The Determinant Factors of The Dynamics of Agribusiness Behavior of the Mango Farmers in Greged Sub District, Cirebon District

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Abstract. Cirebon has already been known as one of the mango-producing areas. However, until now, mango agribusiness in the area has not been able to maintain the quality and guarantee the availability of mangoes throughout the year. The problem was caused by the dynamic behavior of the farmers. This indicated that the development of mango agribusiness in the era of globalization should be based on the improvement of agribusiness behavior of mango farmers. The purpose of this paper was to analyze the factors that determine the improvement of agribusiness behavior of mango farmers. The research method employed in this research was survey technique in Greged district of Cirebon regency using simple random sampling technique involving 130 mango farmers. Data were analyzed using path analysis. The results of the study showed that the most powerful factors in improving agribusiness behavior of mango farmers were resource factor (9.2%), institutional factor (8.2%), cultural factor (7%) and technological factor (4.8%). This indicated that the development of sustainable mango agribusiness model in Greged district of Cirebon Regency should be focused on optimizing its resources, increasing its institutional role, preserving the mango cultivation of its farmers and increasing the role of the use of mango farming technology.

1. Introduction

West Java, as one of the mainstay areas of mango development in Indonesia, was able to contribute the third highest mango production after East Java and Central Java (Table 1). Although only ranks third in Indonesia, mango productivity in West Java was higher than the other four provinces. The average productivity of mango in West Java within 5 years was 11.7 tons/ha while East and Central Java were only 9.5 tons/ha and 10.3 tons/ha, respectively. The number of diversification of superior mango varieties in West Java and production of certified mango seeds were higher than in East and Central Java. Five major mango varieties developed in West Java were Arumanis, Gedong, Gedong Gincu, Dermayu, and Golek.

Currently, West Java Provincial Government is cooperating with the Japanese government in developing the market of Gedong Gincu due to the high preference of Japanese people to this type of mango fruit from West Java. Mango-producing areas in West Java spread over 27 districts and cities. There were 5 districts in West Java becoming mango production centers that cultivated various types of mango. These areas were the districts of Indramayu, Cirebon, Majalengka, Kuningan, and Sumedang. In addition, the production of certified mango seeds in West Java reached more than 1 million trees. On the other hand, East and Central Java were only 178,061 trees and 29,601 trees.

Greged sub-district is a potential mango producer in Cirebon District (Table 2), although the number of trees and land area only rank third, but the varieties and programs of mango commodity development conducted by the government in Greged Sub District tend to be more diverse. In 2010, the area of Gedong Mango in Cirebon District was 2,929 Ha². There was about 2% or 50 a² had been certified in the Ministry of Agriculture. Certification of mango garden was very important to penetrate...
export market since importers required mango fruit with clear origin in order to know the quality guarantee. However, not all mango gardens could be registered. In addition, farmers must also understand and apply Stop/GAP if they wanted to have a minimum of one hectare of land.

Table 1. Mango production per ton by province in Indonesia

| Province          | 2012   | 2013   | 2014   | 2015   | 2016   | Share (%) |
|-------------------|--------|--------|--------|--------|--------|-----------|
| East Java         | 840.316| 799.410| 922.727| 806.644| 655.692| 37        |
| Central Java      | 422.992| 404.443| 459.669| 396.636| 334.596| 18        |
| West Java         | 344.205| 327.070| 321.482| 310.226| 260.106| 14        |
| South Sulawesi    | 158.006| 148.118| 161.829| 117.205| 86.081 | 6         |
| Nusa Tenggara Barat | 137.689| 110.637| 118.427| 120.696| 109.069| 5         |
| Sum               | 1.903.208| 1.789.678| 1.984.134| 1.751.407| 1.445.544| 80        |
| Indonesia         | 2.376.333| 2.192.928| 2.431.330| 2.178.826| 1.814.540| 100       |

Description: Share is ratio between total production of province with total production of Indonesia

Source: Central Bureau of Statistics and Directorate General of Horticulture (processed)

Table 2. Production center of gedong gincu mango in cirebon district

| No  | Sub-District | Tree number | Large (Ha) |
|-----|--------------|-------------|------------|
| 1.  | Sedang       | 130.805     | 1.308      |
| 2.  | Dukupuntang  | 82.500      | 825        |
| 3.  | Greged       | 69.000      | 690        |
| 4.  | Lemahabang   | 49.259      | 492        |
| 5.  | Astanajapura | 15.700      | 157        |
| 6.  | Source       | 7.070       | 71         |

Source: Agriculture, Plantation, Livestock and Forestry Office of Cirebon District

In marketing activities, the purpose of the mango gedong market was determined by grade. The classification of the quality (grading) of the harvest was conducted by the collector based on the size, shape, maturity and damage of the fruit. Mango grade A/B (a combination of grade A and B) was a widely marketed grade to markets outside the region, fruit shops/stalls, supermarkets, and a small portion in exports. While off-grade mango or grade C was only distributed to traditional markets in Cirebon and surrounding regencies such as Majalengka, Sumedang, Indramayu and Bandung. The supply chain of mango chains in Cirebon district was mostly through the fruit dealer. The dealers distributed mangoes to traditional markets (80-83%), modern markets (17%) that were divided into supermarkets by 15% and exports 2%, and a small portion to processing industries (1-3%) [1].

The percentage of Gedong mango production in Cirebon district in 2010 was 60%, with grade A/B 41.9 percent and grade C of 18.1 percent. Meanwhile, mango Gedong Gincu was 40 percent, with grade A/B was 28 percent and grade C was 12 percent. Factors affecting the farmer's decision to harvest the mango in the form of Gedong Gincu were market price and deal with collector. If the selling price was still low, farmers delayed the harvest time or waited for the price to increase before harvesting.

Although mango was one of the tropical horticulture commodities favored nationally and had the potential to increase the welfare of farmer's family because it had high economic value, the economic potential had not been explored since there were still many technical and non-technical obstacles that caused the production of national mango became unstable and had low quality [2]. The instability of national mango production was due to the low adoption of off season technology in Indonesia which was 17.92% [3]. Production of Gedong Gincu mango in Cirebon district had decreased in 2010 and
2013. The decrease of mango production in 2010 was caused by the unpredictable weather, which is the rainy season that lasted throughout 2010. Extreme weather also occurred in 2013. The success of mango farming still depended on climate and weather conditions, high rainfall became the failure factor of mango production.

Production instability and low quality caused the percentage of mango export volume in Indonesia to be below 0.08 percent. In fact, with the exports, farmers could increase their revenue because the selling price of exported mangoes were higher than the mango marketed in the country. For the government, the export of mango was also beneficial as it could increase foreign exchange earnings for the State. Some internal factors that affect the low export volume were the low number of mangoes that meet the export quality criteria, the seasonal shifts result in harvest delays or crop failure, small scale business scale, limited application of post-harvest mango technology, exporter promotion capabilities, knowledge of limited market characteristics, and fruit flies.

The high diversity of characteristics of mango and its farmers reflects the dynamics of mango agribusiness behavior in Greged Sub District, Cirebon District. The problem is how to encourage the dynamics of these behaviors to move in a positive direction and ultimately can improve the competitiveness and prosperity of mango farmers themselves in the current era of globalization. Thus, the purpose of this paper is to investigate the factors encouraging mango farmers to improve the dynamics of agribusiness behavior.

2. Materials and Methods
The research was conducted by Survey-explanatory method using simple random sampling. Based on field observations, the number of farmers group in Greged sub District were 10 groups with the average number of 18-23 peoples per group, so that the estimated population of mango farmers were 180-230 people. Based on expert formulation, then the number of samples in this study was determined as many as 130 people. The amount was sufficient for the minimum sample size for quantitative research.

| No. | Variable | Indicator | No. | Variable | Indicator |
|-----|----------|-----------|-----|----------|-----------|
| 1.  | Mango Farmer Agribusiness Behavior | 1. Cultivation of mango trees 2. Use of technology 3. Land expansion 4. Sorting / grading 5. Diversification of production | 5.  | Resource Factor | 1. Production Facilities 2. Individual Farmer's Ability 3. Skilled Workers 4. Natural Potential |
| 2.  | Social Factor | 1. Discussion / Sharing 2. Farmer Cooperation 3. Conflict Resolution | 6.  | Institutional factor | 1. Incorporated in Group of Farmers 2. Partnership in Marketing 3. Partnership in Capital 4. Government Support |
| 3.  | Economy factor | 1. Access to Capital 2. Mango Demand 3. Mango Selling Price | | | |
| 4.  | Technology factor | 1. Pest Management Technology 2. Sustainable Fertilization System 3. Use of ZPT | 7.  | Cultural factor | 1. Hereditary business 2. Business inheritance 3. The role of the family |

The sample of mango farmers selected from the sampling frame was based on the listing of the mango farmer population from BPS, which was renewed every 10 years. BPS divided the area by
census block, which was a smaller division of the village. Each census block consisted of 80-120 families. BPS defined a mango farmer as a farming family with 4 mango trees or more.

In order to analyze the factors that determine the improvement of agribusiness behavior of mango farmers in Greded sub-district of Cirebon district, multivariate statistical analysis tools (path analysis) was used. The dependent variables were agribusiness behavioral variables of mango farmers, whereas the independent variables, which were the factors that allegedly influence the agribusiness behavior of mango farmers were social factors, economic factors, technological factors, resource factors, institutional factors and cultural factors. Each variable was measured using some relevant indicator by using Likert scale. Operationalization of these variables was presented in Table 3.

Estimation stage is the stage of making econometric model of factors that determine the improvement of agribusiness behavior of mango farmers in Greded sub-district of Cirebon district in the era of globalization as follows:

\[ Y = \rho_1 X_1 + \rho_2 X_2 + \rho_3 X_3 + \rho_4 X_4 + \rho_5 X_5 + \rho_6 X_6 + \varepsilon \]  \hspace{1cm} (1)

Keterangan:

- \( Y \) = Agribusiness Behavior of Mango farmers
- \( X_1 \) = Social factor
- \( X_2 \) = Economy factor
- \( X_3 \) = Technology factor
- \( X_4 \) = Resource factor
- \( X_5 \) = Institutional factor
- \( X_6 \) = Cultural factor
- \( \rho_i \) = Path coefficient of independent variable \( X_i \) \((i = 1, 2, \ldots, 6)\)
- \( \varepsilon \) = Error

Furthermore, all ordinal scale (likert) scales were transformed into interval scale measurements using the method of successive interval in order to perform algebraic operations that added up all the values of the indicator to be the value of each variable. Then, the validity test was conducted, where each invalid indicator was not included in the next test that was the reliability test. In the reliability test, any unreliable variable was not included in the next test, which was the test of classical assumptions. Thus, after all the classical assumptions were met, the model fit test (goodness of fit test (GoF Test) was performed. Next, once found that the estimation model was good and appropriate, partial test could be conducted for subsequent interpretation of estimation results and discussion.

3. Results and Discussion

3.1 Data Validity Analysis

The validity test was conducted to find out whether the measuring instrument had measured what needs to be measured. Validity test in this research was conducted by correlating each question with total score for each variable. Correlation technique used was product moment correlation technique using the formula as follow:

\[ r = \frac{n \sum PQ - \sum P \sum Q}{\sqrt{[n \sum P^2 - (P)^2][n \sum Q^2 - (Q)^2]}} \]  \hspace{1cm} (2)

Keterangan:

- \( r \) = Product moment correlation Coefficient;
- \( n \) = Sample Size;
- \( X \) = Indicator score of variable i;
The statistically obtained correlation value should be compared to the critical r table. If $r_{arithmetic} > r_{table}$, the data was significant (valid) and feasible to be used in testing the research hypothesis. On the other hand, if $r_{arithmetic} < r_{table}$, the data was not significant (invalid) and would not be included in testing the research hypothesis.

### Table 4. Data validity analysis result

| No | Variable                          | Indicator                              | $Product\ Moment\ Pearson\ (r)$ | Status |
|----|-----------------------------------|----------------------------------------|---------------------------------|--------|
| 1. | Agribusiness behavior of mango farmer | Cultivation of mango trees           | 0.646**                         | Valid  |
|    |                                   | Use of technology                     | 0.613**                         | Valid  |
|    |                                   | Land expansion                        | 0.549**                         | Valid  |
|    |                                   | Sorting/ grading                      | 0.519**                         | Valid  |
|    |                                   | Diversification of production         | 0.530**                         | Valid  |
| 2. | Social factor                     | Discussion/Sharing                    | 0.751**                         | Valid  |
|    |                                   | Farmer Cooperation                    | 0.703**                         | Valid  |
|    |                                   | Conflict resolution                   | 0.603**                         | Valid  |
| 3. | Economy factor                    | Access to Capital                     | 0.667**                         | Valid  |
|    |                                   | Mango Demand                         | 0.465**                         | Valid  |
|    |                                   | Mango selling Price                  | 0.556**                         | Valid  |
| 4. | Technology factor                 | Pest management Technology           | 0.670**                         | Valid  |
|    |                                   | Sustainable fertilization system      | 0.754**                         | Valid  |
|    |                                   | The use of ZPT                        | 0.755**                         | Valid  |
| 5. | Faktor sourcedaya                 | Production facilities                | 0.564**                         | Valid  |
|    |                                   | Individual Farmer’s ability           | 0.712**                         | Valid  |
|    |                                   | Skilled Workers                      | 0.564**                         | Valid  |
|    |                                   | Natural Potential                    | 0.591**                         | Valid  |
| 6. | Institutional factor              | Incorporated in Group of farmers     | 0.738**                         | Valid  |
|    |                                   | Partnership in marketing             | 0.587**                         | Valid  |
|    |                                   | Partnership in capital               | 0.676**                         | Valid  |
|    |                                   | Government Support                   | 0.661**                         | Valid  |
| 7. | Cultural factor                   | Government Support                   | 0.791**                         | Valid  |
|    |                                   | Hereditary business                  | 0.690**                         | Valid  |
|    |                                   | Business inheritance                 | 0.543**                         | Valid  |

Source: Primary Data, processed 2018

According to Table 4, the Product Moment Pearson ($r$) value of all indicators in each variable was valid. Thus, all of these indicators could be included in the data reliability test.

### 3.2 Analisis Reliabilitas Data

The reliability test is performed on a valid indicator to test whether the indicators were stable in revealing the data behavior. Testing can be conducted externally or internally. Externally, testing can be conducted with test and retest. Meanwhile, internally, it could be tested by analyzing the consistency of the items.

Based on Table 5, it was found that the Cronbach Alpha value of all indicators on each variable was above 0.6. Thus, it was declared reliable. Thus, all of these indicators could be included in the classical assumption test.
Table 5. Data Reliability Analysis Result

| No | Variable | Indicator | Product Moment Pearson ($r$) | Status |
|----|----------|-----------|-----------------------------|--------|
| 1. | Agribusiness behavior of mango farmer | Mango Tree Cultivation | 0.715 | Reliable |
|    |          | Technology use |                        |        |
|    |          | Land expansion |                        |        |
|    |          | Sorting/ grading |                       |        |
|    |          | Diversification of production |                  |        |
| 2. | Social factor | Discussion/Sharing | 0.765 | Reliable |
|    |          | Farmer Cooperation |                        |        |
|    |          | Conflict resolution |                       |        |
| 3. | Economy factor | Access to Capital | 0.656 | Reliable |
|    |          | Mango Demand |                        |        |
|    |          | Mango selling Price |                    |        |
| 4. | Technology factor | Pest management Technology | 0.790 | Reliable |
|    |          | Sustainable fertilization system |          |        |
|    |          | The use of ZPT |                        |        |
| 5. | Resource factor | Production facilities | 0.725 | Reliable |
|    |          | Individual Farmer’s ability |              |        |
|    |          | Skilled Workers |                        |        |
|    |          | Natural Potential |                       |        |
| 6. | Institutional factor | Incorporated in Group of farmers | 0.760 | Reliable |
|    |          | Partnership in marketing |                  |        |
|    |          | Partnership in capital |                     |        |
|    |          | Government Support |                       |        |
| 7. | Cultural factor | Government Support | 0.760 | Reliable |
|    |          | Hereditary business |                    |        |
|    |          | Business inheritance |                   |        |

Source: Primary Data, processed 2018

3.3. Classical Assumption Test
3.3.1. Multicollinearity Test
A good path analysis model should be free of multicollinearity or have no high correlation between independent variables. The best way to detect the presence or absence of multicollinearity is to look at the tolerance and Variance Inflation Factor (VIF). If the tolerance value is $>0.5$ and the VIF value $<5$, it can be concluded that there is no multicollinearity among the independent variables in the regression model. The following was the result of SPSS calculation for multicollinearity test.

Table 6. Multikolinieritas test

| Variable | Collinearity Statistics | Tolerance | VIF |
|----------|-------------------------|-----------|-----|
| X1       |                         | 0.595     | 1.680 |
| X2       |                         | 0.861     | 1.161 |
| X3       |                         | 0.664     | 1.506 |
| X4       |                         | 0.654     | 1.530 |
| X5       |                         | 0.629     | 1.589 |
| X6       |                         | 0.945     | 1.058 |

Source: Primary Data, processed 2018
Table 6 shows that the tolerance value of each of the independent variables was > 0.5 and tended to be close to 1. Similarly, the VIF value of each free variable did not exist that exceed 5 even tended to close to 1. Thus, it was concluded that the resulting model did not contain multicollinearity.

3.3.2 Heteroscedasticity Test
The heteroscedasticity test aimed at testing whether the regression model had a variance inequality of residuals in one observation of another. If the variance of the residuals was fixed then it was called Homocedasticity and if it was different, it was called Heteroscedasticity. A good regression model was a model that did not have Heteroscedasticity. Heteroscedasticity test was using graphical method by looking at the presence or absence of certain pattern on scatterplot of dependent variable. If there was no particular pattern there was no heteroscedasticity and vice versa. Results of analysis using SPSS is presented in Figure 1

![Figure 1. Scatterplot Result](image)

Source : Primary Data, processed 2018

Based on Figure 1, it could be concluded that the path analysis model had no symptoms of heteroscedasticity because there was no pattern and the points were randomly distributed below and above the zero point.

3.3.3 Normality Test
Normality test aimed at testing whether both dependent variable and independent variable had a normal distribution. A good regression model had a normal or near-normal residual distribution. Normality test could be computed using SPSS by looking at histogram and P-P plot. If the histogram of residual value formed a pattern such as a bell shape with a mean value of 0, it indicated that it had a normal distribution. Normality test using P-P Plot was said to be normally distributed if the points were along the line. Normality test results through histogram and P-P Standardized Residual Plot of Regression were presented in figure 2.

In Figure 2, it was indicated that the histogram pattern formed the bell shape. In addition, on the normal P-P Plot chart, the residual points were along the linear (diagonal) lines. Thus, it could be concluded that the path analysis model had met the assumption of normality.

3.3.4 Autocorrelation Test
The autocorrelation test aims to test whether there is a correlation between errors in a given period. One technique for detecting autocorrelation is the Durbin-Watson (D-W) test with the following criteria:

a. If D-W value < -2, there was positive autocorrelation
b. If D-W value > -2, there was negative autocorrelation
c. If 2D-W value was between 2 and -2, there was no autocorrelation

Based on the analysis, the D-W value is 1.541, so it can be concluded that there is no autocorrelation in the path analysis model.

![Histogram](Left) and Normal P-P Plot (Right)

*Source:* Primary Data, processed 2018

### 3.4. Goodness of Fit (GoF) Test

#### 3.4.1 Coefficient of Determination (R²)

The coefficient of determination (R²) essentially measures the model's ability to explain variations of independent variables. The coefficient of determination is between zero and one. The small value of R² means that the ability of independent variables to explain the variation of the dependent variable is very limited.

Based on the results of the analysis, R² was 0.317, which indicated that the variation of the ups and downs of agribusiness behavior variables could be explained as much as 31.7% by the 6 factors / independent variables in this study, while the rest was determined by other factors not investigated in this study.

#### 3.4.2 F test

F test is used to test the null hypothesis which states that the coefficient of determination of compound in population, R², is equal to zero. Significance tests include testing the significance of the overall regression equation as well as the specific partial regression coefficients. The whole test can be done using F statistics.

Based on the analysis, the value of F was 9.497 or if converted into an opportunity value was 0.000 < 0.05 = α. Thus, the null hypothesis is rejected and the alternative hypothesis states that the coefficient of determination in the population, R², is not equal to zero, is accepted. Thus it can be concluded that the model of path analysis is significant (fit) and simultaneously good.

### 3.5 Result of Factor Analysis Determining Enhancement of Agribusiness Behavior of Mango Farmer

The results of the path analysis model estimation, as shown in Table 7, indicated that there were 4 factors that have real and positive influence in determining the increase of agribusiness behavior,
namely: 1) Technological factors (X3); 2) Resource factor (X4); 3) Institutional factors (X5); and 4) Cultural factors (X6). While social factors (X1) and Economic Factor (X2) have no significant effect.

Table 7. Path Coefficient

| Variable               | Path Coefficient | t      | Sig  | Status       |
|------------------------|------------------|--------|------|--------------|
| Social factor (X1)     | -0.019           | -0.199 | 0.842| not significant |
| Economic factor (X2)   | 0.110            | 1.369  | 0.173| not significant |
| Technology factor (X3) | 0.153            | 1.672  | 0.097| Significant* |
| Resource factor (X4)   | 0.239            | 2.594  | 0.011| Significant**|
| Institutional factor (X5) | 0.253         | 2.693  | 0.008| Significant**|
| Cultural factor (X6)   | 0.231            | 3.014  | 0.003| Significant**|

* Significant at 10%
** Significant at 5%

Source : Primary Data, processed 2018

Technological factor (X3) had positive and significant influence with 90% confidence level in determining agribusiness behavior of mango farmer (Y) with coefficient value of 0.153. The farmers in the sub district of Greged had been using a lot of integrated pest management technology to control the disease, especially the disease on the mango. Pesticide spraying was essential starting from flower stage until the harvest time. In addition, farmers also used the technology of fruit fly flies to control fruit fly pest attack. In terms of maintenance of mango trees, farmers applied sustainable fertilization system by combining the use of organic fertilizers and chemical fertilizers to obtain good crops. Then, the use of ZPT had also been applied by many mango farmers, especially to get the harvest outside the season because at that time the price of mango was high.

Resource factor (X4) had positive and significant influence with 95% confidence level in determining agribusiness behavior of mango farmer (Y) with coefficient value of 0.239. The mango farmers in Greged Sub-district mostly had adequate production facilities and infrastructure so that they had the capability to produce a large and quality mango product. In addition, the role of skilled and experienced workers over the years was very important in supporting agribusiness mangoes. Support of natural conditions that were very suitable for mango plants in Greged district also boosted the potential to produce a lot of mango products and quality.

The role of farmer groups in Greged sub-district strongly supported the development of mango farming. Then, in terms of marketing, farmers already had reliable business partners to sell their crops. These business partners also provided access to capital for the sustainability of mango farming. The support and role of the government was also quite good. Educational and extension programs had been widely conducted by local extension agencies for the development of mango farming. Therefore, based on path analysis model, institutional factor (X5) had positive and significant influence with 95% confidence level in determining agribusiness behavior of mango farmer (Y) with coefficient value of 0.253.

Furthermore, cultural factors (X6) also had positive and significant influence with 95% confidence level in determining the increase of agribusiness behavior of mango farmer (Y) with coefficient value of 0.231. Family roles and support were very supportive and played a role in mango farming in Greged district. In addition, the culture of farming mango in Greged district had been implemented for generations long ago. According to farmers, this culture would continue to be passed down to the next generation and would be maintained in the future.

3.6 Direct, Indirect and Total Effect

The direct influence of a factor (independent variable) on the dependent variable was the magnitude of the factor, which directly determined the value changes in the dependent variable. The indirect effect
was the magnitude of a factor that indirectly determined the change of values on the dependent variable through its relation to other factors. While the total effect was the sum of the direct and indirect effects of a factor on the dependent variable. The total influence of all factors was the coefficient of determination (R2). The values of direct, indirect and total influence of all 6 factors on agribusiness behavior of farmers are presented in Table 8.

| Table 8. Direct, Indirect and Total Effect |
|-----------------------------------------|
| X1  | X2  | X3  | X4  | X5  | X6  |
|-----|-----|-----|-----|-----|-----|
| 0.000 | 0.000 | -0.001 | 0.001 | -0.003 | 0.000 |
| 0.000 | 0.012 | 0.000 | 0.005 | 0.007 | 0.002 |
| -0.001 | 0.000 | 0.023 | 0.017 | 0.007 | 0.001 |
| 0.001 | 0.005 | 0.017 | 0.057 | 0.003 | 0.009 |
| -0.003 | 0.007 | 0.007 | 0.003 | 0.064 | 0.004 |
| 0.000 | 0.002 | 0.001 | 0.009 | 0.004 | 0.053 |

| Direct effect | 0.000 | 0.012 | 0.023 | 0.057 | 0.064 | 0.053 |
|---------------|-------|-------|-------|-------|-------|-------|
| Indirect Effect | -0.003 | 0.014 | 0.025 | 0.035 | 0.018 | 0.017 |
| Total Effect | -0.003 | 0.027 | 0.048 | 0.092 | 0.082 | 0.070 |
| R^2 | 0.317 |

Based on Table 8, the direct influence or strength of social factors (X1) and economic factors (X3) that directly determined the changes of farmer’s agribusiness behavior (Y) were 0% and 1.2%, respectively. Furthermore, the indirect effect of these two variables through their relationship with the other 5 factors was -0.3% and 1.4% respectively. Thus, their total influences were -0.3% and 2.7%, respectively. But, the numbers were not significant at the population level.

The direct influence or strength of the factors that significantly affect the agribusiness behavior of the mango farmers were technological factors (X3), resource factor (X4), institutional factors (X5) and cultural factors (X6) were 2.3%, 5.7%, 6.4% and 5.3% respectively. While the indirect effects of these four variables that were related to 5 other factors were 2.5%, 3.5%, 1.8% and 1.7% respectively. Thus, the total effect was 4.8%, 9.2%, 8.2% and 7%, respectively. From these values, the coefficient of determination was 31.7%, which indicated that the ability of the six factors studied together in determining the variation of variables agribusiness behavior of mango farmers was 31.7% while the rest was determined by other factors that were not examined in this research.

4. Conclusion

Factors that had significant and positive influence in determining agribusiness behavior of mango farmers in Greged sub district of Cirebon District were: 1) Technological factors; 2) Resource factors; 3) Institutional factors; and 4) cultural factors. However, social factors and economic factors had no significant effect. The most powerful factor in improving the agribusiness behavior of mango farmers was resource factor (9.2%), institutional factor (8.2%), cultural factor (7%) and technological factor (4.8%) respectively. This indicated that developing a model of sustainable mango agribusiness in Greged sub district, Cirebon regency should be focused on optimizing its resources, increasing its institutional role, preserving the culture of mango cultivation in its farmers and increasing the role of the use of mango farming technology.

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