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Factors Affecting the Marketing Efficiency of Gambier Commodity in Lima Puluh Kota Regency, West Sumatra, Indonesia

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A B S T R A C T

This research is motivated by Gambier's marketing issues in Limapuluh Kota Regency, the Gambier center of West Sumatera and Indonesia, which is still experiencing problems and tends to be inefficient because of the high marketing margins, and the low share received by farmers. This study aims to analyze what factors influence the marketing efficiency of Gambier commodities in Lima Puluh Kota Regency. In this study, the researcher uses a Structural Equation Model (SEM) PLS method by taking 100 Gambier producers from Kapur IX sub-district and Pangkalan Koto Baru sub-district as research sites. The results showed that the variables of human resources, marketing institutions, products, capital, and markets significantly affect the marketing efficiency of Gambier commodities in the research site. Only the variable of government policy did not have a substantial impact on marketing efficiency.

INTRODUCTION

Gambier is one of the Indonesian people's plantation commodities whose main market exports. According to (BPS, 2019), the number of Indonesia's gambier exports in 2018 reached 18 thousand tons with a US $ 55 million or 715 billion value. Thus, it made Indonesia important gambier exporting country globally by controlling a market share of around 35 percent. However, 93 percent of Indonesia's gambier exports' total volume is aimed at one country, namely India, which causes very high dependence on a market, weakening Indonesia's bargaining position in global gambier marketing. Indonesia's weak bargaining position also affects the bargaining position (bargaining position) of farmers, income, and welfare of gambier businesses in the upstream sector, especially gambier farmers.

Gambier production in Indonesia originates mostly from smallholder plantations. West Sumatra Province is the main producing province of gambier with a supply of around 80-90 percent of the total national gambier production (Sa'id, 2009). The Indonesian Chamber of Commerce and Industry (KADIN) of West Sumatra Province reported that Limapuluh Kota Regency is the center of gambier in West Sumatera Province, where about 70 percent of gambier production

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comes from this district, and another 30 percent comes from Pesisir Selatan Regency.

In 2003 the area of gambier plants was 17,800 hectares with 23,375 tons of production (Figures 1 and 2). The area of gambier in the last three years has increased. However, in the following years, gambier production decreased dramatically, especially in 2017 compared to the peak production in 2003 and increased from 2014 to 2016. In 2018 the area was 29,342 hectares with a production of 7,574 tons (BPS, 2019).

The area of land in 2017 decreased to 27,757 ha with a total production of 6,158 tons. The decline in production in 2017 was mainly due to the decrease of gambier's selling price at the farm level. The decreased production is also due to gambier's inefficient marketing, where the market price is not enjoyed by farmers but by traders who tend to determine price unilaterally. The impact of this decline in selling prices is that most farmers are not motivated to harvest gambier leaves. Farmers leave gambier leaves in the field and carry out agricultural activities for other commodities.

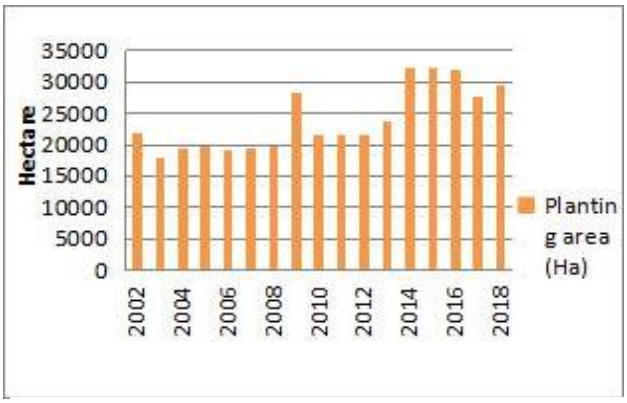

Figure 1. Development of Gambir Planting Area in 2012-2018 in West Sumatra Province

Afrizal (2009) shows that gambier marketing performance in Lima Puluh Kota Regency is not efficient. Gambier market structure in Lima Puluh Kota Regency is in an oligopsonistic market structure or imperfect competition market. Besides, the marketing margins of the gambier marketing channel institutions are relatively fair and balanced in their distribution. The price ratio received by farmers is relatively high. Other research by Amelia (2015) also shows that the gambier

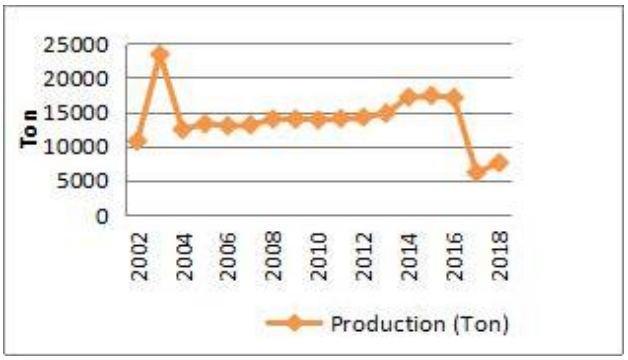

Figure 2. Development of Gambir Production in 2012-2018 in West Sumatra Province

marketing channel has not been efficient in terms of operational efficiency due to farmers' low bargaining position, so that farmers only act as price recipients. The other finding of data processed BPS 2019 is when the selling price of gambier exports rises or fluctuates. Hence, the selling price of farmer's gambier increases not to the increase in prices at the exporter trader level so that the gap or range of value increases at the exporter level is higher than the price gap at the farm level. This phenomenon is contrary to logic in general, where the range of values is relatively the same. This phenomenon shows symptoms of no transmission of prices, which is an indication of inefficient marketing.

Some previous studies explain the factors that influence the efficiency of the marketing of agricultural commodities. (Farayola, 2013) in India shows that household size, credit, age, cooperative membership, and selling prices significantly affect cocoa marketing efficiency. Furthermore, Maududi (1994) found that transportation costs, depreciation costs, purchase prices, and sales volumes affect vanilla marketing in Bali.

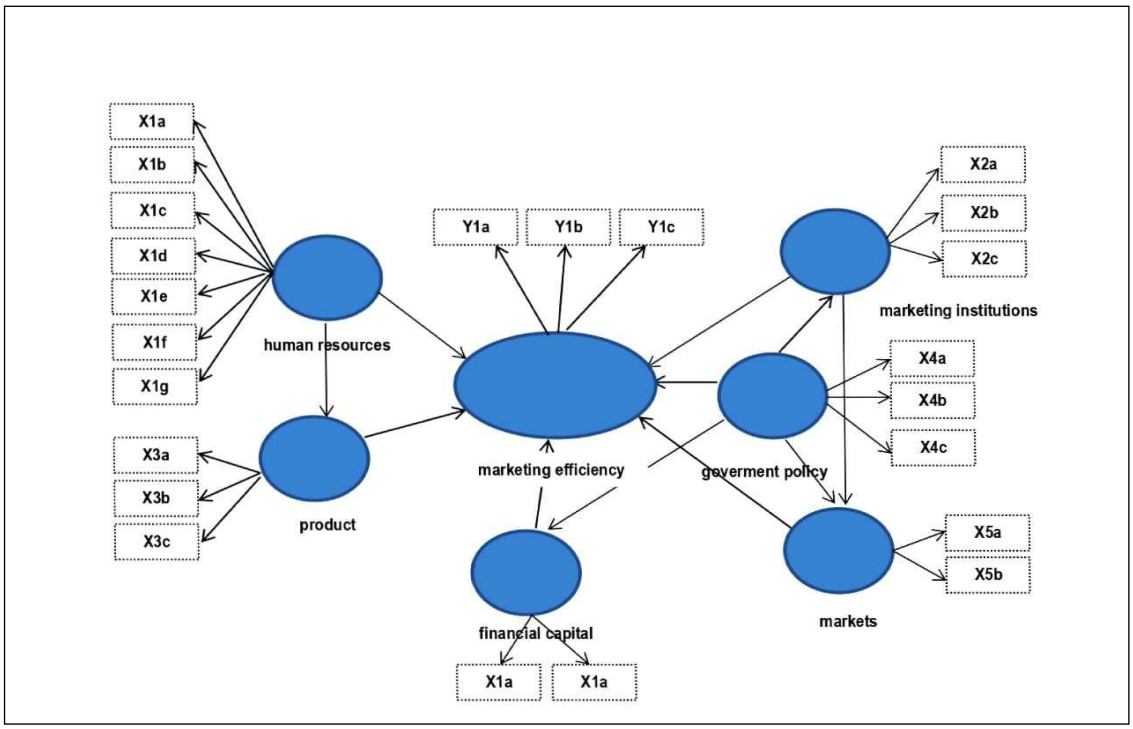

Figure 3. Model of the effect of independent variables on the dependent variable

From the description of some of the literature above, it can be formulated that the core problem of gambier is marketing inefficiency (inefficient marketing) and the absence of a solution to overcome the problem. Therefore, this research is conducted to determine what factors influence gambier marketing's efficiency in Lima Puluh Kota so that can concrete steps are taken to solve the inefficiency problem of gambier marketing and make all parties more prosperous.

MATERIALS AND METHODS

Research methods

The research methodology used in this research is the quantitative descriptive method. The descriptive method is a research used to analyze data by describing or describing data by describing or describing data that has been collected as it is without intending to make conclusions that apply to the public or general (Sugiyono, 2012)

Population and sampling

This study's population are gambier producers located in Lima Puluh Kota, particularly in Pangkalan and lime IX sub-districts. The number of respondent farmers taken was 100, of which 50 were from Kapur District IX, and 50 were from Pangkalan District.

Variables and method of analysis

Analysis of the factors that influence gambier marketing in Lima Puluh Kota District uses PLS Structural Equation Model (SEM) analysis tools. The initial SEM framework showing the relationship of the gambier's independent and dependent variables is presented in Figure 3.

RESULTS AND DISCUSSION

The general condition of gambir marketing in Lima Puluh Kota Regency

Marketing of gambier products owned by farmers in Limapuluh Kota Regency is usually done every week after the pressers work for six days. The results obtained vary around 50 to 150 kg/week, and some are even higher. The result above depends on the press to process gambier every day. Besides, the use of mixture is added to the liquid (filtrate) of the pressed gambier. Compressors with

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three workers can do five-six times cooking every day, while compressors with two compressors can do four-five times cooking every day. The acquisition of gambier is very high, likely to occur due to the mixing of gambier sap with other materials such as flour or soil.

Most farmers already have a regular collection trader where they sell their gambier. Farmers have been bound to sell their products to certain collecting traders because farmers/pressers have loans to the traders concerned. The loan can be in the form of a loan for the preparation of felt houses, food costs, and needs for cooking or consumption loans of the farmer or forge a family. Next, the collector will send the gambier to other collector traders or the export.

Description of factors affecting gambier marketing efficiency in Lima Puluh Kota District

Gambier farmer respondents in Lima Puluh Kota District made gambier production as the main occupation of 61%, and 39% of farmers made gambier farming as a side job. Farmer side jobs are laborers, artisans, private trade, and others. Gambier plant land managed by farmers today is a hereditary inheritance and has become farmers' property, wherefrom the previous generation gambier planted. The majority of farmers' land status is 81%, which is their property, 1% rent, and 18% profit sharing.

Human Resources

The average age of gambier farmers is 48 years old, besides gambier farmers consist of various ages with a predominance of ages 33 to 62 years. The number of respondents of male gambier farmers is more than female gambier farmers. The male farmers as much as 98% and female farmers only 2%; this happens because the cultivation and processing of gambier require men can do muscular physical strength and conditions that tend to more.

In terms of non-formal education, gambier farmers have not participated in training and guidance for gambier plant management; only 3% of farmers have been involved in training on gambier crops. In comparison, 97% of other farmers have never attended training or guidance for the management of gambier plants. It can be seen by farmers as not too crucial because farmers prioritize the experience and knowledge of previous farmers for generations. The average gambier farmer experience is 18.5 years, with the distribution of expertise 1.5 to 10 years is the most that are 38%. Next is the experience of 18.6 to 27.5 years.

Research shows that the majority of farmers have good cooperation and relations in marketing gambier; it's just that the relationships are not extensive and can provide complete information about gambier marketing to farmers. Besides that, it can be seen that gambier farmers tend not to be incorporated into farmer groups or other farmer organizations; farmers work more individually in marketing their gambier.

Marketing institution

On variable agency marketing channel indicators, the agency of marketing and other patrons is used to assess gambier marketing institutions' condition. Farmers want sellers who provide the highest prices and benefit farmers, but the majority of farmers do not plan by comparing prices between traders. Farmers more often wait on the edge of the road or in front of their house. Then, farmers wait for traders to come to buy their gambier. Most of the farmers consider that gambier marketing channels are still quite long. The majority of farmers believe that traders much suppress prices. Farmers are only recipients of prices. Not only traders but the factories in the Nagari / farmers' area are also considered to put price pressure on farmers. Besides, even though most of the farmers do not have agreement or engagement with certain traders or factories to sell their gambier, even though there are also such conditions because farmers have borrowed capital from traders.

Products

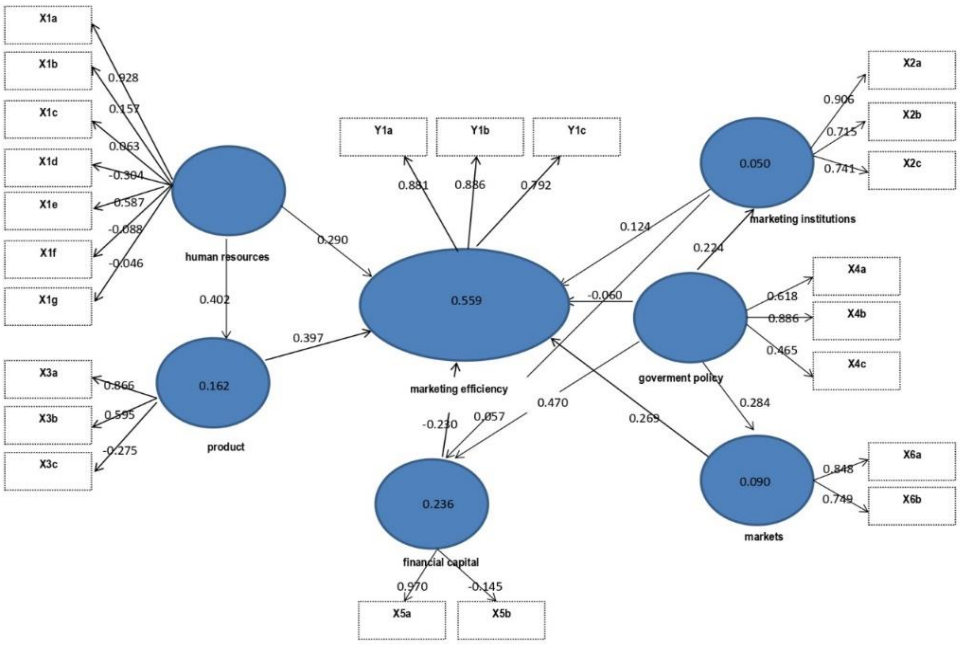

Figure 4. Research Pathway Diagram

In the product variable, quality, continuity, and technology are the indicators of assessment. Gambier products sold by farmers are pure gambier products without mixture and of good quality. Gambier production is also considered to have been able to meet market demand for good quality products. It is because gambier production is carried out throughout the year by farmers. It is usually 2 to 3 times a year but in a long period in one harvest because often, farmers have a relatively large land area. Farmers feel that the gambier processing that is currently being carried out does not use tools/machines that make work more efficient and effective. Besides, farmers are less using technology in observing the development of gambier prices. Farmers still tend to make traders the first source of information.

Government policy

Government policy can be seen from the government's support in gambier marketing, taxation, and price regulation. Still, there has not been sufficient support from the government in the development of gambier. Farmers feel that farmers have not felt government support in terms of promotion, extension activities, procurement of production facilities, and marketing. Even in terms of price regulation, the benefits of farmers cannot be felt.

Capital

The variable of farmer capital is rated by how credit access and the availability of farmers own capital. Formal financial institutions cannot be utilized by farmers/traders properly. It can be caused by many things ranging from farmers' lack of interest, high interest rates, and processes that are considered quite complicated. Besides, the majority of farmers can meet the cost requirements in gambier marketing or gambier cultivation activities.

Market

Market variables are assessed by looking at the shape of the market and determining market prices. There are relatively many farmers and buyers (traders) in the gambier trade, so competition is not high. The prices are not based on market mechanisms because of dependence on international prices. It does not correspond to farmers' production costs because the current production costs are considered high compared to the current gambier prices.

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Analysis Results Factors affecting Gambir's marketing efficiency

Path diagram

The relationship between variables in the factor model that affects gambier marketing efficiency is analyzed and tested for validity and reliability by the Partial Least Square (PLS) method. After all the data has been processed, an evaluation of the research model is carried out, namely the evaluation of the measurement model (outer model) and the evaluation of the structural model (inner model). The path diagram in the study can be seen in Figure 4.

convergent validity when it meets the requirements of having minimum indicator reliability of 0.5, which is also called an outer loading value 0.5, which is also called outer loading value in Table 1 below.

After being dropped, the outer model becomes valid, seen from convergent validity. Then, the model is reprocessed without involving the indicators that have been dropped. The results of the final confirmatory analysis after removing invalid indicators can be seen in Figure. 5.

The final factor loading values are presented in Table 2, and Figure 3 shows that all indicators

Table 1. Confirmatory-Last Factor Analysis Results

	Marketing Efficiency	Government policy	Marketing Institute	Capital	Market	Product	Human Resources
X1a							1,000
X2a			0,906				
X2b			0,722				
X2c			0,737				
X3a						0,922	
X3b						0,526	
X4a		0,680					
X4b		0,840					
X4c		0,501					
X5a				1,000			
X6a					0,850		
X6b					0,746		
Y1a	0,873						
Y1b	0,878						
Y1c	0,803						

Evaluation of the measurement model (Outer Model)

1. Convergent validity test

In this study, convergent validity is proven by achieving criteria. Hair (2010) states that in the SEM/PLS approach. A measurement meets

have a factor loading greater than 0.5. These results indicate that all indicators have good convergent validity. Thus, the indicator is valid in measuring each of its latent variables. It can be concluded that the indicator is a valid indicator as a measure of latent variables.

Table 2. Results of Cross Loading Values

	Human Resources	Marketing Institute	Product	Government policy	Capital	Market	Efficiency
X1a	1,000	0,070	0,425	-0,066	-0,010	0,275	0,564
X2a	0,063	0,906	0,183	0,209	0,177	0,189	0,226
X2b	0,116	0,722	0,162	0,067	-0,039	0,008	0,238
X2c	0,004	0,737	0,021	0,203	0,136	0,166	0,087
X3a	0,479	0,080	0,922	0,101	0,249	0,268	0,492
X3b	0,030	0,227	0,526	0,371	-0,003	0,339	0,364
X4a	0,022	0,139	0,150	0,680	0,305	0,158	0,025
X4b	-0,117	0,235	0,185	0,840	0,410	0,265	-0,018
X4c	0,026	-0,070	0,168	0,501	0,159	0,113	0,030
X5a	-0,010	0,139	0,214	0,458	1,000	0,209	-0,095
X6a	0,252	0,355	0,341	0,268	0,245	0,850	0,397
X6b	0,183	-0,137	0,231	0,171	0,071	0,746	0,339
Y1a	0,338	0,286	0,353	-0,008	-0,124	0,366	0,873
Y1b	0,356	0,215	0,362	-0,063	-0,115	0,369	0,878
Y1c	0,659	0,115	0,648	0,060	-0,026	0,422	0,803

2. Discriminant Validity Test

The second stage is the discriminant validity test conducted to determine how far the difference in the validity of a variable compared

Based on the table, it is known that the cross-loading value between the latent variable and the indicator is higher than the correlation value of the other latent variable with the indicator variable. The cross-loading value of marketing efficiency variable (Y) with indicator Y2 is 0.803 greater than the correlation value with government policy variables the value is 0.060, marketing institutions (0.115), capital (-0.026), market (0.422), product (0.648), and higher than the HR variable (0.659). It means that the variables in this study have good discriminant validity.

Table 3 shows that the AVE value of all latent variables ranges from 0.473 (0.5 roundings) to 1, meaning that the AVE value of all variables is greater than 0.5. The results of Cross Loading and AVE values are presented in Tables 2 and 3.

3. Composite Reliability

Composite reliability is the reliability for measuring latent variables (Hair, 2010). The

Table 3. Results of AVE Value for each variable

	Average Variance Extracted
Marketing Efficiency	0,726
Government policy	0,473
Marketing Institute	0,628
Capital	1,000
Market	0,640
Product	0,564
Human Resources	1,000

reliability of latent variables is estimated through the measurement of internal consistency reliability to find out; it can be seen from the composite reliability. In this study, the composite reliability value of all latent variables in the outer model is more than 0.7. The results of composite reliability are presented in Table 4.

Table 4. Composite Reliability in each variable

	Composite Reliability
Marketing Efficiency	0,888
Goverment Policy	0,721
Marketing Institute	0,834
Capital	1,000
Market	0,780
Product	0,706
Human Resources	1,000

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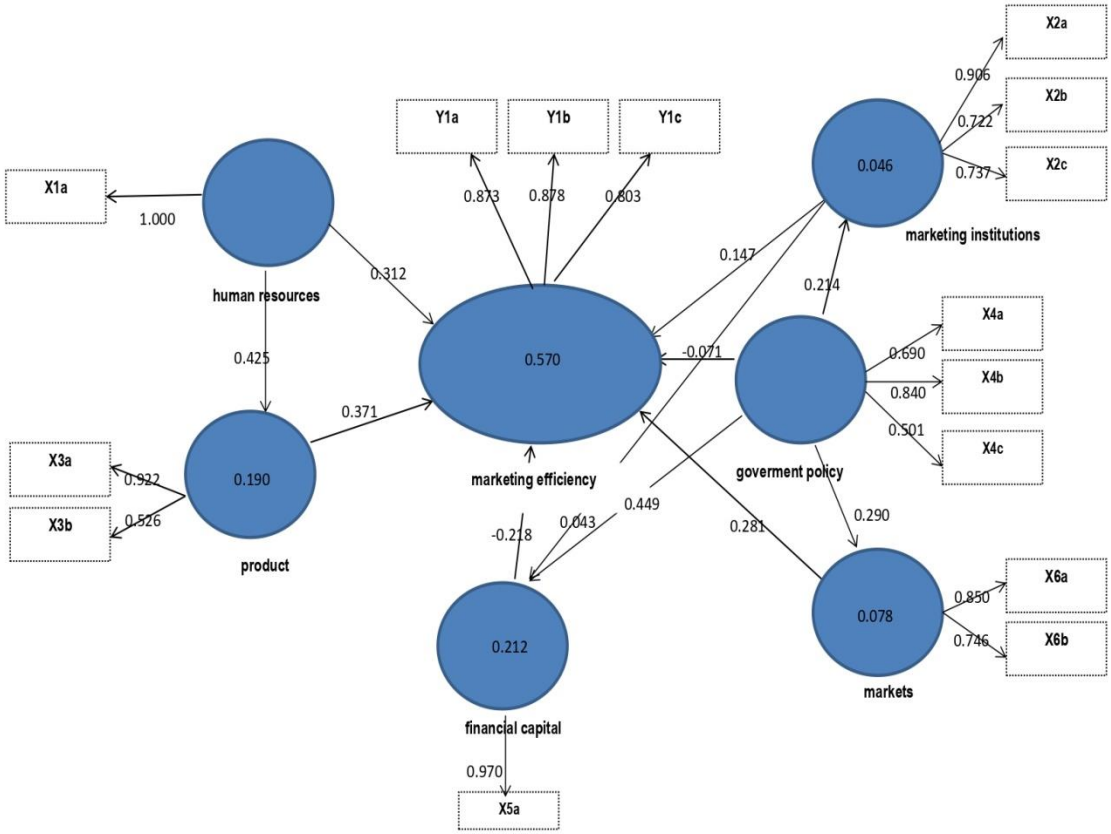

Figure 5. Analysis Results of the Final Research Model

Table 4 shows that all latent variables' composite reliability values ranged from 0.706 to 1,000, meaning that the overall cost of composite reliability was greater than 0.7. These results indicate that all latent variables have excellent composite reliability. Based on the results of the overall evaluation, namely convergent validity, composite reliability, and discriminant validity described above, it can be concluded that the indicators as a measurement of latent variables are valid measurements.

a. Structural Model Evaluation (Inner Model)

Evaluation of the structural model (inner model) aims to see the relationship between latent variables. The model suitability test is based on established criteria called Goodness of Fit. The Goodness of Fit of the Inner Model is measured using R-square dependent latent variables with the same interpretation as regression.

R-square value is the result (in the form of a percentage) of the representation of the independent variable on the dependent variable. A good R2 value is above 0.2 (equivalent to 20%).

Table 5. R Square Values of Each Research Variable

	R Square	R Square Adjusted
Marketing Efficiency	0,570	0,542
Marketing Institute	0,046	0,036
Capital	0,212	0,196
Market	0,078	0,069
Product	0,180	0,172

Based on the R2 values listed in Table 6. It can be explained that HR can define the marketing efficiency variable (Y), product, marketing agency, market, capital, and government policy variables by 57%; the remaining 43% are explained by other variables not examined.

Table 6. Path Coefficients (Mean, STDEV, T-Values)

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	**P Values**
1. Government policy → Marketing Efficiency	-0,071	-0,082	0,091	0,779	**0,437**
2. Marketing Institute →Marketing Efficiency	0,147	0,149	0,071	2,072	**0,040**
3. Capital → Marketing Efficiency	-0,218	-0,215	0,074	2,967	**0,003**
4. Market → Marketing Efficiency	0,281	0,279	0,079	3,575	**0,000**
5. Product → Marketing Efficiency	0,371	0,377	0,078	4,767	**0,000**
6. Human Resources → Marketing Efficiency	0,312	0,310	0,074	4,184	**0,000**

b. Test the path coefficient hypothesis

This hypothesis test is a causality analysis conducted to determine the relationship between variables. Causality analysis can be used to determine the effect that occurs between exogenous variables and endogenous variables. Exogenous variables are stated to have a significant impact on endogenous variables if the p-value (probability) <0.05. The results of hypothesis testing are presented in Table 6.

Hypothesis testing is intended to test an exogenous variable's effect on an endogenous variable or the result of an endogenous variable on other endogenous variables. In other words, the researchers want to test the significance of the effect of a variable that influences another variable

The basis of decision making from the hypothesis test is that if the p-value (probability) <0.05, then H0 is rejected, and if the p-value (probability)> 0.05, then H0 is accepted. A description of the effects of the variables based on the results can be seen in Table 6.

Based on table 6 can be explained as follows:

1. The P-value of Path 6 is 0,000 <0.05 and $T_{statistics}$ of 4.184> T_{table} (1.96), then there is a significant effect between HR on marketing efficiency. The HR variable, in this case, is the age variable. The sample means of 0.310 has a positive and significant effect between HR (age to marketing efficiency). With each increase in the age of 1 unit, the marketing efficiency will increase by 0.310 units.
2. The P-value of Path 2 is 0.040 < 0.05, and T statistics is 2.072>T_{table} (1.96), so there is a significant influence between marketing institutions on marketing efficiency. In this case, marketing agency variables are measured using marketing channel indicators, marketing institutions, and patron claims. The sample mean value of 0.149, then there is a positive and significant influence between marketing institutions on marketing efficiency, each increase in the value of marketing institutions 1 unit. Marketing efficiency will increase by 0.149 units.
3. The P-value of Path 5 is 0,000 <0.05, and T statistics is 4.767> T_{table} (1.96), so there is a significant influence between products on marketing efficiency. Product variables, in this case, are measured using indicators of quality and continuity. The sample mean value of 0.377, then there is a positive and significant effect between products on marketing efficiency, each increase in quality and continuity of product 1 unit. Marketing efficiency will increase by 0.377 units.
4. The P-value of Path 1 is 0.437>0.05 and $T_{statistics}$ of 0.779 <T_{table} (1.96), then there is no significant effect between government policy on marketing efficiency. In this case, government policy variables are measured using PP indicators, taxes, and price arrangements. The sample mean value of -0.082, then there is a negative and insignificant influence between government policy on marketing efficiency, each

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increase in the value of government policy product 1 unit. Marketing efficiency will decrease by 0.082 units.

5. The P-value of Path 3 is 0.003 <0.05 and $T_{statistics}$ of 2.967> T_{table} (1.96), there is a significant effect between capital on marketing efficiency. The capital variable, in this case, is measured using a credit access indicator. The sample mean value of -0.215, then there is a negative and significant effect between capital on marketing efficiency, each increase in access to credit or capital 1 unit. Marketing efficiency will decrease by 0.215 units.
6. The P-value of Path 4 is 0,000 <0.05 and $T_{statistics}$ of 3.575> T_{table} (1.96), then there is a significant influence between the market on marketing efficiency. Market variables, in this case, are measured using indicators of market shape and market price determination. The sample mean value of 0.279, then there is a positive and significant effect between the market on marketing efficiency, each increase in the value of 1 unit of market indicators. Marketing efficiency will increase by 0.279 units.

Based on table 7 can be explained as follows:

1. The P-value is 0.012 < 0.05, and $T_{statistics}$ is 2.523 > T_{table} (1.96), so there is a significant influence between government policies on marketing efficiency with capital as a mediating variable.
2. The P-value is 0.019 <0.05, and $T_{statistics}$ is 2.366 > T_{table} (1.96), so there is a significant influence between government policy on marketing efficiency with the market as a mediating variable.
3. The P-value is 0.00 <0.05, and $T_{statistics}$ is 3.832 > T_{table} (1.96), so there is a significant effect between HR on marketing efficiency with the product as a mediating variable

Table 7. Path Coefficients (Mean, STDEV, T-Values) mediating variables

	Original Sample (O)	Sample Mean (M)	Stand.Dev. (STDEV)	T Statistics (O/STDEV)	P Values
Government policy → Capital → Marketing Efficiency	0,098	-0,096	0,039	2,523	0,012
Government policy → Market → Marketing Efficiency	0,079	0,083	0,033	2,366	0,019
Human Resources→Product→Marketing Efficiency	0,158	0,157	0,041	3,832	0,000

CONCLUSIONS

From the loading factor values obtained indicators that affect marketing efficiency: HR indicators, namely the age of farmers; institutional indicators, namely channels and marketing institutions as well as clan patron hubs. Product indicators, namely quality and continuity, government policy indicators, namely government regulations, taxes and price arrangements, capital indicators, namely: access to credit for farmers and market indicators, namely: the shape of the market and the determination of market prices. The Marketing efficiency variables that influence are capital, marketing institutions, products, markets, and HR variables.

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