

The Effect of Credit Volume on Poverty Alleviation: A Case Study of the Shell Petroleum Development Company's Microcredit Delivery in Delta State, Nigeria

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Abstract: The study assessed the effect of Credit Volume on Poverty Alleviation: A case study of The Shell Petroleum Development Company's (SPDC's) micro-credit delivery in Delta state, Nigeria. A random sample of 519 respondents and 10 NGOs involved in the implementation of the programme were sampled. Data were analyzed using descriptive statistics and logistic regression. Results revealed that the modal (38.2%) credit volume accessed by respondents was N50,001-100,000 (about \$320-637). Using the relative poverty line of N149,547.13 (about \$953), most participants (70.3%) were non-poor, while 34.6% of the non-participants were non-poor. Participants agreed that participating in the scheme had empowered them socially especially in the area of leadership development (mean=3.41) and enhanced self-confidence. Major challenges facing the effectiveness of the scheme operations included mismanagement of fund by the Scheme Management Committee (SMC) (mean=2.50), loan default (mean=2.75), delay in release of fund/credit (2.68), small loan sizes (2.56), delay in the payment of service charge by SPDC (mean=4.00), difficulty in accessing communities (3.67), poor commitment to duty by NGO staff (3.44). Education ($b=0.041$), access to non-SPDC credit ($b=0.746$) as well as participation in SPDC micro-credit scheme ($b=1.47$) had positive and significant influence on small-scale farmers' likelihood of being non-poor. Appropriate monitoring of SMC by the implementing NGO and providing adequate logistics to improve NGO's service delivery were recommended.

Key words: Microcredit • Credit Volume • Credit delivery • Poverty Alleviation

INTRODUCTION

Wikilipedia (2007) [1] and Falaiye (2003) [2] described microcredit, as a system of providing small loans to those who are less endowed economically which leads to their being excluded from normal banking institutions. It is seen by many as one of the ways to help the poor increase their income and productivity.

Microcredit is considered as one of the most important financial resources for poor people to conduct household economic and income generating activities which can reduce their vulnerability and allow them to accumulate capital and hold valuable assets. Microcredit remains an economic development strategy that focuses on rebuilding and restarting local economies by providing the needed financial services for enterprise creation.

Microcredit could also be used as a relief and survival strategy in the immediate wake of disaster and as a tool for peace and reconciliation. It has a self-sustaining potential that could reduce poverty and maintains a profitable business in Nigeria [3, 4].

UNESCO (2004) [5] in their contribution described microcredit as a financial product and services that is targeted at the poor with the aim of promoting productivity and reducing poverty. These products mainly include credit, micro-savings and other deposit instruments. Adamu (2007) [6] described microcredit as a unique programme that is meant mainly for the alleviating of the poverty of the vulnerable people; hence it enhances the achievement of the Millennium Developmental Goals (MDG). The author further explained that microcredit allows poor people to diversify and

increase sources of income which is the essential path out of hunger. Agwu *et al* (2008) [7] stressed that the provision of micro-finance services represents a major strategy for poverty alleviation among the enterprising poor. Recognizing the importance of credit, Wenner *et al.* (2007) [8] opined that the availability of credit makes people more resilient to external shocks and therefore solicited for rapid expansion of loan Portfolios (Credit volume) in rural areas; because it will enhance the economic growth of such rural areas.

Explaining further, Srinivasan (2003) [9] highlighted that microfinance refers to small-scale financial services for both credits and deposits that are provided to people who farm or fish or ; operate small or micro-enterprises where goods are produced, recycled, repaired, or traded; provide services; work for wages or commissions; gain income from renting out small amounts of land, vehicles, draft animals, or machinery and tools; and to other individuals and local groups in developing countries, in both rural and urban areas. Kabbaji (2003) [10] warned that practical experiences show that, a financial system that neglects the poor and fails to provide access to credit perpetuates both poverty and food insecurity in such country. The author further reiterated that when loan size is increased and the interest rate is lowered, improvement in income generation is guaranteed and survival probabilities increase. Kevane and Wydick (2001) [11] and Robinson (2001) announced that financial intervention have boosted the self-confidence of clients and made them economically independent. It has also empowered women to participate in household's decision making and business activities as a result of improved income generation that has boosted their status. In addition, the financial assistance induces the clients to cope with new technology, increases sales volume that leads to business expansion. Atieno (2001) [12] argued that despite the importance of credit in helping the poor to improve their welfare, poor people are excluded from formal financial systems. Such exclusion ranges from partial exclusion in developed countries to full or nearly full exclusion in less developed countries (LDCs). Kabbaji (2003) [10] complained that throughout Africa the productive capacity of the rural poor, particularly women have been hampered by their limited access to adequate credit and savings outlets, despite their excellent repayment record. Increase in loan volume was therefore advocated to enable the women perform better economically and socially. Birgit (2001) observed that the level of poverty of beneficiaries in his research

was determined by the average loan size of the benefiting farmer. The insufficient credit supply was further exacerbated by the increasing financial losses resulting from the capped lending rates set by credit lending organisation which has crippled the organizations' ability to provide credit support to rural households. Hashemi *et al* (1996) [13] asserted that when women are empowered, it enable them build assets, increase income and reduce the vulnerability to economic stress, violence and exploitation. All women who receive loan (credit) gained access to additional resources which are used to generate independent incomes. Agwu, *et al* (2008) [2] reported an average loan volume of beneficiaries in NALT-NUSHO credit scheme in Adani and Nenwe communities in Enugu State of Nigeria to be N11,130.14 which implies that NALT-NUSHO granted small loans to her beneficiaries and this is likely to take time before lifting the beneficiaries above poverty line. The likely implication of this finding is that the NALT-NUSHO programme may only provide subsistence living for the beneficiaries with no possibility of providing job for others in the communities. Ugwu (2005) [14] reported that majority of the farmers who participated in the National Special Programme for Food Security (NSPFS) in Adani and Nenwe communities in Enugu State of Nigeria also received loan volumes of less than N20, 000 thousand naira during the 2004 farming season which is also very small and has minimal economic impact. The author further highlighted that insufficient loan (low credit volume) was a major constraint to effective performance of NALT-NUSHO programmes. Insufficient credit hinders beneficiaries' economic growth thereby perpetuating their poverty status. World Bank (2004) [15] defined poverty as a condition of insufficient resources or income, where in its most extreme form is the lack of basic human needs such as health services, education, drinking water etc. Corroborating the earlier authors, Wamai (2006) [16] authors complained that one of the biggest challenges facing majority of the local people was the difficulty in accessing credit for business purposes and if available, the credit volume quite small because banking services are out of reach for the majority of the poor. Ovie and Akpomovie (2011) [17] explaining poverty asserted that it may be categorized along four dimensions of deprivation which includes:

Personal and Physical Deprivation: Deprivation that can be experienced in health, nutrition, literacy, educational disability and lack of self-confidence

Economic Deprivation: These include lack of access to property, income, assets, factors of production and finance. One of the most important and most common manifestations of poverty is the denial of access to the basic necessities of human existence.

Social Deprivation: These involve the barriers to full participation in social, political and economic life. People may be deprived of their human rights because of personal and economic deprivations; consequently, they are not able to take advantage of economic and political opportunities.

Political Deprivation: Ignorance is a fundamental deterrent to the elimination of poverty because it compliments conditions of exploitation, domination and deprivation. Studies have shown that economic constraints, illiteracy and ignorance undermine access to legal institutions. It is the poor who lack political voice. Those who are politically deprived occupy lowly position and are subjected to coercion through physical or economic threat.

Nwachukwu *et al* (2007) [18] asserted that evidence from previous surveys conducted by the Federal Office of Statistics showed that poverty in Nigeria is overwhelmingly a rural problem. Ayanwale and Alimi (2004) [19] highlighted that people in rural communities and especially women are the most vulnerable group in Nigeria owing to their limited access to productive resources, coping strategies and constantly growing sense of insecurity. Shell Petroleum Development Company Nigeria Limited SPDC (2007) in consonance with the earlier authors confirmed that finance has become scarce among the rural populace of Delta State; and lack of access to credit has made dwellers in their host communities to consistently live below the poverty line. It was on this premise that Shell Petroleum Development Company Nigeria Limited commenced a microcredit intervention programme on microcredit in 1998 to close this gap. This intervention was premised on the fact that the latent capacities of the poor for entrepreneurship can be significantly enhanced through the provision of microcredit services to enable them engage in economic activities and be more self-reliant; increase employment opportunities; enhance household income; and create wealth (CBN 2005) [20].

Hypotheses of the Study:

The following null hypothesis was tested:

H₀: There is no significant difference in the income generated by participants and the credit volume disbursed in SPDC's micro-credit scheme.

SPDC Micro-Credit Scheme: An Overview: The Shell micro credit programme started in 1998 and had the following objectives (Osagie, 2004).

- Make fund available for disbursement to the rural poor in their host communities
- Improve the economic base of the rural poor in their host communities.
- Improve the living standard of the rural poor in their host communities.
- Improve the community relation mileage of the company through the provision of microfinance.

The micro credit scheme is targeted mainly at women residents that have no source of income or collateral security to secure credit. The focus on women is in consonance with World Rural Women's Day (1999), Iheduru (2002) [21] and Wikipedia (2007) [1] who observed that micro-credit (loans) given to women tend to be more beneficial to the whole family than loans given to men. The loan is re-payable and attracts a minimal interest as determined by the participants. The charging of interest to loan participants is aimed at growing the fund which resides in the cooperative society's bank account. The fund is used as a revolving loan which revolves round the cooperative members within the benefiting communities.

The company employs the '3Cs' of Micro-credit concept as key factors in managing their microfinance programmes so as to ensure effective use of loans, prompt repayments and ensures business growth. These key strategies are:

Character: The credit history of the potential participants is considered i.e. how he or she has handled past debt obligations. Her ability to pay credit debts is determined.

Capital: Capital refers to the current available assets of the borrower, such as real estate (for our purpose - TV set, video players, furniture, fridge, motor bikes, etc), savings or investments that could be used to pay debt if income should be unavailable.

Capacity: This means how much debt a borrower can comfortably handle. Income streams are analyzed and any legal obligations which could interfere in repayment are considered.

The procedure used in the administration of SPDC micro-credit Scheme is as follows:

Community Entry and Sensitization: Community Entry: The first stage of the SPDC microfinance schemes involves an SPDC-nominated NGO going into the community of interest to introduce itself and intimate the community of the mission of the SPDC scheme. In community sensitization, the NGO discusses with the stakeholders of the programme and give detail report to the donor company.

Capacity Building of Scheme Management Committee (SMC): The beneficiaries are trained on the business they have selected. The Scheme management Committee (SMC)'s training focuses on

- Importance of owning a small business
- Planning and managing your business
- Keeping records of your transactions
- Loan application process and utilization;
- Importance of saving
- Interest payments, loan repayments and recovery
- Group mobilization/cohesion and obligations;
- viii. Attendance at meetings.

Loan (FUND) Disbursement: At this phase of the scheme, the SMC teams are advised to open an account with a bank of their choice, preferably those close to them. At the initial time, the account is jointly opened with the NGO being a co-signatory to act as a check to the management of the fund. Funds are disbursed into the account for onward transmission to the beneficiaries.

Monitoring and Reports: Monitoring of the loan is the process by which visits are made by the NGOs to the beneficiaries' business site to confirm if the fund disbursed is being productively utilized and in a manner that will ensure prompt repayments. The content of the reports includes:

- Date (or period) of the training
- Names of community executive committee members trained
- Names of Scheme Management Committee (SMC) members trained
- Key topic (subjects) covered
- Key concern/issue rose at the training
- Major decisions taken

- Relevant photographs taken during these activities are attached to the report.

Loan Recovery and Repayment Period: The fund disbursed to the beneficiaries is paid back to the NGO with an agreed minimal interest. The interest is expected to grow the fund. During the recovery phase, both the capital and interest are returned to the cooperative account; after which other members of the cooperative society who have applied for loan are given. The period between the receipt of fund by beneficiary (loan disbursement) and the payback scheduled date is known as a CYCLE.

Graduation: The graduation period is the terminal point of the NGO's project implementation process i.e. the time when the total sum of the money (both the borrowed and interest) are given to the cooperative's SMC who will then take full responsibility of managing the fund without the NGO.

Close out Report: This is the report prepared at the end of six (6) months when the SMC would have taken over the management of the scheme. This report gives a detailed account of all aspect of the programme from inception till date.

The beneficiaries of the loan are selected based on the following criteria:

- They must be indigenes of the community
- Must be registered members of the benefiting cooperative society and
- Must be financially committed member of the cooperative society.

MATERIALS AND METHODS

Delta State is one of the Niger Delta states in Nigeria, located approximately between longitude 5°00' and 6°45' East of the Greenwich meridian and latitude 5°00' and 6° 30' North of the equator. It has 25 local governments (LGs) distributed across 3 senatorial zones namely Delta north, Delta central and Delta south. It has an estimated population of 4,098,391 persons (NPC, 2007) and a land area of about 17,011 square kilometres. In the southwest and south east, it has approximately 122 kilometres of coastline bounded by the Bight of Benin. Farming is a major occupation of the people in the State.

This study focuses on participants and non-participants of the SPDC micro-credit scheme as well as the NGOs implementing the scheme. Geographically, the study covered SPDC operational communities in Delta state of Nigeria. Delta state was purposively selected because it was the birth place of the scheme.

The study used a multistage sampling technique in the selection of participants and non-participants of the scheme. Two of the three senatorial zones (Delta Central and Delta south Senatorial Zones) in the State were purposively sampled because SPDC micro-credit scheme is predominant in these areas. Delta Central and Delta South zones both have 8 and 7 LGs respectively. Four (4) LGAs were randomly sampled from the 2 selected zones, while 2 communities serving as host to the SPDC micro-credit scheme were purposively selected from the selected LGs making 16 communities.

Nathanael (2005) [22] asserted that most studies on programme impact (effect) assessment attempt to isolate programme effect by comparing the outcomes of participants against a comparison group of non-participants. This study adopts a similar pattern by comparing participants and non-participants of SPDC micro-credit scheme. Thus 20 participants and non-participants were randomly selected from each community. The list of participants was obtained from SPDC. A total of 620 respondents were sampled. However, only 519 responses were finally used for data analysis. To tackle the selection bias inherent in impact studies, the researchers sampled non-participants who expressed willingness to collect SPDC micro-credit facility. Pitt and Khander (1995) [23] equally suggested that impact studies should be based on comparative design i.e. participants and non-participants approach using income and savings as indicators. The study adopts the income approach. SPDC uses NGOs to implement its micro-credit intervention programme. Twenty-five (25) NGOs were engaged by SPDC in the study area, out of which 50% were randomly selected. However, responses were only received from only 10 of the NGOs. Validated questionnaire and interview schedule were used to collect the primary data from the respondents. Frequency tables, means, were used to analyze the data obtained.

RESULTS AND DISCUSSION

Test of Difference in Income of Spdc Microcredit Scheme Beneficiaries and Non-beneficiaries: Table1. Shows the average annual income of beneficiaries and

Table 1: Test of difference in income of SPDC microfinance scheme beneficiaries and non-beneficiaries (T-test)

Status	Income (N)		T	Prob. value
	Mean	Difference		
Beneficiaries	282,895.14	116,923.597	4.094	P<0.01
Non-beneficiaries	165,971.54			

Table 2: Effect of SPDC participation and socio-economic characteristics on poverty status of respondents (logistic regression)

Variables	b	t	Prob. Level.	Odds ratio
Age	0.009	0.818	0.422	1.01
Access toNon- SPDC loan	0.746*	3.174	0.001	2.11
Gender	-0.131	0.652	0.516	0.88
Education	0.041*	2.158	0.034	1.04
Household size	0.045	1.184	0.243	1.05
Beneficiary status	1.470*	7.387	0.000	4.35
occupational status	- 0.414	1.890	0.059	0.66
Constant	-1.967	3.857	0.000	0.14

*Significant at 5% level ($P \leq 0.050$)

non-beneficiaries of SPDC microfinance scheme. The results shows that the annual income of beneficiaries (N282,895.14) was higher than that of non-beneficiaries (N165,971.54). The t-test result ($t = 4.09$; $p < 0.01$) is significant at the 1% level of significance suggesting that the beneficiaries income is significantly higher than that of non-beneficiaries. This indicates that the scheme had a significantly positive effect on the beneficiaries' income. This result agrees with Tosho (2007) [24] and Saka et al (2008) [25] who confirmed that provision of credit to entrepreneurs translates to improvement of the economic and social status of client. The authors also found that individuals who benefitted from microcredit intervention scheme recorded higher income from their economic activities than those who did not benefit. This also agrees with Maliha and Shazreh (2003) [26] who reported that household income of beneficiaries increased as much as 61% for women in Pakistan, which also improved their economic independence and self-confidence.

Test of Relationship Between Respondent's Participation in Spdc Micro-credit Scheme, Socio-economic Characteristics and Their Poverty Status: Table 2 examines the influence of respondent's demographic Characteristics and participation in SPDC micro credit scheme on their poverty status. Logistic regression was used for the analysis. The omnibus test of model coefficients ($\chi^2 = 86.19$, $df = 7$) indicates that the model is appropriate for the analysis since the logistic model with explanatory variables is better than the model without the variables. The Hosmer and Lemeshow test ($\chi^2 = 12.43$; $P > 0.050$) for the data is not significant, indicating that the

model adequately fits the data. The Coefficient of determination (0.604) implies that the explanatory variables jointly account for 60.4% of respondent's likelihood to be non-poor. The model correctly predicts respondent's response by 67.4%. The relationship variables and independent variable is discussed below.

Age: The coefficient for age ($b=0.009$) is positive and implies that there is a positive relationship between respondent's age and their poverty status or likelihood of being non-poor. The positive relationship implies that older respondents or farmers are more likely to be non-poor than younger farmers. However, the result is not significant at the 5% level since the estimated probability ($P=0.422$) is greater than 5% ($P>0.050$). The finding is in consonance with Ukoha (2007) [27] and Hong *et al*, (2007) [27] who found that employment status, income, welfare and economic wellbeing of households were affected by the age of the household head.

Access to Non -SPDC loan: In realization of the fact that respondents are likely to have access to non- SPDC credit facilities, the study attempts to determine the impact of this on respondents' poverty level or probability of being non poor. The coefficient for access to non-SPDC loan is positive ($b=0.746$), implying that access to non-SPDC loan has a positive influence on respondent's likelihood of being non-poor. The odd ratio (2.11) suggests that the probability of respondents with access to non-SPDC loan of being non-poor (N.P) is twice those that did not. The result is significant at the 5% level since the estimated probability ($P=0.001$) is less than 5% ($P>0.050$).

Gender: The coefficient for gender is negative ($b= -0.131$). This shows a negative relationship between gender and the poverty level of respondents.

The negative relationship implies that female respondents are more likely to be non-poor than male respondents. However, the result is not significant at the 5% level since the estimated probability ($P=0.516$) is greater than 5% (>0.050 (5%).

Education: The coefficient for education is positive (0.041), implying a positive relationship between respondents' education and their probability of being non-poor. The positive relationship means that the more educated respondents are more likely to be non-poor than the less educated ones. The odd ratio (1.04) suggest that the probability of the more educated respondents of being non-poor is about 4%. The result is significant at the 5% level since the estimated probability ($P=0.034\%$) is less

than < 5%. ($P<0.050$). Education enhances individual capacity to make more effective and efficient utilization of loan (Ayanwale and Alimi, 2004 [19] and Oke *et al*, (2007) [20].

Household Size: The coefficient for household size is positive ($b=0.045$), suggesting that respondents with larger families are more likely to be non-poor than those with smaller households. However, the result is not significant at the 5% level since the estimated probability ($P=0.243$) is greater than 5% ($P>0.050$). Larger household usually have access to cheap and costless family labour which can help enhance income and thereby reduce poverty.

Participation in SPDC Microcredit Scheme: Relationship between respondents participation in SPDC microcredit scheme and poverty status is positively significant ($b=1.47$). The positive sign implies that beneficiaries of SPDC microcredit scheme are more likely to be non-poor than non-beneficiaries.

The odd ratio (4.35) suggests that the probability of the beneficiaries being non-poor is about 4 times that of the non-beneficiaries or those who do not participate in the scheme. The result is significant at the 5% level since the estimated probability ($P=0.000$) is less than <5% ($P<0.050$). The finding agrees which with Khandker (2005) [22] who reported that beneficiaries of microcredit had a 20% declined in their poverty level. The finding of the study shows that SPDC microcredit scheme has led to significant reduction in poverty among beneficiaries [29].

Model Parameters:

- Omnibus Tests of Model Coefficients = $\chi^2 = 86.19$ (df = 7); $p<0.01$
- Hosmer and Lemeshow Test = $\chi^2 = 12.43$ (DF = 8), $p>0.05$
- Overall Percentage correctness = 67.6
- Nagelkerke R Square = 0.604

Effect of Credit Volume and Demographic Profile of SPDC Beneficiaries on Small Scale Farmers Income Level (Multiple Regression): Table 3 shows the multiple regression results in relation to factors affecting revenue of the beneficiaries SPDC microcredit intervention scheme in Delta state. The cob Douglas function was selected as the lead equation because it had the largest adjusted coefficient of determinant (R square) and highest number of significant variables. Table 3 shows the results of all functional forms.

Table 3: Effect of credit volume and demographic profile of SPDC beneficiaries on income level (Multiple Regression).

Independent variables	Linear		Semi-Log		Cob-Douglas		Exponential	
	B	T	B	T	B	T	B	T
Constant	-20646.01	0.158	0.450	1.968	-2.176	-4.053	-102227.81	1.968
Age	3160.67	1.034	0.002	1.265	0.017	0.144	111866.77	0.920
Gender	78583.73	1.302	0.005	1.116	-0.021	0.357	76444.22	1.265
Education	11029.23*	.106	0.007	0.920	0.058*	2.116	47103.33	1.638
Household size	-1104.82	.106	0.002	1.638	0.020	0.331	-7230.23	0.117
Occupational status	-70175.94	1.154	-0.063	0.117	-0.021	0.357	-68436.36	1.116
credit volume	1.027	1.874	0.136*	1.982	0.254*	6.522	80525.33*	1.982
Model statistics								
F value	2.691 (p<0.050)		4.674 (p<0.010)		8.61 (p<0.01)		2.363 (p<0.050)	
Adjusted R square	0.040		0.289		0.467		.033	
Std Error	4.420		0.43		0.419		4.36	

*Significant at 5% (critical t = 1.96)

The calculated F value for the model (8.61 (p<0.050) which is significant at the 5% level of significance. Adjusted $R^2 = 0.467$, this implies that the explanatory variables account for 46.7% variation in revenue of the microcredit scheme beneficiaries.

Education: The coefficient for education (b= 0.058) is positive and significant, showing that when beneficiaries' educational status increases, there will be a corresponding increase in their income. An explanation for this is that educated beneficiaries are more likely to be knowledgeable about economic activities and current innovations; this gives room for more awareness that enhances adoption of new techniques and also improves the managerial capabilities of beneficiaries which eventually leads to improved income. The finding agrees with (UNO, 2007) that reported that improvement in educational level of microcredit scheme beneficiaries greatly increased the level of income generated and also increased the average returns.

Gender: The coefficient for gender (b= -0.21) was negative which implies that the female participant realized higher revenue than their male counterpart. This suggests that the programme has helped women by empowering them to be out of poverty. The finding is in consonance with kabeer (2001) [30] who confirmed that more women benefited from the microcredit scheme in his study area and it had a positive impact on the beneficiaries. However the result is not significant at the 5% level.

Age: The coefficient for age (0.017) was not significant but positive which indicates that younger farmers realized

higher income than older farmers. Being economically active productivity level and the expected income that could be generated. The finding is in agreement with (Fasoranti, 2010) who also found that younger and more economically active respondents in term of age had higher productivity measure in monetary terms.

Credit Volume: The coefficient for credit volume (b=0.254) was positive and significant. It shows that the size of credit received is an important determinant of the beneficiaries' income. An explanation for this is that when the farmers have more credit, they are able to pay for innovations and other inputs that could expand their enterprise and this translates to more production and income [31].

CONCLUSION

The researcher submits that microcredit intervention scheme is key and has the potential of alleviating poverty of the rural farmers [31-34]. The issue of low credit volume which is an impediment to the realization of increased productivity and income that could lead to improved living standard of beneficiaries' has to be reconsidered; bearing in mind the fact that the size of credit received determines the level of investment and subsequently the income that could be generated [36-38].

Recommendation: Based on the findings from the study, it is recommended that the volume of credit disbursed to beneficiaries should be given an upward review to enable them assess enough fund to invest thereby attracting high income and improved living standard.

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