

CERTIFICATION OF DISSERTATION

The under signed certify that they have read and recommended for submission to the Department of Agricultural Economics and Development, in partial fulfillment of the requirement of the Bachelor of Science degree in Agricultural Economics and Development, a research study by Maramba Knowledge entitled:

THE NEXUS BETWEEN TRADE REFORMS AND EXPORT DIVERSIFICATION

Supervisor

Mr. S. Masunda

Signed.....

Date...../...../.....

Coordinator

Mr. J. Mukarati

Signed.....

Date...../...../.....

DEDICATION

To my wife, Josephine and two daughters Nokutenda. D. and Tawananyasha.

ABSTRACT

The current trade literature highlights the importance of trade reforms and export diversification as a major economic trajectory towards a sustained economic growth. A concentrated export basket is at risk of price volatility and small market size. The purpose of this study was to expose the connection that exists between trade reforms and export diversification. The objective was to determine the impact of tariff preferences and bilateral trade agreements (dummy variable) on export diversity. The study used secondary data covering South Africa, Zambia and Zimbabwe from 2000 to 2013. The data used was reported at the Standard International Trade Classification (SITC) one-digit level. The data was accessed from world-integrated trade solutions (WITS) database and World Bank's world development indicators (WDI) database. A gravity model was estimated to analyze the relationship between trade reforms and export diversification. A positive relationship between trade reforms and export diversification was observed. A liberal economy has diverse active export lines compared to a closed economy and bilateral trade agreements also promoted export diversification. It was also found out that, the reduction in transaction costs as proxied by geographical distance increased the number and quality of exported products. In this study, it is suggests that Zimbabwe should consider policies that increase market access and confidence to other market players by signing bilateral trade agreements. Trade reforms should promote diversification of exports through increasing the market size and the range of products that are being exported. This will stabilize the terms of trade, make exports more competitive on the international market, and improve the countries balance of payment.

Key words: trade reforms, export diversification

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ACRONYMS

BPG	Breusch Pagan and Godfrey
CFTA	Continental Free Trade Area
COMESA	Common Market for East and Southern Africa
FDI	Foreign Direct Investment
FTA	Free Trade Area
GDP	Gross Domestic Product
GLS	Generalized Least Squares
GMM	Generalized Methods of Moments
GoZ	Government of Zimbabwe
HHI	Hefindahl Herschman Index
ITT	Intra- Industry Trade
MENA	Middle East and North Africa
MNC	Multinational Companies
OLS	Ordinary Least Squares
SADC	Southern Africa Development Conference
SITC	Standard International Trade Classification
WDI	World Development Indicator
WTO's MFN	World Trade Organization's Most Favored Nations

CHAPTER ONE: INTRODUCTION

1.1. BACKGROUND OF THE STUDY

Policy makers in developing countries are constantly expressing concern about the vulnerability that arises from lack of export diversification. The economy experiences a knock on effect caused by volatility in export prices and sudden closure of export markets brought about by policy shifts. The entrance of new competitors, domestic supply shocks such as droughts and other factors that affect the smooth operation of international trade have serious repercussions on the economy if exports are concentrated (Cadot, Carrère, and Strauss-Kahn, 2011).

The role of trade reforms in stimulating export diversification is a significant issue in the policy spheres. However, the connection between export diversification and trade reforms has been mullied by theoretical controversies (Masunda, 2014). There is a long tradition in economics, from the era of Classical economists, the mercantilists, who viewed the external performance of a country as a key driving force for economic development (Iwamoto and Nabeshima, 2012). According to the World Bank (1993), the success story of the East Asia tigers and the South America in transforming their economies was due to trade reforms and export diversification.

Trade reforms are key and central in widening the net to capture potential markets for economies, allowing them to benefit from economies of scale and technological transfers through capital goods and knowledge spill over. Trade reforms promote efficiencies and therefore incentives for policy makers to enact policies aimed at diversifying the range of export lines (Agosin, 2006).

Trade reforms involve efforts to reduce the level of protection against foreign firms, so that both domestic and international goods and services enjoy equal treatment in the same market (Agosin, 2006). This will encourage efficient utilization of scarce resources and promote innovativeness as firms try to broaden the range of commodities offered. Trade reforms involve the elimination of trade restrictive measures such as tariffs and non-tariff measures. Most less developed economies have adopted policies that are aimed at promoting export diversification (Urrutia, 2013).

This will help stabilize the price of exports since the price of processed products enjoy higher and more stable prices than primary products. Export Diversification can take either a horizontal or a vertical dimension. Trade Policy Reforms affect the level of export diversification; closed economies tend to trade a narrow range of commodities, which are primary in nature. Most countries have embraced the notion of the Ricardian theory, which contends that a wide range of goods can be traded if economies are liberalized (Martincus and Gomez, 2009).

Trade reforms promote innovations and entrepreneurial skills, which will catalyze the increase in the quality and range of export lines (Rodrik, 2000). Martincas and Gomez (2009) alluded that concentrated exports are at the mercy of international trade policy changes. This will make the economy more susceptible to external shocks causing such concentrated economies to reel under an unfavorable balance of payment deficit. Agosin (2010) was also of the similar view that high export concentration suffocates productivity expansion, as it does not provide an incentive for efficient allocation and utilization of resources.

Trade Reforms by their nature, broaden the range of exports and improve the balance of payment. The improvement of current account will be achieved through strengthening the competitiveness, expanding exports and adding value to exported goods (Rodrik, 2000). Slope, Spence, Memel and Karingi (2012) report that the African Union Summit of Heads of State and Government with the theme of “ Boosting Intra- Africa Trade”, agreed to the fast tracking of the formation of the Continental Free Trade Area (CFTA) with a tentative framework for 2017. The major thrust of this development is to promote industrial development and value addition to diversify African economies and thereby moving away from the traditional primary exports.

Export diversification and intra industry trade will enhance industrial development as well as economic growth. Armugo-Pacheco and Pierola (2007) implore that export diversification and economic reforms in general build resilience of poorer countries to external economic shock. Slope, Spence, Memel and Karingi (2012) comment that diversification is today more relevant to Africa as the impact of the global financial crisis affect both the rich and poor economies globally. It is against this background that this document seeks to establish the link between trade reforms and export diversification. To the best of my knowledge, no similar study has been done in Zimbabwe.

1.2. PROBLEM STATEMENT

Zimbabwe is endowed with a diverse and rich resource base with the potential to generate substantial export earnings for the country. Primary products that come mainly from the agriculture and mining sector dominate its export structure. This reliance on primary resources leaves the country vulnerable to external market shocks, which are due to changes in economic and political policies of other countries. Other countries in the African region have adopted trade reforms as a sustainable measure of transforming their economies. The diversified manufacturing, mining, agriculture, tourism and other service sectors possess enough potential to give the country the necessary comparative and competitive advantage for sustained economic growth and development (GoZ, 2012). It remains important to see if trade reforms can stimulate export diversification in Zimbabwe.

1.3. RESEARCH OBJECTIVES

The main objective of the study is to expose the relationship between trade reforms and export diversification. The specific objective is as follows,

- i. To determine the impact of preferential tariff margins and bilateral trade agreements on export diversification.

1.4. RESEARCH HYPOTHESIS

H₀: Preferential tariff margins and bilateral trade agreements have no significant impact on export diversification.

H₁: Preferential tariff margins and bilateral trade agreements have significant impact on export diversification.

1.5. JUSTIFICATION

International trade is very important to Zimbabwe and an effort to increase market access through trade reforms has to be the hallmark of economic growth. Given the vast natural resources the country has, Zimbabwe commands an economic advantage, which it could utilize to rejuvenate and rebrand the economy. These resources include minerals, tourist attractions and a relatively educated labor force, which could be exported, and diversify exports in the extensive margins.

Studies that have been carried out on trade reforms in Zimbabwe did not focus on diversification of exports but looked at income growth. These studies did not use the gravity model in their analysis of data hence did not capture that include bilateral trade agreements and geographical distance. A related study that was done focused on the effects of tariff reforms only on export diversification without capturing the effects of bilateral trade agreements as measures of trade reforms on export diversification. Therefore, this study is relevant because the results produced will add to growing body of literature of export diversification. The researcher felt it necessary to carry out this study including afore mentioned variables in the analysis for further understanding of the relationship between the two variables. The study will assist in policy formulation; in identifying the shortcomings of the existing policy measures and inform policy makers of the new policy position. The study also will reveal gaps which other researcher can further pursue.

1.6. ORGANIZATION OF THE STUDY

The study has been organized into five chapters. Chapter two reviews the literature and it starts by looking at theories that explain relationship between trade reforms and export diversification. The chapter also dwells on the factors affecting trade reforms and export diversification. A review of empirical literature is also made on the relationship between trade reforms and export diversification and drawing insights from the empirical studies. Chapter three focuses on the methodology used to carry out the study. It spells out the model that was used, the variables used and their justification. The chapter will also reveal the source of the data used in the study. Chapter four reports on the results of the empirical findings and finally chapter five concludes with recommendations and conclusion.

CHAPTER TWO: LITERATURE REVIEW

2.0. INTRODUCTION

The impetus to improve the performance of economies of less developed countries has premised on trade reforms and export diversification. Many researchers have researched on the determinants of export diversification and whether trade reforms influence export diversification. The theories that attempt to explain the existence of export diversification are Intra- industry trade (Brander and Krugman, 1981), Inter- Industry trade and new economic geography. These theories explain the importance of economies of scale and specialization as sources of improved quality of goods produced and the expansion of production through agglomeration both at national and international level (Krugman, 1991). These theories also explain the need for trade liberalization to achieve the horizontal diversification of exports, which arise because of inter-industry trade. The first part of this chapter will dwell on the theories that explain factors that influence international trade through intra-industry and inter-industry trade as well as the importance of new economic geography. The second part will review empirical literature on what other studies found out in similar studies.

2.1. DEFINITION OF TERMS

2.1.1 TRADE REFORMS

Michaely, Papageorgiou and Choksi (1991) define trade reforms as any act that would make trade regime nearer to a system free of government intervention and which frees the flow of trade between trading partners. The World Bank also defines trade reforms to refer to measures that are aimed at moving trade towards a neutral incentive framework for foreign trade. In this document trade reforms means the removal of obstacles that hinder the smooth flow of bilateral trade between countries with the view to increase the number of export lines and increase market access.

2.1.2 EXPORT DIVERSIFICATION

Herzer and Nowark-Lehmann, (2006) define export diversification as an increase in the markets for an economy's products, an increase in the export active product lines, export value and increase in intensive and extensive margins.

2.2. THEORETICAL LITERATURE REVIEW

This section outlines the theories that try to explain the evolution and benefits of external trade to a country. Different stages in export concentration and diversification can be explained using different trade theories which try to define the parameters that causes inter and intra-industry trade.

2.2.1. INTER INDUSTRY TRADE

The inter industry trade results in differences in factor endowments culminating into specialization predicted by the Herscher-Ohlin theory and this theory seem to explain the patterns of trade that exist among developing nations (Kandogan, 2003).Markeusen (1995) commented that if trade is fragmented into different stages of production, then this leads to the rise of inter industry trade. The theory explains how comparative advantage and trade is caused by differences in factor endowments. A country will produce and export the commodity, which utilizes the abundant factor. Under autarky there will be production of both goods however when trade is liberalized countries will specialize in the production of the goods in which it has comparative advantage.

The Herscher-Ohlin theorem is appropriate in explaining trade between developing countries and industrialized countries. Developing countries often lack technology and knowledge and are relatively labor abundant, often export labor-intensive goods. The liberalization of trade will increase the demand for labor-intensive goods that will reduce the unemployment and wages will rise. This will have positive consequences on income within the country and gradually the capital will accumulate. Eventually, the comparative advantage of the country will begin to alter. Though it is still labor-intensive compared to developed countries, the comparative advantage will shift towards more capital-intensive goods. Eventually the developing country will start to produce goods that are more complex.

2.2.2. THE NEW ECONOMIC GEOGRAPHY

Geography models (Amiti and Venables, 2002) suggest that among the important factors that influence the economic structure of a country, we may find the proximity to world markets and other geographical characteristics. This economic geography is a form of new trade theory which explains the agglomeration of firms through the existence of economies of scale and much emphasis is placed in the linkages between firms and suppliers (Schmutzler,1990).The

clustering of industries will attract labor to regions where the wages and conditions are conducive. This will cause more industries to relocate to these regions. Backward and forward linkages of industries are other motives why industries locate near each other. This clustering of economic activities occurs at different levels of geography (Fugita and Krugman, 2004).

The ease of interaction between economic agents is defined by the distance between them and is determined by the level of trade restriction, the state of the infrastructure, both qualitatively and quantitatively, and the mobility of factors of production (Brakman, Garretsen, Gorter, Horst and Schramm, 2004). Also, since there might be more competition between the upstream firms which will benefit the downstream companies through larger variety of input products. This kind of cluster on a vertical level to obtain economies of scale will produce inter-industry trade. Geography influences trade costs and may affect the ability to operate intensively in the international market (Frankel and Romer, 1999). Trade liberalization seeks to extend the market and has benefits that may lead to the diversification of exports in both the vertical and horizontal margins (Krugman and Venables, 1990).

2.2.3. INTRA INDUSTRY TRADE (IIT)

This theory follows the work of Brander and Krugman (1980). It assumed two countries that are identical, and each country has a firm producing a particular commodity. The first models of IIT basing on monopolistic competition and product differentiation (as developed by Krugman, 1980) assumed that goods are horizontally differentiated and IIT develops in monopolistically competitive markets. On the supply side, it is driven by increasing returns to scale and on the demand side; it is driven by diverse consumer preferences (Kawecka-Wyrzykowska, 2008). Each firm views each country as a separate market.

Each firm has a cournot perception: it assumes that each firm will hold out put fixed in each country. Melitz (2003) cited that there was overwhelming evidence, which supported the view that the world trade is explained by intra industry trade. He accounted for the intra industry trade based on comparative advantage involving elements of the Ricardian framework within the Heckscher-Ohlin framework. The induction of the intra industry trade would be to achieve intra-industry specialization across countries. Krugman (1980) emphasized that Intra Industry trade

arises because commodities produced and traded are slightly different and much of the world's trade portion is between similar countries.

The production structure in a country will be based on its factor endowments as the neo classical model. However, in each of the different industries, it assumes that there exists a wide variety of differentiated products. However, as they want to lower their costs by producing longer production runs and benefiting from economies of scale, they will specialize on a narrow range of product varieties, intra industry specialization (Bengtsson,2006).

The characteristics of the intra industry trade that makes it a perfect explanation for diversity in trade is the expanded production and trade of goods and services (Davis, 1995). The implications of this will be that when a country opens up for trade it will be a net exporter in the industry in which it has its comparative advantage. However, due to this intra industry specialization countries will also be importing various differentiated goods that they are also net exporters in. Moreover, if the country is a net importer it will still produce and export similar but differentiated goods to other countries (Bengtsson, 2006).

The Heckscher-Ohlin Model that was developed by Eli Heckscher and Bertil Ohlin and offers a general equilibrium approach to the issues of international trade. The assumptions of the model are that countries will produce and trade in those goods that utilize the abundant factor and import those that use the scarce resource (Kemp, 2008). Johnson and Turner (2009) summarized the benefits of intra industry trade as, its ability to increase variety of goods produced and traded, firms benefit from economies of scale and lastly it stimulates innovation in the industry. Intra industry trade can take the horizontal differentiation, which implies different attributes, and vertical differentiation, which involves different qualities.

2.2.4. THE ECONOMIES OF SCALE ARGUMENT

Regional trade associations present firms in member countries with the opportunity to exploit economies of scale through enlarged markets. Corden (1972) formalized this theory in terms of the importance of scale of economies to trade and welfare under free trade areas. However, this based on the assumption that firms operating within the regional trade associations would produce more goods following their formation. Corden (1972) proposes that regional trade associations have a cost reduction effect, enhanced intra-regional trade, resulting from greater internal demand and reduced barriers to trade. Krugman, Obstfeld and Melitz (2012) contend

that trade should not be defined by comparative advantage, but can also be because of economies of scale. These economies of scale give industries the incentive to specialize and trade in the absence of differences in resources or technological endowments.

According to Mugano, Brookes, le Roux (2013) this phenomenon is also supposed to give rise to economic gains in partner countries within the regional trade associations. Regional trade associations may successfully erode the market power of dominant firms in the member countries (Smith & Venables, 1988). This is done by encouraging market entry by competing firms from other member countries and, thereby, contributes to lowering prices. Granted, Baldwin and Venables (1995) do not seem to confirm such pro-competitive effects in their study. The authors conjecture, however, that regional trade associations may only cause a shift in the production of goods among member countries, while having little or no impact in reducing market segmentation, and little or no increase in the number of firms in the trading bloc that produces similar products (Mugano, Brookes, le Roux, 2013).

Additionally, the benefits from trade depend on the production and demand characteristics of the goods that a country produces and trades, the economic policies pursued, and the trading regime adopted (Mugano, Brookes, le Roux, 2013). In Africa, over 80 percent of export earnings are derived from the sale of primary commodities, and the price of primary commodities relative to manufactures has been deteriorating for at least a century at an average rate of approximately 0.5 percent per annum (Mugano, Brookes, le Roux, 2013).

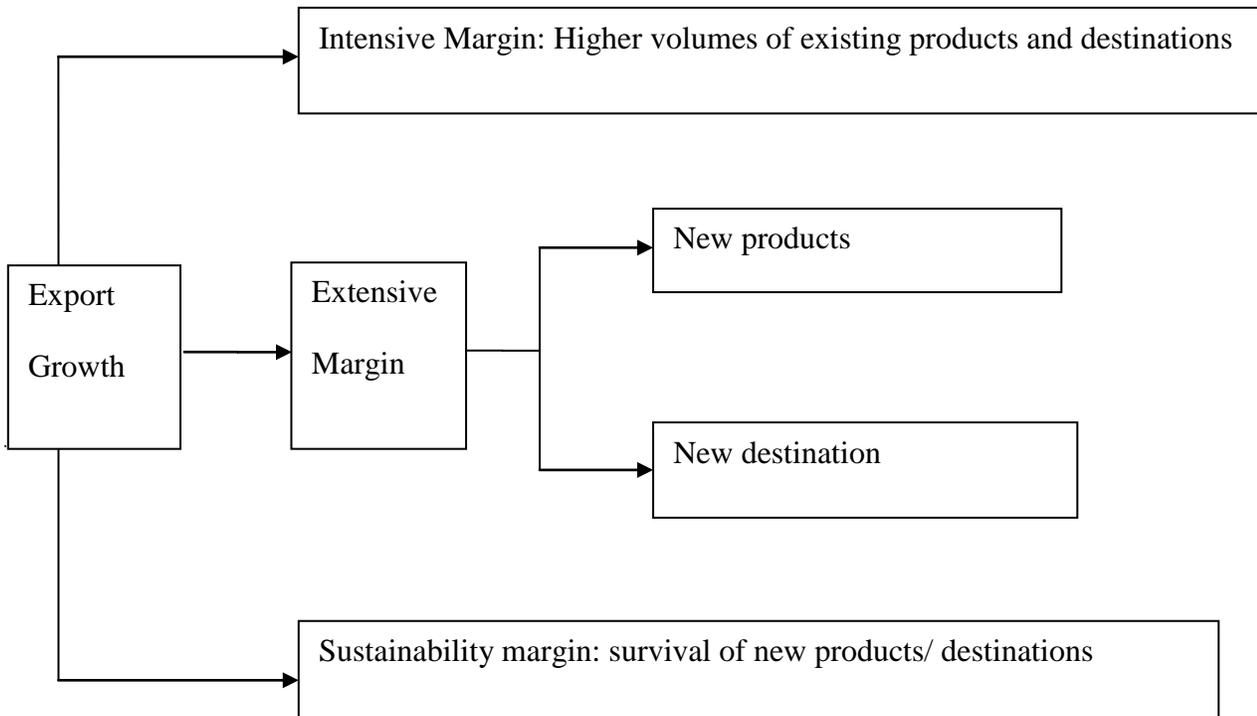


Figure 1: Patterns of export diversification

Source: Strauss and Cadot (2011)

Export diversification can take either the extensive or the intensive dimension. The extensive dimension refers to an increase in the size of the export basket due to new products and intensive margin refers to increase in the value of goods that are being exported (Pacheco and Pierola, 2008). There seem to be many zeros in the categories of exported commodities by developing countries than developed economies and a substantive decline in primary commodity trade are noted for the Asian countries. This bears testimony that developing countries have concentrated exports (mostly commodities) and basic economic structures. The other explanation could be attributed to lack of knowledge and infrastructure to innovate (Pacheco and Pierola, 2008).

The intensive is margin is followed by the extensive margin and this stage has proved to be unattainable to developing countries due lack of capital, skills and technology. For this to be achieved, foreign direct investment through the activities of Multinational companies will be the only solution (Bengtsson, 2006).

2.3. THEORETICAL FRAMEWORK

The first paper to bring to the fore a theoretical framework was that by Merlitz (2003) in his theory, “The heterogeneous firm model”. The assumptions of the theory were that diversification of exports occurs when firms decide to supply their new similar products in the international market (Kim and Kim, 2012). The suppliers of these goods are categorized into middle range producers who are able to meet the demands of the domestic market but have no capacity to bear the sunk costs for international markets (Merlitz, 2003). The elimination of trade barriers through trade reforms will enable these new firms to trade on the world market and their decision to enter the export market contributes to export goods diversity (Kim and Kim, 2012).

Merlitz (2003) contends that trade or trade liberalization induces important reallocations between heterogeneous firms in the sector, those firms that are not competitive exit the business. Market shares are further pushed out to those larger producers that are more productive from the less productive. These reallocations would provide room for new avenues of productivity and would bring in more welfare gains from trade. Bengtsson (2006) asserts that different stages of diversification or concentration are explained using different theories that try to describe intra-industry and inter-industry trade. The specialization by industries will lead to the emergence of inter industry trade as firms exchange the different products they have and intra-industry trade arise when firms produce similar products that are differentiated and will result in firms enjoying the economies of scale(Bengtsson,2006).

2.4. EMPIRICAL REVIEW

Kim and Kim (2012) estimated the effects of trade liberalization on Chile’s export diversity using three different measures, which are HHI, Hummels and Klenow indices as well as the simple count of products. They used the gravity regression model to estimate their results. The estimator of their analysis was the OLS Panel estimator because of its advantage of resolving omitted variable bias, which arises in a cross-sectional analysis. To counter the effects of cyclicity on both the dependent variable and independent variables, they adopted the time fixed effect or year dummies, geographical distance, contiguity, bilateral trade agreements and language. They used Chile’s export trade data with 159 partners from 1990 to 2009 to measure

the impact of trade reforms on export diversification. The data they used was highly disaggregated at 5-digit level using the SITC nomenclature. They found out that Chile managed to increase its export diversity only in terms of product numbers but the export structure has worsened in terms of concentration. They concluded that the Free Trade Area export diversification is closely related to two factors, that is, the export structure a country a country had and the sector being examined.

Dogrueel and Tekce, (2010) used the Random effects estimation for six panel data models using data from 1991 to 2009 for eight countries. They encountered the problem of data limitation in their choice of panels but believed that those eight were representative enough. During their study of trade liberalization and export diversification in selected Middle East and North Africa (MENA) countries variables they used were population growth rate, the percentage share of non-oil commodity exports in total exports, the HHI index, bilateral trade agreements and membership to WTO. The result of their finding confirms a positive correlation between trade reforms and export diversification with economic growth. The results of the HHI indicates that countries that are not dependent on the export of fossil fuels managed to increase diversification and economic growth.

Using panel data in a probit model, Martincus and Gomez, (2009) estimated the effects of tariff reduction on export diversification in Colombia using export data disaggregated at the HS-10 digit level. They used the dynamic random effects Poisson model to estimate the impact of trade reforms on the number of exported products by country. The bilateral import data used was from 1989 to 2005. The variables they used to proxy trade reforms were tariffs and preference tariff margins faced by the country in the United States of America market. They found out that larger average preferential tariff margins favored a diversified export basket.

The tariff cuts actually helped Colombia diversify its exports to the United States of America. More specifically, they found out that lower tariffs were associated with both a larger number of products exported by chapter and a higher probability of exporting a particular product. They however, pointed out that this effect of low tariffs would only last up to a certain stage before the gains started to diminish, as a result other factors such as human capital development, the

institutional infrastructure linked to trade facilitation and logistic conditions were important if export diversification in the extensive margins were to be achieved.

Parteka and Tamberi(2011) using a panel data-set for 60 countries and twenty years (1985-2004) reported at the SITC Rev 2, 4 digit level assessed the role played by country specific factors as determinants of exports' diversification process. They found out that even after clearing out differences in income per capita, cross section variability in the degree of exports' diversification is significant. Apart from per capita income, they also found that variables influenced market accessibility were the most relevant and robust determinants of the export diversification process. Diversification opportunities grew when barriers to trade were restricted and when countries are not located far from economic core areas.

Parteka (2006) examined the effects of Euro- Mediterranean Free Trade Area's export diversification effect covering the period 1990-2004 using the HS 6 digit data for 25 European countries and 10 Mediterranean partners. The study used the Tobit for overall effects, Logit for probability of switching from zero to some level and the OLS for existing trade. The study found out that there is a significant influence of FTA to export diversity. They also found a significant increase in export diversification in Liberalized economies.

Hesse (2007) conducted a research on export diversification and economic growth. Data used from 1961-2000. Using the Solow growth framework to test the relationship between export diversification and the GDP per capita growth, he applied the dynamic panel model of growth rather than the conventional cross sectional country growth regressions. The model borrowed heavily on the generalized methods of moments (GMM) estimators developed by Arellano and Band (1991). He discovered that export diversification plays an important role in the process of structural transformation during the economic growth process. Countries will be moving from producing poor country goods to rich country goods. He supports the previous findings that export diversification leads to higher GDP per capita growth. The variables they used were, level of education, population growth, initial income, investment, ratio of agriculture to GDP, ratio of manufacturing to GDP and ratio of services to GDP.

In their paper, export diversification and economic growth in Malaysia, Arip, Yee and Karim (2010), used the annual data from 1980 – 2007 and the time series techniques of co integration and Granger causality tests to examine the long run relationship and the dynamic interactions of the variables. Their study concurs with the results of the previous studies, which confirm that export diversification plays significant roles to economic growth in Malaysia. Their major variables, which they used, were real GDP and degree of specialization and diversification. The other variables that were included in the model include capital expenditure and number of people employed.

In the study to determine the factors affecting the Egyptian Agricultural Export, Hatab, Romstad, Huo (2010) used the gravity model to estimate the results. The annual data they used was from 1994-2008 covering 50 countries. The variables, which they used, include openness, geographical distance, GDP percapita, GDP, openness and the bilateral exchange rate. They also included two dummy variables to capture the effects of common border and common language. They used the Hausman's test to determine whether the fixed or random effects model was the most efficient. They discovered that the fixed effects model has a problem in estimating those variables that do not change over time. Such variables cannot be estimated directly because of inherent transformation that wipes out such variables. They solved the problem by estimating a second regression with individual effects as the determinant variables and used the distance variable and the dummy variables as independent variables. They found out that to expand bilateral trade flow, it was desirable for Egypt to promote more exports to countries in close proximity and with large economies.

Nicita and Rollo (2013) used the probit model in a panel structure to measure the impact of market access as a determinant for exports from sub-Saharan Africa. They used data from 2001 to 2011 reported at HS 6 digit level. The variables, which they used in the analysis, include the tariffs faced by exports and the tariffs faced by exporters relative to the tariffs faced by foreign competitors. They found out that both market access conditions and relative market access conditions matter. Given the relatively large tariffs currently applied to intraregional trade, complete tariff liberalization within the countries of sub-Saharan Africa represents a significant incentive for intraregional trade.

2.5. CONCLUSION

Empirical literatures from previous researchers reveal that intra-industry trade, inter industry trade and the new economic geography have an influence in international trade. Inter industry trade explains diversification through the fragmentation of the stages of production in the vertical horizon and intra industry trade explains the trends in the horizontal horizon. However, all the scholars contend that export diversification will act as the extension of the market. The next chapter will look at the methodology, justify the variables and spell out the diagnostic tests conducted.

CHAPTER THREE: METHODOLOGY

3.1. INTRODUCTION

Different studies have used different models to explain the effects of trade liberalization on export diversity. These models include the probit, Logit, the general methods of moments (GMM) and the gravity model. This Chapter will present the conceptual framework, model specification and justification of results, which influence export diversification. The chapter will conclude by looking at the pre- estimation and diagnostic tests that were conducted.

3.2. RESEARCH DESIGN

The study was a desk research and secondary data was used in the analysis. The data was collected from the World Development Indicators (WDI) database and the world integrated trade solutions (WITS) database. The data that was used covered South Africa, Zambia and Zimbabwe from 2000- 2013 and was reported at SITC nomenclature at one digit level. A gravity model was used to analyze the data.

3.3. CONCEPTUAL FRAMEWORK

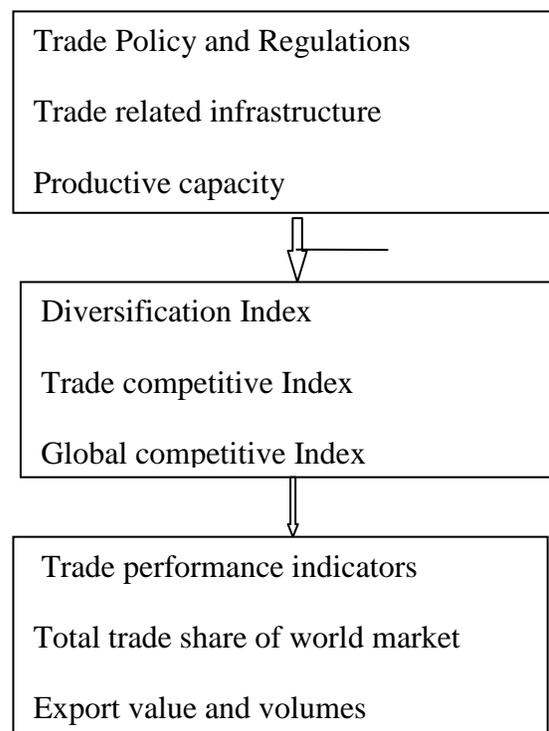


Figure 2: Linkages between trade reforms and export diversification

Source: Karingi and Leyaro(2009)

3.3. MODEL SPECIFICATION

The study used the gravity model to establish the relationship between trade reforms and export diversification. Gravity models have been used to analyze a variety of commodities including movement of factors of production across nations since the early 1940s Olugedo and Macphee (1994). Cheng and Wall (2004) assert that gravity models have been instrumental in explaining various types of intra-nations flows including movement of factors of production, commuting, customers and international trade. Habib (2013) who comments that gravity models have proven to be important in the analyses of bilateral trade flows and are widely in literature to explain bilateral trade and export diversification shares a similar view. The model borrows heavily from the Newtonian physics, the law of gravity. The comparison derives from GDP being a proxy for economic mass and distance as a proxy for resistance. The gravity model was developed by Tinbergen in 1962 and Poyhonen in 1963 (Cheng and Wall, 2004). The estimation will be conducted in a panel model and will be specified as follows:

$$\log hhi_{it} = \beta_0 + \beta_1 \log geodist_{it} + \beta_2 \log tariffs_{it} + \beta_3 \delta biltrade_{it} + \varepsilon_{it}$$

Where,

HHI= Hirschman Herfindahl index, the measure for export concentration or diversification

Geo Dist= the geographical distance between trading partners, measured in kilometers between capital cities of trading partners.

Tariffs= these are tariff preferences by trading partners of World Trade Organization's most favored nations.

Biltrade= this is a dummy variable for bilateral trade agreements.

$\beta_0, \beta_1, \beta_2$ and β_3 are parameters being estimated

ε =the error term capturing all other variables not used in the model

3.4. JUSTIFICATION OF VARIABLES

3.4.1. HEFINDAHL-HERSCHMANINDEX (HHI)

The Hefindahl-Herschman Index is the commonly used measure of concentration. The variable will be used as the indicator for Zimbabwe's export diversification. The variable allows the researcher to capture the intensive and the extensive margins of diversification (Jetter and Hassan, 2013). In addition to that, there are other ways to measure export diversification, such as, the Ogive, Gini and Theil Indices but the HHI are used in the majority of analysis. The value of the HHI lies between zero and one. The closer it is to one the more the exports are concentrated and as the value moves towards zero it means that there is diversification. The HHI has the advantage that it is not sensitive to the inclusion or omission of product lines (de Ferranti, Perry, Lederman, and Maloney, 2002).

3.4.2. TARIFFS

Each trading partner that is a member of the WTO levies these tariff rates of the WTO's MFN. This variable is expected to enter the regression model with a negative sign. The reduction in tariffs levied on each member country's export is likely to reduce the price of these commodities, make them cheap in the foreign market, increase the volume of exports, and in the process increase the range of commodities. This diversification of commodities can be horizontal or lateral.

3.4.3. GEOGRAPHICAL INDEX

The model has included the variable geographical distance as a proxy for transactional costs. In the model, geographical distance is taken to mean the distance between two capital cities. The increase in trade volumes by Zimbabwe's neighboring countries is likely to increase the country's diversity of exports both in the intensive and extensive margins. The expected sign of the variable is negative.

3.4.4. BILATERAL TRADE AGREEMENT (dummy variable)

This variable will enter the regression model as a dummy variable. It will take the value one if the countries have a bilateral agreement and zero if otherwise.

3.5. DATA SOURCES

The data for hhi, geographical distance was obtained from the World Development Indicators (WDI) database of the World Bank. The World Trade Organization (WTO)'s Most Favored Nations (MFN) Tariffs were collected from world integrated trade solutions (WITS) database. Simple average tariffs were collected. Using SITC data at the 1-digit level, data collected constitute South Africa and Zambia as trading partners. Malawi was dropped for lack of data. These countries were chosen based on their importance of trading partnership with Zimbabwe and availability of data. The data collected cover the period 2000-2012.

3.6. ESTIMATION

To estimate the model the researcher used the generalized least squares (GLS) instead of the Ordinary Least Squares (OLS) because they provide efficient and unbiased estimators in the presence of heteroskedasticity or autocorrelation. The continued use of OLS under heteroskedastic condition will cause a wide width of the confidence interval and significant tests will be incorrect.

3.7. DIAGNOSTIC TEST

3.7.1. HETEROSKEDASTICITY TEST

According to Gujarati (2004), the test of heteroskedasticity is meant to test if the error terms do not have unequal variance. This may arise because of functional form misspecification, omitted variables, error leading models or presence of outliers. Running a model in the presence of heteroskedasticity will compromise the reliability and applicability of significance test. The width of the confidence interval will be large rendering prediction unreliable. To detect the presence of heteroskedasticity, the Breusch-Pagan and Godfrey (BPG) Test was used since it is sensitive to normality assumptions. The BPG has the merit of detecting any linear form of heteroskedasticity. Gujarati (2004) allude that BPG enables the residuals to be modeled as the function of their non-stochastic residuals. If the F-value computed is greater than the F-value from the tables at the given level of significance, we reject the null hypothesis of homoskedasticity and conclude that there is heteroskedasticity.

3.7.2. AUTOCORRELATION TEST

The term autocorrelation may be defined as “correlation between members of series observations ordered in time [as in time series data] or space [as in cross-sectional data] (Gujarati, 2004). Estimation of the results in the presence of autocorrelation will lead to inefficient estimation and the coefficient of determination will be unnecessarily large. The BPG test was used to test for autocorrelation. The assumption of no autocorrelation was tested on the null hypothesis that there was no auto autocorrelation.

3.7.3. MODEL SPECIFICATION

One of the assumptions of the classical linear regression model is that the model used for data analysis must be correctly specified and if not, then we will suffer the problem of specification bias. The model should also be coherent with economic theory and be data admissible (Gujarati, 2004) The Ramsey RESET Test was used to test whether the model had omitted variable. The assumption was tested on the null hypothesis that the model had no omitted variables.

3.8. CONCLUSION

This chapter presented the methodology that was use in carrying out this study. Different diagnostic tests that were used to ensure unbiased and reliable results were spelt out. The next chapter will present the results of the diagnostic tests and the results of the regression analysis will grace the chapter.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1. INTRODUCTION

The estimated results and their interpretations are presented in this chapter. The econometric software that was used in estimating the results was Stata 12. The results on model specification test, heteroskedasticity test and summary of descriptive also form part of this chapter.

4.2. DESCRIPTIVE STATISTICS

Table 4.1 gives a summary of descriptive statistics of the variables that were used in the model. The variables that were used are tariffs, geographical distance, bilateral trade and the Hirschman Herfindahl index. The statistics include, mean, maximum, minimum and standard deviation for each variable. For a detailed table of descriptive statistics, refer to appendix one.

Table.4.1: **DESCRIPTIVE STATISTICS**

Variables	Log hhi	Log tariffs	Loggeodist2
Observations	39	34	39
Mean	-2.694641	2.495266	1.840335
Maximum	-1.190728	3.218876	2.045532
Minimum	-4.904925	0.4446858	1.697466
Standard Deviation	1.173236	0.686697	0.1491345

4.3. DIAGNOSTIC TESTS

4.3.1. MODEL SPECIFICATION RESULTS

The results of model specification obtained using the Ramsey reset test are presented in table 4.2.

Table 4.2: RAMSEY RESET TEST RESULTS

Model	Test Statistic	P-Value
Gravity Model	0.36	0.76

The null hypothesis for this diagnostic test is that the model has no omitted variables. In the table given above, the p-value is greater than 10% implying that the researcher could not reject the null. The rejection criterion is that we reject the null if the p-value is less than 10%, which is the level of significance. In this case, the p-value of 0.49 is greater than 10% hence we cannot reject the null and conclude that the model has no omitted variables. This implies that the model is correctly specified.

4.3.2. HETEROSKEDASTICITY

The Breusch-Pagan test was used to detect the presence of heteroskedasticity in the regression model. The results obtained are presented in Table 4.3.

Table.4.3:BREAU SCH- PAGAN HETEROSKEDASTICITY TEST

Model	Test-Statistic	P- Value
Gravity Model	Chi2(1)	0.0881

The results indicate that heteroskedasticity is embedded in the model as it is shown by the p-value lower than 10%. The null hypothesis of homoskedasticity could not be rejected because of the p-value less than 10%, implying that there is heteroskedasticity. Because of the presence of heteroskedasticity, the researcher could not proceed to conduct the Hausmann test for the adoption of either the fixed or random effects model. Instead, the Feasible Generalized Least Squares were used.

4.3.3. AUTO CORRELATION

When BPG test was conducted for heteroskedasticity, it simultaneously tested for autocorrelation and it reported that there was no autocorrelation. (See appendix for the results, Table for regression results).

4.4. PRESENTATION OF RESULTS AND DISCUSSION

Table. 4.4: THE IMPACT OF TARIFFS AND BILATERAL TRADE AGREEMENTS

Variables	coefficients	Standard errors
Log geographical distance	-0.364***	0.0852
Log Tariffs	-0.104**	0.0554
Bilateral Trade	-0.915***	0.382
Wald Chi ² (3) diversification		1070.52
R ²		0.84
N (sample Size)		39

Notes: Levels of Significance are denoted by ***: 1%, **: 5%, *: 10%.

The variables that entered the regression model significantly and with the expected signs are; tariff reforms, geographical distance and the dummy variable of bilateral trade. The dummy variable on bilateral trade entered the regression model with a negative sign in an insignificant manner signifying that it had no impact on export diversification. The model shows that 84% of the variation in the model is explained by the variables and the rest is captured by the error term.

4.4.1. GEOGRAPHICAL DISTANCE

The model included geographical distance as the proxy of transactional costs including transportation costs. The coefficient of the variable has the expected negative sign and is significant at 1%. The coefficient value is -0.36 and this means that a reduction by 1% of the economic distance, Zimbabwe could lead to a 36% diversification of its exported commodities. This indicates that by trading with neighboring countries, Zimbabwe increases its level of export diversification. Zimbabwe should increase its trade with its COMESA and SADC economic grouping other than spend more scarce resources on attempting to develop other export markets. In a study carried out by Rahman (2003) in Bangladesh, a similar variable was used and the

coefficient had the same sign and was significant at 1% indicating that Bangladesh engaged in more trade with its neighboring partners. In a study carried out by Habib (2010) in Egypt to assess the determinants of Egypt's Agricultural Exports, a similar variable was used. The coefficient of the variable was negative and significant at 1%. The interpretation was that if Egypt increased the distance of trade, its volume of exports would decrease. Transport costs are proxied by the distance. Rahman (2003) contends that distance between a pair of countries naturally determines the volume of trade between them. There are three kinds of costs associated with doing business and these include physical shipping costs, time related costs and costs of (cultural) unfamiliarity.

4.4.2. TARIFF PREFERENCES OF TRADING PARTNERS

The coefficient of the variable entered the model with an expected negative sign and was significant at 5%. The value of the coefficient is -0.10, which means that the relaxation of trade barriers by Zimbabwe's trade partners would increase the diversity of export lines by 10%. The result therefore support the hypothesis that trade reforms by Zimbabwe's trading partners have an impact on export diversification in Zimbabwe. Nicita and Rollo (2013) used the same variable when they were looking at the tariff preference as a determinant of exports from sub- Sahara Africa. The variable was significant at 1% and had the expected negative sign. This implied that tariff preferences had a significant effect on determining the volume of exports from sub- Sahara region.

In his study to determine the effects of tariff reforms in Zimbabwe, Masunda (2014) used the same variable and its coefficient had a negative sign and was significant at 5%. The results indicate that trade reforms have a significant positive effect on export diversification and tariff reduction by a trading partner induces production in the recipient country, increase the volume of goods trade as they will be cheap in the foreign country and this will increase the product range. Preferential trade arrangements are found to be enhancing export diversification.

4.4.3. BILATERAL TRADE AGREEMENTS

The variable entered the regression model as a dummy and the coefficient of the variable had an expected negative sign and was significant at 1% indicating that bilateral trade had a significant effect on the level of export diversification. The value of the coefficient is -0.95 and this implies

that if Zimbabwe trade with those partners it has bilateral trade agreements and trades in the regional grouping, it would diversify its exports 95% more than when trading with its non-member partners. Zimbabwe should increase the number of bilateral trade agreements. Bilateral trade agreements are building blocks to multilateral trade agreements and they increase investor confidence and help attract Foreign Direct Investment (FDI) (Villarreal, 2012). Pacheco and Pierola (2008) confirm this importance of bilateral trade agreements in their study, the patterns of export diversification in developing nations. The variable was significant for both the developed and developing nations at 1%. This finding also points out the importance of reducing trade costs when the agreement is to trade with a closer nation (Pacheco and Pierola, 2008). Nicita and Roll (2013) also used a similar variable in their study of tariff preferences as a determinant of export diversification in sub- Sahara Africa. The variable was significant at 1% and had the expected negative sign implying that bilateral trade agreements have a significant effect on increasing the volume of exports from the sub region.

4.5. CONCLUSION

Trade reforms have a positive influence on export diversification. All the variables that were included in the study had a significant influence in explaining the relationship between trade reforms and export diversification. It is clear from the results that coming up with policies that promote a liberal economy has a positive bearing on the number of export lines a country can have. The next chapter will dwell on conclusion and policy recommendations and will suggest further gaps that may need to be explored.

CHAPTER FIVE: CONCLUSION AND POLICY RECOMMENDATIONS

5.0. INTRODUCTION

The main objective of this study was to expose the relationship that exists between trade reforms and export diversification. The previous chapter dwelt on estimating the results and the diagnostics checks that were done on the data. This Chapter will present the conclusion and give recommendation based on the results that were obtained in the study.

5.1. CONCLUSION

The major idea of the study was to test the hypothesis that trade reforms do not influence export diversification and whether policy reforms by a country is trading partners influence export diversification. The theories of trade were explored trying to understand the benefits brought about by engaging in international trade. Using panel data from 2000 to 2013, the study used the gravity model to expose the nexus between trade reforms and export diversification. From the results, there is a positive relationship between trade reforms and export diversification. It can be concluded that trade reforms enhance export diversification. The policy makers in developing countries in Africa, south of the Sahara needs to strengthen ties in bilateral trade agreements and come up with strategies that promote the functioning of COMESA.

The results produced are consistent with the proposed hypothesis with all variables satisfying apriori expectations. We reject the null hypothesis that Tariff preferences have no significant effect on export diversification, since tariffs are the major forms of trade reforms against the alternative that tariff preferences by Zimbabwe's trading partners have no significant influence on export diversification. This is evidenced by a negative and elastic relationship between tariff preferences and export diversification and is significant at 1%. The implementation of the WTO'S by Zimbabwe will be met by a similar stance its trade partners. The openness of Zimbabwe's trading partners that will enhance diversity of exports.

Other variables like geographical distance and bilateral trade agreements show a negative correlation with export diversification. The signing of bilateral trade agreements will bring confidence to foreign investors to come and invest in Zimbabwe. This will prove that institutional policies in Zimbabwe provide a safe investment climate. The promotion of bilateral trade agreements will bring in foreign direct investment. The proliferation of multinational

companies (MNC) will bring the much need technology and capital. There will be knowledge spillover effect and will reduce the research and development expenses for local companies that will have collaborated these MNCs. The emergence of MNC will enable the horizontal diversification of export commodities which is a major challenge to most African economies due to lack of capacity.

This brings out the fact that export concentration in Zimbabwe is because of policies that do not promote diversity of export lines. It does not encourage innovativeness and does not attract foreign players to partner local players. The influx of foreign investors will bring in new technology, which will create new markets for goods exported from Zimbabwe as well as value addition along the value chain.

Trading in the regional block like the COMESA will reduce transactional costs and increase the volume of goods traded. This follows the Linder's hypothesis that economies with similar characteristics trade together. If countries in the COMESA region were to trade together, this would reduce transport costs and the costs of attempting to access unknown markets in other regions. Transport and communication infrastructure will be improved, further increasing the flow of goods between trading nations.

5.2. POLICY RECOMMENDATIONS

Higher levels of protection stifle innovation, technological development and exports. This implies that Zimbabwe needs to coin trade policies that are outward growth oriented. The tariff structure of the country needs to align with the provisions of the WTO's most favored nations. Zimbabwe will have to implement policies that are aimed at eliminating both the tariffs and non-tariff barriers and ratify the provisions of the WTO's most favored nations. Tariffs should be used as a tool to regulate trade and not revenue generation, as is the current scenario in Zimbabwe. There is also need by Zimbabwe to be consistent with its policy implementation and avoid policy flip-flopping. An open economy will increase the level of foreign direct investment (FDI) due to increased activity of multinational companies (MNC) and this will have the effect of increasing the level of export and improve the quality of products exported.

Zimbabwe should strive to increase trade with countries in the COMESA. The bilateral relations that exist between Zimbabwe with most African countries in the SADC region should be taken as advantage. Countries like Mozambique provide a perfect investment and market destination for both goods and services. Zimbabwe has a relatively educated labor force which is demanded in the region, hence this labor can be exported and diversify our exports. Trade in services has been the fashionable trend in most economies and Zimbabwe is lagging behind. This will reduce transactional costs and increase the number of export lines. It should also be noted that logistics are important in international trade and this needs to be enhanced through improved communication and transport infrastructure. The researcher also found out that signing bilateral trade agreements help increase trade. This will actually increase the volume of goods exported.

There is need by policy makers to reduce the transaction costs. The policy makers should effectively promote regional trade and help companies' access these markets. This can be achieved through government assistance in market research and improvements in communication and transport infrastructure. The results of this gravity model are supportive of the policy measures that can be taken to make the exports of Zimbabwe more competitive on the international market and help close the negative gap that exist in our balance of payment.

Indigenization policies need to be clearly defined so that they can be interpreted the same by those wishing to invest in Zimbabwe. Bilateral agreements have to be respected and should avoid renegeing on them; this has been the scenario in Zimbabwe. This does not attract the much-needed foreign direct investment in the country. The African governments should through the African Development Banks avail funds that can be used by member countries to strengthen their trade in the COMESA region.

5.3. LIMITATIONS AND FURTHER STUDIES

Data was not readily available on most commonly used variable for countries like Mozambique and Malawi, which resulted on the researcher dropping them from the panel. The relationship between trade reforms and export diversification will need to be explained in the context of exchange volatility, which in this case could not be used because Zimbabwe does not have its own currency. In future, there is need to study the effects of policy inconsistency on trade and export diversification. Zimbabwe has in the recent past, implemented a raft of new tariffs on

imported commodities but at the same time trying to promote exports. The effects of such a level of inconsistency need to be investigated.

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APPENDICES

APPENDIX 1: DESCRIPTIVE STATISTICS

Variable	Obs	Mean	Std. Dev.	Min	Max
id	40	2.025	.831665	1	3
year	40	2006.175	3.901923	2000	2013
hhi	39	.1169208	.1020934	.00741	.304
openness	40	74.255	20.70358	46.1	137.7
gdppercapita	40	3709.9	3697.842	264.1	9860.1
tariffs	40	12.27425	8.455828	0	25
deodist	40	953.2479	936.9118	235.1193	2283.061
contiguity	40	1	0	1	1
colhist	40	.675	.4743416	0	1
biltrage	40	.65	.4830459	0	1
loghhi	39	-2.694641	1.173236	-4.904925	-1.190728
logopenness	40	4.276625	.2408174	3.830813	4.925077
logtariff	34	2.495266	.686697	.4446858	3.218876
loggdpperc~a	40	7.711377	1.010142	5.576328	9.196252
logdeodist	40	6.368965	.9831163	5.460093	7.733273
deodist2	40	1764540	2423258	55281.08	5212368
logdeodist2	40	1.840335	.1491345	1.697466	2.045532

APPENDIX 2: MODEL SPECIFICATION TEST

. ovtest

Ramsey RESET test using powers of the fitted values of hhi

Ho: model has no omitted variables

F(3, 32) = 0.36

Prob > F = 0.7856

APPENDIX 3: HETEROSKEDASTICITY

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of hhi

chi2(1) = 2.91

Prob > chi2 = 0.0881

APPENDIX 4: THE IMPACT OF TARIFF PREFERENCES AND BILATERAL TRADE AGREEMENT

Cross-sectional time-series FGLS regression

Coefficients: generalized least squares

Panels: heteroskedastic

Correlation: no autocorrelation

Estimated covariances	=	3	Number of obs	=	33
Estimated autocorrelations	=	0	Number of groups	=	3
Estimated coefficients	=	4	Obs per group: min	=	10
			avg	=	11
			max	=	13
			Wald chi2(3)	=	1070.52
			Prob > chi2	=	0.0000

loghhi	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
logdeodist2	-.3639771	.085166	-4.27	0.000	-.5308993	-.1970548
logtariff	-.1042231	.0544151	-1.92	0.055	-.2108748	.0024286
biltrage	-.9147027	.3821301	-2.39	0.017	-1.663664	-.1657415
contiguity	0	(omitted)				
_cons	2.797059	.959556	2.91	0.004	.9163641	4.677754

