

Intra Industry Trade of Pakistan

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Abstract

This paper focuses on the casual relationship between Intra industry trade (IIT) of Pakistan and Its determinants. The data for estimating intra industry trade, using G-L index technique, is extracted from United Nation Commodity Trade (UN Comtrade) and data for its determinants, is taken from World Development Index. The data set is from 1980 to 2012. The data set is been tested through UNIT ROOT test for Stationarity, Co-integration and in end Ganger Causality test. This paper is an extension to the previous work of the authors. The extracted data is found to be stationary at 1st difference and is tested through IPS and ADF fisher unit root tests. The result shows that there is only uni-directional causality between IIT and absolute difference between per capita GDP of Pakistan and its trading partners. While the geographical distance between Pakistan its partners have two-way causality with difference between the market size of the Pakistan and its trading countries. On the other hand the determinants have uni-directional causality between them.

1. Introduction

Globalization has brought prosperity in economies. One economy gets mutual benefits from another economy. Western technology benefits are reaped by east and on the other hand Asian commodities are accessed by west. This is the millennium of information that has really compressed space and time through communication and speedy transportation. This phenomenon refers to the buzzword globalization. The integration of economies and societies drives an increasingly free flow of capital, commodities, ideas and people. Trade liberalization is one of the major factors of the spread of globalization.

Developed economies of the world are certainly benefited by globalization. The top beneficiaries of globalization are America and other leading nations of Europe. Even so, a noteworthy change in certain emergent economies is brought by globalization. It has strengthened their economies by escalating growth and reducing poverty. Thus this provides credibility to the outlook that globalization put forward openings to underprivileged economies by providing multiple interactions with the more affluent economies. However to be better off than another economy, one should have comparative and competitive advantages.

1.1 Background:

Globalization is at its maturity; it is unattainable for a nation to produce fully any article of trade by itself. A country desires goods from other country for its consumers. To attain this function trade between economies takes position within the same industry that is busy in producing same type of commodity. This trade between economies of same commodities is known as Intra-industry trade (IIT). Intra industry trade would maintain to produce even if in general proportion of capital-labor had been unchanged in the economies, the distinguish commodities would be carried out to be produced by their firms. The top industrial countries import unrefined material from the emergent or underprivileged countries and export partially & refined commodities to them, keeping developing nations at is beneficial position.

Many empirical studies have being paying attention on Intra-industry trade between leading economies. Generally trade among lagging versus leading nations has been elucidated through Heckscher-Ohlin theorem. The observed study of Balassa and Bauwens (1987) points out some empirical facts of IIT. This milestone model for Intra industry trade are findings of Krugman (1979), Lancaster (1980) and Helpman (1981), Eaton and

Kierzkowski (1984), and Helpman and Krugman (1985). In order to encourage regional trade Pakistan implemented commercial policy reforms. To support overvaluation of exchange rate Pakistan initiated import-substitution policy similar to other developing economies by joining two regional-trading blocs i.e. South Asian Association for Regional Cooperation (SAARC) and Economic Cooperation Organization (ECO) Kemal (2004). The recent study of Zaheer, Nizami and Niazi (2013), examines 31 years Intra industry trade of Pakistan using gravity model.

1.2 Statement of Problem

According to the comprehension of authors of this article, so far there is no such effort is prepared to explore the intra industry trade performance of Pakistan for economic growth. To deal with this issue, the present literature focuses on the relationship between the determinants of IIT. Intra industry trade of Pakistan with its selective eleven trading partners, partners are Canada, China, India, Iran, Japan, Kuwait, Malaysia, K.S.A, Singapore, U.A.E and U.S.

1.3 Research Objective

The key purpose of this investigation is to find that does intra industry trade performance of Pakistan has any causal relationship growth and its determinants. This will be experienced through the use of ganger causality test. Thus it will spot that what causes intra industry trade. It also sought to enhance policymakers understanding the key dynamics within the intra industry trade performance of Pakistan

1.4 Delimitation of the study

For empirical breakdown a gravity model is employed with panel data to find the deciding features of IIT in Pakistan bilateral trade with selective eleven major trading partners in time period of 1982-2012. The exogenous variables data is taken from World Development Indicators, The World Bank database and trade data is extracted from UNCOMTRADE

The main purpose of the study is to focus on the causal relationship between IIT and its determinants. The input of this study may be judged on the roots of awareness that : (i) there is lack of such investigation within the area of intra-industry trade of Pakistan which will give thirty one investigation of intra-industry trade along with its eleven key trading partners. (ii) There is a lack of empirical findings on the basis of casual relationship between IIT and its determinants that may be helpful in making policy for intra industry trade of Pakistan.

Additionally, this article is distributed four sections. First of all, literature analysis will be discussed to endow with an imminent into the workings of intra-industry trade along with indications. Secondly, discussion on methodology will be made to achieve the objectives of this research. Thirdly, Empirical results will be presented. Finally, in the last section conclusion will be summed up along with policy proposals for the intra-industry trade.

2. LITERATURE REVIEW

The well-known international trade enlightened by Heckscher-Ohlin (HO) model; it foresees that nations with that make alike commodities have few motives to trade. Surrounded by countries the differentiation between causes of production is the underpinning of global trade. In accordance to their dissimilar factor endowments in the production of differentiated commodities nations have benefit from comparative cost advantage. This type of trade among economies that trade with each other on the grounds of comparative cost advantage of is known as inter industry trade. In the light of these traditional theories there is an absence in the trade of similar products amongst economies with the same competencies.

Intra industry trade is a trade that is based on the economies of scale and differentiated goods. The nations with same factors of production can also trade among with each other and can expand from it. It has been experiential that developed nations have practiced a significant share of trade of goods that are traded within the similar business rather than among them.

The IIT literature began in earlier 1960's. This nature of trade was observed by Balassa (1966) investigating Europe's trade within the industries of customs and Grubel (1967) and (1975) providing index for IIT. The ground-breaking workings on intra-industry trade by Krugman, (1979), (1980), (1981); Lancaster (1980); Helpman, (1981) eliminate the idea that traditional theories could enlighten intra-industry trade.

Krugman (1979)¹ is perhaps the pioneer to introduce IIT with a standard econometric model. Turkcan (2005) examine factors of IIT in final and intermediary goods.

As suggested by Linder (1961), the amount of two-sided trade is growing with the resemblance in the demand structure. Putting it in a different way, the Linder assumption states that nations with same demand structure will sell to other nations and trade in further horizontally differentiated commodities.

The structure abridged by Helpman and Krugman (1985) illustrated that under monopolistic competition, IIT is unconstructively associated to dissimilarity in capital-to-labor ratio. Opposing to the Linder assumption, per capita income is now reflecting the supply side of the monopolistic competition model.

Bergstrand and Egger (2004) follow HL advice and build up a model in which trade costs take part in a fundamental role. Managing for two-sided trade costs, they found a negative relationship between the share of intra-industry trade and international differences in the factor composition.

According to the literature in hand just few researchers have followed the line of research on the intra-industry trade of Pakistan. Grubel and Lloyd index used by Kemal (2002) and (2004) to identify the input of intra industry trade in Pakistan's trade with SAARC and ECO countries. Shahbaz (2010) conducted a study on determinants of IIT between Pakistan and ten important trading nations. Moreover research of Adnan (2013) inputs its share in discovering the share of IIT of Pakistan with three Asian economies, making use of country and industry specific uniqueness for investigation of determinants of intra industry trade. The recent work of Zaheer, Nizami and Niazi (2013), contributes share in examining Intra industry trade of Pakistan using gravity model.

In the light of above mentioned literature survey it guides to the opinion that for both consumers and producers IIT is advantageous. It facilitates a manufacturer to manufacture products at smaller numbers of varieties at little economic efficiency. As commodities are been formed at lower average cost and high productivity and on the other hand the consumers also enjoy the fruits of IIT as a large range of commodities are offered at cheaper prices. There is no existence of empirical research that investigates casual relationship of IIT of Pakistan and its determinants. The present study bridges this gap.

3. Methodology

IIT is calculated by using G-L index. Gravity model is used to study the relationship between IIT and its determinants². Model is follows

3.1 Model Specification

$$IIT_{ft} = \alpha_0 + \beta_1(AGDP_{ft}) + \beta_2(DGDP_{ft}) + \beta_3(DPCI_{ft}) + \beta_4(DIST_{ft}) + \beta_5(REX_{ft}) + \mu_{ft}$$

Where: IIT stands for Intra industry trade of Pakistan and its trading countries at time t, AGDP represents the average economic size between the Pakistan and its trading countries at time t, DGDP is difference between the market size of the both trading countries at time t, DPCI indicates the absolute difference in the per capita GDP of Pakistan and its partnering Country at time t, while DIST is for geographical weighted distance between the two trading partners, Pakistan and its trade partner at time t, REX is specified for bilateral exchange rate between Pakistan and trading country, μ is the disturbance term and finally k is the trading Partner.

3.2 Unit Root Test

The estimation procedure initiates with the stationarity test of factors of IIT panel data by submitting an application of the unit root tests given by ADF-Fisher (ADF) Chi-square test and Im-Pesaran-Shin (IPS) W-test. Once the variables are gone through testing of stationarity a co-integration test will be conducted. Finally, the panel cointegration models are estimated using ganger causality test to indicate the causal relationship between IIT, economic growth and its determinants in Pakistani economy.

The first step is to test whether the variables used in this study are stationary or non-stationary. Table I presents the panel unit root test results of their level and 1st-difference series. Both IPS and ADF panel unit root tests indicate all are stationary series at 1st difference while at level only variable IIT and DPCI found to be stationary.

¹ Krugman (1979)¹ taking geographical proximity explains that identical economies have IIT between them.

² For brief discussion on methodology of G-L index and gravity model see Zaheer, Nizami and Niazi (2013).

3.3 Co-integration Test

The next step is to test cointegration in a panel setting. Table 2 shows the panel cointegration test for the given model. It implies that at most 1 variable cointegrated with each other.

3.4 Granger Causality Test

Table 3 shows the results of pair-wise granger causality test for all variables of the model. The result shows that there is uni-directional causality between the variables. It is also observed that intra industry trade (IIT) does cause absolute difference in the per capita GDP of Pakistan and its partnering Country (DPCI). While average economic size between the Pakistan and its trading countries (AGDP) does cause difference between gross domestic product (DGDP) of the Pakistan and its trading partner and also cause absolute difference in the per capita GDP of Pakistan and its trading Country (DPCI). Moreover geographical weighted distance between the two trading partners (DIST) has bi-directional causality with difference between the market size of the Pakistan and its trading countries. In addition DIST also does cause DPCI. On the other hand it has been observed that bilateral exchange rate between Pakistan and trading country (REX) has uni-directional causality with AGDP, DPCI and DIST.

4. Conclusion

This manuscript focuses on the long-run relationship among intra-industry trade and its determinants. The statistics of panel unit root tests, panel cointegration test and granger causality test are helps us to conclude that the selected data is found to be stationarity series and the determinants do have uni-directional causality expect DPCI. The estimated results are interpreted in line with the theoretical implications. However absolute difference in the per capita GDP of Pakistan and its partnering Country is caused by intra industry trade of Pakistan. The bilateral exchange rate between Pakistan and trading country is found to cause 60% determinants of IIT of Pakistan. This implies that bilateral exchange rate plays a vital role in statistics of determinants of intra industry trade of Pakistan. On the grounds of given results it can be suggested that for improving performance of intra industry trade, Pakistan should consider its valuation of exchange rate as the determinants are caused by it. However the to bring betterment in the absolute difference in the per capita GDP of Pakistan it is essential for Pakistani government to set better goals for intra industry trade. Moreover, let us make a note of that Granger causality has a thematic inference that is not always valued while reading between the lines of results achieved from it. By its very statistical nature Granger causality is a tool that comments on the extent to which a series can forecast the values of another series. This ability to forecast may well translate into causality if economic logic supports it. If economic logic dictates something which is quite contrary to what the Granger causality analysis suggests, then all we can say is that the series contains —the market's best information as to where (the explained series) might be headed.

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Table I- Panel Unit Root Test

Variable	Im-Pesaran-Shin (IPS) W-test				ADF-Fisher (ADF)			
	Level		1 st Difference		Level		1 st Difference	
	Statistics	Prob.	Statistics	Prob.	Statistics	Prob.	Statistics	Prob.
IIT	-5.80124	0.0000	-10.1464	0.000	77.0252	0.000	134.534	0.000
ADGDP	1.22690	0.8901	-6.6203	0.000	14.7678	0.872	92.4743	0.000
DPCI	-1.84129	0.0328	-5.3316	0.000	46.1848	0.019	46.1848	0.000
DGDP	1.12090	0.8688	-8.3178	0.000	13.0561	0.931	164.443	0.000
DIST	7.36107	1.0000	-4.8963	0.000	4.57452	1.000	81.4074	0.000
REX	2.19875	0.9861	-10.1116	0.000	12.5083	0.946	128.049	0.000

Table II cointegration test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.195272	155.0241	95.75366	0.0000
At most 1 *	0.165078	92.89045	69.81889	0.0003
At most 2	0.076731	41.29135	47.85613	0.1796
At most 3	0.055206	18.45853	29.79707	0.5324
At most 4	0.007637	2.216987	15.49471	0.9915
At most 5	8.57E-05	0.024517	3.841466	0.8755

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table 3 Granger Causality Tests

Null Hypothesis:	F-Statistic	Probability
IIT does not Granger Cause DPCI	2.67642	0.02212
AGDP does not Granger Cause DGDP	5.97811	2.9E-05
AGDP does not Granger Cause DPCI	2.35417	0.04088
REX does not Granger Cause AGDP	3.93472	0.00184
DIST does not Granger Cause DGDP	4.09168	0.00134
DGDP does not Granger Cause DIST	2.81932	0.01678
DIST does not Granger Cause DPCI	1.89617	0.09513
REX does not Granger Cause DIST	3.12097	0.00931
REX does not Granger Cause DPCI	7.97279	4.9E-07