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Competition and Outreach in Ar-Rahn Industry[1]

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Abstract

The aim of this paper is to shed new light on the as yet unsolved question of whether competition is good or bad model in microfinance markets. We analyze empirically how the degree of competition affects the achievements of development projects promoting micro-credit. These projects usually provide subsidies to Micro-finance institutions (MFIs) for capacity and institution building with a dual objective: The MFIs should be enabled to extend its loan supply for MSE (outreach to the target group) while at the same time aiming at cost coverage and profitability (financial sustainability). The latter provides the guarantee that the new business will survive in the market once the donors' support is phased out. This paper will empirically be done to tackle the problem of how competition influences the outreach and the financial situation of MFIs. Due to our unique set of micro data on the credit portfolio as well as on cost and revenues of competing micro finance operators in Malaysia, we are able to do this. The data was collected from the survey of several pawnshop (part of MFIs) comprising Islamic pawnshop (or ar rahnu windows) and conventional pawnshops. The former microfinance program was supported by Yayasan Pembangunan Ekonomi Islam Malaysia (YAPEIM) and cooperative institutions, and while the later was supported by individual owner. This microfinance program directly focuses on poverty reduction by offering financial services to the very poor, often in the form of small credit, Islamic pawnshop is designed as a program to develop the non-bank market. In addition, the financial institutions in Malaysia also support the expansion of Islamic pawnshop to build up the know-how and the infrastructure to hand out individual credit to micro and small entrepreneurs who had no access to formal sector finance before. The set-up of Islamic pawnshop and, accordingly, the nature of the data, seem very well suited to our research question as the program offers its service to several competing Islamic pawnshop institutions at the same time.

JEL classification: C31; D41; G23;

Keywords: Islamic pawnshop; competition; outreach; poverty alleviation;

1. Introduction

Development economics considers creating financial institutions that offer loans to micro and small entrepreneurs (MSE) to be one of the most powerful tools to fight poverty and promote growth (see for example Morduch (1999) and Robinson (2001)). For over a decade, public and private donor agencies have generously provided subsidies to overcome MSEs' lack of access to finance by founding and promoting microfinance institutions (MFIs) in developing and transition countries. In some urban regions where donors have become active, the microfinance market almost seems crowded now. Not only do financial institutions targeted at MSEs compete with informal money-lenders, but different MFIs offer their service to the same client group (see, Rhyne and Christen (1999), and Chaudhury and Matin (2002)).

Among the financial intermediaries, an increased competition should always be welcomed, however, is far from clear. Politicians, banks practitioners and members of the scientific community (such as central bank and securities commission) claim that competition in banks may have negative impacts on both the solvency of individual banks and – as a consequence - the stability of the banking system as a whole (Allen et al. (2001)). If rising competition in financial markets is a subject of controversial discussion in developed countries, the potential virtues and vices of competition in the microfinance markets of developing countries should be even more open to dispute. After all, subsidies were involved to create these markets because existing cooperatives had been unwilling to supply MSE loans on their own account.[3] Is competition indicating that donors' efforts have been successful, and the market has taken over or – on the contrary – is competition undermining the viability of MSE loan suppliers?

The aim of this paper is to shed new light on the as yet unsolved question of whether competition is good or bad in microfinance markets. We analyze empirically how the degree of competition affects the achievements of development projects promoting MSE loan finance. These projects usually provide subsidies to MFIs for capacity and institution building with a dual objective: The MFIs should be enabled to extend its loan supply for MSE (outreach to the target group) while at the same time aiming at cost coverage and profitability (financial sustainability). The latter provides the guarantee that the new business will survive in the market once the donors' support is phased out.

To our knowledge, no empirical study to date has directly tackled the problem of how competition influences the outreach and the financial situation of MFIs. Due to our unique set of micro data on the credit portfolio as well as on cost and revenues of competing micro finance operators in Malaysia, we are able to do this. The data was collected from the survey of several pawnshop comprising Islamic pawnshop (or ar rahnu windows) and conventional pawnshops. The former microfinance program was supported by Yayasan Pembangunan Ekonomi Islam Malaysia (YAPEIM), cooperative institutions, non-banking institutions and while the later was supported by individual owner. This

[3] In Malaysia, the ar-rahnu (an Islamic pawnshop offered by cooperatives) gets the grant from government.

microfinance program directly focuses on poverty reduction by offering financial services to the very poor, often in the form of small credit, pawnshop is designed as a program to develop the non-bank market. In addition, the financial institutions in Malaysia also support the expansion of pawnshop to build up the know-how and the infrastructure to hand out individual credit to micro and small entrepreneurs who had no access to formal sector finance before. The set-up of pawnshop and, accordingly, the nature of the data, seem very well suited to our research question as the program offers its service to several competing pawnshop institutions at the same time.

Supporting more than one pawnshop institution is typical of any microfinance program following the downscaling approach as it is known (i.e., increasing the number of ar-rahnu). In addition, the government is looking for an organization to become a professional pawnshop (up-scaling), development aid is used in downscaling to give incentives for financial institutions (especially cooperatives) to move down the market and open up an ar rahnu window for MSEs. Typically, in a downscaling project, several cooperatives show serious interest in setting up ar rahnu counters. These cooperatives receive subsidies to cover the start-up cost of their new business line. When a new MSE credit unit goes into business, its revenues go towards covering its regular costs with the ultimate aim that revenues will exceed costs, the cooperatives will make profits and continue with their new business on their own behalf when the parent withdraws. Accordingly, being a partner cooperative in such a program means competing with other pawnshops for the same clients if more than one partner cooperatives decide to enter the same local market. For this feature of the program design, downscaling projects serve as a kind of 'controlled field experiment' extremely suitable for studying the effects of competition on the dual objective of the microfinance approach.

Therefore, our results will provide new insights into the problem of optimal policy design, in particular regarding the question as to whether competition between pawnshop is favorable for the development of the pawnshop credit market. By and large, we find that more competition is an impediment to the profitability of pawnshop, but it does not necessarily endanger loan portfolio quality and financial sustainability. The results concerning outreach are ambiguous. We will show that the volume disbursed by each pawnshop unit does not grow with the number of competitors. However, the degree of competition might show stable significant effect on the number of new loans. Thus, average loan size goes up with competition, indicating that competition may force pawnshop units towards serving wealthier clients.

The rest of the paper is organized as follows. Section 2 gives a brief review of the related literature. The data set and the testing methods applied are provided in Section 3. Section 4 contains the discussion of results. Section 5 concludes and points to open questions for further research.

2. Review of Related Literature

Over the past 15 years, numerous papers have pointed out that – due to the special characteristics of the business - competition in banking might show quite different effects to the efficiency enhancing price and volume effects predicted by standard neoclassical equilibrium theory (Cetorelli, 2001). The papers that analyze competition in the context of relationship lending are closely related to our research question. This lending technique is considered to be the most appropriate for lending to young firms and MSEs, even more so in less developed financial markets with little public information on potential clients and low legal enforcement of creditor rights (Rajan and Zingales, 1998). Just as theory would predict, the relationship lending technique is regularly applied in microfinance projects.

However, relationship banking requires some monopolistic power on the part of the lender (Rajan, 1992). Monopolistic power secures lenders' rents on costly information acquisition, it makes it possible to smooth prices between periods and between borrowers of different qualities, and it helps to maintain up the disciplining device of lenders' threat to cut defaulting borrowers off from further credit. Lenders' monopolies are contested when competition arises. Information spillover becomes more likely (Chan et al., 1986; Petersen and Rajan, 1995). Borrowers' switching costs may drop and thereby destroy repayment incentives (Ghosh and Ray, 2001). Price smoothing will become more difficult or even impossible. All in all, competition may undermine relationship lending (Boot, 2000). Accordingly, credit availability to small firms might decrease with rising competition - a hypothesis that was backed by empirical analyzes based on data for the US banking market (Petersen and Rajan, 1995) and subsequently for other countries (Bonaccorsi di Patti and Dell' Ariccia, 2004).

On the other hand, increased competition might enhance the value of a client relationship, inducing banks to invest more in private information acquisition (Boot and Thakor, 2000; Yafeh and Yosha 2001). Consequently, competition may actually strengthen relationship lending – an argument that also has some empirical support (Berger et al., 2001; Berger, Bonime et al., 2004, Elsas 2005). The question about the effects of competition on relationship banking remains open (Boot, 2000; Berger, Demirgüò-Kunt et al., 2004).

Besides relationship lending, promotion of MSE finance has the special characteristic of subsidization. Research on competition in this context is rare, not least because competition is a relatively new phenomenon in the microfinance market.[4] The few existing theoretical papers suggest that the potentially destructive effects of competition on relationship lending might be even more prominent if subsidies are

[4] The first paper to point out that competition has reached the microfinance market and will be important for the future of the microfinance approach is Rhyne and Christen (1999). The paper was presented in 1998 at a conference on Microfinance for pratictioner and academics by Elizabeth Rhyne, one of the most prominent consultants in the microfinance industry. The paper is based on a case study of microfinance in Bolivia, which is one of the furthest developed microfinance markets in the world. Donors first supported microfinance in Bolivia at the end of the 1980s, building up several MFIs, among them BancoSol and Caja los Andes which now belong to the flagship institutions of the microfinance movement (Rhyne, 2001). Rhyne and Christen point to the dangers that the entrance of commercial players into the microfinance market carries for the financial sustainability of incumbent non-profit players.

involved. Inspired by development projects attempting to extend the supply of micro loans in informal markets by offering cheap formal refinancing sources to money-lenders (interlinkage approach), Hoff and Stiglitz (1998) argue along these lines. They show that economists' intuition which "suggests that a fall in the costs of funds to any group in a money market should lower the cost of credit to all through general equilibrium effects" (Hoff and Stiglitz, 1998) might be misleading if subsidies are available. The argument rests on the new entry attracted by subsidies. New entry can undermine the endogenous disciplining and monitoring technologies a provider of microfinance as a typical relationship lender has to rely on.

Similar effects arise if new entry prevents the exploitation of economies of scale or induces micro clients to borrow from multiple sources. These adverse effects can be so strong that the intended effect of subsidies to provide better access to finance for MSEs may even be reversed. Hoff and Stiglitz direct their arguments against the interlinkage approach and even conclude that supporting MFIs in the formal sector is the superior microfinance approach. Nevertheless, their arguments still hold for MFIs as long as the relationship lending approach is applied and subsidies attract new entry. McIntosh and Wydick (2003) argue – much in line with Hoff and Stiglitz - that new entry of MFIs may cause multiple source borrowing leading to clients' overindebtedness and a deterioration of loan portfolio quality.

Furthermore, competition might prevent MFIs from fulfilling their mission of lending to the poor as cross-subsidizing between more wealthy and poorer customers becomes more difficult, and finally, subsidies to non-profit lenders might deter commercial lenders from entering the MSE market. Papers have been written, however, that claim that adverse effects of competition in the microfinance market can be counteracted. Information sharing between competing lenders (Padilla and Pagano, 2000) is mentioned in a Bolivian case study as a device against strategic borrower default in microfinance markets (Rhyne and Christen, 1999). Navajas et al. (2003) argue, partly inspired by the Bolivian market, that competing MFIs can survive if they concentrate on different customer groups and apply different lending technologies.[5]

Additional insights can be expected from empirical research. However, papers systematically analyzing data on competition and microfinance are rare. Vogelgesang (2003) studies the effects of competition on repayment behavior using a data set on the loan portfolio of Caja los Andes, a prominent Bolivian MFI. She finds that borrowing from multiple sources, customers' indebtedness and loan defaults have increased with competition. At the same time, however, repayment discipline of customers with unaffected borrowing behavior has increased – a finding that could be explained by the lender's higher investment in information acquisition. McIntosh et al. (2003) study the effects of competition on micro clients' behavior in Uganda. Similar to the Bolivian situation, they find more multi source borrowing and a decline of repayment discipline. However, overall they conclude a positive effect of competition. The negative impact on repayment behavior did not undermine the financial stability of the financial institutions

[5] Navajas et al. (2003) find empirical evidence backing their model results in the data of two big competing MFIs in Bolivia, BancoSol and Caja los Andes.

while competition contributed positively to outreach and financial deepening. Chaudhury and Matin (2002) find similar results for the "crowded" microfinance market in Bangladesh. Multiple source borrowing and overindebtedness are "being managed from turning into a major default problem" (Chaudhury and Matin, 2002: 46).

All these empirical studies rely on a data set provided by one institution. Competitive effects are analyzed indirectly by information about the MFI's clients and – in the case of Uganda –information about the number of local competitors. Navajas et al. (2003) study a data set supplied by two competing MFIs but they concentrate on the question of whether competition induces market segmentation. In contrast, by using microdata on various pawnshop in Malaysia, we are able to gain insights into how competition influences the outreach and the financial situation of MFIs directly.

3. Methodology

3.1 Competition Hypothesis

Our study aims at empirical insights which could enhance the efficiency of development strategies promoting MSE loan finance. Specifically, we are interested in the question of whether (more) competition is conducive to the success of a project. Consequently, we develop our hypotheses according to the dual objective pursued by such projects in general and, in particular, extending the loan suppliers' outreach to the target group of MSEs and achieving financial sustainability in the form of cost coverage or even profitability.

A major difficulty in measuring success arises from the fact that development programs involve subsidies. It is plausible to expect that a project will have better results if the subsidy input is increased – even if the paper by Hoff and Stiglitz (1998) warns us that the opposite could be true. Consequently, success should be measured per unit of subsidies. This is impossible, however, for most projects because detailed information assigning subsidies to program activities and objectives is usually missing or not available to the public. We do not have data on the exact amount and timing of subsidies, and, even if we did, it would be impossible to assign them to each single loan department separately because most of the YAPEIM's service for partner cooperatives is of a central and standardized nature. However, it is precisely this feature that could help to alleviate the problem. Because all ar rahnu windows were founded under the directions of parent cooperatives, it seems plausible to assume that all pawnshop loan departments that are of the same size and the same age have received roughly the same support. Therefore, if we can control for age and size, we should be able to capture significant effects of the competitive situation on the achievements of loan suppliers, even if subsidies are involved.

A second difficulty might arise from the dual objective of the program itself if outreach and financial sustainability are not complementary aims but involve a trade-off. In the extreme, a pawnshop loan department could attempt to maximize outreach to the

smallest customers, even if each new loan would produce further losses. In our context, this problem seems of secondary importance, however. The business policy of each MSE loan unit can plausibly be assumed to be very similar because all of them were set up according to the strategy of the parent cooperatives and all are owned by a private commercial cooperatives.

In distinction to non-profit MFIs, for-profit pawnshops are unlikely to give priority to outreach if that will affect profits negatively in the long run. Marginal positive profits are a necessary precondition for the financial sustainability of the MSE loan business. Without reaching the brink of profitability, commercial loan suppliers can or will not be prepared to continue with the business unless they are provided with further subsidies.

Therefore, profits are the most important indicator of financial sustainability. The majority of the theoretical literature predicts a negative effect of more competition on profits. The reasons for this vary, however, and they also have different welfare implications. A decline of profits might be due to the price effect of competition predicted by neoclassical equilibrium analysis, implying a rise in welfare. The opposite might be true if declining profits are caused by competition undermining relationship lending. As some authors claim that competition may even strengthen relationship lending, rising profits cannot be completely ruled out. Therefore, in our first set of empirical tests aimed at capturing the objective of financial sustainability, we ask whether the degree of competition negatively affects the profitability of pawnshop loan departments and – by employing different cost and revenue indicators – what the likely reasons for this are.

Outreach to the target group has several dimensions in itself. Outreach could be measured in loan volume, it could be measured in client numbers, or it could also be interpreted in the sense of reaching the target group of low-income clientele. Although the literature argues that competition might lead to a fall in the overall supply of MSE loans, this hypothesis would make little sense in our context where first entries into a new market are promoted. The number of pawnshop units offering MSE loans should have a positive impact on total outreach purely by size effects. It is much less obvious, however, how competition affects the outreach of a single pawnshop loan department. More competition might show a positive effect caused by the standard price-volume effect or by clustering and marketing effects.

On the other hand, more competition might have an adverse effect on branches' turnover because competition makes relationship lending more difficult and requires more investment in each client relationship. Therefore, in our second set of tests we analyze – again by employing different indicators in an attempt to capture the dimensions of outreach mentioned above – whether the outreach of a single pawnshop unit increases or decreases with the degree of competition.

3.2 Data Set and Variables

The data for our analysis comes from survey. Most importantly, we have cost and revenue information on the pawnshops participating in the credit program. The information comprises a cross-sectional survey of the loan departments for the first quarter of 2006. In addition to cost/revenue figures, the survey contains information on the opening and, if applicable, the closing date for every reporting department, the name of the owner that establishes it, and the city/town where the branch of the pawnshop that introduced the pawnshop loan department is located.

By the end of 2004, the five participating institutions had established pawnshop loan department in 135 branches. As the pawnshop loan departments operate as separate profit centers within each branch, we will refer to the pawnshop loan departments just as pawnshop branches or branches in the following sections. Figure 1 shows the number of pawnshop branches. It shows that 37.8% of total samples is conventional pawnshops, while the remaining is Islamic pawnshops.

In addition to branches, the participating institutions set up non-autonomous pawnshop units, known as windows. Windows are attached to parent pawnshop to which they report their results. Data on windows comes from a second data set that includes opening and – should the situation arise - closing dates of all pawnshops units (branches and windows) for each participating institutions sorted by state. Besides the name of the state, the data set names the location each pawnshops unit is operating in as well as the number of customers as a proxy for the size of the market. Figure 2 illustrates the distribution of the 135 branches across the states.

Figure 1: Number of Pawnshop per types

Institutions	**Pawnshop Branches**
Ministry of Housing and Local Government	51
Bank Rakyat and Bank Pertanian	58
Ar-Rahnu Window	6
Cooperatives	10
YAPEIM	10
Total	135

Notes: Ar-Rahnu windows including Permodalan Kelantan Berhad and Muassasah Gadaian Islam Terengganu

Figure 2: Number of Pawnshop Branches per State

Pawnshop Branches/State	Ministry of Housing and Local Goverment	Bank Rakyat and Bank Pertanian	Cooperatives	YAPEIM	Ar-Rahnu Window

Johor	3	9			
Melaka	5	1			
Negeri Sembilan	0	3	1	1	
Perak	6	3	2		
Pualau Pinang	7	1			
Selangor	7	12	2		
Kuala Lumpur	4	7		1	
Kedah	5	10	2	2	
Kelantan	5	6	1	3	6
Pahang	4	4	2		
Perlis	4	1		2	
Terengganu	1	1	1	1	
Total	51	58	10	10	6

Notes: Ar-Rahnu windows including Permodalan Kelantan Berhad and Muassasah Gadaian Islam

3.3 Independent Variables

In this section we specify our independent variables. Typically, the Hirschman-Hefindahl-Index (HHI) would be employed to measure the degree of competition. In our case, the relevant proxy for the market share of a single pawnshop-branch would be the branch's share in the aggregate credit portfolio of all pawnshop-branches in the state. However, as we are missing the data of two participating pawnshop, data on the credit portfolios of all MSE branches is not available. Apart from the lack of data, using the HHI would have the disadvantage of being highly subject to the endogeneity problem. This problem arises as the direction of causality between competition and performance of pawnshop or competition and outreach is not instantly clear. Profitability may in particular determine the market share of the pawnshop branches in a state. Therefore we instrument our proxy for the degree of competition differently. In our case the number of pawnshops present in every single town/state at the beginning of 2006 reveals the state of competition. This indicator enables us to take into account the complete range of competitors. Moreover, due to the large set up costs of market entry, entry and exit is affected primarily by predetermined factors, e.g. institutional environment or the strategic goals of partner cooperatives (Berger, Demirgüò-Kunt et al., 2004). Therefore the endogeneity problem should be significantly mitigated.

Each distinct pawnshop operating a pawnshop department in a certain location is taken as one competitor. Thus, the number of competitors (**NumberC**) (is measured by the number of pawnshop in each state.) range from one to five (number of partner institutions). If one pawnshop owns more than one pawnshop branch or window in a state, all branches and windows belonging to the same pawnshops are counted as one competitor. In very few cities, some pawnshops are running windows only. Nevertheless, the pawnshop is present as a competitor and therefore is counted as such.

Parent pawnshop branch and reporting windows may be located in different towns. This could cause distortions of cost/revenue figures of parent branches, for instance, if the figures for the parent branch contain the results of a window that is a monopolist in its location while the parent branch faces three competitors. To account for such distortions, we would have had to remove parent branches from our data set if parent branch and corresponding outlet face different competitive pressure. Fortunately, however, the sample contains only windows that face the same competitive environment as their parent branch. Thus, we have kept the information on all parent branches in the sample. The competitive environment of pawnshop branches is shown in Figure 3. The pawnshop branch is a monopolist in seven cities. The full range of all possible competitors is present in two cities. Most frequently, two or three distinct pawnshops operate in the same city.

Figure 3: Competitive Environment

Pawnshop Branches/State	Number of Competitor
Johor	3
Melaka	5
Negeri Sembilan	2
Perak	7
Pulau Pinang	7
Selangor	8
Kuala Lumpur	5
Kedah	7
Kelantan	8
Pahang	5
Perlis	5
Terengganu	2

To control for effects other than that of multiple entries into the local micro-lending market, we employ several control variables. Most importantly, we expect the age of each pawnshop unit to influence its performance due to economies of scale. The portfolio volume of most branches grows over time while certain fixed costs remain constant. Furthermore, experience leads to greater professionalism of the loan officers and thus could have a positive impact on results – to name just a few reasons for the likely impact of the **Age** variable. When a pawnshop branch becomes older, the marginal effect of the time it has been in operation is likely to change. Therefore, we have included the age squared variable (**AgeSqr**) that picks up differentiated marginal effects of the **Age** variable on the relevant dependent variables. The age distribution in the complete sample is shown in Figure 4.

To control for the different structures of administrative costs, the size of each branch defined by the number of loan officers (**Size**) is included in the estimation model.

Figure 5 reflects the size distribution of the sample. It shows that pawnshops with the number of loan officers less than five represent 56.3% of total sample.

A cooperatives type dummy variable (**Type**) ranging one for conventional and zero for Islamic to capture the specific influences of the parent pawnshops. We do not have access to region-specific socio-economic information for 2006. In order to capture economic differences between the 12 regions, we employ a region dummy (**Region**) that is one for developed state and zero for less developed state.

Figure 4: Age of Pawnshop Branches

Age Range	No of Pawnshops
< 10 years	24
11 – 30 years	19
31 – 60 years	12
61 – 100 years	9
101 – 200 years	70
> 200 years	1

Figure 5: Size distribution

No. of Loan Officers	No. of Pawnshops
< 5 people	76
5 – 10 people	52
> 10 people	3

From the above discussion, we can specify the estimation model as follows:

$$Lnloanvol = \sim_0 + \sim_1 HHI \sim_2 lnAgeSqr + \sim_3 lnSize + \sim_4 lnNumberC + \sim_5 Type + \sim_6 Region + u$$

where **Lnloanvol** refer to average loan offered by the pawnshops per day times the average customer per day that we measure as a proxy to outreach, **HHI** is the ratio between total loans per month provide by the pawnshops over total loan supplied per month by all pawnshops in the market, **AgeSqr** is the square of age for each pawnshops, Size refers to the number of loan officers in each pawnshops, **NumberC** refers to the number of competitor in each state, **Type** refers to to the type of the pawnshops operation wether conventional or Islamics, **Region** refers to the characteristics of the region wether it is in the category of developed state or less developed state and **u** is disturbance term.

In this study we conducted a survey that used the operators of pawnshops over 12 states in Malaysia. The survey was conducted in the early year of 2006. For that

purpose, we designed a questionnaire for the operators.[6] The questionnaire is divided into three sections; the first section explores the background of the operators such as types of ownership, educational level and sources of capital. The second section inquires respondents' business operation that covers the types of collateral, storage fees or interest rate and the total transaction per day. While, section three inquires operators' problems that include the competition among the pawnshops. We do not a complete data to test for sustainability. Therefore, this study only uses one part of the questionnaire to examine the outreach of pawnshop.

We will use Ordinary Least Square method to estimate the above model above. The results are reported in Figure 7. Then, we will also assign cross-section weight in our estimation since it takes into account the presence of cross-section heteroskedasticity in estimation. It allows for a different residual variance for each cross-section. Residual between different cross-section and different periods are assumed to be zero. In addition, we use White's method of estimation to take care of the heteroskedasticity problem, therefore the estimators reported are heteroskedasticity consistent covariance estimate (HCCE), see White (1980). Jacque Bera statistics on the residual is calculated to inspect whether the residuals are normally distributed. The reported probability is the probability that a Jacque Bera statistic exceeds the observed value under the null hypothesis. A small probability value leads to the rejection of the null hypothesis of a normal distribution. The estimation results are reported in Figure 7.

4. The Empirical Results

This section provides empirical evidence on the determinants of pawnshop outreach in Malaysia. A description of the characteristics of the variables used in the study is given in Figure 6, which reports the statistical means, standard deviations, skewness and kurtosis.

Figure 6: Descriptive Statistics of Variables

[6] The questionnaire is available on request from us. We would like to thanks to Michael Scully from Monash University and David Hume from University of Manchester for giving their valuable suggestions and comments on our earlier draft.

Variable	Mean	Standard Deviation	Skewness	Kurtosis
Loanvol	1850218	722112	6.853	50.315
HHI	0.7404	1.18967	3.079	12.373
Agesqr	46656	868.52	10.333	113.830
Age	17.02	24.147	4.830	34.599
Size	4.52	2.585	1.128	1.174
NumberC	5.8667	1.82356	-0.976	0.333
Type	0.38	0.487	0.510	-1.766
State	0.56	0.499	-0.226	-1.978

The mean for Loanvol shows that on average each pawnshop is able to supply loan by RM1.8 million. Whereas mean for HHI shows that on average our sample of pawnshop captures at least 70% of the market share in pawnshop industry. Instead agesqr we use the data of age to examine the descriptive characteristics of that variable. The mean value for age variable shows that our sample of pawnshop has been established almost for 17 years. While, the mean value for Size shows that on average each pawnshop in our sample has more than 4 loan officers who is in charge in loan processing activity. Meanwhile, the mean value for NumberC illustrates that on average each pawnshop in Malaysia have almost more than five competitors in the industry. Whereas mean value for type variable show in general many of the pawnshops in our sample operate pawning activity based on shari'a. It means that they offer ar-rahn scheme. Besides, the mean value for state shows that the distribution of the region between the developed and less developed state is almost similar.

The results in Figure 6 also report the values of standard deviation, skewness and kurtosis.[7] Overall, the value of skewness for all variables is considered to have a normal distribution. The kurtosis value of all variables is also far from zero.[8] Thus, this data have a normal distribution.

The estimation results for this study are shown in Figure 7 by using the ordinary least square (OLS) (column 2) and heteroskedasticity consistent covariance estimate (HCCE) (column 3) techniques.

Figure 7: The Estimation Results

Variable	OLS	HCCE

[7] The value of skewness (lack of symmetry) and kurtosis (tallness or flatness) are often used in studying the 'shape' of a probability distribution.

[8] Probability of Distribution Function (PDF) with values of kurtosis less than three for firm are called as playtykurtic (fat or short tailed). In contrast, a PDF with a kurtosis value greater than 3 are called as leptokurtic (slim or longer tailed).

Constant	12.323	12.325
LnHHI	0.977 (8.565)*	0.978 (6.333)*
LnAgesqr	0.241 (2.811)*	0.481 (2.615)*
LnSize	0.913 (3.602)*	0.910 (3.206)*
LnNumberC	-0.628 (2.129)*	-0.627 (2.681)*
Type	-0.290 (0.731)	-0.289 (0.656)
Region	-0.817 (2.730)*	-0.817 (2.606)*
N R^2 F DW	86 0.685 28.567 2.078	86 0.684 28.517 2.074

Number in parenthesis is the t-test
*Significant at 1% level

The estimated coefficients of HHI, Agesqr and Size are significant and positively related to loan volume. Whereas the estimated coefficients for NumberC, type and region are negatively related to loan volume but significant except for Type. From these results we find that: first, pawnshop with higher market share is able to supply more loans to the customer. This means the increase in market share of pawnshop would increase the outreach of the pawnshop to the customer.

Second, pawnshop that has been established for the long time is well known to the customer so it would able to supply more loans to the customer and finally increase the outreach in pawnshop industry. In addition, older pawnshops are successfully developed a good relationship with customers.

Third, the size of the pawnshop would also influence the outreach in pawnshop industry. From this study we find that pawnshops with more loan officers are able to supply more loans. The customer prefers to go to pawnshops that can process their loan within few minutes.

Fourth, although the value for NumberC variable is negatively correlated with loan volume but it is significant. This shows that the number of competitor would influence the supply of loans. More competitors mean that the supply of loans would decline. Fifth, the type of pawnshop does not influence the loan volume. But we would expect that the outreach for conventional pawnshop is higher because the number of conventional pawnshop branches in Malaysia is higher than pawnshops which operate Ar-rahnu scheme.

Sixth, the value for Region variable is negatively correlated with loan volume but the significance of this variable show that Region is important in influencing the loan volume. We would expect that the loan volume in developed state is higher than in less developed state because people in developed state have higher cost of living. So the demand and hence, the supply of loan would be higher in developed state. But, our results show that people in all over the region would go to pawnshop to get money to support their consumption expenditure regardless of their region.

5. Conclusions

The aim of this study is to shed new light on the as yet unsolved question of whether competition is good or bad model in pawnshop industry. We analyze empirically how the degree of competition affects the achievements of development projects promoting micro-credit. By using the sample of 135 pawnshops in Malaysia, we have tested a model of outreach level. The results show that the higher degree of competition would encourage pawnshops to supply a higher loan. However, a bigger number of competitors would not produce a higher loan supply. Therefore, the market share of each pawnshop should be increased, but not the number of pawnshop in each state. It implies that each pawnshop should be asked to increase their capital in order to expand their loans.

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