Master Thesis

Determining Trade Of Bangladesh : A Panel Analysis Of The Gravity Model

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The Graduate School of Hansung University

Major in International Market Analysis

Dept. of International Trade and Economics

RAHMAN SAEMUR

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Advisor Professor Jaewhak Roh

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ABSTRACT

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Using the generalised gravity model and the panel data estimate methods, this study assesses Bangladesh's import trade with its major trading partners. Our finding indicate that inflation rates and income disparities between trading partners, FTA and minimum wage have an impact on Bangladesh's trade.

According to the country -specific factors, Bangladesh's imports are more strongly influenced by its neighbouring countries than by those farther away.

Keywords: Gravity Model, Panel Data, Bangladesh's imports, Fixed Effect Model, Random Effect Model.

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1. INTRODUCTION

In the current economic literature, the use of the gravity model to investigate international trade flows in widely established. The gravity model has been in a variety of empirical studies to explore bilateral trade patterns and trade connections (oguledo and Machpee,1994) .The country of Newtonian physics is where trade gravity models originate.in essences ,these theories contend that two countries trade flows are affected favourably by their incomes and adversely by their proximity to one.

The use of gravity models to analyse bilateral trade patterns is theoretical acceptable under either a monopolistic or completely competitive market structure, as may be simply demonstrated by a survey of the current literature. The gravity models of trade are discovered to be better suited for understanding the scoop of commerce in term of numerous structural and institutional aspects involved in international trade flows than the standard trade theories.

The gravity model was used to study Bangladesh's bilateral trade pattern in this thesis paper. Bangladesh's foreign trade industry is a significant portion of the country's economy. The trade gross domestic product ratio climbed from 16.41% in 1980 to 47.1% in 2008 (world bank 2009) . Despite it increasing importance, the sector has experienced a chorionic deficit over time . Bangladesh's trade links with other nations, particularly those of the south Asian Association for regional cooperation (SAARC) are ineffective in assisting the country's economic development. This drives us to investigate the elements that may be contributing to

Bangladesh's trade inefficiency. Attempts to complete this task have been undertaken using the panel data estimation technique.

This research is the first to employ a panel data technique in a gravity model framework to discover the factors that influence Bangladesh's trade. It also includes empirical study on the gravity model of export in addition to the standard gravity model of commerce. For a better knowledge of Bangladesh's trade pattern as well as the gravity model of import.

The expense of transportation has been identified as a significant element in negatively impacting Bangladesh's trade. The border between India and Bangladesh is also proven to have a significant impact on Bangladesh's imports. the country specific impacts show that Bangladesh would benefit from increased trade with its neighbours.

Assuming that all nations have weekly separable utilities function between traded items,Anderson(1979) also uses a trade share spending system power of gravity model. Gives share of traded products that are solely Functions of traded goods prices with respect to income constraints.

Prices are constant across section, thus countries import of country goods are calculated using the share relationship and the trade balance identity. The gravity equation for aggregate imports is then constructed by assuming log liner functions for shares of income and population.

The author discusses the issue of income endogamy and offers two different remedies based on an instrumental variable strategy. Using

several instruments, either using the logged value derived from the instruments or performing a first stage OLS estimation of the Shares and then substituting income values from the estimated shares for a second stage restoration of the gravity equation.

By simply substituting a weighted average for the actual shares in the second stage, the aggregate gravity equation for several items can be construed.
The subsequent strategic method is based on the walrasian general equilibrium model which implies that each country has its own supply and demand functions for all items. The level of demand in the importing country and the level of supply in the exporting country are determined by aggregate income in the importing country.

Anderson's investigation is at the aggregate level. The model of trade supply, on the other hand is formed form the profit maximisation of business. Rather than replacing the gained under market conditions, the gravity model of trade flows proxied by value is achieved.

The resulting model is termed as a generalised gravity equation. Bergstrands analysis is based on the assumption of nationwide product differentiation by monopolistic competition and identical preferences and technology for all countries.
The Micro foundation approach also alleges that the crucial assumption of perfect product substitutability of the conventional gravity model is unrealistic as evidence in recent times has shown–that the trade flows are differenced by place of origin .
Exclusion of price variables leads to mis specifications of the gravity model . Anderson (1979), Bergstrand (1985, 1989), Thursby and Thursby

(1987) and so on shares this view.

Their research demonstrates that pricing variables are statistically significant in explaining
Trade flows across participating nations, in addition to the traditional gravity equation variables. In a commodity typically transaction from a nation with low prices to one with cheap prices to one with high prices.

Therefore, it is anticipated that trade flows will be positively correlated with changes in export prices and negatively correlated with changes in import prices.
On the other hand, where products are a perfect substitute for one another in terms of customer choice and can be delivered between markets without cost, price and exchange rate issues may be eliminated. This structure naturally leads to the Heckscher Ohlin.

While Eaton and Kortun (1997) derive the formula from gravity derived Rihdarian Framework,Deardoff(1997) draws on an H-O aspect to create it.Deardoff shows that the h-O framework will produced the same bilateral trade pattern as the model with distinct goods if all materials are available and commerce is prohibited single nation. Additionally, distance considered when using the gravity formula if there are costs associated trade interactions

Hummels and Levinson (1993) used business statistics from industry to examine the autocratic competition's application in international trade. Their findings indicate that a large portion of intra-industry business is exclusive to nation-state couples. Their research thus supports a

dominant challenge-based on business theory.

In their examination of the gravity likeness conceptual underpinnings, Even and keller (1998),identify three distinct forms of trade model .In these models ,specialization develops in an alternative manner during equilibrium .these include

1.The ricardian model demonstrates how different each country's technology is.

2.Various endowments of the H-Q paradigm for foreign tribes and parameters.

3.Growing go back at the corporate level under the growing return to scale paradigm.

These are perfect specialization models, which are limiting examples for an imperfect specialization model. However, empirically flawed product specialization is critical. In reality, different countries have distinct technologies and factor endorsements, which envelope over time and can be transmitted between countries.

Trade theories do not explain why some countries have more favorable trade ties than others or why deal levels between nations change over time; they simply explain why countries trade in different goods. This is one of the trade theories limitations in terms of comprehending the magnitude of trade flows.

As a result, while trade theories fail to explain the magnitude of trade, the gravity model succeeds. It allows for the consideration of more variables.

As we know that , the Bangladesh's economy's trade sector continues to be quite important .In 1999,the trade GDP ratio expert GDP ratio, and important GDP ratio all increased from 0.19 ,0.03 and 0.15 in 1976 to 0.13,0.32and 0.19 ,respectively. Bangladesh total commerce ,total exports and total imports increase by 168 percent 204 parent and 153 percent ,respectively in 1999 compared to 1988.The SAAr countries have had the biggest increase in trade with our sample countries, at 439 percent (export+imports).

When imports are split, the SAARC has the biggest rise (602 percent) As a result, foreign commerce is an important aspect of Bangladesh's overall economic strategy and national growth. This is a critical tool for the country's industrialization as access to precious foreign cash is necessary for long term economic growth.

The country on the other hand, has a chronic deficit in its balance of payments. Bangladesh's trade relations with other nations, particularly those in the SAARC region are not promising in terms of making a positive contribution to each country's economic progress.

The gravity model is based on physics and is used to explain how GDP per capita; population and distance affects bilateral trade flows. The trade flow between the two countries is through to be inversely proportional to their economic size and population.

For a long time, trade has been seen as the motor that drives the economy. Since the down globalisation countries have prioritised regional interrogation as a means of facilitating trade. Countries have thrived for

for integration regardless of their economic development level.

Access to overseas markets is critical in terms of maintaining the momentum of exports. Bangladesh has achieved significant progress as a relatively new player in the trade game. For the past two decades, Bangladesh's trade boom has been one of the country's defining traits.

Export in particular has shown strong development despite a variety of economic and political difficulties both locally and globally. In this perspective, it's important to note that, thanks to the rising manufacturing sector in Bangladesh, exports have performed well. It is worth nothing that Bangladesh's exports have increased fivefold in the last decade.

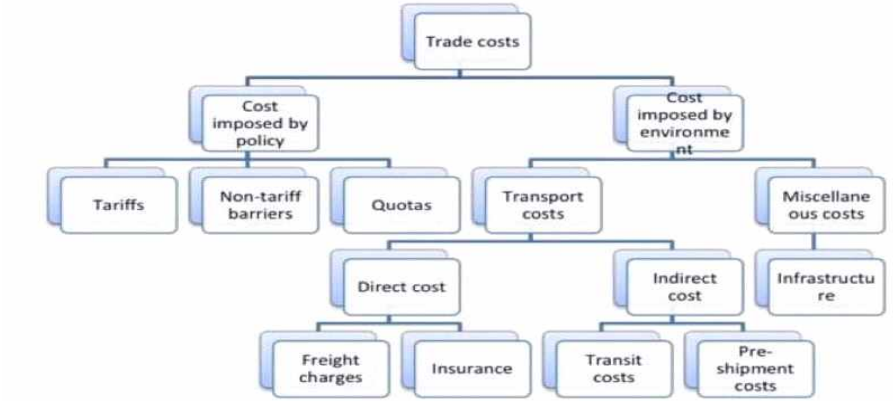
Although Bangladesh performed admirably in terms of expanding exports, imports increased to a higher extent as a result of the presence of a narrow export basket. Despite the importance of exports, there are a number of some elements that influence the volume of exports from the procedure to the end user.

In this regard, the Eurozone accounted for 55.13 percent of Bangladesh's exports in 2012 and the US received 19.28 percentage of those exports. Despite being a South asian nation and a part of the South Asian Association for regional Cooperation (SAARC), Bangladesh has not been able to take advantage of its geographical placement at the meeting point of the superpowers china and India.

This calls for an analysis of the case as to why the trade of Bangladesh is low with other Asian Countries, when it is the case that the asian

countries are in close proximity and the neighbouring countries also share similar cultural traits. Hence, it would not be inappropriate to consider the hypothesis that trade cost is one of the determining factors of trade between Bangladesh and her counterparts.

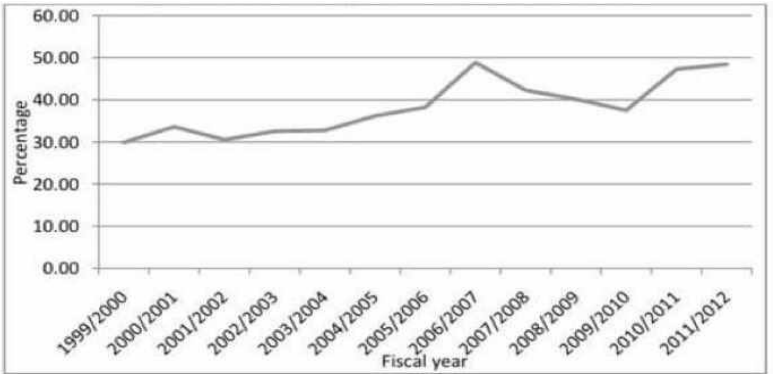
Figure 1: Trade cost and its components



Source- De (2007)

This image shows how diverse the concept of trade costs is, with the two main sub twigs being costs imposed by policy and costs imposed by the environment .

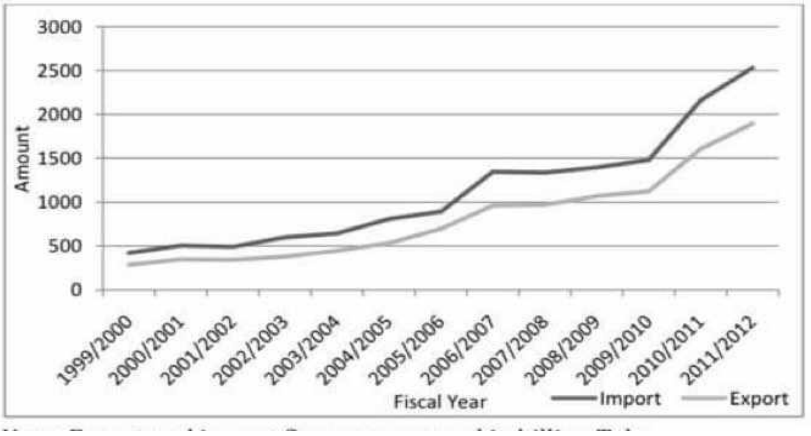
Figure 2 : Bangladesh's trend of openness over the last decade.



Source- Economic indicators, Ministry of Finance Bangladesh ,2013a

The concentration of import and export destination is another significant feature of Bangladesh commerce.

Figure 3 : Export and import of Bangladesh.



Note- Export and import figures expressed in billion taka
Source - Economy indicators, Ministry of finance Bangladesh 2013a

There hasn't been any observable lag in the growth of imports. Bangladesh has boosted it is imports to keep up with the country growing need for foreign merchandise and capital goods.

2. LITERATURE REVIEW

There is a long list of studies that investigate trade patterns and other aspects of the Bangladesh economy. The investigation of trade expense to and from counterparts, on the other hand, is less common. This section of the report casts doubts on significant research on the Bangladesh economy, including trade, business expense and the gravity framework.

Overview of Trade cost:

Among rest of the variables of trade volume that trade cost plays a key of influence in regulate a country trade volume. Traffic costs (including freight and time costs) , policy obstacles, costs of information , costs of contract enforcement , prices connected with the use of foreign currencies and local distribution costs are all components of trade costs .

As a halftone, trade expenses have drastically decreased relative to per capita income . Arvis,Duval ,Shepherd and utoktham(2013) evaluated the trade cost of manufactured and agricultural goods in 178 countries .The author do ,however make note of the fact that rich country are seeing a far faster rate of drop in trade costs than industrialized ones .Subsequently ,the gap in the middle of develop and developing countries widens. The study discovered that low-income countries suffer the bulk of the costs associated with international commerce.

Trade laws ,such as market entry limitations and regional migration agreements (RTAs) ,have been founded to be important factors of bilateral trade ,along with marine connectivity and logistical performance.

A negative link between trade cost and export volume has been shown using various approaches. While some early studies used distance or border variables to estimate trade costs (Okubo 2003) and Anderson(

2003) , other studies used tariff variables. However, it is uncommon to introduce a composite measures of trade cost and examine its impact on trade.

Novy (2011) devised a method for calculating the cost of international trade across countries and time periods. With the use of micro foundations, the author painstakingly created an estimating process and demonstrated that the measure may be obtained from Eaton and Kortums (2002) Ricardian model , Anderson and wincoop's (2003) classic model or chaney's (2008) and Melitz heterogeneous models (2008).

The author concluded that trade costs in the United States fell by about 40% between 1970 and 2000 and that this finding was particularly important for the United States close neighbors Mexico and Canada . The author discovers that income growth is the primary underlying driving element in an attempt to identify significant bilateral growth of US trade.

Despite being large, Novy (2011) predicts a decrease in bilateral trade costs in the following years. Comparable pricing indices for problematic products reveal minimal distinctions between development and developing nations.Waugh(2007) concluded that trade costs"Must be systematically lopsided" benefiting emerging countries ,suing structural gravity models. According to Waugh(2007) ,asymmetry accounts for at least one third of the variation in bilateral trade .

Despite the authors statement that such a problem needed more investigation, the paper's conclusions stated that regulations in developing nations are to a large extent responsible for a high trade cost constraint. In addition he noted that asymmetric patterns are present in oceanic freights, citing Hummels ,and that export marketing boards ,which are common on African goods, could possibly be a source of skewed statistics(2001),this can be explained by the fact that ships must call at ports in underdevelopment countries more frequently because a lack of infrastructure.

As a result, shipping an item from a poor country takes longer than shipping coming out of industrialized nation , Hummels , Skiba (2007) emphasized this point, demonstrating that poor countries must pay significantly higher transportation costs outcome is mix of exports and market power of shipping cooperation (waugh 2007).

Value serves as a proxy for the gravity mode of merchandise flows is thus accomplished considering market when demand and supply for business are equals ,suability circumstance are present(keremera at al.1999)

According to bergstrand incomes and price can be utilized as expository variable for reciprocal merchandise because the reduce from removes all endogenous variable from evaluative component of each question .bergstrand(ibid) slide the general equilibrium system while preserving income and some price terms as exogenous variable ,as opposed to substituting all endogenous variable .this procedure leads to a "generalized" gravity equation(krishnakumar ,2002).

While Dearoff(1998) derives the gravity equation from an H-O viewpoint ,Eaton and kortum (1997) acquire it from a Richardian Framework.Dearoff asserts that the H-O model and the gravity equation are in agreement. Evenett and keller (1998) claim that the standard the gravity equation may be calculated using the H-O model with both perfect and imperfect product specialisations .Of course ,the expanding returns to scale assumption is only one factor that influences the model's empirical success .

Instead of emphasizing factor endowment as the basic of comparative advantage as in the H-O model, economic scales and technological differences are the explanatory variables of comparative advantage.

Bangladesh's Trade cost and Gravity Model

Rahman and Dutta (2012) , Rahman , Shadat and Das (2006) and Roy and Rayhan are only a few instances of researchers who have used gravity models in the context of Bangladeshi trade (2011) . Rahman (2009) examined the determination of import in the Bangladesh economy using gravity models. The study's findings reveal that Bangladesh's imports are influenced by inflation, per capita income. The author discovered that neighboring nations have more control over Bangladesh's imports. And that the Bangladesh Indian border has a significant impact.

Inflation should be handled through tight fiscal and monetary policies according to Rahman (2009) because inflation has a significant impact on a country's imports. Imports of available amiable resources should also be encouraged because they would boost export capacity

Rahman (2003) used the gravity model approach to evaluate Bangladesh's reciprocal commerce with its key merchandise associated countries in order for providing a theoretical rationale. The study reveals that per capita GNP , partner economy dimensions and wealth difference of trading partners all have a favorable impact of Bangladesh's trade. Furthermore, exchange rates, and partners countries import demand were identified as the key factors of Bangladesh's export.

3. RESEARCH DESIGN

3.1 Objective of the Study

This section explains the research methods that will be employed and how empirical data will be collected. In addition, methodological flaws are discovered in the data's accuracy.

The objective of the paper is –

1. To calculate the percentage change of trade value of Bangladesh due to percentage change of Real GDP

2. To calculate the percentage change of trade value of Bangladesh due to percentage change of FTA (free trade agreement) of Bangladesh and partner countries.

3. To calculate how much minimum wage affect export of Bangladesh.

3.2 Hypothesis of the study

In order the fulfillment of this studies primary and specific objectives as is necessary in quantitive research . The following null of hypotheses were also looked into –

- The GDP of Bangladesh has considerable impact on the trade.
- The GDP of trading partners has considerable impact on the trade.
- The geographical distance has negative significant effect on the trade.
- Minimum wage of Bangladesh has a positive significant impact on trade.
- Free trade agreement has a positive significant impact on trade.
- Population has a positive significant impact on trade.

4. METHODOLOGY

4.1 Data and Methodology

A total of 22 countries are included in this study. The nations were picked based on the importance of Bangladesh's commercial relationship and the availability of relevant data.

Data on GDP, GDP per capita, populations ,minimum wage, FTA, inflation rate ,totals export ,and GDP deflator are available in the world development indicators (WDI) database of the World Bank.

To investigate the gravity model in Bangladesh in relation to bilateral trade with SAARC countries. Bangladesh's bilateral trade which consists of the export value of trade to Bangladesh's partner countries.
This study is based on secondary data analysis of Bangladesh's export value of trading industries.

This research focuses on the twenty-two countries. The gravity model is used to determine whether economic parameters such as GDP for partner countries, real GDP and distance between imports and exports can explain Bangladesh's bilateral trade.

–

4.2 Research Variables

Here, dependent variable is Total Trade (export + import) of Bangladesh. And independent variables are given in below:

- Geographical distance.
- GDP distance
- GDP of partner countries
- Minimum wage of Bangladesh
- Free Trade Agreement
- Scale (population)

5. RESULT AND DISCUSSION

5.1 Fixed and Random effect Model

Fixed<plm(lnTrade~lndistance+GDP_distance+lngdpppart+minwageban+FTA+SCALE,data=main_data, model="within")

summary(fixed)

Introducing the variables through OLS able to give the over view the test with help of regression for gravitational model.in term of -lm has been emphasises the result for the analysis.

The formula has defined dependent and independent variables for estimating of analysis where further process will use.

Residuals:

Min.	1st Qu.	Median	3rd Qu.	Max.
-2.481732	-0.270682	0.016002	0.261502	1.494354

Residual formula provides the observed trade and estimated trade here negative value carry meanings of too low for the initial point. At this point minimum value is less then estimated one. first quartile is also considered for the observed is underneath. The residual value has showed that the observed value is slightly greater than the observation. In the

third quartiles one is also greater then in median. The maximum value is also followed the same manner for the greater one.

Coefficients:

	Estimate	Std. Error	t-value	Pr(>|t|)
GDP_distance	1.2620e-01	4.6872e-02	2.6923	0.007267 **
lngdpppart	5.8958e-01	7.0618e-02	8.3489	3.764e-16 ***
minwageban	6.4632e-04	9.2743e-05	6.9689	7.473e-12 ***
FTA	2.1658e-01	7.4626e-02	2.9022	0.003824 **
SCALE	1.5795e+00	9.2723e-02	17.0346	<2.2e-16 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

The estimated coefficient values are displayed in this section of the output. These are the values from equation that have been fitted to the regression model. The statistical standard error for each of the coefficients is displayed in the Std. Typically for a successful model, the standard error should be at least five to ten times smaller than the equivalent coefficient. The standard error, for example is less than the coefficient value (0.93626/0.02451= 38.192). Because of the huge ratio, the slope estimate has a low degree of variability. The intercepts standard error, which is about the same as this coefficient's projected value. These similar figure show that the coefficient estimate for this model can vary a lot.

The residuals are the discrepancies between the actual measured values and the fitted regression line. The residual of each data point's residual is the distance that the individual data point is above (positive residual) or below (negative residual) the regression line.

Min is the minimum residual value, which is the distance from the regression line to the point furthest below the line. Similarly, Max is the distance between the regression line of the point furthest above the line. Median is the median value of all of the residuals. The 1Q and 3Q values are the points that mark the first and third quartiles of all the sorted residual values.
Residual values that are generally distributed around a mean of zero if the line is a good match with the data. (a normal distribution is also referred to as a Gaussian distribution). The probability of obtaining residual values decreased as one moves from the mean, according to this distribution.

The probability that the corresponding coefficient is not relevant in the model is shown in the last column, labeled Pr(>|t|). The significance or P value of the coefficient is also known as this value . The probability that is not important in this model has a negligible value in this . The likelihood that the intercept is not important to the model is 0.01631 or about a one in three chance.

The asterisks periods and spaces printed to the right in this summary are designed to provide a rapid visual verification of the coefficient importance. The significance codes line explains what these symbols imply . Three asterisks indicate a P value of 0.001 , two asterisks indicate a P value of 0.01 and so on .

RANDOM EFFECT MODEL

```
random <-plm (lnTrade
~lndistance+GDP_distance+lngdpppart+minwageban+FTA+SCALE,data=ma
in_data, model="random")


Residuals:
    Min.      1st Qu.     Median      Mean     3rd Qu.    Max.
-2.4652     -0.2736      0.0103      0.0001     0.2921    1.6259


Coefficients:
                    Estimate        Std.        Error z-value      Pr(>|z|)
(Intercept)       -3.5807e+01   4.8684e+00      -7.3551    1.908e-13 ***

Lndistance.        3.4470e-01   4.4833e-01       0.7688      0.441989

GDP_distance.      1.3970e-01   4.7823e-02       2.9213.     0.003486 **

lngdpppart         6.5711e-01    7.0029e-02      9.3833     <2.2e-16 ***

minwageban         7.9023e-04    9.2039e-05      8.5858     < 2.2e-16 ***

FTA                2.2579e-01.    7.5997e-02      2.9710      0.002968 **

SCALE 1.          .2494e+00       7.6259e-02.     16.3839     <2.2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

The estimated coefficient values are displayed in this section of the output. These are simply the results from equation's fitted regression model. The statistical standard error for each of the coefficient is displayed in the std. The standard error for FTA, for example, is 29.710 times lower than the coefficient value (2.2579e-01/7.5997e-02=29.710).

This big ratio indicates that the slope estimate a1 has a low degree of variability. The intercept a0 has a standard error of 7.5997e-02which is similar to the estimated value of 2.2579e-01 for this coefficient. These similar numbers show that the coefficient estimate for this model has a wide range of possibilities.

The probability that the corresponding coefficient is not relevant in the model is shown in the last column, labeled Pr(>|t|). The significance or P value of the coefficient is also known as this value.

Residual standard errors: 0.9875 on 710 degree's of freedom
(결측으로 인하여 4개의 관측치가 삭제되었습니다.)
Multiple R-squared: 0.7642, Adjusted R-squared: 0.7626
F-statistic: 460.3 on 5 and 710 DF, p-value: < 2.2e-16

These few lines in the output provide some statical information about the regression models data fit quality. The overall variation in the residual values is measured by the residual standard error. If the residuals are are normally distributed the prior residuals first and third quantities should be around 1.5 times this standard error.

The total number of measurements or observations needed to build the model minus the number of coefficient in the model , is the number of degrees of freedom. The data frame in this example comprised |||||| distinct rows, corresponding of |||| separated measurements used this information to creat a regression model with two coefficient; the slope and the intercept.

Table 1 – Random and fixed effect model

Variables	Random Effects Coefficient	p-value	Fixed Effects Coefficient	p-value
LRGDP	−7.3551	1.908		
LRGDPD	2.9213	0.003486	2.6923	0.007267
LD	0.7688	0.441989	8.3489	3.764
	Prob 1002.3		Prob 990.79	

Simply but the phrase refers to a regression constant. It is equal to world GDP in theory. But as it is constant across all exporters and importers it can simply be represented as a coefficient multiplied by a constant term for estimating purposes.

The following phrases stands for a complete collection of exporter fixed effects. When we talked about fixed effects, we are talking about dummy

variables that are set to unity each time a specific item comes in the dataset. As a result , there is one dummy variable for |||| as an exporter , another for ||| , another for |||| and so on .

On the importer side the same technique is used with a full set of importer fixed effects specified . This method is referred to as accounting in the panel data literature.

The estimation of fixed effects model is simple. Because the fixed effects are only dummy variables for each importers and exporters . All that is required is to build the dummies and then add them to the model as explanatory variables. In this situation, assuming that its three basic assumptions are met ,

OLS remains a consistent unbiased and efficient estimator. However, because of the third condition, fixed effects impose a major constraint on the model variables that fluctuate exclusively in the same dimensions as the fixed effects can not be included in the model since they would be fully collinear with the fixed effects . Using fixed effects by importer for example, it is hard to pinpoint the impact of a variable like the importers score which is consistent across all exporters for a given importers.

5.2 Hausman Test

	Coefficient			
	(b)	(B)	(b-B)	Sqrt (diag(V_b_V_B))
	fe	re	Difference	S.E.
Intercept	-3.5807	4.8684	-7.3551	
Indistanc	3.4470	4.4833	0.7688	
Ingdppart	5.8958	7.0618	8.3489	

b = consistent under Ho and Ha obtainer from xtregar
B = inconsistent under Ha , efficient under Ho obtained from xtregar

As here we can not not to give the null hypotheses, so we can get the fixed effect model

Chiq(3) = (b-B)'[(V_b_B)^(-1)](b-B)

= 5

Prob > chiq = 69.052

5.3 Stationary ADF Test

basicStats(data.frame(lndistance,lngdppar,lngdpppart,lnexpar,FTA))

	lndistance	lngdppar	lngdpppart	lnexpar
nobs	720.000000	720.000000	720.000000	720.000000
NAs	0.000000	0.000000	0.000000	4.000000
Minimum	6.700731	21.482755	3.932193	-5.479404
Maximum	9.675017	30.695963	11.351300	9.587557
1. Quartile	8.062189	25.434047	7.649727	0.693147
3. Quartile	8.862317	28.129238	10.336638	4.100787
Mean	8.361460	26.644870	8.903097	2.445670
Median	8.289142	26.662485	9.304575	1.777463
Sum	6020.251148	19184.306345	6410.229867	1751.099991
SE Mean	0.023096	0.073157	0.062647	0.092769
LCL Mean	8.316116	26.501244	8.780104	2.263538
UCL Mean	8.406804	26.788496	9.026090	2.627803
Variance	0.384078	3.853349	2.825751	6.161963
Stdev	0.619740	1.962995	1.680997	2.482330
Skewness	-0.458850	-0.364463	-0.653609	0.729414
Kurtosis	0.678369	-0.298063	-0.613599	0.550617

	FTA
nobs	720.000000
NAs	0.000000
Minimum	0.000000
Maximum	1.000000
1. Quartile	0.000000
3. Quartile	0.000000

5.4 Augmented Dickey-Fuller Test

data: lngdppar
Dickey-Fuller = -4.7272, Lag order = 8, p-value = 0.01
alternative hypothesis: stationary
data: lngdpppart
Dickey-Fuller = -3.8512, Lag order = 8, p-value = 0.01644
alternative hypothesis: stationary
> adf.test(FTA)

data: FTA
Dickey-Fuller = -6.0838, Lag order = 8, p-value = 0.01
alternative hypothesis: stationary

6. CONCLUSION

Findings and Conclusion

The study's conclusions include a number of important policy suggestions for Bangladesh . For starters , the study discovered that grater trade cost result in reduced trade volume for Bangladesh .
Because the trade costs variable utilized in the models includes a number of components such as tariffs , transportation costs , cultural factors and trade facilitation concerns, Bangladesh's future trade policies will need to take this issues seriously. In Bangladesh's difficulties in policy implementation are frequently caused by their non-binding nature, a lack of policy coordination and interlinked, an inability to use trade policies to improve domestic marked oriented and import substituting industries and a lack of initiative to strengthen trade promoting and trade facilitation institutions.

Bangladesh's degree of development is inversely proportional to its exports flows, although the link with imports is positive as is the case with other other countries studied.
The degree of development Bangladesh's partner countries , on the other hand , has a fairly high and positive link with Bangladesh's exports whereas the same variable has a negative relationship with Bangladesh's import flows.

On striking conclusion is that distance has a negligible impact on both exports and imports .
When compared to its other trading partners, Bangladesh trades more with faraway countries and trade expenses related with geographic distance appear to be less of a factor .

While the preceding section focused primarily on trade in products , trade in service is a significant contributor to the domestic economy as well .

Given the growing importance of service trade in the Bangladesh economy, it is also critical to develop policy orientations to improve service competitiveness.
Second, until 2007, the RTAs and or PTAs with which Bangladesh is afflicted are mainly unsuccessful.

It has been demonstrated that Bangladesh's exports have a positive association with the tariff rates of importing countries. Bangladeshi exporters benefit from the EU's GSP program which allows them to avoid higher tariffs and gain a competitive advantage over their larger competitors.
As a result Bangladesh's main market doesn't face any trade barriers as a result of the elective tariff.

This paper contributes in a number of ways. This the first gravity based trade analysis of Bangladesh that has employed the PPML fixed effects

estimator and taken into consideration the two way flow of trade to account for multilateral resistance terms to our knowledge.

The generalized gravity models of commerce, export and import have been estimated. My findings revel that the size of the economics , the per capita GDP gap of the trading partners all have a beneficial impact on Bangladesh's trade (sum of import & export) . These findings are both predicted and theoretically sound. The income of trading countries domestic inflation rate total import demand of partner countries are the primary determinants of Bangladesh's exports . All factors with the expectation of the domestic inflation rate have a favorable impact on Bangladesh's exports.

As expected, domestic inflation has a detrimental impact on the country's exports. The revenue of trading countries, the pace of inflation, of partner countries all influence Bangladesh's imports.

This suggested that, Bangladesh would benefit from increased commerce with its neighbors, particularly in the area of imports. This is also visible in the impacts that are specific to each country. However, in the trade model the per capita income gap favors the H-O hypothesis over the liner hypothesis despite the fact that this variable was determined to be insignificant in the export and import models.

The effects of distance and nation specificity lead to a somewhat paradoxical outcome. The disparity in per capita income is probably not accurately reflecting the difference in factor endowment

While Bangladesh imports are positively impacted by the SAARC ASEAN and middle east factors exports are positively impacted by the EEC and NAFTA.

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국 문 초 록

- 방글라데시 무역결정 : 중력모형의 패널 분석 -

한 성 대 학 교 대 학 원
국 제 무 역 경 제 학 과
국 제 무 역 시 장 전 공
사 이 무 르

본 연구는 일반화된 중력 모델과 패널 데이터 추정 방법을 사용하여 방글라데시의 주요 교역국과의 수입 무역을 평가합니다. 우리의 연구결과는 무역 상대국들, FTA와 최저임금 사이의 인플레이션율과 소득 격차가 방글라데시의 무역에 영향을 미친다는 것을 보여줍니다.

국가별 요인에 따르면, 방글라데시의 수입품은 멀리 떨어진 나라보다 이웃 나라의 영향을 더 강하게 받습니다.

키워드: 중력 모델, 패널 데이터, 방글라데시 수입품, 고정 효과 모델, 랜덤 효과 모델.