
ACCESS TO CREDIT BY THE POOR IN SOUTH AFRICA: Evidence
from Household Survey Data 1995 and 2000

FRANCIS NATHAN OKURUT

Stellenbosch Economic Working Papers: 13/06

KEYWORDS: CREDIT, POVERTY, SOUTH AFRICA
JEL: N27, D14, G2

FRANCIS NATHAN OKURUT
DEPARTMENT OF ECONOMICS
UNIVERSITY OF BOTSWANA
E-MAIL: OKURUTT@MOPIPI.UB.BW



A WORKING PAPER OF THE DEPARTMENT OF ECONOMICS AND THE
BUREAU FOR ECONOMIC RESEARCH AT THE UNIVERSITY OF STELLENBOSCH

ACCESS TO CREDIT BY THE POOR IN SOUTH AFRICA: Evidence from Household Survey Data 1995 and 2000

FRANCIS NATHAN OKURUT ¹

ABSTRACT

This study specifically investigated the factors that influenced access by the poor and Blacks to credit in the segmented financial sector in South Africa, using income and expenditure survey data from 1995 and 2000. The study sheds light on the extent of financial sector deepening through household participation especially among the poor and Blacks, in the context of the fight against poverty. In this study, three types of credit were identified. Formal credit was defined to include debts from commercial banks (including mortgage finance and car loans), semi-formal credit included consumption credit (for household assets such as furniture and open accounts in retail stores), and informal credit specifically referred to debts from relatives and friends.

Multinomial logit models and Heckman probit models with sample selection were used for analytical work. The results suggest that the poor and Blacks have limited access to the formal and semi-formal financial sectors.

At the national level, access to bank credit is positively and significantly influenced by age, being male, household size, education level, household per capita expenditure and race (being Coloured, Indian or White). Being poor has a negative and significant effect on formal credit access. Semi-formal credit access is positively and significantly influenced by household size, per capita expenditure, provincial location (Eastern Cape, Northern Cape, Free State and North West) and being Coloured. The negative and significant factors in determining access to semi-formal credit include being male, rural location, being poor and being White. Informal credit access is negatively and significantly influenced by education level and race (being Coloured or White).

Among the poor, access to bank credit is positively and significantly influenced by being male, provincial location (Western Cape, Gauteng and Mpumalanga) and being Coloured. Access to semi-formal credit is positively and significantly determined by household per capita expenditure, provincial location (Western Cape, Northern Cape, North West and Gauteng) and being Indian. Access to informal credit by the poor is positively and significantly influenced by provincial location (Kwazulu Natal and Gauteng).

Within the black population, access to bank credit is positively and significantly influenced by age, being male, household per capita expenditure and education level. Semi-formal credit access by Blacks is positively and significantly influenced by household size, household per capita expenditure, education level and provincial location (Eastern Cape, Northern Cape, Free State and North West). However being male, poor and located in a rural area negatively affected access to semi-formal credit by Blacks. Informal credit access by Blacks is negatively influenced by education level, but positively influenced by being located in the Western and Eastern Cape.

These findings confirm that improving access to organized credit markets (i.e formal and semi-formal credit markets) by the poor and Blacks, remains important in the fight against poverty.

JEL: N27, D14, G2

KEYWORDS: credit, poverty, South Africa

¹ Department of Economics, University of Botswana E-mail: okurutf@mopipi.ub.bw

ACKNOWLEDGEMENTS

The author gratefully acknowledges the financial and technical support of the CAGE Project of the Department of Economics, University of Stellenbosch, which facilitated the timely execution of this important study. My special thanks go to Professor Servaas van der Berg and Professor Andrie Schoombee for their insightful guidance throughout the study.

My greatest appreciation is also extended to all members of the collaborative CAGE project for the various forms of assistance that made this study a success. Any errors and omissions are however entirely mine.

ACCESS TO CREDIT BY THE POOR IN SOUTH AFRICA: Evidence from Household Survey Data 1995 and 2000

1. INTRODUCTION

This study of the determinants of credit market access in South Africa was motivated by the need to measure the extent of financial sector deepening through household participation, especially among the poor and Blacks. This is in line with the strategic black economic empowerment policies of the government through increased access to education, credit markets and employment opportunities. The study forms part of a larger research programme in the Department of Economics at the University of Stellenbosch, which is funded by the European Union and the National Treasury through CAGE, the Conflict and Governance Facility. This larger research programme deals with *Monitoring poverty, inequality and polarisation: Trends and prospects*, and the issue of access to credit is clearly one that fits into this framework. The study specifically investigated the factors that influenced credit market access by the poor and Blacks in the formal, semi-formal and informal financial sectors in South Africa over the two survey periods of 1995 and 2000.

Credit access can be defined as the supply side phenomenon of credit markets, because it is the lenders who decide whether borrowers can access credit or not. The credit process involves two distinct stages. In the first stage, borrowers who have demand for credit decide how much funds to apply for and from which particular lender (formal or informal sector) at the prevailing market interest rates. This process constitutes the demand side. In the second stage, the lenders decide who accesses credit and what amount, which constitutes the supply side (Zeller, 1994).

Market imperfections and information asymmetry problems raise the probability of default risk, thus lenders do not sell loan contracts to every willing buyer (borrower) at the prevailing market price (interest rate). The interest rate as the price for credit therefore fails to play its market-clearing role of equating credit demand and supply, thus giving rise to an equilibrium with credit rationing (Stiglitz and Weiss, 1981).

The financial sector, comprised of the formal and informal sectors, plays a key role in financial intermediation (Levacic and Rebmann, 1982) in developing countries. The banks are major players in formal credit markets, while informal institutions (such as relatives, friends, moneylenders, rotating savings and credit associations, microfinance institutions) are active in informal financial markets (Aryeetey and Nisanke, 1998; Yadav et al, 1992; Soyibo, 1994; Aryeetey, 1994). In this study, formal credit was defined to include debts from commercial banks (including mortgage finance and car loans), semi-formal credit included consumption credit (for household assets such as furniture and open accounts in retail stores), and informal credit specifically referred to debts from relatives and friends.

The poor are argued to have constrained access to formal sector credit due to both institutional and household level factors (Nwanna, 1995). At the institutional level, the banks incur high information costs to assess the creditworthiness of small borrowers, and low returns due to the small loan amounts involved. This motivates the formal lenders to adopt strict collateral requirements as a screening mechanism to minimize default risk, hence rationing out the poor from the formal credit market. At the household level, the low levels of income and asset accumulation and highly skewed income and asset distribution render the poor households to have a high risk profile, which makes them less attractive to formal lenders (Dallimore and Mgimeti, 2003).

The poor with no access to formal sector credit have to revert to the informal financial sector to meet their credit demand (Montiel et al, 1993), for both productive investment (Binswanger and Khandker, 1995) and consumption smoothing (Heidhues, 1995; World Bank, 1989b). Ardington et al (2003) further argued that poor households'

limited access to formal financial risk management instruments (savings, credit and insurance) constrains their ability to cope with shocks and further increases vulnerability to poverty.

2. DETERMINANTS OF CREDIT ACCESS

Household access to financial services (in both the formal and informal sectors) is influenced by institutional factors, product features and household socio-economic characteristics.

From the institutional perspective, the location of the financial service providers and their conditions greatly influence the probability of access. Porteous (2003) observed that access to formal financial services in South Africa tends to be limited to salaried workers, hence excluding the poor, the unemployed, self-employed and informally employed. This scenario prevails because of the common practice of banks to demand a pay slip as a precondition for opening an account. Dallimore and Mgimeti (2003) also contended that the long distances and high transport cost constrains the rural poor's access to formal financial services mainly located in urban areas.

The financial product features that influence access include interest rates and collateral requirements. Kochar (1997) examined the effect of formal sector interest rates and choice of informal credit. Empirical evidence suggested a positive and significant relationship between the formal sector interest rate and the probability of access to informal credit (at the 5% significance level). This result can be interpreted in the context of those households that participate in both the formal and informal financial markets, where the borrower considers not only the formal sector interest rates, but also the associated transaction costs (financial and non-financial). This may explain the positive relationship between formal sector interest rates and informal credit demand.

The specific borrower characteristics that influence the household access to credit markets include the strength of previous business relationships, borrowers' reputation in the market, borrowers' acceptance of interlinked credit contracts, borrowers' debt-service capacity and borrowers' wealth status. Aleem (1990), in a study of informal market lenders and their clients in Chambar, Pakistan, argued that informal lenders mainly used their established relationship with borrowers as a screening mechanism. Lenders did not generally entertain loan requests from people who had not had previous dealings with them either in the form of the sale of harvested output through them or purchase of farm inputs. The longer the period of the previous business relationship, the higher will be the probability of the borrower having credit access. This is due to the fact that these business relationships provide the lender with important information about the potential borrower, including his marketable surplus and the way he conducts business. Evidence by Kochar (1997) also suggested that the probability of access to informal credit is positively and significantly influenced by whether personal guarantees are given for informal loans. This result may be explained in terms of personal guarantees serving as alternative collateral that is valued by informal lenders.

Bell et al (1997) found that interlinked credit contracts and visible household assets positively and significantly influenced the amount of credit supplied by informal lenders. Baydas et al (1994) observed that the amount of informal credit supplied was significantly positively influenced by interest rates, loan period, business profits and education level.

Vaessen (2001), in a study of accessibility of rural credit in Northern Nicaragua, showed that access to credit is influenced by both the lender and household characteristics. At the institutional level, the lender makes decisions based on the target group (either women or men or both), the selection criteria of clients, the geographic area of operation, and the features of financial products to be provided to address sustainability concerns, all of which influence credit supply. At the household level, being part of the specific target group or living in the targeted geographical area influences credit access. The logit regression results suggested that the probability of credit access is positively and significantly influenced by education level, family size, off-farm activities,

and access to a network of information/recommendation. The off-farm activities, captured by the trader dummy, were used as a proxy for repayment capacity. The network of information and recommendation acts as a screening mechanism where potential clients are required to be recommended or guaranteed by existing clients, thereby acting as social collateral.

Zeller et al (1994) suggested that access to credit from the Gambian Co-operative was positively and significantly influenced by age and household income, while being female had a negative and significant effect. What these results suggest is that older persons who control household resources may be rated to be more creditworthy, while women are discriminated against in the credit market.

Collateral requirements are a major factor that influences credit access, especially in the formal sector. This view was supported by Daniels (2001), who observed that the low levels of collateral among the poor to a great extent explained their limited access to financial instruments in the formal banking sector.

3. METHODOLOGY AND DATA

This study used data from the South African Income and Expenditure Surveys of 1995 and 2000, which contained information on the amount of debt outstanding. These two household surveys were conducted by Statistics South Africa and are linked to the October Household Survey and the Labour Force Survey of the same date respectively. The surveys provide stratified samples of about 30 000 households each, representative of the total South African population. Unfortunately, though, comparability issues make direct comparison of the 1995 and 2000 data problematic, particularly regarding changes in poverty. For this reason, the term “the poor” is used in this paper not to identify the population below a fixed poverty line, but rather to refer to the bottom 40 per cent of all households in each survey.

Multinomial logit models were used to estimate the factors that influence access to different forms of credit for the whole sample, Heckman probit models with sample selection were used for estimation of the factors that influence access to credit by the poor, while probit models were used for estimation of determinants of credit access by blacks.

The Heckman probit model with sample selection involves the specification of the model of interest and the selection model. For the model of interest, the dependent variable was the probability of credit access either in the formal, semi-formal or informal markets (=1 if accessed credit, otherwise zero). For the selection models, the dependent variable was the probability of being poor (=1 if household was poor, otherwise zero).

The specification of the Heckman probit model with sample selection for credit access was as follows:

$$\text{PROB}(\text{ACCESS}^2) = \beta_0 + \sum \beta_i X_i + \varepsilon_i, \quad \text{SELECT} (\text{POOR} = \Omega_0 + \sum \Omega_i K_i + \varepsilon_i) \dots \dots \dots (1)$$

Where:

Prob(access) = $\beta_0 + \sum \beta_i X_i + \varepsilon_i$ is the model of interest

Prob(poor) = $\Omega_0 + \sum \Omega_i K_i + \mu_i$ is the selection model

β_0, Ω_0 = constant terms

² Access to various credit markets were captured by the following dummy variables: *infsector* (=1 if accessed informal credit), *semforma* (=1 if accessed semi formal credit), *bankdu* (=1 if accessed formal credit)

β_i, Ω_i = vector of coefficients

X_i = vector of household socio-economic characteristics

K_i = socio-economic characteristics vector that is not identical to X_i .

ε_i, μ_i = error terms

The dependent variable for the i^{th} observation is only observable if $(\Omega_i K_i + \mu_i) > 0$, where

$\varepsilon_i \sim N(0,1), \mu_i \sim N(0,1), \text{corr}(\varepsilon_i, \mu_i) = \rho$ and $\rho \neq 0$.

The specific variables used in the study are as defined in Table 1.

Table 1: Definition of variables of the study

Variable	Definition
bankdu	Dummy for access to formal sector credit (=1 if formal)
semforma	Dummy for access to semi-formal sector credit (=1 if semi formal)
infsector	Dummy for access to informal sector credit (=1 if informal)
rbank	Amount of formal sector credit accessed in constant 2000 prices
rsemid	Amount of semi-formal sector credit accessed in constant 2000 prices
rinformad	Amount of informal sector credit accessed in constant 2000 prices
age	Age of household head, in years
agesq	Square of logarithm of age
male	Dummy for male household head (=1 if male)
household size	Household size
lnexp	Logarithm of per capita household expenditure
education	Education level of household head, measured in years
rural	Dummy for rural area (=1 if rural)
western cape	Dummy for Western Cape Province
eastern cape	Dummy for Eastern Cape Province
northern cape	Dummy for Northern Cape Province
free state	Dummy for Free State Province
kwazulu natal	Dummy for Kwazulu Natal Province
north west	Dummy for North West Province
gauteng	Dummy for Gauteng Province
mpumalanga	Dummy for Mpumalanga Province
limpopo	Dummy for Limpopo Province (Reference category)
blacks	Dummy for black household head (Reference category)
coloured	Dummy for coloured household head
indian	Dummy for indian household head
white	Dummy for white household head
poor	Being in the bottom 40% of the distribution of per capita expenditure for the whole population

4. HOUSEHOLD ACCESS TO CREDIT BY SOCIO-ECONOMIC CHARACTERISTICS AND POVERTY STATUS

4.1 National Level

The three credit markets investigated in this study are the formal financial sector, the semi-formal financial sector, and informal markets. As already stated, the formal financial sector is comprised of debts from commercial banks (including mortgage finance and car loans), semi-formal financial sector is mainly for consumption credit (for household assets such as furniture and open accounts in retail stores), and informal credit refers to debts

from relatives and friends.

Lack of access to any form of credit was a key feature with approximately 89.6% of the total sampled households having no access in 1995. This number was reduced to 76.5% in 2000. The increased access to credit markets in the 2000 survey may be explained by the rapid expansion of microfinance institutions over the period (Ardington et al, 2003). Most of the credit access was from semi-formal financial institutions over the survey periods (5.9% in 1995 and 14.5% in 2000). The decomposition by poverty status at the national level suggests the proportion of poor households with no access to credit (93.6% in 1995 and 84.2% in 2000) exceeded that of the non-poor (86.9% in 1995 and 71.4% in 2000). Thus the poor have less access to credit as compared to the non-poor (see Table 2).

Non-poor households were more likely to access bank and semi-formal credit as compared to the poor. Of the non-poor households, 5.8% had access to bank credit in 1995 as compared to 7.1% in 2000. In terms of semi-formal sector credit, 6.5% of the non-poor had access in 1995 and the proportion was more than double that in 2000 (17.8%). Access to informal sector credit by the non-poor households was generally low (0.6% in 1995 and 3.6% in 2000).

The poor were more likely to access informal credit, which may be explained by the absence of collateral requirements for such borrowing. The proportion of the poor who accessed bank credit was exceedingly small (0.1% in 1995 and 0.5% in 2000). Access to semi-formal credit by the poor almost doubled over the survey periods, rising from 5.0% in 1995 to 9.6% in 2000. However the proportion of the poor that accessed informal credit was 1.2% in 1995 as compared to 5.5% in 2000. This corroborates the findings by Daniels (2001) of lower levels of access to formal credit by the poorer households as compared to the wealthier ones.

Table 2: Household access to credit by province and poverty status (%), 1995 and 2000

	Sector	1995			2000		
		Non-poor	Poor	Total	Non-poor	Poor	Total
National Level	Formal	5.87	0.17	3.59	7.15	0.56	4.52
	Semi-formal	6.52	5.02	5.92	17.82	9.67	14.56
	Informal	0.66	1.21	0.88	3.61	5.52	4.37
	None	86.95	93.61	89.61	71.42	84.25	76.55
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N		17,757	11,838	29,595	15,685	10,457
Province							
Western Cape	Formal	10.42	1.14	8.40	12.51	1.93	10.58
	Semi-formal	5.74	6.13	5.83	16.67	12.88	15.98
	Informal	0.55	0.14	0.46	1.68	4.51	2.19
	None	83.29	92.58	85.31	69.14	80.69	71.25
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N		2,525	701	3,226	2,087	466
Eastern Cape	Formal	5.92	0.07	2.54	7.65	0.21	3.49
	Semi-formal	9.89	8.85	9.29	16.29	8.72	12.06
	Informal	1.11	2.54	1.94	4.71	6.56	5.74
	None	83.07	88.54	86.23	71.35	84.51	78.71
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N		2,245	3,072	5,317	1,529	1,937
Northern Cape	Formal	5.34	0.17	3.21	11.27	1.50	7.27
	Semi-formal	7.60	9.27	8.29	23.06	15.92	20.14
	Informal	0.12	0.51	0.28	2.20	4.31	3.06
	None	86.94	90.05	88.22	63.47	78.28	69.53
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N		842	593	1,435	772	534
Free State	Formal	4.16	0.12	2.19	6.36	0.55	3.63
	Semi-formal	5.11	3.12	4.14	21.29	11.61	16.75
	Informal	0.54	0.25	0.40	6.61	6.36	6.49
	None	90.19	96.51	93.27	65.74	81.47	73.13
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N		1,682	1,603	3,285	1,226	1,085
Kwazulu Natal	Formal	4.52	0.10	2.83	7.25	0.40	4.11
	Semi-formal	4.96	3.28	4.32	13.42	5.49	9.78
	Informal	0.81	1.06	0.91	3.73	5.54	4.56
	None	89.70	95.56	91.94	75.60	88.58	81.55
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N		3,205	1,983	5,188	2,385	2,022

North West	Formal	4.74	0.09	2.65	3.63	0.28	2.36
	Semi-formal	12.88	4.81	9.25	21.96	12.88	18.52
	Informal	0.37	1.18	0.73	2.71	5.49	3.76
	None	82.01	93.92	87.36	71.70	81.34	75.35
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	1,351	1,102	2,453	1,735	1,056	2,791
Gauteng	Formal	6.63	0.73	5.93	7.39	1.33	6.23
	Semi-formal	5.20	3.39	4.99	16.13	10.61	15.07
	Informal	0.49	1.45	0.60	3.29	7.69	4.13
	None	87.68	94.43	88.48	73.19	80.37	74.56
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	3,077	413	3,490	3,193	754	3,947
Mpumalanga	Formal	3.16	0.09	1.86	3.48	1.01	2.52
	Semi-formal	3.57	2.23	3.00	25.53	14.54	21.23
	Informal	0.69	0.84	0.75	6.16	7.10	6.53
	None	92.58	96.84	94.39	64.83	77.34	69.73
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	1,456	1,077	2,533	1,379	887	2,266
Limpopo	Formal	5.24	0.00	2.70	4.28	0.12	1.97
	Semi-formal	6.91	1.39	4.24	13.85	6.70	9.89
	Informal	0.95	0.62	0.79	2.54	2.68	2.62
	None	86.90	97.99	92.28	79.33	90.50	85.53
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	1,374	1,294	2,668	1,379	1,716	3,095

4.2 Access to Credit by Province of Residence and Poverty Status

The distribution of sampled households within each province by the different credit sources reflects the same trend as at the national level, where most households did not have any access to credit and the main source of credit was the semi-formal financial sector. Mpumalanga had the highest proportion of households (94.3%) with no access to any form of credit in 1995, while in 2000 it was Limpopo (85.5%). Access to bank credit was highest in the Western Cape (8.4% in 1995 and 10.5% in 2000). Households in the Eastern Cape and North West had highest access to semi-formal credit in 1995 (approximately 9.2%), while in 2000 it was the households in Mpumalanga (21.2%). Informal credit was mainly accessed by households in the Eastern Cape (1.9%) in 1995 and Mpumalanga (6.5%) in 2000 (see Table 2).

Among the non-poor within each province, those located in the Western Cape had the highest likelihood of accessing formal bank credit (10.4% in 1995 and 12.5% in 2000). With regards to semi-formal credit, the non-poor located in North West (12.8%) and Mpumalanga (25.5%) had a higher probability of access in 1995 and 2000 respectively.

Among the poor, those located in the Northern Cape were more likely to access semi-formal credit in both survey periods (9.2% in 1995 and 15.9% in 2000), as compared to other provinces. However the poor in the Eastern Cape (2.5%) and Gauteng (7.6%) had a higher probability of informal credit access in 1995 and 2000 respectively.

4.3 Race of Household Head

Black households had a higher likelihood of having no access to credit (91.6% in 1995 and 78.7% in 2000), compared to other races. Whites were more likely to access bank credit (12.4% in 1995 and 25.7% in 2000), while Coloureds had a higher likelihood of access to semi-formal credit (9.1% in 1995 and 20% in 2000). Among the non-poor, the highest access to formal sector credit in both periods was for Whites, followed by Indians. However access to semi-formal credit among the non-poor was highest among Coloureds (9.6% in 1995 and 22.7% in 2000). Blacks who were non-poor had a higher likelihood of access to informal credit in both survey periods, compared to other races. Among the poor households, the highest access to formal and semi-formal credit was by Coloureds in both periods (see Table 3).

4.4 Gender of Household Head

The gender decomposition suggests that access to bank credit was higher among male-headed households (4.6%) as compared to female-headed households (1.1%) in 1995. However in 2000, the trend was reversed, when female-headed households (6.6%) had a higher likelihood of access to bank credit as compared to male-headed households (2.0%). In terms of access to semi-formal credit markets, female-headed households had a higher likelihood of access in both periods (see Table 3).

Table 3: Household access to credit by race, gender and poverty status (%), 1995 and 2000

	Sector	1995			2000		
		Non-poor	Poor	Total	Non-poor	Poor	Total
Race							
Black	Formal	1.84	0.12	0.92	2.82	0.44	1.71
	Semi-formal	8.19	4.57	6.25	19.01	9.32	14.52
	Informal	0.94	1.31	1.14	4.49	5.71	5.06
	None	89.03	94.00	91.69	73.68	84.53	78.71
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	8,957	10,346	19,303	11,139	9,625	20,764
Coloured	Formal	5.02	0.57	3.37	8.95	2.03	6.94
	Semi-formal	9.65	8.32	9.16	22.75	13.60	20.09
	Informal	0.42	0.36	0.40	1.82	3.30	2.25
	None	84.91	90.75	87.07	66.48	81.07	70.72
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	2,372	1,394	3,766	1,921	787	2,708
Indian	Formal	7.43	0.00	7.12	16.80	0.00	15.97
	Semi-formal	5.52	4.55	5.48	14.20	19.23	14.45
	Informal	0.60	4.55	0.77	2.60	0.00	2.47
	None	86.45	90.91	86.63	66.40	80.77	67.11
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	996	44	1,040	500	26	526
White	Formal	12.59	0.00	12.47	25.93	0.00	25.78
	Semi-formal	2.56	5.56	2.59	7.99	8.33	7.99
	Informal	0.33	0.00	0.33	0.86	0.00	0.86
	None	84.52	94.44	84.62	65.22	91.67	65.37
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	5,432	54	5,486	2,090	12	2,102
Gender							
Male	Formal	6.98	0.22	4.68	3.86	0.41	2.07
	Semi-formal	5.85	4.57	5.42	18.02	9.20	13.45
	Informal	0.57	0.73	0.63	3.50	5.41	4.49
	None	86.59	94.48	89.28	74.62	84.97	79.99
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	13,478	6,955	20,433	5,832	6,280	12,112
Female	Formal	2.36	0.10	1.16	9.10	0.79	6.63
	Semi-formal	8.60	5.65	7.03	17.70	10.37	15.52
	Informal	0.96	1.88	1.45	3.67	5.67	4.27
	None	88.08	92.36	90.36	69.52	83.17	73.59
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	4,279	4,883	9,162	9,853	4,177	14,030

4.5 Age of Household Head

The age decomposition suggests that those who accessed bank credit were mainly aged 35-44 in both survey periods (5.2% in 1995 and 6.0% in 2000). Those with higher access to semi-formal credit were in the age bracket 25 – 44. Lack of access to any form of credit by age categorization over the survey periods reveals a unique pattern. Amongst the non-poor, it was those aged 65 and above (92.9%) who were more likely to have no access to credit in 1995, whereas in 2000 it was those in the age bracket 15 -24 (80.8%). However among the poor, those aged 25 – 34 (94.8% in 1995) and 15 -24 (92.2% in 2000) had no access to credit (see Table 4).

Table 4: Access to credit by age and poverty status (%), 1995 and 2000

	Sector	1995			2000		
		Non-poor	Poor	Total	Non-poor	Poor	Total
Age Cohort							
15 - 24	Formal	3.86	0.00	2.33	1.71	0.19	1.16
	Semi-formal	6.21	5.88	6.08	14.07	3.42	10.25
	Informal	2.01	1.53	1.82	3.41	4.18	3.69
	None	87.92	92.58	89.77	80.81	92.21	84.90
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	596	391	987	938	526	1,464
25 - 34	Formal	6.60	0.25	4.67	5.53	0.40	4.04
	Semi-formal	8.32	3.81	6.95	18.82	10.27	16.33
	Informal	0.46	1.06	0.65	3.85	4.30	3.98
	None	84.61	94.87	87.73	71.79	85.03	75.64
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	3,665	1,599	5,264	3,634	1,490	5,124
35 - 44	Formal	8.03	0.12	5.23	8.76	0.86	6.08
	Semi-formal	6.31	5.33	5.96	18.89	10.41	16.02
	Informal	0.57	1.38	0.85	4.14	6.97	5.10
	None	85.10	93.17	87.95	68.21	81.76	72.80
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	4,772	2,606	7,378	4,303	2,209	6,512
45 - 54	Formal	6.44	0.17	3.93	9.86	0.54	5.96
	Semi-formal	6.57	4.89	5.90	18.11	9.70	14.59
	Informal	0.69	1.17	0.88	3.43	6.44	4.69
	None	86.30	93.78	89.28	68.60	83.33	74.76
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	3,605	2,394	5,999	3,115	2,237	5,352
55 - 64	Formal	4.66	0.26	2.59	7.83	0.66	4.26
	Semi-formal	6.38	5.37	5.91	18.16	9.95	14.07
	Informal	0.47	0.75	0.60	3.21	5.60	4.40
	None	88.49	93.62	90.90	70.80	83.79	77.26
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	2,555	2,271	4,826	1,839	1,820	3,659
65 - +	Formal	1.68	0.12	0.89	4.15	0.41	2.13
	Semi-formal	4.45	5.12	4.79	14.44	9.75	11.91
	Informal	0.98	1.51	1.24	2.69	4.18	3.50
	None	92.90	93.25	93.08	78.72	85.66	82.46
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	2,564	2,577	5,141	1,856	2,175	4,031

4.6 Education Level of Household Head

Household heads with no education were more likely to have no access to credit both in 1995 and 2000. Among the non-poor, the highest access to bank credit was for those with university degrees (10.69%) in 1995 and those with a certificate/diploma (7.4%) in 2000. Access to semi-formal credit by the non-poor was, however, highest among those with an education level of grade 4 to 9 (7.9%) in 1995 and grade 1 to 3 (29.4%) in 2000. For the poor, those with no schooling in 1995 (95.2%) and those with grade 1 to 3 in 2000 (86.0%) were more likely to have no access to credit (see Table 5). In terms of access to semi-formal credit by the poor, those with a certificate/diploma had highest access (13.6%) in 1995, while in 2000 it were those with degrees (10.9%). Informal credit was mainly accessed by the poor household heads whose education level included a certificate/diploma (4.5% in 1995) and grade 4 to 9 (6.5% in 2000).

Table 5: Access to credit by education level and poverty status (%), 1995 and 2000

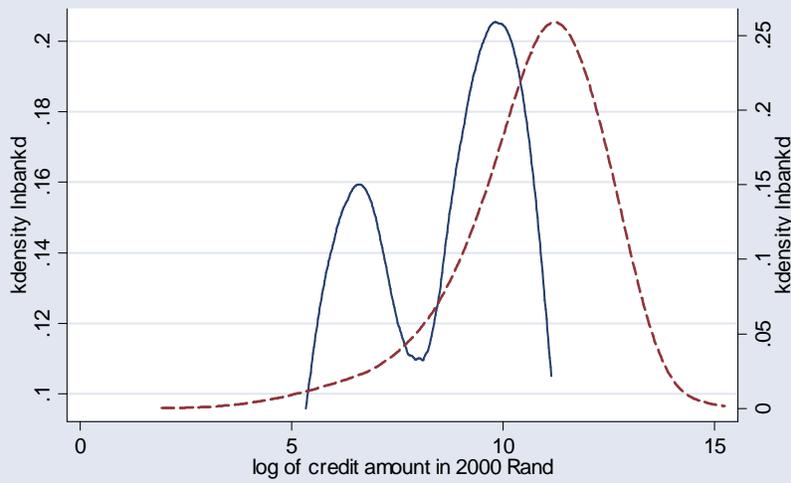
	Sector	1995			2000		
		Non-poor	Poor	Total	Non-poor	Poor	Total
Education Level							
No Schooling	Formal	0.51	0.08	0.20	1.34	0.31	0.65
	Semi-formal	5.05	3.81	4.16	15.11	9.40	11.31
	Informal	1.41	0.86	1.01	6.27	5.06	5.47
	None	93.03	95.25	94.63	77.29	85.23	82.57
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	1,564	3,962	5,526	973	1,936	2,909
Grade 1 - 3	Formal	1.11	0.20	0.49	0.00	0.00	0.00
	Semi-formal	7.76	5.56	6.25	29.41	9.30	15.00
	Informal	1.11	1.31	1.25	11.76	4.65	6.67
	None	90.02	92.92	92.01	58.82	86.05	78.33
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	451	989	1,440	17	43	60
Grade 4 -9	Formal	2.02	0.22	1.12	2.26	0.54	1.34
	Semi-formal	7.94	5.93	6.93	16.91	8.62	12.50
	Informal	0.85	1.48	1.16	5.30	6.52	5.95
	None	89.19	92.38	90.79	75.53	84.32	80.21
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	5,440	5,485	10,925	2,436	2,774	5,210
Grade 10 - Matric/NTC11 1	Formal	8.00	0.10	6.99	3.46	0.68	2.37
	Semi-formal	6.29	5.53	6.19	19.33	10.63	15.92
	Informal	0.43	1.15	0.52	4.16	6.48	5.07
	None	85.28	93.22	86.30	73.05	82.22	76.65
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	6,522	958	7,480	3,440	2,221	5,661
Certificate/di ploma	Formal	7.88	0.00	7.11	7.43	1.09	5.86
	Semi-formal	7.39	13.64	8.00	20.29	10.87	17.96
	Informal	0.99	4.55	1.33	3.00	5.22	3.55
	None	83.74	81.82	83.56	69.29	82.83	72.63
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	203	22	225	1,400	460	1,860
Degree	Formal	10.69	0.00	10.47	4.68	0.88	3.56
	Semi-formal	7.07	8.33	7.09	21.55	10.91	18.42
	Informal	0.53	0.00	0.52	2.96	4.72	3.48
	None	81.71	91.67	81.92	70.81	83.48	74.54
	Total	100.00	100.00	100.00	100.00	100.00	100.00
	N	1,684	36	1,720	812	339	1,151

4.7 Mean Loan Amounts Accessed by the Poor

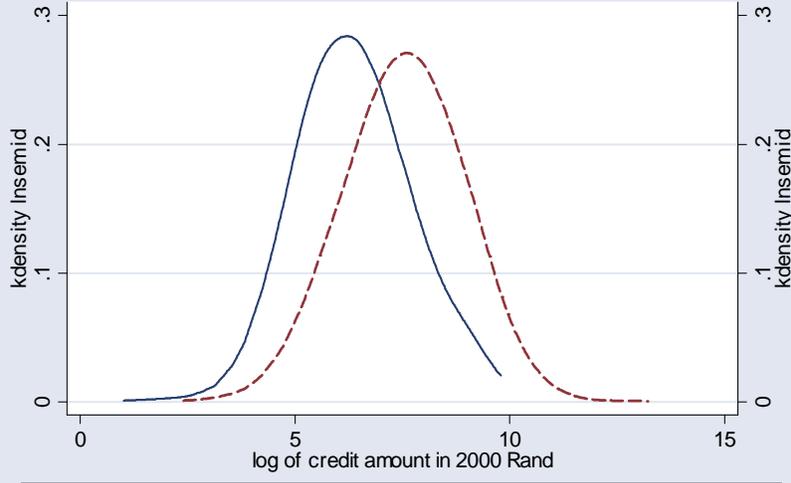
The mean loan amounts accessed by the poor in all financial sectors (formal, semi-formal and informal) were generally lower than amounts accessed by the non-poor in both survey periods (see Table 6 (a) and the kernel density curves below). The highest mean loan amounts were from the formal financial sector, followed by the semi-formal sector and it was lowest in the informal financial sector.

Table 6 (a): Mean amount of credit outstanding (in 2000 Rand values) by poverty status

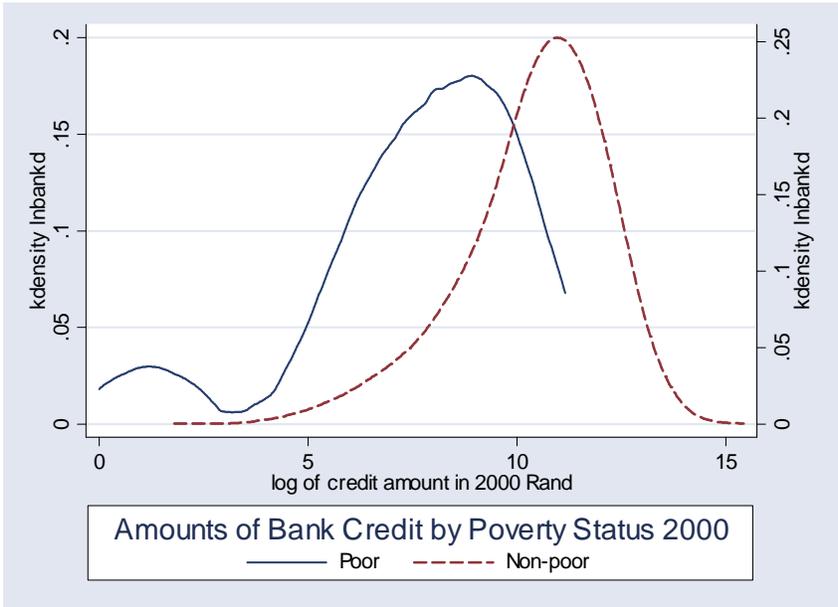
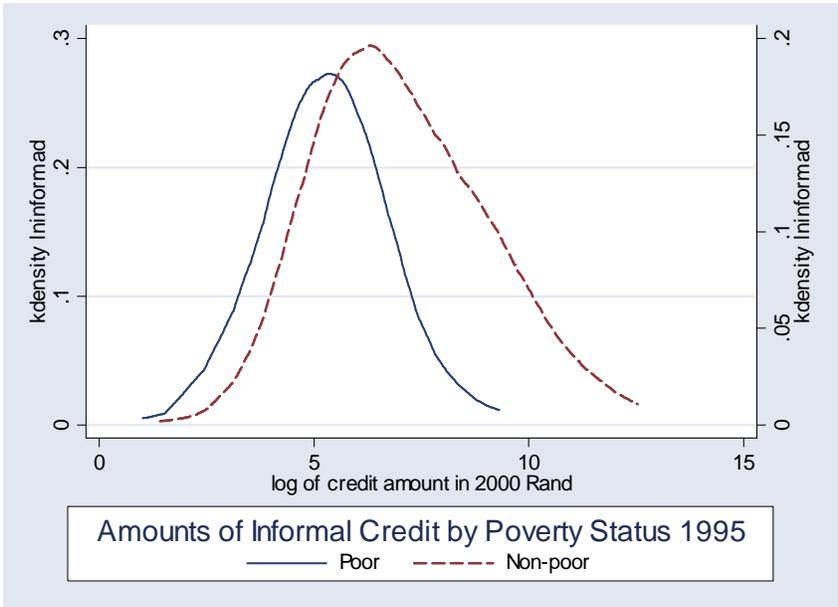
Source	1995			2000		
	Non-poor	Poor	Total	Non-poor	Poor	Total
Formal	11,459	33	6,889	11,175	81	6,737
Semi-formal	523	79	345	787	183	545
Informal	264	13	163	594	47	375

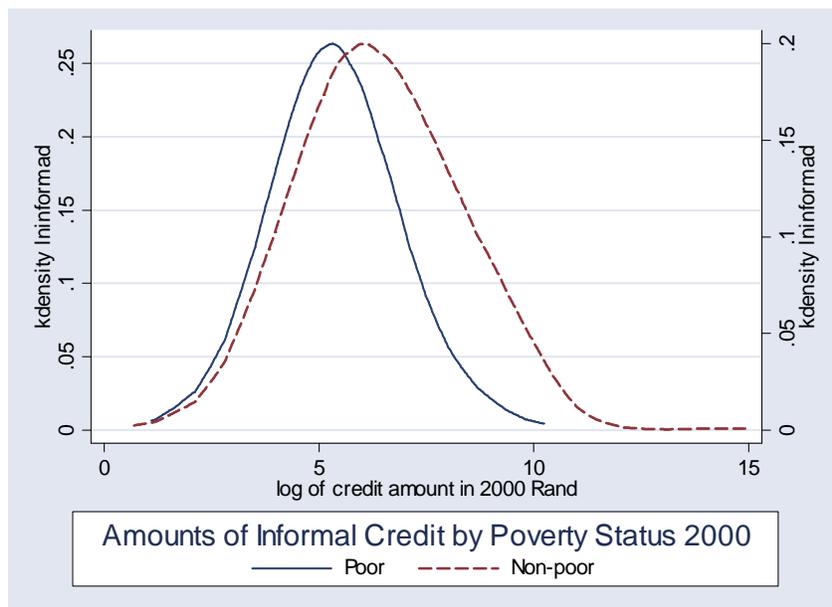
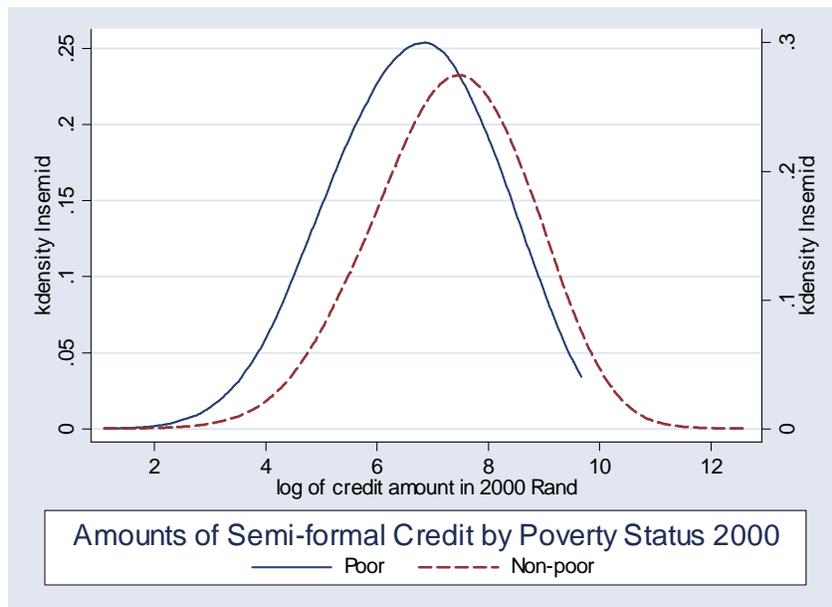


Amounts of Bank Credit by Poverty Status 1995
 — Poor - - - Non-poor



Amounts of Semi-formal Credit by Poverty Status 1995
 — Poor - - - Non-poor





Among the non-poor, the mean bank credit for those who accessed credit fell from R11 459 in 1995 to R11 175 in 2000 (all figures in 2000 Rand values). The mean semi-formal credit for the non-poor, however, increased by approximately 50% from R523 in 1995 to R787 in 2000. It is also interesting to observe that the mean informal credit for the non-poor more than doubled over the survey periods, from R264 in 1995 to R594 in 2000.

For the poor, the mean bank credit more than doubled over the survey periods from R33 in 1995 to R81 in 2000, though it was still very low. The mean semi-formal credit for the poor households had a similar trend of more than doubling over the period between the

surveys, rising from R79 in 1995 to R183 in 2000. The same trend was also observed for informal credit for the poor over the same period.

Decomposition by race suggested that Whites generally had the highest mean credit for all the various sectors, compared to other races over the survey periods. The only exception was for semi-formal credit in 1995, where the mean credit for Whites (R506) was lower than that for Indians (R690). Blacks generally had the lowest mean loan amounts. There was however almost a doubling of mean formal credit for Blacks over the survey period (rising from R1,148 in 1995 to R2,081 in 2000). This may be explained by the black empowerment policy of the ANC government (see Table 6(b)).

Table 6 (b): Mean amount of credit outstanding (in 2000 Rand values) by race.

Source	1995			2000		
	Formal	Semi-formal	Informal	Formal	Semi-formal	Informal
Black	1,148	265	37	2,081	473	107
Coloured	3,808	425	38	8,475	818	80
Indian	16,164	690	767	23,296	803	517
White	27,446	506	578	45,805	844	3,372
Total	6,889	345	163	6,737	545	375

5. ECONOMETRIC RESULTS FOR DETERMINANTS OF CREDIT ACCESS BY THE POOR

5.1 Multinomial Logit Model for Credit Access for Whole Sample

A multinomial logit model for determinants of access to each of the different credit sources was estimated for the whole sample, using the following variables as the reference categories: those with no access to credit, Blacks and Limpopo province. The results (see Table 7) suggest that access to bank credit in both periods was positively and significantly³ influenced by age, being male, household size, per capita expenditure, education level, and race (being White, Indian or Coloured). Access to bank credit was negatively and significantly influenced in both periods by being poor, indicating that there is an additional effect from being from the bottom two quintiles of households, apart from the effect of per capita expenditure already controlled for. This result suggests that the poor, who usually cannot satisfy the collateral requirements, are regarded as risky borrowers and rationed out of the formal credit markets.

Access to semi-formal credit was positively and significantly influenced in both periods by household size, per capita expenditure, provincial location (Eastern Cape, Northern Cape, Free State and North West) and being Coloured. The factors that negatively and significantly influenced access to semi-formal credit in both periods included being male, rural location, being poor and being White. This might suggest that Whites and Indians possibly prefer bank credit to finance consumption needs as compared to semi-formal credit, which is more expensive.

Informal credit access was positively and significantly influenced in both periods only by being located in Eastern Cape. The negative and significant determinants of informal credit access in both periods include education level and being Coloured or White. This might suggest that those with higher levels of education may have preference for banks or semi-formal credit, which is relatively cheaper (in terms of interest rates charged).

Table 7: Multinomial Logit model for access to credit whole sample

Explanatory Variable	1995		2000	
	Coefficient		Coefficient	
Bank Credit				
Age	0.7827	***	0.1720	***
Age squared	-0.0011	***	-0.0019	***
Male	0.4674	***	0.3910	***
Household size	0.2215	***	0.2760	***
Per capita expenditure	0.6832	***	0.9472	***
Education Level	0.0639	***	0.0286	***
Rural	-0.0660		-0.7387	***
Poor	-1.5462	***	-0.6269	***
Western Cape	0.2410		0.4316	**
Eastern Cape	0.0891		0.2998	
Northern Cape	-0.2932		0.5981	***
Free State	-0.3574	*	0.0427	
Kwazulu Natal	-0.4215	***	0.0117	
North West	-0.2075		-0.2251	
Gauteng	-0.4308	***	-0.0038	
Mpumalanga	-0.9089	***	-0.0067	
Coloureds	0.8159	***	0.5693	***
Indians	1.0103	***	0.8796	***
White	1.2313	***	0.9570	***

³ The coefficient of a variable is said to be significant if its significance level is at most 10%. However the exact significance levels of the variables are indicated in the respective tables as follows: *** significant at 1%, ** significant at 5%, * significant at 10%.

Constant	-12.9106	***	-17.1174	***
<u>Semi Formal Credit</u>				
Age	-0.0113		0.0267	**
Age squared	0.00002		-0.0003	**
Male	-0.3089	***	-0.0986	**
Household size	0.1455	***	0.1607	***
Per capita expenditure	0.2879	***	0.3416	***
Education Level	0.0073		0.0050	
Rural	-0.1767	***	-0.1989	***
Poor	-0.3808	***	-0.5910	***
Western Cape	0.3437	**	0.1621	
Eastern Cape	1.0151	***	0.2391	***
Northern Cape	0.9247	***	0.7854	***
Free State	0.2871	**	0.6353	***
Kwazulu Natal	0.0241		-0.1572	*
North West	0.9503	***	0.5370	***
Gauteng	0.0508		0.1310	
Mpumalanga	-0.2232		0.7926	***
Coloureds	0.1662	**	0.1481	*
Indians	-0.2513	*	-0.1495	
White	-1.2379	***	-1.0586	***
Constant	-5.2790	***	-5.6720	***
<u>Informal Credit</u>				
Age	-0.0588	***	0.0777	***
Age squared	0.0005	**	-0.0009	***
Male	-0.6391	***	-0.0197	
Household size	0.0515	*	-0.0270	*
Per capita expenditure	0.1298		-0.0343	
Education Level	-0.0512	**	-0.0197	***
Rural	0.1543		-0.1698	**
Poor	0.0111		0.1307	
Western Cape	0.3168		0.3313	
Eastern Cape	1.1011	***	0.7865	***
Northern Cape	-0.3636		0.5569	**
Free State	-0.3658		0.9626	***
Kwazulu Natal	0.2327		0.5511	***
North West	0.1496		0.3212	*
Gauteng	0.2216		0.5416	***
Mpumalanga	0.1220		1.0638	***
Coloureds	-0.8288	***	-0.5863	***
Indians	0.0182		-0.4059	
White	-0.6580	**	-1.3044	***
Constant	-4.0564	***	-4.3368	***
Number of observations	28,585		22,111	
LR	chi2 (57)=3188.3		chi2(57)=3982.19	
Prob>chi2	0.0000		0.0000	
Pseudo R2	0.1300		0.1145	
Reference categories	Black race and Limpopo Province			
Base Category	No access to credit			

*** significant at 1%, ** significant at 5%, * significant at 10%

5.2 Heckman Probit Model with Sample Selection for Credit Access by the Poor

5.2.1 Determinants of Informal Credit Access by the Poor

The Heckman probit model with sample selection was used to estimate the factors that influence access to informal credit by the poor. The dependent variable for the equation of interest was *infsector* (=1 if accessed informal credit), while the dependent variable for the selection equation was *poor* (=1 if poor).

The results in Table 8 suggest that the age of the household head had an inconclusive effect on informal credit access. The coefficient was negative and significant in 1995 but positive and significant in 2000. However, age squared had a positive and significant effect on informal credit access in 1995, but a negative and significant effect in 2000. Being male had a negative but insignificant effect in both survey periods on the probability of informal credit access. This result may suggest that women are not discriminated against in the informal credit markets in South Africa. These results are however in sharp contrast to Zeller et al (1994), whose results indicated discrimination against women in the informal credit markets in Gambia.

Education level had a positive but insignificant effect on informal credit access. This suggests that education levels do not influence participation in informal credit markets in South Africa. These results are not consistent with Vaessen (2001), who concluded that the education level had a positive and significant effect on informal credit access in Nicaragua.

Being located in a rural area had an insignificant effect on informal credit access by the poor in both periods. Relative to Limpopo Province (reference category), being located in Kwazulu Natal and Gauteng had a positive and significant effect on access to informal credit by the poor in both periods. However, being located in the Western Cape, Eastern Cape, Northern Cape, Free State or Mpumalanga had positive and significant effects (at least at 10% level) on informal credit access only in the 2000 model.

The race of the household head had a significant effect on informal credit access. Relative to Blacks (reference category), being in the other race groups (Coloured, Indian and White) had a negative and significant effect in 2000.

Table 8: Heckprobit model with sample selection for access to informal credit by the poor

	1995		2000	
Explanatory Variable	Coefficient		Coefficient	
<i>Equation of Interest: Dependent variable - infsector (=1 if accessed informal credit)</i>				
Age	-0.0214	**	0.0462	***
Age squared	0.0002	*	-0.0005	***
Male	-0.1373		-0.0606	
Household size	-0.0833		0.0123	
Per capita expenditure	0.0698		-0.0091	
Education Level	0.0040		0.0026	
Rural	0.1414		-0.0170	
Western Cape	-0.0927		0.3496	**
Eastern Cape	0.3023		0.4103	***
Northern Cape	-0.0345		0.3678	***
Free State	-0.3639		0.3931	***
Kwazulu Natal	0.2192	*	0.3121	***
North West	0.1465		0.2411	**
Gauteng	0.7581	***	0.3963	***
Mpumalanga	0.1387		0.4417	***
Coloureds	-0.0734		-0.3594	***
Indians	1.2068	**	-5.0314	***
White	-1.3519		-5.0079	*
Constant	-1.2478		-2.9067	***
<i>Selection Equation : Dependent variable - poor (=1 if poor)</i>				
Age	0.0050	***	-0.0004	
Male	-0.2965	***	-0.4082	***
Household size	0.1937	***	0.2433	***
Western Cape	-0.0646		-0.6956	***
Eastern Cape	0.4348	***	0.1035	***
Northern Cape	0.5564	***	0.1437	***
Free State	0.5088	***	0.0846	**
Kwazulu Natal	-0.1182	***	-0.1489	***
North West	0.2051	***	-0.3224	***
Gauteng	-0.7739	***	-0.7929	***
Mpumalanga	0.0211		-0.3906	***
Coloureds	-0.3989	***	-0.3255	***
Indians	-1.5085	***	-1.6181	***
White	-2.1156	***	-2.1351	***
Constant	-0.9884	***	-0.6323	***
anthro	-0.7352		0.1041	
Number of observations	29,309		22,111	
Censored observations	17,757		13,829	
Uncensored observations	11,552		8,282	
Wald	chi2(18)=219.03		chi2(18)=7287.38	
Prob>chi2	0.0000		0.0000	

*** significant at 1%, ** significant at 5%, * significant at 10%

5.2.2 Determinants of Semi-formal Credit Access for the Poor

Access to semi-formal sector credit by the poor was significantly influenced by the following factors in at least one period: age, being male, per capita expenditure, education level, being rural based, provincial location and race (see Table 9). The age of the household head had a positive effect and age squared had a negative effect on semi-formal credit access in 2000. This result may suggest that older household heads have more control of household resources, hence making them more credit worthy. But the effect only applies to a certain threshold, after which age reduces creditworthiness. Being male had a positive and significant effect on semi-formal credit access only in 2000, which is indicative of discrimination against women in semi-formal credit markets.

Household per capita expenditure, which is a measure of household wealth, had a positive and significant effect on access to semi-formal credit in both survey periods. Wealth is an indicator of the repayment capacities of a household. These results are consistent with Ardington et al (2003), according to which household income in South Africa is central in determining access to formal or semi-formal financial credit markets, where a lack of income drives a wedge between potential borrowers and suppliers in these markets.

Being located in a rural area negatively and significantly affected semi-formal credit access in 2000. This may be explained by the fact that the providers of semi-formal financial services are urban based and may prefer to lend to urban households that have diversified income sources to service the loans. Relative to Limpopo province (reference category), being located in all other provinces in South Africa had a positive and significant effect on access to semi-formal credit at least in one period, with the exception of Kwazulu Natal, which was negative in 2000. In addition, the poor of all other races other than Blacks (reference category) had higher access to semi-formal credit, as indicated by the positive and significant coefficients in 1995. Interestingly, in 2000 Whites and Coloureds no longer had *significantly* better access to semi-formal credit than Blacks, the reference group, once other factors had been controlled for.

Table 9: Heckprobit model with sample selection for access to semi-formal credit by the poor

Explanatory Variable	1995	2000
	Coefficient	Coefficient
<i>Equation of Interest: Dependent variable - semiforma (=1 if accessed semi formal credit)</i>		
Age	0.0024	0.0240 **
Age squared	-0.0001	-0.0003 **
Male	0.0043	0.1577 ***
Household size	0.0058	0.0046
Per capita expenditure	0.2326 ***	0.4805 ***
Education Level	0.0105 *	0.0007
Rural	0.0628	-0.1903 ***
Western Cape	0.5354 ***	0.2806 **
Eastern Cape	0.6464 ***	0.0813
Northern Cape	0.5960 **	0.1928 *
Free State	0.2597	0.2110 ***
Kwazulu Natal	0.3180 ***	-0.2522 ***
North West	0.4383 ***	0.3143 ***
Gauteng	0.6714 ***	0.2278 *
Mpumalanga	0.1379	0.3656 ***
Coloureds	0.2923 ***	0.1125
Indians	0.8744 *	1.1144 ***
White	1.2082 **	0.8729
Constant	-3.3760 ***	-5.01307 ***
<i>Selection Equation : Dependent variable - poor (=1 if poor)</i>		
Age	0.0050 ***	-0.0005
Male	-0.2971 ***	-0.4055 ***
Household size	0.1937 ***	0.2440 ***
Western Cape	-0.0638	-0.6929 ***
Eastern Cape	0.4347 ***	0.1079 ***
Northern Cape	0.5539 ***	0.1431 ***
Free State	0.5080 ***	0.0845 **
Kwazulu Natal	-0.1172 ***	-0.1474 ***
North West	0.2053 ***	-0.3191 ***
Gauteng	-0.7735 ***	-0.7902 ***
Mpumalanga	0.0224	-0.3904 ***
Coloureds	-0.3990 ***	-0.3260 ***
Indians	-1.5088 ***	-1.6171 ***
White	-2.1148 ***	-2.1353 ***
Constant	-0.9869 ***	-0.6345 ***
anthro	-0.6571	-0.6254 ***
Number of observations	29,309	22,111
Censored observations	17,757	13,829
Uncensored observations	11,552	8,282
Wald chi (18)	280.7	chi2(18)=375.45
Prob>chi2	0.0000	0.0000

*** significant at 1%, ** significant at 5%, * significant at 10%

5.2.3 Determinants of Formal Credit Access by the Poor

Access to formal sector credit by the poor was significantly influenced by age, being male, household size, education level, being rural, provincial location and race, in at least one period (see Table 10).

The age of the household head had a negative and significant effect on bank credit access by the poor only in 1995. Being male had a positive and significant effect on formal credit access in both periods, which is indicative of discrimination against women in formal credit markets. Household size had a negative and significant effect on access to formal credit in 1995. This result may suggest that households with larger sizes may be construed to have lower repayment capacity and are therefore more likely to be constrained in their access to credit in formal markets.

Education level had a positive and significant effect on formal sector credit access in 2000. This may be explained by the bank account opening requirements in South Africa of at least one pay cheque. The poor with low education levels are more likely to have casual jobs without pay cheques, thereby constraining their access to formal bank services. Being located in a rural area negatively and significantly affected formal credit access by the poor in 2000.

Provincial location, relative to Limpopo province (reference category), had significant effects on formal credit access. Being located in the Western Cape, Gauteng and Mpumalanga had positive and significant effects on formal credit access by the poor in both survey periods. However, being located in the Eastern Cape, Northern Cape and Free State had negative and significant effects only in 1995. The poor from other races were more likely to access formal sector credit as compared to Blacks.

Table 10: Heckprobit model with sample selection for access to bank credit by the poor

	1995		2000	
Explanatory Variable	Coefficient		Coefficient	
<i>Equation of Interest: Dependent variable - bankdu (=1 if accessed bank credit)</i>				
Age	-0.0054	**	0.0595	
Age squared	0.0005		-0.0007	
Male	0.3018	***	0.2755	*
Household size	-0.1775	***	-0.0353	
Per capita expenditure	0.0477		0.1674	
Education Level	0.0004		0.0148	***
Rural	0.0108		-0.3195	**
Western Cape	0.3346	***	0.8518	***
Eastern Cape	-0.2067	***	-0.0049	
Northern Cape	-0.3098	***	0.4814	
Free State	-0.2625	***	0.4059	
Kwazulu Natal	0.3077	***	0.3722	
North West			0.4473	
Gauteng	0.9961	***	0.9293	***
Mpumalanga	0.1810	***	0.8431	***
Coloureds	0.3897	***	0.3682	*
White	1.3065	***		
Constant	0.2556		-4.8826	**
<i>Selection Equation : Dependent variable - poor (=1 if poor)</i>				
Age	0.0050	***	-0.0005	
Male	-0.2964	***	-0.4081	***
Household size	0.1937	***	0.2433	***
Western Cape	-0.0633		-0.6970	***
Eastern Cape	0.4355	***	0.1029	***
Northern Cape	0.5560	***	0.1385	**
Free State	0.5079	***	0.0848	**
Kwazulu Natal	-0.1191	***	-0.1485	***
North West	0.2055	***	-0.3223	***
Gauteng	-0.7746	***	-0.7929	***
Mpumalanga	0.0215		-0.3900	***
Coloureds	-0.3994	***	-0.3232	***
Indians	-1.5082	***	-1.6189	***
White	-2.1157	***	-2.1345	***
Constant	-0.9873	***	-0.6320	***
anthro	-3.9258	***	-0.5738	
Number of observations	29,309		22,111	
Censored observations	17,757		13,829	
Uncensored observations	11,552		8,282	
Wald	chi2 (16) 3383.52		chi2(16)=115.18	
Prob>chi2	0.0000		0.0000	

*** significant at 1%, ** significant at 5%, * significant at 10%

5.3 Probit Models for Credit Access by Blacks

Separate probit models were estimated for factors that influence access to the different credit markets by specifically the black population in South Africa.

5.3.1 Determinants of Informal Credit Access by Blacks

The age of the household head had an inconclusive effect on informal credit access by Blacks in South Africa, as the sign of the coefficient changed between 1995 and 2000. Being male had a negative and significant effect only in 1995 but positive and insignificant in 2000, implying positive bias in favour of women in informal markets. Education level had a negative and significant effect on informal credit access in both periods. This suggests that Blacks with higher levels of education have a preference for formal or semi-formal credit, which is relatively cheaper. Being poor increases the probability of access to informal credit markets, which is the main option available to them. Some provincial locations, relative to Limpopo, had positive and significant effects on informal credit access in 2000 by Blacks (see Table 11).

Table 11: Probit model for access to informal credit by blacks

Explanatory Variable	1995		2000	
	Coefficient		Coefficient	
<i>Dependent variable : infsector (=1 if accessed informal credit)</i>				
Age	-0.0280	***	0.0307	***
Age squared	0.0003	***	-0.0003	***
Male	-0.2818	***	0.0015	
Household size	0.0119		-0.0284	***
Per capita expenditure	0.0521		-0.0264	*
Education Level	-0.0228	**	-0.0088	**
Poor	0.0260		0.1439	***
Rural	0.0834		-0.0403	
Western Cape	0.3476	**	0.2340	**
Eastern Cape	0.4082	***	0.3462	***
Northern Cape			0.1165	
Free State	-0.1535		0.4244	***
Kwazulu Natal	0.0250		0.2675	***
North West	-0.0267		0.0967	
Gauteng	0.0322		0.2504	***
Mpumalanga	0.0464		0.4360	***
Constant	-1.9921	***	-2.1891	***
Number of observations	18,309		17,565	
LR	chi2(15)=110.42		chi2(16)=138.85	
Prob>chi2	0.0000		0.0000	
Pseudo R2	0.0470		0.0192	

*** significant at 1%, ** significant at 5%, * significant at 10%

5.3.2 Determinants of Semi-formal Credit Access by Blacks

Access to semi-formal credit markets by blacks was positively and significantly influenced by household size, per capita expenditure, education level and provincial location (Eastern cape, Northern Cape, Free State and North West) in both survey periods. Being poor and located in a rural area had negative and significant effects on semi-formal credit access by Blacks (see Table 12).

Table 12: Probit model for access to semi-formal credit by blacks

Explanatory Variable	1995		2000	
	Coefficient		Coefficient	
<i>Dependent variable : semforma (=1 if accessed semi formal credit)</i>				
Age	-0.0004		0.0224	***
Age squared	-0.00002		-0.00028	***
Male	-0.1551	***	-0.0685	***
Household size	0.0733	***	0.0932	***
Per capita expenditure	0.1873	***	0.2304	***
Education Level	0.1385	***	0.0047	**
Poor	-0.1312	***	-0.2356	***
Rural	-0.0627	*	-0.0931	***
Western Cape	0.2135	**	0.0334	
Eastern Cape	0.6152	***	0.1080	**
Northern Cape	0.4194	***	0.5651	***
Free State	0.3002	***	0.3524	***
Kwazulu Natal	0.0413		-0.1597	***
North West	0.5624	***	0.3013	***
Gauteng	0.1211	*	0.0763	
Mpumalanga	0.0093		0.4267	***
Constant	-3.5216	***	-3.8145	***
Number of observations	18,719		17,565	
LR	chi2(16)=552.96		chi2(16)=1059.71	
Prob>chi2	0.0000		0.0000	
Pseudo R2	0.0627		0.0715	

*** significant at 1%, ** significant at 5%, * significant at 10%

5.3.3 Determinants of Formal Credit Access by Blacks

The probability of access to formal credit markets by Blacks was positively and significantly influenced by age, being male, per capita expenditure, household size, and education level in both periods. With the exception of household size, all these variables may be used by commercial banks as measures of households' repayment capacity to determine their creditworthiness. Poverty had no significant additional impact (see Table 13).

Table 13: Probit model for access to bank credit by blacks

Explanatory Variable	1995		2000	
	Coefficient		Coefficient	
<i>Dependent variable : bankdu (=1 if accessed bank credit)</i>				
Age	0.0362	**	0.1008	***
Age squared	-0.0004	**	-0.0011	***
Male	0.2350	***	0.1086	*
Household size	0.1189	***	0.1110	***
Per capita expenditure	0.4361	***	0.4538	***
Education Level	0.0386	***	0.0136	***
Poor	-0.2096		-0.0170	
Rural	-0.1198		-0.3770	***
Western Cape	0.3067	*	-0.0441	
Eastern Cape	0.1467		-0.0687	
Northern Cape			0.1684	
Free State	-0.0997		-0.0957	
Kwazulu Natal	-0.1982		-0.0035	
North West	0.0465		-0.1499	
Gauteng	0.1661		-0.0403	
Mpumalanga	-0.4032	**	-0.0643	
Constant	-7.8790	***	-8.7980	***
Number of observations	18,309		17,565	
LR	chi2(15)=422.22		chi2(16)=602.00	
Prob>chi2	0.0000		0.0000	
Pseudo R2	0.2210		0.1807	

*** significant at 1%, ** significant at 5%, * significant at 10%

6. CONCLUSIONS

The financial market in South Africa is segmented into the formal, semi-formal and informal sectors. The poor and Blacks have limited access to the formal and semi-formal financial sectors. In selecting the variables that explain access to different credit markets, the criteria were that they should be significant and that the sign of the coefficient should be consistent in both the 1995 and 2000 models.

At the national level, access to bank credit was positively and significantly influenced by age, being male, household size, education level, household per capita expenditure and race (being Coloured, Indian or White). Being poor had a negative and significant effect on formal credit access. Semi-formal credit access was positively and significantly influenced by household size, per capita expenditure, provincial location (Eastern Cape, Northern Cape and Free State and North West) and being Coloured. The negative and significant factors in determining access to semi-formal credit included being male, rural location, being poor and being White. Informal credit access was negatively and significantly influenced by education level and race (being Coloured or White).

Among the poor, access to bank credit was positively and significantly influenced by being male, provincial location (Western Cape, Gauteng and Mpumalanga) and being Coloured. Access to semi-formal credit was positively and significantly determined by household per capita expenditure, provincial location (Western Cape, Northern Cape, North West and Gauteng) and being Indian. Access to informal credit by the poor was positively and significantly influenced by provincial location (Kwazulu Natal and Gauteng).

Within the black population, access to bank credit was positively and significantly influenced by age, being male, household per capita expenditure and education level. Semi-formal credit access by Blacks was positively and significantly influenced by household size, household per capita expenditure, education level and provincial location (Eastern Cape, Northern Cape, Free State and North West). However, being male, poor and located in a rural area negatively affected access to semi-formal credit by Blacks. Informal credit access by Blacks was negatively influenced by education level, but positively influenced by being in the Western and Eastern Cape.

In conclusion it can be argued that improved access to organized credit markets (i.e formal and semi-formal credit markets) by the poor and Blacks is an important policy instrument in the fight against poverty.

REFERENCES:

- Aleem, I. (1990), "Imperfect Information, Screening, and the Costs of Informal Lending: A Study of a Rural Credit Market in Pakistan" *The World Bank Economic Review*, Vol.4 No.3 pp329 - 349.
- Ardington, C., D.Lam, and J. Levinsohn (2003) "Savings, Insurance and Debt over the Post-Apartheid Period" Report for Office of the Presidency.
- Aryeetey, E. (1994), "**Financial Intergration and Development in Sub-saharan Africa: A Study of Informal Finance in Ghana**", Overseas Development Institute, Working Paper No. 78.
- Aryeetey, E. and M.Nissanke (1998), "Microfinance within a Financial Systems Approach to Development in Africa" Poverty Research Unit at Sussex, PRUS Working Paper No.3 pp61 - 77.
- Bell, C. (1990), "Interaction Between Institutional and Informal credit Agencies in Rural

- India" *The World Bank Economic Review*, Vol.4 No. 3 pp297 - 327.
- Bell, C; T.N. Srinivasan, and C.Udry (1997), "Rationing, Spillover and Interlinking in Credit Markets: The Case of Rural Punjab," *Oxford Economic Papers*, Vol. 49 pp557 - 585.
- Daniels, R.C. (2001) "consumer Indebtedness Among Urban South African households: A Descriptive Overview", *Working Paper No 01/55*, Development Policy Research Unit, University of Cape Town.
- Dallimore, A. and M. Mgimeti (2003) "Democratic Banking in the New South Africa: Challenging Contemporary Banking Practices at Grass Roots" Unpublished Report, Durban: Development Research Africa, February.
- Greene, W.H. (2000), *Econometric Analysis*, New Jersey: Prentice-Hall, Inc. Fourth Edition.
- Heckman, J. (1976), "The Common Structure of Statistical Models of Truncation, Sample Selection, and Limited Dependent Variables and a Simple Estimator for such Models" *Annals of Economic and Social Measurement*, Vol. 5 pp475 – 492.
- Heckman, J. (1990), "Varieties of Selection Bias" *American Economic Review*, Vol. 80 pp 313 – 318.
- Heidhues, F.(1995), "Rural Finance Markets- An Important Tool to Fight Poverty", *Quarterly Journal of International Agriculture*, Vol. 34 No. 2 pp 105 – 108.
- Kochar, A. (1997), "An Empirical Investigation of Rationing Constraints in Rural Credit Markets in India" *Journal of Development Economics*, Vol. 53 pp339 – 371.
- Levacic, R. and A. Rebmann (1982), *Macro-economics: An Introduction to Keynesian Neoclassical Controversies*, McMillan Education Ltd: London.
- Mohieldin, M.S and P.W. Wright (2000), "Formal and Informal Credit Markets in Egypt" *Economic and Cultural Change* pp657 - 670.
- Montiel, P.J; P.R. Agenor and N. Ul Haque (1993), *Informal Financial Markets in Developing Countries: A Macroeconomic Analysis*, Blackwell Publishers: London.
- Nwanna, G. I. (1995), "Financial Accessibility and Rural Sector Development" *Savings and Development*, Vol. X1X No. 4 pp 453 - 491.
- Porteous, D. (2003) "The Landscape of Access to Financial Services in South Africa", *Labor Markets and Social Frontiers No. 3*, South African Reserve Bank, Pretoria.
- Schoombee, A. (2000), "Getting South African Banks to serve Micro-entrepreneurs: An Analysis of Policy Options" *Development Southern Africa*, Vol.17 No.5 pp751 - 767.
- Soyibo, A. (1994), "*Financial Linkage and Development in Sub-saharan Africa: A Study of the Informal Finance Sector in Nigeria*", Overseas Development Institute.
- Stiglitz, J.E. and A. Weiss (1981), "Credit Rationing in Market with Imperfect Information" *American Economic Review*, Vol. 71 No.3 pp393 - 410.
- Vaessen, J (2001), "Accessibility of Rural Credit in Northern Nicaragua: The Importance of Networks of Information and Recommendation" *Savings and Development*, Vol. XXV No. 1 pp5 – 31.
- World Bank (1989b), *World Development Report*, Washington DC: World Bank.
- Yadav, S., K. Otsuka and C.C. David (1992), "*Segmentation in Rural Financial markets: The Case of Nepal*" *World Development*, Vol. 20 No. 3 pp423 – 436.
- Zeller, M.(1994), "Determinants of Credits Rationing: A study of Informal Lenders and Formal Credit Groups in Madagascar", *World Development* vol. 22 no.12 pp 1895-1907.
- Zeller, M., J.V. Braun; K. Johm and D.Puetz (1994), "Sources and Terms of Credit for the Rural Poor in the Gambia", *African Review of Money Finance and Banking*, Vol. 1 pp167-186.