INTERNATIONAL TRADE AS A DETERMINANT OF FINANCIAL SECTOR DEVELOPMENT IN MALAWI

A Master of Arts (Economics) Thesis

BY

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DECLARATION

I declare that this thesis is my original work and has not been submitted to any university for an award of a degree before.

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STATEMENT OF APPROVAL

This thesis has been submitted with our approval.

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DEDICATION

TO
The woman who sacrificed all she could to make me what I am today, my greatest teacher and my heroine, my mother.

AND

The man of God who has taught me to always wait upon the Lord and to work hard, the man who is always proud of me, my father.

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ABSTRACT

Due to a growing interest among economists in financial development as a key driver of economic growth and poverty reduction, the economy of Malawi, just like other developing countries, has taken a number of efforts in trying to improve the performance the financial sector. At the same, efforts to open up the country for trade have not been compromised. This has been due to the belief that outward-oriented trade strategies promote sustainable economic growth in developing countries. However, it is not we-known whether these two courses of action are in harmony with each other for Malawi since not much work has been done on the subject. Studies carried out on the subject have had different conclusions. The general conclusion that can be drawn from such studies is that trade openness has different impact on financial sectors of different economies. The study therefore seeks to analyze how the financial sector in Malawi is affected by openness to trade.

The study used time series data for Malawi for the period 1970-2005 and Ordinary Least Squares approach to estimate the financial sector development equation. Cointegration and Error correction modeling was adopted to analyze the short and long run impact of trade openness on the financial sector. The results of the two equations support the view that trade openness positively impacts financial development in Malawi. The findings of the study imply that trade openness is compatible with financial sector development and the two courses of action can be taken simultaneously.

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LIST OF ACRONYMS

ACP	African, Caribbean and Pacific Group of States
ADF	Augmented Dickey-Fuller
AERC	African Economic Research Consortium
AEG	Augmented Engle-Granger
AGOA	African Growth and Opportunity Act
ARCH	Autoregressive Conditional Heteroscedasticity
CLRM	Classical Linear Regression Model
COMESA	Common Market for Eastern and Southern Africa
CU	Customs Union
EBA	Everything but Arms
ECM	Error Correction Model
EU	European Union
FTA	Free Trade Area
GDP	Gross Domestic Product
GMM	Generalized Method of Moments
ITA	Information Technology Agreement
MEGS	Malawi Economic Growth Strategy
MGDS	Malawi Growth and Development Strategy
MPRS	Malawi Poverty Reduction Strategy
OECD	Organization of Economic Cooperation and Development
OLS	Ordinary Least Squares
RBM	Reserve Bank of Malawi
RSA	Republic of South Africa
SADC	Southern African Development Community
SAPs	Structural Adjustment Programmes
WTO	World Trade Organization

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CHAPTER ONE

INTRODUCTION

1.1 Chapter Overview

This chapter of the study gives the background to the study, statement of the problem and relevance of the study. It goes further to give the objectives of the study and hypotheses to be tested, and how the rest of the paper is organized.

1.2 Background to the study

In recent years, there has been a growing interest among economists in financial development as a key driver of economic growth and poverty reduction.[1] At the same time, the effects of a country's openness to trade have taken centre stage in a number of policy debates.

The economy of Malawi has not been spared from such kinds of debates. No wonder, in the 1980's Malawi adopted trade liberalization policies as part of Structural Adjustment Programs (SAPs), aiming at increasing growth through reduction in inefficiencies of investment and thereby facilitating the rate of economic growth (Ahsan, 2000). Simultaneously, financial reform programs have been initiated with the aim of improving the performance of the financial sector. These, among other things, involve the abandonment of credit ceilings and rationing in 1988 and the revision of the Reserve Bank of Malawi and the Banking Acts.

Most economists look at international trade as a way to benefit from specialization and scale of economies and in many cases it is taken as an article of faith that outward-oriented trade strategies promote sustainable economic growth in developing countries

[1] For example, Study by Mhura (1999) found a positive relationship between financial development and economic growth in Malawi. Beck, Dermirguc-Kunt and Levine (2004) found a positive relationship between financial development and poverty reduction.

(Clarke et al., 1999). In addition, other papers provide additional support for the use of out-ward trade strategies by relating a measure of industrialization, rather than output growth, to trade policy orientation. However there are other economists that highlight the important role played by trade; by offering a more complex route of raising productivity and living standards. This is by promoting financial sector development. Examples of such economists include Rajan and Zingales (2003) and Svaleryd and Vlachos (2002) whose work are discusses later in the study.

It appears appropriate therefore to pay a direct analytical attention to the question of whether trade openness is compatible with financial sector development. This paper therefore will study the relationship between trade openness and financial sector development.

1.3 Statement of the Problem and Relevance of the Study

Like many developing countries, Malawi has taken a number of steps in trying to develop the financial sector. Efforts to open up the economy to external trade have also been taken since Malawi got her independence. However, since there has been less work in literature on the determinants of financial sector development in the country, it is not clearly known whether efforts to improve the financial sector are compatible with efforts to open up the country for trade.

In most of the literatures on factors affecting financial sector development, much emphasis is put on international trade as a determinant of the growth of the sector. Examples of such literatures include the empirical works of Huang and Temple (2005), Do and Levchenko (2004) as well as that of Helger, Roland and Lobsiger (2007). Openness to external trade is seen as a way of increasing demand and supply for finance and taken as a ladder to the achievement of financial sector development. Some of these papers, however, have stressed that the impact of trade on financial sector development is expected to be differential across countries. In this case, trade openness has ambiguous impact on financial sector development. It is therefore of importance to investigate if there is a relationship between international trade and financial sector development in

Malawi.

The study therefore is relevant due to a number of reasons. To begin with, since there has been less work on the determinants of financial sector development, this study will contribute to this emerging line of research. In addition, research that clarifies the understanding of the relationship between trade and financial sector development will have policy implications and shape future policy-oriented research. Moreover, information about the impact of trade on financial development will influence the priority that policy makers as well as advisors attach to reforming policies that influence international trade. Furthermore convincing evidence on the relationship between trade and financial sector development will advertise the urgent need for research on the political, legal, regulatory and policy determinants of trade.

1.4 Objectives of the Study and Hypotheses to be tested

The overall objective of the study is to assess the relationship between international trade and financial sector development in Malawi. This entails establishing whether a relationship exists between financial sector development and international trade to begin with, and if it does, whether it is positive or negative.

Specific objectives of the study are as follows:

- To find out the nature of the relationship between the ratio of deposits to GDP (as a measure of financial sector development) and the ratio of the sum of exports and imports to GDP (as a measure of trade openness).

- To explore other factors, apart from international trade, that may affect financial sector development in Malawi. Specifically, the study will look at how real GDP per capita, financial openness, investment, inflation and interest rate, affect the ratio of deposits to GDP in Malawi.

The study will therefore seek to test the following null hypotheses:

1. The ratio of the sum of exports and imports to GDP does not affect the ratio of deposits to GDP.
2. Real GDP per capita does not affect the ratio of deposits to GDP.
3. The ratio of real Foreign Direct Investment to GDP does not affect the ratio of deposits to GDP.
4. The ratio of gross domestic investment does not affect the ratio of deposits to GDP
5. Inflation does not affect the ratio of deposits to GDP.
6. Deposit rate does not affect the ratio of deposits to GDP

1.5 Organization of the Paper

This chapter has given the background to the study, problem statement, relevance and objectives of the study and related hypotheses. Chapter two presents an overview of the Malawi economy; macroeconomic performance, financial sector and her position in international trade issues. Chapter three is the Literature Review. This has two sections; the theoretical and the empirical reviews of the literature. Chapter four presents the methodology used in the study. Specifically the chapter talks about the specification and estimation of the model, measurements of the variables and expected signs of the parameter estimates, the data and their sources. The chapter also talks about times series properties, how they are dealt with in the study and the diagnostic tests carried out in the study. Chapter five gives the empirical results that will be obtained from estimation of the model in chapter four. Chapter six, the final chapter of the study, gives the conclusion of the study. It specifically gives the summary of the results, policy recommendations and suggested areas for further research.

CHAPTER TWO

OVERVIEW OF MALAWI'S ECONOMY

2.1 Macroeconomic Performance and Poverty

2.1.1 Background

The macroeconomic performance of Malawi economy, which is dominated by the agriculture sector, has generally been characterized by relatively low GDP growth rates, high interest rates and volatile exchange rates. Although the legal and regulatory frameworks have improved in many respects, new challenges have emerged necessitating improvements that are expected to make Malawi an attractive place to conduct business. The unfavorable business environment has resulted in a decline in the business performance of the private sector. The economic performance has also not been sufficient to make a serious impact on poverty.

In response to widespread and deepening poverty, the Government launched the Malawi Poverty Reduction Strategy (MPRS) in 2002. One of the four strategic pillars of the MPRS is to promote economic empowerment and stimulate pro-poor economic growth of at least 6% per year, required to reduce poverty by half by the year 2015. It is realized that economic growth is a precondition for sustainable poverty reduction (Malawi Government, 2003). Although this is the case, Malawi has not in many years achieved the targeted real GDP growth rate of 6%. As can be seen from the table 1, the real GDP growth in Malawi for 1997-2004 has not been as targeted.

Table 1: Real GDP Growth in Malawi

Year	Real GDP Growth (%)	Difference from the target (%)
1997	5.2	-0.8
1998	2.6	-3.4
1999	4.0	-2.0
2000	1.8	-4.2
2001	-4.1	-10.1
2002	1.9	-4.1
2003	4.6	-1.4
2004	3.7	-2.3

Source: Reserve Bank of Malawi Economic and Financial Review (various issues)

2.1.2 The Malawi Economic Growth Strategy (MEGS)

To operationalise the measures outlined in the MPRS, the Government of Malawi, through the Ministry of Economic Planning and Development coordinated the preparation of the country's Economic Growth Strategy (MEGS). The MEGS reflected a joint realization by Government and the private sector that the economy had been registering negative growth and that something has to be done in order to reverse the trend. MEGS concentrated on stimulating growth by promoting private sector investment, growth and trade in the key priority potential sub-sectors such as mining, agro-processing, manufacturing (textile and garments) and tourism.

2.1.3 The Malawi Growth and Development Strategy (MGDS)

This is the current overarching strategy for Malawi that is running for the period 2006/07 to 2010/11 fiscal years. The overriding philosophy in the MGDS is poverty reduction through sustainable economic growth and infrastructure development. The MGDS builds on the Malawi Economic Growth Strategy (MEGS) as it also emphasizes the need to create a conducive environment for private sector investment to stimulate economic

growth. As such it recognizes the important role of the private sector in promoting economic growth.

2.2 The Financial Sector

2.2.1 Background

The financial sector in Malawi, just like most developing countries, is small and has for a long time been generally narrow and uncompetitive. The sector has been characterized by small number of participants as well as financial instruments. It has also been dominated by the banking sector with a few players and a narrow branch network, confined mostly to urban and semi-urban areas.

In addition, the trend for the amount of credit extended to different sectors of the economy does not show a clear direction since it has been up and down. As can be seen from table 2 below, the annual credit change between 1998 and 2005 has been the one that can not make one to conclude that the amount of credit extended to different sectors is improving.

Table 2: Annual Percentage Credit Change (%)

Year	1998	1999	2000	2001	2002	2003	2004	2005
Credit to Government	-29.9	-2.9	6.9	34.7	45.5	18.4	20.0	4.5
Credit to the private sector	98.7	5.6	49.9	4.8	39.2	33.2	41.9	25.7
Credit to the rest of the economy	18.5	20.6	12.4	1.5	3.7	22.7	27.46	10.0

Source: Malawi Economic Growth Strategy and author's calculations

This shows that although Malawi has tried to improve its financial sector, a lot has not yet been done in the financial sector and accessibility to credit still remains a challenge.

This calls for the need to find ways of smoothing economic agents' participation in the financial sector.

2.2.2. The Banking Sector

The formal financial sector in Malawi is dominated by the banking sector. The banking sector consists of the Reserve Bank of Malawi (Malawi's central bank) and some commercial banks. Before 1994 the banking sector had been a duopoly of National Bank of Malawi (incorporated in 1971, following merger of Barclays and Standard banks) and Commercial Bank of Malawi (currently Standard Bank). All banks in Malawi are regulated by the Reserve Bank of Malawi Act (1989).

Before some reforms were made in the sector, the banking sector had been repressed through administered interest rates, credit ceilings and reserve requirements. For example, before 1985, the Reserve Bank of Malawi prescribed interest rates in bank deposits, loans and government securities. In addition, there were preferential rates for agriculture and other favored activities. Table 3 below shows some indicators of financial repression in the Malawi financial sector for the year of reform and some post reform years.

Table 3: Some Indicators of Financial Repression

Year	M2/GDP (%)	Real Deposit Rate	Real Lending Rate
1988[2]	22.9	-13.8	-5.0
1995	19.4	-23.3	13.3
2000	17.8	8.6	26.1
2003	20.8	5.1	26.8

Source: Reserve Bank of Malawi Economic and Financial Review (various issues)

[2] 1988 is the year of reform.

2.2.3. The Malawi Stock Exchange

The Malawi Stock Exchange opened its doors in November, 1996. The stock exchange operates under the Capital Market Development Act 1990 and the Companies Act 1984. Prior to the listing of the first company, the major activities that were being undertaken were the provision of a facility for secondary market trading in Government of Malawi securities; Treasury Bills and Local Registered Stocks. Currently, the main instruments traded are equities (shares). So far, the companies listed on the stock exchange are shown in table 4. As can be seen from the table, there are just few companies listed on the stock exchange. This shows that the capital market in Malawi is not yet developed and raising of funds for investment still remains a challenge.

Table 4: Companies Listed on the Malawi Stock Exchange as of December, 2007

Company	MSE Code	Business
National Bank of Malawi	NBM	Banking
Standard Bank	StandardBank	Banking
National Insurance Company	NICO	Insurance
Press Corporation Limited	PCL	Food, Manufacturing, Trading Property and Banking
Packaging Industry Malawi Limited	PIM	Manufacturing of packaging materials
ILLOVO	ILLOVO	Production of sugar
Sunbird Tourism Limited	SUNBIRD	Hotel Industry
Old Mutual	OML	Life Insurance
First merchant Bank	FMB	Banking
Malawi Property Investment Company	MPICO	Property Investment
NBS Bank	NBS	Banking
National Investment Trust Limited	NITL	Asset Management
Blantyre Hotels Limited	BHL	Hotel Industry

2.2.4. The Informal Sector

The informal financial sector consists of those financial activities that are not regulated by the Central bank supervisory authorities (Aryeetey at al., 1996). These rarely use legal documentation or legal system to enforce contracts. In Malawi, informal financial institutions consist of employers, estate owners, businessmen, friends and relatives. Informal financial activities are popular in both the rural and urban area of the country mainly among the low income groups. This is because the low income groups do not have the form of collateral required by most formal financial institutions for them to

secure loans.

Unlike the formal lenders, informal lenders succeed mostly through informal-based ways mainly on personal and social networks. Unlike the formal sector that rely on formal collateral and project appraisals, the informal moneylenders use bilateral and character-based relationships to achieve high repayment rates. A significant part of the loans in the sector does not bear interest. Although that is the case, informal lenders still find the activity to be beneficial. For example, traders may be looking at free loans as a means of maintaining and improving relations with their customers (Chipeta and Mkandawire, 1991). Free loans may also be looked at as a way of maintaining solidarity. However, in most cases, interest rates applicable to *katapila*[3] and savings and credit associations are generally higher than those in the formal and semi-formal financial sector.

In Malawi, the informal financial sector plays an important role in alleviating economic hardship mainly among the poor. This is done by enabling the poor people to mobilize resources (the saving effect), to use those resources to earn income (the investment effect) and by enabling them to obtain loans (the credit effect). Since activities of the informal financial sector go unregistered, it implies that, in most cases, the official monetary data underestimate the volume of financial savings and credit in the economy. However the formal and informal sectors of the financial sector are not independent and the two sub-sectors may be affected by the same factors.

2.2.5. Financial Sector Reforms in Malawi

Financial reforms in Malawi were launched in 1987 as part of Structural Adjustment Programs (SAPs). As part of the reforms, the interest rates were increased by about 3% points and the credit ceilings were abandoned. The practice of preferential rates for banks lending to agriculture was discontinued in August, 1989. In the same year, the government revised the Reserve Bank of Malawi Act of 1964 and the Banking Act of 1965. Among other things, the Banking Act of 1989 aimed at creating an environment that would enhance competition in savings mobilization and intermediation. It opened the

[3] Professional and informal moneylenders

financial system to new entries. In this act, the RBM was given the task of promoting the money and capital market in Malawi. Furthermore, the RBM was given the power to regulate entry into the financial sector with the responsible Minister endorsing recommendation from the RBM and reasons for denial of entry clearly stipulated in the new act. The government changed the financial requirement of entry to K2 million (from K500, 000) for commercial banks and K250, 000 (from K200, 000) for non-bank financial institutions. Controls on interest rates were fully lifted in May, 1990.

With liberalization of the financial sector and introduction of multi-party democracy in1994, competition has been promoted so much that new entrants have been encouraged. In addition, the distribution of domestic credit has witnessed a change. For example, before 1991, the public share of domestic credit averaged 63.2 percent and this declined to 40.6 percent after the adoption of the financial reforms. The private sector share of the domestic credit averaged 36.7 percent before the reform and increased to an average of 59.1 percent after the reform. The trend shows a scale down of public sector share of credit and an increase in private sector share of domestic credit.

Currently, the financial sector in Malawi has been noticed to be in the process of growing. For example, there has been a boom of banks and this has brought about competition which has benefited Malawians as they have now a wide choice of financial services and consequently the banks themselves have improved their services and products offered. However, many low to medium income earners still do not have access to financial facilities hence the need to expand the financial sector further.

2.3 International Trade in Malawi

2.3.1 Structure of Malawi's Trade

Malawi's trade (imports and exports) accounts for about 60% of GDP and the trading regime is generally liberal. Malawi's export depends heavily on agriculture which accounts for about 90% of the country's total exports. Tobacco is the principal export. Other important commodities are tea, sugar, coffee and cotton. Malawi's exports from the

manufacturing sector are dominated by sugar, the bulk of which is in raw form. Others include tea, coffee, garments, textiles and agro and allied products. To give a picture of Malawi's exports, the principal exports for Malawi between 2000 and 2006 are shown in table 5 below.

Table 5: Malawi's Principal Domestic Exports for the Period 2000 to 2006 (MK million)

Commodity	2000	2001	2002	2003	2004	2005	2006
Tobacco	14,200.3	18,363.3	17,893.1	24,191.2	22,303.5	31,241.5	55,840.0
Tea	2,235.4	2,461.0	2,827.83,	3,481.5	5,132.5	5,937.4	6,737
Sugar	2,339.2	3,975.7	2,684.2	10,571.4	7,881.4	5,408.5	6,391

Source: Annual Economic Report (2007)

Malawi's imports are dominated by industrial raw materials which account for about 46% of total imports. Transport equipment and capital goods account for an additional 26% of imports. Thus, the importation of final consumer goods is relatively small.

While Republic of South Africa (RSA) and European Union (EU) are the main trading partners for imports, the key exports markets are in the EU and USA.

2.3.2 Trade Agreements and Commitments

As part of Malawi's continued efforts to integrate into regional and multilateral trading systems, the country continues to participate actively in bilateral, regional and multilateral trading agreements. Malawi's primary trading partners include the European Union member states, member states of the Southern African Development Community (SADC) and member states within the Common Market for Eastern and Southern Africa (COMESA). The bilateral, regional and multilateral agreements of Malawi are summarized in Table 6.

Table 6: Bilateral, Regional and Multilateral Trade Agreements of Malawi

Agreement	Type (Number of members)	Degree of liberalization
Malawi-South Africa	Bilateral	FTA
Malawi-Zimbabwe	Bilateral	FTA
Malawi-Botswana	Bilateral	FTA
COMESA	Regional	FTA to CU
SADC	Regional	FTA
WTO	Multilateral	ITA
EU-ACP Cotonou Agreement	Multilateral	PTA to FTA
AGOA	Multilateral	PTA
EBA	Multilateral	PTA

Source: World Bank Staff Analysis

Trade in Malawi is aligned to the World Trade Organization (WTO) Agreement and Malawi has participated in the WTO trade negotiations. As a least developed country, Malawi's focus is to safeguard her interest by focusing on trade-related development issues. These include improved access, preservation of existing preferences, provision of special and differential treatment to poor countries and the reduction of technical barriers to trade, non-tariff barriers and other distorting measures that hamper Malawi's trade performance.

As a least developed country, Malawi already enjoys preferential access to the European Union under the *Everything But Arms (EBA)* agreement and results are seen in terms of the country's increased sugar exports to the European Union. The initiative entails extending duty and quota free access to all imports from all LDCs except for arms. Minor variations apply to bananas, sugar and rice. However, full liberalization of these commodities is expected to take place in 2009.

Under the African Growth and Opportunity Act (AGOA), Malawi is granted preferential access to the United States markets for 1800 products duty and quota free. Previously, the country was benefiting through increased garments exports to the US after being designated as an AGOA textiles and apparel beneficiary county in October, 2000.

2.3.3 Trade Policies since Independence

Malawi has undergone different stages towards trade liberalization from the time it gained independence to date. Some of different trade policies that have been undertaken are summarized in table 7 below

Table 7: Trade Policies since Independence

Orientation	**Period**	**Major policy action**
Import substitution	1964-1979	• Overvalued exchange rate system(fixed peg) • Non-tariff barriers to trade, e.g. import licensing and foreign exchange rationing
Transition to export orientation	1980-1987	• Periodic devaluation of the Malawi Kwacha
Transition to export orientation	1987-1993	• Periodic devaluation of the Malawi Kwacha • Elimination of quantitative trade restrictions • Reduction of foreign exchange rationing • Bilateral trade agreements with RSA in 1991
Export orientation	1994-2002	• Floatation of the Malawi Kwacha in February, 1994 • Export processing zones incentive in 1995 • Devaluation of Malawi Kwacha in 1999 • COMESA Free Trade Area by 2000

Source: Chirwa (2000a)

2.4 Chapter Summary

As can be seen from this chapter, a lot of steps have been taken in Malawi to achieve both financial sector development as well as the country's performance in trade with other countries. It is therefore important to find out if these two lines of action are in harmony with each other.

CHAPTER THREE

LITERATURE REVIEW

3.1 Chapter Overview

This chapter discusses both the theoretical and empirical aspects of the relationship between international trade and financial sector development. On the theoretical part, the study concentrates on the openness hypothesis whose argument is divided into the demand side and the supply side. On the empirical part, the study looks at a number of studies carried out on the topic, their results and implications and how the studies differ.

3.2 Theoretical Framework

In trying to come up with answers as to why so many countries still have underdeveloped financial sectors, economists have come up with different explanations. Other economists base their argument on the presence of structural impediments for supply of finance to meet demand. On the other hand, the answer favored by many economists is that absence of demand leads to underdeveloped financial sectors. Such arguments have led to the birth of a number of hypotheses. One of such hypotheses is what is referred to as the openness hypothesis and is the focus of this study.

3.2.1 The Openness Hypothesis

The general argument under this hypothesis is that trade openness leads to an increase in supply as well as demand for financial services and thereby leads to financial sector development. Under this hypothesis the argument can be divided into the supply side and demand side.

3.2.1.1 The Supply-Side

This theory, which was put forward by Rajan and Zingales (2003), emphasizes the supply-side role of interest groups, especially the vested interest of incumbent industrialists and financial intermediaries. According to this hypothesis, incumbents worry about the threat of new entrants in the market because it usually breeds

competition that erodes the domestic rents. They therefore try to have strong incentive to resist financial development. For example, industrial incumbents may petition the government for loan subsidies.

However, when an economy opens up to international trade or to international capital flows, these incentives are weakened and the economy achieves financial development. At the same time, outside opportunities and the need to defend the domestic market against superior technologies increase the need for incumbents to invest more. In this view, goods market openness can improve the supply of external finance, because it aligns the interest of the economically powerful more closely with financial development.

Furthermore financial development may come in as a result of the new opportunities created by openness.[4] Trade openness may generate sufficient new profits for the incumbents that overweigh the negative effects of increased competition. This will in turn lead to more finances on the financial market.

In addition, the theory goes on to say that trade openness without financial openness may end up in greater financial repression of new firms as well as loan subsidies, so that industrial incumbents have sufficient cheap finance to face competition. According to this argument, trade openness will lead to financial sector development only if it is accompanied by financial openness.

3.2.1.2 The Demand - Side

In contrast to the supply-side argument, Svaleryd and Vlachos (2002) emphasized the role played by the financial sector in risk diversification. Since openness is associated with greater risk, such as exposure to external demand shocks or foreign competition, when an economy has opened up to trade, firms will need credit in order to overcome short-term cash flow problems and adverse shocks.

Furthermore, as pointed out by Newbery and Stiglitz (1984), trade can increase

[4] for example, availability of bigger markets which leads to enjoyment of economies of scale

uncertainty and income variability of economic agents within an economy. This implies that financial system could be expected to grow after trade opening, as economic agents' demand for insurance increases.

Moreover openness to trade may bring about the need for market participants to manage risks. For example, individuals and firms may need to hedge the risk of wide fluctuations in prices and the exchange rates. This will increase demand for the services of the derivative markets. Thus, international trade will create new demands for financial services and hence leads to the expansion of the financial sector.

Furthermore, to the extent that performance in exports market is a useful and observable measure of a company's productivity, increase in trade openness can reduce information asymmetries among different banks. This in turn will lead to lending booms. The implication is that if trade liberalizations are followed by investment and lending booms, there could be a strong association between trade openness and financial sector development in the short run.

3.2.1.3 Other Ways through which Trade and Financial Sector Development May be Linked

In addition to the above mentioned ways, there are also other ways through which trade and openness may be linked.

As pointed out by Levine and Renelt (1992), there should be a positive relationship between trade openness and the share of investment in GDP. Since investment, in most cases demands financial services, it implies that if trading economies are also investing economies, this could promote financial sector development.

Trade openness may also influence the demand for external finance through the nature of specialization and sectoral structure, or through the pace of innovation and technology transfer. This is because these activities are likely to make intensive use of external finance and may therefore lead to financial sector development in the process.

3.3. Survey of Empirical Literature

Several recent papers have argued that trade and financial sector development may be linked either for political economy reasons or because foreign competition and exposure to shocks leads to changes in the supply or/and demand for finance.

Using a cross-country and time-series variation in openness to study the relationship between international trade and financial sector development, Huang and Temple (2005) found that increases in goods market openness are typically followed by a sustained increase in financial depth. However, they found that trade openness is associated with financial development in higher –income sample but the evidence is weaker in the lower-income sample. Explanatory variables used in the model estimated by these authors include the natural logarithm of openness and some controls. Among other variables, the authors considered log of GDP per capita to control for demand for finance. Other explanatory variables included in the model were the dummies for country of origin.

In addition, the two authors also used panel data and the results showed that increases in trade openness are followed by increases in financial depth both in the short run (5-10 years) and in the long run.

These two authors departed from most authors in the way financial development is measured. Apart from using the standard measures of financial development, the two authors went on to create a new measure of financial development. This was done by combining the standard measures (LLY, Credit to the private sector, commercial bank and central bank assets and overhead costs) into the aggregate indices of financial development. This study confirms the important role played by trade openness in financial sector development. The study also found that apart from trade openness, the legal, regulatory and the macroeconomic environment also affect financial development.

In another study, Chinn and Ito (2005) focused on the link between openness and financial sector development. They however concentrated on the impact of capital account liberalization on financial development. However, unlike some authors, whose

main focus is on banking sector development, Chinn and Ito concentrated on the development of the equity market. They used a panel data analysis for 108 countries and for 20 years (1980-2000). They first tested whether financial openness can lead to financial equity market development. They then examined whether the opening of the goods sector is a precondition for financial sector development. In addition, they also investigated whether a well- developed banking sector is a precondition for financial liberalization to lead to equity market development and also whether bank and equity market complements or substitutes.

Their empirical results suggest that higher levels of financial openness contributes to the development of the equity market only if a threshold level of general legal systems and institutions is attained. Among the emerging market countries, it was shown that a higher level of bureaucratic quality and law of order, as well as lower levels of corruption increase the effect of financial opening in fostering the development of the equity markets. The findings also indicate that the development of the banking sector is a precondition for equity market development, and that the developments in these two types of financial markets have synergistic effects. In addition, financial-related legal/institutional variables were found not to enhance the effect of capital account opening as strongly as the general legal/institutional variables.

Baltagi, Demetrides and Law (2007) pointed out that empirical investigation into the determinants of financial development must be able to account for its variation both across countries and over time. They therefore used panel data techniques and annual data to shed light on the determinants of financial development in these two dimensions.

In the study, the authors use different measure of financial development. These include liquid liabilities, private credit, domestic credit and number of companies listed on the stock exchange. Explanatory variables in their model include Trade openness (measured by the sum of exports and imports as a ratio of GDP), Per capita income, Financial openness (defined as a country's foreign assets as liabilities as a percentage of GDP) and a measure of economic institution.

The study used panel GMM estimator and the results show a positive and significant relationship between trade (as well as financial openness) and financial development, suggesting that international trade is an important tool in the attainment of financial sector development. Results of the study also show that additional openness may be more effective in promoting capital market development than banking system development. In addition, the results show that financial openness offers more scope for financial development than trade openness. This implies that additional trade openness is unlikely to deliver any stimulus to banking sector development but may well help to boost the development of the capital market in a few countries especially those that do not have very open capital accounts. Thus, additional financial openness is likely to provide a stimulus to banking sector development in a similar small group of countries but may impact positively in a much wider range of countries.

In a different study, Do and Levchenko (2004) tested their model using data on financial development from 77 countries. Unlike the other studies recited earlier, this study divided the data into two groups; 22 OECD countries and 55 developing countries to test the relationship between trade and financial development. In addition, the study departed from the other studies in that the dataset used in this particular study was in 5 year interval from 1965-1995. Estimation in this study was done by Ordinary Least Squares (OLS).

In this study private credit to GDP ratio is used as a measure of financial development. Just like Baltagi, Demetrides and Law, the study used the sum of exports and imports to GDP ratio [(X+M)/GDP] as a measure of trade openness. The controls used in this study include initial level of private credit to GDP ratio, initial per capita GDP, a measure of human capital (average years of secondary schooling in the population) and legal original dummies.

The study found two different results for the two different groups of data. Results of the study show that in developed countries, though statistically insignificant, trade openness has a positive effect on subsequent financial development. This insignificance is

attributed to the fact that most OECD countries trade with fellow OECD countries. On the other hand, in developing countries, it is found that trade has a negative effect. It came out that the coefficient on trade variable is negative and significant, with a p-value of 8%.

The explanation to this is that when a wealthy country starts trading with a poor country, it will naturally increase production of financially dependent good, and its financial sector will deepen. Unlike in the wealthy countries, in poor countries the financially dependent sector will shrink, leading to deterioration in the size of the country's financial system, as well as its quality. The bottom line is that when a poor country no longer needs to produce, demand for external finance will decrease as a result of trade and the domestic financial system will suffer. According to the findings of this study, trade openness affects the financial sector differently depending on the level of economic development of a particular country.

The empirical work of Helger, Roland and Lobsiger (2007) combined the standard measures of financial development into aggregate indices of financial development. Just like the other studies, Openness was measured as the sum of exports and imports as a ratio of GDP. They used cross-sectional as well as panel dataset. Like Do and Levchenko, these authors used OLS to estimate the regressions.

For the cross-sectional dataset, the results show that trade openness is associated with financial development in higher income countries and this evidence is weaker in the lower-income sample. However, results from the panel data show that in the short-run (5-10 years) increases in openness are followed by increases in financial depth. In addition, it was observed that this effect also persists in the long-run. Furthermore the magnitudes of the coefficients imply that an increase in trade relative to GDP of one standard deviation entails an increase in financial development of between 0.33 to 0.5 standard deviation.

This implies that reducing impediments to external trade increases the contestability of

domestic markets, reduces monopoly rents and thereby disciplines domestic elites not to corrupt the benefits of financial development away. It was also noted that in countries with comparative advantages in capital intensive industries, the nexus between the size of financial market and economic integration may also be attributed to an increase in the demand for external funds.

Looking at it from a different angle, the cross-sectional study of Levine and Renelt (1992) identified a robust correlation between openness and share of investment to GDP, implying that if trading economies are also high investing economies, then openness to trade could promote financial development.

3.3.1 Other Determinants of Financial Sector Development

Apart from studies that look at the relationship between openness and financial sector development, there are studies on other determinants of financial sector development. A look at these studies will help in the selection of the variables to be included in the main regression for this study.

In a study to explore the determinants of financial development, Outreville (1999) used cross-sectional data analysis for 51 developing countries and the degree of monetization (M2/GDP) as a measure of financial development. The study found a positive and significant relationship between financial development and measures of human development. This implies that human development (the process of enlarging people's choices) is one of the important factors in promoting the growth of the financial sector. In this study, Human Development was proxied by average years of schooling of the labour force. The rationale behind this measure is that rapid improvements in basic education improve peoples' ability to read and write. Skilled and well-educated people have generally better access to information and are more likely to behave as less risk averse as compared to people with no education. In additional, the study also included interest rate (bank discount rate) as a determinant of financial sector development. It concluded that results depend on the how interest rate is measured. Thus the impact of interest rate on financial sector development remains ambiguous.

As pointed out by Rousseau and Wachtel (2000), inflation is expected to have a negative effect on financial sector development. This is because in an inflationary environment, there are higher transaction and information costs that discourage economic agents to participate in the financial markets. For example, economic agents find planning difficult when inflation makes nominal values uncertain. Moreover firms and individuals will be reluctant to enter into contracts when inflation is imperfectly predictable and judgments about absolute and relative prices are uncertain. The reluctance to enter contracts over time will inhibit investment and entrepreneurship and therefore inhibit the ability of the financial sector to grow. Thus inflation has a negative impact on financial sector development.

Moreover, Boyd, Levine and Smith (2001) empirically examined the relationship between financial sector development and inflation. The authors concluded that economies with higher inflation rates are likely to have smaller, less active and less efficient banks and equity markets. Inflation therefore seems to be one of the crucial factors affecting financial sector development.

3.4 Chapter Summary

As can be seen from the review of the literature, most of the empirical works cited in this chapter support the idea that trade openness plays a great role in increasing both the supply as well as the demand for financial services and hence trade openness leads to the development of the financial sector. Thus, it has been shown both theoretically as well as empirically that trade openness is an important determinant of financial sector development. However, since most of the cited studies used either cross-sectional or panel data, the nature of the relationship between international trade and financial sector development for specific countries (and Malawi in particular), has not been given much attention. This study will therefore try to fill this gap by trying to explore the nature and the extent of the relationship between international trade and financial sector development in Malawi by using time series data.

CHAPTER FOUR

METHODOLOGY

4.1 Chapter Overview

This chapter discusses the model that is used in this study and how the model is specified and estimated. It goes on to give the measurement of the variables and the expected signs of the parameter estimates. The chapter also describes the data that is used in the study and the sources of such data. Time series properties of the variables and how they are dealt with in the study are explained in the same chapter. Finally the chapter describes the Diagnostic Tests that are carried out in the study.

4.2 Specification and Estimation of the Model

In this study, a measure of financial development was related to a measure of trade openness and other financial development-related explanatory variables. In order to get the optimal fit of the data, estimation was done using Ordinary Least Square (OLS) multiple regression procedure. Analysis was done using E-Views 5.1 software package.

The general idea of the relationship that was analyzed in this study had been adopted from Do and Levchenko (2004). The general relationship that was captured is of the form:

FD= f (TRADE, RGDPC, FO, INV, INF, IR)……..(1)

Where

FD = Financial Development

TRADE = Trade Openness

RGDPC = Real GDP per capita

FO = Financial Openness

INV = Investment

INF = Inflation rate

IR = Interest Rate

μ is the random error term

t is a time operator

4.3 Measurement of Variables and Expected Signs

Financial Development

Financial Development (FD) will be proxied by the ratio obtained by dividing domestic private deposits (demand deposits plus time savings deposits) by nominal GDP. Increase in this ratio entails that more of the population is gaining access to financial services and hence the advancement of the financial sector.

Trade

Trade is the economy's openness to international trade. This was proxied by the ratio of the sum of exports and imports to nominal GDP. According to the openness hypothesis, the coefficient of TRADE was expected to be positive showing the positive relationship between international trade openness and financial sector development due to increase in supply and demand for financial services as participation in external trade increases.

Real GDP Per Capita

Real GDP per capita is the real GDP divided by the size of the population. This is a measure of economic development. As proposed by Stiglitz (1993), and Singh and Weisse (1998), economic development creates additional demand for financial services, which in turn brings about a more developed financial sector. According to the demand-following phenomenon, lack of financial growth is a manifestation of lack of demand for financial services. Therefore, as the real side of the economy develops, its demand for various financial services materializes, and these are met rather passively from the financial side (Odhiambo, 2007). Empirically, Young (1986), [cited in Boulila and Trabelsi (2002)], found that economic growth Granger causes finance in developing countries. Thus according to such authors, real GDP per capita may determine the amount of finance from economic agents available for the purpose of participating in the

financial market. Therefore the study expected the coefficient of real GDP per capita to have a positive sign showing that as the economy grows in terms of its output, many economic agents are able to participate in the financial market and this leads to the boosting of the sector.

Financial Openness

Financial Openness entails the extent to which restrictions from international transactions related to movement of capital are removed. Reductions in financial restrictions are associated with increases in foreign direct investment. This is because incentive for foreign investors to enter into an economy increases after domestic financial liberalization since returns tend to improve (Noy and Tam, 2007). In this study financial openness was proxied by foreign direct investment as a ratio of nominal GDP.

Financial openness is expected to be associated with the development of the financial sector. The coefficient of Financial Openness, was therefore, expected to have a positive sign.

Investment

The investment variable was calculated as the ratio of Gross Domestic Investment to GDP. The argument for selection of this variable lies in the fact that most of the investment activities demand the services of the financial sector. Therefore as Levine and Renelt (1992) put it, an investing economy is likely to promote financial sector development. It was therefore expected that the coefficient of the investment variable will take a positive sign.

Inflation

As pointed out by Boyd, Levine and Smith (2001) high inflation rates hinder the functioning of the financial sector. This is because in an inflationary environment, there are high transaction and information costs that discourage economic agents to participate in the financial markets. Therefore high levels of inflation are expected to hinder the

development of the financial sector. Therefore, the coefficient of inflation was expected to have a negative sign.

Interest Rate

As pointed out earlier, Malawi has taken a number of actions in trying to liberalize the financial sector. Financial liberalization is associated with reduction in obstacles that hinder economic agents' participation in the financial market. In most cases, the degree of financial liberalization is reflected in the interest rates on the financial market. Bank deposit rate has been used in this study.

There is a disagreement in literature on the actual effects of interest rates on the choice of economic agents to participate on the financial market or not. This is because low interest rates are good to borrowers as high interest rates are to lenders. As pointed out by Outreville (1999), the impact of interest rate on financial development depends on how interest rate is measured. Thus interest rate can have either a positive or a negative effect on financial development. The coefficient of interest rate, therefore, was expected to take either a positive sign or a negative sign.

4.4 The Data and Data Sources

The study employed annual time series data for Malawi from 1970 to 2005. Data on the variables used in the study was collected from various issues of Financial and Economic Reports and Annual Accounts of the Reserve Bank of Malawi and from various publications of the National Statistical Office.

4.5 Time Series Properties of the Variables

Stationarity and Unit roots

Estimation and hypothesis testing using a least square technique is based on the assumption that means, variances and auto-covariances of a time series are constant and/or independent of time. If the above assumption holds, we have a stationary stochastic process. If a series is stationary, the mean, variance and other statistics based on a small realization are relevant for larger realization and may actually be considered

good approximations of statistics of the entire stochastic process. On the other hand, if the stochastic process is non-stationary, the mean and variance based on small realization cannot be used to characterize large or the entire stochastic process. If the variables are non-stationary, the relationship between the variables may be termed *spurious* regression[5] and we no longer use such elements as *t*, R-Squared or F statistic. Stationarity test is carried out in the study.

The Dickey-Fuller Test for Unit Roots

Dickey and Fuller (1979)[6] devised a procedure to formally test for nonstationarity. The test, which is equivalent to testing for existence of a unit root, is presented as

$y_t = \alpha y_{t-1} + \varepsilon_t$ ……..…(2)

Where ε_t is a white noise error term. The idea is that if α is statistically equal to one, it implies the existence of unit root and therefore the series is nonstationary. This can also be manipulated as

$y_t - y_{t-1} = \alpha\, y_{t-1} - y_{t-1} + \varepsilon_t$……....(3),

$\Delta\, y_{t-1} = (\alpha - 1)\, y_{t-1} + \varepsilon_t$……...……...(4),

Or

$\Delta\, y = \lambda\, y_{t-1} + \varepsilon_t$……..(5)

Where $\lambda = (\alpha - 1)$……..... (6)

Unlike the first expression, under this expression, the null hypothesis tests if λ is statistically equal to zero. Failure to reject the null hypothesis implies the existence of unit root. However, if the null hypothesis is rejected, it implies the absence of unit root and therefore the stationarity of the series.

[5] See Gujarati (2003)

[6] Cited in Gujarati (Ibid)

However, under the null hypothesis that $\lambda = 0$, the *t* value of the estimated coefficient of y_{t-1} does not follow the *t* distribution even in large samples. Dickey and Fuller (Ibid) have shown that under the null hypothesis that $\lambda = 0$ the estimated *t* value of the coefficient of y_{t-1} follows a *tau* statistic. In econometric literature, this *tau* statistic is what is known to be the Dickey-Fuller (DF) test.

The Augmented Dickey-Fuller Test for Unit Roots

The Dickey-Fuller test assumes that the error term is uncorrelated. If the error terms are correlated, Dickey and Fuller have developed a test called the Augmented Dickey-Fuller which still tests whether $\lambda = 0$ and the same critical values as of DF test can be used.

To avoid the problem of non-stationarity, the study employed the Augmented Dickey Fuller (ADF) test for unit roots to establish whether the variables are stationary or not before conducting a regression analysis. Where the variables were found to be nonstationary, they were made stationary by differencing them until stationarity was achieved.

Co-integration

Although variables may be found to contain a unit root, if the error term (μ_t) obtained from running a regression from such variables happens to be stationary, the linear combination of such variables may happen to be stationary. Such a regression is termed a cointegrating regression and the variables are said to be cointegrated and there is a long-term (or equilibrium) relationship between them. It therefore follows that provided a residual from a regression from nonstationary variables is stationary, the traditional regression methodology (including the *t* and F tests) is applicable to the data involving nonstationary time series.

Test for cointegration has been carried out in the study. This has been done by subjecting the error term obtained from running a regression of the nonstationary variables to Augmented Engle–Granger test for stationarity. Rejection of the null hypothesis (that the error term is nonstationary) implies that the nonstaionary variables are cointegrated.

Error Correction Mechanism

When regressing an equation whose variables have been made stationary by means of differencing, the model may give correct estimates of parameters and the spurious regression problems would have been solved. However, what is given from such an equation is only the short run relationship between the variables. On top of that, although the nonstationary time series may be cointegrated and there may be equilibrium or long term relationship between them, there may be disequilibrium in the short run. The error term obtained from a cointegrating regression can be said to be equilibrium error and this can be used to tie the short run behavior of the variables to their long run value. Thus if variables are cointegrated, then the short run relationship between them can be expressed as Error Correction Mechanism (ECM). This is done by running a regression of the differenced variables and including a lagged value of the equilibrium error as one of the regressors.

The study looked at both the long run and the short run relationships of the variables after taking care of the time series properties highlighted in this section of the chapter.

4.6 Diagnostic Tests

Diagnostic tests are undertaken to establish the reliability of the results. The study conducted tests for multicollinearity, autocorrelation, heteroskedasticity, Autoregressive conditional heteroskedasticity, test for specification error and test for normality of the error terms.

One of the assumptions of the Classical Linear Regression Model (CLRM) is that there is no linear relationship among all or some of the regeressors. The existence of such linear relationship is termed multicollinearity. Presence of multicollinearity, among other things, leads to large variances, making the t-ratios of the coefficient to be insignificant. The study carried out a Zero- Order Correlation Matrix to test for multicollinearity.

Another assumption of the Classical Linear Regression Model (CLRM) is that errors in current period are not correlated in any way to the errors in the next period. Symbolically, $E(\mu_i \mu_j) = 0$ where $i \neq j$. Serial correlation is a situation where the errors are correlated and under this situation OLS estimators, though linear and unbiased, they are not efficient estimators. In the study, the Breusch- Godfrey Serial Correlation LM Test was carried out to test for serial correlation. The test is generally used for higher order serial correlation. The null hypothesis under this test is that there is no serial correlation in the residuals up to a specified order. A significant *R-squared implies serial correlation problems.

Another important assumption of the CLRM is that the variance of each disturbance term, μ_t, conditional on the chosen values of the explanatory variables, is some constant number, δ^2. This situation is termed homoskedasticity. The cases where variance of each disturbance term is not a constant number is termed heteroskedasticity. Under cases of heteroscedasticity, OLS estimators, though linear and unbiased, they are no longer the best in a class of linear and unbiased estimators. This study employed White's Heteroskedasticity Test to test the absence or presence of heteroskedasticity.

To test if the model is correctly specified, Ramsey's Reset Test was carried out in the study. In addition ARCH Test was carried out to see if the variance of the financial time series varies over time. To establish whether the residuals are normally distributed or not, the Jarque-Bera (JB) Test Statistic was carried out.

4.7 Chapter Summary

This chapter opened by giving the overview of this chapter. Estimation and specification of the model that has been used for the study has been given after the chapter has been introduced. The chapter went on to give the measurements of the variables included in the model and expected signs of the parameter estimates. The type of data and data sources has been given after that. The chapter then has given the time series properties of the variables and how they are taken care of in the study.

Finally the chapter has pointed out the Diagnostic Tests that were carried out in the study. The chapter that follows gives the empirical results that were found from the estimation of the model in this chapter.

CHAPTER FIVE

EMPIRICAL FINDINGS

The main focus of this chapter is to present the empirical analysis of econometric results that are obtained from estimation of the model in the previous chapter and provide their economic and statistical implications.

5.1 Tests for Unit Roots

The study employed the Augmented Dickey Fuller (ADF) test for unit roots to establish whether the variables are stationary or not before conducting a regression analysis. The number of augmentations is determined using the general to specific procedure suggested by Charemza and Deadman (1997). Under this procedure, the rule of thumb is to include lags sufficient to remove serial correlation. While two lags were included for Financial Openness, only one lag is included for the rest of the variables in the model. Results of stationarity test and orders of integration for the variables in the model are presented in Table 8.

Table 8: Results of Unit Root Tests on the Variables

Variable	ADF Statistic in Levels	ADF Statistic in First Differences	Level of Significance	Order of Integration
FD	-3.236855	-6.979277	1%	I (1)
TRADE	-2.900658	-6.265146	1%	I (1)
RGDPC	-1.930747	-5.883816	1%	I (1)
FO	-3.234820	-7.051687	1%	I (1)
INV	-2.749842	-7.996137	1%	I (1)
INF	-2.091433	-7.777182	1%	I (1)
IR	-3.505222	-5.416273	1%	I (1)

NB: Critical ADF Statistics in levels and in first differences are -3.632900 and -3.639407 respectively.

As can be seen from table 8 above, at 1% level of significance the results indicate that all the variables are non- stationary and integrated of order one, I(1).

Furthermore, to establish co-integration of the I(1) variables, an Augmented Engle-Granger Test was performed on the residuals obtained from estimation of the long run equation and the results are shown in table 9 below

Table 9: Results of AEG Test on the Long Run Equation Residuals

Variable	AEG Statistic	Critical AEG Statistic	Level of Significance	Order of Integration
Residual	-4.847724	-4.700*	5%	I(0)

* Obtained from Charemza and Deadman (1997)

The results show an AEG Test Statistic of -4.847724 implying that the residuals are stationarity at 5% (given critical value of –4.700). This implies existence of a long run structural relationship between the non- stationary variables. In other words, the variables are co- integrated. It is therefore possible to run an Error Correction Model (ECM) to tie the long run and short run behavior of the variables.

5.2 Estimation Results

5.2.1 Estimation Results of the Long Run Model

The long run model is specified as

$$(FD)_t = \beta_1 + \beta_2(TRADE)_t + \beta_3(RGDPC)_t + \beta_4(FO)_t + \beta_5(INV)_t + \beta_6(INF)_t + \beta_7(IR)_t + \mu_t \quad \text{...(7)}$$

Estimation of the model yields the results in table 10

Table 10 Estimation Results of the Long Run Model

Dependent Variable is FD

Variable	Coefficient	Std. Error	t-Statistic	Prob
Constant	-6.083970	6.134291	-0.991797	0.3295
TRADE	0.091945	0.049444	1.859576***	0.0731
RGDPC	0.012208	0.044877	0.272036	0.7875
FO	-0.244919	0.097814	-2.503926**	0.0182
INV	0.162817	0.069221	2.352147**	0.0257
INF	-0.050809	0.031581	-1.608841	0.1185
IR	0.877960	0.156395	5.613749*	0.0000

R-squared	0.684917	Mean dependent var	13.67272
Adjusted R-squared	0.619727	S.D. dependent var	3.545573
S.E. of regression	2.186422	Akaike info criterion	4.575075
Sum squared resid	138.6328	Schwarz criterion	4.882982
Log likelihood	-75.35136	F-statistic	10.50654
Durbin-Watson stat	1.619503	Prob(F-statistic)	0.000003

NB *, ** and *** denote significant at 1%, 5% and 10% respectively

Before interpretation of the results, the study looked at the diagnostic tests on the estimated long run model. In the zero – order Correlation Matrix presented in appendix 3, it is shown that the highest correlation coefficient is 0.638941. Since none of the correlation coefficients is in excess of 0.8 (in absolute value), the degree of multicollinearity in the model is not a serious one and it can therefore be tolerated (Kuotsoyiannis, 1977).

On how well the model fits the data, the Adjusted R-Squared is 0.619727 implying that about 62% of the output is explained by the model. The Breusch-Godfrey Serial Correlation test for high order serial correlation was conducted and the results indicate

that the null hypothesis of no serial correlation could not be rejected. The White's Heteroskedasticity test was also performed on the residuals to establish the presence or absence of heteroskedasticity. The results also show that the null hypothesis of no heteroskedasticity could not be rejected. In addition, the null hypothesis of no ARCH could not be rejected. To test whether the model was correctly specified the Ramsey RESET test was conducted on the residuals and at 5% level of significance, the null hypothesis of no misspecification could not be rejected. The results also show that the residuals are normally distributed. A summary of the results of diagnostic tests on the long run model are presented in Table 11 below.

Table 11: Results of Diagnostic Tests on the Long Run Model

Test	Test Statistic	Probability
BG Serial Correlation Test	3.009760	0.222044
White Heteroskedasticity test	31.57692	0.248116
Ramsey RESET Test	17.12679	0.088828
Jarque-Bera Test	1.347185	0.509874
Arch Test	0.097732	0.754569

5.2.1.1 Interpretation of the Results for the Long Run Model

Trade

The coefficient of international Trade variable is positive and statistically significant. The results show that holding all things constant, a unit positive change in trade openness increases the development of the financial sector by about 0.09. This implies that international trade fosters financial development in Malawi. The results are in line with the openness hypothesis that predicts that openness to external trade leads to financial sector development as more of financial services are demanded and supplied when a country opens up to trade. The results are also in line with those of most authors recited in the empirical review of the literature. These authors include Huang and Temple (2005), Chinn and Ito (2005) and Baltagi, Demetrides and Law (2007). However, the

results are somewhat different from those of Do and Levchenko (2004). For Do and Levchenko, the relationship between trade openness and financial development was found to be positive for high-income countries only. The relationship was found to be negative for low-income countries. Thus according to the findings of this study, the relationship between trade and financial development is positive even for a low-income country like Malawi.

Real GDP Per Capita

As expected by the study, the coefficient of this variable is positive. However it is highly statistically insignificant. This implies that there is no significant relationship between Real GDP per capita and financial development in Malawi.

Financial Openness

Contrary to the expectation of the study, the coefficient of financial openness is negative and significant. This implies that there is a negative relation between financial openness and financial sector development in Malawi. This may be as a result of high levels of corruption in the country. As Chinn and Ito put it, financial openness contributes positively to financial development only if low levels of corruption are achieved.

Investment

The coefficient of investment has a positive sign and it is statistically significant. This implies that investment and financial sector development move in the same direction. Thus, there is a positive relationship between investment and financial sector development in Malawi. Therefore, holding all things constant, policies that encourage investment in the nation are likely to lead to the development of the financial sector.

Inflation

The coefficient of inflation, though not statistically significant has the expected negative sign. This also implies that there is no strong relationship between inflation and financial sector development in the long run.

Interest Rate

Interest rate has a coefficient that is statistically significant and has a positive sign. This implies that high interest rates act as an incentive for economic agents' participation in the financial market as it encourages deposits. Therefore, higher interest rates, as opposed to lower interest rates are better for the development of the financial sector in Malawi.

5.2.2 Estimation Results of the Short Run Model

To determine the lag length for each of the variables in the short run model, the Akaike Information Criterion is used. As Liew (2004) put it, Akaike Information Criterion is superior to other Information criteria in case of small sample size (sixty and below) in the sense that it minimizes the chance of under estimation while maximizing the chance of recovering the true lag length. The model with the least value of the measure was chosen. The short run model is therefore specified as

$$\Delta(FD)_t = \beta_1 + \beta_2 \Delta(TRADE)_{t-2} + \beta_3 \Delta(RGDPC)_t + \beta_4 \Delta(RGDPC)_{t-1} + \beta_5 \Delta(FO)_{t-2} + \beta_6 \Delta(INV)_{t-2} + \beta_7 \Delta(INF)_t + \beta_8 \Delta(INF)_{t-1} + \beta_9 \Delta(INF)_{t-2} + \beta_{10} \Delta(IR)_{t-1} + (ECM)_{t-1} \quad \ldots\ldots(8)$$

Estimation of the model yields the results in table 12

The highest correlation coefficient for the regressors in the short run model is 0.604777 implying absence of serious multicollinearity. The short run model also passed the other diagnostic tests as presented in Table 13 below. After concluding that the model satisfies most diagnostic tests it implies that any results yielded by the model are economically meaningful. Estimation of the model gives Adjusted R-Squared of 0.537439 implying that about 54% of the output is explained by the model.

Table 12: Estimation Results of the Short Run Model

Dependent Variable is D(FD)

Variable	Coefficient	Std. Error	t-Statistic
Constant	0.328324	0.401488	
Δ(TRADE(-2))	0.268767	0.091287	2
Δ(RGDPC)	-0.241991	0.071278	-3
Δ(RGDPC(-1))	-0.209256	0.087484	-2.3
Δ(FO(-2))	-0.062819	0.140366	-
Δ(INV(-2))	-0.130498	0.088092	-
Δ(INF)	-0.111765	0.035811	-3
Δ(INF(-1))	-0.112296	0.032563	-3
Δ(INF(-2))	-0.155065	0.033109	-4
Δ(IR(-1))	-0.103646	0.153604	-
ECM(-1)	-0.675618	0.221377	-3

R-squared	0.681989	Mean dependent var	0.342593	
Adjusted R-squared	0.537439	S.D. dependent var	3.284493	
S.E. of regression	2.233845	Akaike info criterion	4.706527	
Sum squared resid	109.7814	Schwarz criterion	5.205363	
Log likelihood	-66.65770	F-statistic	4.718002	
Durbin-Watson stat	1.855526	Prob(F-statistic)	0.001166	

NB *, ** and *** denote significant at 1%, 5% and 10% respectively

Table 13: Results of Diagnostic Tests on the Short Run Model

Test	Test Statistic	Probability
BG Serial Correlation Test	0.279599	0.869532
White Heteroskedasticity test	20.10338	0.451480
Ramsey RESET Test	0.181818	0.669816
Jarque-Bera Test	3.414651	0.181350
Arch Test	2.569598	0.276706

5.2.2.1 Interpretation of the Results for the Short Run Model

Trade

The coefficient of trade openness variable is positive and statistically significant. It is showing that the development of the financial sector is increased by about 0.27 when trade openness increases by a unit. This also shows that this positive impact of trade openness on financial sector development is observed after two time periods have elapsed. This also supports the openness hypothesis that predicts that openness to external trade leads to financial sector development.

Real GDP Per Capita

The coefficient of this variable is observed to be negative and significant both for the current period and the previous period. This implies that there is a negative relationship between real GDP per capita and financial development in Malawi. This may be as a result of some macroeconomic problems caused by economic growth. For example, excessive GDP growth may lead to financial risks and inflation (Maochu, 2006) which in turn will tend to discourage economic agents' participation in the financial sector.

Financial Openness

As in the long run model, the coefficient of financial openness is negative. However, the coefficient is not statistically significant. This implies that there is no relationship between financial openness and financial sector development in Malawi in the short run.

Investment

The coefficient of investment (lagged twice) has a negative sign but it is statistically insignificant. Therefore in the short run, investment does not affect the level of financial development in Malawi.

Inflation

The coefficient of inflation in current period, previous period as well as after two time periods has a negative sign and is statistically significant in all the three cases. This

confirms that high levels of inflation are not desirable for the development of the financial sector in Malawi. This is because high levels of inflation lead to high transaction and information costs that discourage participation in the financial market.

Interest Rate

The coefficient of interest rate has a negative sign. It is however not statistically significant. This implies that high interest rates do not affect the development of the financial sector in the short run.

The Error Correction Term

The coefficient of the ECM (lagged once) is significantly negative indicating that in the short run the model is off its long run equilibrium. The term also indicates that there is a 68% feedback effect from the previous year's disequilibria.

CHAPTER SIX

CONCLUSION

6.1 Summary of the Results

The overall objective of this study is to asses the relationship between trade openness and financial sector development in Malawi. The study has used annual time series data for Malawi for the period 1970 to 2005. Financial sector development is proxied by the ratio of deposits to GDP and trade openness is represented by the ratio of the sum of exports and imports to GDP. Before giving the results of this specific study, the study has reviewed the theoretical as well as empirical literature on the relationship between trade openness and financial sector development.

The objective of the study has been achieved by estimating an equation to show the determinants of financial sector development. The unit root test has been conducted using the Augmented Dickey-Fuller and the Engle-Granger tests on all the variables and the residuals respectively. It has been found that all the variables are integrated of order one while the residual is integrated of order zero. The study therefore ran both the long run and short run equations. Both equations were subjected to a number of diagnostic tests to establish the reliability of the models' results for the purposes of economic interpretation. The null hypotheses of no serial correlation, no autocorrelation, no misspecification, no ARCH and no heteroscedasticity could not be rejected. In addition, there has been no serious multicollinearity in both models.

Having found a positive and significant relationship between Malawi's level of trade openness and its financial sector development, this study provides empirical evidence that trade openness affects financial sector development in Malawi. Thus, according to the findings of this study, the conclusion is that trade openness positively affect financial sector development in Malawi.

6.2 Policy Recommendations

Having found that trade openness is an important determinant of financial sector development in Malawi, and that trade openness and financial sector development move in the same direction, it implies that policies that influence trade openness will also influence financial sector development. In other words, efforts to open up the country for trade are compatible with efforts to improve the financial sector. Therefore, as far as the financial sector is concerned, opening up the country for trade is a good initiative. Hence it is advisable to the policy makers that opening up the country for trade is in line with dreams to achieve the development of the financial sector in the country. Thus, the two can be implemented simultaneously without causing any harm to latter. In other words, the former will do more good than harm to the latter.

6.3 Suggested Areas for Further Study

Due to time constraint, among other factors, the study suffers some limitations that further studies should seek to address. For example the positive impact of trade openness on financial sector development that the study is talking about, does not clarify whether the positive impact is through either demand or supply of funds. It will be therefore interesting if future studies will address whether this impact is through demand or supply or both. Furthermore, since there are so many proxies for financial development, using these different proxies and assess the results of each of the proxies will be of much interest in the literature on financial development.

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APPENDICES

APPENDIX 1: DATA USED IN THE STUDY

Year	FD	TRADE	RGDPC	FO	INV	INF	IR
1970	7.36	49.48708	92.91145	19.65999	25.83	9.8	11.32722
1971	5.61	44.50582	105.0156	11.28966	19.4	8.2	10.09047
1872	5.47	46.61738	105.7541	15.70244	24.47	3.6	10.48037
1973	15.45852	53.45357	98.83498	16.86496	22.68	5	14.0228
1974	15.04789	56.12914	101.4953	9.940224	23.9	15.6	15.38202
1975	14.32358	64.3351	112.544	4.981291	28.3	15.4	14.33094
1976	12.24461	55.5719	117.1107	-0.30223	16.22	4.4	12.25294
1977	13.57679	53.58434	122.1334	8.783545	21.97	4.1	13.47349
1978	13.49294	55.00275	117.5598	11.33174	39.72	8.5	12.91607
1979	16.10619	58.5941	110.5523	8.356267	34.74	11.3	13.00139
1980	13.21799	58.23042	105.2011	10.96872	31.87	17.7	14.18327
1981	15.43038	50.20991	102.1132	2.253727	23.29	12	16.15973
1982	16.57273	46.23669	101.7813	1.986059	21.41	9.5	16.25572
1983	15.24344	45.38068	100.9155	2.611178	22.8	13.8	14.64987
1984	15.37308	48.16551	104.5428	1.959866	12.88	19.8	17.24792
1985	15.03481	47.72281	100.3712	0.599473	18.54	10.6	14.67592
1986	16.88815	42.78517	95.81661	-0.53297	11.33	14.2	16.19212
1987	18.89403	48.54457	87.26941	1.457897	14	25.1	18.30643
1988	16.7779	53.59733	84.06679	1.860516	17.43	33.8	16.37034
1989	14.12871	50.94799	86.23079	1.257774	20.25	12.5	13.70649
1990	13.49534	53.46318	90.37754	1.839853	19.13	11.9	13.07984
1991	13.50913	54.19307	97.41726	1.257197	20.15	12.6	12.73935
1992	14.40736	60.25016	84.07444	0.968316	18.78	22.7	13.87629
1993	15.69755	43.02341	87.6397	0.949613	12.29	19.6	14.81813
1994	17.10752	69.4214	73.14646	0.701511	26.81	34.7	17.42251
1995	8.047971	58.9235	85.2292	0.157526	13.98	83.4	12.70008
1996	7.966377	47.56796	93.11301	0.13661	9.77	37.6	11.84924
1997	6.643599	51.32634	96.89869	0.11896	11.24	9.2	10.05804
1998	13.14325	66.5456	104.8464	0.218897	14.21	29.8	12.158
1999	12.57664	60.56268	103.4237	0.090929	15.14	45.93	10.71641
2000	14.32233	54.05578	102.4012	0.041401	13.78	26.37	11.89198
2001	12.74203	57.82789	96.61714	-0.02049	13.9	27.5	14.32316
2002	13.82105	56.28128	98.88287	-0.00158	10.9	14.9	14.54492
2003	20.1419	57.21256	98.89597	-0.00079	11.2	9.6	14.25
2004	15.56844	74.4	100.0442	0.1231	11.2	29.8	16.73344
2005	16.77556	76.7	99.36827	0.142857	11	15.4	16.36585

APPENDIX 2: SUMMARY OF DESCRIPTIVE STATISTICS

	FD	TRADE	RGDPC	FO	INV	INF	IR
Mean	13.67272	54.74603	99.01657	3.826844	19.01417	19.05278	14.03678
Median	14.32296	53.82655	99.70623	1.257486	18.66000	14.55000	13.94955
Maximum	20.14190	76.70000	122.1334	19.65999	39.72000	83.40000	21.7500
Minimum	5.470000	42.78517	73.14646	-0.532968	9.770000	3.600000	7.92000
Std. Dev.	3.545573	8.140198	10.24502	5.534602	7.259679	15.08903	2.751841
Skewness	-0.921413	0.886049	-0.079335	1.467955	0.909461	2.372942	0.287615
Kurtosis	3.338729	3.589097	3.266460	3.954033	3.440844	10.31724	3.403601

APPENDIX 3: CORRELATION MATRIX OF THE REGRESSORS

	TRADE	RGDPC	FO	INF	INV	IR
TRADE	1.000000	-0.025730	-0.124427	0.352688	0.232365	-0.007025
RGDPC	-0.025730	1.000000	0.320341	-0.468267	0.338657	-0.310939
FO	-0.124427	0.320341	1.000000	-0.400535	0.638941	-0.291183
INF	0.352688	-0.468267	-0.400535	1.000000	-0.313613	0.010572
INV	0.232365	0.338657	0.638941	-0.313613	1.000000	-0.043185
IR	-0.007025	-0.310939	-0.291183	0.010572	-0.043185	1.000000

APPENDIX 4: ESTIMATION RESULTS OF THE OVERPARAMETERISED MODEL

Dependent Variable: D(FD)
Method: Least Squares
Date: 04/11/08 Time: 23:35

Sample (adjusted): 1973 2005
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.110816	0.424420	0.261101	0.7988
D(TRADE)	0.092974	0.117855	0.788881	0.4469
D(TRADE(-1))	0.008765	0.092086	0.095183	0.9259
D(TRADE(-2))	0.103199	0.130333	0.791812	0.4452
D(RGDPC)	-0.206957	0.092282	-2.242659	0.0465
D(RGDPC(-1))	-0.154954	0.135667	-1.142170	0.2776
D(RGDPC(-2))	-0.097624	0.138285	-0.705965	0.4949
D(FO)	0.018131	0.235958	0.076842	0.9401
D(FO(-1))	-0.030968	0.352967	-0.087738	0.9317
D(FO(-2))	-0.087984	0.180357	-0.487832	0.6352
D(INV)	0.049740	0.150604	0.330271	0.7474
D(INV(-1))	0.007799	0.135000	0.057773	0.9550
D(INV(-2))	-0.056522	0.116489	-0.485215	0.6370
D(INF)	-0.145550	0.066110	-2.201627	0.0499
D(INF(-1))	-0.052371	0.077401	-0.676614	0.5126
D(INF(-2))	-0.081644	0.043347	-1.883483	0.0863
D(IR)	0.633101	0.297333	2.129267	0.0567
D(IR(-1))	-0.568580	0.463245	-1.227385	0.2453
D(IR(-2))	-0.239594	0.350776	-0.683041	0.5087
D(FD(-1))	0.725123	0.498055	1.455910	0.1734
D(FD(-2))	0.288595	0.472203	0.611167	0.5535
ECM(-1)	-1.466317	0.504236	-2.907997	0.0142

R-squared	0.860122	Mean dependent var	0.342593
Adjusted R-squared	0.593081	S.D. dependent var	3.284493
S.E. of regression	2.095184	Akaike info criterion	4.551881
Sum squared resid	48.28778	Schwarz criterion	5.549553
Log likelihood	-53.10604	F-statistic	3.220940
Durbin-Watson stat	2.107643	Prob(F-statistic)	0.024717

APPENDIX 5: GRAPHS OF VARIABLES USED IN THE STUDY


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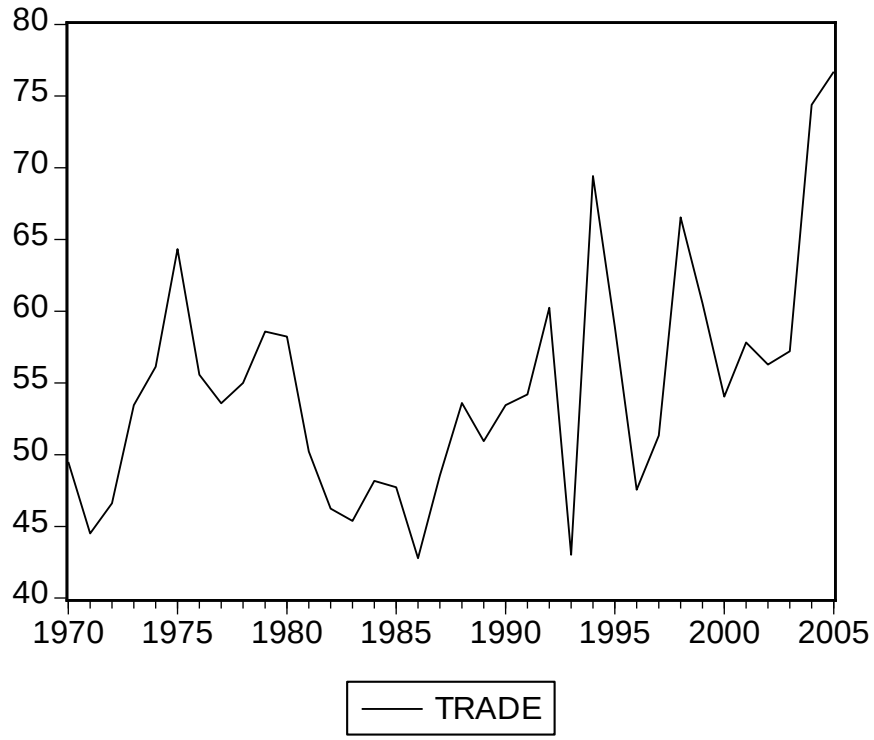
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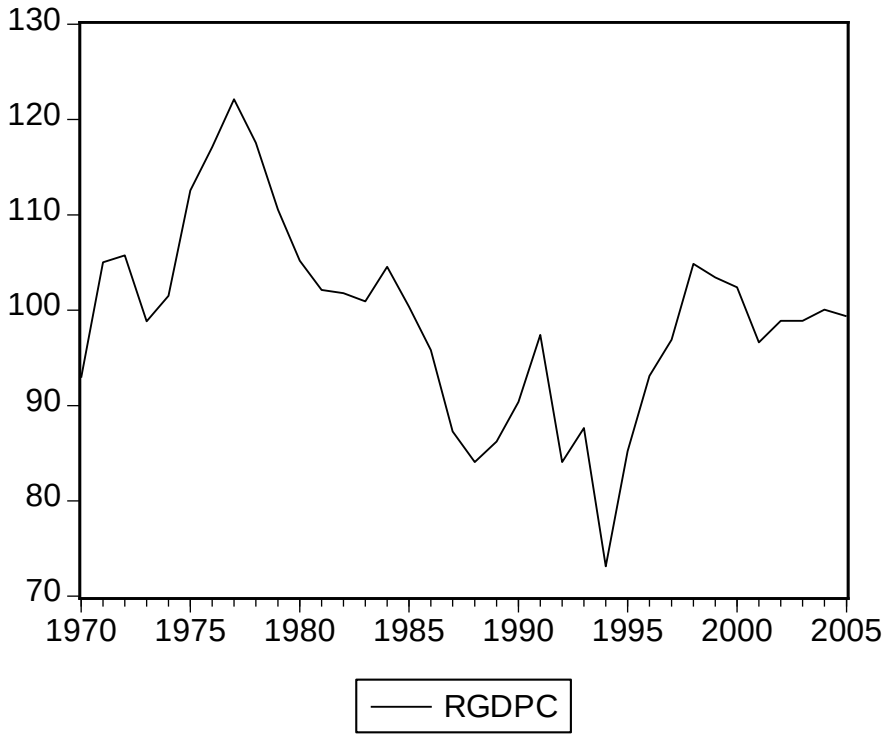
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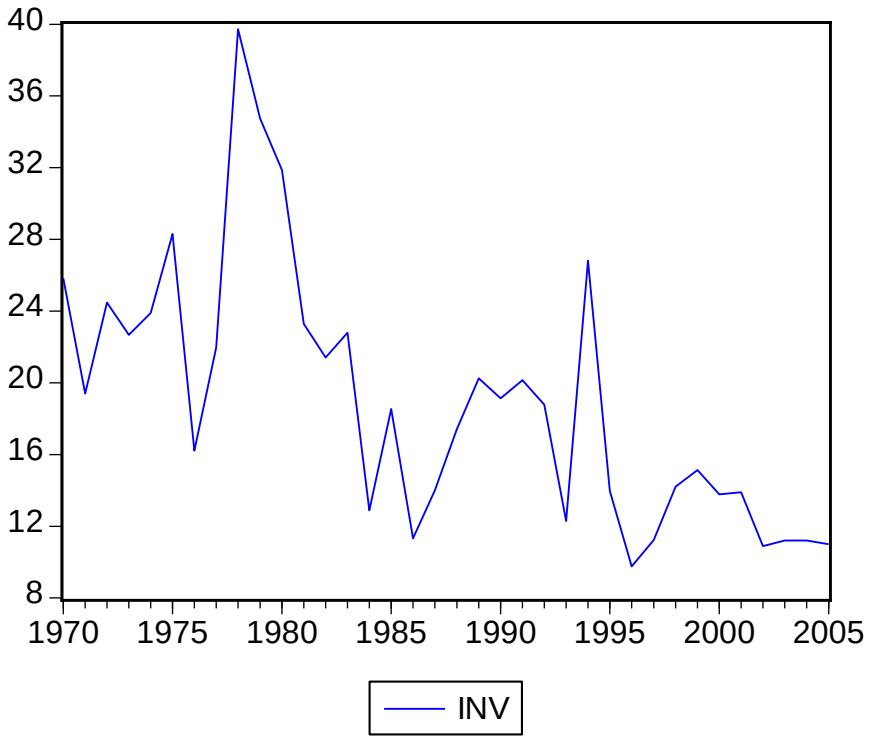
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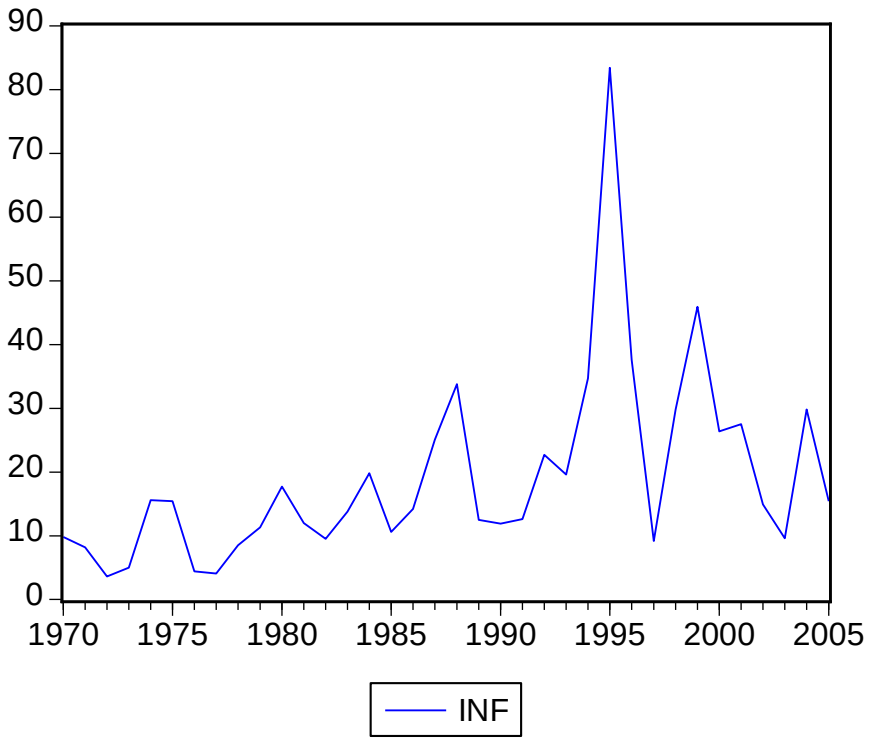
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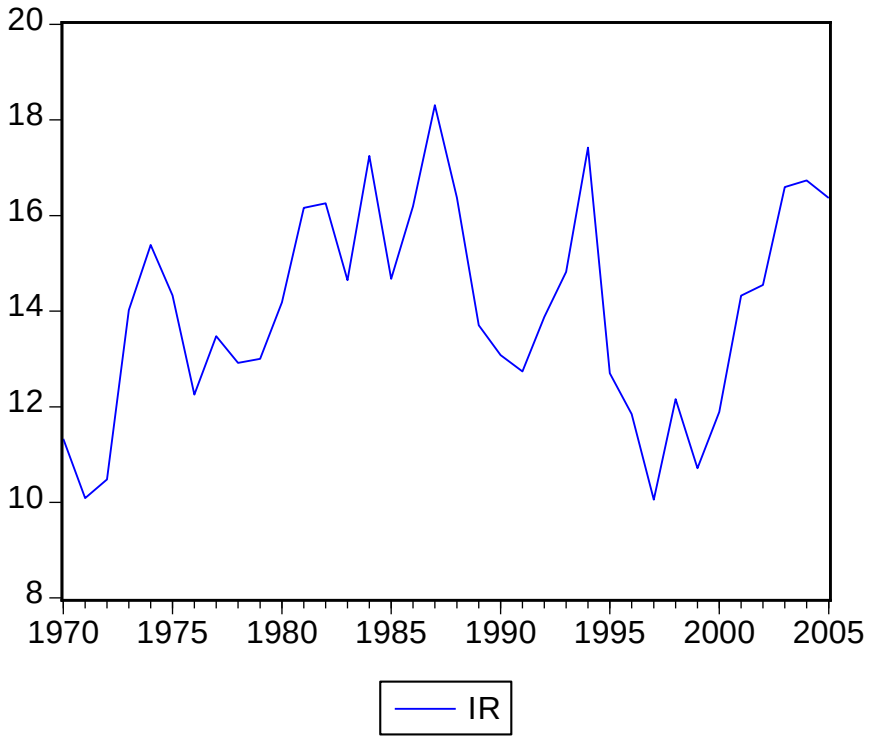
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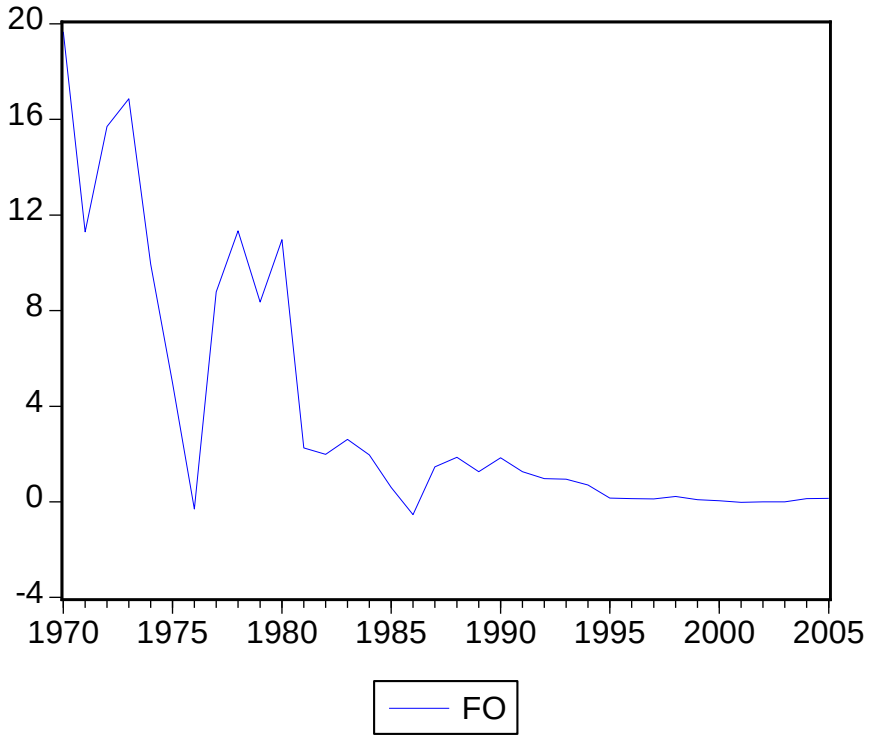
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