

Causal Relationship between Exchange Rate and Exports of SAARC Nations

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Abstract: The present research examines the Causal relationship between Exchange Rate and Exports of SAARC nations for the period from 1st January, 2005 to 31st December, 2015 using appropriate statistical tools and techniques. SAARC includes Afghanistan, Bangladesh, Bhutan, Nepal, India, Maldives, Srilanka and Pakistan. The study is based on secondary data obtained from various data sources namely International financial statistics, Ministry of commerce and industry, Trading economics, Yahoo! Finance and Oanda, the currency site. Granger causality test is applied to test the dynamic causal relationship between Exchange rate and Exports of SAARC Nations. The results stated that there is no causal relationship between Exchange Rates and Exports. Vector Error Correction Model is used to analyse the impact of Exchange Rate on Exports. It also resulted that exchange rate had a negative effect on Exports.

Keywords: Exchange Rate, Exports, Granger Causality test, dynamic, causal relationship, Impact, negative effect, Vector Error Correction model, SAARC Nations, Afghanistan, Bangladesh, Bhutan, Nepal, India, Maldives, Srilanka, Pakistan

I. INTRODUCTION

Export Growth

Export growth may promote the diffusion of technical knowledge (Grossman and Helpman, 1991) and enhance efficiency through the international Competition (Krueger, 1980). India's exports had grown much faster than GDP. The East and South East Asian countries suggests that FDI is a powerful tool for export promotion. The high growth rate can be a part attributed to the growing contribution of the export sector to the economy. India has been described as an 'import substituting country par excellence' [Rodrik (1996:15)]. The performance of Export sector is highly dependent on domestic as well as global factors. International economic policies also have a bearing on the overall export performance of India. Greater exports leads to a more competitive, technologically mature, productive and rapidly growing economy.

The percentage share each export category represents in terms of overall exports from India.

- Gems, precious metals: US\$38.8 billion (14.7% of total exports)
- Oil: \$30.9 billion (11.7%)
- Vehicles: \$14.1 billion (5.3%)
- Machines, engines, pumps: \$13.2 billion (5%)
- Pharmaceuticals: \$12.5 billion (4.7%)
- Organic chemicals: \$11.2 billion (4.3%)
- Clothing (not knit or crochet): \$9.4 billion (3.5%)
- Electronic equipment: \$7.9 billion (3%)
- Knit or crochet clothing: \$7.8 billion (2.9%)
- Cotton: \$7.5 billion (2.8%)

India's population of 1.252 billion people, its total \$264 billion in 2015 exports translates to about \$211 for every resident in that country. Exports from India amounted to US\$264 billion in 2015, down -12.4% since 2011 and down -16.9% from 2014 to 2015. India's top 10 exports accounted for 58.1% of the overall value of its global shipments. Based on statistics from the International Monetary Fund's World Economic Outlook Database, India's total Gross Domestic Product amounted to \$8.027 trillion in 2015. Exports accounted for about 3.3% of total Indian economic output.

Afghanistan's Export performance

Afghanistan is the 158th largest export economy in the world and the 109th most complex economy according to the Economic Complexity Index (ECI). In 2014, Afghanistan exported \$770M and imported \$6.42B, resulting in a negative trade balance of \$5.65B. In 2014 the GDP of Afghanistan was \$20B and its GDP

per capita was \$1.93k. The top exports of Afghanistan are Grapes (\$113M), Scrap Iron (\$79.2M), Coal Briquettes (\$78.8M), Raw Cotton (\$69.9M) and Tropical Fruits (\$66.4M), using the 1992 revision of the HS (Harmonized System) classification. Its top imports are Refined Petroleum (\$537M), Peat (\$454M), Raw Sugar (\$445M), Wheat Flours (\$413M) and Ornamental Trimmings (\$272M). In 2014 Afghanistan exported \$770M, making it the 158th largest exporter in the world. During the last five years the exports of Afghanistan have decreased at an annualized rate of -9.1%, from \$1.24B in 2009 to \$770M in 2014. The most recent exports are led by Grapes which represent 14.7% of the total exports of Afghanistan, followed by Scrap Iron, which account for 10.3%.

Bangladesh's Export performance

Bangladesh is the 61st largest export economy in the world and the 136th most complex economy according to the Economic Complexity Index (ECI). In 2014, Bangladesh exported \$33.4B and imported \$36.9B, resulting in a negative trade balance of \$3.49B. In 2014 the GDP of Bangladesh was \$172B and its GDP per capita was \$3.12k. The top exports of Bangladesh are Non-Knit Men's Suits (\$5.26B), Knit T-shirts (\$5.25B), Knit Sweaters (\$4.17B), Non-Knit Women's Suits (\$3.32B) and Non-Knit Men's Shirts (\$2.37B), using the 1992 revision of the HS (Harmonized System) classification. Its top imports are Refined Petroleum (\$2.24B), Heavy Pure Woven Cotton (\$1.31B), Raw Cotton (\$1.15B), Light Pure Woven Cotton (\$1.12B) and Palm Oil (\$1.01B). In 2014 Bangladesh exported \$33.4B, making it the 61st largest exporter in the world. During the last five years the exports of Bangladesh have increased at an annualized rate of 14.4%, from \$17B in 2009 to \$33.4B in 2014. The most recent exports are led by Non-Knit Men's Suits which represent 15.8% of the total exports of Bangladesh, followed by Knit T-shirts, which account for 15.8%. Headgear was the fastest-growing among the top 10 export categories, up 404.8% for the 5-year period starting in 2011. In second place for improving export sales were leather and animal gut articles which was up 211.7% led by suitcases, handbags and camera cases. Footwear posted the third-fastest gain in value at 133.5%. The fastest-declining category among the top 10 Bangladeshi exports was paper yarn and woven fabric which was down by -23.2%.

Bhutan's Export performance

Bhutan is the 180th largest export economy in the world. In 2014, Bhutan exported \$169M and imported \$237M, resulting in a negative trade balance of \$68.2M. In 2014 the GDP of Bhutan was \$1.96B and its GDP per capita was \$7.82k. The top exports of Bhutan are Ferroalloys (\$100M), Carbides (\$24.5M), Sand (\$7.03M), Raw Plastic Sheeting (\$6.42M) and Raw Iron Bars (\$4.66M), using the 1992 revision of the HS (Harmonized System) classification. Its top imports are Refined Petroleum (\$59.9M), Wood Charcoal (\$9.1M), Baked Goods (\$7.86M), Flat Flat-Rolled Steel (\$7.85M) and Coal Briquettes (\$6.81M).

In 2014 Bhutan exported \$169M, making it the 180th largest exporter in the world. During the last five years the exports of Bhutan have decreased at an annualized rate of -5.9%, from \$229M in 2009 to \$169M in 2014. The most recent exports are led by Ferroalloys which represent 59.5% of the total exports of Bhutan, followed by Carbides, which account for 14.5%.

Maldives's Export Performance

Maldives is the 179th largest export economy in the world. In 2014, Maldives exported \$174M and imported \$2.11B, resulting in a negative trade balance of \$1.93B. In 2014 the GDP of Maldives was \$3.06B and its GDP per capita was \$12.5k. The top exports of Maldives are Non-fillet Frozen Fish (\$47.6M), Non-fillet Fresh Fish (\$47.3M), Fish Fillets (\$38.9M), Processed Fish (\$14.3M) and Processed Fish (\$7.51M), using the 1992 revision of the HS (Harmonized System) classification. Its top imports are Refined Petroleum (\$481M), Petroleum Gas (\$68.2M), Planes, Helicopters, and/or Spacecraft (\$61.5M), Concentrated Milk (\$34.7M) and Other Furniture (\$25.9M). In 2014 Maldives exported \$174M, making it the 179th largest exporter in the world. During the last five years the exports of Maldives have increased at an annualized rate of 8%, from \$118M in 2009 to \$174M in 2014. The most recent exports are led by Non-fillet Frozen Fish which represent 27.2% of the total exports of Maldives, followed by Non-fillet Fresh Fish, which account for 27.1%.

Nepal's Export Performance

Nepal is the 150th largest export economy in the world and the 99th most complex economy according to the Economic Complexity Index (ECI). In 2014, Nepal exported \$1.06B and imported \$7.75B, resulting in a negative trade balance of \$6.69B. In 2014 the GDP of Nepal was \$19.8B and its GDP per capita was \$2.37k. The top exports of Nepal are Knotted Carpets (\$78.4M), Flavored Water (\$68.8M), Non-Retail Synthetic Staple Fibers Yarn (\$65.4M), Synthetic Filament Yarn Woven Fabric (\$56.7M) and Coated Flat-Rolled Iron (\$44.3M), using the 1992 revision of the HS (Harmonized System) classification. Its top imports are Refined Petroleum (\$1.05B), Silver (\$288M), Semi-Finished Iron (\$283M), Petroleum Gas (\$271M) and Gold (\$248M). In 2014 Nepal exported \$1.06B, making it the 150th largest exporter in the world. During the last five years the exports

of Nepal have increased at an annualized rate of 4.6%, from \$845M in 2009 to \$1.06B in 2014. The most recent exports are led by Knotted Carpets which represent 7.41% of the total exports of Nepal, followed by Flavored Water, which account for 6.51%.

Pakistan's Export performance

Pakistan is the 67th largest export economy in the world and the 106th most complex economy according to the Economic Complexity Index (ECI). In 2014, Pakistan exported \$28.3B and imported \$47.4B, resulting in a negative trade balance of \$19.1B. In 2014 the GDP of Pakistan was \$243B and its GDP per capita was \$4.81k. The top exports of Pakistan are House Linens (\$3.23B), Rice (\$2.24B), Non-Retail Pure Cotton Yarn (\$2.04B), Non-Knit Men's Suits (\$1.32B) and Heavy Pure Woven Cotton (\$1.08B), using the 1992 revision of the HS (Harmonized System) classification. Its top imports are Refined Petroleum (\$8.19B), Crude Petroleum (\$5.19B), Palm Oil (\$1.88B), Scrap Iron (\$891M) and Coal Briquettes (\$678M). In 2014 Pakistan exported \$28.3B, making it the 67th largest exporter in the world. During the last five years the exports of Pakistan have increased at an annualized rate of 6.9%, from \$20.3B in 2009 to \$28.3B in 2014. The most recent exports are led by House Linens which represent 11.4% of the total exports of Pakistan, followed by Rice, which account for 7.91%.

Sri Lanka's Export performance

Sri Lanka is the 87th largest export economy in the world and the 115th most complex economy according to the Economic Complexity Index (ECI). In 2014, Sri Lanka exported \$11.5B and imported \$21.4B, resulting in a negative trade balance of \$9.8B. In 2014 the GDP of Sri Lanka was \$78.8B and its GDP per capita was \$11.1k. The top exports of Sri Lanka are Tea (\$1.38B), Non-Knit Women's Suits (\$594M), Other Women's Undergarments (\$580M), Knit Women's Undergarments (\$536M) and Knit Women's Suits (\$475M), using the 1992 revision of the HS (Harmonized System) classification. Its top imports are Refined Petroleum (\$2.58B), Planes, Helicopters, and/or Spacecraft (\$2.28B), Crude Petroleum (\$1.23B), Cars (\$800M) and Light Rubberized Knitted Fabric (\$592M). In 2014 Sri Lanka exported \$11.5B, making it the 87th largest exporter in the world. During the last five years the exports of Sri Lanka have increased at an annualized rate of 8.9%, from \$7.55B in 2009 to \$11.5B in 2014. The most recent exports are led by Tea which represent 12% of the total exports of Sri Lanka, followed by Non-Knit Women's Suits, which account for 5.15%.

Exchange rate volatility

The exchange rates could display higher volatility because of several factors such as deviation from fundamentals, excessive speculative activities, macroeconomic shocks, or other global and domestic news. The foreign exchange market is a market where financial paper with a relatively short maturity is traded, and those financial papers are denominated in different currency".(Riehl, Rodriguez, 1977)

Exchange rate risk arises due to unexpected changes in the prices of two currencies. These price changes could be favorable or they could be non-favorable. Non-favorable changes in the currency prices could lead to huge losses, if they are not managed at the right time and through the proper hedging techniques. Expectations about the price level, inflation, tariffs and quotas, productivity, import demand, export demand and the money supply play an important role in determining the exchange rate. When expectations about any of these variables change, there is an immediate effect on the expected returns and thereby on the exchange rate. Exchange rate movements are influenced by a host of factors including government policy, especially foreign exchange market intervention, capital controls and monetary policy. India's exchange rate management and monetary policy are closely linked as the Reserve Bank of India (RBI) is responsible for foreign exchange market interventions and is the manager of the foreign exchange regulation act (FEMA, 2004), with the mandate of "promoting the orderly development and maintenance of foreign exchange markets in India".

Table-I : Exchange rate of SAARC countries in Indian rupees

SAARC Countries	Exchange rate
Afghanistan	0.98(AFN)
Bangladesh	0.86(BDT)
Bhutan	1(BTN)
Maldives	4.64(MVR)
Nepal	0.62(NPR)
Pakistan	0.64(PKR)
Srilanka	0.46(LKR)
India	0.66(INR)

Origin of SAARC

The South Asian Association for Regional Cooperation (SAARC) is an organization of South Asian nations, established on December 8, 1985. It is headquartered in Kathmandu, Nepal. The very first proposal for

establishing a framework for regional integration in South Asia was made by the late president of Bangladesh, Ziaur Rahman, on May 2, 1980. South Asian integration was discussed in at least three conferences: the Asian Relations Conference in New Delhi in April 1947, the Baguio Conference in the Philippines in May 1950, and the Colombo Powers Conference in April 1954. The governments of Pakistan, Bangladesh, Bhutan, India, Maldives, Nepal, and Sri Lanka formally adopted its charter providing for the promotion of social, economic and cultural development within the South Asian region and also for friendship and cooperation with other developing countries. Its seven founding members were Bhutan, India, Sri Lanka, Maldives, Nepal, Pakistan, and Bangladesh while Afghanistan joined the organization in 2007. Observer states include USA, Australia, China, Japan, South Korea, Myanmar, Mauritius, Iran and European Union. Meetings of heads of state are usually held on annual basis and meetings of foreign secretaries twice a year.

Objective of SAARC

SAARC's edifice is built upon a foundation of a strong set of objectives. SAARC takes decision and every policy it frames is guided by the overall objectives it had set for itself in the charter. Although promoting "welfare economics" and "collective self-reliance" among the South Asian nations are the commonly quoted objectives, "Accelerating economic growth" and cultural development in South Asia is one of the priorities, which comes under the broader goal of improving quality of life. Giving every individual the "opportunity to live in dignity and to realise their full potentials" also finds a place in the list of objectives. "Understanding and appreciation of one another's problems" is one of the rare objectives that one finds in any regional grouping. SAARC also seeks collaboration in the field of economics, culture, technology and science. The member countries aim to strengthen "cooperation among themselves in international forums on matters of common interests."

Role of India

India should play the role for the stability and cooperation in South Asia. SAARC is not an unimportant forum rather its significance has increased in the face of changing global and regional patterns so India should be aware of this scenario. Most of the disputes in South Asia are Indo-centric so India should adopt a low profile to get the confidence of its smaller neighbours. India must play a more trustworthy and accommodating role to build up trust among the smaller neighbours.

Research problem

There are number of studies that focussed on developed countries. Most of the studies on developed countries had a common view that exchange rate volatility had negative effects on exports. The authors, Rose (1999), Dell'Ariccia (1999), Chowdry (1993), Vergil (2002) have found that exchange rate volatility causes uncertainty, which eventually had a negative effect on exports.

The study has raised the following research questions

- Does Exports and exchange rate are relatively significant?
- Does Exports and exchange rate have a Causal relationship?
- Does exchange rate have effect on Exports?

Objective of the study

The following objectives are framed based on the Research problem

1. To analyse the causal relationship between Exports and Exchange rates
2. To investigate the effect of Exchange rate on Exports.

Hypothesis of the study

1. There is no causal relationship with Exports and Exchange Rates.
2. There is no causal relationship with Exchange rates and Exports.

Scope of the study

The research would facilitate to understand effects of exchange rate on Exports. The main aim of the study is to investigate the Causal relationship between Exchange Rate and Exports and the effect of exchange rate on export growth. The research would also help in doing further studies in EXIM trade.

Limitations of the study

The limitations of the study are as follows

- The data collected of the study was only from secondary data.
- The data collected for the study are limited from 2005-2015

II. REVIEW OF LITERATURE

In this section, the reviews of earlier studies presented in order to understand the methodology used and identify the gaps for the present study. The methods in data collection, methodology to be adopted, process in data analyzing, way of interpreting the analyzed data and appropriate concluding of results were reviewed from the literatures.

Saqib and Rafique (2013) examined Impact of foreign direct investment on economic growth of Pakistan. The data used for this study has spanned over the period of 1981 till 2010. The tools used in the study is Augmented Dickey Fuller Test. It resulted Pakistan's economic performance is negatively affected by foreign investment while its domestic investment has benefitted its economy. Moreover, the nation's debt, trade and inflation have found to have negative impact on its GDP.

Naz (2012) examined A Univariate Time Series Modelling of Dates Exports in Pakistan. The period of the study was from 1962-2008. The tools used are Autoregressive integrated Moving Average Models (ARIMA). It resulted date exports of Pakistan provided better results in upward trend for future. Besides this, model selection criteria includes e.g. AIC, SIC, BIC, MAPE and RMSE were used.

Srinivasan and Kalaivani (2012) examined Exchange Rate Volatility and Export Growth in India: The period of study was from 1970-2011. The tools used in the study are ARDL-UECM, Cointegration, CUSUM, CUSUMQ. It resulted real exports are cointegrated with exchange rate volatility, real exchange rate, gross domestic product and foreign economic activity, the exchange rate volatility had significant negative impact on real exports both in the short-run and long-run, implying that higher exchange rate fluctuation tends to reduce real exports in India, the real exchange rate has negative short-run and positive long-run effects on real exports. GDP had a positive and significant impact on India's real exports in the long-run, but the impact turns out to be insignificant in the short-run. The foreign economic activity exerts significant negative and positive impact on real exports in the short-run and long-run.

Bajwa and Siddiqi (2011) examined Trade Openness and Its Effects on Economic Growth in Selected South Asian Countries: A Panel Data Study. The period of the study was from 1972-1985 and 1986-2007. The tools used in the study are co-integration tests. It resulted that there exists long run negative relationship. In time period 1986-2007 the elasticity magnitude had positive sign that indicated positive causation between GDP and openness. It was concluded that after the implementation of SAARC overall situation of selected countries were better. Also long run coefficient of error term suggests that short term equilibrium adjustments are driven by adjustment back to long run equilibrium.

Zaman and Ahmad (2011) examined Panel data analysis of growth, inequality and poverty: evidence from SAARC countries. The period of study was from 1988-2009. The tools used are fixed effect models. It resulted pooled least square method reveal that if there is one percent increase in economic growth reduces poverty by 0.05 percent. While one percent rise in income inequality decreases poverty by almost 0.78 percent. This phenomenon can be linked with the recent wave of privatizations in the developing countries. Public spending on education and foreign direct investment has shown a positive impact on poverty reduction process. Trade openness and increase in healthcare expenditure had found to be insignificant on poverty reduction.

Qureshi and Tsangarides (2010) examined on extended database with exchange rate classifications for the impact of fixed exchange rate regimes on bilateral trade, and they find that fixed exchange rate regimes increase trade indifferently to macro-policy announcements in the system or real actions in practice.

Aidin (2010) examined panel data for 182 countries from 1973 to 2008 and finds different dynamics in the impact of macroeconomic fundamentals on the equilibrium real exchange rate of sub-Saharan African economies compared with less advanced economies

Babecky et al (2010) examined a greater gap in real exchange rate misalignments with mostly pegged exchange rates systems and a closer gap to fundamental equilibrium points in countries with flexible exchange rates.

Aghion, Bacchetta and Ranciere (2009) examined Exchange Rate Volatility and Productivity Growth: The Role of Financial Development. The period of study was based on 83 country data between 1960-2000. The tools used in the study are Robustness tests and monetary growth model. It resulted that in striking contrast to the vast existing empirical exchange rate literature, which largely found the effects of exchange rate volatility on real activity to be relatively small and insignificant.

Ali and Talukder (2009) examined Preferential Trade among the SAARC Countries: Prospects and Challenges of Regional Integration in South Asia. It analysed regional and international trade structures of South Asian countries through conventional trade measures such as commodity composition and direction of trade, and bilateral trade shares. It resulted preferential trade liberalisation brought trade diversion than trade creation leading to more gains for large countries and more losses for small countries. Trade policies of individual countries shaped political considerations than economic factors.

Yadagiri (2009) examined that branding is one of the most powerful tools of marketing strategy. Sometimes, it is considered to be merely an advertising function. It is a process to establish competitive

advantage and expressing corporate values and identities. It is a form of rhetorical instrument to persuade people to think differently. It is a subset of an over all marketing plan which, in turn, is a subset of the overall business plan. The exporters have been successful at creating brands to secure global market leadership and mitigate risk.

III. RESEARCH METHODOLOGY

Research methodology is a scientific and structured search to investigate a specific problem encountered and that needs a solution. It is a systematic process, in depth study of any particular subject area of investigation and used to collect information and data for the purpose of making prudent business decisions. Research methodology includes concepts such as paradigm, theoretical model, phases and quantitative or qualitative techniques. It is termed as organized, systematic, data based, critical, objective, and scientific investigation into a specific problem, undertaken with the purpose of finding solutions to the problem.

Research design

In order to analyse the research problem undertaken for the study, descriptive and analytical study using secondary data is considered appropriate. Descriptive research involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data collection (Glass & Hopkins, 1984) The analytical research usually concerns itself with cause-effect relationships. The methods of collecting data for descriptive research can be employed singly or in various combinations, depending on the research questions.

Sources of research instrument

For the purpose of studying the objectives and testing the hypothesis, the data are collected from secondary sources such as International Financial Statistics , International Monetary Fund, Ministry of commerce and industry, Yahoo! Finance and Oanda the currency site.

Period of study

The present study have taken the last ten years (1st January 2005-31st December 2015) monthly data of exchange rates and exports of SAARC countries (Afghanistan, Bangladesh, Bhutan, Maldives, Nepal, Pakistan, Srilanka and India.

Sample design

To measure quarterly data of exports and exchange rate fluctuations that extends from 1st January 2005-31st December 2015; there are 480 observations for Exports and 480 observations for Exchange rate.

Tools used for analysis

The following are the tools used for the study

- Granger causality test are used to determine the direction of causality between exports and exchange rates respectively
- Vector Error Correction Model are used to determine the effect of short-run and long-run relationship between exports and exchange rates.

ANALYSIS AND INTERPRETATION

Causal relationships - Granger Causality test for Exports

To understand the dynamic relationships between exports and exchange rates Granger causality tests were used.

Hypothesis 1: There is no causal relationship with exports and exchange rates

Table-II: Granger Causal relationship for Exports

Null hypothesis	f-value	p-value
Afghanistan Exports does not Granger cause Afghanistan Exchange rate	4.09	0.31
Bangladesh Exports does not Granger cause Bangladesh Exchange rate	0.17	0.83
Bhutan Exports does not Granger cause Bhutan Exchange rate	0.82	0.43
India Exports does not Granger cause India Exchange rate	0.63	0.53
Maldives Exports does not Granger cause Maldives Exchange rate	10.85	0.45
Nepal Exports does not Granger cause Nepal Exchange rate	0.02	0.97
Pakistan Exports does not Granger cause Pakistan Exchange rate	0.66	0.51
Srilanka Exports does not Granger cause Srilanka Exchange rate	0.07	0.93

Hypothesis 1 is accepted

The results from the Granger causality tests help in analysing if exports Granger cause exchange rate. The hypothesis 1 is that there is no causal relationship with exports and exchange rates. The results interpret that there is no Granger cause between SARRC countries exports and SARRC countries exchange rate. Therefore the hypothesis is accepted, the p-value for hypothesis is found not to be significant at 5% level in the case of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Srilanka. Thus it is identified that exports does not lead to changes in the exchange rate. Therefore, *hypothesis 1 is accepted* which means that there is no causal relationship with exports and exchange rates.

Causal relationships - Granger Causality test for Exchange Rate

To further understand the dynamic relationships between exports and exchange rates Granger causality tests were used because they are based on the bivariate VAR(Vector Auto Regression) and examine one-to-one relationships.

Hypothesis 2: There is no causal relationship with exchange rates and exports.

Table-III: Granger causal relationship for Exchange Rate

Null hypothesis	f-value	p-value
Afghanistan Exchange rate does not Granger cause Afghanistan Exports	2.13	0.12
Bangladesh Exchange rate does not Granger cause Bangladesh Exports	0.04	0.95
Bhutan Exchange rate does not Granger cause Bhutan Exports	0.06	0.93
India Exchange rate does not Granger cause India Exports	0.81	0.44
Maldives Exchange rate does not Granger cause Maldives Exports	0.39	0.67
Nepal Exchange rate does not Granger cause Nepal Exports	0.19	0.82
Pakistan Exchange rate does not Granger cause Pakistan Exports	0.07	0.92
Srilanka Exchange rate does not Granger cause Srilanka Exports	0.18	0.83

Hypothesis 2 is accepted

The results from the Granger causality tests help in further analysing does exchange rate Granger cause exports. The hypothesis 2 is that there is no causal relationship with exchange rates and exports. The results interpret that there is no Granger cause between SARRC countries exchange rate and SARRC countries exports. Therefore the hypothesis is accepted, the p-value for hypothesis is found not to be significant at 5% level in the case of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Srilanka. Thus it is identified that exchange rate does not lead to changes in the exports. Therefore, *hypothesis 2 is accepted* which means that there is no causal relationship with exchange rates and exports .

Short-term and long-term effects - Vector Error Correction Model

It is used for estimating both short-term and long-term effects of Exports and Exchange Rate.

Table-IV: Short-term and long-term effects of Exports and Exchange rate

Countries	C-value	Co-integrating Equation	R-squared	F-statistic
Afghanistan	-39.7	-0.01(0.00)	0.14	3.66
Bangladesh	-45.2	-0.00(0.00)	0.28	7.73
Bhutan	-56.6	-0.01(0.01)	0.15	3.66
India	-64.4	-0.00(0.00)	0.03	0.75
Maldives	-1.28	-0.49(0.09)	0.55	26.7
Nepal	-40.8	-0.79(0.15)	0.45	18.16
Pakistan	-76.5	-0.04(0.03)	0.32	10.37
Srilanka	-37.6	-0.51(0.13)	0.41	15.66

Table 1.4 interprets that the Error Correction Term (ECT) for Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Srilanka is derived by normalising on the cointegrating vector which tests the ECT is statistically insignificant. The intuition behind the VECM analysis is that, when the markets are in equilibrium, part of the current changes in one market affects the tendency to respond to trends in the other countries being examined. The VECM is used to examine the short-run and long-run relationships among Exports and Exchange rate for the entire period of ten years. It shows that negative sign indicates that each country [Afghanistan (-0.01), Bangladesh (-0.00), Bhutan (-0.01), India(-0.00), Maldives (-0.49), Nepal (-0.79),Pakistan (-0.04), Srilanka (-0.51)] is negatively related to exchange rate on export growth. It indicates the lower impact of exchange rate on export growth. The relation of exchange rate to the export growth is found to be negative. The exchange rate and export has observed negative sign in SAARC countries. However, the values are statistically insignificant and impact of exchange rate on export growth had a *negative effect* both in short-run and long-run.

IV. CONCLUSION

Findings

This study estimated the causal relationship of Exports and Exchange Rate in SAARC Nations using data for periods from 1st January 2005 to 31st December 2015. Secondary data was used for the study. This research provides empirical results on the relationship between the variables such as exchange rate and exports.

Strong Exchange Rate Effects

When a currency appreciates or strengthens in relation to other currencies, imports get cheaper. When the exchange rate for a currency strengthens it makes imports cheaper. Strong currencies lead to cheaper imports, a country tends to import more than they export. This causes a trade deficit, which can exert a contractionary effect on the economy

Directions for future research

- Macroeconomic policies, which aim to keep a stable competitive real exchange rate
- Reasonable policies that avoid overvaluation of the real exchange rate to decrease volatility.
- Promote an improved business environment with greater competition

Exchange rate and export growth has been an important subject of research in a large number of developing countries. The research paper focused on Causal relationships between exchange rate and exports of SAARC Nations. It could be concluded that exchange rate had a negative effect on export growth. It also states that there is no causal relationship between exchange rate and exports and Vector Error correction model states that exchange rate had a negative effect on export growth according to the short-term and long-term effects of one time series on another. Although various studies has been undertaken to study the impact of exchange rate volatility on export growth, and found that it had a negative effect.

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