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MULTINOMIAL LOGISTIC ANALYSIS OF "SUSU" CONTRIBUTION IN GHANA

Abstract

The study employs cumulative multinomial logistic regression model to analyze "susu" (a micro-saving mechanism for collection of deposits that is common on the West African markets) contribution in Ghana. Evidence from the analysis of 1,630 contributors randomly sampled indicates that between male and female contributors, the former are more likely to contribute higher amounts than the latter. The paper, therefore, avers that "susu" institutions must target their marketing campaigns at income-earning males. Additionally, there is evidence to conclude that the number of years of contribution, the number of years a contributor has been in business, marital status and gender are predictors of 'susu' contribution in Ghana.

Keywords

Cedi, Contribution, Gender, Ghana, Marital Status, Microfinance, "Susu"

1. Introduction

Financial exclusion among the poor but productive group of the Ghanaian economy has been a debilitating conundrum taxing the intellectual energy of policy makers in Ghana. The rigmarole lending procedures of commercial banks in Ghana, including collateral caveat, have succeeded in pinning most of the poor but productive group of the population to the parameters of mediocrity, rendering stale their entrepreneurial ideas that could otherwise catalyze the developmental agenda of the country. However, proponents of the microfinance concept vociferously argue that it holds the potential to obliterate the financial exclusion headache of policy makers by making finance accessible to the poor but financially excluded at an affordable and convenient cost. Matin et al. (2002) contend that microfinance can be a strategically vital platform that the poor can use to raise their own prospects for an escape from poverty. Indeed, studies have amply demonstrated that microfinance plays three broad roles in development: It helps the very poor households to meet basic needs and protects them against risks; it improves household economic welfare; and it helps to empower women by supporting women's economic participation and so promotes gender equity (Asiama and Osei, 2007).

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Microfinance traces its roots to microcredit which was initially administered to the poor as a way of liberating them from the shackles of financial incarceration. After trying the microcredit concept for some time it became palpable that saving services—and not just loans—might help to improve wellbeing of the poor in general and of women in particular (Vonderlack and Schreiner, 2001). Microfinance institutions consist of organizations and agents that engage in relatively small financial transactions using specialized, character-based methodologies to serve low-income households, small farmers and others who lack access to the banking system. They may be informal, semi-formal (that is, legally registered but not under the central bank regulation), or formal financial intermediaries (Steel, 1998; referenced by Aryeetey, 2008).

The microfinance sector in Ghana comprises various types of institutions and these have been grouped into four (4) categories, namely: formal suppliers such as savings and loans companies, rural and community banks as well as some development and commercial banks; semi-formal suppliers such as credit unions, financial non-governmental Organizations (FNGOs), and cooperatives; informal suppliers such as susu collectors and clubs, rotating and accumulating savings and credit associations (ROSCAs and ASCAs), traders, moneylenders and other individuals; and public sector programmes that have developed financial and nonfinancial services for their clients (Asiama and Osei, 2007). One of the informal microfinance schemes which have been the financial refuge of the poor and the financially excluded in Ghana is the "susu" scheme. Much work has been done on its impact on small and medium scale enterprises (Alabi et al., 2007; Basu et al., 2004; World Bank, 2007). However, one of the murky areas that have not engaged the attention of researchers is the possibility of predicting the daily/weekly contribution. The current study, therefore, seeks to explore this virgin area of the microfinance literature by answering two main research questions:

- Between male and female "susu" contributors whom should "susu" institutions target?
- Are there some socio-economic factors that positively and significantly determine the amount of 'susu' contribution in Ghana?

The rest of the paper is organized into sections. The first section presents the description of the "susu" scheme in Ghana as a source of fund mobilization. This is followed by research methodology section. Presentation of the results and discussion section is next in line. The paper ends with conclusions and policy implications of the findings of the study.

2. The "susu" scheme in Ghana

The Ghana Co-operative "Susu" Collectors Association, (GCSCA) established in 1990, is the apex body superintending the operations of the "susu" scheme in Ghana. The association has identified the objectives of the "susu" scheme as follows: providing mobile savings collection services for individuals and groups in urban and rural areas; providing appropriate financial intermediation for Micro/Small-scale Enterprises (MSEs) and Informal Sector Enterprises (IFEs) who cannot leave their wares; inculcating a savings habit among the rural and urban poor; providing an opportunity for financial intermediation between the formal banking sector and micro/small scale entrepreneurs; and providing individuals with self-employment opportunities as “Susu” collectors (The World Bank Group, 1999).

“Susu” as one of the microfinance schemes in Ghana is thought to have originated from Nigeria and spread to Ghana in the early twentieth century (Asiama and Osei, 2007). It is an informal financial identification for daily or weekly collection of deposits which is prevalent on the West African markets (Alabi et al., 2007). It can be described as a form of banking because it is a system of trading in money which involves regular and periodic collection of fixed amount of deposits that are made available to the owners after a specified period of time or when required or to borrowers within the scheme at a fee. Interest on deposits is almost non-existent (Aryeetey, 2008). Borrowing under the “susu” scheme does not require collateral; it relies on a guarantee system to reduce risks associated with ‘clean lending’ (Alabi et al., 2007). However, borrowing is short periods (Aryeetey, 2008). The essence of the “susu” scheme is to help contributors to protect their daily earnings from competing claims and ensure working capital to restock supplies at the end of the month.

In terms of collection of daily or weekly deposits, the scheme uses two main methods: independent/private (non-salaried) collectors and salaried/commissioned staff. Under the independent (non-salaried) collector’s method, the collector undertakes daily door-to-door collection of agreed fixed amount from clients for a cycle, usually one month. In each cycle the collector’s reward for rendering this service is a day’s deposit of each client. For example, if in each day a client contributes one Ghana cedi then at the end of the contribution cycle the collector will subtract one Ghana cedi from the contributor’s total deposit as service fee. In Ghana, it is now common to find that large numbers of individual “susu” collectors have established offices (kiosks) at various points in cities and towns where their clients can actually walk in to make deposits and engage in other transactions (Aryeetey, 2008). The major risk inherent in dealing with private collectors is the possibility of the collectors absconding with contributions. However, evidence suggests that the private collectors have been found to be more aggressive in reaching out to more potential savers since their profit is contingent on the number and per capita daily contribution of their clients. Under the salaried/commissioned staff deposit collection, the collecting agents are full-time employees of the microfinance institution (MFI) who undertake the door-to-door collection for and on behalf of the MFI for basic salary. This is the practice at most banks (CHORD, 2000). To provide customized service, most “susu” collectors begin mobilizing daily deposits around noon each day which provides the clients with an opportunity to transact business and earn some income before saving. This strategy offers convenience for the rural and urban poor women whose income is too low to deposit large amounts of money with the formal banking institutions (The World Bank Group, 1999).

Basu et al. (2004) identify four different types of "susu" institutions that have influenced the operations of MFIs in Ghana. These are **"susu" collectors** who offer a saving vehicle by collecting daily amounts voluntarily saved by their clients, which they return at the end of the month, minus one day's amount as a commission.; **"Susu" associations** which are either (i) rotating (ROSCAs), collecting savings from their members and allocating them to each member in turn, or (ii) accumulating associations, which allow regular contributions to be accumulated, to cover the lump sum costs of such special future events as funerals; "**Susu" clubs** which combine the modus operandi of susu collectors and susu associations operated by a single agent in which members commit to save a pre-defined amount over the medium-term (50- to 100-week cycles) and pay commissions on each payment and fees when they are advanced the targeted amount before the end of the cycle; and **"Susu" companies** which are more recent (late 1980s) and registered. In addition to savings collected using traditional "susu" collectors, "susu" companies provide loans after a minimum saving period.

Economically, the "susu" scheme is making immense contributions to the development and sustenance of micro and small enterprises (MSEs) in Ghana. In addition, the scheme is acclaimed to have the capability to swab excess liquidity through its savings mobilization methods. Consequently, the scheme is now being recognized and incorporated into some formal financial institutions as a deposit- loan system using "susu" collectors and operators (Basu et al.,2004). A number of MFIs in Ghana including rural banks and credit unions have incorporated the scheme into their deposit mobilization strategies.

According to the World Bank (1994) "susu" scheme is a major source of finance for most micro and small scale businesses. The scheme cuts across a wide range of socio-economic or occupational groups such as farmers, petty traders, artisans, food processors and salaried workers. For many petty traders, market women, apprentices and artisans, "susu" is alleged to be their trusted and reliable source of starting, sustaining and growing their businesses (Alabi et al., 2007). These groups are generally within the low income bracket and many of them are women (CHORD, 2000).

Evidence abounds that microfinance beneficiaries spend their income on domestic financial obligations. Johnston and Morduch (2008) find that low-income households often apply loans to household needs, including school fees, medical treatment, daily consumption needs, and social and holiday expenses. Female entrepreneurs tend to allocate a greater share of profits for family and child welfare, and that there is a strong relationship between female entrepreneurial activity and children's welfare (Kessey, 2005). Women have a predisposition to use profits to meet family needs rather than to reinvest (Downing, 1990).

Evidence abounds that women have spend more of their income on their households; therefore, by helping women increase their incomes, you are improving the welfare of the whole family" (Cheston and Kuhn, 2002).

3. Research methodology

3.1. The Model

The cumulative multinomial logit regression model is utilized to relate the probability of a "susu" contributor contributing any of the five levels of contribution (five Ghana cedi contribution; four Ghana cedi contribution; three Ghana cedi contribution; two Ghana cedi contribution; and one Ghana cedi contribution) to socio-economic factors: number of years of contribution, years in business, gender and marital status. The cumulative multinomial logit model is expressed as follows:

$$Y = y_i \leftrightarrow \alpha_i - 1 < U \leq \alpha_i,\ i = 1, \ldots, m \qquad [1]$$

Where $-\infty = \alpha_0 < \alpha_1 < \ldots < \alpha_{m} = \infty$. It is assumed that the latent variable U is determined by the explanatory variable vector X in the linear form $U = -\beta'x + \epsilon$ where β is a vector of regression coefficients and ϵ is a random variable with a distribution function F. It follows that

$$\Pr\{Y \leq yi | x\} = F(\alpha i + \beta' x) \qquad [2]$$

Description of the variables used in the model has been presented in Table 1 below:

Description of variables

Variable	Description
Dummy for Contribution (dependent variable)	= 1: One Ghana cedi Contribution
	= 2: Two Ghana cedi Contribution
	= 3: Three Ghana cedi Contribution
	= 4: Four Ghana cedi Contribution
	= 5: Five Ghana cedi Contribution or higher
Dummy for gender (GENDER)	= 1: Female; =0: Male
Dummy for marital status (MSTATUS)	= 1: Married; =0: Otherwise
Years in business (YRSINBUS)	= Continuous variable
Number of years of contribution (CONTYRS)	= Continuous variable

5% significance level is assumed.

Table 1

The daily or weekly contribution of contributors is the predicted outcome and is measured at five levels: five Ghana cedi contribution; four Ghana cedi contribution; three Ghana cedi contribution; two Ghana cedi contribution; and one Ghana cedi contribution. The hypothesized independent variables are years of contribution (YRSCONT); years in business (YRSINBUS); marital status (MSTATUS); and gender of respondents (GENDER). The variables MSTATUS and GENDER are dummy variables.

3.2. Data and Sampling

Data for the study were collected through a cross-sectional "susu" survey undertaken by the authors using questionnaire as the data collection instrument. A sample size of 1,630, comprising 697 male and 933 female contributors was used in the study. This sample size was arrived at after editing two thousand questionnaires for errors and inconsistencies. Thus, the successful response rate was approximately 82%. The sampling procedure employed was simple random sampling in which "susu" contributors at various market centres in Kumasi and Takoradi were interviewed. The decision to administer the questionnaire at market centres was informed by the literature. According to the World Bank Group (1999), market centers are locations with a large density of enterprises, especially those operated by women. The questionnaire was administered to respondents after they had indicated that they were "susu" contributors. The 'susu' scheme cuts across a wide range of socio-economic or occupational groups such as farmers, petty traders, artisans, food processors (CHORD, 2000). Thus, respondents in the survey were petty traders, artisans, food processors, retailers, and dealers.

4. Estimation results and discussion

The Pseudo R-square statistics reported in appendix A show 17.9%, 18.8% and 6.6% for Cox and Snell, Nagelkerke and McFadden statistics respectively. The model fitting information and the Likelihood Ratio Tests results shown in appendix A collectively rule out the joint hypothesis that "all coefficients of explanatory variables equal zero" and accentuate the robustness of our model.

As shown in Table 2, the number of years of contribution is statistically significant across three models. Evidently, the probability of a "susu" contributor in Ghana contributing one Ghana cedi or two Ghana cedis or three Ghana cedis relative to contributing five Ghana cedis decreases as the number of years of contribution increases by one year. No statistically significant relationship has been found between the number of years of contribution and four Ghana cedi contribution. It can, therefore, be contended that as the number of years of contribution increases a "susu" contributor in Ghana is likely to contribute five Ghana cedis or higher daily or weekly. This contribution behavior strikes a chord with the concept of logical incrementalism (Quinn, 1980). The benefits of the "susu" scheme may not be known at the commencement of contribution. Thus, to mitigate his or her risk the contributor would attempt to experiment with smaller amounts and would gradually increase the daily contribution as he or she begins to experience the benefits of the scheme. Emblazoned across this logical incrementalist approach is risk consciousness among “susu” contributors in Ghana. Despite their low levels of education it appears that they appreciate the concept of risk in financial management which is commendable. It can be inferred from this finding that “susu” collection institutions in Ghana interested in increasing their turnover should target their marketing campaigns at existing contributors since they are more likely to increase their daily contributions than new contributors.

The number of years a contributor has been in business is statistically significant across two-Ghana-cedi contribution and three-Ghana-cedi contribution groups. The negative odds ratios indicate that the multinomial log-odds for a “susu” contributor to contribute two Ghana cedis or three Ghana cedis would decrease if a contributor were to stay in business for an additional year. In other words, as a “susu” contributor spends more years in business the probability that he or she will contribute five Ghana cedis is high. The number of years in business of the contributor is positively related to one Ghana cedi contribution, implying the log-odds of a “susu” contributor in Ghana preferring to contribute one Ghana cedi to contributing five Ghana cedis would be positive. However, this is statistically insignificant.

Marital status is statistically significant across one-Ghana-cedi and two-Ghana-cedi contribution groups but is statistically insignificant across three Ghana cedi and four Ghana cedi contribution groups. The negative relationship between marital status and one-Ghana-cedi contribution and two-Ghana-cedi contribution suggests to us that married “susu” contributors in Ghana are more likely to prefer contributing five Ghana cedis or higher than their unmarried (single) counterparts. One possible interpretation of this finding is that because married couples have both business and domestic obligations such as providing for the upkeep of their homes and paying children’s school fees they contribute more as insurance against these obligations (Alabi et al., 2007). The propensity for low-income households to spend their income on their domestic obligations has been established. Johnston and Morduch (2008) find that low-income households often apply loans to household needs, including school fees, medical treatment, daily consumption needs, and social and holiday expenses. This presupposes that “susu” institutions that desire to increase their daily turnover must target their marketing strategies at married prospects.

Gender is positive and statistically significant across one-Ghana-cedi contribution and two-Ghana-cedi contribution. It is, however, positive but statistically insignificant at three Ghana cedi contribution. Its relationship with four-Ghana-cedi contribution is negative and statistically insignificant. The multinomial logit for female contributors relative to male contributors would be 0.685 and 0.397 unit higher for preferring to contribute one Ghana cedi and two Ghana cedis respectively, given all other predictor variables in the two models are held constant. In other words, female contributors are more likely than their male contributors to contribute one Ghana cedi or two Ghana cedis. One possible interpretation of this finding is the issue of the females meeting family obligations, making them unable to contribute more. This is because female entrepreneurs tend to allocate a greater share of profits for family and child welfare, and that there is a strong relationship between female entrepreneurial activity and children's welfare (Kessey, 2005). Women have a predisposition to use profits to meet family needs rather than to reinvest (Downing, 1990). On the other hand, this finding may affirm income inequality between males and females in Ghana and reinforce the need for more poverty reduction interventions to be targeted at women, especially the uneducated or less educated but productive ones. Apart from enhancing the quality of family life in Ghana, empowering such women will also promote economic development.

Contribution day or		B	Std.	Wald	df	Sig	Exp(B)
One Ghana	Intercep	1.406	.236	35.64	1	.000	
	YRINBU	.006	.017	.125	1	.723	1.006
	CONTYR	-.823	.079	108.938	1	.000	.439
	[MSTATUS=0	.721	.184	15.36	1	.000	2.056
	[MSTATUS=1	0[a]	.	.	0	.	.
	[SEX=0	-.685	.175	15.32	1	.000	.504
	[SEX=1	0[a]	.	.	0	.	.
Two Ghana	Intercep	1.353	.195	47.92	1	.000	
	YRINBU	-.031	.013	5.45	1	.020	.969
	CONTYR	-.370	.057	41.88	1	.000	.691
	[MSTATUS=0	.451	.148	9.24	1	.002	1.570
	[MSTATUS=1	0[a]	.	.	0	.	.
	[SEX=0	-.397	.137	8.41	1	.004	.673
	[SEX=1	0[a]	.	.	0	.	.
Three Ghana	Intercep	.130	.251	.269	1	.604	
	YRINBU	-.044	.019	5.44	1	.020	.957
	CONTYR	-.205	.074	7.624	1	.006	.814
	[MSTATUS=0	-.069	.197	.124	1	.725	.933
	[MSTATUS=1	0[a]	.	.	0	.	.
	[SEX=0	-.153	.176	.753	1	.385	.858
	[SEX=1	0[a]	.	.	0	.	.
Four Ghana	Intercep	-	.307	22.072	1	.000	
	YRINBU	-.006	.016	.125	1	.723	.994
	CONTYR	.027	.080	.112	1	.738	1.027
	[MSTATUS=0	.341	.214	2.538	1	.111	1.406
	[MSTATUS=1	0[a]	.	.	0	.	.
	[SEX=0	.222	.190	1.366	1	.242	1.248
	[SEX=1	0[a]	.	.	0	.	.

a. This parameter is set to zero because it is redundant. The referent group is five Ghana cedi contribution.

Table 2: *Multinomial Logistic Regression Analysis of "Susu" Contribution in Ghana*

5. Conclusions and recommendations

The above results lend support to some conclusions about "susu" contribution behavior in Ghana. First, despite the financial and intellectual depravity of most "susu" contributors in Ghana they seem to have some appreciation for risk in financial management. This is evident in their apparent adoption of logical incrementalist approach to contribution, preferring to begin their contribution with smaller amounts before contributing larger amounts as years go by. Obviously, with little capacity-building support, these "susu" contributors who are engaged in micro, small and medium scale enterprises will be able to practice effective financial management in their businesses which will, in turn, promote economic growth in Ghana. Second, male contributors contribute higher amounts of money to the "susu" scheme than their female counterparts. One policy implication for "susu" operators in Ghana is that if they want to increase their profitability they should focus their marketing activities on male prospects. On the part of the Government of Ghana and other international organizations committed to bridging the income gap between males and females it appears that they are far from achieving their targets. The income inequality between males and females still persists in Ghana which calls for more concerted efforts at addressing it. Third, evidence proffered in this paper suggests that the amount of daily or weekly contribution of a "susu" contributor in Ghana is determined by the number of years of contribution, number of years in business, marital status and gender. The policy implication of this conclusion is that "susu" institutions that aspire to scale up their operations should rivet their interventions on these factors.

The authors recommend that more studies should be conducted for more insights into the current findings. The use of different dataset in Ghana will provide fresh perspectives to the findings of this study which will enrich the microfinance literature. The authors also recommend the application of the model to any of the countries in the West Africa sub-region where the "susu" scheme is practiced as this will provide international perspective on the current findings.

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