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This study contributes to the empirical literature on showing the relationship between export diversification and the economic growth of Bangladesh. Using time-series data on export over the period 2008-2009 to 2017-2018 and Herfindahl index as a measure of export diversification, it was found that the export market of Bangladesh is highly concentrated to a particular industry, and it is becoming concentrated day by day. To measure the impact of export diversification on economic growth Granger Causality test was used and found that export diversification does not granger cause GDP per capita in Bangladesh reveals that export diversification is not playing any significant role in the economic growth of Bangladesh. So, Bangladesh should focus on export diversification for stable economic growth by reducing instability in export earnings.

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This study contributes to the empirical literature on showing the relationship between export diversification and the economic growth of Bangladesh. Using time-series data on export over the period 2008-2009 to 2017-2018 and Herfindahl index as a measure of export diversification, it was found that the export market of Bangladesh is highly concentrated to a particular industry, and it is becoming concentrated day by day. To measure the impact of export diversification on economic growth Granger Causality test was used and found that export diversification does not granger cause GDP per capita in Bangladesh reveals that export diversification is not playing any significant role in the economic growth of Bangladesh. So, Bangladesh should focus on export diversification for stable economic growth by reducing instability in export earnings.

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I. INTRODUCTION

The economic structure of Bangladesh has been transmitted by taking the benefits of export earnings from ready-made garments (RMG) sector over the last two decades. But the RMG sector, which has created a million job opportunities, should be considered at the cost of

other potential export sectors (Asian Development Bank, 2016). Different policy incentives are given by the government to help this sector to flourish. But now, to achieve sustainable economic growth, Bangladesh should make a business environment for all potential business sectors by employing different policy incentives for all sectors. For creating such a business environment Bangladesh should focus on coordination and strengthening its institutional framework through overcoming different challenges like lack of economic diversification, an insufficient supply of reliable energy, low level of private investment and entrepreneurship, high cost of finance, low return to economic activity (Asian Development Bank 2016). Among all those constraints, this study focused on economic diversification, and export diversification is one way to remove this problem. Export diversification refers to the extent to which a country's export is diversified into a greater number of products or a greater number of trading partners. When a country is exporting a greater variety of products or exporting to a larger number of trading partners, then the country has a higher level of export diversification. In the context of Bangladesh for the last two decades, Bangladesh is exporting a limited number of products, especially RMG goods, to a limited number of trading partners, which is clearly showing export concentration. Where export diversification contributes to the economic growth of a country by reducing the instability in export earnings by exporting a greater number of products or by exporting to a larger number of trading partner export concentration on the other

side increases the export earnings vulnerability of a country. A significant number of studies have been done on export diversification, and it was found that there is a positive effect of export diversification on per capita income (Lederman and Maloney, 2007). And the effect of export diversification on growth is nonlinear in developing nations than in advanced countries that are performing better in export specialization (Hesse, 2008). So for being a developing country Bangladesh should focus on export diversification to attain sustainable economic development. This study focused on export diversification to find out the contribution of export diversification in our economy. Among horizontal and vertical diversification this study focused on vertical diversification which is measured by referring to the share of primary and manufactured export in total exports. And after Using time-series data on export over the period 2008-2009 to 2017-2018 and Herfindahl index as a measure of export diversification it was found that the export market of Bangladesh is highly concentrated to a particular industry and it is becoming concentrated day by day. To measure the impact of export diversification on economic growth Granger Causality test was used and found that export diversification does not granger, cause GDP per capita in Bangladesh reveals that export diversification is not playing any significant role in economic growth of Bangladesh. So Bangladesh should focus on export diversification for stable economic growth by reducing instability in export earnings.

II. LITERATURE REVIEW

There are several studies that focused on export diversification and found that there is a positive relationship between export diversification and economic growth of several countries. In a study (Hossain, Chowdhury 2014) it was found that export growth and overall economic growth of Bangladesh are highly correlated and the trade policy of Bangladesh needs to be restricted for gaining momentum in diversification of export in Bangladesh. They also suggest that reducing trade

barriers and cost, development of infrastructure and communication, extensive financing for export and policies emphasizing the development of human capital is now the need of time for improving diversification of export.

Export concentration exhibits a negative link with country size variables means that in smaller countries there is higher export concentration and less in developed countries which shows that both size and the stage of economic development are relevant factors in determining export concentration (meilak, 2008).

In a working paper of the World Bank it is said that most export growth over time occurs in already existing products than in new exports-which is rooted in improvement in productivity by achieving lower cost advantage over competitors or by improving the quality of products. This study also revealed that lower-income countries experience a higher “death rate” for new exports so they should focus on improving quality and reducing cost for increasing productivity of existing export products. It is also a common phenomenon that lower-income countries take only a small proportion of overseas markets for exporting their products (Brenton, Newfarmer, Shaw, Walkenhorst, 2009). (Aditya, Roy, 2007) in their study found that the relationship between export concentration and income is nonlinear and economic growth across countries increases with diversification of export up to a critical of export concentration which is reversed with increasing specialization leading to higher growth.

Countries should diversify from primary export into manufactured export to achieve sustainable economic growth (Chenery,1979: Syrquin, 1989). In a study (Hamed, Hossen 2014) based on some developing countries revealed that reducing export specialization and increasing export diversification have significantly positive effects on the rate of economic growth.

Though several studies show how export diversification is important for economic growth but other studies showed how certain trade

barriers limit export diversification in LDC like low elasticity of demand, lack of finance, barriers to market entry, inadequate infrastructure and lack of skilled workforce (Sannasse, Seetana, Lamport 2009). (Naude, Rossouw 2010) using time series data of export and GDP per capita found evidence of a U-shaped relationship between per capita income and export specialization in China and South Africa. This study also revealed that the export diversification Granger causes GDP per capita in Brazil, China and South Africa. Export vulnerability is another reason for the benefits of export diversification. Countries dependent on export commodities whose market price is highly vulnerable may suffer from export instability. And this market instability discourages necessary investment in the economy by risk-averse firms which lead to macroeconomic uncertainty which is harmful to longer-term economic growth. And in this regard export diversification could help to stabilize export earnings in the longer run (Ghosh and Ostry 1994, Bleaney and Greenaway, 2001).

In a working paper conducted by Asian development bank it was stated that though Bangladesh has transmitted its economic structure but some challenges are there like coordination and strengthening the institutional framework. But among all critical constraints the lack of economic diversification is most important. Other limitations are insufficient supply of reliable energy, low level private investment and entrepreneurship, low return to economic activity, high cost of finance and so on. And Bangladesh's ready-made garments sector that has provided millions of job opportunities should be considered at the cost of other potential export sectors. Bangladesh's industrial policy where certain policy incentives have created a business environment which automatically hinder the development of other export sectors. This paper also suggested that without a garment industry Bangladesh should establish links with other global production lines.

Sattar and Ahmed in their working paper named Reducing Vulnerability in Export Performance:

The Export Diversification Challenge in Bangladesh, stated that high export concentration in ready-made garments is making our economy, jobs, and income extremely vulnerable to external global shocks due to changes in global demand and price. In their paper they suggested that to reduce this economic vulnerability the country's current restrictive trade and tariff regime and industrial policy measures need to be mitigated to diversify export sectors.

In another working paper named Strategy for Export Diversification: 2015-2020, Breaking into New Markets with New Products by Zaidi Sattar it was found that a considerable number of constraints of export performance of Bangladesh can be broadly classified into two categories which are trade infrastructure and trade policy and incentives. Technology and labor productivity, state of trade logistics, ease of doing business, access to finance and availability of skills are those problems under trade infrastructure. And exchange rate management, trade policy, fiscal policy hampering export diversification which can be grouped under trade policy and export incentives.

III. RESEARCH METHODOLOGY

3.1 Measurement of Export Diversification

Export diversification is broadly classified into two categories called vertical diversification and horizontal diversification. Vertical diversification occurs when a country's production or export shifts from primary commodities to manufactured commodities. Horizontal diversification is measured by the extent to which country is exporting a wide variety of manufactured products. This study focused on vertical diversification which is simply measured by referring to the share of primary and manufactured exports in total exports. To measure export diversification a number of concentration indices are used among which in this study Herfindahl index is the most widely used and popular index in measuring export diversification. The Herfindahl index (Pettersson 2005) is following:

$$HI = \sum_i \left(\frac{E_{ji}}{\sum_j E_{ji}} \right)^2$$

Where E is the export of a country j of export sector I in a given year t. HI value near to 1 shows higher degree of export concentration or specialization and HI value near to 0 denotes higher degree of export diversification (petersson 2005).

3.2 The Impact of Export Diversification on Economic Growth

The second objective of this study is to find out the impact of export diversification on economic growth of Bangladesh. To measure the impact of export diversification on economic growth this study uncovered the relationship between GDP and export diversification. To find out the relationship between GDP per capita and export diversification Granger causality test was used to determine whether one time series is useful in forecasting another time series proposed in 1969 by professor Clive Granger which entailed running the following two regression equations using HI measure of export diversification .

$$X_t = a_0 + b_i \sum_{i=1}^n X_{t-i} + C_i \sum_{i=1}^n Y_{t-i} + e_t$$

$$Y_t = d_0 + \delta_i \sum_{i=1}^n Y_{t-i} + y_i \sum_{i=1}^n X_{t-i} + \varepsilon_t$$

Where X_t = a measure of export diversification (HI)

Y_t = GDP per capita and e_t and ε_t are random errors

It was performed using time series data on export diversification and GDP per capita for the last 10 years. To avoid spurious regressions time series data of GDP and HI need to be stationary before estimating Granger causality test. In this regard Phillips and peron test was used to test whether these time series data are stationary or non-stationary and found data non-stationary. To test for cointegration between time series data GDP and HI these time series data were converted

to stationary by taking first-difference of these data.

3.3 Sources of Data

The source of data on export is the export promotion bureau of Bangladesh. This database contains the export data from the financial year 2008-09 to 2017-18. Data on GDP per capita used as an economic indicator to perform Granger causality tests were also sourced from the Export promotion bureau of Bangladesh.

3.4 Objective of the Study

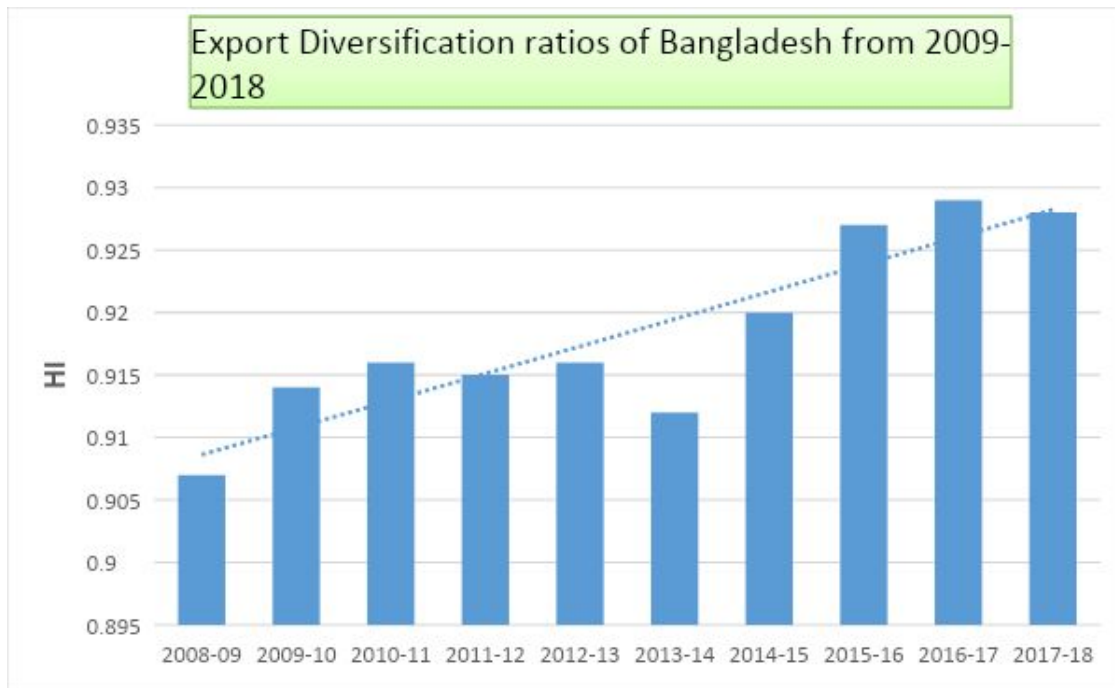
The objective of this study is to find out the relationship between export diversification and economic growth of Bangladesh. To find out the impact of export diversification on GDP per capita here GDP will be used as an economic indicator. And another objective of this study is to find out whether Bangladesh is performing well in export diversification or not. To measure export diversification (vertical diversification) Herfindahl index was used which is the most common index in measuring export diversification or concentration. A Granger causality test was used to find out the impact of export diversification on economic growth of Bangladesh.

IV. PROFILE OF EXPORT DIVERSIFICATION OF BANGLADESH FROM 2009-2018

This part of this study shows a broad profile of export diversification or specialization ratios of Bangladesh from 2009-2018. Using time series data on export over the period 2008-2009 to 2017-2018 and Herfindahl index as a measure of export diversification Chart 1 showing the concentration ratio of export of Bangladesh which indicates that concentration ratios are very much higher (closer to 1) and increasing throughout the years and revealing that our export is highly concentrated to any particular industry which is increasing in the following years and a little evidence of export diversification. Though from financial year 2011-12 to 2013-14 there was a fluctuation in concentration ratio but in the following years the picture is the same. For a

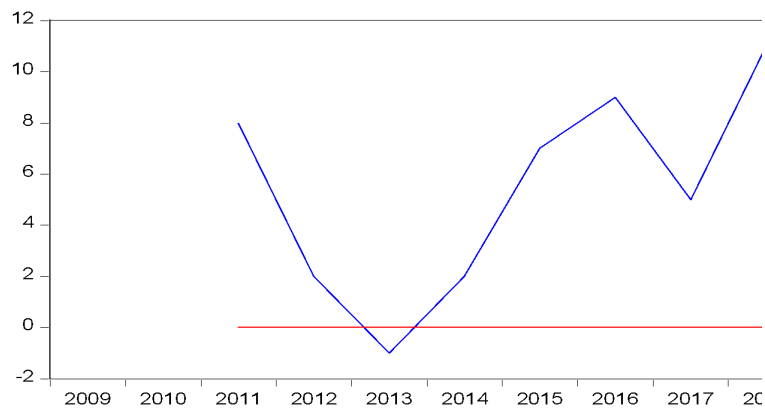
developing nation like us it is important to diversify both product or export market to reduce export vulnerability. Because export diversification is a widely recognized principle in reducing export earnings vulnerability. But from

table 1 it can be inferred that from year to year our export is becoming concentrated. That can be a problem for Bangladesh to achieve sustainable economic growth.



V. EXPORT DIVERSIFICATION AND ECONOMIC GROWTH

A country's economic development is related to its degree of export diversification (Wacziary 2003; Hesse 2008). And for developing countries it is important to improve or faster its export diversification. As this study shows that there is lower export diversification in Bangladesh so in this study it was also tried to find out the impact of export diversification on our economic growth. To find out the impact of export diversification on economic development of Bangladesh, Granger causality time series test was used in this study. After conducting Granger Causality test between GDP and HI under null hypothesis HI does not granger cause GDP it was found that null hypothesis with F statistics .2411 and probability 82% it was accepted meaning that export diversification has no impact on GDP per capita. The result of the test is presented in the following chart.



VI. ANALYSIS

This study reveals that Bangladesh is not performing well in export diversification. Our export is highly concentrated to one industry which is manufactured industry and readymade garments (RMG) sector play a big role in this industry. So it can be inferred that our export performance is highly dependent on the readymade garments industry. But it is generally accepted that export diversification helps to reduce the instability in export earnings. As in Bangladesh export concentration is higher in a particular industry and increases from year to year which indicates that our export earnings are vulnerable and for being dependent on only one industry the risk of export earnings vulnerability increasing day by day which can't be a good sign for sustainable economic development for Bangladesh. And export diversification is not contributing to the economic growth of Bangladesh. By testing Granger causality test it was found that export diversification has no role in GDP per capita or economic development of Bangladesh. So, for reducing export earnings vulnerability and increasing the role of export in sustainable economic development Bangladesh should focus on export diversification by exporting a greater number of products to a greater number of countries. For making a business environment where the export sector will not be concentrated, the Bangladesh government should focus on trade facilitation through coordination of institutional framework. Other challenges like anti-export bias politics,

insufficient infrastructural services, technology and labor productivity, access to finance, and different export incentives should be addressed properly for the betterment of an export-oriented business environment.

V. CONCLUSION

This study reveals Bangladesh export basket is not diversified and highly concentrated to any particular industry and export diversification is not playing any significant role in economic development measured in GDP per capita. As Bangladesh has a vision to be developed by 2041 so this country should focus on sustainable economic growth. Export is related with the level of economic development in any country. Reducing export earnings vulnerability helps to achieve sustainable development. For sustainable economic development and to faster economic growth by reducing export earnings vulnerability Bangladesh should focus on export diversification by exporting a greater variety of products to existing countries or exporting products to a greater number of countries.

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