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Socioeconomic Factors Influencing Participation in Mobile Money by Poor Fishing Families of a Small Town in the Philippines

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Abstract – *The study analyzed selected factors that influenced participation in mobile money by fishing families of a small town municipality in the Philippines. It investigated the socioeconomic characteristics of families and heads of the family; describe their engagement in mobile money; analyze the influence of selected variables on the family's participation in the technology. It utilized a survey to gather needed data and regression analysis to determine relationships among selected variables. Heads of the family were mostly male with low educational preparation. Family income was not enough, the family size was big, and economic dependency was relatively high. Families transacted with comparatively small amounts of money. Most used mobile money for receiving cash when in dire need of funds. But there were only one or two providers in the barangay. Higher education of the head of family enhanced engagement in mobile money. Nonetheless, low education did not negatively affect participation. High family income resulted in more amount of money sent. The large size of family and high family expenses brought about a greater amount of money received since family size spells consumption level which in turn influences the amount of spending. Such a situation puts pressure on income-earning members to frequently send money to the home base.*

Keywords – *Fishing families, mobile money, Philippines, socioeconomic profile*

INTRODUCTION

Mobile phones have been continuously used as a means to conquer financial exclusion in several developing countries, the most prominent among them being Kenya and the Philippines (Colombage, 2012). A World Bank's (2009) study revealed that Safaricom and M-PESA in Kenya allotted funds to educate consumers and conduct awareness-raising. Safaricom has outsourced marketing resources to implement road campaigns and consumer education in rural areas. The Philippine Central Bank worked with the mobile money industry to develop an environment that would facilitate mobile money services. It enabled non-banks to offer mobile money services and allowed non-bank agents to perform cash-in and cash-out (Lal & Sachdev, 2015).

Aside from researches on the tools and infrastructures that enhanced participation of the poor in mobile money, thereby advancing financial inclusion, there have been various investigations on the factors that helped or hindered such participation. The mobile-based application was found to be acceptable to users in terms of usefulness, ease of use and satisfaction (Ventayen et al., 2019). A study in Bangladesh concluded that the intention to use mobile banking was positively affected by ability, integrity, benevolence, perceived usefulness, perceived ease of use relative to cost and time advantages (Kabir, 2013). Similarly, a study in Tanzania deduced that participation in mobile financial services was significantly influenced by perceived usefulness, perceived cost and social influence (Lema, 2017). This is affirmed by another study on a particular technology that users rated highly in terms of accessibility, reliability, timeliness, and convenience (Ventayen et al., 2018).

On the other hand, a study in Sri Lanka inferred that mobile phones were barely used for fund transfers and payments. A low level of awareness of mobile finance was a major deterrent in the expansion of mobile money technology (Colombage, 2012). Moreover, a study of Owusu (2017) revealed that some of the factors that restricted usage of mobile money in Ghana were performance expectancy, social influence and the fact that the country is not a cashless economy. Kabir (2013) likewise found that in Bangladesh, participation in mobile finance was indirectly related to factors such as performance risk, security/privacy risk, time risk, social risk, and financial risk. Additionally, Anthony & Mutalemwa (2014) disclosed that the adoption of the Z-Pesa service in Tanzania was hindered by factors like perceived ease of use, perceived usefulness, perceived cost, perceived mobility, perceived trust and perceived expressiveness. However, another study by Lema (2017) pointed out

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that participation in mobile fund services in the same country was not significantly affected by perceived ease of use, perceived risk, and perceived trust.

OBJECTIVES OF THE STUDY

This study focused on a set of factors that may influence participation in mobile money specifically by fisherfolks, one of the poorest sectors in the Philippines (PSA, 2017), and in one of the poorest towns of one of the poorest provinces (PSA, 2014). It analyzed the respondents' socioeconomic characteristics vis-à-vis their participation in mobile money technology. Specifically, the investigation: 1) determined the socioeconomic background of fishing families and family heads; 2) described their participation in mobile money technology, and 3) analyzed the factors that influence their participation in the technology. It forwarded recommendations on how government agencies and local government can positively enhance the participation of fishing families in mobile money technology thereby advancing the financial inclusion of the poorest of the poor.

MATERIALS AND METHODS

The study covered families with fishing as a primary source of income and currently utilizing mobile money. It used the face-to-face, one-on-one interview to determine the socioeconomic profile of and participation in mobile finance by selected fishing families. For the profile, it surveyed the socioeconomic background of respondents using identified variables. For participation in mobile money, it obtained information on the amount of money transacted through mobile money technology.

Analytical Framework

Figure 1 below exhibits the analytical framework of the study which is anchored on existing literature and theories as discussed earlier. The pre-identified factors, which on one hand were the independent variables, were assessed through multiple regression analysis to estimate if and how they influence participation in mobile money, which on the other hand was the dependent variable.

The regression equation below was utilized to answer the third objective of the study. The dependent variable was the sum total of mobile money sent monthly or estimated value of monetary transactions of target families in terms of sending. The independent variables were sex and educational preparation of head of the family, size of family, the average age of children which reflects economic dependency, family income and expenses on food. The study ran two multiple regression statistics, the second one being the amount of mobile money received as the dependent variable.

$$M = \beta_0 + \beta_1 Sex + \beta_2 Educ + \beta_3 FSize + \beta_4 Age + \beta_5 FInc + \beta_6 FExp + \varepsilon$$

M = total amount of mobile money sent per month
Sex = sex of head of family, 0 = male and 1 = female
Educ = educational attainment of the head of the family
FSize = Size of family
Age = average age of children
FInc = annual family income in the past 1 year, in Philippine Peso
FExp = annual family food expenses in the past 1 year, in Philippine Peso

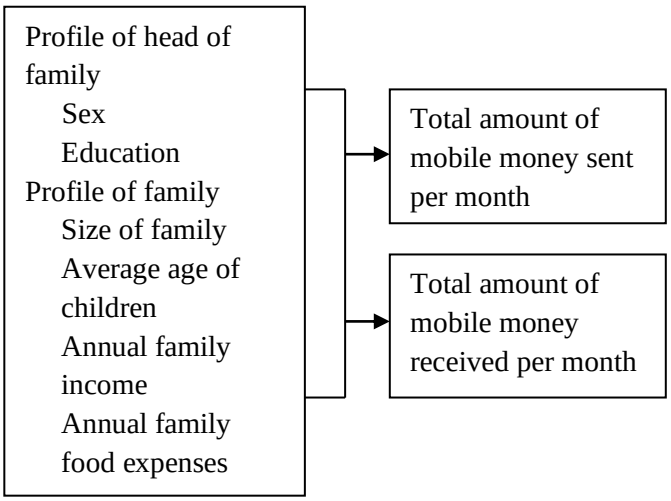

Fig.1. Socioeconomic factors influence participation in mobile money technology.

The succeeding section presents relationships, both direct and indirect, between selected variables and the amount of mobile money transacted by the fishing families. The conditions, as discussed, may mean that the transfer of money from one family member to another may be more prevalent in some families than others, necessitating a greater engagement in mobile money.

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RESULTS

This portion tackles the profile of fisher folks and their families, their engagement in mobile money, and the results of regression analysis relating selected indicators and engagement in the technology.

Socioeconomic Profile of Fishers and Their Families

The socioeconomic variables included sex and educational preparation of head of the family, size of family, the average age of children, family income and food expenses. Findings from the survey are presented in Table 1.

Table 1. Socioeconomic Profile of Respondents

Indicator	F n=320	Indicator	F n=320
Sex of head of the family			
Female	74	Male	246
Education of head of the family			
Grade 1	32	Grade 4	73
Grade 2	151	Grade 5	10
Grade 3	49	Grade 6	5
Size of family			
1-3	19	10-12	59
4-6	117	13-15	9
7-9	116		
The average age of children			
0-9	81	30-39	18
10-19	151	40 & above	3
20-29	67		
Annual family income (PhP)			
2,400-112,399	249	332,400-442,399	5
112,400-222,399	50	442,400 & above	2
222,400-332,399	14		
Annual family food expenses (PhP)			
1,800-38,799	83	112,800-149,799	13
38,800-75,799	160	149,800 & above	3
75,800-112,799	61		

(Gumba, 2018)

More than half (77%) of heads of family were male. None of them has taken secondary education, 47% of whom reached Grade 2. Family size was relatively big with 37% having 4-6 members while 36% with 7-9. Economic dependency was likewise high as reflected by the average age of children, whereby 25% of families have an average age of children of 0-9 and 47% of 10-19. Of the families covered, 78% earn an annual income of less than PhP112,400 or less than PhP9,367 per month. On the other hand, annual expenses for food alone was PhP38,800-75,799 for half of the families or about PhP6,316 per month. This did not include spending on water, fuel, electricity, education, health, and clothing, among others.

Participation of Families in Mobile Money

Participation in mobile money technology was measured by the amount of mobile money set by respondents per month and the amount of mobile money received per month. Table 2 shows the data gathered from the survey.

Table 2. Mobile Money Sent and Received by Respondents (per month, multiple answers)

Amount of mobile money (PhP)	F	Amount of mobile money (PhP)	F
Sent by respondents			
0	195	2001-3000	8
1000 or less	88	3000 & above	14
1001-2000	45		
Received by respondents			
0	20	2001-3000	40
1000 or less	220	3000 & above	38
1001-2000	159		

(Gumba, 2018)

Families transacted in relatively small amounts of money. Among the respondents who sent cash through m technology, 57% of all stated transactions amounted to PhP1000 or less and 29% amounted to PhP1001-2000. Of the total 320 respondents, 195 engaged in mobile money but only for receiving cash. Among the respondents who received mobile money, 48% of all stated transactions amounted to PhP1000 or less and 35% amounted to PhP1001-2000. Of the total respondents, 20 engaged in mobile money but only for sending cash. It can be gleaned from data that fishing families in the study area were significantly benefitted by mobile money when they were in dire need of funds

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or when any amount would help them respond to financial emergencies at home.

Data from the survey likewise revealed that families could access mobile money services from only one or two providers available in the barangay. The frequency of mobile money transactions by most families was about 6-12 times a year.

Socioeconomic Factors that Influence Engagement in Mobile Money

The multiple regression analysis revealed that a number of socio-economic indicators (independent variables) significantly influenced the engagement of families in mobile money (dependent variables). Please refer to the analytical framework presented earlier.

Table 3. Multiple Regression of Socioeconomic Factors and Amount of Mobile Money Sent

Dependent variable: Amount of money sent					
	Unstandardized coefficients		**Standardized coefficients**		
Model	**B**	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	-6576.252	8803.857		-.747	.456
Sex	2833.133	6510.677	.025	.435	.664
Educ	4837.637	1777.064	.168	2.722	.007
FSize	-299.154	716.818	-.025	-.417	.677
Age	-244.060	8526.263	-.002	-.029	.977
FInc	.057	.022	.154	2.628	.009
FExp	.014	.018	.045	.766	.444
Significant variables (and coefficients): Education (+4837); Family income (+0.057)					

Tables 3 and 4 provide the results of the multiple regression analysis. The higher the educational preparation of the head of the family, the greater the amount of mobile money sent by the family. The analysis revealed that the educational level influenced the amount of money sent at +4837. Nonetheless, while higher educational level appeared to positively affect the use of mobile fund technology, low education of family heads did not seem to have an indirect relationship to engagement in mobile money. Additionally, as the educational preparation of the head of the family advanced, the amount of mobile money received by the family grew. Statistical results disclosed that educational attainment affected the amount of money received at +4123.

Table 4. Multiple Regression of Socioeconomic Factors and Amount of Mobile Money Received

Dependent variable: Amount of money received					
	Unstandardized coefficients		**Standardized coefficients**		
Model	**B**	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	-6418.852	9734.794		-.659	.510
Sex	1500.349	7199.128	.012	.208	.835
Educ	4123.611	1964.974	.129	2.099	.037
FSize	1627.902	792.616	.123	2.054	.041
Age	2239.710	9427.846	.014	.238	.812
FInc	-.004	.024	-.010	-.168	.867
FExp	.058	.020	.169	2.894	.004
Significant variables (and coefficients): Education (+4123); Size of family (+1627); Family expenses (+0.058)					

As household income increased, the amount of mobile money sent also increased. The regression analysis showed that family income influenced the amount of money sent at +0.057. The larger the size of the family, the higher the amount of mobile money received. Statistical analysis indicated that the size of the family affected the amount of mobile money received at +1627. Bigger family expenses appeared to result in more amount of mobile money received. The data analysis revealed that family spending had some bearing on the sum of money received at +0.058. Data showed that as the expenses of fishing families expanded, the number of money transfers made by respondents also grew, implying that the former variable directly correlated with the latter.

DISCUSSIONS

A relatively higher educational level of head of the family led to a greater amount of money sent and received. This conclusion is consistent with the findings of Garcia & Tessada (2013) that education may increase financial literacy, thereby increasing financial market participation (Cole et.al, 2014; Cooper & Zhu, 2016). Formal education presumably enhanced the usage of new technology due to improved learning ability, better comprehension, higher self-confidence and a relatively greater ability to adapt. It boosted the level of

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conviction of the respondents to transact money through mobile technology as evidenced by the increasing sum sent, as the head of the family climbed up the formal education ladder. It increased the user's ability to learn new things introduced by technology. The users had a better comprehension of the technology so that its reliability was easily accepted. They were able to adapt to the processes that went with it.

Furthermore, the growing sum of mobile money sent can likewise be traced back to the acceptance by the family heads – rendered by their educational attainment – of the wide variety of choices available to the recipients of mobile finance, hence the expanded quantity of money sent to make room for those alternatives. With relatively more years of schooling by the heads of family, job opportunities likewise became larger and available, even outside of their town. Accordingly, better employment and income opportunities for the family heads converted to the more frequent use of mobile financial services.

Nonetheless, while higher educational attainment appeared to influence positively the usage of this technology, low educational levels of heads of the family did not seem to have a negative correlation to the usage of mobile money. This may open more and bigger windows of opportunity for mobile money service providers and industry developers because low educational levels did not pose an obstacle to participation in the technology. Although higher educational preparation of heads encouraged greater engagement in mobile money, low educational attainment did not constitute a deterrent to participation in the technology.

High family income resulted in more amount of money sent. This is consistent with the theory of economic thinker John Maynard Keynes who developed the Consumption Function (Mankiw, 2013) which describes a relationship between income and consumption, specifically that when income increases, consumption normally increases also. As the income of fishing households increased, the income-earner was able to meet economic needs at home, which then led to better able to send money to household members outside of town. Moreover, the results of the statistical analysis may be traced to the information gathered from interviews which revealed that households with more income sent their children to schools outside of their barangay, and even outside of town. The amount needed to underwrite their education and living expenses were frequently sent through mobile money services. Additionally, existing research finds that women's income is positively linked to household spending (Kornrich & Roberts, 2017). Female income prompts a significant increase in the expenditure share of children's needs while male income has no impact on children's expenses (Bhupal & Sam, 2014).

The results of the study further revealed that as the size of fishing families extended, so did the quantity of money received through mobile fund services. What may be surmised from this is that the sum of money sent had to tally with the presumed financial need being addressed. A similar set of data manifested that as the spending of the target families shoots up, the number of money transfers made also grew, suggesting that the former variable directly correlated to the latter. As pointed out earlier, fund transfers to fishing families were considered for underwriting their numerous expenses.

Big family size and high family expenses brought about a greater amount of money received, the variables being interrelated since family size spells consumption level which in turn influences the amount of spending. Such a situation puts pressure on income-earning members to send mobile money to the home base. In the Philippines, the dependency age is set at 15 and below, but children are expected to attend school until they reach 18 or 19 to finish senior high school. A bigger number of children aged 19 or below would mean that more family members are economically dependent on a lesser number of actual or potential income earners.

RECOMMENDATIONS

This study proposes that factors internal to the fishing families may be considered to enhance participation in mobile money. It suggests that stakeholders may capitalize on the socioeconomic factors that induce participation in mobile money to reinforce the policies and structures established by government agencies and industry developers, which are external factors. Pertinent government units and local government may establish local-level mechanisms to enhance the financial inclusion policies of the Philippine Central Bank. Since mobile money appeared to be readily adaptable to users with a relatively low level of education, popularized information campaigns may be implemented as done in Kenya. Users with comparably higher education may be mobilized to teach their counterparts. Since participation in mobile money is induced by higher expenditures and bigger family size, opening up to more mobile money service

providers may intensify competition among providers and drive the transaction fees down for the ultimate benefit of users who are constantly pressured to make ends meet. The local government may step up livelihood, especially for women, to augment income thereby further stimulating the flow of money in the local economy and maximizing the benefits of mobile money. Living under subsistence, families of fisher folks need to receive cash as fast as they need to spend it. Making the environment of mobile money adaptable to non-bank entities would facilitate the speed of cash-in and cash-out processes. Although Garchitorena is still a cash-based community, this may not be a limiting factor as in the case of Ghana (Kabir, 2013), if more non-bank entities will be encouraged to join, thereby accelerating the mobile cash-in and cash-out transactions. These recommendations hope to match the internal and external factors that influence participation in mobile money and ensure the long-term gains of the technology as an effective tool for the financial inclusion of the poor.

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