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DOES EXCHANGE RATE VOLATILITY INCREASE THE CONSUMER PRICE INDEX? EVIDENCE FROM BANGLADESH

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ABSTRACT

The current study aimed to analyze the impact of exchange rate volatility (EXV) on the consumer price index (CPI) with considering export and import. To estimate the targeted results, monthly basis data from 2013M01 to 2019M06 has been used. International financial statistics (IFS) and world development indicators are the key data sources of this study. The estimated results of dynamic regression and quantile regression analysis show that exchange rate volatility has a significant impact to raise the consumer price index in Bangladesh. Import volume and import tax are also liable to raise the price level due to lack of domestic production. Results of dynamic regression demonstrated that the one-period lag of the dependent variable LNCPI(-1) has a positive and significant impact on the current period of CPI where exchange rate volatility has a positive impact on the rising price level. Moreover, this study contributes to the field of international trade and international economics through suggestions and policy coordination.

Contribution/Originality: Current study is the key attempt to analyze the impact of exchange rate volatility (EXV) on the consumer price index (CPI) with considering export and import. Through this study, the literature of relevant fields will be beneficiaries in the séance of policy implication and economic development.

1. INTRODUCTION

With all of its growth surprises, Bangladesh has become a rare model for the rest of the world. With the rapid growth of all industries including manufacturing and trade, the country's economy is accelerating. As the country progresses, industry and trade are becoming more important. In the context of Bangladesh's free-market economy, the role of import trade is crucial. Imports from other countries meet a significant portion of the demand for food grains, agricultural inputs, industrial machinery, raw materials and components, fuel, and other basic commodities. Export duties and import taxes are the primary sources of revenue for the country's internal capital when it comes to funding the national budget, but it impacts on the national price level. Annual import of consumer and industrial goods remained prevalent in the years following independence (Al Mamun & Nath, 2005; Rahman & Kashem, 2017; Rahman, Ruma, Hossain, Nahrin, & Majumder, 2021). This dominance has been steadily eroding in recent years, as the pace and volume of imports of raw materials, machinery, and parts of the manufacturing industry have risen in comparison. As a result of priorities set on export-oriented industries and import substitution industries in the current state of Bangladesh's economy, the rate and amount of imports are rising. The essential contention for which an

expansion in exchange rate volatility (EXV) would bring about lower global trade is that there are risks and exchange costs related to fluctuation in the EXR, and these factors lessen the impetuses to exchange. The presentations of the monetary literature on this issue have advanced over many years. Evidently, early investigations discovered antagonistic impacts of exchange rate volatility on international trade (Clark, 1973; Cushman, 1983; Helpman, 1981; Perée & Steinherr, 1989; Stockman, 1980). Currently, the utilization of refined quantitative techniques brought about more suspicion about the causality of momentary EXV on global trade (Bacchetta & Van Wincoop, 2000; Kang & Dagli, 2018; Meissner, 2003). One especially convincing contention is that the risks related to unstable exchange rates are relaxed by a number of accessible monetary instruments that permit firms to fence against these risks (Mordecki & Miranda, 2019; Sugiharti, Esquivias, & Setyorani, 2020; Yakub, Sani, Obiezue, & Aliyu, 2019). The higher the fixed expenses of fares are, the less responsive firms are to EXV. At present, cross-line exchange firms regularly choose to support against the hazard in the exchange rate or to bear the expense related to conceivable exchange rate vacillations as a feature of their export and import procedure. The consumer price index (CPI) is a proportion of the normal change additional time in the costs paid by the buyers for a basket of consumer services and market products. This investigation inspects the connection of exchange rate volatility and CPI concerning import and export, as this affiliation is a portion of significant macroeconomic discussions among the producer and financial experts to develop some better fiscal and monetary strategy. The CPI estimates the normal value changes in products and services bought by the rational people throughout some specific time frame which has two essential sources of inputs, costs and consumption loads (Boskin, Dulberger, Gordon, Griliches, & Jorgenson, 1998; Diewert, 2001; Rogers, 2007; Saravanan, 2015). As characterized by the financial specialists, CPI is an intermediary of expansion, and was outlined that a significant degree of swelling drives the Gross domestic product of a country to an insecure market economy. The development of fixed investment must be potential through sufficient investment funds. Developing nations are constantly constrained by deficient reserve funds and investment (Cushman, 1985; Darby, Hallett, Ireland, & Piscitelli, 1999; Jagadeesh, 2015). Financial saving funds create capital accumulations and technological progress which is important to increases gross domestic product. The impacts of EXV on domestic prices as well as CPI are seen through the costs of imported products (Bahmani-Oskooee & Hegerty, 2007; Bahmani-Oskooee & Payesteh, 1993; Devereux & Lane, 2003; Lee, 1999).

In a small open economy, trade alteration to price emerges on both customer and maker costs. The expansion in the EXR (the currency depreciation) will directly build the customer value record proportionate to the heaviness of imported products in the customer list. Besides, in nations with high reliance on the imported middle-of-the-road sources of info and reliability, expansion in the EXR will expand the producer price index (PPI) through production const and creates impact on the costs of imported items as well as the cost of domestic items. Moreover, the inflation rate for Bangladesh's economy was 6.41% in FY 2015, 5.44% in FY2017, and 5.48% in FY2019. The main objective of this study is to analyze the impact of exchange rate volatility on CPI by considering export and import volume in Bangladesh.

The specific objectives are:

i.   To investigate the impact of exchange rate volatility on CPI.
ii.   To analyze the impact of export on the consumer price index (CPI).
iii. To analyze the impact of import on the consumer price index (CPI) as well as on the inflation rate.

The empirical results of this study have been estimated by using the Quantile Regression method which is determined by the ADF unit root test. Quantile Regression estimation considers tau values like 0.25, 0.50, and 0.75 to estimate results in a different dimension of EXR volatility impact on CPI. The next section 2 of this study presents the theoretical overview, section 3 of this study presents literature review; section 4 for empirical methodology, while section 5 presents the empirical results and findings. Finally, the conclusion and recommendations have been presented in section 6.

1.1. Hypothesis Development

The hypotheses based on empirical statement have been explained in Table 8 and the constructed hypothesis is also assumed as a null hypothesis. The hypothesis statements are given:

H_1: Exchange rate volatility has no positive impact to raise consumer price index.

H_2: Export has no positive impact to raise consumer price index.

H_3: Import has no positive impact to raise consumer price index as well as the inflation rate.

In this section, H_1 is assumed as Exchange rate volatility has no positive impact to raise the consumer price index. The current study expects that the EXR does not influence the inflation rate but this statement has been rejected in Table 8. A similar kind of result has been found by Poon, Choong, and Habibullah (2011) who rejected this type of statement. H_2 presents export has no positive impact to raise consumer price index. However, this statement supports reducing the risk of trade volume and improving the trade stability of an economy (Bilquees, Mukhtar, & Jalil, 2010). Table 8 presents the decision rule of this statement for rejecting the null hypothesis. H_3 states that import has no positive impact to raise consumer price index as well as inflation rate which gives the rational importance of import volume but this hypothesis has been rejected by Junttila and Korhonen (2012) due to rise in domestic production with less import.

2. THEORETICAL OVERVIEW

2.1. Current Exchange Rate Overview

The fluctuation of EXR is commonly known as EXR volatility. Fluctuations of exchange rates are also known as the measure of volatility. The following Figure 1 shows the present scenario of the exchange rate. The currency of Bangladesh is denoted by (BDT). Figure 1 demonstrates the recent exchange rate concerning the USD. Figure 2 shows the change of exchange rate concerning the previous period and this is sometimes known as the historical measure of exchange rate volatility. In early 2020 on Jan 02, growth rate of EXR was -0.14% which indicated a negative growth rate.
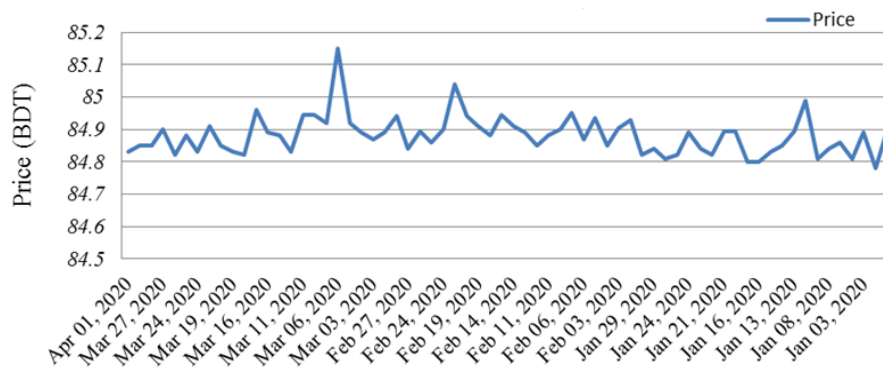

Figure 1. Price of USD in (BDT).

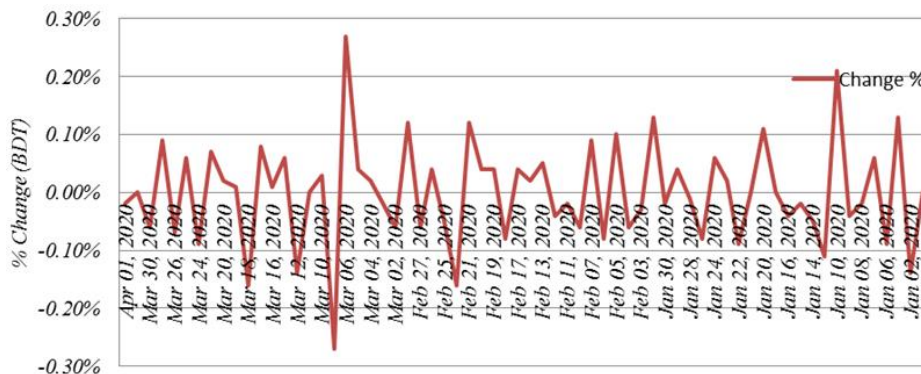**Source:** Bangladesh Bank, 2021.

Figure 2. Percentage change of exchange rate.

Source: 1. www.investing.com, 2. www.bb.org

The daily basis statement present on Jan 10, is 0.21%. It is clear that the decreasing rate on Jan 30, is -0.02 that means an unstable exchange rate. Early on Feb 03, it stood at -0.03%, while in the mid-on Feb 18 it moved to 0.08%, and at the end of the month it stood at o.12%. This is the evidence of volatility. In the beginning of Mar 02, it changed 0.06%, in middle 0.01% and in the end of Mar 27 it was present at 0.09%. Finally, April started with a negative change. On Apr 01 it is present at 0.02% which also implies instability of the exchange rate in Bangladesh.
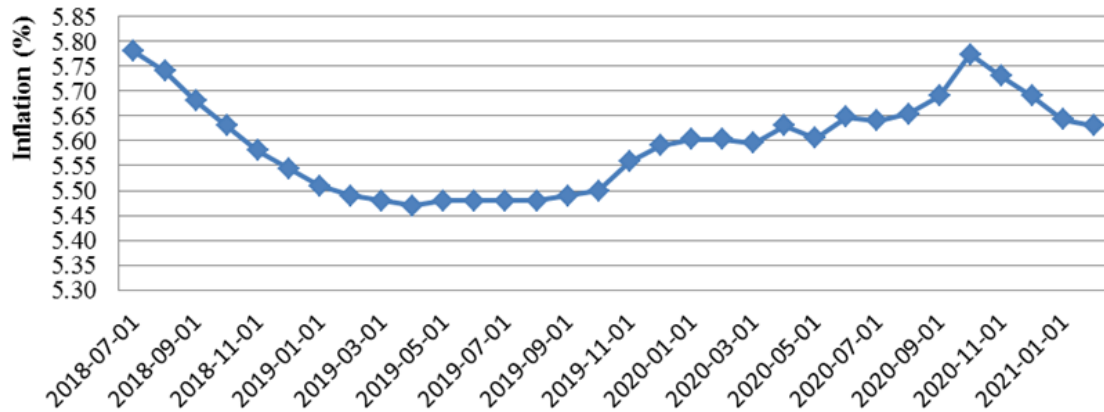
2.2. Current Inflation Rate Overview

Figure 3. Inflation rate measured by CPI.
Source: Bangladesh Bank, 2021.

The rising of price level is commonly known as inflation. Fluctuations in price level may also be the reason behind the rising consumer price index (CPI) which creates hazards at the national level by the rising inflation. Figure 3 shows the present scenario of the inflation rate where the inflation rate is measured by CPI. The monthly basis inflation rate in Figure 3 is presented from 2018M07 to 2021M02. Inflation presented in 2018M07 was 5.78%. The decreasing rate in 2018M12 was 5.54% that depicts a decreasing trend beginning from the starting points. Early in 2019M01, it changed to 5.51% whereas in the mid of 2019M07 it was 5.48%, at last in this year inflation was 5.59% ; this is the evidence of rising inflation rate from a downturn position. At the beginning of 2020M01, it was 5.60%, 5.65% in middle and last period of 2020 it was present at 5.69%. The result indicates a rising trend of inflation rate but it is a positive sign for an economy that in the early 2021M01 inflation rate reduced to 5.64%. It is largely expected that a country should have a lower level of inflation.

3. LITERATURE REVIEW

Bangladesh went into the floating exchange rate system in the end of 2003 with the intention of expanding the viability of financial arrangement and staying away from any emergency related to the fixed exchange rate system. Preceding the floatation of the trade, Bangladeshi Taka was fixed to a bushel of hard monetary forms. The conversion scale was changed incidentally relying upon the pattern of appreciation/devaluation of the real effective exchange rate (REER) of Taka, due to which, Bangladesh's economy faced high pace of inflation. On the off chance that import costs respond unequivocally to EXR, a money-related approach position that is adequately receptive to inflation can protect CPI from the impacts of a stun that causes the EXR to devalue. (Aziz, 2008; Dilanchiev, Aghayev, Rahman, Ferdaus, & Baghirli, 2021; Razzaque, Bidisha, & Khondker, 2017). Rahman and Dilanchiev (2021) investigate the impact of the current account on economic growth where they found that the current account, capital formation, and export increase the economic growth. The EXR volatility harms export and import but there is no leverage effect seen on Bangladesh's economy (Rahman, Majumder, & Hossain, 2020); (Rahman & Habib, 2021). Over the top EXR instability, investor's delays in investment decisions, cause vulnerability in the economy. The economic vulnerability of a nation influences monetary development by influencing investor and financial backer certainty, efficiency,

consumption and world trade and capital accumulation (Baklaci & Yelkenci, 2021; Hassan & Dantama, 2017; Kilicarslan, 2018; Oaikhenan & Aigheyisi, 2015). In the investigation of Baldwin and Krugman (1989) they researched capital inflow and exchange equilibrium to show the relationship with the real exchange rate (REXR). In their investigation, the end was an enormous inflow of foreign capital principally like the conversion scale. Be that as it may, when they attempted to show the relationship with exchange balance, the end was the deterioration of exchange rate brought about by trade balance where economic reform would be an effective policy (Majumder & Rahman, 2020). In ordinary monetary hypothesis, the expansion in price intensity is for the most part clarified using two viewpoints: one is demand-pull inflation (DPI), which is because of increased consumer demand, and another one is cost-push inflation, which is because of an increase in the expense of production and service cost of product and services. DPI is connected with the overabundance of demand of a market-based product, investment, government consumption, and trade balances as well as export and import (Holzman, 1960). In any case, the financial specialists are divided as they would like to think in regards to the reasons for expansion of aggregate demand (AD). The financial market analyst accepts that AD increases because of the abundance of money supply in the economy, particularly through the national budget deficit in the growing nations. According to Loungani and Swagel (2001) created adapted realities about the inflation process in developing nations. They find that elements related to monetary awkward nature like money creation and conversion scale are more significant for nations with floating EXR than nations with the fixed EXR regime (Usupbeyli & Ucak, 2020). They, likewise, track down that inside factors transcendently influence the inflation interaction in developing nations with the fixed EXR system. By using time series data from 1978 to 2010 (Hossain, Ghosh, & Islam, 2012) state long run cause between inflation and economic growths in Bangladesh. Arif and Ali (2012) show that there is a connection between inflation and supply factors, such as import cost, oil price, EXR, production, and distribution shocks. It demonstrates that inflation is pitifully identified with the price strategy in Bangladesh. Bensaid and Jeanne (1997) and Fakhri (2011) show that any disequilibrium in the currency market will be changed through the progressions in the price level. In floating EXR frameworks, the conversion standard of a currency change moderately unreservedly keep certain principles, and the conversion scale is dictated by market influences, request and supply. In the autonomous floating EXR framework, the EXR shifts with no mediation pointed toward directing the pace of progress and forestalling unjustifiable changes in the currency conversion standard (Hossain & Ahmed, 2009). Through an SVAR approach, Hossain (2015) states that money supply introduces inflation where EXR causes economic vulnerability in Bangladesh.

Moreover, there is a lack of studies identifying inflation in Bangladesh. Through this study, current literature will be enriched consistently. Impact of Exchange rate volatility on price level by considering export and import has never been examined by other researcher as per our sequential knowledge. This study will be an effective one for authorities in the case of inflation policy, trade pattern, and exchange rate system.

4. METHODOLOGY

4.1. ADF Unit Root

Through the Dickey and Fuller (1979) ADF test is performed on 1st differences of R (for example ΔR) and assumed ΔR is exposed to be stationary, at that point R is harmonized of order 1, or I(1).

The derived unit root process follows the route :

$$R = \alpha R_{t-1} + \epsilon_t \quad -1 \le \alpha \le 1 \quad (1)$$
$$R_t - R = \alpha S_{t-1} - S_{t-1} + \epsilon_t \quad (2)$$
$$R_t - R_{t-1} = (\alpha - 1)R_{t-1} + \epsilon_t \quad (3)$$
$$\Delta R_t = \tau(R_{t-1}) + \epsilon_t \quad (4)$$

Where; $\tau = (\alpha - 1)$ and Δ is the first diffrence machinist

if $\tau = 0$ then $\alpha = 1$ meaning that the series have a unit root as the condition of H_0

if $\tau = 0$ then; $\Delta R_t = R - R_{t-1} = \epsilon_t$ (5)

Since, ϵ_t is an error term, illustrates it is stationary after the move-in first difference process. To derive the unit root process, Equation 1 is assumed and Equation 2 to 5 show the unit root process. Now ADF test has the subsequent equations:

$$\Delta R_t = \beta_1 + \beta_{2t} + \tau(R_{t-1}) + \gamma_t \sum_{i=1}^{f} \Delta R_{t-1} + \epsilon_t \quad (6)$$

Equation 6 represents: ϵ_t is an error module and the ADF term R_{t-1} is the lagged order criteria.

4.2. Econometric Model Specification

The simple functional form of the econometric model is presented in Equation 7. The econometric form has been presented in Equation 8 and log transformation has been taken in Equation 9. The details of each variable have been presented in Table 1.

$$CPI = f(EXV, IMP, EXP) \qquad (7)$$

$$CPI_t = \alpha_0 + \alpha_1 EXV_t + \alpha_2 IMP_t + \alpha_3 EXP_t + \varepsilon_t \qquad (8)$$

$$LNCPI_t = \alpha_0 + \alpha_1 LNEXV_t + \alpha_2 LNIMP_t + \alpha_3 LNEXP_t + \varepsilon_t \qquad (9)$$

Table 1. Detail of the selected variables.

Variable name	Variable details	Data source
Exp	Value of exports, free on board (FOB), US Dollars	International Monetary Fund (IMF)
Imp	goods and services, services, import, (US Dollars, Millions)	(IMF)
Ex	Exchange rate volatility (foreign exchange rate, BDT to One U.S. Dollar, Monthly)	Bangladesh Bank (BB)
CPI	Prices, consumer price index, all items. (US Dollars, units)	(IMF)

Source: WDI, 2020.

4.3. Quantile Regression (QR) Method

QR Regression Method is used in the case of heterogeneous populations or like a fluctuation based data series. By using QR regression, the data series has been analyzed in several dimensions which are known as tau (τ) (Buchinsky, 1994). Through this estimation, we may define the qth-quantile (0< q<1) to measure the impact on the dependent variable as conditional distribution, given a set of X_i variables, as follows:

$$Q_q\left(\frac{y_t}{x_t}\right) = a_q + x_t \cdot \beta_q + u_t \cdot \alpha_q \quad (10)$$

Equation 10 demonstrates that y_t is considering the CPI through time is u_t and symbolizes unobservable factors. A vector of independent variables ($X_{i,t}$) is also included.

5. RESULT ANALYSIS

The descriptive statistics of this study have been presented in Table 2. Four variables have been selected to complete this study. The descriptive statistics show the criteria like mean, median, maximum value, minimum value, standard deviation, skewness, kurtosis, and Jarque-Bera statistics. For the simplicity of this study, both variables have been taken in log form. The mean value of LNCPI is 4.86, whereas, the median is 4.85. The standard deviation is 0.04 and skewness is 0.43. The median value of LNEXV is 4.42, with a mean of 4.51. Standard deviation displays 0.18 and skewness displays a positive value of 0.77. The mean value of LNEXP is 8.07 where the median is 7.82. The standard deviation is 0.63 and the skewness is 0.36. The median value of LNEXV is 4.42, with a mean of 4.51. Standard deviation displays 0.18 with a kurtosis value of 4.66. The maximum value of LNIMP is 9.58 where the minimum value is 9.01. The standard deviation is showing 0.19 and skewness is 0.39. The basic statistics affirm that the strength of selected variables and the results are consistent for desired estimations. The result for the test of equality between

series has been presented in Table 3. There are three categories used here as a test for equality of means between series, equality of median between series, and equality of variances between series. Levene (1960) test is utilized to test whether there are equal variances of k samples. Equivalent variances across tests are called difference homogeneity.

This study conducted a unit root test due to several reasons; first, it is necessary to know the level of integration of selected variables by using econometrics tools and techniques. ADF unit root test has been appointed to know the level of integration either I(0), I(1), or mixed order. The second reason behind the ADF test by Dickey and Fuller (1979) is to know the consistent level of integration for developing Quantile Regression (QR). The unit root test evidence has been presented in Table 4. The estimated results point out that the variables are stationary at first differences which means the level of integration I(1). The result of dynamic regression analysis has been presented in Table 5. Through the econometric evidence, dynamic regression considers the one-period lag of the dependent variable LNCPI(-1) as an independent variable where consistent effects on LNCPI have been measured by considering time dynamics. Coefficients of LNCPI(-1) is 0.70 and significant at 1% level which indicates that the past year lag of CPI has an impact on next period CPI. The coefficient of export has a positive impact on CPI in Bangladesh.

Table 2. Descriptive statistics.

	LNCPI	**LNEXV**	**LNEXP**	**LNIMP**
Mean	4.86	4.51	8.07	9.27
Median	4.85	4.42	7.82	9.23
Maximum	4.94	4.80	9.18	9.58
Minimum	4.79	4.35	5.70	9.01
Std. Dev.	0.04	0.18	0.63	0.19
Skewness	0.43	0.77	0.36	0.39
Kurtosis	2.61	1.70	4.66	1.76
Jarque-Bera	2.85	13.25***	10.65***	6.99***

Note: *** presents 1% significance level.

Table 3. Test for equality between series.

Test for Equality of Variances Between Series		
Method	**Value**	**Probability**
Bartlett	442.56	0.00
Levene	60.12	0.00
Brown-Forsythe	18.98	0.00
Test for Equality of Means Between Series		
Anova F-test	3737.90	0.00
Welch F-test	14747.14	0.00

Table 4. ADF unit root test results.

At Level		
	Intercept	**Trend and Intercept**
CIP	-2.11	-2.13
EXP	-1.38	-2.89
IMP	-0.58	-3.10
EXV	-1.68	-1.31
At 1st Difference		
	Intercept	Trend and Intercept
CIP	-8.89***	-8.83***
EXP	-9.52***	-9.51***
IMP	-8.06**	-8.02***
EXV	-8.50***	-8.56***

Note: *** and ** presents 1% and 5% significance level.

The results also indicate that for an additional charge of EXR volatility and import influence to raise CPI 0.063% and 0.03% respectively. Model evidence shows R^2 is 0.84 and adjusted R^2 is 0.82 with Durbin-Watson statistics 1.82

which means the results are consistent and reliable. Diagnostic test of dynamic regression analysis has been shown in Table 6 where two null hypotheses (H_0) have been developed. First, there is no serial correlation in estimation and second, there is no heteroskedasticity in residual. Through the results of evidence, this study fails to reject the null hypothesis (H_0).

Table 5. Results of dynamic regression analysis.

Variables	Coefficient	Std. Error	t-Statistic	Prob.
LNCPI (dependent Variable)				
LNCPI(-1)	0.70***	0.06	11.09	0.00
LNEXV	0.063***	0.01	4.58	0.00
LNEXP	0.01	0.00	1.02	0.31
LNIMP	0.03**	0.01	2.16	0.03
C	0.84***	0.27	3.14	0.00
R-squared	0.83			
Adjusted R-squared	0.82			
Durbin-Watson stat	1.82			
F-statistic	85.54			

Note: *** and ** presents 1% and 5% significance level.

Table 6. Diagnostic test of dynamic analysis.

Breusch-Godfrey Serial Correlation LM Test			
F-statistic	1.24	Prob. F(2,70)	0.30
R-squared	2.64	Prob. Chi-Square(2)	0.27
Heteroskedasticity Test: ARCH			
F-statistic	0.09	Prob. F(1,74)	0.76
R-squared	0.10	Prob. Chi-Square(1)	0.76

Table 7. Results of quantile regression.

Variables	Estimated Models		
LNCPI (Dependent variable)	tau= 0.25	tau= 0.50	tau= 0.75
LNEXV	0.06**	0.17***	0.19***
LNEXP	0.01	0.007	0.004**
LNIMP	0.09***	0.10***	0.05**
C	3.63***	3.18***	3.45***
Pseudo R-squared	0.35	0.45	0.45
Adjusted R-squared	0.33	0.43	0.42
Quasi-LR statistic	55.86	105.27	99.30

Note: *** and ** presents 1% and 5% significance level.

Table 8. Hypothesis analysis based on quantile regression results

Hypothesis (H_0)	Decision rule
H_1: Exchange rate volatility has no positive impact to raise consumer price index	Rejected the H_0
H_2: Export has no positive impact to raise consumer price index as well as inflation rate	Rejected the H_0
H_3: Import has no positive impact to raise CPI as well as inflation rate	Rejected the H_0

Table 9. Diagnostic test of quantile regression.

tau= 0.25		
	Value	Probability
QLR L-statistic	3.07	0.08
QLR Lambda-statistic	3.02	0.08
tau= 0.50		
QLR L-statistic	2.50	0.11
QLR Lambda-statistic	2.48	0.12
tau= 0.75		
QLR L-statistic	0.22	0.64
QLR Lambda-statistic	0.22	0.64

Through the estimation, obtained results are mostly true to explain the impact on the dependent variable. The quantile regression analysis result has been presented in Table 7. In the beginning of quantile, regression analysis assumes the tau value at 0.25 which is presented in the 1st column in Table 7. The coefficients of EXR volatility is 0.06 and imports are positive to clarify the CPI in Bangladesh. The results indicate that an additional charge of EXR volatility works to raise CPI 0.06% and 0.09% respectively. The coefficient of export has a positive impact on CPI in Bangladesh due to the unbalanced situation of net trade and lack of an effective market mechanism. The selected determinants of CPI have been discovered as positive impacts on CPI and play a vital role to explain CPI. Finally, the coefficients of EXR volatility and import are significant at 5% and 1% level respectively. The 2nd column represents (tau 0.50), where the 3rd incorporates (tau 0.75). The 2nd column explains that both EXR volatility and import emphatically clarify the significant impact on CPI as well as inflation with coefficients 0.17% and 0.10% respectively. In this case, export has an insignificant impact on CPI with a petite coefficient. The 3rd column in Table 7 represents the coefficients of EXR volatility is 0.19 and imports are positive to illustrate the CPI in the studied country. The results point out that an additional change of EXR volatility works to raise CPI 0.19% and 0.05% respectively and the estimation is significant at 1% and 5% level respectively. Pseudo R-squared, Adjusted R-squared, and Quasi-LR statistics have been used to indicate the strength of Quantile Regression (QR) analysis. QR model evidence shows Pseudo R^2 is 0.35 and adjusted R^2 is 0.33 for tau 0.25 with Quasi-LR statistic 55.86. Pseudo R^2 for tau 0.50 is 0.45 and adjusted R^2 is 0.43. For the case of tau 0.75, Pseudo R^2 is 0.45 and adjusted R^2 is 0.43. The 3rd case of this estimation tau is 0.75, Pseudo R^2 is 0.45 and adjusted R^2 is 0.42. Diagnostic test of Quantile Regression (QR) analysis has been shown in Table 9 ; where QLR L-statistic and QLR Lambda-statistic have been considered to test the diagnostic and estimated result shows the evidence of model consistency.

6. CONCLUSION

The current study considered monthly basis data from 2013M01 to 2019M06 for estimating the impact of exchange rate volatility on CPI concerning export and imports are known as trade issues in Bangladesh economy. The results are estimated by using Quantile Regression (QR) analysis with considering tau values 0.25, 0.50, and 0.75. The overall analysis concludes that exchange rate (EXR) volatility has a positive and significant impact on CPI as well as inflation in Bangladesh. Inconsistent EXR introduced consequences in trade patterns and trade creation which is one of the main reasons behind the rising price level in the national economy of Bangladesh. This study also concludes that the increasing trend of import volume causes to rise in CPI. Export-oriented industries help to enhance economic development but the imbalance between export and import as well as unbalanced supply in the domestic market contributes to rising price level in the domestic market. The policy makers should be concerned about the stability of the exchange rate system. Stability in the EXR system can help to attain both internal and external stability. It also raises the trade level and consistent price level through import volume and domestic production. Price mechanism through balancing demand and supplies is followed by internal and external trade as well as production level. Government should increase the incentive to raise the level of domestic production which helps to reduce import volume as well as the price level of the domestic market.

6.1. Limitation and Further Studies

The current study considered only exchange rate volatility impact on CPI with considering export and import but it will be more effective if further research may be conducted by considering import tax, export duties, and interest rate impact. The regional analysis (panel-based) of South Asian, N-11, and D-8 countries would be done by using time series.

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