

ECONOMIC BEHAVIOR OF BUSINESS HOUSEHOLD IN BRANCHLESS BANKING SYSTEM

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ABSTRACT

This study aims to analyze the economic behavior of business household who conduct the financial transactions at the agent in the branchless banking system; how the existence of branchless banking in the rural area affects the economic behavior of the business household, and vice versa. This study is the first study which analyzes household economic behavior in the branchless banking system. The analysis is based on the economic behavior model of agricultural household, where there is a relationship between production decisions and consumption decisions, as well as among other economic decisions, called dynamic model. The research was conducted in Bogor District, a large and remote area adjacent to Jakarta City, the capital city of Indonesia. As many as 97 samples of the business household were selected purposively from 13 out of 40 sub-districts of Bogor District. The estimation was conducted using 2SLS method. The model describes the existing condition that explains the uniqueness of the economic behavior of the business households in the branchless banking system. The results show that the presence of branchless banking agents as measured by the value of transactions conducted by households affect the economic behaviour of the business household through non-food consumption expenditure with low impact. On the other hand, economic behavior variables which are expected to affect the value of transactions do not occur. The results explain that the utilization of banking services provided through agents in the branchless banking system is still in the form of payment transactions. In addition, that the presence of branchless banking in rural areas has not been affecting production activities, and vice versa. Therefore, this study suggests further study to find out the factors that hinder business actors to be willing to perform financial transactions related to production activity through branchless banking agents.

Keywords: Branchless banking, Financial transaction, Agent, Economic behaviour variable, Transaction value.

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INTRODUCTION

World Bank survey data (2014) showed that only about 50³⁴ percent of the world's adult population has access to formal financial institutions. In countries such as Bangladesh, India and the Philippines, the percentage of adult residents³⁷ who have had access to formal institutions is 39.6%, 35.2%, and 26.6%, respectively; while in Indonesia only about 19.6%. The low percentage of adult³⁵ population who did not have access to formal financial institutions, partly due to the uneven distribution of the existence of these institutions. In general, the existence of these institutions was more concentrated in urban areas than in rural areas. Hisighsuren (2006) explained that the main factors that hamper formal financial institutions from entering rural areas are wide geographical spread, low population density, and small transaction volume, resulting in high operational costs, and large costs to build the physical office of the bank in remote area. McKay and Pickens (2010) explained that one form of a potential financial delivery channel to serve 'unbanked' people who mostly live in rural areas is branchless banking, i.e. a banking service provided by financial service providers to customers without having to come to the bank office. To that end, the bank uses a third party or agent as an extension of bank services in the rural. Some observations found that branchless banking lowers the cost of bank services in remote areas rather than opening the conventional bank branches (Ivatury, 2008; Khattab, 2012; Jain, 2015).

A branchless banking system involves four major elements, namely service users, providers, agents, and digital devices. Services users (customers) are communities that have not been served by banking facilities at all, called "unbanked people", as well as communities that have been served, but the facilities used are still limited, called "underbanked people" (Untoro *et al.* 2014). Providers of branchless banking may come from bank or non-bank institutions, such as

telecommunications companies, or third parties that provide mobile payment services (m-payment). However, this study analyzes bank-independent banking providers. In performing its role as a branchless banking provider, the bank cooperates with a third party (agent), which acts as an extension of the bank to the consumer to provide limited banking services at the residence of agents and consumers. The agent's role is as an intermediary in cash transactions, such as digital cash exchanges or increasing savings balances, or otherwise converting money from digital forms into cash and withdrawing savings, as well as transferring and servicing online payment transaction services. Digital devices used may be magnetic stripe cards, such as credit cards and debit cards, smart cards, cell phones, computers, sales devices (point of sales/POS) or electronic data capture (EDC) that can read user data through the card, or other digital devices.

In Indonesia, branchless banking for low-income communities is a relatively new delivery channel or banking technology, proclaimed in the National Strategy for Inclusive Finance, where banks bring services closer to customers in remote areas. Bank Indonesia (BI) calls it the Digital Financial Services (LKD) program, aiming not only to expand financial access, as well as to increase technology-based economic activities (Untoro *et al.*, 2014). Another institution that conducted a branchless banking program is the Financial Services Authority (OJK). OJK calls its program under the name "Layanan Keuangan Tanpa Kantor Dalam Rangka Keuangan Inklusif" or "Laku Pandai"—Non-Office Financial Services in the Framework of Inclusive Finance. The aim of the program is to provide simple, easy-to-understand and appropriate financial products that meet the needs of people who have not been able to reach current financial services, and with the increasing number of members of different community groups in different parts of Indonesia using service finance, the economic activity of the community is expected to be more fluent so that it can encourage economic growth and equitable development among regions in Indonesia, especially between villages and cities. The

products offered are: (a) Savings with the characteristics of Basic Saving Account (BSA), (b) Credit / Financing to Micro Business Actors, and (c) Other financial products such as Micro Insurance (OJK, 2015).

Siregar (2009) stated that farm household becomes an important highlight in the studies because it is the smallest unit that will describe the success of a development program. National planning will provide benefits to the welfare of the community if the program could provide benefits for the household. In the context of agricultural development, the welfare of farm households is an indicator of agricultural development success. ¹ In accordance with the purpose of branchless banking program, namely an effort to increase technology-based economic activity (BI) and encourage economic activities of the community (OJK), this study aims to analyze the economic behavior of business household who conducts financial transactions at the agent in the branchless banking system; how the existence of branchless banking in the rural area affects the economic behavior of the business household, and vice versa. This study is the first study which analyzes household economic behavior in the branchless banking system.

THEORETICAL FRAMEWORK

1. Characteristics of Household Business Activities in Branchless Banking System

The households referred to in the study were households residing in rural areas and have productive activities that produce goods and services as well as conduct financial transactions at bank agents (branchless banking agents) who also reside in the territory of the business households. The business household activity involved in branchless banking programs vary widely, such as stalls of staple goods, food stalls selling gado-gado, noodles, meatballs, coffee, etc. Other kiosks such as kiosks selling mobile phones and electric vouchers, eggs, toys, cakes, gallon water refill business, and other stalls selling different items. There are also businesses

that sell services, such as photocopy services, barbers, beauty salons, motor workshops, and business activities as money lenders.

The business households manage the use of necessary production factors in their business activities and strive for the desired amount of production according to the production techniques they possess. With the available financial (capital) owned, the small entrepreneur (business actor) finances all of its production activities. Production, probably partly sold for income and in a certain amount is used for self-consumption in the family (subsistence consumption). Revenues earned from productive activities are allocated for the expenditure of various family needs such as food and clothing consumption, health and education expenditure of their children, paying for electricity, and other fixed obligations, and saving, and others.

The business households conduct financial transactions on BB Agents residing in their residence areas, such as cash deposits (savings), cash withdrawals, transfers, pay an obligation and bills, and other financial transactions, such as buying mobile phone vouchers and electrical vouchers. In addition, business actors may borrow funds from relatives, or banks through BB Agent, or borrow directly to a bank office, or borrow from money lender (loan sharks).

2. Specification of Household Economic Model

Bagi and Singh (1974), with reference to micro-conditions in developing countries, stated that farm households were faced with problems in which one economic decision will depend on other economic decisions, both internal and external. Therefore, the household economic model of farmers is a dynamic model. The economic decisions of farm households are categorized into six decisions: (a) production, (b) consumption, (c) Marketed surplus, (d) labor usage, (e) investment, and (6) credit.

¹ In accordance with the characteristics of branchless banking program, the decision of household involved in the business includes a decision on productive economic activities, household consumption decisions, and financial transaction decisions at the BB Agent. The

decisions on productive economic activities include output production decisions, input use decisions, and marketing decisions. The decisions on the use of input consist of capital use (investment), use of labor both family labor and lease labor, and use of other raw materials. Households of business actors have manpower that can be allocated both in household business activities and activities outside the household (as leased labor). The decision to sell the output in the market is based on the desired earnings and the fulfillment of the household consumption needs. The decisions on household consumption include food and non-food consumption, as well as investment expenditure on human resources and health investment expenditures. Financial transaction decisions at the BB Agent include cash deposits (savings), withdrawals, transfers, online bill payments and pay some obligations, as well as borrowing credits that can be obtained through BB Agent or family or money lender.

The decision of business household in production activities, financial transactions, or other related household decisions is also influenced by the presence of BB Agent as the spearhead in a branchless banking system. The presence of BB Agent in the midst of productive business activities is expected to boost production by supporting the ease of financial transactions and the availability of money close to the business. These conditions are expected to increase the output of their business thus increasing acceptance and creating more financial transactions to the Agent. Thus, the goal of a branchless banking program to reach broad of 'unbanked' and 'underbanked' communities, create production growth, and expand the network/facilitation of strong financial services in the community will be achieved.

Model specifications of the production activities of the business household and its relation to transaction activity in the branchless banking program were described in the following equation:

$$Q = a_0 + a_1 INV + a_2 TK + a_3 P + a_4 V\text{COST} + a_5 T\text{CONS} + \mu_1 \dots\dots\dots (1)$$

$$INV = b_0 + b_1 Cr + b_2 SAV + b_3 PFIT + b_4 FCOST + \mu_2 \dots\dots\dots (2)$$

$$\text{TKK} = c_0 + c_1 \text{AKK} + c_2 \text{W} + c_3 \text{TKL} + c_5 \text{PFIT} + \mu_3 \dots\dots\dots (3)$$

$$\text{TKL} = d_0 + d_1 \text{W} + d_2 \text{TKK} + d_3 \text{P} + d_4 \text{MS} + \mu_4 \dots\dots\dots (4)$$

$$\text{TK} = \text{TKK} + \text{TKL} \dots\dots\dots (5)$$

$$\text{MS} = e_0 + e_1 \text{P} + e_2 \text{Q} + e_3 \text{SU} + \mu_5 \dots\dots\dots (6)$$

$$\text{SU} = f_0 + f_1 \text{INV} + f_2 \text{Cr} + \mu_6 \dots\dots\dots (7)$$

$$\text{TRQ} = \text{Q} + 0 \dots\dots\dots (8)$$

$$\text{PFIT} = \text{TRQ} - (\text{VCOST} + \text{FCOST}) \dots\dots\dots (9)$$

$$\text{PRTBB} = \text{PFIT} + \text{PLL} \dots\dots\dots (10)$$

$$\text{YD} = \text{PRTBB} - \text{CS} - \text{TAX} \dots\dots\dots (11)$$

$$\text{CC PG} = g_0 + g_1 \text{YD} + g_2 \text{UK} + g_3 \text{SAV} + g_4 \text{TRSNIL} + \mu_7 \dots\dots\dots (12)$$

$$\text{CCNPG} = h_0 + h_1 \text{YD} + h_2 \text{CCPG} + h_3 \text{SAV} + h_4 \text{ISDM} + h_5 \text{TRSNIL} + \mu_8 \dots\dots\dots (13)$$

$$\text{TCONS} = \text{CCPG} + \text{CCNPG} \dots\dots\dots (14)$$

$$\text{ISDM} = i_0 + i_1 \text{YD} + i_2 \text{AS} + i_3 \text{SAV} + i_4 \text{INVPEN} + \mu_9 \dots\dots\dots (15)$$

$$\text{SAV} = j_0 + j_1 \text{PFIT} + j_2 \text{YD} + j_3 \text{TRSNIL} + j_4 \text{AS} + j_5 \text{CCPG} + \mu_{10} \dots\dots\dots (16)$$

$$\text{Cr} = k_0 + k_1 \text{R} + k_2 \text{SU} + k_3 \text{YD} + k_4 \text{PFIT} + k_5 \text{INVPEN} + k_6 \text{TRSNIL} + \mu_{11} \dots\dots\dots (17)$$

$$\text{TRSNIL} = l_0 + l_1 \text{PFIT} + l_2 \text{YD} + l_3 \text{SAV} + \mu_{12} \dots\dots\dots (18)$$

The expected sign of the parameters (hypothesis) of the equations are:

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 $a_1, a_2, a_3, a_4, a_5; b_1, b_2, b_3, b_4; c_1, c_2, c_4, c_5; d_3, d_4; e_1, e_2, e_3; f_1, f_2; g_1, g_2, g_4; h_1, h_3, h_4, h_5; i_1, i_2, i_4; j_1, j_2, j_3, j_4; k_2, k_3, k_4, k_5, k_6, l_1, l_2, l_3 > 0$, dan $c_3, d_1, d_2, g_3, h_2, i_3, j_5, k_1 < 0$.

METHOD

1. Sampling Technique and Data Source

The study was conducted at BRI bank, as one of the banks implementing LKD and Lakupandai programs. The study was a study case conducted in Bogor District, a large and remote area adjacent to Jakarta City, the capital city of Indonesia. The data was collected in two months, November to December 2016.

Based on secondary data obtained from Bank BRI on the number of transactions conducted by agents, and based on the tasks and functions of agents that are homogeneous, then it was selected purposively 13 sub-districts out of 40 sub-districts in Bogor District. The selected sub-districts have at least one active agent that has a high number of transactions, as one measure of program success. Furthermore, the selection of agents was done purposively with the help of Bank BRI Units in selected sub-districts and obtained 32 branchless banking agents. The selection of the household sample of the business was also done purposively, i.e. the business households who have conducted financial transactions through the agent. For that purpose, the selection of business households was done with the help of selected agents, and 97 households were obtained.

This research uses a cross-section data obtained using an interview technique by using questionnaires that have been prepared.

2. Identification and Model Estimation

The model identification was performed using order condition (Koutsyiannis, 1977). If $(K-M) \geq (G-1)$, then the model is said to be identified or overidentified and therefore will results in a unique parameters. The model formulated in this study was a model of a simultaneous structural equation which has 18 equations consisting of 12 structural equations and 6 identity equations. The sum of all variables in the model (K) is 30 variables, consisting of 12 endogenous variables (G) and 18 exogenous variables. The number of endogenous and exogenous variables included in one particular equation in the model (M) are 7 variables. Thus,

the structural equation based on the order condition was overidentified. Furthermore, parameters were estimated using 2SLS (Two Stage Least Squares) method.

RESULTS AND ANALYSIS

1. Characteristic and Transaction Activities Conducted by Business Household

Characteristics of business households include average age, length of formal education, family size (number of household members), number of a labor force, and number of school children in a household. It describes the performance or potential of the business household activities. The average age (36.89 years) of business actors involved in the transactions at BB Agents is in the category of productive age, with the average level of education equivalent to the third year of junior high school. The family size is relatively small consists of husband, wife and two children. Of those amounts, more than half are family labor force, which means that their productive business activity is managed by the father and mother, or by the father, mother, and their child. The characteristics of the business households are presented in Table 1.

Table 1. Characteristics of business household

| Characteristic | Average |
|-------------------------------------|---------|
| Age (year) | 36.89 |
| Educational (year) | 9.82 |
| Family size (person) | 3.86 |
| Number of family workforce (person) | 2.36 |
| Number of Schoolchildren (person) | 0.99 |

Most types of household business activities in rural areas are stalls; most of which are stalls selling basic daily necessities or staple goods stalls. Other types of stalls are food stalls and other stalls selling different types of goods. Some other type of business household activities

are business services, peddlers, and craftsmen. However, the distribution of each business activity is uneven, and the size of the business varies considerably, as described in Table 2.

Each of the business households generally has one or more business activities. However, this study focuses only on one business activity, i.e. their main business, whereas the second or more is calculated as an additional income. Based on the average number of labor usage in business households, i.e. less than five people, business households in a branchless banking system are included in the micro business category.

Tabel 2. Types of Business

| Types of business | Activity | No. of respondent | Percent |
|--------------------|--|-------------------|---------|
| Staple good stalls | Stall sells: staple goods | 17 | 17.52 |
| Food stalls | Stall sells: ready food, gado-gado, bakso, coffee, noodles, fried chicken, etc | 12 | 12.37 |
| Other stalls | Stall sells: gallon water refill, mobile phone&electrical vouchers, internet-game store, electrical materials, paints, eggs, DVD, cakes, etc | 35 | 36.08 |
| Services business | Photocopy, motorcycle workshop, tailor, barber, beauty salon, primary school, money lender, etc | 21 | 21.65 |
| Peddlers | Peddlers sell: banana, crackers, 'putu', 'soday' | 7 | 7.22 |
| Craftsman | Shoes maker, wooden frame maker, fiber glass | 5 | 5.15 |

Business household respondents do not belong to the "unbanked people"—since they generally have bank accounts, although some were inactive. Some of them can be categorized as "underbanked people" because they never have credit from the bank. However, they tend to use cash (69%) when conducting their transaction with BB Agent; only 31% respondents who used ATM, while the use of mobile phone for the financial transaction (T-Bank) in a branchless banking program has not been achieved, as can be seen in Table 3.

Table 3. Instrument Used

| Instrument | No. of Respondent | Percent |
|-------------------|--------------------------|----------------|
| ATM | 30 | 31 |
| Cash | 87 | 69 |
| T-Bank | 0 | 0 |

The most type of transaction used by the business households are the transactions to pay bills, such as electricity payment (45.59 percent), and transfers transaction (27.13 percent). Transfers transaction are generally made by entrepreneurs coming from other regions; they send their income to families living in different areas. Other types of transfer transactions are transfers of online payments, such as payments on purchases of goods online and paying credit installments. Type of transaction that is also pretty much done by the business household on the BB agent is a transaction to buy cell phone vouchers (15.98%), while transactions of cash deposit (savings) and cash withdrawals are rarely, as described in Table 4. The data show that the type of transaction, in general, is a transaction that is not related to business activities. While the type of transaction through the agent that is expected to occur associated with production activities, such as deposits of their daily or weekly income (savings transaction) or withdraw funds for business needs (withdrawals transaction) is very rare.

Table 4. Frequency of Transaction

| Type of Transaction | Frequency/year | Percent |
|--------------------------------|-----------------------|----------------|
| Cash deposits | 187 | 6.46 |
| Withdrawals | 144 | 4.84 |
| Transfers | 576 | 27.13 |
| Electricity payment (pre/post) | 1,346 | 45.59 |
| Buying mobile phone vouchers | 422 | 15.98 |

Table 4. also explains that the number of transactions conducted by business households through BB Agents is low, with an average of 27.59 transactions per household per year or two to three transactions per month.

2. Estimation results

The estimation results is categorized into two components, namely goodness of fit model and predicted results. The goodness of fit model is shown by the test of variance (F-test), the coefficient of determination (R^2), and partial test (t-test). The results show that all the F-test analysis were significant (Pr F <0.0001), which mean that all explanatory variables in each structural equation are simultaneously affecting each endogenous variable. The results of determination coefficient (R^2) ranging from 27% - 99.96%, as shown in Table 5.

Table 5. Analysis of Variance of Structural Equations of Household Economics Model, 2SLS method, and SYSLIN procedure

| Endogenous Variable | | DF | F Value | Pr > F | R^2 |
|---------------------|----------------------|----|-----------|--------|---------|
| Q | Production value | 96 | 164.58 | <.0001 | 0.90042 |
| INV | Investment | 96 | 1457.04 | <.0001 | 0.98766 |
| TKK | Family labor | 96 | 18.97 | <.0001 | 0.45194 |
| TKL | Non-family labor | 96 | 11.33 | <.0001 | 0.33003 |
| MS | Marketed surplus | 96 | 79,066.40 | <.0001 | 0.99961 |
| SU | Business size | 96 | 286.83 | <.0001 | 0.85921 |
| CCPG | Food consumption | 96 | 44.31 | <.0001 | 0.58834 |
| CCNPG | Non-food consumption | 96 | 27.21 | <.0001 | 0.54192 |
| ISDM | HR investment | 96 | 25,684.10 | <.0001 | 0.99911 |
| SAV | Saving | 96 | 11.94 | <.0001 | 0.27798 |
| CR | Credit | 96 | 27.72 | <.0001 | 0.47209 |

2.1. Production

Estimation result of production variable is as follows:

$$Q = -1.279E7 + 0.35983 \text{ INV}^* + 21717.42 \text{ TK}^{***} + 1.105E10 \text{ PS}^* + 1.238950 \text{ VCOST}^* + 1.169064 \text{ TCONS}^{***}$$

(e=0.02) (e=0.08) (e=0.04) (e=0.75) (e=0.10)

Note: Significance level ($\alpha/2$): * = 5%; ** = 10%; *** = 15%.

Production variables describe the behavior of households to earn income from their business. The result of the determinant coefficient of R^2 is 90 percent, which means the variation in the endogenous variable (production) can be explained by the explanatory variables included in the equation. In the first model specification, it was stated that the production decision of the household business was influenced by the output price (P). However, the estimation results indicate that the production of business household in a branchless banking program is significantly affected by the shadow price (PS), the selling price of the output by taking into account all costs to produce output and is expressed by the ratio of output price to production cost. This suggests that for rural business households, output prices are determined not only by market prices but by taking into account all production costs. This may be due to the business location in the countryside, which is relatively far from the input market, which is generally in urban areas, i.e. in the district or provincial capital.

Other explanatory variables which partially and significant and have an effect on the decision of household production are investment variable (INV), variable cost (VCOST), total consumption expenditure (TCONS), and total labor usage (TK), as described in production model below. The elasticity calculation shows that the response of the endogenous variable (production) from its influencing variables is inelastic ($e < 1$), which means that the variables have little effect on the increase of the production of the business.

Consumption expenditure variable (TCONS) has significant effect on production; However, the value of elasticity, $e = 0.1$ indicates that changes in family consumption expenditure have little impact on changes in production. The increase in household

consumption only increases the production of the business in small proportions. That's because not all households can use part of their production for consumption. The type of business that generally takes part of the production for family consumption is a stall selling staples goods. If available, households will take their consumption needs from their stalls, such as cooking oil, eggs, noodles, and others. While other types of businesses, such as stalls selling cellphone voucher, motorcycle workshop, photocopying business, or other business, only use a small portion of the products produced since the product is not a daily necessity.

Out of the four explanatory variables that affect production, variable cost (VCOST) has the highest elasticity ($e = 0.75$). This is in line with the characteristics of small businesses in rural areas, where the increase in production is more influenced by variable input costs. This condition is understandable because business activities in rural areas are generally carried out in the house, where the increase of the production is done by increasing the sales turnover, such as the addition of daily expenditures for stalls. The result implies that credit for business households primarily is to increase sales turnover.

2.2. *Investment*

The model of investment are as follow:

$$INV = -2.375E7 + 0.005666 PFIT + 10.00377 FCOST^* + 4842465 UK^{**} + 7269.944 TK^{***} - 0.40875 CCNPG^{***}$$

(e=0.01)
(e=1.07)
(e=0.40)
(e=0.16)
(e=-0.11)

The investment equation model has been revised from the initial model. Credit and savings variables are not included in the model because it gives an inconsistent sign to the theory. Credit variables (CR) which were predicted to affect investment, gives insignificant results and direction of influence that is not in line with the foundation of the hypothesis, so it is removed from the model. This is in line with the estimation and explanation of the production decision, that the credit required by the business household is primarily to increase its sales turnover, not for investment. In addition, the conditions in the study area revealed that loans taken by

households, in general, were consumer loans, such as credit for motor purchases, and other needs not related to business investment activities. The same thing happens to the savings variable (SAV) which is excluded from the model. Savings from business households in rural areas are usually unstructured and patternless. Savings are generally not intended for business development, but for family needs, such as for children's schooling needs, savings for "haji", or to pay consumer credit installments.

Size of family (UK) variable and total workforce (TK) were not predicted to affect investment, but estimation result shows a significant effect. This is in accordance with the description of business activities in rural areas, which are generally carried out by family members. However, some types of businesses still require additional labor from outside the family, such as a gallon water refill business, motorcycle workshops, and food stalls. Another variable previously thought to have no effect on investment but has a significant and negative impact is the non-food consumption variable (CCNPG). The increase in non-food consumption reduces household business investment. It could also mean that an increase in investment can be made by reducing non-food consumption expenditure.

As predicted, fixed cost variable (FCOST) is a variable that has a significant effect on investment and has the highest elasticity ($e = 1.07$). Business profit variables (PFIT), although has no significant effect on investment, however, the estimation results provide the appropriate direction with the theory, therefore it is included into the model. This is possible because the estimation results in this study are not intended for prediction purposes but for simulation purposes.

2.3. Family and Non-Family Labor

The result of variables estimation of family labor (TKK) and non-family labor (TKL) is presented as follow:

$$TKK = 245.9959 + 6.177E-6 W + 170.9070 AKK^* - 0.13936 TKL^* + 5.007E-7 PFIT$$

$(e=0.01)$
 $(e=0.57)$
 $(e=-0.07)$
 $(e=0.07)$

$$TKL = 765.4539 - 0.0012 W^{**} + 1.391E-6 MS^* - 1.31868 TKK^* + 0.003410 P^*$$

(e=-0.28) (e=1.14) (e=-2.77) (e=0.62)

The estimation results show that variables influence the use of family labor (TKK) and non-family labor (TKL) in accordance with the variables predicted in the model specification. Increased wages (W) do not significantly increase the use of family labor (TKK). This is due to the limited number of family workers with an average of four members per family. In general, those who work in the household business are the head of the family and/or his wife, while their child is still in school, or already working. On the other hand, an increase of wage (W) significantly decreases the use of external labor (TKL), with elasticity $e = -0.28$. Profit (PFIT) variable is also not statistically significant, but the direction of the change is as expected as in the hypothesis and in line with theoretical considerations, therefore can be used for simulation.

Marketed surplus (MS) and family labor (TKK) are elastic and have a large impact on the use of non-family labor, with values of elasticity of 1.14 and -2.77, respectively. The use of non-family labor will increase with the increase in marketed surplus. As predicted, there is a substitution between the use of family labor (TKK) and external labor (TKL); increase in family labor will decrease the use of external labor. This is in accordance with business characteristics in rural areas that rely more on family labor.

2.4. Marketed Surplus

Estimation of Marketed surplus variables is presented below:

$$MS = -3996061 + 5.3277E8 PS^* + 0.001500 SU + 0.996693 Q^*$$

(e=0.002) (e=0.002) e=1.01)

Marketed surplus describes the economic behavior of the households to earn income. Factors that partially and statistically significant influencing the decision to sell the products (MS) are the shadow price (PS) and production (Q). However, only production variable has a big impact on marketed surplus with a value of $e = 1.01$, which means all the increase of the products will

be sold to the market. This is in line with the facts in the study site, although business activities in the rural are carried out in their homes, only a small portion of their production is used for their daily needs. That's because not all types of businesses produce products that can be consumed or boredom with the consumption of their production.

2.5. *Business Size*

The estimation of business size variable is as follow:

$$SU = 1.0958E8 + 1.077970 \text{ INV}^* + 1.3029887 \text{ CR}^* \\ (e=0.15) \quad (e=0.16)$$

The business size in this study is measured by adding the main investment that has been depreciated into the production value. The estimation result shows that investment variables (INV) and credit (CR) are partially and significantly, affecting household decisions in determining the business size (SU). However, changes to these two variables only have a small impact ($e < 1$). It also means that it needs a huge investment and credit to increase a business size in remote areas.

2.6. *Food Consumption Expenditure*

The result of estimation of food consumption expenditure variable is:

$$\text{CCPG} = 7292784 + 0.051134 \text{ PRTBB}^* + 2208236 \text{ AS}^* - 0.06036 \text{ SAV}^* \\ (e=0.49) \quad (e=0.18) \quad (e=-0.13)$$

Food consumption expenditure is obtained from the production business and from the market. Households buy food in the market because not all types of products produced can be utilized for household food needs. The previously predicted family size (UK) variable influencing food consumption expenditure is not significant and gives direction of change that is inconsistent with the theory. Conversely, the variable number of schoolchildren (USA) that is previously unpredicted, had a significant effect. It shows that households in rural areas pay more attention to food consumption for school children. The value of financial transactions (TRSNIL) conducted by business households through branchless banking agents which were predicted to

affect food consumption expenditure, do not have a significant effect and gives a sign that is not in line with the hypothesis. It showed that the financial transaction of the household to the BB Agent is not closely related to the activity of food consumption.

It is the total income of the households (PRTBB), which is derived from the profit of the business activities (PFIT) and other income (PLL) that statistically significant affect food consumption expenditure. This model differs from the initial model which the income variable affecting food consumptions is disposable income (YD), i.e. household income after taxes that is ready to be spent and saved. That makes sense because households' food consumption expenditures in remote areas are crucial compared to their obligations to pay taxes.

The results also show that savings variables (SAV) have a negative and significant effect on food consumption expenditure, which means an increase in household savings will reduce consumption expenditure.

2.7. ³² *Non-Food Consumption Expenditure*

An estimate of non-food consumption expenditure variables is presented below:

$$\text{CCNPG} = 936107 + 0.0434 \text{ YD}^{**} - 0.9327 \text{ CCPG}^{**} + 1.9275 \text{ SDM}^{*} + 0.1303 \text{ TRSNIL}^{***}$$

³⁰
(e=-0.39)
(e=-0.89)
(e=0.83)
(e=0.09)

Generally, the non-food goods are purchased from the market. The estimation results show that the disposable income (YD), food consumption (CCPG), human resources investment (ISDM), and transaction value at BB Agent (TRSNIL) are partially and significantly have an effect on the non-food consumption expenditure (CCNPG). However, those variables have low elasticity ($e < 1$).

Those variables correspond to the predicted variables in the initial model, except the saving variable (SAV) is excluded because it is insignificant and provided a sign that contrary to the hypothesis. In contrast to food consumption expenditure variables that are influenced by the total household income of the household (PRTBB). Type of income affected the non-food consumption expenditure is disposable income (YD). It shows that food consumption

expenditure is a priority compared to ²⁴ non-food consumption expenditure. It is also supported with ²⁴ the result in which the variable of food consumption expenditure (CCPG) have a negative effect on non-food consumption expenditure, which means that an increase of food consumption lowers non-food consumption expenditures. It could also means that if households will increase their non-food consumption expenditures, such as expenditure on cigarettes, cell phone credits, spending on clothing and others, households should reduce their food consumption expenditures. Household expenditure on cigarettes and mobile phone credits are routine expenditure.

The estimation result shows that the value of transactions conducted by households on branchless banking agents (TRSNIL) has a positive effect on non-food consumption expenditure. This is in accordance with the conditions in the study area, that transactions made by households to agents are mostly for activities related to non-food expenditures, such as paying electricity, purchasing mobile phone vouchers, or for the payment of other obligations online.

2.8. Human Resources Investment Expenditure

The estimation of human resource investment variable is as follow:

$$\text{ISDM} = 492,573.8 + 0.00113 \text{ YD}^* + 234,093 \text{ AS}^* - 0.0056 \text{ SAV}^* + 0.9969 \text{ INVPEN}^*$$

²⁸
 (e=0.02) (e=0.04) (e=-0.03) (e=0.86)

Human resource investment expenditure (ISDM) is part of the income used to finance the education and health. The results show that the variables of disposable income (YD), number of schoolchildren (AS), savings (SAV), and education investment (INVPEN) are partially and significantly have an effect on investment spending decisions on human resources. However, the elasticity value of all variables affecting human resource investment is inelastic ($e < 1$), indicating that those variables have little impact on ISDM.

Educational investment (INVPEN) has the biggest impact, with an elasticity value of $e=0.86$. It could indicates that household expenditures for educational investment have a much

larger share than health expenditures. The results of the interviews revealed that most of the respondents do not have health insurance, such as BPJS so as not to have regular expenses for health payments. If they were sick, they mostly used traditional medicine or medicine available in nearby stalls, or go to the community health center (Puskesmas).

2.9. Savings

The estimation result of saving variable is as follows:

$$SAV = 33,284,844 + 0.227437 YD^* + 22,370,941 AS^* - 4.17823 CCPG^*$$

(e=1.04) (e=-0.90) (e=-2.02)

The disposable income (YD) variable, the number of schoolchildren (US), and food consumption (CCPG) partially and significantly affect the saving variables. Unless the inelastic schoolchildren variable which is inelastic; variable disposable income (YD) and food consumption (CCPG) are elastic with values of $e = 1.04$ and $e = -2.02$. This explains that households increase their savings from all net income and after fulfilling their tax obligations; increased disposable income will increase their savings.

The estimation result of food consumption variable (CCPG) to saving (SAV) has a significant and negative effect. This suggests that there is "trade-off" between food consumption expenditure and savings, indicating that people in the study area are low-income community, which in contrast to high-income communities, who plan their savings early in their decision-making on household income and is not determined by spending on their food consumption (Derosari, 2014).

The low coefficient of determination, $R^2 = 0.28$, indicates that there are other variables that influence saving. The low determination coefficient can be caused by the absence of pattern in saving. In addition, the form of their savings is not only in the form of savings in bank accounts, but also in a cooperative institution, in addition to savings in the form of social gatherings ("arisan").

The estimation result explains that the transaction value (TRSNIL) conducted by the household on the BB Agent has no significant effect on the savings (SAV) and produces the sign that is not in accordance with the hypothesis, so it is removed from the equation saving model. This is in accordance with the conditions occurring in the research area, that transactions occurred on BB Agent were more on transactions related to non-food consumption expenditure and very little relation to savings transaction activities.

2.9. Credit

The estimation result of credit variable is presented below:

$$CR = -5.868E7 + 0.14738 SU^* + 1.84079 PFIT^* - 4.9299 CCNPG^* + 5.4736 INVPEN^{**}$$

(e=1.12)
(e=4.42)
(e=-1.53)
(e=0.63)

The equation shows that the variables affecting the household business credit involved in the branchless banking have undergone a re-specification from the initial model. The variable interest rate (R), which previously was predicted to affect credit, does not have a significant effect and give a sign in the opposite of the theory, so it is not included in the model. Conditions in the study area explained that respondents who have credit, either from banks, leasing companies, or from a money lender, in general, cannot explain how much interest on the loan imposed on them. They can only explain the amount of credit taken and the installments paid as well as the time period of loans. It illustrates that the credits taken by households in the study area are based not only on the interest rate but also on the ability to pay and time period of the installments. This is understandable because in general, they borrow for consumption purposes with a long repayment period.

Like the savings variable, the estimation results also explain that the transaction value (TRSNIL) performed by households on the BB Agent has no significant effect on the credit (CR) and produces a sign that is inconsistent with the hypothesis. This is in accordance with the conditions occurring in the research area, that transactions that occur on the BB Agent more

on transactions related to non-food consumption expenditure. There has been no transaction activity in the form of credit request through Agent BB.

The business profit variable (PFIT) has a positive effect and give a big impact on the increase of credit demand (CR) with elasticity value, $e = 4.42$. It gives an idea of the increasing role of business profits to the increase of credit transactions through branchless banking agents.

The estimation results also show that rural business households, concerned with their children's schooling, and are willing to increase demand for credit (CR) if necessary for education investment of their children (INVPEN). This is demonstrated by the positive effect of educational investment (INVPEN) on household credit (CR), with elasticity value, $e = 0.63$.

2.10. Transaction Value

In the model specification, the transaction value was expected to be an endogenous variable affected by the profit variable (PFIT), disposable (YD), and savings (SAV). However, the estimation results show that these variables are not significantly influential and provide direction of change that was not in line with the theory. These results illustrate that the production activities of the business households involved in branchless banking have not impacted their transaction activity on BB Agent. The results are in accordance with the conditions in the field, that only about two to five business actors around the location of agents who have been involved in transactions at BB Agent. Most people who transact on BB Agents were not business actors, but the public society, such as housewives or migrant workers, who make transactions for the payment of electricity, or buying cell phone credit, or sending funds to families living in different areas.

CONCLUSION, LIMITATION and RECOMMENDATION

The model generated in this study provides an overview of the existing condition and the uniqueness of the economic behavior of the business households involved in the branchless banking system. The model explains that the existence of branchless banking which measured

by the value of transactions conducted by households at the agent, does not significantly affect savings, investment, and credit as the variables related to production activity and banking services. However, it has a significant effect on non-food consumption expenditure. This is consistent with the conditions in the field that the types of transactions that many households do at the BB Agent were not directly related to their business activities, such as paying electricity, doing top-up of cell phone credit, and transferring money to the families. On the other hand, the value of transaction which is expected to be affected by household economic behavior, do not occur. Those results explain that the utilization of banking services provided through agents in the branchless banking system is still in the form of payment transactions. Other limited banking services are not utilized yet. In addition, that the presence of branchless banking in rural areas has not been affecting production activities, and vice versa. Therefore, this study suggests further study to find out the factors that hinder business actors to be willing to perform transactions besides payment transactions through branchless banking agents.

Finally, this study has a limitation which can provide the opportunity for future research. This study only analyzes the economic behavior of business households who have been involved in transactions at the agent in branchless banking system. The research can be expanded by analyzing its potential from all households around the agent site, and by making a comparison between the two. In addition, for the development of branchless banking program, the research can be continued by performing simulation by doing various change scenarios on the relevant variables. Further research can also be done by analyzing the factors that inhibit for business actors to conduct financial transactions on branchless banking agent.

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REFERENCES

Aduda, J., and E. Kalunda, 2012. "Financial Inclusion and Financial Sector Stability with Reference To Kenya: A Review of Literature". *Journal of Applied Finance & Banking* 2, 95–120.

- Bagi, F.L., and I.J. Singh, I., 1974. *A Microeconomic Model of Farm Decisions in LDC: A Simultaneous Equation Approach*. Economics and Sociology Occasional Paper No. 207. Department of Agricultural and Rural Sociology. The Ohio State University. Columbus, Ohio.
- Bank Indonesia, 2014. Booklet Keuangan Inklusif Bank Indonesia. Available at: <http://www.bi.go.id/id/perbankan/keuanganinklusif/edukasi/Contents/Buku%20Saku%20Keuangan%20Inklusif.pdf>, accessed on September 25th, 2015.
- CGAP, 2013. Annual Report. Available at: <http://www.cgap.org/publications/cgap-2013-annual-report>, accessed on January 15th 2015.
- Dermish, A., C. Kneiding, P. Leishman, and I. Mas, 2011. "Branchless and Mobile Banking Solutions For The Poor: A Survey Of The Literature". *innovations* 6, 81–98.
- Demirguc-Kunt, A. and R. Levine, 2008. *Finance, financial sector policies, and long-run growth* (Vol. 4469). World Bank Publications.
- Derosari, B.B., 2014. "Pengaruh Kredit dan Bantuan Modal pada Perilaku Ekonomi dan Kesejahteraan Rumah tangga Tani di Provinsi Nusa Tenggara Timur [The Effect of Credit and Capital Aid on the Economic Behavior and Welfare of Household in East Nusa Tenggara Province]". Unpublished Dissertation, Graduate School. Bogor: IPB.
- Fatima, A. and M. Sukanya, 2014. "Financial Inclusion Through Information and Communication Technology (ICT) In India". *International Journal of Applied Financial Management Perspectives*, 3(2), 1076.
- Firpo, J., 2005. "Banking the Unbanked: Technology's role in delivering accessible financial services to the poor". SEMBA Consulting, Oakland, CA. available at: <http://www.sevaksolutions.org/docs/Banking%20the%20Unbanked.Pdf>.
- Heatubun, A.B., 2001. "Pemberdayaan dan Kegiatan Petani Multikomoditi [Empowerment and Activity of Multi Commodity Farmers]". Unpublished Master Thesis, Graduate School. Bogor: IPB.
- Hishigsuren, G., 2006. *Information and communication technology and microfinance: Options for Mongolia* (No. 42). ADB Institute Discussion Papers.
- Ivatury, G., Mas, I., 2008. *The Early Experience with Branchless Banking*. Focus Note 46. Washington, D.C.: CGAP.
- Jain, C.S., 2015. "A Study of Banking Sector's Initiatives Towards Financial Inclusion in India". *Journal of Commerce and Management Thought*, 6(1), 55.
- Khattab, I., Balola, Y. and Eldabi, T., 2012. "Factors Influencing Branchless Banking for Microfinance in Sudan: Theoretical Perspectives and Future Directions". European, Mediterranean and Middle Eastern Conference on Information Systems. Available at: <http://www.iseing.org/emcis/emcis2012/EMCISWebsite/proceedings/154.pdf>
- Kumar, N., 2013. "Financial inclusion and its determinants: evidence from India". *Journal of Financial Economic Policy*, 5(1), 4-19
- Mas, I., 2009. "The Economics of Branchless Banking". *innovations* 4(2), 57–75.
- McKay, C. and Pickens, M., 2010. *Branchless banking 2010: Who's served? At what price? What's next?* (Vol. 66). CGAP Focus Note.

- Mutsune, T., 2014. "No Kenyan left behind: The case of financial inclusion through mobile banking". *Global Conference on Business & Finance Proceedings*, 9 (1), 472. Institute for Business & Finance Research.
- Otoriti Jasa Keuangan, 2015. Laporan Kinerja OJK 2015. Tersedia pada http://www.ojk.go.id/id/berita-dan-kegiatan/publikasi/Documents/Pages/laporan-kinerja-ojk-2015/FA_Laporan_kinerjaOJK2015rev070116_II.pdf, accessed on April 10th, 2016.
- Sanjaya, I., 2014. "Inklusi Keuangan dan Pertumbuhan Inklusif sebagai Strategi Pengentasan Kemiskinan di Indonesia [Inclusion of Finance and Inclusive Growth as a Poverty Reduction Strategy in Indonesia]". Unpublished Master Thesis, Graduate School. Bogor: IPB.
- Sayaka, B., K.K. Dewa, S. Herman, S.R. Rudy, Supriyati, and A. Askin., 2011. "Peningkatan Akses Petani terhadap Permodalan di Daerah Lahan Marjinal [Increasing Farmers Access to Capital in Marginal Land Areas]". Unpublished Research Seminar Paper. Center for Socioeconomic and Agricultural Policy (PSEKP). Agency for Agricultural Research and Development, Ministry of Agriculture.
- Sinaga, B.M., 2011. *Metode Pengumpulan Data [Method of collecting data]*. Agricultural Economics Study Program. Faculty of Economics and Management of Graduate School. Bogor: IPB.
- Singh, I., L. Squire, and J. Strauss, 1986. "The basic model: theory, empirical results, and policy conclusions". *Agricultural household models: Extensions, applications, and policy*, 17-47. Baltimore: The Johns Hopkins University Press.
- Siregar, H., 2009. *Makro-Mikro Pembangunan [Macro-Micro of Development]*. Collection of Papers and Essays. Bogor: Institut Pertanian Bogor Press.
- Untoro, P.R. Widodo, W. Yuwana, K. Dewi, and R. Cristina, 2014. "Layanan Keuangan Digital: Hambatan dan Faktor-faktor Penentu Keberhasilan [Digital Financial Services: Constraints and Critical Success Factors]". Working Paper. Bank Indonesia.
- Weber, D.M., 2012. "The Impact of Information and Communication Technology on Intermediation, Outreach, and Decision Rights in the Microfinance Industry". ProQuest LLC. 789 East Eisenhower Parkway, PO Box 1346, Ann Arbor, MI 48106.
- World Bank, 2014. Global Financial Development Report 2014. <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTGLOBALFINREPO RT/0,,contentMDK:23489619~pagePK:64168182~piPK:64168060~theSitePK:8816097,00.html>, accessed on June 25th, 2015.

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