0.00955) [−2.11317]	0.065245 (0.01836) [3.55279]	0.296564 (0.16130) [1.83855]
D(L_GDP(−1))	0.212904 (0.17506) [1.21614]	0.345047 (0.33653) [1.02532]	3.903500 (2.95589) [1.32058]
D(L_RMG_EXP(−1))	0.053259 (0.09700) [0.54907]	−0.044459 (0.18646) [−0.23843]	−0.264231 (1.63778) [−0.16134]
D(L_FDI(−1))	−0.019706 (0.01002) [−1.96669]	0.016724 (0.01926) [0.86828]	−0.306826 (0.16918) [−1.81359]
C	0.062031 (0.02214) [2.80193]	0.099976 (0.04256) [2.34920]	0.061719 (0.37380) [0.16511]
R-squared	0.366368	0.398047	0.182302
Adj. R-squared	0.268886	0.305439	0.056503
Sum sq. residuals	0.078256	0.289174	22.30979
S.E. equation	0.054862	0.105461	0.926320
F-statistic	3.758312	4.298184	1.449150
Log-likelihood	48.73022	28.47096	−38.88819
Akaike AIC	−2.821305	−1.514255	2.831496
Schwarz SC	−2.590016	−1.282967	3.062784
Mean dependent	0.082718	0.126299	0.281440
S.D. dependent	0.064162	0.126543	0.953654
Determinant residual covariance (dof adj.)			2.57E−05
Determinant residual covariance			1.52E−05
Log-likelihood			40.04480
Akaike information criterion			−1.422245
Schwarz criterion			−0.589608
Number of coefficients			18

Table 4: Granger Causality Test

Null Hypothesis	Obs	F-Statistic	Prob.
L_RMG_EXP does not Granger Cause L_GDP	29	2.87742	0.0425
L_GDP does not Granger Cause L_RMG_EXP		1.24345	0.3362
L_FDI does not Granger Cause L_GDP	29	0.73861	0.6264
L_GDP does not Granger Cause L_FDI		1.77933	0.1670
L_FDI does not Granger Cause L_RMG_EXP	29	0.76475	0.6081
L_RMG_EXP does not Granger Cause L_FDI		1.19866	0.3563

From the above table, we conclude that the null hypothesis can be rejected, i.e., L_RMG_EXP does not cause granger L_GDP indicating that GDP is susceptible to fluctuations in RMG export earnings. But we fail to reject the null hypothesis L_GDP does not Granger Cause L_RMG_EXP. We also fail to reject the null hypothesis L_FDI does not cause granger L_GDP and L_FDI also does not cause granger causality L_RMG_EXP. Therefore, the result supports the unidirectional relationship between L_RMG_EXP and L_GDP. The overall result of Table 6 proved that RMG export earnings have positively impacted the economic development in Bangladesh.

4.5. Impulse Response Function (IRF)

Impulse Response Function (IRF) outlines the reaction of current and future values of each variable of the model to any shock in one of the variables in the model. In this section, we conducted the IRF test to determine the responses of all model variables to any shock.

Figure 1 shows the estimated impulse responses which assess the outcome of a shock on deviations in current or future values of RMG_EXP, GDP, and FDI variables. From the above graph, we see that all the IRF graphs are within a 95% confidence interval. Our findings represent the

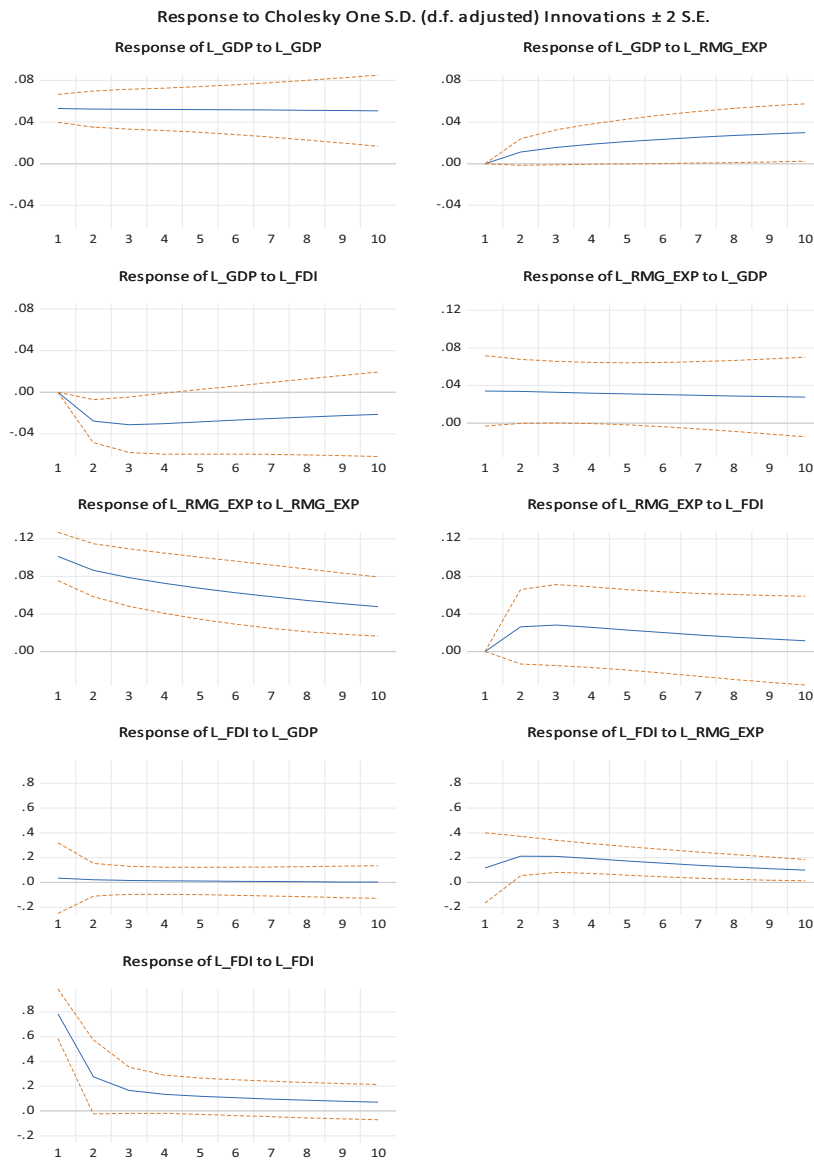


Figure 1: Impulse Response Function

Table 5: Autocorrelation LM Test

Null Hypothesis: No Serial Correlation at lag h						
Lag	LRE* stat	Df	Prob.	Rao F-stat	Df	Prob.
1	11.26397	9	0.2580	1.298650	(9, 53.7)	0.2595
2	11.31021	9	0.2550	1.304525	(9, 53.7)	0.2565
Null Hypothesis: No Serial Correlation at lags 1 to h						
Lag	LRE* stat	Df	Prob.	Rao F-stat	Df	Prob.
1	11.26397	9	0.2580	1.298650	(9, 53.7)	0.2595
2	20.43376	18	0.3089	1.171030	(18, 54.2)	0.3167

Table 6: Heteroskedasticity Test

Joint Test					
Chi-sq	Df	Prob.			
45.91131	36	0.1246			
Individual Components					
Dependent	R-squared	F(6,24)	Prob.	Chi-sq(6)	Prob.
res1 * res1	0.122828	0.560110	0.7575	3.807674	0.7027
res2 * res2	0.101610	0.452411	0.8361	3.149920	0.7898
res3 * res3	0.219668	1.126021	0.3772	6.809697	0.3388
res2 * res1	0.103048	0.459550	0.8311	3.194503	0.7841
res3 * res1	0.207552	1.047652	0.4201	6.434123	0.3764
res3 * res2	0.222545	1.144989	0.3674	6.898882	0.3303

long-run positive effect of a shock to L_GDP on L_GDP. We also found the long-run positive effect of a shock to L_RMG_EXP on L_GDP and the impulse of L_GDP is increasing over time in response to L_RMG_EXP. The impulse response of L_RMG_EXP to L_GDP is also positive over the period.

4.6. Diagnostic Tests

Finally, we conducted the LM test and Heteroskedasticity test for checking the robustness of our model (Table 5).

From the results of the above table, the null hypothesis of no serial correlation cannot be rejected. Therefore, the residuals are not serially correlated and the model satisfies the autocorrelation condition of the residuals (Table 6).

The null hypothesis of the white heteroskedasticity test is that the variance of errors is constant and if the variance of errors is constant then the residuals are homoscedastic. From the above table, we failed to reject the null hypothesis and thus, the residuals are homoskedastic.

5. Conclusion

Ready-Made Garments (RMG) export earnings portray a massive contribution towards the development of Bangladesh. The main purpose of our analysis was to estimate the outcome of RMG export earnings on the economic development of Bangladesh. By applying the modern econometric technique, we explored an important aspect of the long-term relationships between GDP, RMG Export earnings, and FDI in our study.

We concluded that there is a long-run as well as short-run association among RMG Export earnings, economic growth, and FDI in Bangladesh using annual data from 1990 to 2020. The Johansen Co-integration test confirmed the existence of co-integration among the variables. From the VECM model analysis, we found that there is a long-run relationship among these variables. Furthermore, a causal relationship running from RMG exports to GDP, in the long run, is indicated by the Granger causality test. For checking the robustness of

our model, we used the LM test and Heteroskedasticity test. The LM test confirms that the data are not serially correlated and the Heteroskedasticity test confirms that the residuals satisfy the assumption of constant variance, therefore the residuals are homoskedastic.

In summary, the result of our study supports the proposition that RMG export earnings are one of the principal growth engines in Bangladesh and this sector leads growth in other sectors also in the long term.

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