TRADE LIBERALISATION AND COMPETITIVENESS OF EMERGING MARKET ECONOMIES

By

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ABSTRACT

In this study, the aim is to provide answers for the following questions: whether there is any positive relationship between trade liberalisation and competitiveness of emerging economies. How terms of trade affect economic growth in emerging market economies? Finally, do the emerging market economies benefit from free trade in terms of accelerated growth or they are actually harmed? There are two models used in this study to answer the above questions; the first model is the growth model and the second one is the per capita growth model. The first model determines the effects of terms of trade on the overall economic growth, and the second one determines the share of such effect on the population at large. In both models, panel data analysis is applied for eighteen emerging market economies. Based on the economic theory and the results from all the models, terms of trade does prove to have a positive effect on economic growth and standard of living. It is also found that trade liberalisation does improve economic growth which in turn leads to competitiveness. The findings indicate that there is convergence amongst the developing economies. This means that the countries are growing together and emerging economies can be expected to catch up with advanced economies.

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CHAPTER 1

1. INTRODUCTION

The objective of this study is to investigate the relationship between trade liberalisation and economic growth and therefore competitiveness of emerging market economies. The various studies undertaken to date have focused on whether trade liberalisation leads to economic growth and therefore competitiveness of economies. In recent years, there has been an increase in interest on competitiveness; a large body of empirical work has been devoted to whether and how countries can increase their competitiveness, see for instance, Fagerberg, Knell and Srholec (2004) and Di Mauro and Forster (2008). According to Maur (2006) and Rangasamy and Harmse (2003), the countries that have liberalised their trade are more competitive.

This study is not to contradict these views but to extent the investigation by determining empirically whether such trade liberalisation (where terms of trade were used as a proxy) can enhance economic growth and hence competitiveness of emerging economies by taking into account endogenous economic growth theory. It also investigates whether there is convergence amongst the sample countries. It uses an inclusive dataset that includes African, Latin American and Asian countries.

Economics has always had the understanding of economic growth at its heart. Over the years, different countries have also been experiencing different growth patterns even with similar resource endowments. For industrialised economies, the United Kingdom was the fastest growing economy during the 19th century and it was followed by Germany and France. Towards the end of the century however, the United States overtook these countries. Then after the Second World War, Germany and Japan experienced dramatic increases in economic growth.

Emerging market economies however have certain characteristics that distinguish them from other economies. Most importantly, they have large populations, large markets and large resource base. They are going through some domestic economic and political

restructuring. In addition, they are said to be experiencing the most rapid growth as compared to other economies. They also contribute enormously to the world's growth of trade. Emerging market economies are those countries that are following market oriented lines to restructure their economies, they facilitate trade, transfer of technology as well as foreign investment. Most of emerging market economies have made a significant shift from developing to emerging markets. Now, the joint outcome of the grouping is bound to change the look of global economics and politics.

Heakal (2003) argued that emerging market economies are those economies that are in the process of moving from closed economies to open economies while at the same time building accountability within the system. They are also involved in economic reform programs that will guide them to stronger and more responsible economic performance levels, transparency as well as efficiency in the capital markets.

Accordingly, emerging markets are economies that are not economically and financially established, however they are progressing towards establishment. These are countries that are said to be the powerhouse in the developing world. Since the early 1990s they have contributed largely to the world economy. It was during this period that emerging markets experienced rapid economic growth rates; higher rates than developing and developed economies. It is important to investigate therefore whether such high growth rates can be ascribed to trade liberalisation which is assumed to change the competitive environments of different countries.

Now looking at the prevailing conditions, there has been a rapid acceleration in the process of globalisation. Globalisation, as it is defined by O`Rourke and Williamson (2000) means "the integration of international commodity markets." There are two most important issues that have a major effect on labour – as a determinant of output growth. The first issue is that of international trade in final goods and services. The second issue concerns the increasing cross-border flow of production inputs – technology, capital and labour. After the mid-1980s, there was a massive increase in trade liberalisation whereby countries abandoned import protection and export subsidies. According to theory and most literature, trade liberalisation ensures greater economic efficiency and faster economic growth. However, most of these theories are based on the assumption of full

employment and the effectiveness of the invisible hand. In the meantime, trade liberalisation has been accompanied by harmful currency crises.

The case for trade liberalisation is simple but very powerful. The free movement of goods between economies expands the feasible set of consumption possibilities. With no barriers to foreign trade, transformation of domestic resources into goods and services for current and future consumption is made possible or easier through technology transfer. Furthermore, the world market is enlarged and this allows countries to take advantage of economies of scale. Moreover, with trade liberalisation, domestic monopolies are discouraged and domestic producers are encouraged to improve the quality of their products and reduce costs. In addition, the introduction of new products and new technologies can thus have a positive effect on an economy's rate of technical progress.

According to the endogenous growth theory, permanent changes in the variables explained below are shown to lead to permanent changes in growth rates.

Human Capital: Human capital analysis and its effects on economic growth entail the analysis of capabilities acquired through formal, informal education, training, and experience. Since these capabilities enhance personal incomes and productivity, the consensus among economist is that such capabilities will therefore lead to improved economic performance. Thus, the more human capital is acquired within the country, the more productivity is enhanced and hence the opposite will apply if there is less human capital.

Human capital underlines the technological progress by new ideas or by new products generated by human capital. Nelson and Phelps (1966) advised that it is easy to absorb new ideas or new products that have been discovered elsewhere for a country which has a large stock of human capital. Thus, a country with more human capital tends to grow faster than others that do not have. The reason for this is that such a country attains new technology easily and rapidly which will then lead to higher growth.

According to Barro (1991), growth rate of real per capita GDP is positively related to human capital - proxied by 1960 school enrolment rates. Sachs and Warner (1997) also

noticed that a speedy increase in human capital development would result in rapid transitional growth.

Inflation Rate: Inflation has very strong adverse effects on long run growth, because the firms and workers devote productive resources to dealing with inflation (Fischer, 1993). However, Clark (1993) tried to provide a summary of inflation's effects on growth in a sample of 85 countries. He resolved that theory provides little evidence of an empirical relationship between growth and inflation. He also found that there is no consistent and significant relationship between growth and inflation across low and temperate inflation countries. Barro (1995) also noted that there is an insignificant link between growth and inflation.

More recent evidence is strengthening the nature of these adverse effects. In their study Khan and Senhadji (2000) found that a notable negative effect of inflation starts above a certain threshold inflation rate and carries on for all rates above the threshold. They found the threshold to be 1 percent for developed countries and 11 percent for developing countries. They further suggested that below these rates the inflation-growth effect is positive. Moreover, Gillman, Harris and Matyas (2004) recently conducted a study using OECD and Asia-Pacific Economic Cooperation (APEC) countries over the period 1961 – 1997. They found a negative inflation effect for both groups. Among other things, they found that the effect increases marginally as the inflation rate falls.

Domestic Investment: Many studies have established the strong link between capital accumulation and growth. For instance evidence was provided by Schmidt-Hebbel, Serven and Solimano (1996), who established a strong correlation between gross domestic investment ratios and long- term growth performance. In their analysis they revealed that East Asian countries have been able to achieve and sustain rapid growth of about 7 to 8 percent per year for about thirty years. Such growth was linked to the gross capital formation that was also growing and was about 30 percent of GDP. This evidence suggests that high investment leads to high growth. Because rising investment is considered as a driver of growth, it should have a positive impact on GDP growth. Empirical evidence shows that investment is indeed a growth force (Felipe, Lavina and Fan, 2008).

However, when there is an increasing uncertainty due to terms of trade shock, investment could become riskier. When uncertainty associated with the terms of trade shock declines, then industry specific capital and skills linked to a specific industry are expected to rise (Felipe et al 2008). This is evident from the study done by Felipe et al (2008) between China and India. They found that the factor underlying the differences in growth is capital accumulation. Therefore due to capital accumulation, there is much higher investment-to output ratio in China.

Financial Depth: The domestic credit may signal that a country will have less foreign liabilities and may thus support economic growth. King and Levine (1993) used cross-country data to analyse the relationship between economic growth and the financial development. Their results suggested that a range of financial indicators are robustly positively correlated with economic growth. Furthermore, Odedokun (1996) employed time series data for 71 developing countries and asserted that financial intermediation was the source of growth in 85 percent of the countries. Also, Demetriades and Hussein (1996) investigated 16 countries using time series data and discovered that in the process of economic development, finance is a leading sector. In addition, Beck, Levine, and Loayza (2000) used cross-country and dynamic panel data techniques to investigate the relationship between financial development and economic growth. They found that financial development was robustly linked with economic growth as well as total factor productivity growth.

Moreover, Sanusi, Kamil and Hasan (2005) examined different effects of financial development on economic growth using cross-country regression analysis. They found that in the late 1980s, financial development was responsible for economic growth. They thus concluded that financial depth promotes long-run economic growth. Finally, Guryay, Safakli and Tuzel (2007) investigated the association between financial development and economic growth using ordinary least squares (OLS) estimation method. They however found that financial development had a very small positive effect on economic growth. Thus, all these findings suggest that financial development is crucial in the process of economic growth.

Government Expenditure: The relationship between government expenditure and economic growth is a significant and controversial as well as ambiguous issue in all

societies. Hsieh and Lai (1994) and Pascual and Alvarez-Garcia (2006) suggested that the relationship between government expenditure and economic growth can vary significantly across time as well as across the major industrialized countries that presumably belong to the same growth club. Above all, Hsieh and Lai found no consistent evidence suggesting that government spending can increase output growth. They also found no consistent evidence supporting the negative argument. What their findings suggested was that government spending contributed a small percentage to growth of the countries under investigation. However, after using panel data techniques, Pascual and Alvarez-Garcia suggested that government spending is positively correlated with economic growth in the European Union (EU) countries.

Moreover, Ram (1986), using a sample of 115 countries, found government expenditure to have significant positive externality effects on growth. Furthermore, Sheehey (1993) found that when government size (government consumption expenditure/GDP) is smaller than 15 percent, government size and economic growth exhibit a positive relationship. However, when government size is larger than 15 percent, the two have a negative relationship. Hansson and Henrekson (1994) on the other hand found that government consumption spending is growth-retarding but spending on education is positively related to growth. Furthermore, Lin (1994) used a sample of 62 countries for the years 1960-1985 and found that non-productive spending had no effect on growth in the developed countries but such spending had a positive impact in less-developed countries.

Based on the fact that this study covers the emerging market economies, it is expected that government expenditure may affect economic growth negatively. Grier and Tullock (1989) found a significant negative effect of the rate of growth of the government consumption share of real gross domestic product on economic growth. Government expenditure as a percentage of GDP is used to determine some government spending that does not instantly advance productivity within the economy. Moreover, Barro (1990, 1991) found that government expenditure has a negative effect on economic growth. On the other hand, Levine and Renelt (1992) suggested that government expenditure has little negative effect on growth. Chen and Lee (2005) also discovered that, in Taiwan, over-expanding government expenditure does not increase economic growth, but it may actually damage the economy, due to crowding out effects or the increasing of taxes.

Terms of Trade: In this study terms of trade is used as an explanatory variable to see whether countries that absorb more foreign trade have greater economic performance than the countries that trade less. Changes in terms of trade can have substantial impacts in open economies, especially in those economies such as South Africa that depend on the export of one or two major commodities. Thus, a high ratio of terms of trade will accelerate economic growth (Kreinin, 2006, and Fourie, 2001).

Therefore, increasing the process of exporting together with cheap imported inputs and machinery should ensure acceleration of technological advances and allow countries to gain economies of scale and production. In the meantime, it can also be argued that trade liberalisation increases competitiveness as long as the country's terms of trade are not negative. Trade liberalisation alters relative prices and also enhances reallocation of production factors. Depending on an individual country and its industries, some countries grow while others slow down. The countries that experience reduced economic growth are those that can not compete internationally see for instance, Maur (2006).

Furthermore, Rangasamy and Harmse (2003) investigated whether liberalisation policy improved South Africa's competitiveness. The results suggested that globalising the production process improved the competitiveness of the tradable sector however; there was a minimal effect in manufacturing sector. Haar and Reyes (2002) also confirmed the fact that trade liberalisation and policies that promote exports are some of the sources of the competitiveness of Colombia. Further he is among those who argued that terms of trade can be used to determine competitive advantage.

Inspired by these findings, this dissertation therefore employed panel data analysis to investigate whether trade liberalisation leads to competitiveness in emerging markets. The hypothesis to be tested is whether the developments that have occurred in the emerging markets economies as far as trade liberalisation is concerned can lead to competitiveness of these economies. The questions that need to be answered include the following: do the emerging markets benefit from improvement in terms of trade or they are actually harmed? Do the benefits accrue for some economies and not the others? Do some countries benefit at the expense of others? Lastly, do the terms of trade enhance economic growth, and therefore competitiveness of economies?

Given the history of developing countries, it is essential to look at what trade liberalisation has to contribute to economic growth in these economies. International Monetary Fund (IMF) stipulates that trade liberalisation contributes immensely towards development of the country. Therefore this dissertation attempts to find the link between trade liberalisation and competitiveness of the countries that have liberalised and abolished the barriers to trade.

The primary limitation in this study was the availability of data. Owing to this, the study was limited to cover the period of fifteen years; 1990 as the earliest year for which at least data on all variables could be obtained. Availability of data on education created most problems; many emerging market economies had missing data for most years therefore this problem let to exclusion of many of those economies. Due to data availability constraint, the analysis is confined to eighteen emerging economies for the period 1990 to 2004. The countries included are Botswana, Brazil, Chile, China, Egypt the Arab Republic, India, Indonesia, Korea Republic, Malaysia, Mexico, Morocco, Pakistan, Philippines, South Africa, Thailand, Tunisia, Turkey, and Venezuela.

This dissertation seeks to make a contribution to the debate on whether liberalising trade can increase economic growth and hence competitiveness of emerging economies or not. This dissertation has two main aspects. Firstly, the profound implications for the welfare of countries concerned are examined. Trade liberalisation has significant implications for the welfare as well as competitiveness of nations. Secondly, inexistence of trade liberalisation in these countries can lead to non competitiveness and no economic growth within these countries. It is believed, however, that with enough trade liberalisation the countries will be integrated into the global market and increase their competitiveness and therefore will grow faster than the other economies and eventually qualify to be called developed economies.

In this dissertation the empirical evidence that offers reasonable support for the hypothesis that there is high correlation between trade liberalisation and competitiveness in emerging markets which are at various levels of development is provided. The analysis incorporates panel data analysis. As Beine and Coulombe (2004) emphasize, panel data analysis allows for more consistent econometric results than those obtained from time-series and cross-section analyses.

The empirical results are based on two growth models: the first model uses output growth and the second one focuses on per capita growth. The first model determines the effects of terms of trade on the overall economic growth, while the second one determines the share of such effect on income distribution. In both models, panel data analysis is applied for eighteen developing countries and both models include six explanatory variables: education, financial depth, government expenditure, inflation, investment and terms of trade. The study uses these control variables for proper specification of growth model.

In the growth model, based on the economic theory and the results, terms of trade does prove to have a positive effect on economic growth. It is statistically significant at the 1 percent level. Moreover, control variables such as education, financial depth, government expenditure and domestic investment are also all statistically significant at the 1 percent level. Inflation is the only control variable that is not statistically significant. With respect to the expected relationship with economic growth, financial depth and inflation shows an inverse relationship whereas the expected sign is financial depth to have a positive and beneficial impact.

In per capita growth model, the aim is to investigate whether terms of trade is beneficial for selected developing countries` standard of living. The regression results show that it is positively correlated with standard of living. Moreover, the results show evidence of a positive correlation between control variables such as education and investment. The results also demonstrate that inflation has positive relationship with GDP per capita but it is not statistically significant. On the other-hand, financial depth and government expenditure are negatively correlated with per capita growth.

This dissertation proceeds as follows. The next chapter surveys the existing literature on theory of international trade and economic growth, the link between trade liberalisation and growth, how terms of trade has an impact on economic growth, the relationship between terms of trade and competitiveness and relevant literature on international trade and income convergence.

Chapter 3 explains the economic growth and alternative specification models. The reasons why this particular methodology is chosen over the others are also incorporated. Furthermore, there is a brief summary of the used data.

Chapter 4 presents and discusses the empirical findings. In addition to this, a brief discussion of descriptive statistics of the data and unit root test are presented.

Finally, Chapter 5 concludes the paper with some policy recommendations and suggestions for further research.

CHAPTER 2

2. LITERATURE REVIEW

In this section, available literature is surveyed to analyse how terms of trade has an impact on economic growth in developing countries. After numerous empirical analyses over the past two decades, with regard to the role of terms of trade on economic growth, recent literature has shown that terms of trade has a positive effect on growth, and declining terms of trade have an adverse impact on income growth. Given the theoretical background that terms of trade might increase competitiveness of the country; literature on competitiveness is also surveyed for the emerging markets. It is common belief that there is convergence among developing countries, thus literature on convergence is also explored to uncover whether there is consensus about synchronisation in emerging markets.

2.1. Theory of Economic Growth

The investigations of the sources of economic growth go as far back as the 18th century, where most of the theories that exist today are rooted. Smith (1776) emphasised that for the economy to grow, economic agents should be free from external restrictions. He suggested that in order to foster development, markets should increase in size and there should be a division of labour (which would lead to increasing returns and externalities). Smith also emphasised the rising ratio of capital to labour as a key ingredient to foster economic growth. Increasing the quantity of inputs will lead to an increase in the quantity of outputs, so studying factor accumulation is a key strand in attempts to explain economic growth.

Further, Solow (1956) asserted that output growth is determined by capital, labour and knowledge. In the Solow model, technology is assumed to be exogenous and homogenous across countries. Thus, cross-country differences mean differences in capital accumulation.

The neoclassical growth theory has been extensively tested to determine the effects of physical capital accumulation on growth. The results from the early studies do not offer convincing evidence. For instance, Mankiw, Phelps and Romer (1995) argued that the unexplained residual in Solow's model implies that the accumulation of capital and labour do not entirely explain output growth. Furthermore, differences in productivity growth and technological change captured by the residual are neglected as a result of the emphasis given to factor accumulation. Hence, the neoclassical models fail to explain the differences in cross-country real GDP per capita. In addition, such models are also unable to explain the differences in real rates of returns on capital.

On the other-hand, Romer (1986), Lucas (1988), Barro (1991) and Grossman and Helpman (1994) introduced an endogenous growth theory, which takes into consideration the effects of trade and human capital as well as endogenous technology on output growth. This theory also determines the effects of different mechanisms of technology diffusion. In this case, the technology comes from the technology leading country, and through trade, such technology diffuses to other countries. The endogenous growth theory suggests that per capita output growth is not only dependent on the growth of physical capital, but output growth is also explained by human capital as well as international trade in goods. The models of endogenous growth also consider the diffusion of technology between countries, and that developing countries are able to utilise their resources (perhaps their policies too) to adopt and implement foreign technology. The endogenous models achieve this by incorporating technological change as one of their output growth determinants.

Examples regarding the above theory include the case where Eaton and Kortum (1995) investigated productivity since World War II in five leading economies. The countries used in the study are France, the United Kingdom, West Germany, Japan and the United States. The evidence on capital-output ratio reveals that these economies grew as a result of their ability to adopt productive technologies and not as a result of capital accumulation. Moreover, Pissarides (1997) also argued in support of the endogenous growth theory whereby he shows that trade liberalisation in developing countries lead to increase in returns to labour and skill premiums. The argument is based on the fact that trade enhances technology transfers from developed to developing economies, moreover such technology transfers are more dependent on skilled labour.

Acemoglu and Ventura (2002) added onto this theory and argued that even without the diminishing returns in production, technological spillovers and international trade can achieve a stable world distribution of income. They further suggested that the terms of trade effects are the ones that bring de facto diminishing returns for a country and lead to stable world income distribution. Moreover, differences in economic policies across economies and saving rates as well as technology ensure relative income disparities not differences in long run growth rates. And such disparities depend on the degree of openness and the extent of specialisation.

As seen above, a theory of economic growth can be dealt with from many perspectives. For instance it can be approached from the perspective of behavioural relationships between different variables or from the specification of individual agents and their objectives, choices, constraints and their behaviour in order to spur economic growth.

2.2. Theoretical Approaches to International Trade

Theories on international trade and economic growth show that these factors are positively related to each other. The theory suggests that liberalising trade will advance efficiency in productivity thus creating a competitive environment and thus improved resource allocation. It also predicts that countries will have access to world markets which will help the countries to do away with size constraints and hence benefit from economies of scale. Moreover, international diffusion and adoption of new technologies – gained from international trade – can enhance the countries' productivity. Finally, the countries' productivity capacities can be expanded via imports.

Ellsworth (1940) considered the relations between the theory of comparative cost and modern theories of international trade. Ohlin's general equilibrium theory is more general and formulation of the opportunity-cost doctrine is very clear. Ohlin proves that only where relative price scales are differing, reciprocal beneficial trade is possible. But Ellsworth was less worried with this result than the relative supplies of the productive agents. The refinement of the scarcity aspect of international trade is what differentiates this theory and gives it a more powerful explanatory value. Modern and classical formulations are different and while modern formulations assume a multiple, the latter assumes a single factor world.

One of the principle theories of international trade is the Stolper-Samuelson theorem, which is the central result of the Heckscher-Ohlin theory. Empirical research provides a clear answer to the following question: what is the effect of changes in the prices of goods, for instance caused by changes in tariffs, and on the prices of factors of production? The consequent theoretical work has shown that essential features of the theorem hold more generally. It has been applied to a range of empirical issues, for example, the effects of globalisation on income distribution in developed countries, and the long-run political allegiances of interest groups (Stolper and Samuelson, 1941).

According to Leamer (1996), the Stolper-Samuelson theory generally has been addressed in trade and wage debate. It is worthwhile to ask to what extent globalisation and increased imports from low-wage countries in particular, are responsible for the broadening differential between skilled and unskilled wages in developed countries. When these two factors are re-explained as skilled and unskilled labour, it becomes clear that the model is consistent with a widening differential. Initially, most authors believed that demand for unskilled labour fell by skilled-biased technological progress, but Leamer (1996) described some evidence in favour of Stolper-Samuelson chain of causation. However, technology and international trade are interconnected.

Re-thinking of the theory of international trade has been necessary since the late 1970's. This re-thinking was not to get rid of the tradition of the trade theory, but since that tradition was creating doubt about trade and trade policy, it was time to create a new climate about international trade. According to Krugman (1993), there are two arguments for free trade that continue to exist in the revolution of international trade theory. These are respectively, the narrow argument for free trade, and the broad (political economy) argument for free trade.

According to Krugman, if there is a perfect market competition - in general laissez-faire - then free trade would be Pareto optimal. However, in this simplest free trade case, there are some sophisticated economic problems. For instance, without perfect market competition, correcting the imperfection would in most cases not require sound trade policies. The broad perspective on the other hand, looks at the trade liberalisation as a political issue. It is viewed as a free trade policy and any attempt to diverge from this policy will be disastrous.

Krugman (1993) gave two examples to show how free trade might work. Firstly, suppose there is trade between two countries that both have important market power. In the perfect market, it is well known that each country tries to exploit its market power using incentives with an optimal tariff. If both countries apply unilaterally optimal tariffs, the result will be a trade war that would not have happened if they had free trade policies. As a result, if they commit themselves to free trade, both parties would benefit, and Krugman believes they could commit to some other efficient policies. Secondly, among these set of efficient policies it will be easy to define and monitor liberal trade.

Finally, Afonso (2001) investigated the theory of the relationship between commercial and technological facets – emanating from international trade – on the physical accumulation and quality of productive factors since Adam Smith. Afonso (2001) argues that it was initially believed that trade has positive effects on economic growth during the classic period. However, the relationship that was thought to exist became irrelevant until the 1960's. The positive relationship re-emerged recently with the use of endogenous growth models which have brought a better understanding of this relationship.

2.3. The Relationship between Trade Liberalisation and Economic Growth

The most important point of the argument in favour of globalisation is that trade liberalisation accelerates economic growth. Many studies have supported this proposition and have argued that trade liberalisation enhances economic growth by increasing a country's specialisation and productivity. It is also beneficial for developing countries because they can produce efficiently through specialisation in a few goods, which is not possible without trade. This positive relationship between trade liberalisation and economic growth has been proved in many empirical studies such as Sachs and Warner (1997), Frankel and Romer (1999) and Dollar and Kraay (2003).

Using the balance of payments constraint model and Harrod multiplier, Thirlwall and Hussain (1982) deduced a growth equation that is limited by balance of payments. The model suggested that trade liberalisation advances economic growth. Furthermore, they employed fixed effect and random effect models and still found the positive results suggesting that trade liberalisation enhances economic growth. The findings suggested that countries went through various experiences. Firstly, it appeared that changes in terms

of trade had a limit on countries growth of about 0.6 percent per year. However, the real terms of trade improved in some countries, while in many other countries growth of real capital imports could not match the growth of exports.

Ben-David and Loewy (1998) determined the effects of trade liberalisation on long run economic growth. Their results suggested that one-sided trade liberalisation – a case where one country is the only one liberalising trade – bridges the gap between that country and other more affluent countries, and that country even performs better than some initially rich countries. Generally, they concluded that trade liberalisation leads to long run (steady state) economic growth for all trading economies.

It was further shown by Kim and Kim (2000) that human capital together with trade liberalisation advances economic growth in the long-run. The argument is that these two variables will increase the ability for workers to adapt and move easily between industries. In addition, trade liberalisation can ensure that the initially developing country advances to a place of improved education and high growth.

Lewer and Van den Berg (2003) took a different angle in investigating the relationship between international trade and economic growth. While many studies focus on the statistical significance of such a relationship Lewer and Van den Berg put more emphasis on the economic significance of the trade-growth relationship. Their findings suggest that most studies are indeed consistent in terms of the size of the relationship, i.e. a one percentage point increase in the growth of exports led to a one-fifth percentage point increase in economic growth. Thus, they concluded that the effects of trade on economic growth are crucial for human welfare.

In addition, Brunner (2003) contributed to the existing literature by investigating the dynamic relationship that exists between trade liberalisation and income. After employing a dynamic panel data, Brunner asserted that trade has a tremendously large effect on the level of income; however there is a very small effect on income growth.

Supporting the existing literature, Moreira (2004) determined whether an open trade regime does contribute to increased economic growth. The results of the investigation are affirming what many have concluded that trade liberalisation leads to increased growth.

Moreira claimed that trade liberalisation together with productivity and investment in physical capital are the main drivers of economic growth in Brazil. Moreover, Parikh and Stirbu (2004) employed panel and country-by-country data to investigate the relationship between trade and economic growth on 42 Asian, African and Latin American developing countries. They found that for many countries included in the study, there is a positive relationship between trade liberalisation and economic growth.

After the argument that the main problem in assessing the effect of liberalising of trade on economic growth is that of endogeneity, Frankel, Romer and Cyrus (1996) acknowledged the concern over the simultaneous causality between economic growth and trade liberalisation in their study on East Asian countries. They employed exogenous determinants from the gravity model of bilateral trade as instrumental variables in order to deal with the endogeneity of trade. They discovered that after correcting for the endogeneity of liberalisation, the impact of trade liberalisation on growth is even greater than in standard OLS estimates. Furthermore, Lee, Ricci and Rigobon (2004) have also addressed this problem by applying heteroskedasticity methodology to determine the impact of liberalisation on growth and controlled for growth effects on trade openness. They concluded that openness does have positive affect on economic growth.

Moreover, Billmeier and Nannicini (2007) argued that most studies on trade liberalisation and growth rely on non-transparent analysis as well as case studies, hence such studies' validity is questionable. They therefore employed transparent econometric methods derived from the treatment evaluation literature as well as synthetic control methods to account for endogeneity. Their results are not different from many others as they also affirm that trade liberalisation encourages economic growth.

Khan and Qayyum (2007) also studied the impact of trade and financial liberalisation on economic growth in Pakistan for the period 1961-2005. They employed the co-integration test and conclude that in Pakistan, trade and financial liberalisation are indeed some of the most important determinants of economic growth in the long-run.

However, Rodriguez and Rodrik (2000) are amongst those who believe that the relationship between trade liberalisation and growth is still open for debate. They openly

criticised the conclusions reached by many, that openness is linked with increased growth rates. They asserted that openness cannot be said to ensure high economic growth rates.

In addition, Sarkar (2005) concluded that trade liberalisation does not lead to economic growth after using the ARDL approach to co-integration. Sarkar employed three indicators of liberalisation on two economies, India and Korea and found negative results to what theory argues.

Finally, Sarkar (2006) studied 51 less developed countries using cross-country and panel regression analysis to examine the causal relationship between trade liberalisation and economic growth. The findings are positive for only eleven countries which are rich and extremely dependent on trade. For most countries, including Asian countries, trade liberalisation does not appear to promote economic growth. The study reveals that trade liberalisation advances economic growth only for the middle income countries.

Given the above discussion, the debate as to whether trade liberalisation induces growth is still open. However, it appears that the relationship between trade liberalisation and economic growth depends on characteristics of each country and the state of development. Various methodologies have been employed and all seem to come up with different conclusions.

2.4. The Relationship between Terms of Trade and Economic Growth

The importance of terms of trade concept has been conventional in the context of international trade (Benham, 1940). The gains that an individual country can get from international trade are influenced mainly by price movements of traded products. Similarly, deviations in the volume and product composition of trade affect such gains. The concept of terms of trade and the purchasing power of the export are used to measure these gains. The impact of a change in the terms of trade on an economy depends on the relative importance of external trade in the GDP.

As Agenor, McDermott and Prasad (2000) pointed out, an economy's terms of trade is one of the important relative prices in economics even though many economists ignore most of its empirical properties. The net barter terms of trade is defined by the ratio of a

country's index of export prices to the price of its imports. Moreover, this measures the amount of exports that can be exchanged for a unit of imports. Thus, the terms of trade are key determinants of a country's macroeconomic performance and they are highly related to output fluctuations and therefore have an important effect on savings.

Recently there has been a shift of focus in literature. Instead of exploring the determinants of the long-term growth, there is more emphasis on the acceleration or deceleration of the short-term growth. Several studies incorporate terms of trade as one of the explanatory variables. Among others, Haussmann, Pritchett, and Rodrik (2006) used both developed and developing economies for the period 1957 to 1992 to investigate and to explain the turning points of GDP growth. Using terms of trade as one of the explanatory variables they asserted that in most growth accelerations and decelerations, terms of trade effects are insignificant. However, it was revealed that negative terms of trade precede more than a quarter of growth accelerations and about five percent of positive terms of trade lead growth acceleration.

2.4.1. The Causes of Terms of Trade Fluctuations

Because of the rapid growth of China's imports and exports, Zhihai and Yumin (2002) studied and compared the trends in China's terms of trade relative to China's trading partners and different product groups. The findings suggested that between 1993 and 2000, China's terms of trade deteriorated substantially. The main reason for worsening terms of trade was the quantitative increase of exports and imports as well as their structural change, and the Asian financial crisis. Another attribute was changes in the Yuan's exchange rate.

Furthermore, Broda and Tille (2003) asserted that the developing countries experience such high fluctuations in terms of trade due to the lack of power to effectively control their export prices. These countries' export prices are determined by the world markets. Thus given these suggestions and many others, it would make sense to conclude that changes in terms of trade for developing countries are exogenous – they are determined by forces outside their control.

Based on the contradiction between China's continuous growth in foreign direct investment net inflow and deterioration of the terms of trade Li, Huang and Li (2007) analysed the characteristics of foreign direct investment sectoral structure after 1990. They found that labour intensive export sector caused deterioration of terms of trade when there was foreign direct investment inflow to that sector. They suggested that China needs direct net inflow of foreign direct investment into capital and technology intensive sectors and service sectors to improve its terms of trade.

2.4.2. Terms of Trade Trends and Economic Growth

The trends in the terms of trade reflect changes in relative prices, it has been debated extensively in the literature how trends in the terms of trade impact on economic growth. The most common view is that the terms of trade has a positive impact on economic growth.

Most literature considering the relationship between a secular (the continuous decline) trend in the terms of trade and economic growth has focused on explaining cross-country differences between developing and developed countries. For instance, Prebisch (1950) and Singer (1950) suggested that emerging economies had experienced a downward trend in their terms of trade relative to developed economies. This theory later known as the Prebisch-Singer hypothesis states that, the price of internationally traded primary commodities as opposed to the price of manufactured goods should decrease. Furthermore, Prebisch (1959) argued that the deterioration in the terms of trade facing less developed countries leads to income and welfare losses.

However, there are studies that oppose the Prebisch-Singer hypothesis of a secular decline in real commodity prices. The argument is around the suitable use of deterministic or stochastic trends and the calculation of structural breaks. Powell (1991) ascertained that after allowing for three breaks in the series, non-oil commodity prices and manufactured good prices are cointegrated; meaning that the commodity terms of trade is stationary and thus not declining over time. Similarly, Kellard and Wohar (2006) allowed for two structural breaks and the results revealed little evidence in support of the Prebisch-Singer hypothesis. They found that a single downward trend is not the most appropriate representation for most commodities. Instead, a shifting trend is more

suitable as it changes sign over the sample period. They raised the argument that former literature that supports the Prebisch-Singer hypothesis of a single downward sloping trend is too shallow. In addition, they asserted that the downward trend may include several trends; hence reducing the complexity of the results to a single downward sloping trend may be disceptive to policy makers.

Sarkar and Singer (1991) contributed to the literature by extending a theoretical discussion to an empirical analysis where the focus was on the exchange of manufactured goods between the two groups of countries – developed and developing countries. However, Singer's argument about the role of technological innovation triggered more questions. For instance, can one expect relationship for different groups of developing countries; with their degrees of terms of trade deterioration being associated with the levels of technological sophistication comprised in their manufactured goods exports? What happens between developing countries that are at different stages of development? How is competitiveness affected by the terms of trade? This last question is the most important in this dissertation as this dissertation aims to determine the effects of terms of trade on competitiveness of the emerging markets.

The Sarkar-Singer analysis raised a number of criticisms, for example, Athukorala (1993), asserted that unit value indices as indicators of genuine price changes are unreliable. This is because such indices are also influenced by changes in the commodity mix. Furthermore, the unit value in the Sarkar-Singer analysis is about the total exports of developed and developing countries. It does not relate to trade between the two groups of countries. As a result, Athukorala argued the results of the Sarkar-Singer analysis to be biased.

Moreover, Bleaney (1993) argued the results of Sarkar and Singer (1991) on the trends in the relative unit values of the manufactured exports of developing countries are sensitive to the choice of end-year and to changes in the unit values of United States (US) exports relative to those of the rest of the world. Further, that the relative unit value of the US exports are reciprocally related to movements in the US real exchange rate hence this could suggest that Sarkar and Singer's results reflect changes in the real exchange rates of developing countries.

Harberger (1950) and Laursen and Metzler (1950) were some of the first to look at the impact of a terms of trade shocks on open economies. They predicted that deteriorating terms of trade would reduce real income and therefore lower savings and investment. With lowered savings and investment, the expectation was thus that economic growth will also be retarded. Krueger and Sonnenschein (1967) also analysed the welfare implications of changes in the terms of trade. They asserted that an increase in the terms of trade results with an improvement in welfare only when the conditions in the country stay unchanged.

Grilli and Yang (1988) utilised their constructed index of commodity prices and two different indexes of manufactured goods prices to investigate the alleged secular decline in the primary commodities' prices as opposed to those in manufacturing. The findings showed that the evolution of the terms of trade of non-fuel primary commodities is different from the net barter terms of trade of non-oil exporting developing countries. Moreover, although the terms of trade of non-fuel commodities declined, the purchasing power of those exports increased substantially. In addition, the deteriorating terms of trade that occurred in the net barter terms of trade of the developing countries (after World War II) was balanced by a continuous improvement in their income terms of trade.

Furthermore, Grilli and Yang argued that such long term movements in the terms of trade could be manifested from fluctuations of some industrial countries or from fluctuations in prices of primary commodities compared to prices of manufactured goods – "the primary commodity terms of trade". They asserted that such movements might not have accounted for changes in composition or volume of exports of the developing countries (Grilli and Yang, 1988).

In addition, Lucke (1993) considered terms of trade related only to manufactured imports and exports, for 37 industrialised and developing countries over the period 1967-1987. He found that the movements of terms of trade were mostly beneficial for higher income countries. Thus, the export diversification is essential for development strategy.

Berge and Crowe (1997) used primary data covering the period 1976-1995 to investigate the terms of trade for South Korea's trade in manufactured goods with the developed and developing countries. The evidence suggested no significant trend in South Korea's net

barter terms of trade with developed countries. But, the income terms of trade increased indicating that South Korea has raised its manufactured exports to developed economies with no decrease in the relative prices. However, with regard to developing economies, there was a substantial increase in net barter terms of trade in manufactures and even more increase in income terms of trade. Thus, South Korea experienced a relative price increase as well as an increase in the volume of exports to the developing economies.

Instead of finding evidence for a secular decline in developing countries' terms of trade, other studies focussed their attention to the growth effects of terms of trade trends. Among others, Easterly, Kremer, Pritchett and Summers (1993) found evidence of the positive economic growth effects of terms of trade movements. They asserted that shocks, particularly those to terms of trade, play a more significant role in explaining variance in growth. They further suggested that relative to country characteristics, shocks are significant in determining growth in the long-run while country characteristics determine relative level of income. Barro and Sala-i-Martin (2004) also found that the growth rate of the terms of trade had a positive impact on growth.

Interestingly, there are some studies that found empirical evidence suggesting a negative relationship between the terms of trade and economic growth. For instance, Batra and Pattanaik (1971) argue that deteriorating terms of trade can raise welfare if there are inter-sectoral wage differentials. Bhagwati and Brecher (1980) also suggested that if capital is internationally mobile, declining terms of trade could improve income. Similarly, Anam (1988) asserted that for an economy involved in quota-induced rent seeking activities, a deteriorating the terms of trade might improve national welfare by reducing the social costs of imports.

In addition, Chao and Yu (1990) examined the short-run and long-run welfare effects of terms of trade changes for an economy which has significant urban unemployment problem. The results showed that worsening terms of trade may improve welfare when deterioration of terms of trade happens in the presence of urban unemployment. Chao and Yu also presented well-being impact of the terms of trade deterioration for a developing country that has imposed either import tariffs or quotas. The findings included the fact that the differences in the well-being comes as a result of contrasting effects of terms of trade deterioration on domestic price ratio.

During his investigation of the effects that the terms of trade have on the performance of the small economy, Turnovsky (1993) discussed the effects of unanticipated shocks and changes in the mean and variance of the probability generating such disturbances. His results suggested that the effect on the rate of growth of real wealth which is directly tied in equilibrium to all other real quantities is the main determinant of the response of the economy. Moreover, unanticipated deterioration in the terms of trade improves the real wealth growth rates, consumption expenditure, savings and stock of traded bonds. However, Turnovsky argued that this happens if the country is a net creditor.

Sen (1998) also examined the effects of terms of trade on welfare of a small open economy which exports homogeneous goods and imports differentiated goods. The results showed that deterioration in terms of trade makes resources to move to the non-traded import competing sector which leads the economy's income to increase and the price for the differentiated goods to decrease; that increase the welfare. These results are accord with the East and Southeast Asia developing economies.

In contrast, Lahiri and Ono (1989) developed a condition for an improvement in terms of trade to reduce welfare under a general setting. This condition has the ability to accommodate different types of market structure and trade disturbances. The results showed evidence that an increase in the price of the exportable commodity (which is also subsidised) can lead to a reduction in welfare. Further in the presence of a non-tradable monopoly sector, improvements in terms of trade may have negative effects on the economy.

Ahumada and Nataf (1951) investigated the terms of trade in Latin America for the period 1938 – 1946; and found that the changes were different from country to country. The results revealed three different groups: the countries that showed improvements, the second group of countries experienced deteriorating terms of trade while there was no enough evidence to make any conclusions for last group. Such differences in terms of trade between countries can be as a result of differences in the composition of exports and imports as well as the different markets. Brazil was amongst the countries that showed substantial improvement in terms of trade and Brazil is largely characterised by exports of food and non-mineral raw material, and small imports of textiles and food-stuffs. Inversely, Chile, Peru and Venezuela experienced deteriorating terms of trade and

the difference between them and Brazil is that they are characterised by large exports of fuel and other minerals, and large imports of food-stuffs and textiles (Ahumada and Nataf, 1951).

Moreover, Kaneko (2000) took a different angle and incorporated human capital in a dynamic trade model to investigate the relationship between the growth rate and the specialisation pattern for a growing economy. This investigation revealed that for complete specialisation, the small country only needs its prices to be different from the world prices. Moreover, the results showed that if the country specialises in capital commodity, then the growth rate is unaffected by the terms of trade. However, if it specialises in a consumption commodity, its growth rate is substantially affected by the terms of trade. Therefore, all these said, it is evident that the trade pattern plays a major role in influencing the impact of terms of trade on economic growth.

On the other hand, Veni (2006) investigated the Indian terms of trade during the period 1980-1981 to 2002-2003. Veni discovered that for the early years of the study period, the terms of trade were unfavourable to India. However, between 1983 and 1984, there was a favourable trend. Furthermore, the gross terms of trade appeared to be favourable for the whole period 1980 to 2003. Moreover, the investigation indicated that as long as the quality and quantity of products improve, the Indian exports can quote higher prices.

Unlike the above studies, Athukorala (1998) recently used cointegration techniques to study the trends of the terms of trade for manufactured exports from all developed countries for the period 1959 – 1989, and for three developing countries: India (from 1971 to 1986), South Korea (from 1970 to 1990) and Taiwan (from 1976 to 1990). Athukorala then concluded that the terms of trade showed no trends.

2.4.3. Terms of Trade Volatility and Economic Growth

There has been a growing interest recently to study the impact of terms of trade volatility on economic growth. It is generally agreed in the literature that terms of trade volatility has a negative effect on economic growth whereas the debate on the growth effects of long-term trends in the terms of trade is still open. Similar to the trend analysis in the terms of trade, most literature investigating the growth effects of terms of trade volatility

is centralised on cross-country differences especially between developing and developed countries.

In developing countries, there are normally large fluctuations in the price of the goods they export. Such swings are never wished for, as they lead to large volatilities in the growth of output. Indeed the terms of trade fluctuation can have substantial effects on the economies of developing nations. For instance, Baxter and Kouparitsas (2006) proposed that terms of trade volatilities are double in developing economies compared to developed nations. They asserted that the main reason for these fluctuations is due to dependence on commodity exports whose prices are more volatile than those of manufactured products. In addition, the fluctuations in terms of trade strike the larger part of the developing countries because these economies are more open to international trade.

Likewise, Kose and Riezman (2001) examined the terms of trade dynamics, and also examined a disaggregated measure of the terms of trade together with the dynamics of relative prices of capital goods and intermediate inputs to primary goods. Their study was based on 22 non-oil exporting economies for a time period spanning 1970 - 1990. Amongst other things, they found that fluctuations in the prices of the tradable accounted for about half of the variations in aggregate output. Further, their findings suggested that adverse shocks induced a significant decrease in aggregate investment. They also found that the relative prices were more volatile and more persistent than the terms of trade.

There are studies that find empirical evidence to support the above idea of a negative relationship between the terms of trade and economic growth. McLeod (1992) used a simple open economy stochastic growth model and considered the effects of terms of trade volatility on capital accumulation. McLeod argued that since imported input increase the price of domestic capital; even the temporary price shocks have permanent effects on output levels. However, the size of the impact depends on the country's share of trade, the response of exports supply as well as other structural factors. Finally, volatile export prices reduce the anticipated domestic investment.

Moreover, Deaton and Miller (1996) studied the effects of import and export prices on macroeconomic fluctuations for 22 non-oil exporting African countries for the period 1970 to 1990. They constructed a multi-sector model of a small open economy in which

they applied some series of African countries. The results suggested that fluctuations in prices of the tradable explain about half of the fluctuations in aggregate output. They also suggested that adverse shocks lead to substantial reductions in aggregate investment.

Rodrik (1999) also investigated the effects of terms of trade shocks on economic growth using a large sample for the period 1960 to 1989. He showed that the severity of terms of trade shocks on economic growth depends largely on the interaction of institutions of conflict management with the terms of trade shocks. The results showed that when divided societies interact with weak institutions, the fall in economic growth is instant. Given this evidence, it is clear that well-functioning institutions play an important role in lowering the severity of terms of trade shocks. Furthermore, Kent and Cashin (2003) showed that the duration or persistence of terms of trade shocks are important when determining the effect on an economy. A longer or more persistent shock may result in lower investment and potentially higher saving in anticipation of lower future output.

Hadass and Williamson (2003) found that relative to developed countries, the growth performance of developing nations decline due to global terms of trade shocks between 1870 and World War I. However, their results revealed that as a matter of fact, the terms of trade in the developing countries improved more than it did for the developed nations. Given the evidence, they suggested that it could be due to what is known as resource curse.

Sachs and Warner (2001) examined the above idea empirically and proposed that countries that are rich in resources tend to grow more slowly than resource-poor countries. Therefore price shock that increases the value of these resources will negatively affect their development. This may result due to a decrease in the competitiveness of other economic sectors, the crowding out of human capital through the underinvestment in institutions and education, or due to the mismanagement of revenues from the natural resource sector. Thus, Sachs and Warner asserted that natural resources are not responsible for the curse, rather the mismanagement of resources.

Diewert and Morrison (1986) used different perspective of measurement of the impact of terms of trade changes, the producer's point of view. They considered real output rather than welfare effects, assuming exports and imports flow by the production sector. Their

finding showed that an increase in the price of exports relative to imports have similar effects on an increase in total factor productivity.

Mendoza (1997) further suggested a stochastic growth model in which he showed that uncertainty in terms of trade can have an adverse impact on saving and economic growth. He employed a cross-country panel regression of 40 developed and developing economies. In his model, planned consumption growth is an increasing function of terms of trade growth but a decreasing function of terms of trade volatility. He thus found evidence suggesting that terms of trade accounts for almost 50 percent of actual growth volatility. These results are similar to those found by Bleaney and Greenway (2001), who examined the relationship between terms of trade and growth on a panel of 14 Sub-Saharan African countries for the period spanning 1980 - 1995. They asserted that growth and investment are inversely affected by terms of trade instability and positively by improving terms of trade. Their investigation revealed that when the terms of trade improve and when the real exchange rate overvaluations are removed, growth and investment increase.

Williamson (2008) studied the de-industrialisation and volatility forces between 1782 and 1913 during the Great Divergence. He argued that by 1870, the new economic order had been firmly established, therefore the transition took place a century before and not after. Using econometric evidence, Williamson suggested that the terms of trade improvement did raise the long run growth for the rich economies, however, not the same can be said for the poor periphery. Furthermore, he asserted that between 1820 and 1870, the terms of trade volatility was greater in the poor periphery than the rich core, and it certainly was still big even after 1870. Thus, with this evidence, it can be said that the terms of trade volatility immensely reduces the long-run economic growth in the poor periphery.

Finally, Blattman, Hwang and Williamson (2003) investigated the effects of terms of trade trends and volatility on economic growth. Their results revealed that the terms of trade volatility is more significant than the terms of trade trends as a determinant of economic growth. The results showed these particular movements mainly for developing countries which mostly exported primary commodities.

2.4.4. Terms of Trade and Competitiveness

The difficulty in investigating the sources of competitiveness emanates from the complexity in defining the term. There are several definitions and therefore several methodologies that have been utilised.

As a result of new international rules, there is fundamental change in the nature of global production, consequently increasing the level of international competition. Similarly, this change has also influenced the determinants of competitiveness. It can not be convincingly argued that relatively low wages and resource endowments are the most important determinants of competitiveness. Products that used to be labour intensive have now become skill and knowledge intensive. Because of trade liberalisation, China and India have become participants in the global market and as a result, competition has intensified.

If the country can grow and better the general well-being of the population without restraining the balance of payments then such a country is competitive (Haque, 1995). Thus, it implies that competitiveness means the country's capacity to increase productivity without generating a balance of payment crisis. It can also be argued that a country's competitiveness has two elements, price competitiveness and non-price competitiveness. Price competitiveness determines the economy's ability to increase its share in the global markets by selling at a lower price than the competitors.

Kuncoro (2002) investigated the growth path of Indonesia from 1960s to 1990s and found that the growth path has not been always smooth. Indonesia saw several economic crises and those resulted in the deterioration of the current account. As per Kuncoro the main reason for all these was the fact that the structure of Indonesian exports which heavily dependent on oil and gas made the current account susceptible to international price variations. However, according to Hatsopoulos, Krugman and Summers (1988), the competitiveness of a country is not only tested by the ability to balance trade, but that ability should go hand-in-hand with improvements in the standard of living. Now, as suggested earlier, a competitive economy should improve the lives of the citizens as it increases its global market share. The country will do that by liberalising trade and increasing its participation in the global market.

Ganesh-Kumar, Sen and Vaidya (2002) employed the constant market share (CMS) analysis to measure competitiveness, trade and finance in India. The results of CMS suggested that the corresponding increase in exports can be explained in terms of the general growth of world exports, commodity composition, market distribution and competitiveness. Furthermore, they found no correlation at the sectoral level between unit labour costs and export competitiveness. This further proved their findings that price factors are not the only determinants of competitiveness.

In addition, Kaldor (1978) found the limitations of price competitiveness indicators. Kaldor found that the industrialised economies which increased their market share also experienced an increase in unit labour costs as compared to their competitors. This implies that other factors other than price should be taken into consideration, for instance product differentiation, technological innovation and capacity to deliver.

Fagerberg (1988) suggested that the main factors influencing differences in international competitiveness and growth across countries are the ability to compete on delivery and the technological competitiveness and he suggested that the ability to deliver is especially influenced by investments and factors affecting investment. Furthermore, he suggested that cost-competitiveness also affects competitiveness and growth even though it is at a lesser degree.

As per the Ricardian model of trade, the relative unit labour cost is the key relative price. Hence, the unit labour cost is the cost of labour per unit of output – the ratio of wages to productivity. Hence, in order to determine the countries' competitiveness, it is important to investigate the differences in levels and rates of change in labour costs and productivity across economies. Thus in studies conducted by Turner and Golub (1997), the results showed that relative unit labour cost in manufacturing are the best indicators of competitiveness.

Given the above arguments, it is clear that there has not been any consensus as to what the real determinants of competitiveness are. Therefore, what leads to the competitiveness between countries is still open to debate.

2.5. The Relationship between International Trade and Income Convergence

Ramsey (1928) and Solow (1956) employed the neoclassical model for closed economies and proposed that the country's per capita growth rate appears to be negatively related to its initial level of income per capita. Given the same predisposition and technology, the supposition of diminishing marginal products of capital means that developing economies grow faster to achieve the level of the richer ones, hence leading to absolute convergence among countries. In cases of heterogeneity, the outcome is conditional convergence, that is, convergence to the steady state of growth but to different levels of per capita income. Solow's model forms the basis of convergence as it is used in most investigations at the moment. In particular, Solow predicted income convergence among similar countries, even in the absence of trade. However, the free flow of goods may enhance this process.

Many studies have been carried out on the relationship between international trade and income convergence (for instance Dollar, Wolff and Baumol, 1988). Trade liberalisation can affect each of three national income elements. These are factor prices, factor quantities and technology. Factor price equalisation claims that liberalising trade ensures that factor prices are brought closer. This theory suggests that the identical factors of production in the same market will eventually have the same relative prices due to competition. The factor that receives the lowest price before two countries can integrate economically and effectively become one market is inclined to become more expensive relative to other factors in the economy. However, the factors with the highest price are inclined to become cheaper. This is given in the assumptions of the Heckscher-Ohlin model; which is a general equilibrium model of international trade.

Samuelson (1948) formalised the study on factor price as the factor price equalisation. He asserted that free mobility of factors of production between different regions would tend to equalise the relative and absolute prices of productive services in the different regions. Thus, migration of labour from crowded to less crowded regions will ensure that wages are equalised. Moreover, Ruffin (1987) showed that an equalisation of factor prices can be taken as a catalyst for the equalisation of the total income.

Inversely, Stiglitz (1970) discovered that when two countries have different rates of time preferences, free trade tends to make factor prices diverge. Stiglitz focused on the

behaviour of a two-country model in which the long run interest rate in each country is fixed. The findings suggested that if the two countries do not have identical rates of interest, then one of the two countries must specialise. Moreover, Deardorff (1986) provided a two-country-two-factor and four good Heckscher-Ohlin type model in which free trade tends to converge producer prices but diverge factor prices. Deardorff examined neoclassical models of trade and growth to determine their implications about the convergence or non-convergence of country factor endowments. The findings included the fact that none of the models suggests convergence and some actually suggest factor price divergence.

Further, even though their work mainly concentrated on convergence between a large number of economies, Baumol (1986), Barro (1991), and Barro and Sala-i-Martin (1992) have also made significant contributions to the literature. Baumol (1986) used cross-section regressions to suggest that countries and regions are converging, or catching up, since initially developing areas grow faster than richer ones. Baumol investigated 72 countries for the period 1950-1980, and found that income levels within the industrialised, centrally planned and middle-income countries have converged. The centrally planned economies appeared to be converging with the industrialised countries. However, convergence is not identified within the low income economies.

However, Rassekh (1992) investigated the role of international trade in convergence process for 19 OECD countries for the period 1950 to 1985. Rassekh's findings suggested that economies starting with lower income increase their openness faster than the high-income countries. Moreover, the economies that expanded their trade faster experienced rapid growth. Therefore, the results imply that international trade contributed immensely to the convergence of per capita GDP.

Ben-David (1993) used annual dispersion measures focusing on groups of countries that liberalised their trade. He discovered that convergence of per capita incomes between countries might happen as a result of openness to international trade. He considered the convergence of the three regional economic integrations: European Economic Community (EEC), European Free Trade Association (EFTA), and the United States of America and Canada. His findings suggested that there is a narrow positive relationship between trade reform and convergence. As a results trade liberalisation has an impact on

incomes, but if there is no free trade they are not expected to assume convergence in income levels.

Sachs and Warner (1995) also asserted that international trade leads to convergence. The study included both developing and developed economies. In their investigation, Sachs and Warner proved that the open economies do converge while the closed economies do not. This lack of convergence in closed economies is because of lack of participation in the world. However, with the recent progress towards trade liberalisation programmes, convergence is strengthened as trade promotes convergence.

Ben-David (1995) extended his study to focus on income convergence among the world's wealthiest and poorest countries. The results showed that there is significant evidence of convergence among the world's wealthiest and poorest countries, but these two extreme groups of countries have different forms of convergence. While there is an upward convergence between the groups of wealthier countries, there is a downward convergence among the groups of extremely poor countries. Thus, these results imply that the relationship between convergence and international trade is only valid for more advanced economies, and the group of poorest countries might not catch-up to the richer countries. According to Ben-David (1996), the relationship between international trade and income convergence between countries seems to be a prevailing feature among countries that have extensive trade amongst themselves. In his previous studies, he used different approaches to analyse convergence.

Ben-David (2001) further extended his studies and argued that the degree of liberalisation and the extent of trade between the liberalising countries are important factors that influence the link between liberalisation and convergence. The findings suggested that post-war trade reforms in which major trade partners reduced barriers on trade significantly with one another advances income convergence between the trade liberalising countries.

Finally, Barbosa-Filho (2005) covered the years 1980 to 2001 to investigate the relationship between the yearly fluctuations of terms of trade between Brazil, Argentina Uruguay and Paraguay. Barbosa-Filho found that the four countries had high to moderate synchronisation of their export prices. Furthermore, their import prices experienced

moderate to low synchronisation while their terms of trade experienced low to moderate synchronisation. The course of similar movements between Argentina and Brazil were rooted in the exchange rate coordination between the two countries.

Given the common inference of many studies that international trade facilitates convergence, Slaughter (2001) tended to differ from all those with this belief. He asserted that trade between countries is not adequate to actually lead to per capita income convergence. In his analysis, Slaughter focused his attention on four post-1945 multilateral trade liberalisations. His research revealed no evidence suggesting that trade liberalisation is linked to convergence. The evidence found proposes that trade liberalisation actually leads to divergence between the liberalising countries.

Having exploited the existing literature on trade liberalisation and competitiveness, it seems plausible to believe that trade liberalisation does lead to competitiveness. However, this literature is simply the starting point for an argument for the study; conclusions can not be derived from the literature alone. Therefore, the next chapter which is the most critical for this dissertation will assist in deciding whether trade liberalisation increases competitiveness or not. The most important results are based on the model explained in the next chapter.

CHAPTER 3

3. METHODOLOGY

3.1. Data Sources

This dissertation is based on data from the World Bank's World Development Indicators and World Bank Data Query (2007), as shown in Appendix 1. The analysis is confined to eighteen emerging market economies for the period 1990 to 2004 (see Appendix 2).

The dependent variables are GDP growth rate (g*rowth*), as the annual percentage in gross domestic product, and GDP per capita growth rate (*gdppc*). The independent variables are secondary gross enrolment rate (*edu*) as a proxy of human capital; inflation (*inf*) is the consumer prices index in percentage; domestic credit provided by the banking sector (as a percent of GDP) is a proxy for financial depth (*fin*); and government expenditure (*gov*) is the general government final consumption expenditure (percent of GDP). Domestic investment (*inv*) accounted as gross fixed capital formation divided by real GDP, and net barter terms of trade (*tot*) which was made constant by taking 2000 as a base year.

3.1.1. Missing Data

Data part is one of most important parts in empirical studies and the most significant issue related to this is the missing data problem that occurs in almost every econometric study. There are four ways of dealing with the missing data problem. Those are list-wise deletion, pair-wise deletion, mean substitution, and regression estimation (Cool, 2000).

Generally, when researchers have such missing data problems, they probably select a list-wise deletion which is the simplest method. However, a serious restriction of this approach is the frequent disposal of relevant data. Discarding the variable from the data decreases the number of cases, the degrees of freedom and leads to a loss of statistical power and a larger standard error (Cool, 2000).

In this dissertation, the mean substitution method is used for solving the missing data problem. This method presumes that a missing part is computed by the average for the non-missing part for that variable. This method is used to solve the missing parts of the education data which covers the period from 1990 to 2004. The missing variables of the education data are changing among countries but the missing parts of each country are only one or two years.

3.2. Panel Data Analysis

Considering the quantitative approach, a panel data technique will be used as an econometric instrument in this study. According to Hsiao (2006), panel data are described as having both a spatial and temporal dimension. The spatial dimension refers to the cross-section of units (e.g., countries, states, firms, schools, groups of people, or individuals), and the temporal dimension refers to the period of observations characterising the cross-sectional units over time.

In this study, the panel data set entails a collection of eighteen emerging markets and the same economic variables - such as, education, financial depth, government expenditure, inflation, investment, and terms of trade, per capita income and growth rate - collected annually for fifteen years. Thus, the pooled data set includes a total of $15 \times 18 = 270$ observations. The two dimensions of the variables are indexed in a model with *i* for the unit of observation and *t* for the temporal reference, i.e. *i* refers to countries and *t* refers to years.

Panel data analysis is adopted for its benefits, some of which include the fact that pooling data together increases the number of observations, increases the parameters to be estimated, increases the degrees of freedom and reduces the collinearity between explanatory variables. Hence, results that are more reliable will be obtained. The advantage of panel data set over cross section data is that it permits flexibility in modelling differences in behaviour across countries (Hsiao, 2006).

3.2.1. Growth Model

This dissertation follows the Dollar and Kraay (2004) example to build on the panel data regression literature that uses GMM methodology to guard against endogeneity and unobserved country specific factors. More details on methodology are presented below. Firstly, the study begins by specifying growth rate estimation similar to the one used by (Miller, 1996).

$$g_{it} = \ln y_{it} - \ln y_{it-1} \quad (1)$$

Where y is real gross domestic product, *ln* is the natural logarithm operator, and i and t represent the country and time indices respectively. Further, let x_{it} represent the observable factors, e.g. terms of trade, inflation, investment, government expenditure and education, which have an influence on economic growth.

Given this, economic growth can be represented as thus:

$$g_{it} = \alpha + \sum_{i=1}^{n} \beta_i x_{it} + v_{it} \quad (2)$$

where α refers to the constant intercept and v_{it} represents the stochastic error term. This error term comprises all effects of the omitted variables. In classical regression analysis, such omitted variables are said to be independently and identically distributed as well as independent of the regressor.

The omitted variables can further be grouped into three classes in pooled cross-section and time-series analysis: Country-varying variables - are time invariant but change with a given country; time-varying variables – these do not change with given countries but do change with time; and country-and-time varying variables - these variables change across both time and country.

Now when the variables to be estimated are substituted in equation (2), the equation explaining the effects of terms of trade on economic growth becomes:

$$Growth_{it} = \alpha + \beta_1 edu_{it} + \beta_2 fin_{it} + \beta_3 gov_{it} + \beta_4 inf_{it} + \beta_5 inv_{it} + \beta_6 tot_{it} + v_{it} \quad (3)$$

It was decided to include lagged value of growth as one of the explanatory variables to see its effect on economic growth:

$$Growth_{it} = \alpha(Growth)_{it-1} + \beta_1 edu_{it} + \beta_2 fin_{it} + \beta_3 gov_{it} + \beta_4 \inf_{it} + \beta_5 inv_{it} + \beta_6 tot_{it} + v_{it} \quad (4)$$

Equation (3) specifies the growth regression model while in equation (4) (which includes the lagged value of growth as an explanatory variable) the GMM estimation technique is applied.

In the above equations, the variables are in ratios or logarithmic form where applicable. The dependent variable is the growth rate as measured by GDP. *Growth* represents the growth rate of GDP, *edu* is the education level, *fin* refers to the financial depth, *gov* represents the government expenditure, *inf* stands for the inflation rate, *inv* is the domestic investment level, and *tot* is the terms of trade.

All the explanatory variables incorporated in the growth regression specifications are founded on the endogenous growth theory and can all be conceived to be crucial determinants of economic growth (Chen and Gupta, 2006).

This dissertation then extends the specification in the regression to all the effects of terms of trade on economic growth to vary according to each country characteristics. To achieve this, the terms of trade are interacted with each variable one at a time in order to make the interpretation of the results simpler (Chang, Kaltani and Loayza, 2006). The regression representing such interaction is given below.

$$Growth_{it} = \alpha + \beta_i (cv)_{it} + \beta_i (z)_{it} * (tot)_{it} + v_{it} \quad (5)$$

The term *cv* represents the explanatory variables as presented in equations (3) and (4) and $(z)_{it}$ is a subset of the variables in *cv* and includes the educational enrolment, financial depth, government expenditure, and inflation rate.

There are various types of panel data models. These are: the pooled regression model (OLS), fixed effects model (generalised least squares (GLS)) with cross-section weights, random effects model (REM), and generalised method of moments model (GMM) methods of estimations.

3.2.2. Pooled Regression Model (OLS)

The pooled regression estimation is assumed to be linear in parameters; to have normally distributed residuals; to have residuals that are independent from one another; have constant variance and the expected value of the error term is zero. During estimation, the variables must be stationary – no unit root - if there is a unit root it will give wrong results. Therefore, pooled regression estimation can be applied to a constant coefficients model - referring to both intercepts and slopes - with residual homogeneity and normality (Wooldridge, 2002).

In this model, there is neither significant country nor significant time effects. Thus, the OLS estimation is applicable when the dependent variable has no group-wise or other heteroscedasticity effects.

Therefore, the general model (pooled regression) for the panel data analysis is a regression of the form

$$g_{it} = \alpha + \beta x_{it} + \nu_{it} \qquad (6)$$

ν_{it} is said to be uncorrelated with the x_{it}'s and the α is assumed to have zero mean and constant variance ($\sigma \overset{2}{\mu}$). Therefore, the above model restricts the coefficients on x to be common across *i* and *t.*

However, the above equation cannot be estimated without taking time or country specific effects into consideration, otherwise the pooled regression will give misleading results in the case where unobserved country- or time-specific variables are correlated with the regressor. Thus, this leads to the fixed effects model (generalised least squares) estimation, which is said to correct for the shortfalls, associated with OLS estimation.

3.2.3. The Fixed Effects Model (GLS)

In the fixed effects model, the slope coefficients are constant but the intercepts vary according to the cross-sectional unit, in this case the country. However, in this model, there is no significant time effect, but there are significant differences across countries. The subscript *i* indicates that the intercepts of the eighteen developing countries could be different. That difference can be due to country specific features such as geographical area, political situation, and institutions in that country. Now, the advantages of fixed effects specification include the fact that it allows the individual or time specific effects to be linked with explanatory variables (Hsiao, 2006). Moreover, fixed effects model makes use of dummy variables to account for heterogeneity in intercepts. Hence, fixed effects model is estimated with least squares dummy variable (LSDV) regression.

$$g_{it} = \alpha_i + \beta x_{it} + \nu_{it} \qquad (7)$$

This model is almost the same as the pooled model but in this case α_i varies across individuals. Each individual's intercept, α_i , is known as an individual effect.

The normal expectation is that within time-series and cross-section data there is autocorrelation. This normally occurs if there are omitted variables in regression analysis, which can lead to a misleading assumption that there is autocorrelation or heteroscedasticity. Several methodologies can be employed to deal with the problem of autocorrelation however, the commonly used method is the generalised least squares. This method entails estimation of OLS regression of Y and X variables and then getting OLS residuals (Gujarati, 2003).

Generalised least squares is employed when the sample size is big enough and the residuals are not independent (i.e. there is autocorrelation). In essence, GLS is used to transform data in the presence of autocorrelation and heteroscedasticity by means of Newey-West Method. Carroll (1982) and Robinson (1987) showed that the generalized least squares estimator is asymptotically efficient in the presence of heteroscedasticity.

However, all the models have their own shortfalls, therefore fixed effects; just like the others it has its own drawbacks. One of the main problems with fixed effects is that at

times it may have several cross-sections, thus the model may suffer multicollinearity. The existence of multicollinearity increases standard errors and therefore reduces the statistical power of parameters. Furthermore, even though the residuals are said to be homogeneous and normally distributed, country-specific heteroscedasticity and autocorrelation may still exist, and thus distorting the estimation. Finally, the error terms of the fixed effects model may be correlated with the individual effects. Now, the best option in this case would be to employ a random effects model (Yaffee, 2005).

3.2.4. The Random Effects Model (REM)

The random effects model does not employ dummy variables but assumes the individual effect is a random variable. This becomes possible if it is assumed that the sample cross-sectional units were taken from a large population (Ashra, 2002 and Hsiao, 2006).

Moreover, one of the main advantages for using a random effects model is that it uses the degree of freedom sparingly because the estimation of N cross-sectional intercepts is unnecessary. It only requires the estimation of the mean value of the intercept and its variance. Furthermore, it is efficient to utilise a random effects model when the random intercept of each cross-sectional unit is uncorrelated with the independent variables. Moreover, the random effects estimators are more efficient than the fixed effects estimators if there is a large number of cross-sectional unit (N) and a small number of time-series data (T) and if the underlying assumptions about the random effects model hold (Gujarati, 2003).

The random effects model is applied in this dissertation for its benefits some of which are explained below. Firstly, even when the sample size increases, the number of the parameters remains constant. Secondly, the derivation efficient estimators that use both within and between variations are allowed. Thirdly, the impact of time-invariant variables can be estimated (Hsiao, 2006).

$$g_{it} = \alpha_i + \beta x_{it} + \nu_{it} \qquad (8)$$

In a fixed effects model α_i is assumed to be fixed, whereas under a random effects model it is assumed to be a random variable. Thus, the intercept value for an individual country can be expressed as:

$$\alpha_i = \alpha + \varepsilon_i \tag{9}$$

Therefore,

ε_i is a random error term with a mean value of zero, and variance of σ_ε^2. This simply means that the countries have a common mean value for the intercept α and the individual differences in the intercept values of each country are reflected in the error term ε_i.

Substituting equation (9) into equation (8) gives

$$g_{it} = \alpha + \beta x_{it} + \omega_{it} \tag{10}$$

where $\omega_{it} = \varepsilon_i + \nu_{it}$

The composite error term ω_{it} consists of two components, ε_i which is the cross-section or individual specific error component, and ν_{it}, which is the combined time-series and cross-section error component.

Panel equations do not automatically allow for coefficients that vary across cross-sections or periods, but one may of course, create interacting variables that permit such variation.

3.2.5. Generalised Method of Moments Model (GMM)

The generalised method of moments model is estimated using the first differences and orthogonal deviation. However, for the purpose of this dissertation only first difference estimation is employed. The GMM first differencing method was introduced by Holtz-Eakin, Newey and Rosen (1988) and Arellano and Bond (1991) to solve for the problem of inconsistency and biased estimates. Arellano and Bover (1995) also employed

generalized method of moments to estimate dynamic panels with lagged dependent variables. The GMM models are particularly employed to deal with country-specific effects and endogeneity in a dynamic panel data model. The biases originating from endogenous explanatory variables are controlled for by utilising the GMM difference model.

Given the above information, the general approach is now described. First of all the regression is written as a dynamic panel data model. The first differences are taken to remove unobserved time invariant country-specific effects. Then one has to instrument the right-hand-side variables in the first differenced equations using levels of the series lagged two periods or more. This is done given the assumption that the time-varying disturbances in the original levels equations are not serially correlated.

In this dissertation, the GMM model is used following Soderbom and Teal (2003) to investigate the effects of terms of trade on competitiveness in emerging market economies. In this model for terms of trade to have a positive effect on competitiveness, the terms of trade should be positive and statistically significant.

CHAPTER 4

4. EMPIRICAL ANALYSIS

In the empirical analysis, the aim is to investigate whether terms of trade is beneficial for selected developing countries' economic growth, and therefore their standard of living. For this reason, the work is done by employing panel data analysis. Panel data analysis in this study is adopted for its benefits; some of which include the fact that it permits flexibility in modelling differences in behaviour across countries (Hsiao, 2006).

The models were estimated with the growth regression and alternative specifications using a pooled model, fixed effects model (GLS) with cross-section weights, random effects model and generalised method of moments model methods of estimations. The models are also estimated by including interaction terms between terms of trade and other explanatory variables. The purpose of interacting terms of trade with these other control variables is to determine whether the growth effects of terms of trade are dependent on control variables that are said to improve economic growth.

The growth models used in this study are: the one by Dollar and Kraay (2004), and Miller (1996). Moreover, there are two growth models employed in this study; the first model is the GDP growth model and the second one is the per capita growth model. The first model determines the effects of terms of trade on the overall economic growth, and the second one account for income distribution.

4.1. Data Description

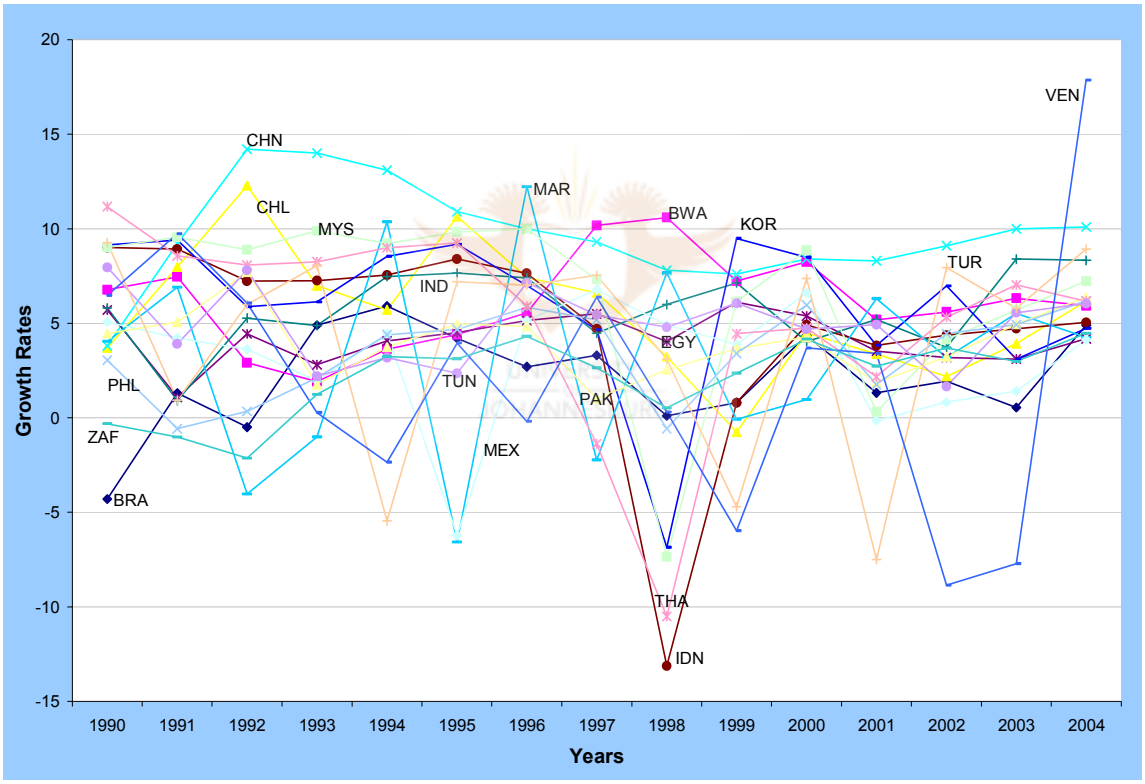
GDP growth rate and GDP per capita growth rate are both used in this dissertation as dependent variables. The explanatory variables are education, financial depth, government expenditure, inflation, domestic investment and terms of trade. Each of these variables has an individual effect on economic growth.

Based on the economic theory, education, financial depth, investment and terms of trade are expected to have positive impacts on economic growth. However, for government expenditure there is no consensus whether it has positive or negative effect on economic growth. Inflation on the other hand is expected to have a negative effect.

4.1.1. Growth Performance in Emerging Markets Economies

In this section output growth of the sample of emerging market economies from 1990 to 2004 is used. Given below is the graphical representation of economic growth of those economies.

Figure 1: Economic Growth in Emerging Market Economies



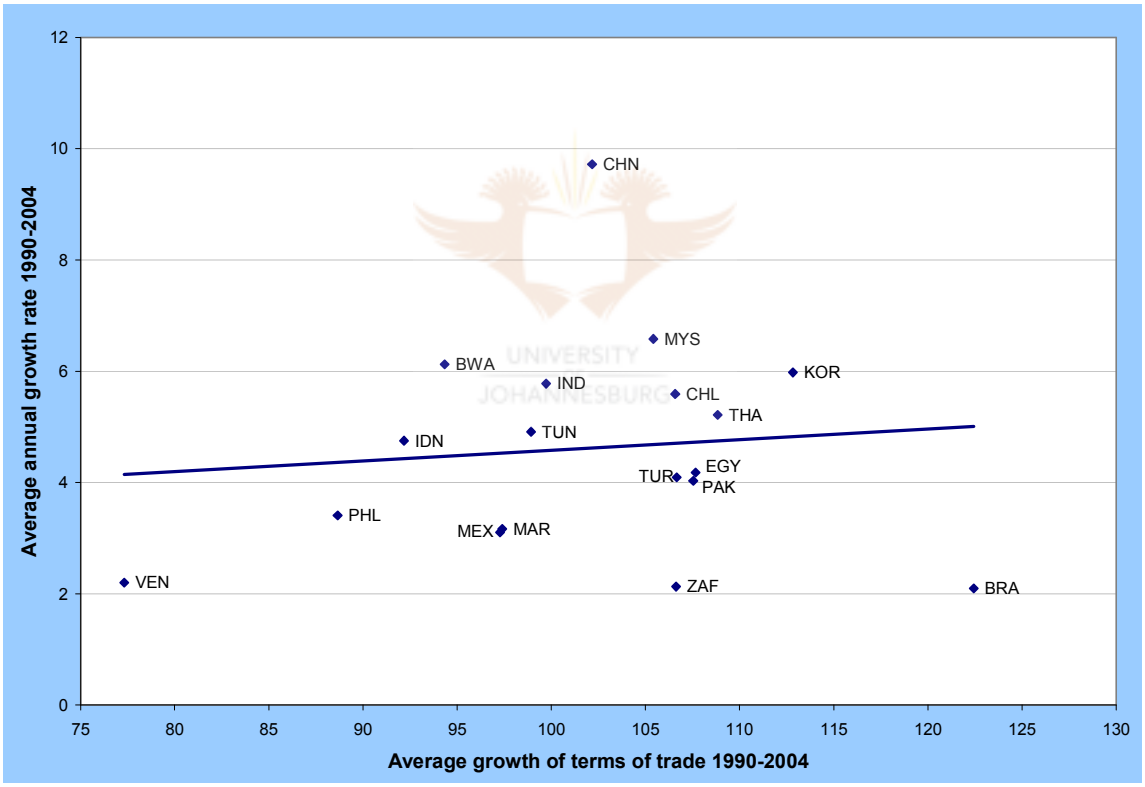
Note: See Appendix 2 for Abbreviations
Source: Own calculations

Figure 1 shows the patterns of economic growth for the sample of emerging market economies listed above from 1990 to 2004. The countries appear to be moving together even though some show higher growth rates than others. For instance, from 1992 China experienced higher growth than the rest of the countries. Growth rates tend to co-move. Most of the emerging market economies experienced a downturn in 1997 – 1998. This

could have been caused by the Asian crisis. Then most of them recovered in 1999. However, Botswana and China were immune to the crisis.

It is essential to measure the real GDP growth rate against the population growth rate, especially for an economy which is growing. This is because if there is growth in population but no economic growth in a particular year for a particular country, then it means there has not been any growth in real per capita GDP. Growth in per capita GDP is only seen if economic growth exceeds population growth (Fourie, 2001). As per GDP per capita, the analysis shows not much deviation from the results obtained from the GDP growth rates.

Figure 2: Correlates between Terms of Trade and Economic Growth



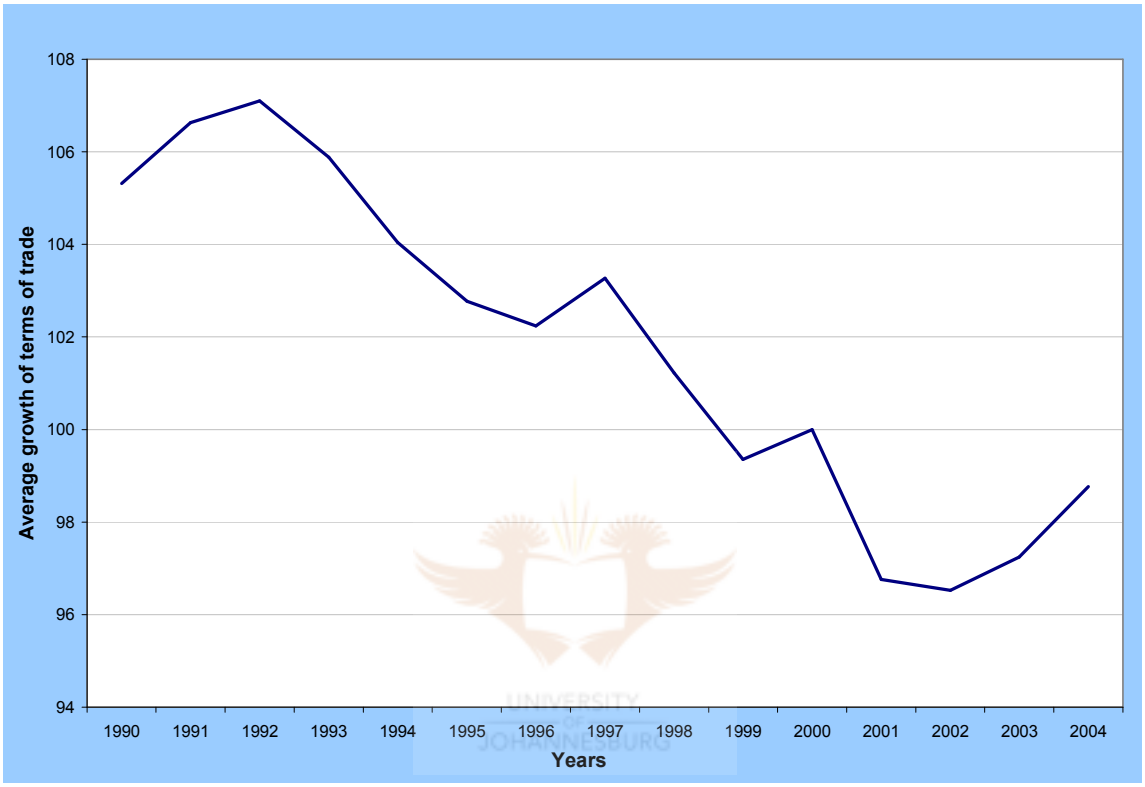
Note: See Appendix 2 for Abbreviations
Source: Own calculations

Figure 2 shows a positive correlation between terms of trade and economic growth. Given this correlation it is the purpose of this dissertation to determine the real relationship between terms of trade and economic growth. Even though Brazil and South Africa have high terms of trade but relatively low growth rates, the majority of the

emerging markets show a positive correlation. This could be due to the composition of their exports and imports.

4.1.2. Trends in Terms of Trade

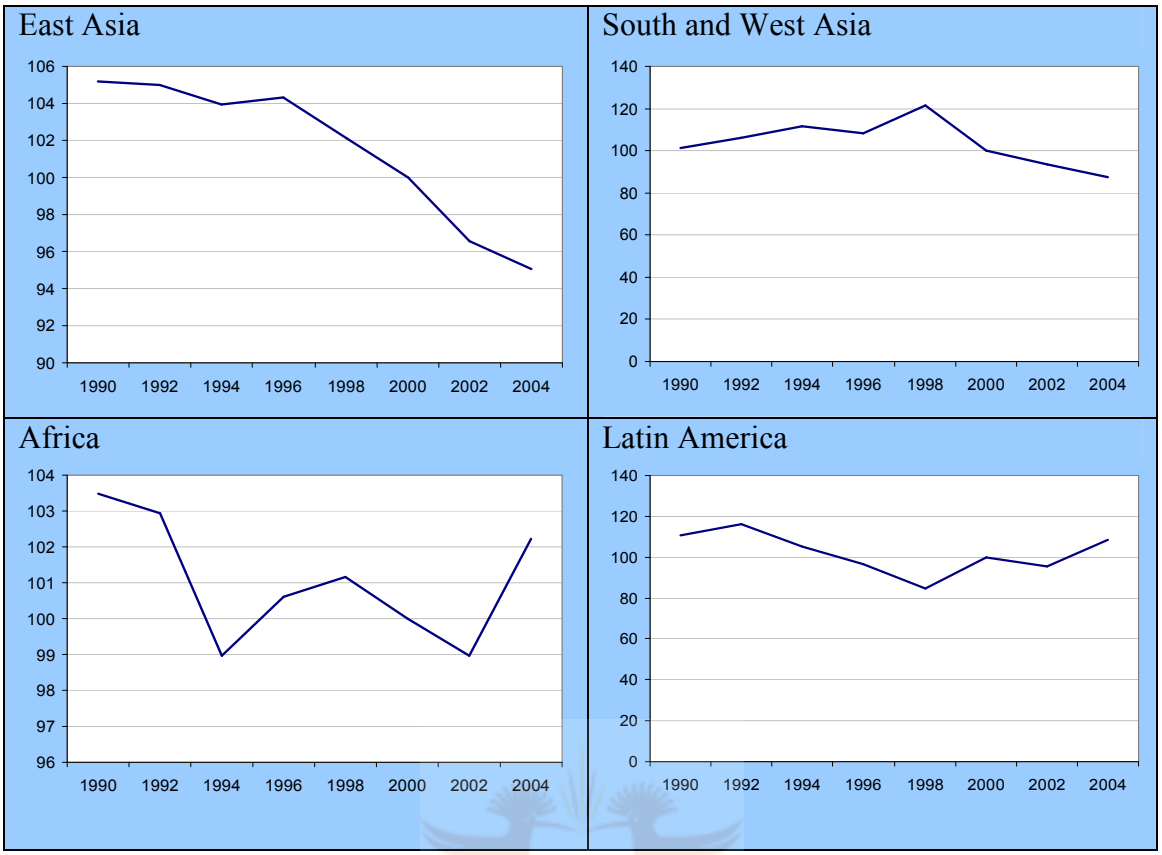
Figure 3: Trends in the Terms of Trade of Developing Countries



Source: Own calculations

Trends in the terms of trade of the different developing regions and countries vary, depending on the composition of their exports and imports prices over the past few years. Before 1992, all emerging markets taken together have been experiencing an upward trend in their net barter terms of trade. After 1992, the countries underwent a sustained downward trend while after 2002 all emerging market economies again experienced an upward trend in their terms of trade.

Figure 4: Trends in the Terms of Trade of Different Developing Regions



Source: Own calculations

The next step was to group the sample countries into different regions: East Asia, South and West Asia, Africa and Latin America. In East Asia, terms of trade were stable before declining in the aftermath of the financial crisis in 1997. South and West Asia's terms of trade were more stable until 1998 while terms of trade for East Asia were stable in the early 1990s up until 1996 when terms of trade started deteriorating. Africa has seen the most volatile terms of trade compared to the other regions. The African terms of trade expanded between 1994 - 1998 and after 2002. The deterioration in the terms of trade in the African countries reached the lowest level in 1994 and 2002.

From early 1990s onwards, the Latin America saw faster growth of terms of trade and that supported the purchasing power of exports. The deterioration in the terms of trade in the Latin American countries reached the lowest level in 1998 and thereafter their terms of trade improved. This could have resulted due to acceleration of exports growth and more favourable exports and imports. Inversely, for the other regions, gains from exports might have been offset by higher import prices.

4.2. The Unit Root Test

Before running the regression, it is important to consider whether the data series are stationary or non-stationary. The stationarity of each variable used is investigated by applying the panel unit root test developed by Levin, Lin and Chu (2002). The test includes an intercept and a trend. It is found that all the variables clearly reject the null hypothesis of a unit root test which means all the data in the panel are stationary. Table 1 presents the results of the unit root test on level for each variable.

Table 1: Panel Data Unit Root Test: Levin Lin and Chu (LLC)

	Education	Financial Depth	Government Expenditure	Growth
T-statistic	-5.97727***	-4.54698***	-1.98934**	-3.82708***
	Inflation	**Investment**	**Per Capita Growth**	**Terms of Trade**
T-statistic	-6.87779***	-2.38312***	-3.53137***	-2.04982**

Note: (*, **, ***) denotes significance level at the 10, 5 and 1 percent, respectively.
Source: Own calculations

Given that all the variables are stationary it is found imperative to test for poolability. The poolability test indicates that the model is not poolable with 2.30189 F-statistics and 0.0030 probabilities.

4.3. Economic Growth Results

4.3.1. Ordinary Least Squares Models (OLS)

The first step in the analysis was to determine the impact of the above variables on economic growth using pooled regression analysis. The OLS estimation is applicable when the dependent variable has no heteroscedasticity effects.

Table 2 reports the OLS regression results. In column 1, the basic model - benchmark: no interaction - is represented. The results show that the coefficients of education, financial depth, government expenditure and inflation are negative, meaning these variables are negatively correlated with economic growth. Moreover, financial depth and inflation are

found to be significant at 10 percent and 5 percent level, respectively. The rest of the variables are insignificant. However, in Table 2 (column 1), investment is positively correlated to economic growth and it is also statistically significant. All these are in accord with expectations.

The results reveal that terms of trade is positively correlated with economic growth. The coefficient of terms of trade has a positive sign as expected (0.04184) which means that terms of trade increases the economic growth rate by 4 percent. It is also statistically significant at the 5 percent level.

Table 2, Column 2 shows the results where education is interacted with terms of trade. The coefficients of education, financial depth, government expenditure and inflation are negatively correlated with economic growth. Financial depth and inflation are statistically significant. Investment shows a positive relationship with economic growth and it is statistically significant at one percent level. The coefficient of interaction of terms of trade with education shows a negative correlation and is statistically insignificant. This implies that international trade results in a larger increase in economic growth when the investment in human capital is stronger.

Financial depth is interacted with terms of trade in column 3. The results are statistically significant which means that financial depth has a positive effect on economic growth. Government spending is also positively correlated with growth, but it is not statistically significant. The coefficient of the interaction of terms of trade and financial depth show a negative correlation with growth and it is significant at the 5 percent level. This suggests that deeper financial markets do not enhance the effect that international trade has on economic growth.

Column 4 reports the results where government expenditure is interacted with terms of trade. With this interaction, financial depth becomes negative once again, but it is still significant. Terms of trade is now insignificant but still has a positive effect on growth. Government expenditure is still not significant, but it has a positive impact on economic growth. The interaction between government spending and terms of trade has a negative coefficient (-0.00159), and it is statistically insignificant. That is the impact of international trade on economic growth is independent of public spending. Therefore,

whether public infrastructure is readily available has no influence on how international trade affect economic growth.

Finally, inflation is interacted with terms of trade in column 5. Education, government expenditure and inflation have negative coefficients, but all of them are insignificant. Financial depth also has a negative coefficient, which is statistically significant. Investment and terms of trade on the other-hand have positive impact on growth, and they are both statistically significant. The coefficient of the interaction of terms of trade and inflation is positively correlated with economic growth 0.00005, but it is not statistically significant. The positive but statistically insignificant coefficient of the interaction of terms of trade and inflation suggest that international trade impact on economic growth is independent of the price level. This possibly reflects that for most inflation values, relative price distortions are not severe. Now with all these said, it appears that the model satisfies economic theory, except for financial depth and education.

4.3.2. Fixed Effects Models (GLS)

The fixed effects model uses LSDV but in this dissertation generalized least squares model is used to account for autocorrelation and heteroscedasticity in the error. Carroll (1982) and Robinson (1987) showed that the GLS estimator is asymptotically efficient in the presence of heteroscedasticity.

In Table 3, fixed effects GLS models are presented. In Column 1, education is found to have a positive impact on economic growth as theory suggests. However, education is still not statistically significant. Financial depth has also persisted to maintain a negative relationship with economic growth. Moreover, unlike in the OLS, the financial depth coefficient is not statistically significant. Interestingly, government expenditure is now statistically significant at the 10 percent level. It is however still negatively correlated to economic growth. Unlike, with the OLS models, inflation is statistically insignificant. The coefficient of inflation also shows a negative correlation with economic growth. Investment is still showing a positive relationship with economic growth. The same relationship has been mentioned through all the OLS models that have been discussed so far.

In the fixed effects GLS model, results indicate that terms of trade has a positive effect on economic growth. The values of the coefficient and the p-value are (0.02297) and (0.12430), respectively. The only difference between fixed effects GLS model results and the results of the OLS models is that in fixed effects GLS, trade openness is statistically insignificant. If it were positively correlated and significant, then it would imply a significant positive impact on economic growth.

Column 2 shows the results of the interaction between education and terms of trade. All the variables have the same coefficient as the benchmark model. Only government spending and investment are significant. Terms of trade still has a positive impact on economic growth, and is still not significant. The coefficient of the interaction between education and terms of trade is negative, and it is not statistically significant.

In column 3, financial depth is interacted with terms of trade. In this model, the coefficient of financial depth is positively correlated with economic growth, but it is not significant. Government expenditure becomes more significant and has a negative effect on growth. Terms of trade are statistically significant at the 5 percent level, with a positive coefficient. This means it has positive impact on economic growth. The interaction of terms of trade with financial dept has negative coefficient which is also not significant.

Column 4 reports the results where government expenditure is interacted with terms of trade. The differences in this model are that government spending becomes more significant at the 1 percent level while financial depth becomes significant at the 10 percent level. Inflation is not significant and has a negative impact on economic growth while education on the other-hand is not significant but it has a positive relationship with growth. Terms of trade also has a significant and negative coefficient. The sign of the interaction between government spending and terms of trade is positive and it is significant at the 5 percent level.

Consequently, inflation is interacted with terms of trade in column 5. Education is statistically significant and also has a positive coefficient which shows that it has a positive effect on economic growth, moreover, financial depth becomes more significant but still has negative coefficient. The coefficient of government expenditure still has a

negative coefficient; however it is now not statistically significant. Interestingly, inflation is statistically significant at the 5 percent level, and has negative coefficient as expected. Throughout all GLS models it was not statistically significant. Investment is the same in all the models and it has a positive coefficient that is significant at the one percent level. It is also interesting to find that terms of trade has a positive coefficient, but it is not significant. The coefficient of the interaction terms of trade with inflation is positive and statistically significant.

Generally, the fixed effect model suggests the effect of international trade effect on economic growth is independent of human capital as well as the level of financial depth. However, more international trade will lead to higher economic growth if there is more public expenditure and if the levels of inflation are low.

4.3.3. Random Effects Models (REM)

Unlike the fixed effects model, the random effects model randomly distributes individual specific constant terms across the cross-sectional units. This becomes possible if it is assumed that the sample cross-sectional units were taken from a large population (Ashra, 2002). The random effects model is employed to control for country-specific and time specific effects. It is assumed that where possible, this model will give unbiased estimates of the coefficients of independent variables.

Table 4 (column 1) shows the basic results when there are no interactions. Now, education has a negative impact on growth and the coefficient of education is also statistically insignificant. Similarly, the random effects model gives a negative correlation between financial depth, government expenditure, inflation and economic growth. The coefficient of inflation is the only one that is statistically significant. The rest are insignificant. Furthermore, the random effects coefficient of investment is almost the same as the one given by the pooled and fixed effect models. In terms of significance, the investment has the same significance in the random effects model which it has in the previous models (pooled and fixed effect models).

The coefficient of terms of trade is found to be significant having a p-value of 0.03230 which is less than 0.05. It also has a positive, that is, a beneficial impact on economic

growth where the coefficient is 0.04188. This coefficient means terms of trade stimulates economic growth rate by 4 percent. This observation supports the expectation as well as economic theory. It means improvements of terms of trade enhance economic growth. This could be because of having greater access to improved and modern technologies which they acquire through international trade.

The interactions between terms of trade and explanatory variables are reported in Table 4. In column 2, education is interacted with terms of trade. The coefficient of education is negatively correlated with growth and it is insignificant. Financial depth and government spending also have the same coefficient sign, and both are not significant. Inflation and investment are statistically significant but while inflation has a negative coefficient, investment has a positive coefficient. This means that inflation has a negative impact on economic growth while investment has a positive effect. Terms of trade also has a positive effect on economic growth, but it is not statistically significant. The coefficient of interaction between terms of trade and education is positive but insignificant.

Column 3 shows the results where terms of trade are interacted with financial depth. Here, unlike the previous one the financial depth coefficient is positive and statistically significant and inflation becomes insignificant, and has a negative coefficient. On the other hand, terms of trade has a positive coefficient (0.10744), and it is significant with a p-value (0.00130), implying that terms of trade has a significant and beneficial impact on economic growth. Interestingly, unlike the financial depth, the coefficient of interaction of terms of trade with financial depth is negative (-0.00092) and statistically significant with p-value (0.03350) which is less than 0.05. This seems a little anomalous, especially when both variables are expected to be positively correlated to economic growth. However, this negative relationship could be due to the fact that most of the countries in the sample do not have strong financial independence.

In column 4, the regression results show that the coefficient of education, inflation, investment and terms of trade are -0.00679, -0.00195, 0.24228 and 0.05631, respectively. In this model terms of trade is interacted with government expenditure. While inflation becomes significant, terms of trade become insignificant with a p-value of 0.26080. Government expenditure now has a positive coefficient, but it is not significant. The

interaction of terms of trade with government spending is insignificant; p-value (0.79270) and also negatively correlated with economic growth, the coefficient is (-0.00114).

Finally, column 5 reports the results where terms of trade are interacted with inflation. Education is still negatively correlated with economic growth and is not significant. Financial depth also has a negative coefficient which is insignificant. Government expenditure becomes negatively correlated with growth, but is still not statistically significant. Inflation shows a negative relationship with economic growth as expected, but is not significant. Investment is statistically significant at the 1 percent level and has a positive impact on growth. Terms of trade also has a positive coefficient (0.03436) and statistically significant at the 10 percent level with a p-value 0.06570. This implies that in terms of trade increases economic growth rate by 3 percent. The coefficient of the interaction of terms of trade with inflation is positive (0.00006), but insignificant. One would be worried about this given positive relationship which is contradicting the theory and expectation however, since the coefficient is insignificant, such relationship is meaningless.

To determine efficiency between the fixed effects and random effects models the Hausman test is employed. It tests the null hypothesis that the coefficients of the random effects model are similar to the ones estimated by the fixed effects model. If the probability is insignificant or the probability of the chi-square statistic is larger than 0.05, then the random effects model is more appropriate to use. In this dissertation the Hausman test is also applied and the results show the probability to be insignificant, given by 1.0000, which means it is safe to use the random effects model.

4.3.4. Generalised Method of Moments Models (GMM)

In the presence of dynamic and endogenous regressor, neither the random effects model nor fixed effects (GLS) estimator produces consistent results. Therefore, for these reasons, GMM is employed in this dissertation in an attempt to obtain consistent results. Furthermore, the coefficient of the lagged economic growth can also be used to determine whether there is convergence amongst the sample countries (Chen and Gupta, 2006). As Chen and Gupta assert the negative coefficient shows that the countries are converging.

Regression results for the GMM estimation method are presented in Table 5. The results of the basic regression with no interaction term are presented in the column 1 and the results of the regressions with interaction terms are given in the columns 2-5.

In the basic regression (Table 5, Column 1), lagged growth has a negative coefficient (-0.63398) and also statistically significant at the 1 percent level which implies convergence between the countries. This means that the countries are growing together and the selected emerging market economies can be expected to catch up with the more advanced economies. The developing economies are expected to copy and even improve on the existing technologies in the richer countries. In addition, the growth coefficient is also statistically significant at the 1 percent level.

Moreover, the GMM difference model is also employed to further determine the effects of terms of trade on economic growth. This model gives a coefficient of 0.08248. Since the coefficient is positive, this further proves that terms of trade is positively correlated to economic growth. In addition to this, the significance has also inversely increased. It is statistically significant at the 1 percent level, with the p-value (0.00150). Thus, based on the economic theory and the results from all the models, terms of trade does prove to have a positive effect on economic growth.

Moreover, in this estimation, education, financial depth, government expenditure and domestic investment are all statistically significant at the 1 percent level. Inflation is the only variable that is not statistically significant. With respect to the expected relationship with economic growth, financial depth and government spending shows an inverse relationship. The expected sign of financial depth is to have a positive and beneficial impact. Inflation also does not show a negative correlation as theory anticipates. Education and domestic investment have a positive coefficient showing a beneficial effect on economic growth.

Table 5 (Columns 2-5) also presents the regression results which show interaction effects between terms of trade and other explanatory variables. These are education, financial depth, government spending and inflation. The reason for adding interaction between terms of trade and explanatory variables is to see whether these variables with terms of trade have a complimentary effect on economic growth.

In column 2, education is interacted with terms of trade. The coefficient of the interaction between terms of trade and lagged growth is statistically significant and shows a negative impact. The coefficients of education, financial depth, government expenditure, investment and terms of trade are statistically significant. Inflation is the only variable that is not significant. The coefficient of interaction of terms of trade with education has a positive sign and it is also statistically significant.

Column 3 shows the regression results where terms of trade is interacted with financial depth. Lagged growth still has a negative coefficient and is statistically significant at 1 percent. Education, government spending, and investment are also statistically significant and they have positive coefficients - except for government spending. Financial depth, inflation and terms of trade are not statistically significant which means they do not have any impact on economic growth.

Column 4 and 5 report the estimates where government expenditure and inflation are interacted with terms of trade respectively. Both regressions show statistically and economically significant relationships between education, investment, terms of trade and economic growth. Financial depth has a negative and statistically significant coefficient in both regressions. Moreover, government expenditure is positively correlated to economic growth, but it statistically insignificant in column 4, while it has a negative and significant coefficient at the 1 percent level (see column 5). Inflation appears to be positively related to economic growth (coefficient in column 4) while it has a negative coefficient in column 5. In both cases it is not statistically significant.

To summarise the results, it has been consistently clear that the fixed effects model (GLS) dominates the ordinary least squares model. Furthermore, the random effects model has dominance on the fixed effects model, and the generalised method of moments model also dominates all the other models used in this empirical analysis.

Given all the results discussed above, all the models suggest that economists are justified in promoting trade liberalisation (free trade policies) as terms of trade proves to generate substantial economic growth and thus enhances the competitive advantage of the country.

4.4. Growth Per Capita Results

GDP per capita takes the value of the GDP and divides it by the number of people in a country to calculate the average value of goods and services produced by each individual. GDP per capita is normally used as an indicator of living standards within an economy. In principle, it is expected that people will benefit as the country' economic growth increases. The argument in favour of using GDP is not that it is a good indicator of the standard of living, but rather that - all other things being equal, the standard of living tends to increase when GDP per capita increases.

Education and training are associated with economic performance. Irrespective of how their contribution is measured, education and its effects on labour quality are among the most important contributors to economic growth. Education makes people more productive particularly in services. Thus the impact of education on growth can be substantially large. The results show a weak evidence of a positive correlation between education and GDP per capita. The coefficient of education is not statistically significant in the pooled and random effect models. However, it is statistically significant in the fixed effects and generalised method of moments models, at 5 and 1 percent respectively. However, while theory suggests that investing in education is an effective way to spur economic growth, macroeconomic evidence points to a weak relationship, at best, between education and growth.

However, the effects of education on economic growth remain almost the same when education is interacted with terms of trade. It has a negative impact on economic growth and the coefficient is insignificant in the pooled and fixed effects models, however, the effect of education on economic growth is positive in the random effect and generalised method of moments models. While the coefficient of education is significant in the generalised method of moments model at 1 percent, it is not significant in the random effects model.

Theory suggests that financial development and growth are positively correlated. This implies that financial depth causes economic growth. As GDP per capita grows due to financial depth, there will be higher income in the economy leading to increased household consumption and investment; thus leading to even better households' welfare.

The results reveal the opposite of what the theory says and the opposite of the expectation. Through all the models (pooled, fixed effects, random effects and generalised method of moments), the coefficient of financial depth is negative. It is also statistically insignificant except in the OLS and GMM models at 5 and 1 percent respectively. These contradicting results are due to the weak financial systems as well as a lack of financial development in most of the sample countries. Most of these countries do not have strong and developed financial systems, hence they rely on external finance, thus accumulating and increasing their external debts.

When the financial depth is interacted with terms of trade, the results show that it is still significant and has a negative coefficient in the pooled model at 1 percent. In the fixed effects model, it has the same coefficient sign and is insignificant. Financial depth has negative coefficients in the random effects and generalised method of moments models. However, it is significant at 5 percent in the REM, while it becomes insignificant in the GMM model.

There are conflicting opinions as to whether government spending promotes or hinders economic growth. Those advocating large government spending argue that such expenditure provides valuable goods and services such as infrastructure and education. Such expenditure also ensures that the households do get some incomes which can then be spent on goods and services.

Inversely, those who support small government spending argue that large government expenditure transfers resources from more productive sectors of the economy to government which is does not use them efficiently. Now, according to the results, a change in the share of government spending has a negative and statistically insignificant impact on changes in the growth rate of real per capita GDP (according to the pooled and random effects models). The results given by the fixed effects and generalised method of moments models however still show a negative correlation but the coefficient of government spending is statistically significant at 5 percent and 1 percent respectively. However, as Barro (1990) suggested, the impact of government spending on economic growth may vary depending on the component of government expenditures that is considered (that is the share of government investment in GDP or the share of government consumption in GDP).

The empirical results suggest a slight or zero impact on per capita real output growth. This could be due to the fact that the sample countries are facing large budget deficits. Thus, it is believed in this dissertation that a large and growing government spending especially government consumption (not investment) is not always conducive to more economic growth. The results with interaction show that government expenditure still has negative coefficients in the pooled, random effects and generalised method of moments models. In the GMM model, it is significant at 1 percent, while it is insignificant in the other models. The coefficient of government spending is positive and statistically significant in fixed effects model.

Inflation, as a symptom of macroeconomic instability, is expected to carry a negative effect. The results reveal that inflation is significant and negatively correlated to growth per capita in all the models except in fixed effects (it has a negative coefficient but not significant) and GMM. These results support the theory and expectations as per this dissertation. The GMM results – positive relationship with GDP per capita – however, contradict the theory. But this positive correlation is nothing to worry about since the coefficient of inflation is not statistically significant.

Now trying to find an explanation for these results, it is important to look at the results given above (for government spending) as well. The models give mixed results as far as these two variables are concerned. The results show the impacts of both government spending and inflation to be positive and negative in some instances. Now, if the levels of government consumption and inflation are relatively low, they may affect growth positively. However, for large levels of government consumption and high and continuously increasing inflation, the growth may be negatively affected.

When inflation is interacted with terms of trade the results reveal that inflation has a positive coefficient in all models (OLS, fixed effects (GLS), REM, and GMM). These positive coefficients are statistically insignificant except in the fixed effects model.

Investment is everything which persists after consumptions and getting the benefits of it is essential to increase productivity. It is a component of gross domestic product and it is also the key for sustainable economic growth. The empirical results show that investment is highly beneficial for economic growth, and this is shown by a statistically significant

coefficient in all models. In all models, it is positively correlated with growth, for example in the pooled and generalised method of moments models, the coefficient is 0.27154 and 1.09008 respectively. In many empirical analyses investment has a significant and positive impact on economic growth.

Terms of trade means the relative prices of a country's exports to imports, and it measures the rate of exchange of one good or service for another good or service when there is trade between two countries. An improvement of a country's terms of trade is important for that country's economic growth. Terms of trade is beneficial for each country only if it falls within the opportunity cost ratios for both countries, moreover, the worsening terms of trade could have an adverse impact on standard of living in that country.

In the empirical analysis the aim is to investigate whether terms of trade is beneficial for selected emerging economies' standards of living. The regression results show that it is positively correlated with standard of living. The coefficient of terms of trade of the pooled, fixed effects, random effects and generalised method of moments models is 0.04157, 0.02363, 0.04108 and 0.09397 respectively. The terms of trade are statistically significant in all models except the fixed effects model. It is becoming more significant through the models and it is significant at 1 percent in the generalised method of moments model with a p-value equal to 0.00020.

CHAPTER 5

5. CONCLUSION

This dissertation employed panel data analysis to investigate whether trade liberalisation leads to competitiveness in emerging markets. The study entails a collection of eighteen emerging markets and measures of economic variables - such as, education, financial depth, government expenditure, inflation, investment, and terms of trade, per capita income and growth rate - collected annually for fifteen years.

The two models employed in the study are the growth model and the per capita growth model. The first model investigates the impact of terms of trade on overall economic growth, and the second one looks at the share of such an effect on the population at large. In both models, a four step panel data analysis is used whereby the first step entails OLS analysis and the second step is the GLS analysis. The third step is the random effects model and the fourth and last step is the GMM analysis.

5.1. Findings

As mentioned above, the first step in the analysis was to determine the impact of the above variables on economic growth using ordinary least squares (OLS) regression analysis. The OLS results reveal that education and financial depth have negative effects on economic growth which is contradictory to the expected positive relationship. Education is positively correlated with per capita growth, but in this model, it is not statistically significant. However, government expenditure and inflation have negative impacts on productivity which was expected. Investment and terms of trade are positively correlated with economic growth and they are also statistically significant. The models are also estimated by including interaction terms between terms of trade and other explanatory variables except investment. With these interactions, inflation appears to be the only variable that does not meet the expectations.

In the second step a fixed effects model (GLS) was employed and it is found that education has a positive impact on the productivity as theory suggest. However, it is still not statistically significant. Financial depth has also persisted to maintain a negative relationship with growth. The only difference is that it is now insignificant. Government expenditure is now statistically significant, however it is still negatively related to economic growth. The same results are found for inflation, but it is now insignificant. The GLS results indicate that investment and trade openness have a positive impact on economic growth. The only difference between the GLS and OLS models is that in GLS, trade openness is statistically insignificant. Education is the only variable that has a different result when it comes to the per capita growth model. The difference is that unlike in the growth model, education is statistically significant in the per capita growth model. With the interactions, education and financial depth have negative coefficients and are insignificant. Government expenditure and inflation have positive coefficients and are statistically significant.

The third step entails the random effects model (REM) which was employed to control for country-specific and time specific effects. The differences in this model are that education has an adverse effect on economic growth. While government expenditure becomes insignificant, inflation turned to be significant, and terms of trade become statistically significant. In the per capita growth model, education is still the only variable that has a different result – that is, the positive impact on per capita growth. The interactions show a positive relationship between education and inflation and both growth and per capita growth. However, financial depth and government spending are negatively related to economic growth and living standards.

Finally, the generalised method of moments (GMM) model was employed in this dissertation in an attempt to obtain consistent results due to the weaknesses associated with the other models. In this analysis, education, financial depth, government expenditure, domestic investment and terms of trade are all statistically significant at the 1 percent level. Inflation is the only variable that is not statistically significant. Furthermore, financial depth and government spending demonstrate an inverse relationship. The expectation is that financial depth should have a positive and beneficial effect. Inflation also does not show a negative correlation as theory anticipates. Education and domestic investment have positive coefficients showing beneficial effects on

economic growth. Finally, terms of trade also has a positive coefficient which indicates that openness has a positive impact on economic growth. In the interactions, education and government spending show the expected effect on growth. Finally, financial depth and inflation are inversely related to productivity. Similar relationships are found in the per capita growth model.

All these said, the coefficient of the lagged economic growth is employed to find out if the sample countries are converging. It is found that there is convergence amongst the emerging economies. This means that the countries are growing together, and emerging economies can be expected to catch up with the more advanced economies. The reason being that through trade liberalisation, there should be knowledge and technology spillovers. Thus, the emerging markets are expected to copy and even improve on the existing technologies in the richer countries.

5.2. Implications of the Findings

Given the results in this dissertation, it is clear that trade liberalisation does improve economic growth which in turn leads to competitiveness. The slow growing country can not compete with the fast growing economies in any way. Therefore, for the countries (especially developing and underdeveloped) to experience satisfactory growth, they have to ensure free movement of goods and services between borders. One big global market is only possible through trade liberalisation. This means that countries that still have restrictions on trade should abandon such restrictions and adopt policies that allow free trade. Moreover, it is important to ensure that the industrialised economies are giving the emerging market economies a chance by removing subsidies. With this, international trade will therefore be free and fair and hence competitiveness will be encouraged.

5.3. Policy Recommendations

There has been great progress in emerging markets in terms of liberalising trade. Now with this in place, it is important for policy makers to ensure that policies that encourage an absolute free trade are implemented. This will ensure high productivity and thus high economic growth. Productivity will also ensure that the countries are becoming more competitive internationally.

Moreover, the African countries should totally abolish restrictive trade policies in order to enjoy the benefits that accrue from free trade. In Africa there is a lack of differentiated products. Now with liberalised trade, these countries and others will be able to get whatever can not be produced domestically at lower costs. Once again, this will ensure that countries produce whatever they are good at producing knowing that they can obtain other products from those who know how to produce them better. This being the case, the countries will be more competitive.

5.4. Future Research

A detailed panel data analysis to investigate whether cultural, institutional and geographical factors have any contribution towards trade liberalisation is of great importance as it will explain why some countries liberalise trade more than the others.

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APPENDIX

Appendix 1: Summary of Definitions and Sources of Variables

Variable	Abbreviation	Description
Education	**EDU**	Human capital is the first important source of economic growth that can be measured in terms of education level. This study uses an annual data of secondary gross enrolment rate as a proxy for human capital.
Financial Depth	**FIN**	Financial development is an important variable in determining economic growth and it normally has some prediction power for future economic growth. The domestic credit provided by the banking sector (% of GDP) is used in this study as a proxy for financial depth.
Government Expenditure	**GOV**	General government final consumption expenditure (% of GDP) is used in this study. It is expected that government expenditure may affect economic growth negatively.
Growth	**GROWTH**	This variable is used in this study as a dependent variables and it represents the real percentage growth rate of each country.
Inflation	**INF**	Economists often refer to inflation as an increase in the general price level. In the existing empirical studies, it is found that there is a negative relationship between inflation and economic growth. Annual consumer price index in percentage is used.
Domestic Investment	**INV**	Domestic investment is a key determinant of higher economic growth and there is a direct reciprocal relationship between domestic investment and foreign direct investment. Gross fixed capital formation (% of GDP) is used as a proxy of domestic investment.

(Continued)

Appendix 1: Continued

Variable	Abbreviation	Description
Per Capita Growth	**GDPPC**	This variable is also used in this study as a dependent variable. Annual percentage in GDP per capita growth rate is used in this study for the period 1990 to 2004.
Terms of Trade	**TOT**	Terms of trade is defined as the relative prices of a country's exports to imports and it is a measure of the competitiveness of a country. Thus an improvement of a country's terms of trade is beneficial, because then the country can pay for many imports by selling a small amount of exports. Likewise should the terms of trade deteriorate, the country can import fewer goods and services in exchange for a given volume of exports. In this study net barter terms of trade which was made constant by taking 2000 as a base year is used.

Note: - All data is extracted from World Bank, World Development Indicators (2007) except education. Education is extracted from World Bank, Edstats Data Query (2006).
- All data starts from 1990 to 2004.

Appendix 2: Characteristics of Emerging Market Economies

No	Country	Summary of Economic Growth and Competitiveness
1	Botswana (BWA)	Botswana is said to be devoted to trade liberalisation especially because it is a landlocked country and has to look outside its borders for the market of its products and services. According to world outlook there is need to support the diversification of the economy from the dependence on resources. Botswana need to support businesses and take part its in business abilities in other to it can improve the business competition which is reliant on trade liberalisation.
2	Brazil (BRA)	The rapid recovery of Brazil from economic recession in 2003 is ascribed to trade, more importantly exports. If Brazil embarks on further liberalization, it will gain competitiveness, become more efficient and therefore experience higher growth rates.

(Continued)

Appendix 2: Continued

No	Country	Summary of Economic Growth and Competitiveness
3	Chile (CHL)	Chile adopted new trade policy at the beginning of the 1990's. It has maintained and continued to liberalise its trade and investment regime. Liberalising trade and adoption of sound macroeconomic policies have ensured the resilience to external shocks.
4	China (CHN)	Trade liberalisation has become China's enduring strategy reform. China has become the most competitive and the fastest growing country in the global market, only because of trade liberalisation and policy reforms.
5	Egypt, Arab Rep. (EGY)	Egypt managed to become competitive, alleviate poverty, create jobs and achieve sustainable development because of trade liberalisation.
6	India (IND)	India began trade liberalisation in 1991 and since then, it has been recording high economic growth and has been highly competitive in the global market.
7	Indonesia (IDN)	Indonesia began its trade liberalisation in the 1970's and it was increased in 1986 where qualitative and non-tariff barrier were removed. Trade liberalisation in Indonesia has ensured steady growth rates.
8	Korea, Rep. KOR)	Stable economic growth in Korea has resulted due to economic reforms as well as trade liberalisation. Korea abandoned import substitution and adopted export oriented measures and has since recorded high growth rates.
9	Malaysia (MYS)	Malaysian economy recovered from the Asian crisis and managed to keep unemployment inflation low because of trade openness. Given this, it is important to note that trade liberalisation has brought hope to Malaysia.
10	Mexico (MEX)	In Mexico privatisation occurred before trade liberalisation. However, the two have ensured high growth rates in Mexico.
11	Morocco (MAR)	Morocco has liberalised its trade and this has contributed to steady growth rates recorded in this country.

(Continued)

Appendix 2: Continued

No	Country	Summary of Economic Growth and Competitiveness
12	Pakistan (PAK)	Trade openness have increased in Pakistan and the increased trade liberalisation together with macroeconomic reform have contributed to strong economic growth.
13	Philippines (PHL)	Trade liberalisation had played an essential role in Philippines towards economic growth and competitiveness. Philippines prioritised trade liberalisation and the macroeconomic structural reform.
14	South Africa (ZAF)	Reintegration of South Africa into the global market has been a success. It is following the structural reform that is aught to see the South African products compete successfully in the international market.
15	Thailand (THA)	Thailand has also liberalised its trade and this has resulted with higher growth rates. It has been encouraging growth in export as well as domestic consumption.
16	Tunisia (TUN)	In Tunisia, trade liberalisation brought about an increase in foreign direct investment and sustained economic growth and therefore reduction in poverty and improved living standards. Trade liberalisation has also ensured that Tunisia is competitive in the global market.
17	Turkey (TUR)	Turkey has been pursuing strategies that will ensure its goal of accession to the European Communities. It is has been pursuing trade liberalisation strategy by negotiating at the multilateral, regional as well as bilateral levels.
18	Venezuela, RB (VEN)	Trade liberalisation did not revive the Venezuelan economy immediately. However, Venezuelan producers became aware have to become competitive both at home and abroad. Trade liberalisation did enhance growth in Venezuela.

Source: Own compilation.

Table 2: Growth - Ordinary Least Squares Models (OLS)

		Interaction of Terms of Trade with:			
Regression	**1**	**2**	**3**	**4**	**5**
Model	**No Interactions**	**Education**	**Financial Depth**	**Government Expenditure**	**Inflation**
Constant	-4.13203**	-4.17679	-10.40299***	-5.96306	-3.48824*
	(1.9755)	(5.2143)	(3.2524)	(5.9831)	(2.0971)
Education (EDU)	-0.00891	-0.00811	-0.01328	-0.00913	-0.00804
	(0.0125)	(0.0872)	(0.0125)	(0.0125)	(0.0125)
Financial Depth (FIN)	-0.00921*	-0.00922*	0.08380**	-0.00886*	-0.00974*
	(0.0051)	(0.0052)	(0.0389)	(0.0053)	(0.0052)
Government (GOV)	-0.01525	-0.01532	0.00211	0.13950	-0.01972
Expenditure	(0.0553)	(0.0559)	(0.0553)	(0.4804)	(0.0555)
Inflation (INF)	-0.00237**	-0.00237**	-0.00140	-0.00214*	-0.01026
	(0.0010)	(0.0011)	(0.0011)	(0.0012)	(0.0087)
Investment (INV)	0.25316***	0.25321***	0.25981***	0.24919***	0.25623***
	(0.0358)	(0.0362)	(0.0355)	(0.0379)	(0.0359)
Terms of Trade(TOT)	0.04184**	0.04227	0.10352***	0.06157	0.03541*
	(0.0177)	(0.0496)	(0.0310)	(0.0634)	(0.0191)
Interactions:					
TOT*Education		-0.00001			
		(0.0008)			
TOT*Financial Depth			-0.00091**		
			(0.0004)		
TOT*Government Expenditure				-0.00159	
				(0.0049)	
TOT*Inflation					0.00005
					(0.0001)
R-squared	0.20303	0.20303	0.22037	0.20335	0.20558
Adjusted R-squared	0.18485	0.18173	0.19954	0.18206	0.18435

Note: (*, **, ***) denotes statistical significance at the 10, 5 and 1 percent level, respectively.
Standard errors are in parentheses.
Source: Own calculations

Table 3: Growth - Fixed Effects Models (GLS)

		Interaction of Terms of Trade with:			
Regression	**1**	**2**	**3**	**4**	**5**
Model	**No Interactions**	**Education**	**Financial Depth**	**Government Expenditure**	**Inflation**
Constant	-0.82245 (3.1310)	-0.95561 (5.1168)	-6.01245 (4.5821)	10.04559** (4.8532)	1.23572 (2.6571)
Education (EDU)	0.03046 (0.0216)	0.03129 (0.0646)	0.02772 (0.0256)	0.03470 (0.0221)	0.03695* (0.0217)
Financial Depth (FIN)	-0.02511 (0.0164)	-0.02488 (0.0168)	0.04138 (0.0508)	-0.02766* (0.0155)	-0.03831** (0.0183)
Government (GOV) Expenditure	-0.19050* (0.1063)	-0.19030* (0.1102)	-0.19616** (0.1002)	-1.07519*** (0.4263)	-0.15548 (0.1062)
Inflation (INF)	-0.00031 (0.0016)	-0.00033 (0.0016)	-0.00003 (0.0018)	-0.00115 (0.0014)	-0.01543** (0.0067)
Investment (INV)	0.23529*** (0.0572)	0.23629*** (0.0591)	0.24289*** (0.0591)	0.25664*** (0.0578)	0.24224*** (0.0562)
Terms of Trade(TOT)	0.02297 (0.0149)	0.02410 (0.0412)	0.07169** (0.0366)	-0.10006* (0.0529)	0.00195 (0.0122)
Interactions:					
TOT*Education		-0.00001 (0.0006)			
TOT*Financial Depth			-0.00060 (0.0005)		
TOT*Government Expenditure				0.00945** (0.0044)	
TOT*Inflation					0.00011** (0.0000)
R-squared	0.54628	0.54404	0.55862	0.55372	0.56373
Adjusted R-squared	0.50386	0.49938	0.51538	0.51000	0.52099

Note: (*, **, ***) denotes statistical significance at the 10, 5 and 1 percent level, respectively.
Standard errors are in parentheses.
Source: Own calculations

Table 4: Growth - Random Effects Models (REM)

		Interaction of Terms of Trade with:			
Regression	**1**	**2**	**3**	**4**	**5**
Model	**No Interactions**	**Education**	**Financial Depth**	**Government Expenditure**	**Inflation**
Constant	-3.78891	-2.69768	-10.37277***	-5.03800	-3.00634
	(2.3845)	(5.7546)	(3.7016)	(4.4869)	(2.3045)
Education (EDU)	-0.00692	-0.02712	-0.01253	-0.00679	-0.00535
	(0.0151)	(0.0730)	(0.0162)	(0.0161)	(0.0155)
Financial Depth (FIN)	-0.01077	-0.01047	0.08381**	-0.01089	-0.01187
	(0.0086)	(0.0088)	(0.0430)	(0.0094)	(0.0090)
Government (GOV)	-0.03084	-0.02750	-0.01611	0.07665	-0.03823
Expenditure	(0.0823)	(0.0791)	(0.0876)	(0.4354)	(0.0826)
Inflation (INF)	-0.00213**	-0.00209**	-0.00127	-0.00195*	-0.01047
	(0.0010)	(0.0010)	(0.0014)	(0.0011)	(0.0075)
Investment (INV)	0.24655***	0.24579***	0.25378***	0.24228***	0.24992***
	(0.0306)	(0.0302)	(0.0319)	(0.0362)	(0.0315)
Terms of Trade(TOT)	0.04188**	0.03107	0.10744***	0.05631	0.03436*
	(0.0195)	(0.0527)	(0.0330)	(0.0500)	(0.0186)
Interactions:					
TOT*Education		0.00019			
		(0.0007)			
TOT*Financial Depth			-0.00092**		
			(0.0004)		
TOT*Government Expenditure				-0.00114	
				(0.0043)	
TOT*Inflation					0.00006
					(0.0001)
R-squared	0.16228	0.16463	0.17570	0.15636	0.16137
Adjusted R-squared	0.14317	0.14231	0.15367	0.13382	0.13897

Note: (*, **, ***) denotes statistical significance at the 10, 5 and 1 percent level, respectively.
Standard errors are in parentheses.
Source: Own calculations

Table 5: Growth - Generalized Method of Moments Models (GMM)

		Interaction of Terms of Trade with:			
Regression	**1**	**2**	**3**	**4**	**5**
Model	**No Interactions**	**Education**	**Financial Depth**	**Government Expenditure**	**Inflation**
GROWTH(-1)	-0.63398***	-0.63242***	-0.64960***	-0.65087***	-0.63176***
	(0.0264)	(0.0232)	(0.0239)	(0.0231)	(0.0273)
Education (EDU)	0.12081***	-0.23251**	0.10561***	0.07458*	0.12203***
	(0.0421)	(0.1005)	(0.0414)	(0.0428)	(0.0429)
Financial Depth (FIN)	-0.12616***	-0.12297***	-0.10757	-0.12759***	-0.13116***
	(0.0169)	(0.0156)	(0.0926)	(0.0162)	(0.0184)
Government (GOV)	-1.16630***	-1.17011***	-1.22422***	1.13109	-1.14455***
Expenditure	(0.2229)	(0.2067)	(0.2284)	(0.7186)	(0.2172)
Inflation (INF)	0.00210	0.00375	0.00141	0.00323	-0.00963
	(0.0025)	(0.0025)	(0.0024)	(0.0022)	(0.0126)
Investment (INV)	1.10039***	1.12342***	1.12516***	1.06783***	1.09129***
	(0.0533)	(0.0499)	(0.0513)	(0.0550)	(0.0554)
Terms of Trade(TOT)	0.08248***	-0.16069**	0.09932	0.41400***	0.06961***
	(0.0256)	(0.0657)	(0.0787)	(0.1010)	(0.0270)
Interactions:					
TOT*Education		0.00361***			
		(0.0010)			
TOT*Financial Depth			-0.00006		
			(0.0009)		
TOT*Government Expenditure				-0.02399***	
				(0.0071)	
TOT*Inflation					0.00008
					(0.0001)
R-squared	0.38580	0.37554	0.39077	0.40153	0.39539
Adjusted R-squared	0.36956	0.35620	0.37190	0.38300	0.37667

Note: (*, **, ***) denotes statistical significance at the 10, 5 and 1 percent level, respectively.
Standard errors are in parentheses.
Source: Own calculations

Table 6: Per Capita Growth - Ordinary Least Squares Models (OLS)

		Interaction of Terms of Trade with:			
Regression	**1**	**2**	**3**	**4**	**5**
Model	**No Interactions**	**Education**	**Financial Depth**	**Government Expenditure**	**Inflation**
Constant	-6.88680***	-7.54201	-13.94904***	-7.65705	-6.11544***
	(1.9690)	(5.1971)	(3.2318)	(5.9645)	(2.0888)
Education (EDU)	0.00309	0.01482	-0.00182	0.00300	0.00414
	(0.0125)	(0.0869)	(0.0124)	(0.0125)	(0.0125)
Financial Depth (FIN)	-0.01015**	-0.01024**	0.09459***	-0.01000*	-0.01078**
	(0.0051)	(0.0052)	(0.0386)	(0.0052)	(0.0051)
Government (GOV)	-0.02073	-0.02174	-0.00119	0.04436	-0.02609
Expenditure	(0.0551)	(0.0557)	(0.0549)	(0.4789)	(0.0553)
Inflation (INF)	-0.00213**	-0.00216**	-0.00105	-0.00204*	-0.01159
	(0.0010)	(0.0011)	(0.0011)	(0.0012)	(0.0086)
Investment (INV)	0.27154***	0.27225***	0.27902***	0.26987***	0.27522***
	(0.0356)	(0.0361)	(0.0353)	(0.0377)	(0.0358)
Terms of Trade(TOT)	0.04157**	0.04786	0.11103***	0.04987	0.03386*
	(0.0177)	(0.0494)	(0.0308)	(0.0632)	(0.0190)
Interactions:					
TOT*Education		-0.00011			
		(0.0008)			
TOT*Financial Depth			-0.00103***		
			(0.0004)		
TOT*Government Expenditure				-0.00067	
				(0.0049)	
TOT*Inflation					0.00006
					(0.0001)
R-squared	0.22014	0.22020	0.24181	0.22020	0.22375
Adjusted R-squared	0.20235	0.19936	0.22155	0.19936	0.20301

Note: (*, **, ***) denotes statistical significance at the 10, 5 and 1 percent level, respectively.
Standard errors are in parentheses.
Source: Own calculations

Table 7: Per Capita Growth - Fixed Effects Models (GLS)

		Interaction of Terms of Trade with:			
Regression	**1**	**2**	**3**	**4**	**5**
Model	**No Interactions**	**Education**	**Financial Depth**	**Government Expenditure**	**Inflation**
Constant	-2.66578 (3.2475)	-3.67437 (5.2254)	-8.44476* (4.6201)	8.61223** (4.6117)	-0.69053 (2.7659)
Education (EDU)	0.04789** (0.0215)	0.06791 (0.0645)	0.04742* (0.0253)	0.05426** (0.0226)	0.05302** (0.0219)
Financial Depth (FIN)	-0.01910 (0.0159)	-0.01985 (0.0163)	0.05511 (0.0505)	-0.02284 (0.0152)	-0.03224* (0.0180)
Government (GOV) Expenditure	-0.26085** (0.1132)	-0.26747** (0.1161)	-0.28655*** (0.1070)	-1.18840*** (0.4279)	-0.22040** (0.1138)
Inflation (INF)	-0.00013 (0.0016)	-0.00016 (0.0015)	0.00020 (0.0017)	-0.00097 (0.0014)	-0.01450** (0.0068)
Investment (INV)	0.21300*** (0.0581)	0.21459*** (0.0597)	0.22106*** (0.0601)	0.23433*** (0.0584)	0.21973*** (0.0572)
Terms of Trade(TOT)	0.02363 (0.0146)	0.03426 (0.0407)	0.07877** (0.0371)	-0.10351** (0.0509)	0.00355 (0.0123)
Interactions:					
TOT*Education		-0.00019 (0.0006)			
TOT*Financial Depth			-0.00066 (0.0005)		
TOT*Government Expenditure				0.00984** (0.0043)	
TOT*Inflation					0.00010** (0.0000)
R-squared	0.48824	0.48812	0.50316	0.49968	0.50071
Adjusted R-squared	0.44039	0.43798	0.45449	0.45067	0.45180

Note: (*, **, ***) denotes statistical significance at the 10, 5 and 1 percent level, respectively.
Standard errors are in parentheses.
Source: Own calculations

Table 8: Per Capita Growth - Random Effects Models (REM)

		Interaction of Terms of Trade with:			
Regression	**1**	**2**	**3**	**4**	**5**
Model	**No Interactions**	**Education**	**Financial Depth**	**Government Expenditure**	**Inflation**
Constant	-6.38228***	-6.02099	-13.60133***	-6.58852	-5.48080***
	(2.2976)	(5.4414)	(3.6704)	(4.3560)	(2.2342)
Education (EDU)	0.00632	0.00020	0.00010	0.00682	0.00814
	(0.0154)	(0.0691)	(0.0162)	(0.0162)	(0.0158)
Financial Depth (FIN)	-0.01113	-0.01110**	0.09248**	-0.01128	-0.01225
	(0.0086)	(0.0090)	(0.0439)	(0.0092)	(0.0089)
Government (GOV)	-0.03844	-0.03830	-0.02052	-0.01722	-0.04637
Expenditure	(0.0828)	(0.0816)	(0.0865)	(0.4272)	(0.0828)
Inflation (INF)	-0.00189*	-0.00187*	-0.00096	-0.00183*	-0.01160
	(0.0010)	(0.0010)	(0.0014)	(0.0011)	(0.0073)
Investment (INV)	0.25653***	0.25570***	0.26485***	0.25336***	0.26003***
	(0.0289)	(0.0289)	(0.0302)	(0.0351)	(0.0295)
Terms of Trade(TOT)	0.04108**	0.03772	0.11257***	0.04424	0.03233*
	(0.0189)	(0.0503)	(0.0324)	(0.0492)	(0.0182)
Interactions:					
TOT*Education		0.00006			
		(0.0006)			
TOT*Financial Depth			-0.00101**		
			(0.0004)		
TOT*Government Expenditure				-0.00025	
				(0.0043)	
TOT*Inflation					0.00007
					(0.0000)
R-squared	0.16744	0.16621	0.18702	0.16062	0.16765
Adjusted R-squared	0.14844	0.14394	0.16530	0.13819	0.14541

Note: (*, **, ***) denotes statistical significance at the 10, 5 and 1 percent level, respectively.
Standard errors are in parentheses.
Source: Own calculations

Table 9: Per Capita Growth - Generalized Method of Moments Models (GMM)

		Interaction of Terms of Trade with:			
Regression	**1**	**2**	**3**	**4**	**5**
Model	**No Interactions**	**Education**	**Financial Depth**	**Government Expenditure**	**Inflation**
GROWTH(-1)	-0.63824***	-0.63511***	-0.64515***	-0.64987***	-0.63638***
	(0.0241)	(0.0220)	(0.0215)	(0.0223)	(0.0251)
Education (EDU)	0.09997***	-0.22899***	0.10452***	0.05550	0.09782***
	(0.0371)	(0.0823)	(0.0335)	(0.0353)	(0.0382)
Financial Depth (FIN)	-0.11587***	-0.11371***	-0.08745	-0.11290***	-0.11975***
	(0.0148)	(0.0136)	(0.0881)	(0.0131)	(0.0165)
Government (GOV)	-1.06914***	-1.08560***	-1.16511***	1.69360**	-1.04224***
Expenditure	(0.2078)	(0.1994)	(0.2078)	(0.7286)	(0.2056)
Inflation (INF)	0.00086	0.00271	0.00045	0.00265	-0.00842
	(0.0017)	(0.0019)	(0.0017)	(0.0017)	(0.0109)
Investment (INV)	1.09008***	1.10639***	1.11107***	1.04080***	1.08029***
	(0.0457)	(0.0413)	(0.0438)	(0.0492)	(0.0477)
Terms of Trade(TOT)	0.09397***	-0.14367**	0.12153*	0.48234***	0.08061***
	(0.0247)	(0.0602)	(0.0733)	(0.0958)	(0.0263)
Interactions:					
TOT*Education		0.00345***			
		(0.0009)			
TOT*Financial Depth			-0.00021		
			(0.0008)		
TOT*Government Expenditure				-0.02841***	
				(0.0069)	
TOT*Inflation					0.00006
					(0.0001)
R-squared	0.39168	0.38271	0.39029	0.40637	0.39948
Adjusted R-squared	0.37560	0.36360	0.37140	0.38798	0.38088

Note: (*, **, ***) denotes statistical significance at the 10, 5 and 1 percent level, respectively.
Standard errors are in parentheses.
Source: Own calculations