

***"THE IMPACT OF INTEREST RATE LIBERALISATION ON
SAVINGS IN MALAWI"***

BY

JOSEPH MATHYOLA MWANAMVEKHA



A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR MASTERS OF ARTS (ECONOMICS) DEGREE

UNIVERSITY OF MALAWI, CHANCELLOR COLLEGE
P.O. BOX 280, ZOMBA, MALAWI.

SEPTEMBER, 1994.

TABLE OF CONTENTS:

Table of contents	i-iv
List of tables	v-vi
Acknowledgements	vii
Abstract	viii

CHAPTER 1:INTRODUCTION	PAGE
1.1 Background.....	2
1.1.1 Trends in private sector savings and gross domestic savings.....	5
1.1.2 Movements in Real Gross Domestic Product.....	11
1.1.3 Inflation.....	12
1.1.4 Movements in real money balances...	13
1.2 The banking and financial system	
1.2.1 Reserve Bank of Malawi.....	14
1.2.2 Commercial Banks.....	17
1.2.3 The New Building Society.....	18
1.2.4 Mercantile Credit and Leasing and Finance Company (LFC).....	19
1.2.5 Post Office Savings Bank (POSB)...	19
1.2.6 Insurance and Assurance Companies.	20

1.2.7	Investment and Development Bank of Malawi (Inde fund) and Investment and Development Fund (IndeFund).....	20
1.3	Interest rate policy.....	21
1.4	Objectives and significance of the study.....	27

CHAPTER 2: Literature review

2.1	A review of interest rate theories and empirical evidence from other countries	
2.1.1	A look at interest rate and its relevance in an economy.....	30
2.1.2	Absolute, permanent and life cycle hypotheses of consumption.....	31
2.1.3	Relationship between interest rate and savings-Theoretical underpinnings.....	37
2.2	Interest rate and demand for real money balances	
2.2.1	Interest rate and real moneybalances.....	45
2.3	Studies undertaken in Malawi	
2.3.1	Interest rate and savings mobilisation.....	47
2.3.2	Interest rate and real moneybalances.....	51

CHAPTER 3: Research methods and analytical framework

3.1	The model.....	53
3.2	Reasons for the inclusion of the independent variables.....	55
3.3	Source of data.....	57

CHAPTER 4: Empirical Results.

4.1	Discussion of the results.....	63
4.1.1	Interest rate.....	63
4.1.2	Real per capita income.....	66
4.1.3	Growth rate of real per capita income.....	66
4.1.4	Non-interest financial reforms.....	67
4.1.5	Foreign savings rate.....	68
4.1.6	Lagged private sector savings rate.....	69
4.2	Interest rate and demand for real money balances	
4.2.1	The model.....	71
4.2.2	Discussion of the regression results	
4.2.2.1	Interest rate and real money balances.....	74
4.2.2.2	Real money balances and real income, savings, lagged money balances and private sector savings.....	75

4.3	Empirical results for quarterly data.....	79
4.3.1	Discussion of the results.....	81
4.4	Empirical results: Interest rate and demand for real money balances.....	85
4.4.1	D i s c u s s i o n o f t h e results.....	86
CHAPTER 5: Summary and conclusion		
5.1	Summary.....	94
5.2	Conclusion.....	98

LIST OF TABLES

NUMBER	PAGE
1.0	Gross national savings, total private sector savings, real GDP, growth rate of GDP, private sector savings rate and government savings.....6
2.0	Consumer price Index and inflation rate, 1965-92.....8
3.0	Assets of major financial institutions.....15
4.0A	Policy switches from date of initiation to date of full liberalisation of interest rates.....23
4.0B	Savings deposit rate, inflation rate and real deposit rate.....24
5.0	Real per capita GDP, real deposit rate, dummy variable, foreign savings rate and private sector savings rate.....58
6.0	Estimates of private sector savings rate function for Malawi.....65
8.0	Real money balances (M1 and M2), 1965-92.....72
9.0	Regression results for real money balances, (M1 and M2).....77
11.0	Quarterly regression results for the sub-periods, 1976-86 and 1987-1992.....82

LIST OF TABLES CONTINUED:

TABLE NUMBER	PAGE
13.0 Estimates of the demand for money, (M1) for the sub-periods, 1976-86 and 1987-92.....	87
14.0 Estimates of the demand for money, (M2) for the sub-periods, 1976-86 and 1987-92.....	88
15.0 An autoregressive distributed lag (ADL) model, regression results for private sector savings.....	90
16.0 An autoregressive distributed lag (ADL) model, regression results for real M1, 1976-1992.....	91
17.0 An autoregressive distributed lag (ADL) model, regression results for real M2, 1976-1992.....	92

ACKNOWLEDGEMENTS:

My sincere thanks go to Professor C. Chipeta and Dr. E. Silumbu for their invaluable advice and support during the entire period of preparation and writing of this dissertation. I will always cherish their support.

Secondly, I would like to thank the senior management of the Reserve Bank of Malawi for according me such a rare opportunity to pursue this programme and members of staff of Money and Capital Markets and Research and Statistics Departments for the services they rendered to me during my investigations and typing of the dissertation.

Finally, my due thanks and gratitude go to my wife (Susan), children (Chikondi, Chifundo and Chisomo), parents, brothers and sisters for the love and moral support they provided to me during my entire study period.

ABSTRACT:

During mid and late 1980s Malawi undertook financial reforms which, inter alia, included interest rate liberalisation. This interest rate liberalisation had several aims amongst which were; to introduce market determined interest rates that could enhance savings mobilisation process and to bring effective competition in the financial system.

Unfortunately, interest liberalisation has partially met its intended objective of enhancing savings mobilisation due to structural and institutional rigidities that exist in the financial system in general and banking sector in particular. The financial system is narrow and underdeveloped and the banking system is characterised by oligopolistic tendencies. Furthermore, the financial and banking sector is typified by segmentation and fragmentation and so far there is a general observation that savings mobilisation has not been accorded the policy focus it deserves.

As the study has shown, the policy of interest rate upward adjustment, enhances, insignificantly, private sector savings in Malawi and encourages the private sector to save. Policy wise, this implies there is need to re-orient the financial policies further and to restructure the entire financial system in order to remove the prevailing structural and institutional rigidities.

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND:

In recent years, theoretical debates and policy discussions about the benefits of liberalised (unrepressed) financial markets on economic development have intensified. These debates and discussions arise from the fact that there are misunderstandings on which financial policy to use - a policy of repressed financial markets which is based on the Keynesian macroeconomics or the policy of liberalised financial markets which is mostly associated with Mckinnon¹ and Shaw² .

According to Keynesian perspective, a policy of repressed (low) interest rates, for example, increases level of investment, improves allocation of resources amongst various sectors and keeps financial costs down hence avoiding possible inflationary effects of financial liberalisation.

On the otherhand, advocates of the Mckinnon-Shaw perspective argue that a policy of low interest rate inhibits investment and reduces the average rate of return on investment hence hampering economic development. Consequently, debates and discussions have emerged in order to reconcile the two different view points.

¹ Keynes M.J, *The general theory of employment, interest rate and money*, London, Horcourt Brace, (1936).

² Shaw .E .S, *Financial deepening in economic development*, Oxford University Press, New York, (1973)

However, considerable effort on empirical research into the workings of financially repressed economies and the beneficial effects of financial liberalisation has been undertaken, particularly after the pioneering work of Mckinnon and Shaw. These empirical studies concentrated mainly on developing countries particularly Asian and Latin American countries; and thus ignoring Africa region of the developing world.

Nevertheless, financial sector reforms in the context of Structural Adjustment Programmes (SAPs) have been instituted in several African countries. Mauritius, Nigeria, Tanzania, Senegal, Ghana, Kenya and Malawi are the notable African countries that liberalised interest rates as part of Structural Adjustment Programme (SAPs).

Malawi has one of the less developed financial sector in the Sub-Saharan region. Interest rates were up to 1985, set administratively at low levels below inflation rate and were being adjusted infrequently. However, beginning July 23, 1987 interest rates were being gradually liberalised and were finally, fully liberalised on June, 1990.

Thus, it is against this background, that this study has been pursued to find out the impact of interest rate liberalisation on private sector savings. The paper is divided into five main sections. The last part of this section reviews Malawi's real and financial sectors and the policy switches undertaken during the

post interest rate liberalisation period. Section 2 briefly outlines theoretical underpinnings regarding interest rate and the stylised empirical evidence on interest rate. Section 3 outlines the model and the source of data used in the analysis and in section 4 the model has been tested using data on Malawi. Finally, Section 5 summarises and concludes the paper.

1.2 A REVIEW OF MALAWI'S ECONOMY:

1.2.1 PRIVATE SECTOR AND GROSS DOMESTIC SAVINGS

The Malawian economy experienced fluctuations in the movement of private sector savings. Table 1 below portrays the true picture of the movements in private sector savings. From 1966 to 1973 the private sector had relatively poor savings mobilisation capacity. During this period, the private sector registered an average rate (private sector savings/real GDP) of approximately 5 percent. Between 1974 and 1978 private sector savings rate increased but later on started to decline and reached its lowest level, 1.5 percent, in 1981.

However, the period after 1982, the economy experienced fast increases in private sector savings. As chart 1 at the appendix shows, increase in private sector savings was more pronounced between 1987 and 1991. Unfortunately this increase in private sector savings met with increased public sector's dissaving thereby neutralising the country's overall savings performance.

Malawi has also witnessed mixed developments in domestic savings during the period 1966-1991. In late 1960s Malawi's capacity to mobilise savings was negligible. In 1967, for example, total gross national savings amounted to MK 1.84 million and in 1968 it was - 0.82 which meant that overall there was dissaving in the economy. However after 1968, gross national savings started to rise and it registered MK 76.6 in 1974. This was mainly attributed to expansion in real gross domestic product (GDP). This trend was

short lived because the economy continued to face poor performance in gross national savings mobilisation after 1975 up to late 1980s.

TABLE 1: Gross National Savings(GNS), Total Private Sector savings, Real GDP, Real GDP Growth Rate, Private Sector savings Rate and Government Savings (GS). (MK'million)

Year	GNS	Private Sector Savings	Real GDP	Private Sector savings Rate	Growth of Real GDP	GS
1966	17.5	193.9	801.7	5.1	9.9	-11.2
1967	1.84	197.9	895.3	4.4	11.7	-9.3
1968	-0.82	206.7	845.3	4.7	5.6	-13.7
1969	8.48	222.7	899.4	5.3	6.4	-13.1
1970	16.61	242.6	912.7	4.6	1.5	-25.5
1971	23.58	320.0	1044.0	7.9	14.4	-21.9
1972	23.0	329.1	1122.3	7.6	7.5	-28.6
1973	55.7	365.5	1260.9	8.7	12.3	-24.5
1974	76.6	449.2	1354.8	10.5	7.4	-22.3
1975	65.6	509.2	1429.8	10.0	5.5	-35.5
1976	55.7	553.8	1518.7	11.0	6.2	-33.4
1977	123.0	635.7	1584.5	12.3	4.3	-28.4
1978	160.3	726.7	1716.3	13.5	8.3	-53.6
1979	96.3	837.3	1773.6	8.6	3.3	-69.6
1980	98.9	1002.3	1760.9	8.6	0.4	-78.0
1981	119.6	836.9	1674.5	1.6	5.2	-113.2
1982	140.8	953.0	1721.8	17.5	2.8	-65.9
1983	206.7	1104.8	1782.6	18.4	3.5	-125.3
1984	174.3	1300.3	1861.9	15.8	4.4	-137.2
1985	159.8	1412.6	1944.9	18.1	4.5	-194.9
1986	109.4	1528.4	1966.2	19.8	1.1	-250.5
1987	214.8	1901	2008.2	27.3	2.1	-279.6
1988	176.7	2502.7	2076.4	31.6	3.4	-350.9
1989	60.4	3181.5	2160.8	41.5	4.1	-367.3
1990	357.1	3781.	2263.9	40.9	4.8	-253.0
1991	352.0	4878.6	2440	39.0	7.8	
1992	77.8		2247.2			

SOURCE: Reserve Bank of Malawi, Financial and Economic Review (various issues)
International Monetary Fund, International Financial Statistics Yearbook (1993)

Amongst other factors, the public sector's continuous and consistent dissaving accounted for most of the decline in gross national savings (refer to Table 1 above).

This deceleration in the country's capacity to mobilise savings had several adverse repercussions to the economy . These included the following; the country's heavy and continued dependency on external source of finance, increased fiscal and balance of payments deficits and its corresponding increased debt service ratio, escalating budget deficit which resulted in monetary creation by the central bank which further created excess demand. This excess demand eventually led to increased inflation. Finally, this downturn in gross national savings contributed to reduced employment and economic growth in late 1980s.

TABLE 2: CONSUMER PRICE INDEX AND INFLATION RATE, 1965-92, (1980 = 100)

YEAR	CONSUMER PRICE INDEX	INFLATION RATE
1965	36.7	
1966	37.9	3.27
1967	38.2	0.79
1968	36.92	-3.35
1969	37.25	0.89
1970	40.8	9.53
1971	44.15	8.21
1972	45.74	3.60
1973	48.06	5.07
1974	55.52	15.52
1975	64.14	15.53
1976	66.96	4.35
1977	69.65	4.06
1978	75.73	8.73
1979	84.01	10.93
1980	100.0	19.03
1981	111.81	11.81
1982	122.8	9.83
1983	139.4	13.52
1984	167.28	20.0
1985	184.8	10.47
1986	210.7	14.02
1987	263.95	25.27
1988	353.23	33.82
1989	397.4	12.50
1990	444.2	11.78
1991	500.4	12.65
1992	615.9	23.08

SOURCE: International Monetary Fund, International Financial Statistics Yearbook (1993)

As can be observed on table 1 above, Malawi experienced a reasonable higher rate of GDP growth. During the period 1964-80, real GDP per capita grew at an average rate of 4 percent per annum, making it one of the fast growing economies in the sub-Saharan Africa. However, during 1980-90, the economy registered poor economic growth and in 1988 real gross domestic product grew at an average of 1.1 percent. This downturn in economic growth was due to; a civil war in Mozambique which disrupted traditional transport route to Nacala and led to higher transport costs that posed a serious challenge to the economy, prolonged drought in early 1980's, poor performance in savings mobilisation, deteriorating terms of trade, rising oil prices and the influx of the displaced persons from Mozambique.

These developments did not only put strain on the country's economic growth but also to the government's economic recovery programme (Refer to chart 2 for illustrations).

Relatively buoyant economic growth was resumed between 1988 and 1992. Indeed annual growth of around 4.5 percent was expected to continue for the rest of the 1990s. Notwithstanding, low tobacco prices, adverse climatic and natural conditions in 1989 and higher import prices, agricultural production increased and economic growth strengthened. As a result a trade account registered a trade surplus in 1990 following a trade deficit in 1989.

1.2.3: INFLATION RATE

Inflation rate, as measured by percentage change in consumer price Index, CPI, has been low in 1960s and early 1970s. This is in sharp contrast to years 1974, 1975 and late 1980s when inflation accelerated from 4.35 percent in 1976 to 33.82 percent in 1988. The factors that led to this increase, particularly in 1980s, included the hiking of oil prices, high transport costs that resulted from the closure of the traditional transport route to Nacala in Mozambique, increase in demand that emerged from the influx of the Mozambiquean refugees and the increased government's domestic borrowing through direct advances from the Reserve Bank of Malawi which resulted in increased money supply.

This trend reversed in 1989 and price developments were encouraging during this year as the rate of interest decelerated remarkably from the annual rate of 33.82 percent in 1988 to 12.5 percent in 1989. This could be attributed to reduced food, tobacco and housing costs, import liberalisation, the achievements of anti-inflation committee which helped to restore confidence in the business community and the tight fiscal and monetary policy regime. Inflation rate registered 11.78 and 12.65 percent in 1990 and 1991 respectively. In 1992 price developments were somehow worrisome as inflation increased to 23.08 percent. This was due to the drought which adversely affected crop production especially maize and tobacco.

1.2.4 MOVEMENT IN REAL MONEY BALANCES

Finally money supply, narrow and broad money balances, more or less maintained a steady increase during the entire period, 1966-1992. This is in sharp contrast to the decline of both M1 and M2 in 1975, 1976, 1978, 1988 and 1989. These trends in monetary aggregates can be gauged in the light of several policy initiatives implemented by monetary authorities in the course of the period and other developments that took place in several sectors of the economy.

As chart 4 and 5 at the appendix show real M1 grew from MK 551.95 million in 1966 to MK1145.05 in 1974 while real M2 grew from MK757.7 to MK 1788.54 during the same period. This increase in components of money supply may be attributed to increased net foreign assets of the commercial banks and increased domestic financing of the government budget through direct advances from the central bank.

However the growth of money supply, M1 and M2, from 1987 up to 1992 slowed down. There are several factors that led to this trend which included inter alia, the restrictive fiscal and monetary policies that were implemented under the Structural Adjustment Programmes (SAPs), such as open market operations, reserve requirement and interest rate policy. These policies were aimed at mopping up excess liquidity in the economy, encouraging competition, providing

the basis for the prudent and effective supervision of the financial sector and the efficient use of public funds.

1.3 THE BANKING AND FINANCIAL SYSTEM

Malawi has a small, narrow, shallow and underdeveloped banking and financial system comprising of Reserve Bank of Malawi and Ministry of Finance as regulatory authorities, two commercial banks namely; National Bank of Malawi and Commercial Bank of Malawi, other banking institutions such as Investment and development Bank (Indebank), Post Office savings Bank (POSB), New Building Society (NBS) and National Mercantile Credit and other financial institutions such as Leasing and Finance Company and Insurance and Assurance companies.

1.3.1 RESERVE BANK OF MALAWI.

Reserve Bank of Malawi (RBM) was established by an act of Parliament in 1965 . Amongst other normal central banking responsibilities, the Reserve Bank of Malawi ensures that all financial and banking institutions follow prudent and sound financial management and policies. Before 1985, the Reserve Bank of Malawi was administering interest rates . Deposit rates were set by Reserve Bank of Malawi while lending rates were set by commercial banks up to an authorised maximum.

TABLE 3: ASSETS OF MAJOR FINANCIAL INSTITUTIONS.
(MK' million)

Year	RBM	CBMs (NBM & CBM)	NBS	POSB	INDBNK	INSU COs	LFC	Total ass.
1973	60.7	78.8	5.4	9.7	3.2	9.0	-	166.8
1974	79.0	104.1	5.8	13.3	4.9	11.8	-	218.9
1975	103.6	117.2	6.0	12.8	5.8	14.1	-	259.5
1976	81.4	133.1	6.5	12.1	8.6	16.6	-	258.3
1977	120.5	169.9	7.1	12.9	11.1	21.7	-	343.2
1978	119.9	206.9	8.0	16.9	13.8	26.2	-	391.7
1979	145.1	255.1	9.1	19.3	15.3	30.8	-	474.7
1980	166.2	278.6	10.2	22.4	17.9	45.0	-	540.3
1981	230.7	301.8	13.4	25.8	21.7	42.5	-	635.9
1982	277.1	355.3	16.0	32.1	24.3	36.6	-	741.4
1983	334.0	398.2	18.7	48.9	27.0	62.0	-	888.8
1984	371.8	488.6	24.2	55.9	26.7	84.4	-	1052
1985	414.4	503.9	29.6	66.1	29.0	94.3	-	1137
1986	490.4	629.4	32.8	76.2	31.5	121	-	1383
1987	688.6	733.2	45.2	104.1	33.7	132.	171	1754
1988	937.9	776.2	66.8	127.9	38.9	174	42	2164
1989	934.1	842.9	84.1	-	42.4	215	67	-
1990	1028	1054	97.8	-	52.8	-	79	-
1991	1148	1230	161	-	63.9	-	103	-
(as a percentage of GDP)								
1973	16.7	21.6	1.5	2.7	0.9	2.5	-	45.8
1974	17.1	22.6	1.3	2.9	1.1	2.6	-	47.4
1975	19.6	22.1	1.1	2.4	1.1	2.7	-	49.0

1976	13.3	21.7	1.1	2.0	1.4	2.7	-	42.2
1977	16.6	23.3	1.0	1.8	1.5	3.0	-	47.1
1978	15.0	25.8	1.0	2.1	1.7	3.3	-	48.9
1979	16.8	29.5	1.1	2.2	1.8	3.6	-	54.9
1980	16.5	27.7	1.0	2.2	1.8	4.5	-	53.8
1981	20.8	27.2	1.2	2.3	2.0	3.8	-	57.4
1982	22.3	28.5	1.3	2.6	2.0	2.9	-	59.5
1983	23.2	27.7	1.3	3.4	1.9	4.3	-	61.9
1984	21.8	28.6	1.4	3.3	1.6	4.9	-	61.6
1985	21.3	25.8	1.5	3.4	1.5	4.8	-	58.3
1986	22.4	28.7	1.5	3.5	1.4	5.6	-	63.1
1987	25.0	26.6	1.6	3.8	1.2	4.8	0.6	63.6
1988	25.4	21.0	1.8	3.5	1.1	4.7	0.9	58.2
1989	21.4	19.5	1.9	-	-	-	1.4	-
1990				-	-	-		-
1991				-	-	-		-

SOURCE: African Centre for Monetary Studies, Savings Mobilisation in Selected African Countries, (1992), pp 205

As shown on table 3 above, Reserve Bank of Malawi has a high percentage of assets as a ratio of gross domestic product (GDP) . The bank in 1988, for example, held assets amounting to 25.4 %, higher ratio than that for all Commercial banks combined. Mostly these assets are in form of claims against the public sector particularly the central government. The central government has direct advances from RBM. Furthermore, the general public's claims against the central government inter alia, include Treasury bills (TBs) and government bonds. However, the Reserve Bank has a few

claims on commercial banks. This indicates that the central bank has very little "lender of last resort" functions. In 1980s the discount window remained dormant reflecting existence of excess liquidity in the banking system.

But prior to 1973, the RBM held a healthy net foreign asset position and a modest balance against the public sector. This position progressively reversed towards the 1980s and early 1990s. Net foreign assets plunged while net claims on the public sector expanded, indicating the government's increasing dependence on foreign and domestic debt.

On the other hand, a close look at the Reserve Bank of Malawi balance sheet shows that it has large liabilities reflecting its large foreign debt position.

† 1.3.2 COMMERCIAL BANKS

As alluded to earlier on, the commercial banking sector comprises of National Bank of Malawi and Commercial Bank of Malawi.

These two commercial banks can best be classified as **conservative** and **oligopolistic** in nature. This is so because a casual look at their capital holding structure shows a dominant shareholder, Press Corporation, 47.35 percent in National Bank and 40 percent in Commercial Bank of Malawi. Consequently competition is conspicuously absent. In addition, the two commercial banks have been working as an oligopoly as shown by identical interest rates and fees. Nevertheless, the authorities have tried to encourage

competition in the financial system by promoting entry of new entrants in the market, for example, the introduction of banking facilities at the Indebank (financial service division), the current restructuring of Post Office Savings Bank and ADMARC, and also the introduction of banking facilities at Malawi Union of Savings and Credit Co- operatives (MUSCO).

The lending policies of the commercial banks are conservative and restricted to modest term loans. Most lending consists of heavily secured seasonal overdrafts e.g. overdrafts to tobacco farmers . There is substantial lending to agricultural sector (at least 50% of total advances) but this is mainly restricted to estate farmers.

1.3.3 THE NEW BUILDING SOCIETY

The New Building Society was registered in 1964 and government as the main shareholder. It accepts savings and time deposits and provides mortgage facilities.

The New Building Society (NBS) poses no threat to commercial banks since its asset portfolio is very small and NBS is also a customer to National Bank of Malawi. This is substantiated by the fact that in 1980 for example, total deposits at NBS were just 7.5 % of commercial banks' deposits . Interest rates at NBS are higher than those of commercial banks and structures its interest rates based on variable rates. NBS holds most of its balances as claims against the government in form of securities.

1.3.4 MERCANTILE CREDIT AND LEASING AND FINANCE COMPANY (LFC)

Leasing and Finance Company was chartered in 1986 while Mercantile Credit was created in 1958. Mercantile Credit accepts time deposits, block discounts, commercial trade debts and provides finance in form of higher purchase and capital leasing. Its portfolio position is insignificant, in 1987 for example, held MK 4.7 million which was less than 1% of gross domestic product.

On the other hand, Leasing and finance Company expanded fast such that by 1990 (four years since inception) it had MK 18 million in deposit balance and had MK 90 million of total assets. Ownership of Leasing and Finance is by Indebank (the main member), UDC (a Zimbabwean company) holds 10% of total shareholding and IFC also holds 10%.

1.3.5 POST OFFICE SAVINGS BANK (POSB)

Post Office Savings Bank (POSB) provides deposit facilities to, mostly, low income Malawians and is the most accessible institution to the rural people. As of 1990 there were about 158 POSB outlets. As a government institution, its funds have a guarantee. Despite that POSB does not lend money to people and that it imposes strict withdraw procedures, POSB attracts a lot of savers due to higher real interest which is exempted from withholding tax. However, POSB invests its assets only in securities (government paper) in order to finance development projects. Its liquidity is held in non-

interest earning accounts in the Reserve Bank of Malawi. POSB does pose a threat to commercial banks with regard to savings deposits in rural areas. POSB has more outlets in rural areas while commercial banks have more outlets in urban areas and a few agencies in rural areas.

1.3.6 INSURANCE AND ASSURANCE COMPANIES.

Among the formal financial institutions in Malawi, the retail Insurance industry constitutes the most competitive segment. There are reasonably many institutions in this industry and these include; Old Mutual, National Insurance Company, Royal Assurance Company, Mandala Insurance Company, Commercial Union Assurance Company and Mutual Assurance Company etc. The total asset holding of the insurance industry normally amounts to 5 percent of gross domestic product (GDP) most of which comes from life and annuity business.

The insurance companies invest in companies that are seeking long term funds through private placements debentures and equity issues.

1.3.7 INDEBANK AND INDEFUND.

Investment and Development Bank of Malawi (Indebank) is a private company which heavily depends on foreign lines of credit for its local operations. It transforms offshore funds into diversified portfolio of term loans and equity investments which are directed principally at the agro-industry. On the other hand, Indefund is donor funded institution aimed at the investment and finance needs of small and medium enterprises owned by indigenous Malawians.

1.4 INTEREST RATE POLICY

As already pointed above, before 1987 monetary policy relied on the use of credit ceilings and flexible administration of interest rates. Interest rates were deliberately kept below market-clearing levels for the reasons explained in the literature review. Reserve Bank of Malawi has been fixing floors for deposit and lending rates together with quantitative credit limits. Consequently, interest rate remained negative during the period, 1965-1989.

From 1987 these rates were being liberalised gradually as part of the reform programme. The maximum lending rates were first liberalised on July 23, 1987. In 1988 deposit interest rates were formally liberalised but still Reserve Bank of Malawi (RBM) continued to indirectly control interest rates through moral suasion and preferential lending rates to agriculture sector were

still maintained. On July 1, 1989 RBM began to pay 8% on only 10% of banker's balances (required cash reserves). All other balances ceased to earn interest. The preferential interest rates for agriculture were discontinued on August 1, 1989. Finally interest rates were **fully** liberalised on June 1, 1990 and bank rates on the discount window were established in order to provide a signal for the direction of the interest rate policy. Refer to Table 4a below. As a result of this interest rate liberalisation real interest rates became positive, particularly after 1989, in real terms as shown by table 4b below.

TABLE 4A: POLICY SWITCHES FROM DATE OF INITIALISATION TO THE DATE OF FULL LIBERALISATION OF INTEREST RATES.

DATE	POLICY CHANGE
JULY 23, 1987	LIBERALISATION OF LENDING RATES
FEBRUARY, 1988	RBM STARTED PAYING INTEREST ON ONLY 30% OF BANKERS' BALANCES WITH IT
APRIL 11, 1988	LIBERALISATION OF DEPOSIT RATES
JULY 1, 1989	RBM BEGAN PAYING 8% ON ONLY 10% OF REQUIRED CASH RESERVES AND OTHER BALANCES CEASED TO EARN INTEREST
AUGUST 1, 1989	DISCONTINUATION OF PREFERENTIAL INTEREST RATES AND RAISING OF MINIMUM LENDING RATES TO 18% FROM 16%.
JANUARY 2, 1990	RESERVE REQUIREMENT INCREASED TO 25%.
JUNE 1, 1990	INTEREST RATES WERE FULLY LIBERALISED

Source: Seck. .D and El Nil "The experience of African countries with financial liberalisation: Theoretical and empirical analysis." African Centre for monetary studies, (1992)

TABLE 4B : SAVINGS DEPOSIT RATES, INFLATION RATES AND REAL DEPOSIT RATES FOR THE PERIOD 1965-92

YEAR	SAVINGS DEPOSIT RATE	REAL INFLATION RATE	REAL SAVINGS DEPOSIT RATE
1965	3	-0.04	3.04
1966	3	3.3	-0.33
1967	3	-5.49	8.49
1968	4	10.79	-6.79
1969	4	1.87	2.13
1970	4	7.72	-3.72
1971	4	9.56	-5.56
1972	4	-0.031	4.031
1973	4	-9.69	13.69
1974	4	18.0	-14.0
1975	4	8.8	-4.8
1976	5.5	8.63	-3.13
1977	5.5	13.9	-8.4
1978	6.75	1.74	-5.01
1979	8.75	4.28	4.47
1980	8.75	16.84	-8.09
1981	8.75	16.34	-7.59
1982	8.75	9.21	-0.46
1983	10.75	11.48	-0.73
1984	10.75	13.77	-3.02
1985	10.75	9.05	1.7
1986	10.75	11.8	-1.05
1987	13.75	16.48	-2.73
1988	10.75	26.42	-15.63
1989	10.75	23.39	-12.64
1990	14.0	10.49	3.51
1991	13.0	12.21	0.79
1992	20.0	15.17	4.83

Source: Reserve Bank of Malawi, Financial and Economic Review (various issues) and International Financial statistics Yearbook(1993)

The savings deposit rate went up from 3 percent in 1965 to 4 percent in 1975. It increased further from 5.5 percent in 1977 and 1978 to 10.75 in 1986. It went down from 13.75 percent in 1987 to 10.75 percent in 1988 and 1989 before shooting up to 14 percent in 1990, reaching a maximum of 20 percent in 1992.

On the otherhand, real inflation rate has been oscillating throughout the period, 1965-92. It registered -0.04 in 1965 before reaching its lowest figure of -9.69 in 1973. This trend reversed the following year, when real inflation rate shot up to 18.0 percent and reached its highest level of 26.42 in 1988. There after, inflation rate exhibited a downward trend during the period, 1990-92 and it registered 15.17 in 1992.

These oscillating movements in real inflation rate caused similar oscillating trends in real deposit rate since real deposit rate has been defined as deposit rate less real inflation rate (refer to table 4b above and chart 3 at the appendix).

1.5 OBJECTIVES AND SIGNIFICANCE OF THE STUDY

Less Developed Countries including Malawi, face problems of high population growth and poor savings mobilisation and allocation. This is happening in an environment of reduced prospects for external financing. This is of great concern to these countries. Consequently, these countries, with the financial support from World Bank and International Monetary Fund (IMF) did undertake financial reforms in 1980s, interest rate inclusive, to circumvent these problems.

It is against this background that this study has been pursued. It has been undertaken to find out whether these reforms, particularly interest rate liberalisation, have helped in improving savings mobilisation. Overall, the study is formulated around the following main objectives:

- ✓ a) To ascertain the behaviour and nature of interest rate which is recognised as the principal determinant of savings.
- b) To find out the likely impacts of interest rate liberalisation under the economic adjustment framework (structural adjustment programmes) on private sector savings.

Thus, In light of interest rate liberalisation, the study will find out whether there is any significant difference in savings mobilisation process before and after financial reforms? If or not, how should the design of interest rate policy be handled to underpin sustainable level of savings?

In so doing, the study hopes to make some contribution to the body of knowledge on savings mobilisation within Africa in general and Malawi in particular. In addition, it is hoped that the study will promote better understanding of the roles of interest policy as an instrument of promoting savings mobilisation. Basically the following null hypotheses will be tested: a) Interest rate does not have a significant positive influence on private sector savings in Malawi. b) Interest liberalisation has not induced and will not enhance savings mobilisation in Malawi.

CHAPTER 2

LITERATURE REVIEW

2.0 LITERATURE REVIEW

2.1 A REVIEW OF INTEREST RATE THEORIES:

Economists have generally acknowledged the important role that is played by interest rate policies as demand management techniques to achieve both internal and external balance and also ensuring efficient allocation of financial resources in an economy. Interest rates influence the demand and supply of investible resources and the decisions of economic agents to invest or consume. In addition, interest rates affect exchange rates, capital movement and inflation and are also at the centre of any policies that monetary authorities may choose to undertake to influence business activity. Consequently, interest rates have attracted considerable attention and a lot of literature has been written on interest rates. These studies include; Mckinnon (1973), Shaw (1973), Fry (1988), Giovannini A (1985), de Melo, Jaime and James Tybout (1986), Gonzalea Arrieta, Gerardon (1988), Abebe (1990), Chipeta and Mkandawire (1989) and Harawa (1981) just to mention a few.

Interest rates have attracted such attention due to their influence on savings (hence investment) and savings pose to be an important determinant of economic growth. This point has further been confirmed by Diary Seck and El Nil when they say;

"on the literature on developing countries, much of the concern with savings relates to its central position as

pillar of economic growth but whose stimulus is curtailed by inadequate levels"³

It is a widely held presumption that capital accumulation, a critical factor in development, is synonymous with saving, so that too little savings is associated with lack of progress⁴. Despite the important role savings partake in economic development, its performance in developing countries like Malawi, has not been satisfactory. This has been attributed to repressed financial markets. This is why, recently it has been recognised that Structural Adjustment Programmes (SAPs) may have an important impact in savings hence on investment and economic growth as well.

2.1.2 ABSOLUTE, PERMANENT AND LIFE CYCLE HYPOTHESES OF CONSUMPTION

The theory explaining savings was for long dominated by Keynesian perspective that consumption is determined largely by disposable income and fiscal spending and was seen as the major determinant of economic expansion and employment. Keynes dictum is that households allocate their income to either current or future consumer purchases. When income is allocated to current consumer purchases, it is referred to as consumption while if allocated to the

³Seck.D and El Nil *The experience of African countries with financial liberalisation: Theoretical and empirical analysis*, African Centre for Monetary studies, (1992)

⁴ Deaton. A, *Saving in developing countries: Theory and Review*, World Bank Research Observer, (1989).

latter, it is known as savings. Thus the act of saving is the act of not consuming current income. In absolute income hypothesis, consumption is held to be positive function of income and savings is a residual from income after consumption and is also positively related to income. The basic form of the Keynesian's Absolute Income Hypothesis (AIH) is as follows:

$$C_t = a + b Y_t \quad (1)$$

Where C_t = Current consumption

Y_t = Current income

a and b are constants.

This consumption function was tested both on cross section data and time series data. Cross section data showed that propensity to consume decline with income and that low income households dissave. On the other hand, time series data for U.S. for the years 1929-41 produced non-proportional consumption function. Other studies by Kusnets, for example, showed that average propensity to consume (APC) did not fall as national income increased but was stable. From Kuznets's long run data the following proportional consumption function was produced:

$$C = kY \quad (2)$$

Where C = current consumption

k = constant

and Y = current income

This consumption function assumes that APC and MPC are both constant and equal to k . Thus empirical evidence therefore showed that consumption has stable relationship with current income in the long run while in the short run current income alone offers poor explanation of consumption behaviour. This inadequacy of Absolute Income Hypothesis was rectified by Milton Friedman's Permanent Income Hypothesis (PIH) and the Life Cycle Hypothesis (LCH) due to Ando, Brumberg and Modigliani.

The PIH and LCH deal with the Intertemporal Choice- the choice between consumption and savings. According to intertemporal choice (IC), the household is assumed to choose a time profile of consumption which maximizes its utility subject to the constraints imposed by the household's wealth (present value of future income). Thus intertemporal choice (IC) assumes the household knows its future income and market interest rate with certainty and that capital market is assumed to be perfectly competitive. Furthermore IC assumes zero borrowing and lending costs and that consumption is the ultimate purpose of all economic activity.

From this IC, Irving Fisher, deduces that, given this household behaviour, current household consumption plans depend not only on current income but also on the future expected income stream, the market rate of interest at which this income is discounted and the time preference of the consumer. A further deduction is that the

decision to save is inherently linked with consumption decision, since the decision to save out current income is a decision to postpone consumption, whereas dissaving involves consuming at present at the expense of future consumption.

Although there has been other theoretical approaches to consumption and savings, such as relative income hypothesis and absolute income hypothesis, it is the permanent income hypothesis (PIH) and life-cycle hypothesis (LCH), which have enhanced people's understanding of modern saving behaviour.

The permanent income hypothesis (PIH), as already pointed out, is based on intertemporal choice and it assumes that consumers take into account the future income and consumption possibilities when planning current consumption and changes in current income which Friedman terms measured income. Friedman's consumption function is as follows:

$$C = kY_p \quad (3)$$

C = Consumption

Where k = Coefficient of proportionality which depends on household preferences, the nature of uncertainties facing the household, rate of interest, ratio of human to non-human wealth where human wealth is the present value income that people expect to earn by using personal skills and labour and non-human wealth is the present value of income obtained from

financial and capital assets.

$Y_p =$ Permanent income-which is the measured, stable income which reflects the household's expectations (not transitory income which is unstable and occurs due to temporary and unanticipated deviations in current income)

This specification of the model is ideal to both aggregate time series and cross section (household) data and it reconciles the constancy of the long run aggregate APC with the cross section APC for the household income.

The life cycle hypothesis (LCH), like PIH, is explicitly based on the intertemporal choice - utility-maximising behaviour by households. It assumes the household has a known life span, the household intends to leave no legacies and uncertainty is ruled out. The LCH stresses the accumulation of non-human wealth as a means of achieving the aim of rearranging life time consumption in relation to the expected future income stream.

Basically, the LCH says that consumption is smoothed over individual's lifetime while income earnings are low in early life and during retirement and high in mid life. Thus saving is assumed to follow the same pattern in order to smooth consumption. This hypothesis predicts that rate of saving and consumption is affected by the following factors; per capita income, stock of wealth, demographic factors such as life expectancy, age distribution,

family size and the ratio of working and active people to the total population.

In testing LCH empirically, the following model is used:

$$C_t = a_1 Y_t + a_2 Y^e + a_3 A_{t-1} \quad (4)$$

Where C_t = Current consumption

Y_t = current income

Y^e = The present value of future expected labour income

A_{t-1} = Household assets

LCH treats the relationship between consumption, asset accumulation and income as the outcome of household planning over a long time horizon. Current income is therefore a poor predictor of current consumption and a certain measure of wealth of a long term nature may be a much better predictor.

2.1.3 The impact of real rates of return on savings as a stimulus for savings mobilisation received little attention before the 1970s. This neglect of the role of real rates of return on savings, which is at the heart of current thinking on financial liberalisation programmes, may have stemmed from a theoretical ambiguity regarding their impacts on savings. Despite the current emphasis on financial liberalisation to strengthen savings investment-output cycle, the ambiguity still remains.

As alluded to earlier on, interest rate plays a crucial role in economic development. Despite this importance attached to it, many countries (Malawi inclusive) chose to maintain interest rates at unrealistic levels. They followed a policy of low interest rates, below market-clearing levels. This was based on the familiar Keynesian macroeconomics, which among other things, focuses on low interest rate to:

- increase level of investment. It was argued that if interest rates (lending rates) are repressed lenders would find cheap finance hence more investment.
- improve allocation of resources among sectors. This could happen through the emerging excess demand for investible resources that is created by low lending rates. This excess demand creates competition amongst investors thereby improving resource mobilisation and allocation.
- To keep financial costs down to avoid possible inflationary effects of financial liberalisation⁵.

But Mckinnon (1973) and Shaw (1973)⁶ vigorously attacked this way of thinking and refuted the validity of these considerations. They

⁵ Tolentino.V.B.J, The political economy of credit availability and financial liberalisation: Notes on the Phillipines experience, *Savings and Development* (1989), pp 321-355

⁶ Mckinnon and Shaw.E.S, *Financial deepening in economic development*, Oxford University Press, New York (1973).

argued that if financial repression exists in an economy (i.e. interest rates are reduced below market equilibrium levels) demand for investment will no doubt increase but actual investment will decrease, since at low interest rates, insufficient savings will be generated to finance investment. However, the excess demand for investment, that will be created will require the rationing of existing investible resources among all competing investors willing to borrow at that rate. Consequently, where there is rationing and controlled lending rates factors such as collateral and political influence may come into play in financial intermediation decision. Mckinnon and Shaw, therefore, concluded that a policy of low interest rates not only inhibits investment but also tends to reduce the average rate of return on investment below maximum attainable rate.

After the seminal works of Mckinnon and Shaw (1973), most of the developing countries opted for financial liberalisation. Malawi also followed suit in 1980s and in 1987 started gradual interest rate liberalisation. Despite existing controversies, empirical investigations seem to lend strong support to the Mckinnon-Shaw hypothesis. Gelb A, for example, in his review (no model used) of various studies, debate and investigations on the impact of interest rate controls and other repressive financial policies on investment, savings, efficiency and growth in 34 countries concluded as follows;

"real interest rates and growth are associated positively within historical experience of the sample"⁷.

T W Otshikoya, in a related study, used the model below to find the impact of interest rate liberalisation on savings in Kenya⁸;

$$S_t = S(GR, r_t, FS_t, S_{t-1}) \quad (5)$$

Where S_t = Savings rate (gross domestic saving divided by real GDP)

GR = Real economic growth rate

r_t = Real ex-post deposit rate

FS = Foreign savings rate (foreign savings divided by GNP)

S_{t-1} = Lagged savings rate

The theoretical justification for the inclusion of interest rate and real economic growth rate was based on the financial repression paradigm which assumes a positive correlation between interest rate and private sector savings and standard life-cycle hypothesis which takes real economic growth rate as a proxy for deviations from permanent income respectively. Foreign savings was included, as he

⁷ Gelb. A, Financial policies ,growth and efficiency, PAR Working Paper (Djinn),pp 28

⁸ Otshikoya. T.W, Interest liberalisation, savings, investment and growth: The case for Kenya, Savings and Development no.3 xvi, (1992)

puts it, because foreign savings may crowd out domestic savings while lagged savings rate was included because of the adjustment process which may be spread for multiple periods.

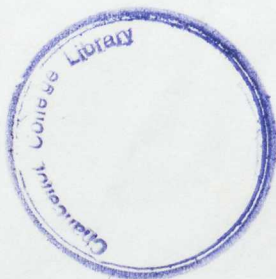
THE empirical results from this model provided mild support for the financial liberalisation hypothesis, that increases in real deposit rate raise the savings rate. Real deposit rate showed a positive, albeit insignificant, signs for the post interest rate liberalisation period. Furthermore, the empirical tests showed that increased real interest rates raise the quantity and quality of investment and also promote economic growth.

D Seck and Y El Nil studied, without necessarily using any model, countries like, Malawi, Egypt, Gambia, Ghana, Kenya, Nigeria, Tunisia and Zimbabwe which liberalised their financial sectors. They came up with the following observations:

"The repressed economy is a fragmented one that is characterised by a low degree of monetisation, negative real interest rate, diversity in the rate of return on physical assets, non-clearing financial and commodity markets in which the government intervention is pervasive and unduly taxation by government of the financial sector given its deficit⁹". and they concluded as follows:

"Indeed there is a significant causal relationship between

⁹ Seck.D. and El Nil, Ibid, vol 2, pp ii.



real deposit rates and growth. The real deposit rate has a strong positive influence on both the investment rate and rate of financial savings"¹⁰.

However, some studies have come up with contradicting results. Giovannini¹¹, for example, undertook an empirical investigation for seven Asian countries to investigate the influence of financial liberalisation on savings rate. He used the following model;

$$S_t = b_0 + b_1 Y_t + b_2 r_t + b_3 F_t + b_4 S_{t-1} \quad (6)$$

Where S_t , Y_t , r_t , F_t , S_{t-1} represent total savings rate, income growth, real interest rate, foreign savings rate, and lagged savings rate respectively.

The reasons he gave for the inclusion of the independent variables were similar to that of T.W. Otshikoya above.

The empirical results exhibited a positive, albeit weak, correlation with total savings rate. Thus providing mild support for the claim that financial liberalisation induces savings. But foreign savings appeared to significantly and negatively influence

¹⁰ Seck.D. and El Nil, op cit, vol 2, pp vi.

¹¹ Giovannini. A, The interest elasticity of savings in developing countries: The existing evidence, *World Development* Vol.11, No.7, (1983).

savings rate.

However, the Durbin-H statistic suggested that either there was a problem of specification or serial correlation. The model used total savings contrary to the financial repression paradigm which posits a positive response of private sector savings to interest rate. This could in a way bring misspecification problem. Secondly, foreign savings may not be an exogenous determinant of domestic savings as assumed by the model.

To circumvent these problems, he further used the following specification;

$$S_t^p = b_0 + b_1 Y_t + b_2 r_t + b_3 E + b_4 D + b_5 S_{(t-1)}^p \quad (7)$$

Where S_t^p = private savings rate

E = Exchange rate

D = Dummy variable

$S_{(t-1)}^p$ = lagged private sector savings

The rest of the variable are defined as in the above model.

S_t^p replaces S_t while E replaces F_t in the above model.

With this specification, interest rate appeared not to play any role whatsoever in explaining private sector savings rate while exchange rate exhibited a significant and negative coefficient. This specification performed much better in terms of Durbin-H

statistic but worse in terms of overall significance level.

Similarly, Fry M.J¹², used the specification of the model as presented in equation 6 above for the same Asian countries which also Giovannini used. He wanted to find out the responsiveness of savings to real interest rate. Fry found contradicting results to that of Giovannini. He found that savings are interest elastic in these seven Asian countries studied.

¹² Fry M.J, Savings, investment, growth and the cost of financial repression, *World Development* vol.8, no.4, (1980).

2.2 INTEREST RATE AND DEMAND FOR MONEY BALANCES

2.2.1 INTEREST RATE AND REAL MONEY BALANCES

There is a lot of literature on the relationship between interest rate and the demand for real money balances. Mckinnon and Shaw argue that there is a positive relationship between real interest rate and real money balances particularly in less developed countries. They further argue that this relationship exists in these countries because a proportion of investors rely on self finance and that investments in these countries tend to be indivisible and lumpy. Thus investors have to accumulate money balances before they invest. In addition money and capital markets are thin and distorted so that money is the main financial asset in the portfolio of wealth holders.

However other economists like Adekunle in his study of the demand for money¹³ found contrary results. He found that interest rate, the opportunity cost for holding money, is significantly and negatively related to real money balances (M1 and M2) in Kenya which is also one of the less developed country. M3 was also negatively related to interest rate but it was not significant. Therefore his results contradicts those by Mckinnon and Shaw.

¹³ Adekunle.J, The demand for money :Evidence from developed and undeveloped countries, *IMF staff papers*, volume no.15 (1968)

Adekunle's results are further supported by Ndele¹⁴ and Allan Metzer¹⁵. Adekunle found insignificant and negative relationship between interest rate and real demand balances (M1, M2 and M3) in Kenya. In addition, Meltzer. a, in his study of the alternative definitions of money, found similar results to that of Adekunle. Meltzer found a significant and negative relationship between interest rate and demand for real money balances.

On the other hand, Aghveli, Khan, Short and Nerveha¹⁶ argue that interest rate is not an ideal policy variable as regards demand for real money balances in less developed countries (LDCs). According to them, interest rate in most LDCs has been repressed such that its influence on demand for money is hindered. In addition, in LDCs, money and capital markets are thin, distorted and misaligned such that interest rates do not reflect the opportunity cost of holding money.

¹⁴ Ndele.S, *The effects of non bank intermediaries on demand for money in Kenya*, AERC, Research paper, No.4, (1991).

¹⁵ Meltzer. A, *The demand for money: the evidence from time series*, *Journal of Political Economy*, volume 71, No.2, (1963).

¹⁶ Aghveli.B, Khan, Nerveha and Short, *Monetary policy in selected African countries*, *IMF Staff Paper*. number 4.

2.3 STUDIES UNDERTAKEN IN MALAWI

2.3.1 INTEREST RATE AND SAVINGS MOBILISATION

So far no study has been carried out to find out the impact of interest rate liberalisation on savings in Malawi. However, related studies have been pursued by Chipeta and M.L.C.Mkandawire (1989)¹⁷. They used the following model:

$$S = b_0 + b_1Y_d + b_2R + b_3NCI + b_4D \quad (8)$$

Where

S	=	real deposit rate
Y_d	=	real gross national disposable income
R	=	real time deposit rate
NCI	=	real net capital inflow
D	=	GDP deflator

After running regressions, they found a positive and insignificant interest rate coefficient and that real private savings in Malawi are positively and significantly influenced by the level of real current income and real net capital inflow. Based on these findings, they came up with the following conclusions;

¹⁷ a) C.Chipeta and M.Mkandawire, *Interest rates, financial savings and Macroeconomic adjustment in Malawi*, an unpublished paper, Department of Economics, Chancellor College, University of Malawi, (1989).

b) Harawa, R.D, *Savings Function: Review and Investment*, an unpublished B.Soc.Sc(Hons) dissertation, Department of Economics, Chancellor College, University of Malawi, (1981)

- a) Financial savings are positively (though not significantly) influenced by real rates of interest in Malawi. Given this result, they concluded that the strategy of raising interest rate to increase domestic savings is in principle appropriate but rather the policy thrust should not solely place more emphasis on real rates of interest as a policy tool.
- b) Nominal rates of interest should not be used as a policy variable for promoting savings mobilisation. This, according to Chipeta and Mkandawire, was verified by ADD/ECA study which found out that nominal rates of interest are negatively related to savings in Malawi
- c) Aggregate income positively influences financial savings.
- d) Net Capital inflows complement rather than compete with aggregate savings in Malawi

On the other hand, Harawa used a slightly different model in his study of the savings function in Malawi. The only difference to Chipeta and Mkandawire's model is that Harawa included price increase and he did not include net capital inflow as an explanatory variable in his model.

Harawa found out that regression coefficient of real rates of interest were insignificant and negative. This he attributed it to the low level of penetration of financial intermediaries into the rural sector of the economy and the fact that interest rates were not market determined but rather controlled. In addition, he found

out that there is a positive association between savings and income. He got a marginal propensity to consume of 0.25.

J.Mwanamvekha, in his study of the factors influencing the level of gross domestic savings in Malawi during the period 1966-1984, used the following model;

$$S = A r^a Y^b U$$

(9)

Where S , A , r , y represent level of total domestic savings, constant, real deposit rate and real deposit income, respectively, while a and b are elasticities of real interest rate and income respectively.

Mwanamvekha found results similar to Chipeta and Mkandawire's study. He found out that real interest rates do not significantly influence household savings in Malawi. He got regression coefficient of 0.2. Household disposable income was found to be positively and significantly influenced by private household savings in Malawi.

Therefore, Mwanamvekha concludes as follows;

"Economic planners should not only be relying on real interest rates as a tool for increasing household savings ", and

"an increase in the volume of household savings in Malawi

can be achieved by using income as a policy tool "18.

2.3.2 INTEREST RATE AND REAL MONEY BALANCES

Despite the vigorous and enormous work that has been done in both developed and underdeveloped countries regarding literature on the relationship between interest rate and demand for real money balances, very little has been done in this area in Malawi. The only known studies are that of E. Silumbu and M. Mkwezalamba¹⁹.

Silumbu, in his long-run demand for money function (LMDF), found that real interest rate negatively and significantly influences the demand for money balances while income influences real money balances positively and significantly. He got long-run transaction constant of -5.45, income elasticity of 0.87 and interest elasticity of -0.3. He also got similar results in his short-run money demand function (SMDF). The income elasticity was 0.658, interest elasticity was -0.211 while short-run transaction constant was -0.021.

¹⁸ Mwanamvekha.J, *The Factors influencing the level of gross domestic savings in Malawi*, an unpublished B.Soc.Sc dissertation, Department of Economics, Chancellor College, University of Malawi, (1990), pp 18-20.

¹⁹ Silumbu. E, *The stability of the Malawi demand for money during structural adjustment*, University of Malawi, Chancellor College, Economics Department, Zomba, Malawi, (1993).

a) Mkwezalamba. A, *The demand for money in less developed countries: Empirical evidence from Malawi*, Unpublished, University of Malawi, Chancellor College, Malawi.

Mkwezalamba, in a related though not similar study to Silumbu's, found insignificant influence of interest rate on the demand for money. He attributed this to the shallowness and narrowness of the money and capital markets and the prolonged era of interest rate ceilings.

CHAPTER 3

RESEARCH METHODS AND ANALYTICAL FRAMEWORK

3.0 : RESEARCH METHODS AND ANALYTICAL FRAMEWORK

3.1: MODEL

To meet the intended objectives, the research methodology to be used in this study will combine both descriptive analysis and econometric tests for the annual data obtained between 1966-1991 and 1976-1992 for the quarterly data.

Before going further in explaining the methodology that will be used in this study, it is important to define private savings as applied herein. Private savings is defined as gross domestic product less sum of total consumption and public sector savings or simply it is gross private savings (household savings plus savings of private companies).

The model which has been used in this analytical framework is the traditional model which was first used by Fry²⁰ and Giovannini²¹ and Mwega, Ngola and Mwanga²². The model is as follows:

$$(S/Y)_t = a_0 + a_1 \log (Y/pop)_t + a_2 (Y/Y)_t + a_3 (d-)_t + a_4 D80 + a_5 (FS/Y)_t + a_6 (S/Y)_{t-1} + U \quad (10)$$

²⁰ Fry.M.J, Ibid, 1980

²¹ Giovannini.A, Ibid, 1985

²² Mwega, Ngola and Mwangi, Ibid, pp 5

$$a_0 < 0, a_1 > 0, a_2 > 0, a_3 > 0, a_4 > 0, a_5 > 0, a_6 > 0$$

where $(S/Y)_t =$ private saving rate measured as gross investment minus foreign and government savings. Foreign savings are measured by the current - account deficit and government savings are estimated by subtracting consumption expenditure from tax revenue.

$(Y/Pop)_t =$ per capita real GDP

$(Y/Y)_t =$ growth of real GDP

$(d-)_t =$ Real deposit rate of interest as given by the difference between the nominal deposit rate and expected rate of inflation

D80 = Dummy variable to capture the influence of non-interest financial reforms. It will take a zero (for the period before interest liberalisation) and a one (for the period after)

$(FS/Y)_t =$ Net foreign savings inflow given by the ratio of the deficit in current account of BOP to GDP

$(S/Y)_{t-1}$ = lagged private savings rate.

U = random variable

3.2 REASONS FOR THE INCLUSION OF THE ¹³³DEPENDENT VARIABLES

These variables have been included in this model due to the following theoretical underpinnings. According to Keynes's absolute income hypothesis, average propensity to save rises with per capita income, in the short-run. In addition, per capita income has been found to be an important (significant) determinant of savings in most of the models including the ones that have been reviewed in our literature review. Therefore the inclusion of per capita income as one of the determinants of savings in the above model is premised on these reasons.

The second variable (growth of real income) is a proxy for deviations from permanent income or wealth. Friedman and Ando and Modigliani postulated that saving is a function of permanent income or wealth rather than measured income, and savings varies with deviations from either permanent income or wealth which can be proxied by income growth.

The dummy variable has been included to capture the influence of non interest rate financial reforms while the real interest rate is

included as an independent variable of the model in an attempt to determine whether there is significant difference between "interest rate" reforms and "non-interest rate financial reforms" in terms of their relative impacts on the saving rate in Malawi.

The lagged savings rate has been included based on Duesenbery and Brown who postulated that savers do not instantaneously react to changes in their environment but rather occurs overtime and as such there are adjustment lags in their saving behaviour.

Like income, foreign savings appear to have a significant impact on aggregate savings in general and private savings in particular in most of the models highlighted above. This also holds for Chipeta and Mkandawire's model for Malawi. In addition, Mwega, Ngola and Mwangi postulated that the flow of foreign savings competes with and is a partial substitute for domestic savings. This behaviour of the flow of foreign savings necessitated its inclusion in the model as one of the determinants of private saving rate.

Thus according to our model, private sector savings are influenced by the following factors:

- (i) per capita income
- (ii) growth of real income
- (iii) real deposit rate of interest
- (iv) lagged savings rate
- (v) foreign savings rate

(vi) other non-inGDP, REALate financial reforms

3.3 SOURCE OF DATA

Most of the data used in this study has been collected from the Reserve Bank of Malawi publications, various issues of international financial statistics (IFS), various publications from African Centre for Monetary Studies and some other publications which contained the data which, according to this study, was deemed necessary. This being the case, field investigations and surveys were not required .

The data for this model has been compiled from Malawi's data in table 5 below on private sector savings rate (s/y) as dependent variable and on real per capita gross domestic product, GDP, (y), growth rate of real GDP, (y/y), real deposit rate (d), dummy variable (D80), foreign savings rate (fs/y) and lagged private sector savings rate (s/y), as independent variables.

Table 5. REAL PER CAPITA GDP, REAL DEPOSIT RATE, DUMMY, FOREIGN SAVINGS RATE (FSR) AND PRIVATE SECTOR SAVINGS RATE (PSSR) (AS A % OF GDP)

YEAR	PER CAPITA REAL GDP	GROWTH OF REAL GDP	REAL DEPOSIT RATE	DUMMY	FSR	PSSR
1966	199.43	9.9	-0.23	0	3.6	5.1
1967	217.31	11.7	8.49	0	1.9	4.4
1968	199.83	5.6	-6.79	0	2.9	4.7
1969	207.71	6.4	2.13	0	3.1	5.3
1970	205.56	1.5	-3.72	0	3.81	4.6
1971	229.45	14.4	-5.56	0	3.1	7.9
1972	240.32	7.5	4.03	0	4.4	7.6
1973	263.24	12.3	13.69	0	2.2	8.7
1974	265.64	7.4	-14.0	0	2.6	10.5
1975	272.84	5.5	-4.8	0	5.6	10.0
1976	282.81	6.2	-3.13	0	2.8	11.0
1977	286.01	4.3	8.4	0	3.9	12.3
1978	302.17	8.3	3.74	0	10.2	13.5
1979	302.66	3.3	2.47	0	15.0	8.6
1980	292.05	0.4	-8.09	0	14.7	8.6
1981	268.78	5.2	-7.59	0	8.8	1.6
1982	266.95	2.8	-0.46	0	6.8	17.5
1983	269.27	3.5	-0.73	0	7.8	18.4

YEAR	PER CAPITA REAL GDP	GROWTH OF REAL GDP	REAL DEPOSIT RATE	DUMMY	FSR	PSSR
1984	272.21	4.4	-3.02	0	2.6	15.8
1985	275.48	4.5	1.7	0	6.4	18.1
1986	270.08	1.1	-1.05	0	4.6	19.8
1987	265.96	2.1	-2.73	1	2.8	27.3
1988	275.02	3.4	15.67	1	2.6	31.6
1989	269.43	4.1	-12.64	1	6.4	41.5
1990	273.09	4.8	3.51	1	3.1	40.9
1991	285.11	7.8	0.79	1	8.3	39.0

Source: Reserve Bank of Malawi, Financial and economic review various issues: and International Monetary Fund, International financial statistics yearbook, (1993)

The above annual data runs from 1966 to 1991. Real per capita GDP (lpy) and changes in per capita income (y/y) have been used as proxy for real per capita income and changes in per capita income respectively . The rest of the variables are self explanatory.

CHAPTER 4

EMPIRICAL RESULTS

4.0 EMPIRICAL RESULTS

The following results were obtained after carrying out regression analysis on data from table 5 above:

$$S/Y = -0.053 + 0.105 LPY - 0.002 RDR + 0.87 D80 + 0.014 GRWT-Y$$

(-1.67) (1.75) (-2.01) (3.28) (0.1)

$$-0.28 FSR + 0.71 (S/Y)_{-1}$$

(-1.21) (6.33)

ADJUSTED R^2 = 0.95, D.W. STATISTIC = 1.77 ; S.E OF REGRESSION = 0.026

F-STATISTIC = 73.71

Where s/y = Private sector savings rate
 Lpy = Per capita income
 rdr = Real deposit rate
 $D80$ = Dummy variable
 $GRWT-Y$ = Real GDP growth rate
 fsr = Foreign savings Rate
 $(s/y)_{-1}$ = Lagged private sector savings rate

Note: T-statistics are in parenthesis under the respective coefficients.

4.1 DISCUSSION OF THE RESULTS

4.1.1 REAL DEPOSIT RATE

These results notably show that real deposit rate negatively, though weakly, influence the level of private sector savings rate. With the regression coefficient of -0.002 , the regression coefficient of real deposit rate is significant at 5 percent level of significance. This is not only contrary to findings by Chipeta and Mkandawire, who found a significant and positive relationship between real deposit rate and private sector savings rate, but also rejects the Mckinnon and Shaw hypothesis that private saving is significantly and positively interest-elastic in LDCs.

However the results from this empirical finding support the findings by Mwega, Ngola and Mwangi²³ and T.W. Otshikoya²⁴. In all the four equations, Mwangi, Ngola and Mwangi found a negative and significant (at 5% level of significance) relationship between private savings rate and real deposit rate in Kenya. Similarly, T.W. Otshikoya in his study of interest liberalisation, savings, investment and growth, found a negative, albeit insignificant, relationship between domestic savings rate and real deposit rate of interest for the entire sample period, 1970-89 and the sub-period

²³ Mwega, Ngola and Mwangi, *Real interest rates and the mobilisation of private savings in Africa*, research paper No 2, AERC, pp. 6

²⁴ Oshikoya.T.W, *Ibid*, pp32

1970-79. However, during the sub-period 1980-89, the estimated result indicated a positive correlation between the savings rate and real deposit rate. But this positive effect which was observed in the 1980s was not statistically significant at the conventional levels. The coefficients for real deposit rate and their corresponding t-statistics were -0.096(-0.796) and -0.167(-0.711) for the period 1970-89 and sub-period 1970-79 respectively.

From the regression results of this study, the real deposit rate variable has consistently shown a -negative and insignificant coefficient even when the entire period under investigation is divided into sub-periods 1966-80 and 1981-91 (refer to table 6 below). This result does not provide any support to the hypothesis that aggregate savings respond positively to real interest rate in Malawi. However, these results are consistent with studies by Giovannini(1983,85)²⁵, Leite²⁶ and Mckinnon(1986)²⁷, Melo and Tybout(1986) on other countries which have rejected the Mckinnon and Shaw hypothesis alluded to above.

²⁵ Giovannini A, Ibid, (1983, 1985)

²⁶ Leite. S. result , (1986)

²⁷ Mckinnon, Ibid, Ibid, (1973)

Table 6: ESTIMATES OF PRIVATE SECTOR SAVINGS RATE FUNCTION FOR MALAWI

VARIABLE	1966-80	1981-91
C	-0.79	6.82
LPY	0.16	-1.22
RDR	-0.001	-0.00077
GRWT-Y	0.04	-0.25
FSR	-0.26	0.267
(S/Y)-1	0.30	1.06
R2	0.88	0.90
D.W	2.3	1.48
F-STATISTICS	74.46	8.85
S.E. OF REGRESSION	0.3	0.047

4.1.2 REAL PER CAPITA INCOME

Real per capita income indicates a positive, though insignificant influence, on private sector savings rate. This supports the general observation that per capita income or GDP does not have an independent influence on the private savings rate when the growth of income is included in the model²⁸. This result is also consistent with Harawa, Chipeta, Otshikoya, Mwega, Ngola, and Mwangi. Despite the fact that some of these researchers like Chipeta used gross national product instead of per capita income (GDP) as in this study, the results in this regard are similar to those obtained in this study. Differences arise as to whether the relationship between real per capita income and savings rate is significant or not. For instance Chipeta found a significant and positive relationship between these two variables unlike the findings of this study.

4.1.3 GROWTH RATE OF REAL PER CAPITA INCOME.

The growth rate of real per capita income has shown a positive but insignificant influence on private sector savings particularly when the entire period, 1966-91, is considered. When this period is divided into sub-periods 1966-80 and 1981-91 a

²⁸ Mwega, Ngola and Mwangi, Ibid, pp6

slightly stronger but rather insignificant influence of growth of real income is shown only for the 1966-80 sub-period. While for the sub-period 1981-91 a different and peculiar result which contradicts standard economic theory is obtained. For this sub-period, growth in real income is shown to have a negative influence on private sector savings. This trend could be explained by the fact that at the beginning of the sub-period, 1966-73, as can be observed in table 3 above, an increase in real GDP has witnessed a corresponding increase in private sector savings rate. While for rest of the period, a decrease in real income (GDP) has witnessed increases in private sector savings. Hence a positive coefficient (0.04) is obtained for the sub-period 1966-80 and a negative coefficient (-0.25) is obtained for the sub-period 1981-91. Backed by the result obtained for the entire period, one can confidently say that growth in real income positively influences private sector savings in Malawi.

4.1.4 NON INTEREST RATE, FINANCIAL REFORMS (DUMMY VARIABLE)

The dummy variable which is taking into account the non-interest financial reforms shows a positive and significant relationship with the private sector savings rate. This shows that the non-interest rate structural reforms undertaken in the late 1980s had a positive impact on private savings. Thus these non-interest reforms had a positive bearing on the individuals' propensity to save. The dummy variable had a coefficient and t-statistic of

0.87, and 3.28 respectively. Mwega, Ngola and Mwangi also found a similar result. They got a positive and significant relationship between non-interest rate adjustment reforms and private sector savings rate.

4.1.5 FOREIGN SAVINGS RATE.

Foreign savings rate (fsr), as might be observed from the regression results above, indicates a negative, though insignificant, influence on private sector savings rate. In other words, foreign savings compete with and are a partial substitute to domestic private sector savings. Similarly Mwega, Ngola, Mwangi²⁹ found a negative and significant (at 5 percent level of significance) coefficients for foreign savings rate in all the four equations. In addition, T.W. Otshikoya also found similar results. He got -0.544 and -3.065 as a coefficient and t-statistic respectively.

However these results contradict findings by Chipeta and Mkandawire³⁰ on Malawian data for the period 1967 to 1985. Their results show that net capital inflow complement rather than compete with private sector savings. They got a coefficient of +0.28556 and a corresponding T-statistic of 2.422. To a certain

²⁹ Mwangi, Ngola, Mwega, Ibid, pp 7.

³⁰ Chipeta and Mkandawire, Ibid, pp 20

extent, these may differ to the results of this study due to difference in time framework considered in each study. However, these findings by Chipeta and Mkandawire are also supported by the findings of the study by African Development Bank (ADB) and Economic Commission for Africa (ECA). In this study external capital inflow showed a positive association with private sector savings implying that net foreign capital inflow complement domestic private sector savings.

4.1.6 LAGGED PRIVATE SECTOR SAVINGS RATE.

Finally, lagged private sector savings rate have shown a strong, positive and significant influence on private sector savings rate. Thus past savings behaviour of individuals has a strong positive and significant influence on their present saving behaviour, *ceteris paribus*. As shown on regression results of this study, lagged savings rate has a coefficient and t-statistic of 0.71 and 6.33 respectively.

The regression constant for the entire equation for the period 1966-91 is -0.053 while those for sub-periods 1966-80 and 1981-91 are -0.79 and 6.82 respectively. The regression constant for the period 1966-91 is not significant at 5 percent level of significance.

The adjusted R-squared and Dubbin-Watson statistic for the period, 1966-91 are 0.95 and 1.77 while for the sub-periods, 1966-80 and 1981-91 are 0.88, 0.90 and 2.3 and 1.48 respectively. Given these values, we can say apriori that the entire regression equation is significant and that variations in all independent variables included in the model explain 95 percent, 88 percent and 90 percent of the variance in volume of private sector savings.

However, the efficiency of the estimators for the whole regression equation have been adversely affected by the presence of elements of autocorrelation. This is reflected by the value of 1.77 for Dubbin-Watson statistic. This Dubbin-Watson statistic suggests some elements of misspecification problem. This misspecification may arise from the fact that, first, the foreign savings rate may not be exogenously determined as our model implies, particularly with the opening up of the economy to capital flows and the country's heavy dependency on foreign aid and grants. In fact foreign savings are endogenously determined. Secondly, the misspecification problem may come about because foreign savings are estimated by current account deficit. A better specification of savings function for partially open countries like Malawi, according to Jaime , de Melo and James Tybout³¹, might exclude foreign savings but include exchange

³¹ Jaime, de Melo and James Tybout, *The effects of financial liberalisation on savings and investment in Uruguay*, University of Chicago, pp65, 1986.

rate.

4.2 INTEREST RATE AND DEMAND FOR REAL MONEY BALANCE

4.2.1 THE MODEL

To test the hypothesis by Mckinnon and Shaw that real demand for money in LDCs, Malawi inclusive, is positively influenced by real deposit rate of interest, the following standard money demand model has been used on Malawi's data..

$$\text{LOG } (M/P)_t = b_0 + b_1 \text{ LOG } Y_t + b_2 (d -)_t + b_3 (S/Y)_t + B_4 (M/P)_{t-1} + U_z \quad (11)$$

where $b_1 > 0$, $b_2 > 0$, $b_3 < 0$, $b_4 > 0$,

where (M/P) = Real money balance

Y = Per capita real gross domestic product

$(d -)$ = Real deposit rate

s/y = Private sector saving rate

$(M/P)_{t-1}$ = lagged money balances

Before going further, it will be of great help to define M1 and M2 as applied in this analysis. Narrow money i.e. M1 is defined as currency in circulation plus demand deposits. M2, on the other hand, is M1 plus time and savings deposits in commercial banks.

TABLE 8: REAL MONEY BALANCES (M1 AND M2), 1965-1992, (Kmn except CPI)

YEAR	M1	M2	CPI	REAL M1	REAL M2
1965	18154	24404	36.7	494.66	664.96
1966	20919	28717	37.9	551.95	757.70
1967	23545	32115	38.2	616.36	840.71
1968	23720	34096	36.92	642.47	923.51
1969	26379	38595	37.25	708.16	1036.11
1970	29087	43529	40.8	712.92	1066.89
1971	33303	48596	44.15	754.31	1100.70
1972	36807	54937	45.74	804.70	1201.07
1973	49085	72356	48.06	1021.3	1505.53
1974	63573	99300	55.52	1145.0	1788.54
1975	62705	103748	64.14	977.63	1617.52
1976	58449	98056	66.93	873.29	1465.05
1977	69994	122662	69.65	1004.9	1761.12
1978	74946	133224	75.73	989.65	1759.2
1979	77613	144691	84.01	923.85	1722.31
1980	92683	177902	100.0	926.83	1779.02
1981	101001	218426	111.81	903.33	1953.55
1982	117981	251869	122.8	960.76	2051.05
1983	110531	260530	139.4	792.91	1868.94
1984	132488	351343	167.28	792.01	2100.33
1985	153532	351424	184.8	830.80	1901.65
1986	186959	435142	210.7	887.32	2065.22
1987	244788	586153	263.95	927.40	2220.70

1988	342990	694142	353.23	971.01	1965.13
1989	361693	732088	397.4	910.15	1842.19
1990	403405	822520	444.2	908.16	1851.69
1991	518295	1000493	500.4	1035	1999.39
1992	675658	1218634	615.9	1097.03	1978.62

Source: Reserve Bank of Malawi, Financial and Economic Review (various issues) and IMF, International Financial Statistics yearbook, (1993)

4.2.2 DISCUSSION OF THE RESULTS

Regression analysis was made on real money balances (R-M1, and R-M2) presented on table 8 above were taken as dependent variables while real per capita GDP, real deposit rate and private sector savings rate presented on table 5 above were taken as independent variables. The following results were obtained:

$$R-M1 = 3.99 C + 0.39 Y_t + 0.003(d-)_t + 0.084(S/Y)_t + 0.001(RM1)_{-1}$$

(2.7) (1.31) (0.94) (0.48) (2.84)

$$\text{Adjusted } R^2 = 0.74$$

$$D.W. = 1.6$$

$$F = 19.16$$

$$S.E \text{ of Regression} = 0.09, \text{ Where } R_2 = R \text{ squared}$$

$$D.W = \text{Dubbin Watson Statistic} \quad F = f \text{ statistic,}$$

$$R-M1 = \text{Real M1 and} \quad R-M1(-1) = \text{Lagged real M1.}$$

The rest of the variables are described above.

Note: t-statistic is in brackets under the respective coefficient

4.2.2.1 INTEREST RATE AND REAL MONEY BALANCES

According to the above results, real deposit rate of interest has a mixed influence on real money balances. Real deposit rate of interest indicates a positive influence on real narrow money (real M1) even though this influence is not significant. This result supports Mckinnon and Shaw hypothesis as highlighted above. However, regression analysis on real M2 below rejects this hypothesis and shows a negative relationship with real deposit rate. To lesser extent, these results tally with what Mwega et al got in their study of relationship between real savings rate and savings mobilisation in Africa. They found that both real M2 and M3 are negatively related to real deposit rate hence there is an inverse relationship between real deposit rate and both real M2 and real M3.

$$R-M2 = -0.09 C + 0.39 Y_t - 0.001 (d-)_t + 0.077 (S/Y)_t + 0.72 (RM2)_{-1}$$

$$(-0.096) \quad (1.3) \quad (-0.21) \quad (0.36) \quad (5.64)$$

$$\text{Adjusted } R^2 = 0.92, \quad \text{S.E of Regression} = 0.09$$

$$D.W. = 2.13, \quad F = 75.27$$

$$R^2 = R \text{ squared}$$

$$D.W = \text{Dubbin Watson Statistic}$$

$$F = f \text{ statistic,}$$

$$R-M2 = \text{Real M2 and } R-m2(-1) = \text{lagged real M2}$$

$$R-m2(-1) = \text{Lagged real M2}$$

Note: t-statistic is in brackets under the respective coefficient

4.2.2.2 REAL MONEY BALANCES AND REAL INCOME, LAGGED MONEY

BALANCES AND PRIVATE SECTOR SAVINGS RATE

However, the regression results above show that, real income or GDP has a positive impact on both real M1 and real M2. The past demand for real money balances (Lagged real M1 and real M2) also have a positive and significant influence on both present narrow and broad money balances (real M1 and M2) respectively.

Similarly, private sector savings rate has a positive influence both on real M1 and on real M2. This influence of private sector savings rate on both real M1 and M2 is not significant. These empirical findings partially tally with the results obtained by Mwega et al³². They found that real deposit rate has a negative and insignificant influence on both real M2 and M3. Furthermore, real income and lagged dependent variables gave a positive relationship with real M2 and M3 while results on savings rate were mixed. Real M2 indicated a positive relationship with savings rate but M3 indicated an inverse relationship with private savings rate. These regressions on real money balances, M1 show presence of autocorrelation as reflected by lower Durbin Watson statistics (1.6 for real M1). While regression equation for real M2 shows 2.13 as Durbin Watson statistic hence does not show any presence of autocorrelation. Real M1 equation above has lower R^2 and F-

³² Mwega, Ngola and Mwangi, Ibid, pp 10.

statistics than real M2 equation. As shown in our regression results, real M1 equation has 0.74 and 19.16 as adjusted R^2 and F-statistics respectively while real M2 equation had 0.92 and 75.27 as adjusted R^2 and f-statistic respectively.

The relationships between real money balances and real deposit rate and the rest of the variables observed above does not change much when the period covered is split into two, 1966-80 and 1981-91 as shown on the Table 9 below. Real deposit rate positively, though insignificantly, influences both M1 and M2 in all sub-periods.

TABLE 9: REGRESSION RESULTS FOR NARROW REAL MONEY BALANCES, REAL M1.

VARIABLE	SUB-PERIOD 1966-80	SUB-PERIOD 1981-91
constant	2.39	-0.28
real per capita income	-0.07	0.76
real deposit rate(rdr)	0.004	0.002
private savings rate(s/y)	1.68	0.28
lagged M1	0.68	0.32
R-squared	0.82	0.41
D.W	1.61	1.86
F-statistic	16.49	1.04

Table 9 (continued): REGRESSION RESULTS FOR REAL BROAD MONEY BALANCES

(REAL M2)

VARIABLE	SUB-PERIOD 1966-80	SUB-PERIOD 1981-91
Constant	0.74	11.1
Real per capita income	0.34	-0.5
real deposit rate(rdr)	0.001	0.001
private savings rate(s/y)	1.26	-0.17
lagged M2	0.63	-0.087
Adjusted R-squared	0.91	-0.43
D. W	1.88	0.25
F-statistic	36.45	0.25

4.3 EMPIRICAL RESULTS FOR QUARTERLY DATA

The model, as presented in equation 10 above, has been modified as follows:

$$\begin{aligned} \text{PSS} = & a_0 + a_1 \text{GR-GDP} + a_2 \text{RDR} + a_3 \text{d80} + a_4 \text{FSS} \\ & + a_5 \text{PSS}(-1) + U \end{aligned} \quad (12)$$

Where PSS³³ = Private sector savings which is measured by the sum of time, demand and savings deposits of individuals, agricultural sector, manufacturing, construction, civil engineering, wholesale and retail trade, finance, insurance, real estate, business, gas, water, electricity, community, social, and personal service sectors excluding statutory bodies and local authorities.

GR-GDP = Growth rate of GDP as measured by growth rate of Industrial production Index.

RDR = Real deposit rate measured by nominal interest rate less the prevailing inflation rate

D80 = Dummy variable to capture the impact of non-interest rate financial reforms

³³ pss is in log form while the rest of the variables are in linear form since they become undefined when in log form.

FSS = Foreign sector savings measured by change in
 net foreign assets.
 PSS(-1) = Lagged private sector savings.
 U = Random variable

Due to insignificance and presence of multicollinearity between
 real GDP and rate of growth of GDP (GR-GDP), only GR-GDP has been
 retained while real GDP has been dropped. The quarterly data for
 the above model (equation) runs from first quarter 1976 to forth
 quarter 1992. The data is presented in Table 10 at the appendix.

The following results were obtained after carrying out regression
 analysis.

$$\begin{aligned}
 \text{PSS} = & 0.148^{\ast} C + 0.002 \text{ GR-GDP} + 0.0006 \text{ RDR} + 0.009 \text{ D80} \\
 & (0.46) \quad (6.19) \quad (0.63) \quad (0.23) \\
 & + 0.0005 \text{ FSS} + 0.99 \text{ PSS}(-1) \\
 & (3.09) \quad (37.3)
 \end{aligned}$$

Adjusted $R^2 = 0.99$ D.W = 1.97 F- Statistics = 1011.49

NOTE: T- statistics are in brackets under the respective
 coefficients.

4.3.1 DISCUSSION OF THE RESULTS:

These results show that real deposit rate positively, though insignificantly, influences the level of private sector savings in Malawi. These results show that interest rate is not an important variable in influencing private sector savings in Malawi. Thus the results do not vindicate the Mckinnon-Shaw hypothesis which stipulates that private sector savings are positively and significantly interest elastic in less developed countries (LDCs).

In order to find out the impact of interest rate liberalisation the entire period 1976-92, has been sub-divided into two, 1976-86 and 1987-92. The period has been divided as such because as alluded to earlier on, interest rate liberalisation was initialised in 1987. This division could help us to see whether there was a shift in the impact of interest rate on private sector savings during the two periods. The regression results were as follows.

Table 11: Regression results for the sub-periods, 1976-86 and 198-1992

VARIABLE	PERIOD, 1976-86	PERIOD, 1987-92
C	11.07 (258.13)	12.46 (108.96)
GR-GDP	0.002 (4.47)	0.003 (2.65)
RDR	0.0008 (0.53)	0.0017 (0.72)
FSS	-0.00002 (-0.033)	0.0004 (1.58)
PSS(-1)	5.365 (25.7)	1.44 (8.6)
ADJUSTED R2	0.95	0.83
D.W	1.06	1.7
F-STATISTICS	178.7	21.44

Note: The t-statistics are in brackets adjacent to the corresponding coefficients.

These results show that real interest rate had an increased positive and insignificant influence on private sector savings during the period 1987-92 after interest rate liberalisation than during the pre-interest rate liberalisation period, 1976-86.

Furthermore, an autoregressive distributed lag (ADL) model has been applied. The results are not much better. Lagged real deposit rate

shows an insignificant and reduced positive influence on private sector savings implying that past levels of interest rate have less influence on present level of private sector savings. Hence, lagged variables of real deposit rate have been dropped from the equation (refer to Table 15 below).

Unlike regression results on annual data, the growth rate of real income for quarterly data has a positive and significant influence (at less than 1 percent level of significance) on private sector savings. On the other hand, an autoregressive distributed (lag) model produces poor results as they show that an individual's past growth rate of income negatively influence his present savings. This contradicts standard economic theory. We would expect that, holding other things equal, the more an individual earned in the past, the more he would save now due to the fact that he did not accumulate more debts.

Rate of growth of income has shown to significantly and positively influence private sector savings more during the pre-interest rate liberalisation than the post-interest rate liberalisation period. The variable, growth rate of income had a coefficient and t-statistic of 0.002 and 4.47 respectively before liberalisation while after interest rate liberalisation its coefficient was 0.003 with 2.65 as a t-statistic.

With the coefficient and t-statistics of 0.009 and 0.23

respectively, the dummy variable is not significant at conventional levels. This implies that the non-interest rate financial reforms undertaken in 1980s did not have much significant positive impact on private sector savings in Malawi. This is the opposite of what was found in our regressions using annual data which showed that non interest rate financial reforms had a significant and positive impact on private sector savings rate. This is not surprising because we would not expect the impact of any financial reform to be felt within a quarter but rather after a year or so.

These regression results also show that foreign sector savings positively and significantly influence private sector savings, at less than 1 percent level of significance. Thus, the more Malawi gets foreign savings, the more the private sectors save or foreign sector savings complement domestic private sector savings in Malawi. These results agree with Chipeta and Mkandawire³⁴ on data for Malawi for the period 1967 to 1985. They got a coefficient of +0.28556 hence showing that capital inflow complement rather than compete with domestic private sector savings. However these results reject findings in the regression analysis for the annual data both for this study as well as Mwega's³⁵ study. Mwega, Ngola and Mwagi found that foreign savings compete with domestic savings in Kenya. Suprisingly, an autoregressive distributed lag model (ADL) shows

³⁴ Chipeta and Mkandawire, *ibid*, pp 20

³⁵ Mwega et al, *ibid*, p6

that past levels of foreign savings negatively and insignificantly influences domestic private sector savings in Malawi.

Finally, lagged private sector savings remain positive and significant (at less than 5 percent level of significance) in influencing the present level of private sector savings.

4.4 EMPIRICAL RESULTS: INTEREST RATE AND DEMAND FOR REAL MONEY BALANCES

Quarterly data from table 10 was run on the demand for money function (MDF) as presented on equation 5 above. The following results were obtained:

$$\begin{aligned} M1/P = & 0.38c + 0.003.Y + 0.004 RDR \\ & (4.02) \quad (3.25) \quad (2.7) \\ & +2.53 PSS + 0.10 RM1_{t-1} \\ & (2.37) \quad (0.91) \end{aligned}$$

$$ADJUSTED R2 = 0.53 \quad D.W = 1.2 \quad F-STATISTIC = 18.45$$

$$\begin{aligned} M2/P = & 0.31C + 0.003Y + 0.005 RDR \\ & (1.76) \quad (1.96) \quad (1.76) \\ & +1.23 PSS + 0.62 RM(-1) \\ & (0.64) \quad (7.09) \end{aligned}$$

$$ADJUSTED R2 = 0.63 \quad D.W = 1.59 \quad F-STATISTIC = 28.08$$

4.4.1 DISCUSSION OF THE RESULTS:

The above results show that real deposit rate has a positive and significant (at approximately 10 percent level of significance) influence on both real M1 and M2. Using annual data, real deposit rate had a positive and insignificant influence on real M1 and had a negative and insignificant influence on real M2. Therefore we could deduce from these results that the relationship between interest rate and real money balances is better explained by quarterly data than annual data in Malawi.

Results in Tables 13 and 14 below illustrate that, interest rate had much stronger positive and significant influence on real money balances (M1 and M2) before interest rate liberalisation than the period after.

TABLE 13: ESTIMATES OF THE DEMAND FOR MONEY FUNCTION(REAL M1) FOR THE SUB-PERIODS, 1976-86 AND 1987-92.

VARIABLE	PERIOD, 1976-86	PERIOD, 1987-92
C	0.27 (2.68)	0.76 (2.71)
Y	0.003 (3.4)	0.003 (1.32)
RDR	0.006 (3.26)	0.004 (1.086)
PSS	5.32 (2.22)	-1.03 (-0.028)
LAGGED REAL M1	0.154 (1.19)	-0.138 (-0.59)
ADJUSTED R ²	0.53	0.088
D.W	1.2	1.57
F-STATISTIC	12.4	1.5

NOTE: T-STATISTICS ARE IN BRACKETS ADJACENT TO THE CORRESPONDING COEFFICIENTS

TABLE 14: ESTIMATES OF THE DEMAND FOR MONEY FUNCTION, REAL M2 FOR THE SUB-PERIODS, 1976-86 AND 1987-92.

VARIABLE	PERIOD, 1976-1986	PERIOD, 1987-92
C	0.18 (1.23)	1.5 (2.41)
Y	0.003 (2.28)	0.005 (1.29)
RDR	0.007 (2.49)	0.008 (1.29)
PSS	1.78 (3.65)	-6.38 (-0.95)
LAGGED REAL M1	0.5 (4.95)	0.119 (0.49)
ADJUSTED r^2	0.80	0.048
D.W	1.33	1.59
F-STATISTIC	43.13	1.26

NOTE: T-STATISTICS ARE IN BRACKETS ADJACENT TO THE CORRESPONDING COEFFICIENTS

Real deposit rate in respect to real M1 and real M2 had estimated coefficients and t-statistics of 0.006 (3.27) and 0.007 (2.49) respectively. However, after interest rate liberalisation Real M1 and real M2 had 0.004 (1.09) and 0.0085 (1.29) as their coefficients and t-statistics respectively. Thus interest rate liberalisation did not produce the expected results. This could be attributed to, as alluded to earlier on, institutional and structural bottlenecks that exists in the financial and banking system in Malawi. These bottlenecks have been properly explained in sections 1.2 above.

Real Income has shown to positively and significantly influence real money balances (both real M1 and real M2). Thus, transaction demand for money hypothesis, by Tobin and Baumal and the reknown economist- Keynes, that income and demand for money balances are positively related, really holds in Malawi.

However an autoregressive distributed lag (ADL) model on both real M1 and M2 show that past levels of income have positive and significant influence on demand for real money balances.

Similarly, past levels of interest rate have positive but insignificant influence on demand for money balances. Finally, past levels of private sector savings have a negative and significant influence on demand for real money balances (Refer to Tables 16 and 17 below).

TABLE 15: AN AUTOREGRESSIVE DISTRIBUTED LAG (ADL) MODEL REGRESSION RESULTS FOR PRIVATE SECTOR SAVINGS (PSS), 1976 - 1992

(DEPENDENT VARIABLE = PSS)

VARIABLE	COEFFICIENT	T-STATISTIC
CONSTANT	0.012	0.077
GROWTH RATE OF GDP(PRDIX2)	0.0018	5.79
PRDIX2(-1)	-0.0002	-0.64
REAL DEPOSIT RATE	0.0007	0.965
CHANGE IN NET FOREIGN ASSETS(NFA2)	0.0006	4.66
NFA2(-1)	-0.0003	-1.82
LAGGED DEPENDENT VARIABLE(PSS(-1))	0.81	9.70
PSS(-3)	0.20	2.40
ADJUSTED R-SQUARED	0.99	
DURBIN-WATSON F-STATISTIC	1.89 1106.08	

TABLE 16: AN AUTOREGRESSIVE DISTRIBUTED LAG (ADL) MODEL REGRESSION RESULTS FOR REAL M1, 1976 - 1992

(DEPENDENT VARIABLE = REAL M1)

VARIABLE	COEFFICIENT	T-STATISTIC
CONSTANT	-0.16	-1.45
REAL GDP (PRDIX)	0.0012	1.38
PRDIX(-4)	0.0023	2.79
REAL DEPOSIT RATE(RDR)	0.0044	4.23
RDR(-4)	0.0008	0.78
PRIVATE SEC.SAVINGS(PSS)	1.90	6.20
PSS(-1)	-1.35	-5.80
PSS(-4)	-8.03	-2.27
RM1(-1)	0.38	4.66
RM1(-3)	0.40	5.36
ADJUSTED R-SQUARED	0.85	
DURBIN-WATSON	1.74	
F-STATISTIC	32.02	

TABLE 17: AN AUTOREGRESSIVE DISTRIBUTED LAG (ADL) MODEL REGRESSION RESULTS FOR REAL M2 1976 - 1992
(DEPENDENT VARIABLE = REAL M2)

VARIABLE	COEFFICIENT	T-STATISTIC
CONSTANT	-0.25	-2.08
REAL GDP(PRDIX)	0.001	1.18
PRDIX(-4)	0.0034	2.89
REAL DEPOSIT RATE(RDR) RDR(-4)	0.0079 0.002	5.14 1.46
PRIVATE SEC.SAVINGS(PSS)	3.66	8.27
PSS(-1)	-2.02	-5.63
PSS(-4)	-2.27	-4.23
RM2(-1) RM2(-3)	0.51 0.39	7.94 6.55
ADJUSTED R-SQUARED	0.90	
DURBIN-WATSON F-STATISTIC	1.76 61.26	

CHAPTER 5

SUMMARY AND CONCLUSION

5.0 SUMMARY AND CONCLUSION.

5.1 Summary:

The empirical results from quarterly data are much better and are more meaningful than the results from annual data. Consequently much of the conclusion and summary will dwell on quarterly results.

First and foremost, the study (particularly results from annual data) has shown that the non-interest rate financial reforms in Malawi that were undertaken in 1980s, sponsored by World Bank's Industrial and Trade Policy Adjustment Credit (ITPAC) and the Agricultural Sector Adjustment Credit (ASAC) and International Monetary Fund (IMF) under Enhanced Structural Adjustment Facility (ESAF), were correct steps towards the right direction. In a way these reforms led to improved savings mobilisation. Inter alia, these non -interest rate structural adjustment reforms pursued in 1980s are as follows; restructuring and privatisation of Agricultural Marketing and Development Corporation (ADMARC) and Post Office Savings Bank (POSB), import liberalisation in 1988, domestic price control and decontrol, the removal of credit ceilings and implementation of restrictive monetary policy etc.

In addition, the results obtained in this study show that real deposit rate has positive but insignificant influence on private sector savings in Malawi. It has also shown that within Malawi's

institutional and policy framework, upward adjustment in real interest rates does, to a smaller extent, encourage the private sector's ability to save.

The regression results also have shown that foreign savings should be encouraged as they stimulate domestic private savings. Rather, the emphasis should be placed on both domestic savings and foreign savings since they are complementary. On the other hand, the positive and more significant relationship between private sector savings and lagged private sector savings, shows that the more people save now the more they will save in future. To put it differently, the previous individuals' savings behaviour has a positive bearing on their present savings behaviour.

These results, particularly from annual data, have also shown that, in the context of Malawi, private sector savings rate can be encouraged through increases in per capita income and its accelerated growth rate. The more the individuals earn the more they save.

The study has shown that the policy of upward adjustment of interest rates leads to expansion of money balances, both narrowly and broadly defined. Thus within the context of Malawi expansionary monetary policy can be done simultaneously with the policy of upward adjustment of interest rates since the two are matching policies.

5.2 Conclusion:

The results obtained from this study have shed some light regarding formulation of interest rate policy and they provide guide-lines to policy makers. The results have shown that interest rate is not an important policy tool in savings mobilisation process in Malawi. There are several explanations for this.

This insignificant influence of real interest rate on private sector savings could be attributed to the shallowness, narrowness and the oligopolistic nature of Malawi's superstructure (financial and banking system). The two commercial banks, National Bank of Malawi and Commercial Bank of Malawi dominated and still dominates the national resource mobilisation effort and these two banks work as an oligopoly. As a result, effective competition is lacking in commercial banking industry hence interest rates set by these commercial banks is not market determined and does not reflect the real return on financial assets or the cost of borrowing money.

Given this economic environment coupled with the excess liquidity that mostly existed in the banking system the past few years (late 1980s), the use of interest rate as a policy tool in savings mobilisation has been reduced. Furthermore, the insignificance of interest rate in savings mobilisation may be attributed to the fact that both the money market and the capital market are underdeveloped.

Apart from these institutional and structural obstacles in Malawi's financial system, the insignificant positive influence of interest rates on savings mobilisation may be a result of continued control of interest rates by monetary authorities. For the most part of our investigation period (1966-1991), except for the last five years, interest rates were basically controlled, adjusted infrequently and negative in real terms. This, therefore, rendered interest rates less effective in attaining the policy objective of increasing savings in private sector.

Savings mobilisation has also not been accorded the policy focus it deserves, particularly in this era of falling economic activity. When policy has been applied in the past, it has been wrongly placed, such as the setting of administered and preferential interest rates. These policies have been tapping domestic savings at subsidised rates either for the government or for certain categories of investors at the expense of the savers.

Secondly, savings behaviour has been adversely affected by seasonality of incomes and the continuous deficit financing of the Malawi government. In addition, these savings mobilisation process constraints emerge from the paradoxes typified by segmentation and fragmentation of Malawi's financial and banking system. This is illustrated by the existence of rural/urban dichotomy and dualism described in detail in section 1.2 above. In terms of financial services, the rural sector has been marginalised and mostly

financial services and economic activity concentrate in urban centres. There is marked preference for higher income groups while shunning away from the majority of potential customers in rural areas. This behaviour has been reinforced by lack of competition and avoidance of small-scale financial transactions. Lack of competition, especially in late 1980s, has resulted in excess liquidity syndrome in the banking system.

In addition, this analysis is done a few years after full liberalisation of interest rates. In-fact it is only five years since full liberalisation .This has affected the results much more. It is hoped that analyses that will be done in the distant future, when the impact of interest rates is full manifested, may give better and improved results.

Therefore, policy makers should revisit the current institutional and regulatory framework in order to encourage entry of new financial institutions in general and the Commercial banks in particular. This will create a competitive environment in the financial system. Furthermore, it will reduce the prevailing conservative and oligopolistic tendencies in the commercial banking sector and will allow market forces to determine the level of interest rates in the market. Of course the government is making a headway in this respect. However, more efforts should be applied by the relevant authorities.

The other policy variables that could be used by the policy makers to enhance private sector savings are real per capita income and foreign savings. The policy makers should focus in the increment of these variables in order to enhance savings mobilisation.

The other policy area that need to be looked into by policy makers is the development of money and capital markets. The development of money and capital markets coupled with resilient and potent monetary policy stance in tandem with other macroeconomic objectives, will enhance savings mobilisation further. The money and capital markets can be developed through establishment of new financial institutions that deal in financial instruments such as the Stock Exchange, Stockbroking companies, Unit Trusts and Discount Houses just to mention a few. The establishment of these institutions will promote financial intermediation and will enhance productivity and efficient allocation of investible funds.

BIBLIOGRAPHY

1. Adekunle. J, The demand for money : Evidence from developed and undeveloped countries, *IMF staff paper*, volume 15, (1968)
2. Aghveli. B, Khan, Nerveha and Short, Monetary policy in selected African countries, *IMF staff paper*. number.4
3. Aghevli.B.B (et al), The role of national saving in the world all trends and prospects, *IMF occasional paper* 67, Washington. D. C, (1990)
4. Ando. A and Modigliani.F (1963), The Life-Cycle hypothesis of saving: Aggregate implications and tests, *American Economic Review*, vol.53, no.1, (1963)
5. Chipeta.C and Mkandawire.M.L.C, Interest rates, *Financial Savings and Macroeconomic Adjustment in Malawi*, an unpublished paper, Economics Department, Chancellor College, University of Malawi, (1989).
6. Cochraine. D and Orcutt. G. H, Application of least squares regression to relationships containing autocorrelated errors, *Journal of American Statistical Association*, vol 44.no.1, (1949)
7. Deaton. A, Savings in developing countries: Theory and Review, *World Bank Research Observer*, (1989)
8. Duesenberry. J, *Income, savings and the theory of consumer behaviour*, Cambridge Mass: Harvard University Press,

(1949)

9. Duesenberry. J, *Income and consumption relations and their relations and their implications in macroeconomic readings*, John Landauer, The Free Press (1968)
10. Friedman. M, *A theory of the consumer behaviour*, Princeton, New Jersey: Princeton University Press, (1957)
11. Fry. M.J, *Money and Capital or financial deepening in economic development*, *Journal of money, credit and banking*. no.4, (1978)
12. Fry. M.J, *Savings, investment, growth and the cost of financial repression*, *World Development* vol.8, no.4, (1980)
13. Giovannini. A, *The interest elasticity of savings in developing countries: The existing evidence*, *World Development* vol.11, no.7, (1983)
14. Giovannini. a, *Savings and real interest rate in LDCs*, *Journal of development Economics*. vol. 18, (1985)
15. Harawa. R.D, *Savings Function: Review of Hypotheses*, an unpublished B.Soc.Sc (Hons) dissertation submitted to the Department of Economics, Chancellor College, University of Malawi, (1981).
16. Keynes. J.M, *The general theory of employment, interest and money*, London, Horcourt Brace, (1936)
17. Leite and Makonnen. D, *Savings and interest rates in BCEAO countries: An empirical analysis*, *Savings and Development*, vol.10 no.3, (1986)
18. Meltzer. A, *The demand for money : The evidence from time*

series, *Journal of political economy*. volume 71, number 2, (1963)

19. Mckinnon, *Financial deepening in economic development*, Oxford University Press, New York, (1973)
20. Mikesell. R.F and Zincer. J.E, The nature of the savings function in developing countries: A survey of the theoretical and empirical literature, *Journal of economic literature*, vol 11 (December, 1973)
21. Mkwezalamba. M, *The demand for money in less developed countries: Empirical evidence from Malawi*, unpublished, University of Malawi, Chancellor College, Zomba, Malawi.
22. Mwanamvekha. J, *The factors influencing the level of gross domestic savings in Malawi*, an unpublished B.Soc.Sc dissertation submitted to the Department of Economics, Chancellor College, University of Malawi, (1990)
23. Mwega. F, S.M. Ngola and Mwangi. N, *Real interest rates and mobilisation of private savings in Africa*, Aerc, Research Paper 2, (1990)
24. Oshokoya. T.W, *Interest liberalisation, savings, investment and growth: The case for Kenya*, *Savings and Development*, no.3 xvi.
25. Patrick Watson and Ramlogan. c, *Savings and the rate of interest in Trinidad and Tobago: An empirical analysis*, *Savings and Development* no4 xv, (1991)
26. Seck. D and El Nil, *The experience of African countries with financial liberalisation: Theoretical and empirical*

- analysis, African Centre for monetary studies, (1992)
- 27.Silumbu.E, *The stability of the demand for money during structural adjustment*, University of Malawi, Chancellor College, Economics Department, Zomba, Malawi.
- 28.Shaw.E.S, *Financial deepening in economic development*, Oxford University Press, New York, (1973)
- 29.Wijnbergen.S, *Interest rate management in LDCs*, *Journal of monetary economics*, vol.12, no.3
- 30.Weisskoff.T.E, *The impact of foreign capital inflow on domestic savings in underdeveloped countries*, *Journal of International Economics*, Vol.2

Chart 1: Gross National Savings and Private Sector Savings (MK'Million)

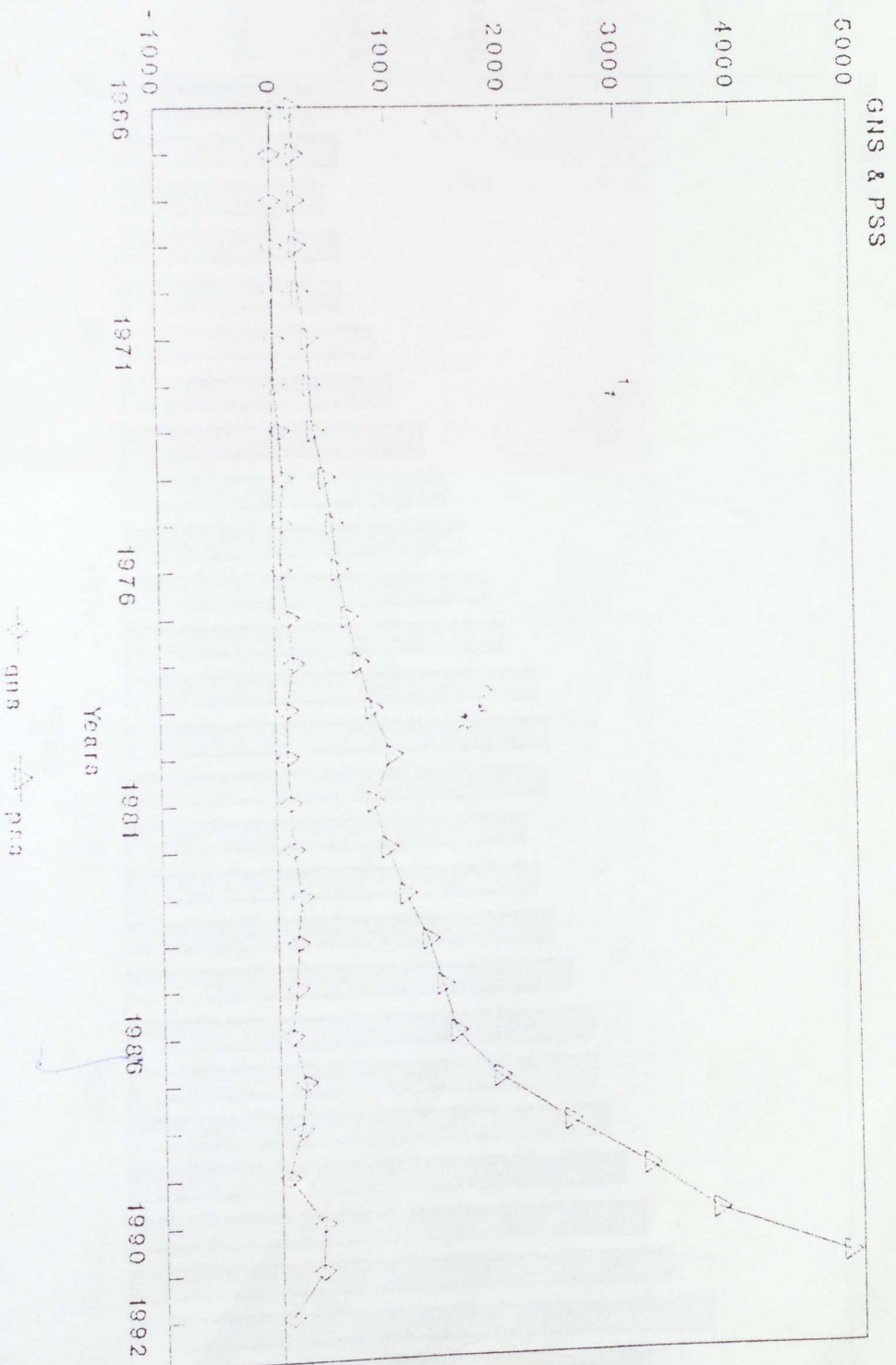
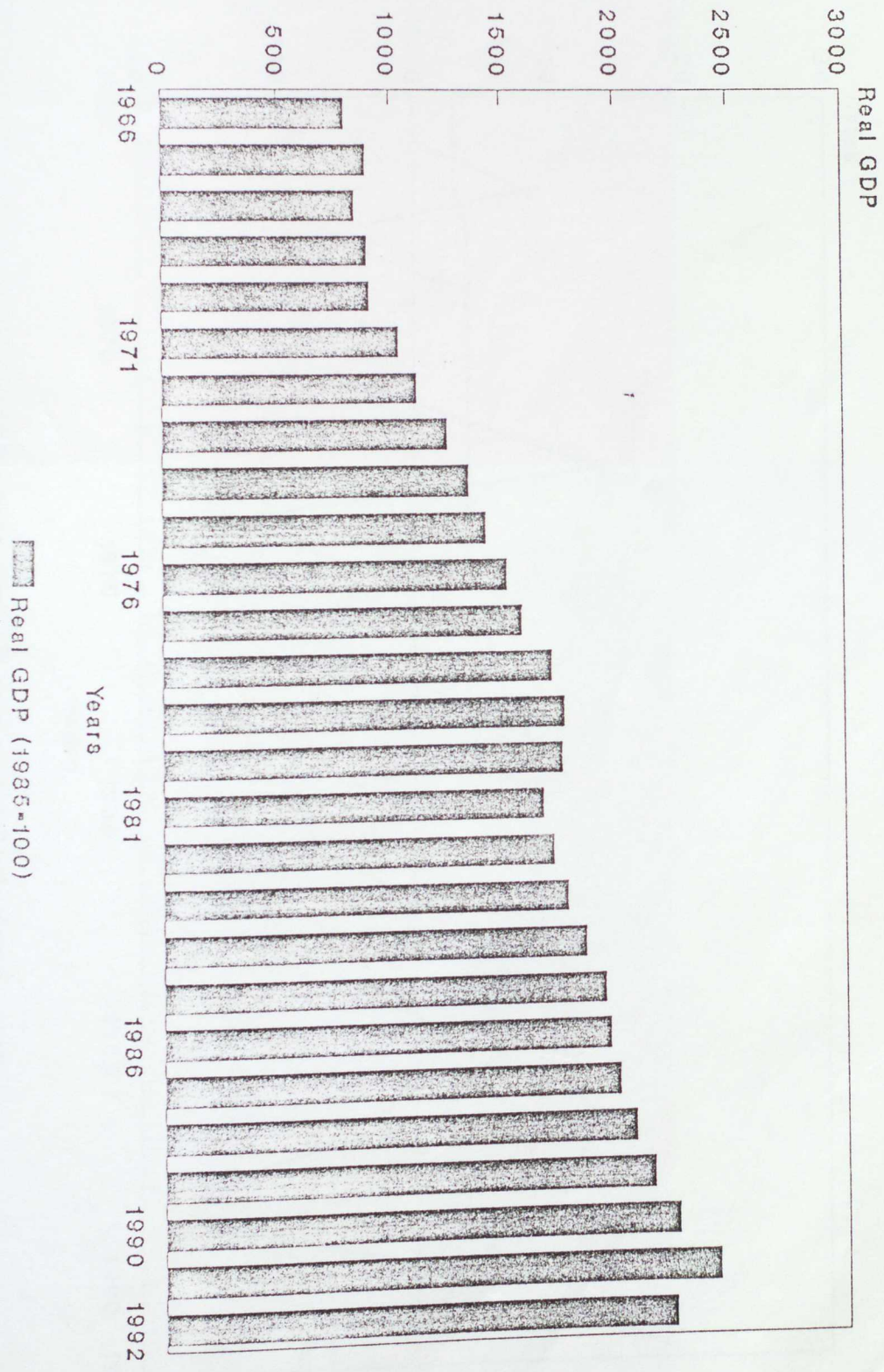


Chart 2: Trend in Real Gross Domestic Product,(GDP) (MK'Million)



Appendix 3

Chart 3: Movements in Nominal and Real Interest rates

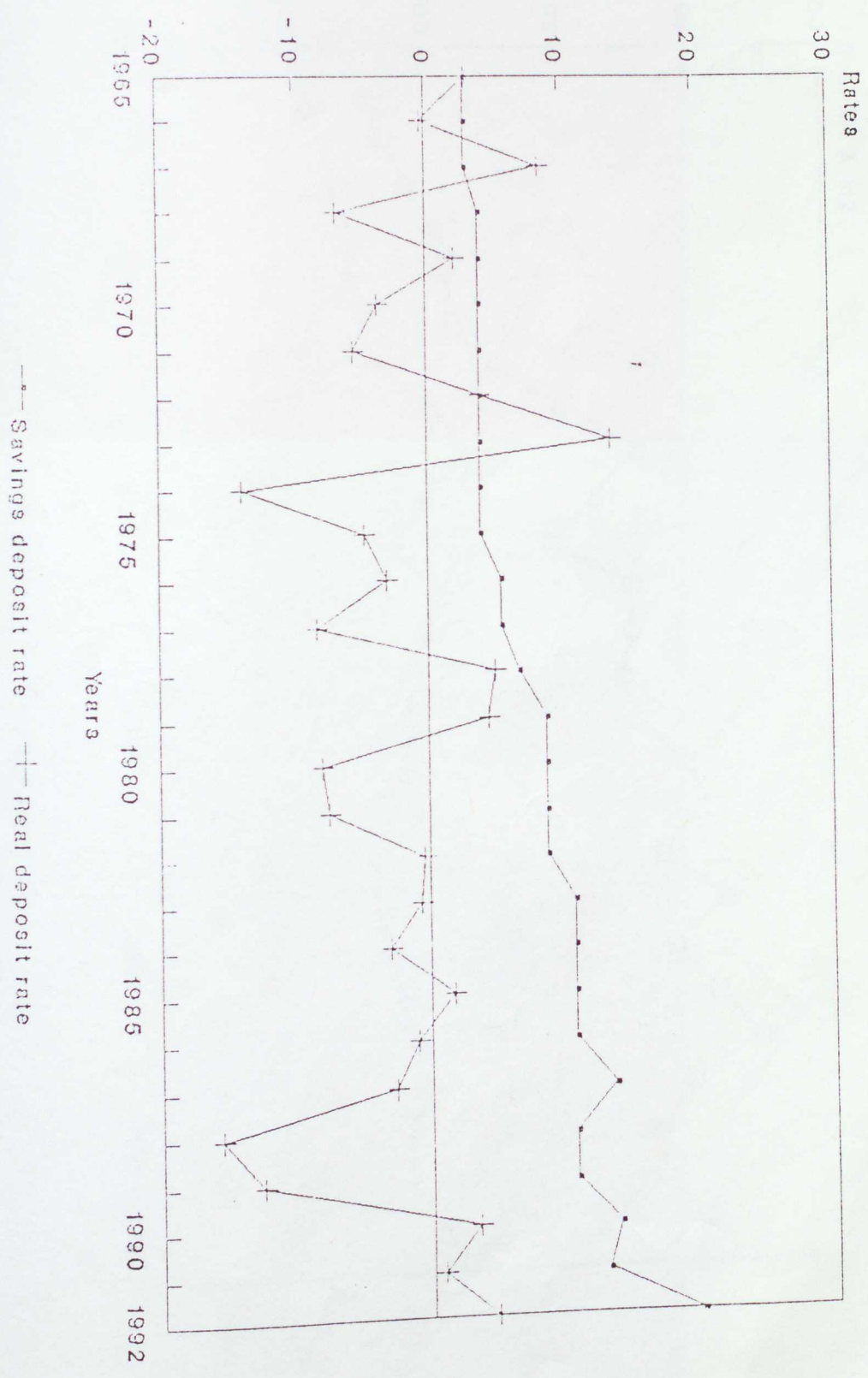
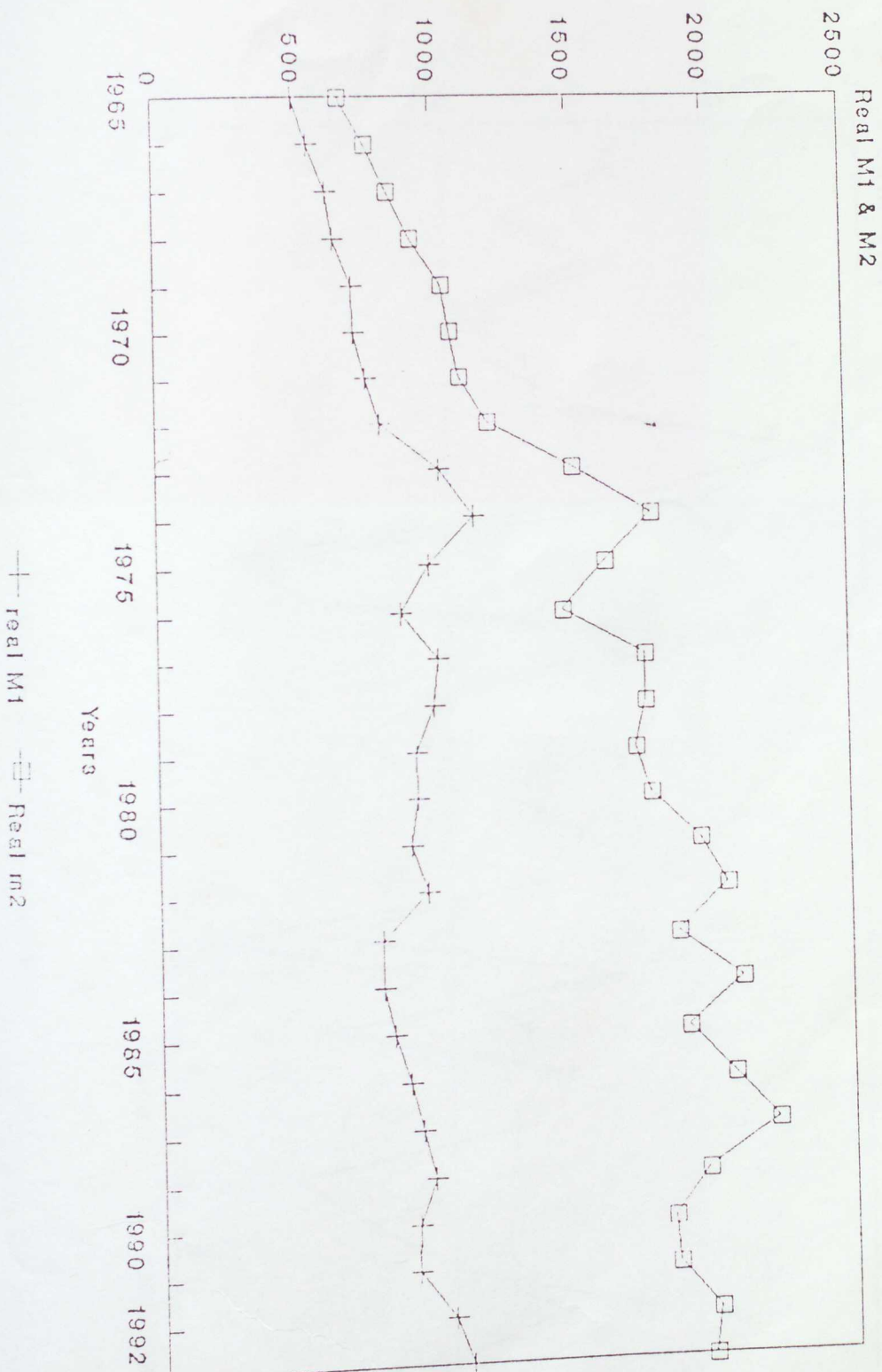


Chart 4: Trends in real money balances
Real M1 and M2 (MK'Million)



Appendix 5

Chart 5 Growth rate of real money
balances, M1 & M2

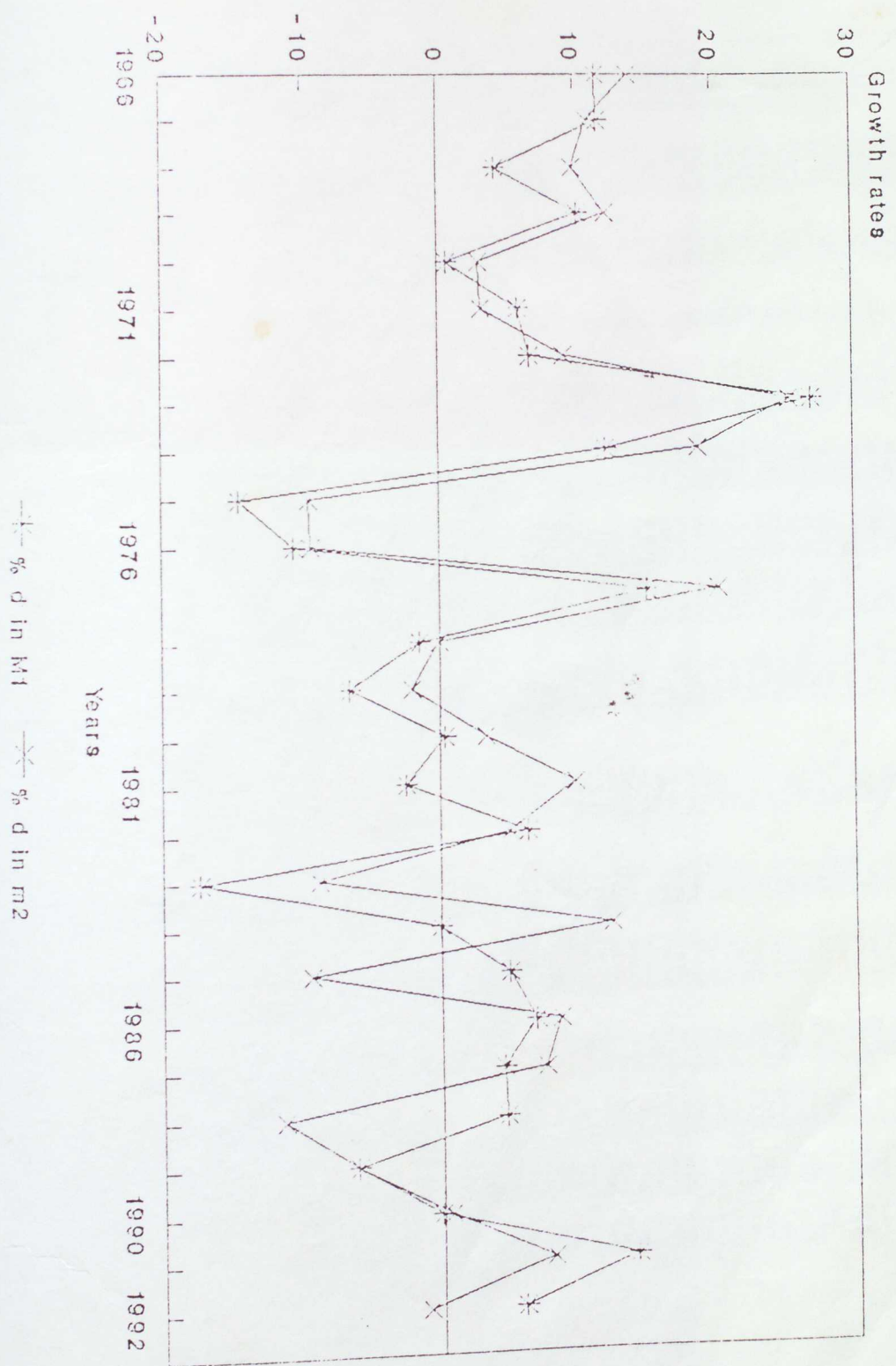


TABLE 10. QUARTERLY DATA FOR THE PERIOD 1978, FIRST QUARTER TO 1982, 1 QUARTER ONLY

TABLE 10: QUANTITATIVELY DATA FOR THE PERIOD 1970, FIRST QUANTILE TO 1992, 1 QUANTILE QUANTILE																	
YEAR	Q1 1970=100	DEPOSIT RATE	DUMMY	INFLATION RATE	NOMINAL M1 (K m)	NOMINAL M2 (K m)	REAL M1 (K m)	REAL M2 (K m)	CHANGE IN M1 (K m)	CHANGE IN M2 (K m)	PRODUCTION INDEX 1970=100	GROWTH RATE OF PROD.-IND	PRIVATE SAVINGS (K 1000)	PRIVATE SAVINGS (in logs)	REAL DEPOSIT RATE	REAL M1 (K m)	REAL M2 (K m)
1970.1	107.20	4.00	0	0	61.42	95.300	-2.40	-12.500	59.40	-9.09	71352	11.18	11.18	0.57	0.89		
1970.2	103.40	4.00	0	0	70.94	105.00	-14.08	-7.550	54.00	-8.04	75720	11.22	11.22	0.60	1.02		
1970.3	102.70	4.00	0	0	64.92	101.60	-22.53	-7.550	101.00	-8.04	71888	11.18	11.18	0.63	0.96		
1970.4	104.60	4.00	0	0.93	58.45	98.100	-24.24	-1.7100	81.30	-19.50	74986	11.23	11.23	0.56	0.94		
1971.1	108.20	4.00	0	2.71	80.17	127.40	-30.41	-6.1700	60.90	-25.09	77461	11.26	11.26	0.55	0.91		
1971.2	106.90	4.00	0	4.09	75.96	127.40	-2.12	-12.500	103.40	-15.14	102202	11.45	11.45	0.55	1.20		
1971.3	106.90	4.00	0	8.00	69.99	122.70	10.33	-12.500	101.50	-32.61	98087	11.53	11.53	0.52	1.06		
1971.4	113.60	5.50	0	10.07	62.51	132.70	7.10	-11.840	68.40	-36.30	97956	11.49	11.49	0.52	1.13		
1972.1	119.10	5.50	0	10.92	61.98	132.70	0.69	-6.2100	117.10	-23.78	103419	11.52	11.52	0.62	1.11		
1972.2	117.60	5.50	0	8.23	63.66	133.80	-11.34	-6.2100	112.60	-3.64	108618	11.60	11.60	0.46	0.58		
1972.3	115.70	5.50	0	5.90	74.95	133.20	-19.170	-19.640	112.60	-30.99	122283	11.71	11.71	0.31	0.77		
1972.4	120.40	5.50	0	5.94	73.82	136.80	-30.51	-19.640	103.10	-32.66	122283	11.83	11.83	0.56	1.21		
1973.1	126.20	5.50	0	7.81	92.70	161.20	-50.15	-19.640	115.30	-17.69	117397	11.70	11.70	0.56	1.04		
1973.2	132.00	6.75	0	14.08	93.50	156.80	-67.93	-17.780	94.90	-20.02	117397	11.65	11.65	0.83	1.55		
1973.3	139.40	6.75	0	15.78	77.70	144.70	-83.36	-5.6200	75.90	-44.01	144056	11.80	11.80	0.30	1.88		
1973.4	139.40	6.75	0	-24.41	78.80	148.30	-63.97	-6.5000	109.30	10.43	145964	11.89	11.89	0.07	1.85		
1974.1	95.400	6.75	0	-21.81	103.00	108.60	-55.47	-29.980	120.70	-22.12	142556	11.87	11.87	0.83	1.64		
1974.2	99.300	6.75	0	-22.95	92.70	117.90	-85.45	-29.980	94.00	-22.12	151127	12.13	12.13	0.01	1.82		
1974.3	101.70	6.75	0	-24.32	92.70	184.00	-107.39	-21.940	72.20	-57.62	185415	12.12	12.12	2.85	2.14		
1974.4	105.50	6.75	0	17.82	93.40	229.30	-103.24	4.1500	113.80	25.75	179095	12.10	12.10	0.90	1.94		
1980.3	105.50	6.75	0	17.82	93.40	229.30	-103.24	4.1500	113.80	25.75	179095	12.10	12.10	0.90	1.94		
1980.4	112.40	6.75	0	6.76	115.90	230.20	-103.24	-35.790	112.90	-21.73	174894	12.07	12.07	0.81	1.85		
1981.1	108.00	6.75	0	6.45	101.00	218.40	-150.03	-38.330	65.90	-41.16	211737	12.26	12.26	2.61	2.26		
1981.2	107.70	6.75	0	2.22	93.50	212.00	-150.03	-38.330	130.00	29.82	207086	12.24	12.24	2.60	1.09		
1981.3	112.30	6.75	0	6.45	124.90	261.30	-144.82	-15.430	130.00	29.82	207086	12.22	12.22	5.57	0.81		
1981.4	114.60	6.75	0	6.64	124.90	266.70	-152.40	-15.430	107.80	-21.86	195387	12.16	12.16	0.52	0.78		
1982.1	115.50	6.75	0	15.32	118.00	251.90	-167.83	-15.430	78.80	-26.90	217825	12.29	12.29	-2.28	0.98		
1982.2	121.10	6.75	0	12.44	132.10	240.30	-190.11	-22.280	117.70	-49.37	227688	12.34	12.34	-3.01	0.97		
1982.3	129.50	6.75	0	15.27	103.20	277.40	-181.93	-6.3900	154.60	-31.35	210504	12.26	12.26	-3.57	0.75		
1982.4	132.44	6.75	0	12.03	126.50	291.10	-189.29	-6.3900	128.70	-18.05	190144	12.20	12.20	-4.08	0.91		
1983.1	129.40	6.75	0	13.99	131.90	263.40	-219.25	-30.990	126.70	-18.05	190144	12.20	12.20	-4.08	0.91		
1983.2	136.55	6.75	0	12.76	110.50	241.80	-197.80	-47.190	65.90	-41.16	250281	12.57	12.57	12.46	0.92		
1983.3	147.62	10.42	0	15.83	99.40	332.30	-150.82	-4.6900	150.70	30.46	294491	12.59	12.59	-4.24	0.77		
1983.4	153.40	11.75	0	26.34	148.90	359.90	-155.28	-4.6900	150.70	30.46	294491	12.57	12.57	-10.85	0.92		
1984.1	163.49	11.75	0	22.60	153.20	351.30	-144.02	-40.960	114.10	-31.63	286038	12.56	12.56	-1.06	0.72		
1984.2	167.41	11.75	0	15.99	132.50	337.60	-185.58	-42.620	114.10	-31.63	286038	12.56	12.56	-1.06	0.72		
1984.3	171.23	11.75	0	13.41	124.40	337.60	-185.58	-42.620	114.10	-31.63	286038	12.56	12.56	-1.06	0.72		
1984.4	173.97	11.75	0	9.35	154.90	365.00	-245.49	-17.990	153.30	-21.96	285432	12.56	12.56	2.28	0.61		
1985.1	179.77	12.75	0	10.47	183.20	351.40	-242.35	-11.048	119.00	-29.01	300159	12.61	12.61	-4.32	0.70		
1985.2	182.59	12.75	0	11.38	136.20	325.70	-306.85	-98.230	118.70	-21.60	344716	12.76	12.76	-0.87	0.75		
1985.3	189.16	12.75	0	17.07	174.80	442.90	-437.08	-58.630	151.40	-46.53	344716	12.76	12.76	-0.87	0.75		
1985.4	193.76	12.75	0	13.96	221.80	435.10	-378.45	-12.570	108.10	-32.52	507338	13.14	13.14	-2.52	1.12		
1986.1	209.28	12.75	0	15.13	169.00	392.90	-391.02	-37.790	108.10	-32.52	507338	13.14	13.14	-2.52	1.12		
1986.2	210.22	12.75	0	13.42	169.00	442.90	-437.08	-58.630	108.10	-32.52	507338	13.14	13.14	-2.52	1.12		
1986.3	214.92	12.75	0	15.88	169.70	528.10	-428.72	-19.800	153.40	-21.51	418941	13.09	13.09	-23.15	1.05		
1986.4	224.52	12.75	0	8.06	312.40	586.20	-257.55	-76.330	115.40	-46.52	586200	13.27	13.27	0.26	1.08		
1987.1	226.19	12.75	0	15.27	312.40	586.20	-257.55	-76.330	115.40	-46.52	586200	13.27	13.27	0.26	1.08		
1987.2	242.32	12.75	0	31.90	244.80	511.80	-333.88	-76.330	115.40	-46.52	586200	13.27	13.27	0.26	1.08		
1987.3	243.48	12.75	0	35.01	321.50	426.80	-290.29	-212.42	126.90	-14.02	559522	13.23	13.23	4.98	0.93		
1987.4	303.13	12.75	0	35.90	321.50	426.80	-290.29	-212.42	126.90	-14.02	559522	13.23	13.23	4.98	0.93		
1988.1	307.39	12.75	0	27.54	303.00	426.80	-290.29	-212.42	126.90	-14.02	559522	13.23	13.23	4.98	0.93		
1988.2	309.06	12.75	0	12.49	303.00	426.80	-290.29	-212.42	126.90	-14.02	559522	13.23	13.23	4.98	0.93		
1988.3	318.89	12.75	0	7.77	308.20	426.80	-290.29	-212.42	126.90	-14.02	559522	13.23	13.23	4.98	0.93		
1988.4	326.67	12.75	0	6.21	308.20	426.80	-290.29	-212.42	126.90	-14.02	559522	13.23	13.23	4.98	0.93		
1989.1	328.49	12.75	0	10.26	440.20	642.60	-58.29	-25.710	148.40	-4.45	575563	13.36	13.36	-2.13	0.75		
1989.2	340.76	12.75	0	11.74	440.20	642.60	-58.29	-25.710	148.40	-4.45	575563	13.36	13.36	-2.13	0.75		
1989.3	356.34	12.75	0	33.86	328.80	673.10	-93.50	-80.120	159.90	-13.70	702684	13.46	13.46	-19.65	1.10		
1989.4	437.36	12.75	0	32.76	443.10	673.10	-93.50	-80.120	159.90	-13.70	702684	13.46	13.46	-19.65	1.10		
1990.1	433.46	12.92	0	32.76	403.40	605.50	-147.37	-58.550	164.70	-10.56	663135	13.40	13.40	-3.25	0.78		
1990.2	452.01	13.00	0	28.98	403.40	605.50	-147.37	-58.550	164.70	-10.56	663135	13.40	13.40	-3.25	0.78		
1990.3	459.61	9.75	0	28.98	403.40	605.50	-147.37	-58.550	164.70	-10.56	663135	13.40	13.40	-3.25	0.78		
1990.4	459.61	9.75	0	28.98	403.40	605.50	-147.37	-58.550	164.70	-10.56	663135	13.40	13.40	-3.25	0.78		
1991.1	460.13	12.25	0	14.46	573.20	1003.0	-156.81	-9.4800	184.70	-2.00	777801	13.56	13.56	-1.02	0.8		