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**DETERMINANTS OF SOURCE OF CREDIT FOR MICRO,
SMALL AND MEDIUM ENTERPRISES
IN ACCRA METROPOLIS IN GHANA**

CONTENTS

03

ABSTRACT

04

INTRODUCTION

06

LITERATURE REVIEW

08

METHODOLOGY

09

RESULTS AND DISCUSSION

11

CONCLUSION AND
RECOMMENDATIONS

12

REFERENCES

16

APPENDIX





DETERMINANTS OF SOURCE OF CREDIT FOR MICRO, SMALL AND MEDIUM ENTERPRISES IN ACCRA METROPOLIS IN GHANA

ABSTRACT

This study examined the factors that influence Micro, Small and Medium Enterprises (MSMEs) source of credit in Accra Metropolis by employing multinomial logit regression analyses on a sample of 372 MSMEs.

A major finding is that as the size of MSMEs increases, their desire for informal credit diminishes and their quest for formal credit increases holding all other factors constant. Medium enterprises prefer sourcing credit from universal banks and are less likely to source credit from the informal source of credit and non-bank financial institutions as compared to micro-enterprises.

The study found that MSMEs who have physical assets to be used as collateral prefer sourcing credit from universal banks while MSMEs who do not have physical assets source credit from informal sources of credit. Business size was found to have a relationship with non-bank financial institutions and universal banks.

The study recommends that non-bank financial institutions design products that will attract medium enterprises and introduce group lending for micro-enterprises since they may not have collateral.

keywords

Source of Credit, multinomial logit and MSMEs

INTRODUCTION

Micro, Small and medium-sized enterprises (MSMEs) have been identified as the engine that drives most economies because of their significant contribution to employment and economic expansion.

Up to 90% of businesses and 60% of employment worldwide are MSMEs (World Bank, 2019). The small business sector also accounts for 70% of employment in emerging economies (OECD, 2017). In a similar vein, (Kerr et al., 2017) proposed that large businesses rather than small businesses are responsible for a greater proportion of job creation in South Africa.

As a result, to generate employment and ultimately contribute to economic expansion, it is necessary to encourage the expansion of MSMEs and ensure that they grow into larger businesses.

Despite playing such a significant role, small businesses have not fully utilized their growth potential, particularly in developing nations like Ghana. In line with this, Muriithi (2017) estimated that over 70% of small businesses in Ghana fail. According to Buckley and Webster (2016), a major obstacle to the expansion of small businesses is a lack of access to credit. However, the capital structure theory asserts that business expansion necessitates both internal and external funding. In any case, there is more accentuation on the positive impact of outside finance on the development of business (Cheng & Degryse 2010). Ghanaian businesses have a survival rate of less than 20% due to a lack of external funding.

As a result, the company's expansion cannot be facilitated without external funding. Formal and informal credit are two types of external funding (Elston et al., 2016). According to Nguyen and Canh (2020), formal credit is subject to regulation by monetary authorities such as the central bank, whereas informal credit is not. This distinction is made in terms of regulation. Mazanai and Fatoki (2012) asserted that the lack of collateral security, high perceived risks, information asymmetry, and high costs of lending small amounts make banks reluctant to provide credit to small businesses. Small businesses have been excluded from the financial system as a result of this. In general, small businesses that choose to use external funding rely on informal credit.

Numerous research (Domeher, Musah, & Poku, 2017; Avevor (2016); and Sekyi, Nkegbe, & Kuunibe 2014), have found that informal credit accounts for the majority of small businesses, particularly in Ghana. Entrepreneurs only resort to informal credit when they are unable to obtain formal credit or are otherwise ineligible for such financing. Formal credit is preferred by some businesses because it possesses certain features that are advantageous to businesses in terms of financing. To the best of the researchers' knowledge, almost all the previous studies (Domeher, Musah & Poku, 2017; Avevor, 2016; Sekyi, Nkegbe, & Kuunibe, 2014) made source of credit a binary variable that is formal source and informal source.

The previous studies combined the universal banks and non-banks financial institutions into one category and used binary logit or probit model for the estimation. The weakness of combining universal banks and non-bank financial institutions as one category is that, factors that influence the choice of each of them may not be the same and therefore, will affect the conclusion that will be drawn. Separating the two will unearth the category of MSMEs who prefer accessing credit from each of the formal sources and also factors that influence the choice of each of the formal sources of credit. This study separates MSMEs' sources of credit into universal banks (commercial banks), non-bank financial institutions (savings and loans, credit unions, and microfinance), and informal sources of credit (family and friends, money lenders, etc.). As a result, the goal of this study is to determine the factors that influence MSME's; choice of credit source in Accra.



LITERATURE REVIEW



Theoretical Literature Review

There are several theories related to this study but the study made use of the Life Cycle theory.

The Life Cycle theory and MSMEs financing

Businesses are thought of as living organisms and as such go through a life cycle. At the start-up level they go through several growth phases. There is therefore no consensus on the number of growth stages for MSMEs. For instance, whilst Steinmetz (1969) proposes three stages of SME growth, Lewis (1987) and D'Amboise and Muldowney (1988) suggest five growth stages. Nonetheless, the growth stage of an SME finds itself determines the type of financing it requires (Berger & Udell, 1998). That is, older and larger MSMEs are more likely to opt for formal credit than younger and smaller MSMEs. Start-ups or younger MSMEs are usually informational opaque (Huyghebaert & Van de Gucht, 2007; Hyytinen & Pajarinen, 2008). This feature affects their ability to source credit from formal credit sources, hence they tend to informal sources for credit (Ullah and Taylor, 2007). It follows therefore from the assertion of Ullah and Taylor (2007) that older and mature MSMEs are less likely to seek credit from informal sources. This is so because, older MSMEs are believed to have evidence of a good track record which most start-ups and younger MSMEs may lack. Hence, making older SMEs more appealing to formal lenders. In terms of collateral and tangibility, comparatively, mature MSMEs are poised to meet the collateral requirements of formal lenders than younger MSMEs. Mature SMEs having this as an advantage are more likely to seek formal credit than informal credit.

Empirical Literature

SMEs' use of formal and informal credit is attributable to several factors. However, this study focuses on micro factors and the literature on these factors are discussed below;

Gender of the MSME owner and credit source

The gender of the MSME owner impacts greatly on the source of credit an MSME is likely to go in for. Research from several authors suggests that female-owned MSMEs are less likely to be granted credit by formal lenders.

A study by Galli and Rossi (2016) revealed that female-owned firms mostly do not apply for bank loans compared to male-owned firms. Similarly, Ongena and Popov (2015) in a study involving seventeen European (17) countries showed that female-owned businesses are more discouraged from applying for formal credit compared to male-owned ones, hence they are more likely to seek informal credit. Moro, Wisniewski and Mantovani (2017) investigated the gender gap in SMEs' access to formal credit based on a sample of European SMEs. The results showed that the fear of rejection makes female-owned SMEs less likely to apply for formal credit. In Ghana, a study by Abor and Biekpe (2006) showed that female-owned SMEs are less likely to have access to bank credit compared to male-owned SMEs.

Level of education of SME owner and credit source

The level of education of the SME owner has been proven to have an impact on SMEs access to credit. In the UK, Irwin and Scott (2010) found that SME owners with high levels of education were less likely to be denied formal credit. In other words, SME owners with less or no education have a higher likelihood of being denied formal credit. Hence, informal credit becomes the surest avenue to meet their credit needs. In Libya, Zarook, Rahman and Khanam (2013) examined the impact of SME-owner characteristics on SMEs' access to formal credit using a sample of 600 SMEs. The study revealed that the more educated the SME owner, the more likely it is for the SME to access formal credit. Consequently, less educated SME owners are more likely to look up to informal sources for credit. Mwangi and Sichei (2011) found in their study that education is positively related to formal credit use. In a related fashion Nikaido, Pais and Sarma (2015) argue that SME owners with low levels of education have the feeling that they will be rejected due to greater difficulties they face in the bank loan application process. As a result, they will more likely seek informal credit.



Age of the SME Owner and credit source

The age of an individual generally refers to the length of time that the individual has lived or existed since birth. The age of an SME owner is very crucial when it comes to issues relating to credit. Nguyen and Luu (2013) found age to be a positive significant determinant of Vietnamese SME's access to formal credit. Similarly, Ogubazghi and Muturi (2014) conducted a study on a sample of 87 SMEs in Eritrea using logistic regression. The results revealed that the age of SME owners had a positive relationship with SMEs' access to formal credit. Abdulsaleh and Worthington (2013) argue that information asymmetry which is a problem with most SMEs tend to decrease with advancement in SME owner age. Therefore, older SME owners are poised to use formal credit whereas younger ones are likely to use informal credit.

Size of firm and credit source

Firms vary in size. It must be pointed out that smaller firms with growth potential can later become bigger firms. Smaller firms are more likely to be rationed by formal lenders due to higher information asymmetries associated with these firms (Hyytinen & Pajarinen, 2008). Evidence from Brazil indicates that medium and large enterprises experience minimal rationing by formal lenders (Kumar & Francisco, 2005). Therefore, since access to bank credit is quite better for medium and large enterprises compared to their smaller counterparts, medium and large enterprises are less likely to seek informal credit. In Kenya, Njeru, Namusonge and Kihoro (2012) had evidence to show that business size is a significant determinant of the choice of financing source for SMEs. In assessing the determinants of SME credit source choice in Ethiopia, Fufa (2016) had evidence to indicate that micro enterprises are less likely to seek formal credit than informal credit. In terms of accessing bank credit, Domeher et al. (2017) had evidence to indicate that micro and small enterprises compared to medium enterprises are less likely to have a bank loan. Micro and small businesses are therefore anticipated to use informal credit compared to medium businesses.



Age of the SME and credit source

Firms have aged just as humans do. The age of a firm refers to the period the firm has been in existence. Haltiwanger, Jarmin and Miranda (2012) use five years as a basis to distinguish young firms from old firms. According to Haltiwanger et al. (2012), firms below five years are young firms whilst those above five years are old firms. It is argued that startups and young firms carry high risks. Hence, their probability of failure is very high. Even when these businesses survive their high monitoring cost discourage formal lenders from dealing with them (Jensen & McGuckin, 1997). Hence they are often rationed out of the formal credit market. They therefore have a high likelihood to use informal credit. Hoque et al. (2016) argue that the degree of information asymmetry is high in young firms. Furthermore, young firms are disadvantaged in the sense that they often do not have long-term relationships with formal lenders (Hoque et al., 2016). Younger SMEs are therefore more likely to use informal credit.

The sector of the SME and credit source

The sector of an SME plays a crucial role in the financing of SMEs (Byiers et al., 2010). In Ghana, Domeher et al. (2017) had evidence to show that SMEs in the retail sector have a high level of participation in the formal credit market whilst hospitality sector SMEs had the least participation rate. The low participation of the hospitality sector in the formal credit market for instance may either be as a result of their lack of need for credit or they may prefer informal credit. Service sector SMEs by their line of business deal in intangibles and for that matter usually lack collateral assets to secure formal credit (Silva & Carreira, 2010).

Hence, they may experience greater rationing by formal lenders who usually require collateral as security. This push factor may compel service sector SMEs to seek informal credit rather than formal credit. Hence, it can be conjectured that SMEs in some sectors may use informal credit whilst others may prefer formal credit. Boadi, Dana, Mertens and Mensah (2017) conducted a study in Ghana on the impact of SME financing on banks' profitability. They used panel analysis and found that SMEs significantly contribute to banks' profitability in Ghana. Also, their study revealed higher inflation reduces the real value of the loan and erodes the interest returns on the total credit to the SMEs.

Conversely, the growth of GDP enhances the growth of the bank's profit.

METHODOLOGY

Sampling Technique and Sample Size

The population of the study was all MSMEs owners in Accra Metropolis who have registered their businesses at the Registrar General's Department and are recognized by Ghana Investment Promotion Council.

This research used the following criteria to arrive at the target population for this study. The criteria were:

1. The MSME owner should have his/her business in Accra to make access to data more convenient and also since Accra is the largest commercial town in Ghana.
2. The business should have been in existence for two years.
3. The MSME owner should have sourced for credit within 12 months preceding the data collection. Screening or filter question was used to ensure that the respondents used for the study met all the criteria.

The research team had difficulty with the determination of required sample size for the paper due to the inability to have the exact population of MSMEs in Accra Metropolis who have accessed loans within the 12 months preceding the data collection and also, not all MSMEs have registered with Registrar General's department. However, the researcher used the formulae $n = \frac{z^2 \times (P)(1-P)}{c^2}$ to determine the desired sample size for this study.

where n = sample size, z = standard deviation set at 95% confidence level = 1.96, p percentage of MSMEs who have accessed loans in 12 months preceding the data collection = 50% or 0.50, c = confidence interval = 0.05.

$$n = \frac{(1.96)^2 (0.5) (1-0.5)}{(0.05)^2}$$

$$n = \frac{3.8416 (0.5)(0.5)}{0.0025}$$

$$n = \frac{0.9604}{0.0025} = 384$$

The total sample size used for this study was rounded up to 400 MSMEs. After the data cleaning the actual data used for the study was 372 MSMEs.



Data Collection Instrument

A structured interview was employed as the data collection instrument. The interviewers had a standard set/sequence of questions that were asked of all SME owners. A structured interview was used because not all the respondents can read and write. The data was collected within three weeks period (July- August 2022).

Estimation Technique

Since the dependent variable credit source has more than two outcomes, the best models that can be used for the estimation are multinomial logit regression model and the multinomial probit regression model. This study adopted a multinomial logit regression model. The sources of credit were captured as universal banks, non-bank financial institutions and informal sources of credit. This study adopted multinomial logit because it is easy to interpret. The basic specification of the model is a binary response model (Long and Freese, 2006) as in equation (1).

$$(Creditsource_{ij}) = \frac{\mu_i^{\beta x_i + \phi z_j + \lambda r_{ij}}}{\sum \mu_i^{\beta x_i + \phi z_j + \lambda r_{ij}}} \dots \dots \dots (1)$$

For this reason, the model is estimated based on a standard McFadden (1984) points out that “empirical experience is that the MNL is relatively robust, as measured by goodness of fit or prediction accuracy, in many cases where the IIA property is theoretically implausible.”

MNLM. The equation may be generalised as:

$$P_{ri} = f(\beta_0 + \beta_1x_1 + \beta_2x_2 + \dots + \beta_nx_n + \xi) \dots \dots \dots (2)$$

Where P_{ri} is the probability that individual i will make a certain choice, given the attributes of MSMEs and those of the individuals, x are the explanatory variables and β are the coefficients to be estimated. The basic multinomial logit model can be expressed as:

$$\Pr(y = j) = \frac{e^{x\beta(j)}}{e^{x\beta(1)} + \dots + e^{x\beta(j)} + \dots + e^{x\beta(J)}} \dots \dots \dots (3)$$

To achieve identification, we modify the equation by setting one of the coefficients to zero (Lindelow, 2002). Here the informal source of credit is the one set to zero, hence it is the reference credit source option. All the variables in the modified models are relative; they permit estimation of the effects of credit source options relative to informal source of credit. The modification enables us to interpret our results relative to a reference group.

The specific equation used to estimate the determinants of choice of source of credit is given as:

$$(creditso_{ij}) = \frac{e_i^{\beta_1AGE + \beta_2AGEBUSINESS + \beta_3BUSIZE + \beta_4SX + \beta_5EDU + \beta_6COLLA + \beta_7LOANSIZE}}{\sum e_i^{\beta_1AGE + \beta_2AGEBUSINESS + \beta_3BUSIZE + \beta_4SX + \beta_5EDU + \beta_6COLLA + \beta_7LOANSIZE}} \dots \dots \dots (4)$$

Where $creditso_{ij}$ is Source of credit available to an MSMEs, $busize$ means business size, edu refers to educational attainment, age refers to the age of the SME owner, $Agebusiness$ refers to age of business, $colla$ refers to collateral, $loansize$ refers to loan size the SME owner applied for and SX means gender of the MSME owner.

Table 1: Measurement of Variables

Variable	Description	Measurement
Age	Age of the business	Age of business in years
Agebusiness	Experience	number of years the person has been in that business
educ	Educational attainment of the owner	1 = no formal education 2 = Primary school 3 = JSS/Middle School 4 = SSS/SHS/ Vocational School 5 = Tertiary
SX	Gender of the SME owner	0 = Female 1 = Male
Loansize	Loan size	Continuous Amount required in cedis
Busize	Business size	1. Micro 2. Small 3. Medium
colla	collateral	If the owner has physical asset for collateral = 1, 0 otherwise
Creditso	Source of credit available to an SME	1. Informal sources of credit, 2. non-bank financial institutions 3. universal banks

RESULTS AND DISCUSSION

Cross tabulation between Source of credit and Collateral

Table 2 presents the cross tabulation between source of credit and SME owner having a physical asset that can be used as collateral. Out of the 116 SME owners who sourced credit from formal source, 98 of them had no physical asset that can be used as collateral and the remaining 18 had physical asset that can be used as collateral. SME owners who sourced credit from non-bank financial institutions and universal banks were 126 and 130 respectively. SME owners who did not have physical asset but sourced credit from universal banks were 32 and those who had physical asset were 98. Also, 83 SME owners who sourced credit from non-bank financial institutions were not having collateral and 43 of them were having physical asset that can be used as collateral.

Chi square and Fisher's exact tests were conducted to test whether there was significant association between source of credit and collateral. The fisher's exact test and Chi-square test showed that there is significant association between SME owner's choice of source of credit and collateral.

Table 2: Cross Tabulation between Source of Credit and Collateral

Collateral	Informal source of credit	Non-bank financial institution	Universal bank	Total
No	98	83	32	213
Yes	18	43	98	159
Total	116	126	130	372

Source: Field Survey, 2022

Table 3: Summary Statistics

Variable	Mean	Std. Dev.	Minimum	Maximum
Loan size	16,322.58	25875.89	4,000	200,000
Age of Business	5.88	2.948	2	20
Age of SME Owner	40.784	7.618	25	57

Source: Field Survey, 2022

Table 3 shows the summary statistics of the continuous variables used in the multinomial logit model. The mean age of the enterprises was approximately 6 years with the standard deviation of 2.948. The minimum age of the enterprises was 2 years and the maximum age was 20 years. With regards to age of the SME owner, the maximum age was 57 years while the minimum was 25 years. The mean age of the SME owners was approximately 41 years with standard deviation of 7.618. The mean of loan size was GH¢ 16322 with standard deviation of 2587.89. The maximum and minimum values for loan size were GH¢ 4,000 and GH¢ 200,000 respectively.

Multinomial Logit Regression Results

The total observation used for the estimation was 372 respondents. Variance inflation factor (VIF) was used to test for multicollinearity. The result showed that there is no evidence of multicollinearity in the regression model because the mean VIF value for the model was 1.39. The implication is that the variables are independent of each other and can be included in the multinomial regression model. Also, the robust command in stata was added to take care of heteroskedasticity. The P-value of wald chi square was significant at one percent as shown in Table 4 in appendix A. It implies that all the explanatory variables joint together are able to explain the SME owner's choice of credit source. The main determinants of choice of credit source were loan size, collateral and business size. Loan size was captured as a continuous variable and was found to have relationship with SME owner sourcing credit from Universal bank and informal source of credit.

Loan size has a positive relationship with universal bank at 1% significant level. The implication is that the larger the loan amount the more likely the SME owner sourcing credit from Universal bank. The marginal effect of 0.00003 indicates that a cedi increase in the size of loan, holding all factors constant, will increase the probability of SME owner sourcing credit from the universal bank by 0.003 percentage points. This means that the higher the amount of loan needed by the SME owner the more likely he/she will go in for credit from a universal bank holding all other factors constant. Loan size was found to have a negative relationship with the informal source of credit and the relationship was statistically significant at 1%.



Another important variable considered in this paper was collateral which was captured as a dummy variable where “0” means the SME owner has no physical asset that can be used as collateral and “1” means the SME owner has a physical asset that can be used as collateral. This study found that SME owners who have physical assets that can be used as collateral as compared to MSME owners who do not have physical assets that can be used as collateral are more likely to source credit from universal banks and less likely to source credit from informal source of credit. This finding collaborates with the finding of Musah, Adu, Boakye and Agbanyo (2019) who reported that a unit increase in the number of physical assets used to pledge as collateral makes an SME less likely to use informal credit. The marginal effect of -0.1209 implies that the probability of an SME owner who has physical asset that can be used as collateral as compared to an SME owner who does not have physical asset that can be used as collateral sourcing credit from informal source of credit decreases by 12.09 percentage points holding all other factors constant.

Lack of collateral could induce SME owners to seek informal credit where collateral is not mostly required. The marginal effect of universal bank was 0.0799 and it means that probability of an SME owner who has physical asset that can be used as collateral as compared to SME owner who does not have physical asset that can be used as collateral sourcing credit from universal bank increases by 7.99 percentage points. This finding can be attributed to the fact that informal lending in Ghana mostly relies on ‘social collateral’ (relationship between borrower and lender) unlike formal lending which depends much on ‘physical collateral’ (Karaivanov & Kessler, 2018). Bougheas et al. (2006) found collateral to be an important determinant of access to formal credit in the United Kingdom. The business size is often determined using the various measures of size such as sales turnover, profitability/net worth and number of employees amongst others. This study used number of employees as a proxy for business size. The variable business size was captured as micro, small and medium.



Micro refers to businesses that have five or less employees, small refers to business that have workers above five but less than thirty and medium enterprises have thirty up to ninety-nine employees. The reference category for business size was micro enterprise. Small enterprises had positive correlation with probability of SME’s owner sourcing credit from non-bank financial institution and it was significant at 10% alpha level.

The probability of a small enterprise owner as compared to micro enterprise owner seeking for credit from non-bank financial institution increases by 7.3 percentage points. The implication is that, holding all other factors constant, a small enterprise is more likely to source for credit from non-bank financial institution as compared to a micro enterprise owner.

Medium enterprise category had a negative relationship with informal source of credit and non-bank financial institutions and positive relationship with universal bank. SME owners who have employees thirty and above are more likely to seek for credit from universal bank as compared to SME owners who have five or less workers less likely to source credit from informal source of credit and non-bank financial institutions.

The probability of a medium enterprise owner as compared to micro enterprise owner seeking for credit from universal bank increases by 44.6percentage points. The probability of a Medium enterprise owner as compared to micro enterprise owner seeking for credit from informal source of credit and non-bank financial institution decreases by 30.2 percentage points and 14.4 percentage points respectively.

Studies such as Musah et. al (2019) and Hyytinen and Pajarinen (2008) have revealed that informal credit use is higher amongst micro enterprises and formal lenders are reluctant to lend to micro and small businesses because of their relative opaqueness. The finding is not surprising because micro enterprises often require small loans which can be sourced easily from family, friends and other informal sources compared to formal lending institutions.

Conclusion and Recommendation

The study found evidence in support of MSME financing life cycle hypothesis. This study revealed that as the size of MSMEs increases, their desire for informal credit diminishes and their quest for formal credit increases holding all other factors constant. Medium enterprises prefer sourcing credit from universal banks and are less likely to source credit from informal source of credit and non-bank financial institutions as compared to micro enterprises.

This implies that micro enterprises are more likely to seek credit from informal source of credit and non-bank financial institutions than medium enterprises. Also, small enterprises are more likely to seek credit from non- bank financial institutions compared to micro enterprises. Micro enterprises may prefer informal credit use than formal credit due to stringent requirements such as collateral by formal credit sources.

To make formal credit more accessible, this study recommends that:

1. non- bank financial institutions should introduce group lending for micro enterprises since they may not have collateral
2. non-bank financial institutions should design products that will attract medium enterprises
3. universal banks should design products that will attract micro enterprises and small enterprises.



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APPENDIX A

Table 4: Determinants of choice of source of credit.

Table 4: Determinants of choice of source of credit.

VARIABLES	Informal Source		Universal Banks		Non-bank financial institutions	
	M.E	P-value	M.E	P-value	M.E	P-value
Age	0.004	0.706	-0.010	0.237	0.006	0.585
loansize	-0.00004	0.000	0.00003	0.000	0.0000	0.251
Education attainment (Primary education reference)						
JSS/middle school	0.085	0.628	-0.266	0.240	0.1820	0.330
SSS/VOC School	0.159	0.366	-0.282	0.217	0.1229	0.517
Tertiary	0.1577	0.414	-0.209	0.373	0.0517	0.803
Business size(Micro reference)						
Small	0.152	0.105	0.078	0.384	0.073	0.052
Medium	-0.302	0.000	0.446	0.000	-0.144	0.036
Gender	0.049	0.242	-0.0275	0.418	-0.0221	0.642
Collateral	-0.1209	0.018	0.0799	0.018	0.0409	0.446
Age of business owner	0.0411	0.112	-0.003	0.244	-0.0008	0.778

Wald chi2(20) = 589.02 Prob > chi2 = 0.0000 Pseudo R2 = 0.3291

Log pseudolikelihood = -273.91413 mean VIF = 1.39 observation = 372

Source: Field Survey, 2022

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