

DETERMINATION MODEL OF INDEPENDENT BUSINESS CREDIT "GRAMEENBANK" PATTERN USING SIMPLE ADDITIVE WAIGHTING (SAW) METHOD TO ENHANCING THE RURAL ECONOMIC DEVELOPMENT

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ABSTRACT

This research aims to determine the aid credit program "grameenbank" by using *Simple Additive Waighting (SAW)* method in rural communities as a resource empowerment of rural women towards economic development of the region. The determination of the criteria is to perform the weight on the existing criteria which applied to the decisions making. The *software* program can generate customers were selected as recipients *grameenbank* aid credit program.

The Independent Business Credit system is a replication of the pattern of credit 'Grameen Bank' (Meaning Village Bank developed in Bangladesh to serve the poor people) who have adapted their implementation in Indonesia. Credit package provided through this institutional adjusted to the conditions and the ability of their poor, so that they are able to increase revenues and at the same time is able to be trusted because it can repay loans with discipline. These results indicate that the *Simple Additive Waighting (SAW)* method can effectively help in the decision making and to determine prospective customers that receive program in rural districts Gemahripah Pringsewu. This program enhancing empowerment of rural women towards economic development of the region.

Keywords: Grameen Bank, Simple Additive Waighting (SAW) Method

1. INTRODUCTION

Empowerment of rural women towards the improvement of *human capital* is critical and strategic in the development of rural areas (Anwar, 2001), as it can contribute to growth, improving efficiency and reducing poverty (Todaro, 2007). Empowerment of women in economic activities will face obstacles because basically there is gender discrimination against female roles in the family and society. This gender discrimination causes women have limited access to education facilities and access to capital resources and other constraint, causing productivity female relative lower than the man (Sulistiyani, 2002)

Based on the employment people in the district of Pringsewu, agriculture is the most sector chosen by the population to make a living, that is equal to 74.84 percent, the trade sector (13.11%) and industry (6, 11%) were the second the sectors largest and third most widely chosen by Pesawaran people to work, data source from 'Sakernas' Pringsewu in 2012. In the district Pringsewu, there is existing alternative financial institution that is a replication of the pattern of Credit "Grameen Bank" that prioritize credit for women. One of these institutions is a Independent Business Credit' or KUM which has been implemented in the district, especially in rural Gemahripah Pringsewu, is one of the products of BMT (Baitul Maal Wat Tamwil) NINE SEVEN. Below is the development of customer BMT Nine Seven (Year 2010 - 2013):

Table 1 Data Development Customer Numbers and Total Financing Year 2010 - 2013

Year	Number Customer	Customer Kab. Pringsewu	Total financing	Percentage (%)
2010	164	3 7	93.9 million	10.8%
2011	212	4 3	126.4 million	12.3%
2012	257	5 8	134.5 million	15.6%
2013	285	6 9	178.6 million	16.4%

Source: BMT 97

KUM credit system is a replication of the pattern of credit 'Grameen Bank' (Meaning Village Bank developed in Bangladesh to serve the poor) which has been adapted implementation in Indonesia. Credit package provided through this institutional adjusted to the conditions and the ability of the poor, so that they are able to increase revenues and at the same time is able to be trusted because it can repay loans with discipline (Anwar, 2000) Package loans granted by credit institutions is preferred for women, because based on experience of the implementation of *Grameen Bank* both in his native Bangladesh and replication in Malaysia, it turns out women are more able to customers in terms of discipline to restore credit and real and can increase family income greater than with men (Suharto, 2007). Jatiningrum and Herlina (2013) proves that the customer returns KUM dominated by female customers have a smoothness level of the highest loan repayment compared with other rural credit bank customers. This shows that the community empowerment program especially women very feasible to be developed to improve the well-being of families, especially in the poor society.

2. GRAMEEN BANK (Village Bank)

Grameen Bank (Village Bank) was established in Bangladesh by Professor Muhammad Yunus, Chittagon University economics professor. The Bank founder discouraged by existing banking kenyataan Bangladesh

not serve women, the blind and the poor, because of reasons:

1) Poor people do not have the goods or assets that can be used as collateral, 2) So the poor illiterate can not fill out the forms complicated, 3) Bank prefer large loans in small numbers than small loans in large numbers because make difficulties or Bank and contains a high risk, 4) Banking worried lending received can not cover the cost of Bank servicing. (Rahasan and Mat Thanksgiving, (2007), Suharto (2007)). This fact makes a lot of poor people who fall and depend on moneylenders which sets high interest. This bothered Professor Muhammad Yunus to set up a bank that can reach the poor. Granting credit assistance is very important so that they can increase their income. And it turns out they also were able to repay the loan (Suharto and Hafid, 2007). In Indonesia, the pattern of Grameen Bank credit has been replicated in the form of program Usaha Karya Mandiri (KUM) which has been implemented in several sub-districts Pesawaran, Lampung province. Three Principles KUM is (1) does not require collateral and guarantors; (2) the borrower subject to administrative costs, and (3) if the borrower dies, the heirs are not required to pay the remaining credit

3. Multiple Attribute Decision Making (MADM)

Multiple Attribute Decision Making (MADM) is a method used to find the optimal alternative of a number of alternatives to certain criteria. The essence of *MADM* is determining weights for each attribute value, then proceed with the ranking process that will select the alternative that has been given. Basically, there are three approaches to find the value weights of attributes, namely subjective approach, objective approach and an integrated approach between subjectively and objectively. (Wibowo, 2009). Each approach has its advantages and disadvantages. In the subjective approach, the weight value is determined based on the subjectivity of the decision makers, so that some of the factors in the ranking process can be determined freely alternative. While the objective approach, the weight value is calculated mathematically so that ignores the subjectivity of decision-

makers. (Kusumadewi, 2007). This research purposes are: 1) Determine criteria and weights of KUM with "Grameenbank" Pattern Using the SAW Method For Empowerment of Rural Women Resource Toward Regional Economic Development. 2) Create a program to assist decision making to determination of customers Banking with "Grameenbank" pattern using SAW Method.

4. Simple Method Additive Waighting (SAW) Method

Simple method Additive Waighting often also known term weighted summation method. The basic concept is to find a method of SAW weighted summation of rating the performance of each alternative on all attributes. SAW method requires the decision matrix normalization process (X) to a scale which can be compared with all existing alternative rating.

$$r_{ij} = \begin{cases} \frac{x_{ij}}{\max_i x_{ij}} \\ \frac{\min_i x_{ij}}{x_{ij}} \end{cases}$$

where r_{ij} is the normalized performance rating of alternatives on attribute A_i C_j ; $i = 1, 2, \dots, m$ and $j = 1, 2, \dots, n$. Preference value for each alternative (V_i) is given as:

$$V_i = \sum_{j=1}^n w_j r_{ij}$$

V_i larger value indicates that the alternative A_i is selected.

In the study authors took a sample using *random judgment sampling* method, ie random sampling based on the consideration, the respondents in this study were female customers KUM program village of Gemahripah with some considerations such as: Customer woman, residents who live in Pringsewu Gemahripah village Lampung, long been a customer of more than 2 years,

and customers are included in the category is not problematic.

• Output Analysis needs

The output expected from this research to get the model to determine the relief work of independent businesses in rural communities Gemahripah district of Pringsewu.

• Criteria required

Value and weight taken from criteria to determine KUM program that variables used by researchers, are :C1= Age, C2 = Status of land ownership, C3= Number of family members, C4= Rate Income/Family earnings C5= Number of dependents Family C6= Nearness of business facilities C7= Conditions of Housing C8= Level of Education C9= Type of Work, C10= Benefit of Operations. And the existing of criteria then weighted and then created software with a range of assessment as follows:1) No Good (NG) = Value ≥ 20 , 2) Less of Good (LB) = Value ≥ 40 ; 3) Good Enough (GE) = Value ≥ 60 ; 4) Good (G) = Value ≥ 80 ; 5) Very Good (VG) = Value ≥ 100 ;

After the selection process criteria through a questionnaire of customers eligible to give answers to the selected criteria. Based on results of the questionnaire answers after calculating the percentage of respondents. Criteria for determining KUM program are: **C1= Age, C2 = Status of Land Ownership, C3= Number of family members, C4= Rate Income / Family earnings, C5 = Number of dependents Family, C6= Type of Work** To obtain these variables was made in a graph so more clearly in the picture.

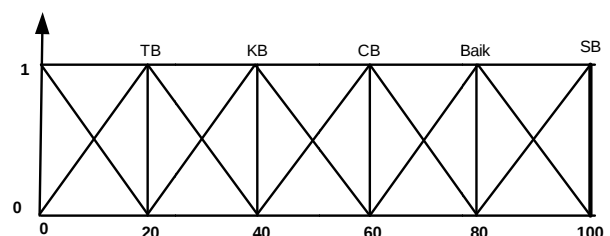


Table 2 Determining of Customers

Criteria		CUSTOMERS		
		Customer 1(A1)	Customer 2 (A2)	Customer 3 (A3)
Age	C1	24	41	34
Land ownership status	C2	650 m ²	250 m ²	900m ²
Number of Family Members	C3	3	5	7
Income level / Family Earnings	C4	2.5 million / month	2.7 million/ month	3.6 million / month
Total Dependent Family	C5	2	4	6
Type Of Work	C6	farmer	entrepreneurship	farmer

Based on the data above can be formed applicants a decision matrix X that has been converted with fuzzy numbers (Khoirudin,2008) , as follows:

Table 3 Determining of Customers

Alternative	Criteria					
	C1	C2	C3	C4	C5	C6
A1	0.25	0.75	0.5	0.5	0.25	0.75
A2	0.75	0.25	0.5	0.75	0.5	1
A3	0.5	1	0.75	1	0.75	0.75

Provides decision-making weight, based on the level of importance of each criterion as follows: **Vector Weight: $W = [0.4, 0.8, 0.6, 1.00]$** . The criteria of customers who receive assistance KUM above by the following intervals: 0.0 - 1.99 = Less Good; 2.00 - 2.99 = Good; 3.0 - 4.00 = Very Good. The matrix multiplication $W * R$ then get the results as: $V_1 = 1.6056$, $V_2 = 2.382$, $V_3 = 1.75$, the largest value of the sum of the above matrix is V_2 , thus alternative A_2 (Client 2) is eligible banking customers to receive KUM program.

5.CONCLUSION

These results indicate that the *Simple Additive Waighting* (SAW) method effectively to determine prospective customers that the receiver KUM program in rural Gemahripah districts of Pringsewu. This program enhancing empowerment of rural women towards economic development of the region.

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