

**The impact and accessibility of agricultural credit: A case study of
small-scale farmers in the Northern Province of South Africa**

By

KOJO SPIO

Submitted in partial fulfilment of the requirements for the degree

PhD

in the

Department of Agricultural Economics, Extension and Rural Development

Faculty of Natural and Agricultural Sciences
University of Pretoria
Pretoria

Promotor: Professor Gerhard Coetzee

Co-promotor: Professor J.A. Groenewald

November 2002



ACKNOWLEDGEMENT

I wish to express my gratitude to my Supervisor Professor Gerhard K. Coetzee, and Professor J.A. Groenewald, who encouraged me, read the script, made many penetrating comments, constructive criticisms and useful suggestions during the research work. In fact this study would not have been possible without the immense assistance I received from them. I also owe a special word of thanks to Professor M.R. Carter, for his numerous ideas during the initial stages of the project. His challenging and friendly attitude have been a source of inspiration to me.

I am indebted to my parents Mr J.A Spio and Madam Mabel Quagraine, who provided me with the spiritual and intellectual inspiration to persevere under difficult circumstances. I can do no more than reaffirm my eternal devotion. My studies would not have been possible without the loving backing and help I received from my brothers and sisters, namely: Ayiaa, Esson, Aba, Ewurasi, Kofi, Araba and Baby.

I am very grateful to my beautiful wife and two children, Mrs Efua Dylis Spio, Maame Mabel Esi Spio, and Jojo Spio, for the loneliness they had to endure. Efua's advice and encouragement have been a source of inspiration to me.

Finally, I wish to acknowledge the help, protection and guidance I received from God. May His Name be praised. Amen.

KOJO SPIO

THE IMPACT AND ACCESSIBILITY OF AGRICULTURAL CREDIT: A
CASE STUDY OF SMALL-SCALE FARMERS IN THE LIMPOPO PROVINCE
OF SOUTH AFRICA

KOHO SPIO

PhD (Agricultural Economics)

TO MY LOVELY CHILDREN

MAAME ESI ESIAM MABEL SPIO

AND

JOJO AYIAA SPIO

ABSTRACT

This study is an empirical investigation of the impact of agricultural credit on small-scale farmers' business performance in the Limpopo province of South Africa's Limpopo. The study is a quantitative research design.

1. Determine the impact of agricultural credit on small-scale farmers' business performance.
2. Determine the accessibility of agricultural credit to small-scale farmers in the Limpopo province.
3. Determine the characteristics of small-scale farmers in the Limpopo province.

The results of the study indicate that providing credit brought a positive impact on small-scale farmers' business performance. The difference of 40% in favour of borrowers is caused both by the credit (21%) and the farmers' inherent characteristics. Thus, credit can be used to improve small-scale farmers' output by 21 percent.

**THE IMPACT AND ACCESSIBILITY OF AGRICULTURAL CREDIT: A
CASE STUDY OF SMALL-SCALE FARMERS IN THE LIMPOPO PROVINCE
OF SOUTH AFRICA**

by

KOJO SPIO

DEGREE: PhD (Agric) Agricultural Economics

DEPARTMENT: Agricultural Economics, Extension and Rural Development

PROMOTOR: Professor Gerhard Coetzee

CO-PROMOTOR: Professor J.A. Groenewald

ABSTRACT

This study is an exploratory analysis of the impact and accessibility of formal agricultural credit to small-scale farmers, based on data collected from a sample of farmers in two regions of South Africa's Limpopo Province. The main aims of the research were to:

- Determine the impact of credit and its shadow price
- Investigate the efficiency of the rural financial market.
- Determine the characteristics and factors that influence the accessibility of credit in the small-scale farming sector, as well as the differential access to credit within the sector.

The results of the study indicate that productivity differs between borrowers and non-borrowers. The difference of 40% in favour of borrowers is caused both by credit use (21%) and the farmers' inherent characteristics. Thus, credit can increase a randomly selected farmer's output by 21 per cent.

The marginal credit return rate is 2.10 at zero loan, implying a 110 per cent shadow price of capital. The hypothesis that non-borrowers are credit constrained is empirically supported. The marginal credit effect at mean loan size is 1.35, indicating that the average loan size is below income-maximising size. This implies that loan-quantity rationing is still prevalent among borrowers, and that it is possible that borrowers may still be liquidity constrained but to a lesser degree than non-borrowers. The estimated shadow price of credit (35%) exceeds the average interest rate (18%) also suggesting that the rural credit markets in the survey areas are not operating in the most efficient manner. It also indicates that the farmers in the study area can afford to pay the prevailing market interest rate.

About 29.4 % of the farmers sampled for the study had access to formal credit. More than 57% of the credit used by small farmers comes from informal credit. Access to formal credit is also highly skewed, and shows greater ease of access for large farm size than smaller groups. Factors such as area cultivated, family labour, title deed, non-farm income, remittances and pensions (social benefits), awareness of the availability of credit, and repayment records are found to be important variables in predicting accessibility of credit to small scale farmers in the study area.

The main findings are:

- ◆ Small-scale farmers have limited and differential access to credit; those with holdings approaching commercial size are better-off.
- ◆ Rural agricultural financial markets are inefficient. Borrowers and non-borrowers alike are credit constrained.
- ◆ Credit is not too expensive to be used profitably; its effects on productivity can improve the welfare of small-scale farmers.

In view of these findings, the following policy proposals are suggested. Firstly, the policy of not providing interest rate subsidies for loans is justified. Credit subsidisation, with its unfortunate history, should be avoided. Secondly, there is the need to restructure costly and poorly performing rural financial institutions to effectively and efficiently

provide the needed services to its clientele. To ensure rapid credit delivery, it is also imperative that agricultural institutions are encouraged to decentralise their activities. Expansion of banking outlets is one of the most important surge factors affecting financial services. In addition, policy makers should also focus on critical elements of the financial infrastructure, such as the information system and training facilities, which are necessary for the development of the rural financial system in South Africa.

Finally, the threshold for entry into the financial market is simply too high for many. Hence, creating a conducive environment in rural areas is one of the areas that will require more attention. Investment in rural infrastructure will also act as catalyst for the establishment of some of the missing institutions that cause market failures in rural financial markets.

Key Words

Agricultural credit: accessibility

Agricultural credit: impact

Small-scale farmers

Productivity

Rural financial institutions

Differential credit

Borrowers

Non-borrowers

Loan size

Subsidisation

TABLE OF CONTENTS

ACKNOWLEDGEMENT	I
TABLE OF CONTENTS.....	VI
LIST OF FIGURES.....	XI
LIST OF TABLES.....	XI

CHAPTER ONE: INTRODUCTION

1.1	BACKGROUND	1
1.2	MOTIVATION	4
1.3	PURPOSE OF THE STUDY	8
1.4	HYPOTHESES	8
1.5	RESEARCH METHODOLOGY	9
1.6	LIMITATIONS	10
1.7	DELINEATION OF RESEARCH.....	10
1.8	ORGANISATION OF THE STUDY	10

CHAPTER TWO: FINANCIAL SERVICES AND DEVELOPMENT

2.1	INTRODUCTION	12
2.2	THE FINANCIAL SYSTEM AND ECONOMIC GROWTH.....	12
2.3	ROLE OF FINANCE	14
2.4	EFFECTS OF FINANCIAL SERVICES ON SMALL SCALE FARMER	19
2.5	RURAL FINANCE AND ECONOMIC DEVELOPMENT.....	20
2.5.1	The supply-led approach/Directed credit programmes	21
2.5.1.1	<i>Effects of directed programmes.....</i>	22
2.5.1.2	<i>Criteria and principles for addressing disadvantages.....</i>	23
2.5.2	Deregulation of the financial system.....	26

2.6	HINDRANCES TO THE DEVELOPMENT OF THE FINANCIAL SYSTEM IN DEVELOPING COUNTRIES	27
2.8	CONCLUSION	30

CHAPTER THREE: ACCESSIBILITY OF FINANCIAL SERVICES AND ITS IMPACT

3.1	INTRODUCTION	31
3.2	FEATURES OF RURAL CREDIT MARKETS	32
3.3	DETERMINANTS OF CREDIT ACCESSIBILITY	34
3.3.1	Risk	35
3.3.2	Credit rationing.....	37
3.3.2.1	<i>Rationing and its rationality.....</i>	38
3.3.2.2	<i>Small borrowers versus large borrowers</i>	41
3.3.3	Transaction costs: Their effects and the implications for credit accessibility.....	42
3.3.3.1	<i>Transaction costs to small clients.....</i>	43
3.3.3.2	<i>Causes and effects of high transaction costs.....</i>	44
3.3.3.3	<i>Ways to lower transaction costs.....</i>	45
3.3.4	Delinquency and default: Causes, and effects on credit availability	46
3.3.4.1	<i>Institutional deficiencies.....</i>	47
3.3.4.2	<i>Economic and financial policies.....</i>	49
3.3.4.3	<i>Deficiencies in the agrarian structure and its characteristics.....</i>	49
3.3.4.4	<i>Socio-cultural and Political factors</i>	50
3.3.4.5	<i>Consequences of delinquency and default</i>	50
3.3.4.6	<i>Approaches to reduce delinquency and default rates</i>	51
3.3.5	Interest rate sensitivity and the availability of financial services.....	52
3.3.5.1	<i>Defects of the artificial/subsidised interest rates.....</i>	53
3.3.5.2	<i>Effect of Interest rate sensitivity on credit.....</i>	54
3.3.5.3	<i>Conclusion.....</i>	56
3.3.6	Collateral and accessibility of credit	57
3.3.6.1	<i>Role of collateral</i>	58

3.3.6.2	<i>Collateral and its effects on credit availability</i>	59
3.3.6.3	<i>The use of land as collateral</i>	60
3.4.6.4	<i>Conclusion</i>	61
3.4.7	Implications for policy	61
3.4	A PARADIGM SHIFT: TOWARDS A NEW SOUTH AFRICAN DEVELOPMENT FINANCIAL SYSTEM	63
3.4.1	The old development finance system	63
3.4.2	The new development finance system	65
3.4.3	Conclusion	66

CHAPTER FOUR: BACKGROUND OF SMALL-SCALE FARMING IN SOUTH AFRICA

4.1	INTRODUCTION	67
4.2	AN OVERVIEW OF THE SMALL SCALE FARMING SECTOR IN SOUTH AFRICA	67
4.2.1	Output and efficiency in the small-scale farming sector	68
4.2.2	Resource poor: Homelands farmers	70
4.3	PERSPECTIVES FROM THE PROVINCE AND THE STUDY AREAS	71
4.4	FINANCIAL INSTITUTIONS OPERATING IN THE STUDY AREA	73
4.4.1	Agricultural and Rural Development Corporation (ARDC)	74
4.4.2	Land and Agricultural Bank of South Africa	75
4.5	CONCLUSION	75

CHAPTER FIVE: RESEARCH PROCEDURES, METHODOLOGY AND TECHNIQUES

5.1	INTRODUCTION	76
5.2	SAMPLING METHODOLOGY AND TECHNIQUES	76
5.3	MODEL SPECIFICATION	77

5.3.1	Switching regression: Measurement of the impact of credit and its shadow price	78
5.3.1.1	<i>Development of econometric framework for measuring the impact of credit</i>	<i>81</i>
5.3.1.2	<i>Data specifications</i>	<i>88</i>
5.4.2	Analysis of factors limiting small farmers' access to formal credit	90
5.5	CONCLUDING REMARKS.....	96

CHAPTER SIX: ANALYSIS AND RESULTS

6.1	INTRODUCTION	97
6.2	DATA DESCRIPTION AND ANALYSES	97
6.2.1	Demographic characteristics of households.....	97
6.2.2	Household production and incomes.....	98
6.2.3	Financial transactions.....	98
6.3	THE IMPACT OF CREDIT ON PRODUCTIVITY	102
6.3.1	Results of the probit analysis	103
6.3.2	Results of the output supply equation	105
6.3.3	Estimated credit effects	108
6.4	ACCESS TO FORMAL CREDIT OF SMALL SCALE FARMERS... ..	111
6.4.1	Differential access to formal credit within the small farming sector	111
6.4.2	Factors affecting small farmers' access to formal credit.....	114
6.5	SUMMARY AND CONCLUSION.....	116

CHAPTER SEVEN: SUMMARY AND CONCLUSIONS

7.1	INTRODUCTION	118
7.2	DELIMITATIONS, EXECUTION AND RESULTS OF THIS STUDY.....	119
7.3	CONCLUSION	121
7.4	RECOMMENDATIONS	122
7.4.1	Policy implications	122

7.4.2	Policy proposals.....	124
7.4.3	Future research	130
REFERENCES		131
APPENDIX 1: MAP SHOWING THE STUDY AREA.....		153

LIST OF TABLES

Table 4.1:	Key economic indicators.....	10
Table 4.2:	Lead time period to change in production.....	10
Table 4.3:	Measurement of turnover and asset turnover.....	10
Figure 4.1:	Effectiveness report of credit on household.....	11
Table 5.1:	Data specifications: Credit from finance.....	12
Table 5.2:	Data specifications of credit support equity.....	12
Table 5.3:	Data specifications: Credit from bank.....	12
Table 6.1:	Descriptive statistics: Descriptive statistics of the dependent variable of household.....	13
Table 6.2:	Average household production and revenue of different households and two different sub-samples.....	13
Table 6.3:	Credit status and access of credit in the household.....	13
Table 6.4:	Reasons for not asking for loan in the past 12 months.....	13
Table 6.5:	Other financial services accessed by the household.....	13
Table 6.6:	Estimated coefficients of the credit equation.....	13
Table 6.7:	Estimated coefficients of the independent variables in the model.....	13
Table 6.8:	Estimate of credit effects on capital supply.....	13
Table 6.9:	Proportions of largest loans according to size of household.....	13
Table 6.10:	Access rates by size of holding.....	13
Table 6.11:	Logistic regression estimates.....	13

LIST OF FIGURES

Figure 2. 1: A theoretical approach to finance and growth..... 15
Figure 3. 1: Bank optimal interest rate..... 40
Figure 3. 2: The supply of and demand for credit 54
Figure 3. 3: Effect of an interest rate ceiling..... 55
Figure 3. 4: Effect of subsidised credit 56

LIST OF TABLES

Table 4. 1: Socio-economic indicators 71
Table 4.2: Land use pattern in Limpopo province..... 72
Table 5.1: Distribution of borrowers and non-borrowers..... 77
Figure 4. 1: Hypothetical impact of credit on farm output..... 86
Table 5. 2: Data Specifications: Credit Status Equation (Probit)..... 89
Table 5. 3: Data specifications: Output supply equation..... 91
Table 5. 4: Data Specifications: Credit Status Equation (logistic) 95
Table 6. 1: Average demographic characteristics of all sample households and two different sub-samples 99
Table 6. 2: Average household production and incomes of all sample households and two different sub-samples 100
Table 6. 3: Credit status and sources of credit in the survey area..... 101
Table 6. 4: Reasons for not asking for loan (in percentages) 101
Table 6. 5 Other financial services obtained by the sampled farmers..... 102
Table 6. 6: Estimated coefficients of the probit equation 105
Table 6. 7: Estimated coefficients of the endogenous switching regression model 106
Table 6. 8: Estimates of credit effects on output supply 109
Table 6. 9: Proportion of formal loans according to size of holdings..... 112
Table 6. 10: Access ratios by size of holding..... 113
Table 6. 11: Logistic regression estimates..... 114