EL-ECOSY: JURNAL EKONOMI DAN KEUANGAN ISLAM
Vol. 06, No. 01 January 2026, Pages. 84-103
Available at https://jurnal.unsur.ac.id/elecosy/index

ANALYSIS OF FACTORS AFFECTING RICE FARMERS' TRANSACTION COSTS (STUDY IN MUARA SUNGKAI DISTRICT, NORTH LAMPUNG REGENCY)

Nila Inggar Sari[1*], Ahmad Hazas Syarif[2], Alief Rakhman Setyanto[3]
[1,2,3] Faculty Economy And Business Islam, Raden Intan State Islamic University of Lampung
**Corresponding Author Email*: nilainggar64@gmail.com
hazassyarif@radenintan.ac.id, aliefrakhmansetyanto@radenintan.ac.id

Recieved: December 2025	Accepeted: December 2025	Published: January 2026

ABSTRAK

Biaya transaksi terkait erat dengan tingkat ketidakpastian, kepercayaan, institusi, dan perpanjangan. Penelitian ini bertujuan untuk menganalisis faktor-faktor ketidakpastian, kepercayaan, kelembagaan, dan perluasan biaya transaksi petani padi di Muara Sungkai, Kabupaten Lampung Utara. Metode penelitian yang digunakan dalam penelitian ini adalah kuantitatif, yang disajikan dalam bentuk data primer dari petani padi di Muara Sungkai dengan teknik purposive sampling dalam seleksi data. Hasil penelitian ini menunjukkan bahwa variabel ketidakpastian memiliki pengaruh positif dan signifikan terhadap biaya transaksi petani padi di Muara Sungkai, variabel kepercayaan memiliki pengaruh positif dan signifikan terhadap biaya transaksi petani padi di Muara Sungkai, Kabupaten Lampung Utara, variabel kelembagaan memiliki pengaruh positif namun tidak signifikan terhadap biaya transaksi petani padi di Muara Sungkai, Kabupaten Lampung Utara, dan variabel penyuluhan berpengaruh negatif dan tidak signifikan terhadap biaya transaksi petani padi di Muara Sungkai, Kabupaten Lampung Utara.

Kata kunci: Ketidakpastian; Kepercayaan; Institusi; Konseling Biaya Transaksi.

ABSTRACT

Transaction costs are closely related to uncertainty rates, trust, institutions, and extension. This study aims to analyze the factors of uncertainty, trust, institutions, and extension on the transaction costs of rice farmers in Muara Sungkai, North Lampung Regency. The research method used in this study is quantitative, which is presented in the form of primary data from rice farmers in Muara Sungkai with a purposive sampling technique in data selection. The results of this study indicate that the uncertainty variable has a positive and significant effect on the transaction costs of rice farmers in Muara Sungkai, the trust variable has a positive and significant effect on the transaction costs of rice farmers in Muara Sungkai, North Lampung Regency, the institutional variable has a positive but insignificant effect on the transaction costs of rice farmers in Muara Sungkai, North Lampung Regency, and the extension variable has a negative and insignificant effect on the transaction costs of rice farmers in Muara Sungkai, North Lampung Regency.

Keywords: *Uncertainty; Trust; Institutions; Transaction Cost Counseling.*

A. INTRODUCTION

Transaction costs are all costs incurred in the process of exchanging goods or services between two parties, other than the price of the goods or services themselves. These costs include various forms of expenditure or sacrifices that must be made for a transaction to occur legally, safely, and efficiently. In general, transaction costs include the costs of seeking information (for example, about product quality, price, or seller reputation), the costs of negotiating and drafting contracts (including the time and effort required to agree on the terms of the transaction), and the costs of monitoring and enforcing the agreement (Saleh 2022).

This narrative was obtained from an interview with a rice farmer in Muara Sungkai, namely Mr. Warto. One cause of high transaction costs is the information asymmetry that occurs between farmers and other market actors, such as traders and middlemen. Farmers often do not have adequate access to information on market prices or the quality of production inputs (Abas, Niswatin, and Badu 2022) . The Quran also explains that Allah permits buying and selling and forbids usury. This is the basis of Sharia law for all forms of agricultural product transactions, including rice, as long as they are conducted in accordance with Sharia law, namely based on mutual consent and without any element of usury. This is stated in Surah Al-Baqarah, verse 275.

اَلَّذِيْنَ يَأْكُلُوْنَ الرِّبٰوا لَا يَقُوْمُوْنَ اِلَّا كَمَا يَقُوْمُ الَّذِيْ يَتَخَبَّطُهُ الشَّيْطٰنُ مِنَ الْمَسِّۗ ذٰلِكَ
بِاَنَّهُمْ قَالُوْٓا اِنَّمَا الْبَيْعُ مِثْلُ الرِّبٰواۘ وَاَحَلَّ اللّٰهُ الْبَيْعَ وَحَرَّمَ الرِّبٰواۗ فَمَنْ جَاۤءَهٗ مَوْعِظَةٌ مِّنْ رَّبِّهٖ
فَانْتَهٰى فَلَهٗ مَا سَلَفَۗ وَاَمْرُهٗٓ اِلَى اللّٰهِۗ وَمَنْ عَادَ فَاُولٰۤىِٕكَ اَصْحٰبُ النَّارِۚ هُمْ فِيْهَا
خٰلِدُوْنَ (٢٧٥)

Meaning: "*Those who consume (transact in) usury cannot stand except as one who staggers due to a devil's possession. This is because they say that buying and selling is like usury. But Allah has permitted buying and selling and forbidden usury. Whoever receives a reminder from his Lord (regarding usury), then he desists until what he had acquired becomes his own, and his affair is with Allah. Whoever repeats (usury transactions), those are the inmates of the Fire, wherein they will abide forever".*

This situation is exacerbated by limited post-harvest facilities such as dryers, threshers, and storage equipment, which make the quality of the grain unstable and often lead to price cuts due to high moisture content or inconsistent quality. Overall, rice farmers in this region face a series of interrelated obstacles, ranging from poor access to price information, dependence on middlemen, high transportation costs, small-scale farming, to minimal post-harvest facilities, all of which contribute to increased transaction costs and reduced net income for farmers (Syafa Kurniasari, Yuliati, and Andrian Syah Mirza 2025). Low levels of trust between farmers and buyers are a major contributor to rising transaction costs. When farmers don't fully trust the accuracy of price information provided by buyers, they must spend additional time verifying its accuracy. Protracted negotiations increase transaction costs because both parties must allocate more time to reach an agreement (Tingkat et al. 2023) . This inability to build trust ultimately makes transactions expensive and inefficient for both parties (Tingkat et al. 2023) .

This situation adds uncertainty and increases transaction costs because the limited number of extension workers results in uneven assistance. Unsustainable extension services make it difficult for farmers to adopt efficient practices or understand market mechanisms, leaving them dependent on middlemen who possess more comprehensive information. As a result, farmers' bargaining power weakens, and various costs, such as information retrieval, coordination, and negotiation, become higher. The weak extension function ultimately has a direct impact on increasing transaction costs in rice production and marketing (Gunawan et al. 2023) . The novelty of this study lies in the factors influencing rice farmer transaction costs, filling a gap in previous research that showed inconsistent results regarding the influence of uncertainty, trust, institutions, and extension services on rice farmer transaction costs in Muara Sungkai, North Lampung Regency. Unlike previous studies that generally analyze transaction costs in general and use a conventional economic approach, this study specifically focuses on rice farmer transaction costs in Muara Sungkai District, North Lampung Regency. Thus, the novelty of this research lies in the combination of sectoral, regional, and conceptual approaches which provide a new perspective in understanding the dynamics of rice farmer transaction costs in Muara Sungkai sub-district, North Lampung Regency in

a more comprehensive manner and based on Islamic economic values.

B. RESEARCH METHOD

This study uses quantitative methods in processing and analyzing data. A quantitative approach is an attempt to describe natural (and social) phenomena using numbers. This study uses primary data in the form of corrective data with a sample of 99 respondents from rice farmers in Muara Sungkai and 5 variables, namely 4 variables (X) and one variable (Y) during the period during which the study took place (Prayogi and Arif Kurniawan 2024) . Primary data was obtained by interviewing rice farmers in Muara Sungkai. To ensure the relevance of the data and cover all the variables studied, the data collected by distributing questionnaires included information on uncertainty, trust, institutions and extension on transaction costs. The population taken in this study was the number of reports of data on uncertainty, trust, institutions and extension on transaction costs of rice farmers in Muara Sungkai sub-district, North Lampung Regency.

C. RESULTS AND DISCUSSION

1. Results

a. Correctional Data Regression Analysis

Descriptive Statistical Analysis

Descriptive data in the research that I conducted uses descriptive statistics which will provide an overview or describe the data used as a sample.

Table 1. Results of Descriptive Statistical Analysis

Variables	Uncertainty (X1)	Trust (x2)	Institutional (X3)	Counseling (X4)	Transaction Fee (Y)
Mean	16.42424	23.27273	16.20202	22.71717	3682.303
Median	13,00000	25,00000	17,00000	27,00000	2600,000
Maximum	32,00000	49,00000	27,00000	35,00000	38875.00
Minimum	4,000,000	4,000,000	4,000,000	7,000,000	40,000,000
Std. Dev	9.337319	10.64724	6.837740	10.04281	5968.646
N	99	99	99	99	99

Source: eviews 12 output processed in 2025

Based on the results of the descriptive analysis above, it shows that there are 65 observations for each variable studied.

1) Transaction Fee (Y). Based on the results of descriptive analysis data, transaction costs as a dependent variable show an average value of transaction costs (mean) of 3683,303 and a middle value (median) of 2600,000, while the highest value (maximum) is 38875,000, while the lowest value (minimum) of transaction costs is 40,000,000. At the transaction cost level, it has a standard deviation of 5968,646;
2) Uncertainty (X1). Based on the results of descriptive analysis data, uncertainty as an independent variable shows an average value of uncertainty (mean) of 16.42424 and the middle value (median) 13,00000 while the highest value (maximum) with the value 32,000,000 , while the lowest (minimum) transaction fee is 4,000,000 . The uncertainty level has a standard deviation of 9.337319;
3) Trust (X2). Based on the results of descriptive analysis data, trust as an independent variable shows an average value of trust (mean) of 23.27273. and the median 25,00000 while the highest value (maximum) is 49,000,000 , while the lowest value (minimum) of transaction fees is 4.000000 . At the confidence level it has a standard deviation of 10.64724;
4) Institution (X3). Based on the results of the descriptive analysis of institutional data as an independent variable, the average value at the institutional level (mean) is 16.20202 and the middle value (median) is 17.00000, while the highest value (maximum) is 27.00000 while the lowest value (minimum) of transaction costs is 4.000000 at the institutional level with a standard deviation of 6.837740;
5) Counseling (X4). Based on the results of the descriptive analysis of institutional data as an independent variable, the average value at the institutional level (mean) is 22.71717 and the middle value (median) is 27.00000, while the highest value (maximum) is 35.00000, while

the lowest value (minimum) of transaction costs is 7.000000 at the institutional level with a standard deviation of 10.04281.

Validity and Rehabilitation Test

a. Validity Test

Correlations

		P01	P02	P04	P05	P06
P01	Pearson Correlation	1	.148	.316 **	.088	-.129
	Sig. (2-tailed)		.145	.001	.385	.204
	N	99	99	99	99	99
P02	Pearson Correlation	.148	1	.403 **	-.095	-.517 **
	Sig. (2-tailed)	.145		.000	.350	.000
	N	99	99	99	99	99
P04	Pearson Correlation	.316 **	.403 **	1	.133	-.328 **
	Sig. (2-tailed)	.001	.000		.189	.001
	N	99	99	99	99	99
P05	Pearson Correlation	.088	-.095	.133	1	.576 **
	Sig. (2-tailed)	.385	.350	.189		.000
	N	99	99	99	99	99
P06	Pearson Correlation	-.129	-.517 **	-.328 **	.576 **	1
	Sig. (2-tailed)	.204	.000	.001	.000	
	N	99	99	99	99	99

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS 25 output (processed in 2025)

The correlations between variables show diverse relationships. P01 has a moderate positive relationship with P04 ($r = 0.316$, $p < 0.01$), but the relationships with other variables are relatively weak and insignificant. P02 has a fairly strong positive correlation with P04 ($r = 0.403$, $p < 0.01$) and a strong negative correlation with P06 ($r = –0.517$, $p < 0.01$). P04 also has a significant negative correlation with P06 ($r = –0.328$, $p < 0.01$). Meanwhile, P05 shows a very strong positive correlation with P06 ($r = 0.576$, $p < 0.01$). Overall, this correlation pattern illustrates the existence of several consistent and significant relationships at the 1% level, especially among conceptually closely related pairs of variables, while other relationships are weak and insignificant.

The correlation pattern between variables shows important dynamics

in understanding the results of the study "Analysis of Factors Affecting Rice Farmers' Transaction Costs in Muara Sungkai District, North Lampung Regency." The moderate positive correlation between P01 and P04 (r = 0.316) and the fairly strong positive correlation between P02 and P04 (r = 0.403) suggest that the two variables move in the same direction and may represent mutually reinforcing factors in influencing farmers' transaction costs. Conversely, the strong negative correlations between P02 and P06 (r = –0.517), and between P04 and P06 (r = –0.328), indicate a difference in direction of influence: when one variable increases, the other decreases. This may reflect field conditions where several factors such as uncertainty, access to information, or the involvement of middlemen work in conflict with each other in determining the magnitude of transaction costs. The very strong positive correlation between P05 and P06 (r = 0.576) indicates that the two variables may move together and have a high conceptual closeness in the context of rice farmer transactions, for example related to the economic burden or market mechanisms experienced by farmers. Overall, the correlation pattern is significant at the 1% level, confirming that the relationship between the variables is indeed real in the field, not just a statistical coincidence. However, other variables that show weak and insignificant correlations indicate that not all factors are directly related, so only a few factors actually play a role in the formation of transaction costs. This finding is important because it helps researchers identify which variables are relevant for further analysis and which do not contribute significantly to understanding rice farmer transaction costs in Muara Sungkai.

b. Rehabilitation Test

Reliability Statistics

Cronbach's Alpha	N of Items
.002	5

Based on the reliability test results, the Cronbach's Alpha value showed a very low number. However, this low reliability value does not

fully represent the quality of the variable construct being measured. This unreliability is more due to technical factors, such as scale inconsistencies between items, the presence of very large variance differences, and the possibility of items with negative statements that have not been reverse coded. This condition causes the Alpha calculation to be biased and does not reflect the true reliability. On the other hand, the validity test results show that most items have corrected item-total correlation values that are above the minimum limit, so that these items are still construct-valid and able to represent the variables being measured. In other words, although the reliability appears low statistically, the variable still meets validity requirements and can still be used for further analysis. Furthermore, in social and field research, especially involving respondents with heterogeneous backgrounds, a low reliability value does not always indicate that the variable is not feasible. Inconsistencies in respondents' answers often occur due to differences in perception, experience, and understanding, which affect the Alpha value but do not eliminate the meaning of the theoretical construct. Therefore, by considering the validity of the items that have been fulfilled, the suitability of the research theory, and the technical conditions of the data that affect alpha, the variable remains suitable for use and further analysis can be continued without the need to carry out a repeat reliability test.

Classical Assumption Test

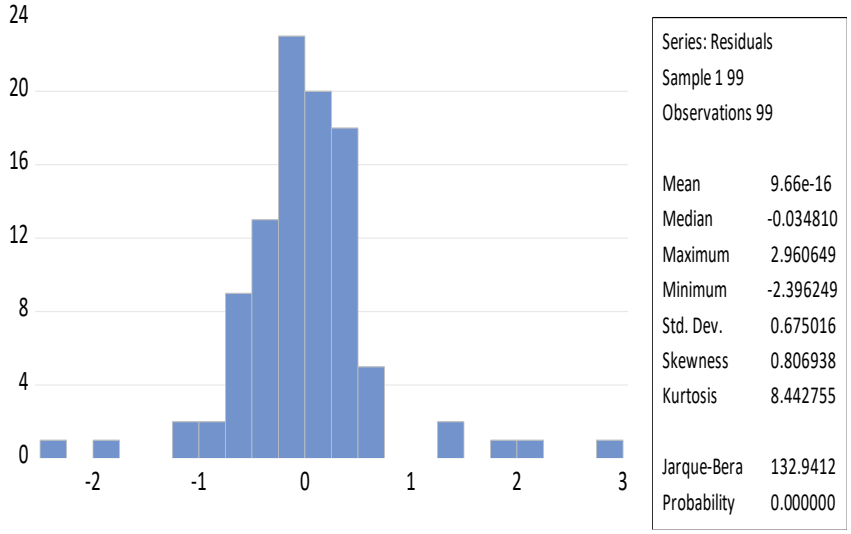
Before conducting multiple regression testing, the study first conducted a classical assumption test to determine whether there were any deviations from the requirements (assumptions) of the data being processed to be suitable for testing, so that the regression model obtained from the data processing was significant and representative. The classical assumption test was used to determine the condition of the data used in the study, including: normality test, multicollinearity test, autocorrelation test, and heteroscedasticity test. The following are the results of the classical assumption test that have been processed using Eviews 12.

a. Normality Test

The Normality Test is used to test whether the residual values resulting

from the regression are normally distributed or not.

Table 2. Normality Test Results



Source: eviews 12 output (data processed in 2025)

Based on table 1.2, the probability value is 0.901205, this indicates a probability value of 0.000 <0.05, meaning the data is not normally distributed. Central assumptions of the limit theorem: Random sampling : The sample must be drawn randomly from the population. Sufficiently large sample size : The sample size must be large enough, with a common threshold being n≥30 n is greater than or equal to 30 $n \geq 30$ CLT allows us to perform statistical inferences, such as calculating confidence intervals or conducting hypothesis tests, even when we do not know the original distribution of the population. The assumption of normality is often important for parametric statistical methods, and CLT provides a solution if this assumption is not met by using a normally distributed sample mean. If these assumptions are not met, the conclusions drawn may be invalid or misleading.

b. Multicollinearity Test

This multicollinearity test is used to determine whether a correlation exists between independent variables in the regression model. The multicollinearity test requires a Variance Inflation Factor (VIF) value below 10 and a tolerance value above 0.1. The following are the results of the multicollinearity test:

Table 3. Multicollinearity Test Results

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.523773	109.1572	NA
LOG(UNCERTAINTY)	0.023480	35.29582	2.285774
LOG(TRUST)	0.018231	35.29718	1.945066
LOG(INSTITUTION)	0.039916	61.71885	1.841780
LOG (EXTENSION)	0.046481	90.00499	2.492888

Source: eviews 12 output (data processed in 2025)

Based on the results of the multicollinearity test in table 1.3, the Variance Inflation Factor (VIF) value is below 10. In variable X1, the VIF value is 2.285774, variable X2, the VIF value is 1.945066, variable X3, the VIF value is 1.841780, and variable X4, the VIF value is 2.492888. This means that in the proposed regression model research, there are no symptoms of multicollinearity because the VIF value is <10. So it can be used for subsequent regression analysis.

c. Heteroxidasis test

The heteroscedasticity test examines the differences in residual variance from one observation period to another. This study uses the Glejser test .

Table 4. Heteroxidasis Test Results

Heteroskedasticity Test: Glejser
Null hypothesis: Homoskedasticity

F-statistic	0.304137	Prob. F(4,94)	0.8745
Obs*R-squared	1.264886	Chi-Square Prob.(4)	0.8673
Scaled explained SS	1.855552	Chi-Square Prob.(4)	0.7623

Source: eviews 12 output (data processed in 2025)

The table above shows the results of the study using the Glejser test. The study shows that the Obs*R-squared value has a Chi-square probability value of 0.8673, above 0.05, indicating that there is no heteroscedasticity problem.

Multiple Linear Regression Analysis

Table 5. Multiple Linear Regression Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.510975	0.723722	4.851277	0.0000
LOG(UNCERTAINTY)	0.387652	0.153233	2.529824	0.0131
LOG(TRUST)	1.214502	0.135024	8.994726	0.0000
LOG(INSTITUTION)	0.230426	0.199790	1.153339	0.2517
LOG (EXTENSION)	-0.406899	0.215595	-1.887331	0.0622

Source: eviews 12 output (data processed in 2025)

The results data in the table above shows that the regression model is Transaction Costs = (3.510975) + 0.387652 Uncertainty + 1.214502 Trust + 0.230426 Institutional -0.406899 Extension + e

Information :

Y = Transaction Fee

X1 = Uncertainty

X2 = trust

X3 = Institutional

X4 = counseling

e = error

From the t-statistic test and multiple linear regression, it can be explained as follows;

a. The constant value of (3.510975) shows that if the ka of Uncertainty, Trust, Institutions and Extension are zero, then the dependent variable Profitability has a value of (3.510975) units.

b. The uncertainty coefficient value of 0.387652 and the probability value of 0.0131 (<0.05) are significant because every 1% increase in uncertainty increases transaction costs by 2.145% (because it uses log). Therefore, uncertainty has a positive effect on the profitability of rice farmers' transaction costs in Muara Sungkai, North Lampung Regency.

c. The trust coefficient value of 1.214502 and probability of 0.0000 (<0.05) are significant because changes in the level of trust have a significant effect on transaction costs. Therefore, trust has a positive effect on the profitability of rice farmers' transaction costs in Muara Sungkai, North Lampung Regency.

d. The institutional coefficient value of 0.230426 and probability of 0.2517 (>0.05) is not significant because the improvement of the quality or existence of institutions has not had a significant impact on reducing or increasing the transaction costs of rice farmers in Muara Sungkai, North Lampung Regency. Therefore, institutions have a positive effect on the profitability of rice farmers' transaction costs in Muara Sungkai, North Lampung Regency.

e. The extension coefficient value of -0.406899 and probability of 0.0622 (>0.05) is not significant because the implementation of extension has not had a significant impact on reducing or increasing transaction costs for rice farmers in Muara Sungkai District, North Lampung Regency. Therefore, extension has a negative effect on the profitability of transaction costs for rice farmers in Muara Sungkai District, North Lampung Regency.

Hypothesis Testing

a. Individual Parameter Significance Test (t-Test)

The t-test is used to determine whether the independent variable partially has a significant effect on the dependent variable. The significance level is 0.05. The following are the results of the t-test in the study, namely:

Table 6. T-Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.510975	0.723722	4.851277	0.0000
LOG(UNCERTAINTY)	0.387652	0.153233	2.529824	0.0131
LOG(TRUST)	1.214502	0.135024	8.994726	0.0000
LOG(INSTITUTION)	0.230426	0.199790	1.153339	0.2517
LOG (EXTENSION)	-0.406899	0.215595	-1.887331	0.0622

Source: eviews 12 output (data processed in 2025)

Based on the table above, it can be seen that the results of the t-test, in the uncertainty t-count column, the network social, trust and institutional factors can be concluded as follows:

1) The significance value or probability of the uncertainty variable is 0.0131 < 0.05 and $t_{hitung}$is 2.529824 . This means that the uncertainty variable (X1) has a significant effect on transaction costs (Y) for rice farmers in Muara Sungkai;
2) The significant value or probability of the trust variable is 0.0000 < 0.05 and $t_{hitung}$is 8.994726 . This means that the trust variable (X2) does not have a significant effect on transaction costs (Y) for rice farmers in Muara Sungkai;
3) The significant value of the institutional variable is 0.2517 > 0.05 and $t_{hitung}$is 1.153339, meaning that the institutional variable (X3) does not have a significant effect on transaction costs (Y) for rice farmers in Muara Sungkai;
4) The significant value of the extension variable is 0.0622 > 0.05 and $t_{hitung}$is -1.887331 , meaning that the institutional variable (X4) does not have a significant effect on transaction costs (Y) for rice farmers in Muara Sungkai.

b. F test

The F-test aims to determine whether there is a simultaneous influence between the human development index, population, and provincial minimum wage variables on the unemployment rate. The criteria used to draw conclusions in the F-test are as follows:

1) If significance < 0.05 or F Calculation > F Table, then the hypothesis is accepted.
2) If the significance > 0.05 or F Calculation < F Table, then the hypothesis is rejected. The partial test results on this research data are presented in the table below:

Table 8. F Test

F-sta ff-statistics	71.71536
Prob (prob (F-statistic)	0.000000

Source: Eviews 12 output (data processed in 2025)

Based on the table above, it can be seen that the results of the f test, in the prob column (F-statistic) obtained from the data that has been tested is F-count of 0.000000 < 0.05. So, it can be concluded that H_5which means that together they have a significant effect on transaction costs, so in other words, the independent variables are not able to explain the magnitude of the dependent variable of transaction costs.

c. Coefficient of Determination (R2)

The coefficient of determination (R2) measures the extent to which all independent variables can explain the dependent variable. A stronger determination number indicates that the independent variables provide nearly all the information needed to predict the dependent variables. A lower coefficient of determination (R2) indicates that the independent variables' ability to explain variation in the dependent variable is limited.

The results of the coefficient of determination test in this study can be seen in the table below.

Table 9. Results of the Coefficient of Determination (R2) Test

R-squared	0.753191
Adjusted R-squared	0.742689

Source: Eviews 12 output (data processed in 2025)

Based on the table above, it can be seen that the results of the determination coefficient test, the determination coefficient value is obtained from the R Square column at the location of R2 <1 with a value of 0 <0.753191 ≤ 1, it can be explained from the table above that the number R^2(R Square) is 0.753191 or 75%. This shows that the percentage contribution of the influence of the dependent variable of trade tariffs, exchange rates, and gross domestic product on Indonesian agricultural product exports is 7.5 % or the independent variables used in the model are able to explain 7.5 % of the variation in the dependent variable. While the remaining 25% is influenced by other variables not included in this research model.

2. Discussion Results

The influence of uncertainty on transaction costs of rice farmers in Muara Sungkai District, North Lampung Regency

Based on the research results, the uncertainty variable has a positive coefficient of 0.387652 with a probability value of 0.0131 <0.05, thus uncertainty is proven to have a positive and significant effect on rice farmer transaction costs in Muara Sungkai. This means that the higher the level of uncertainty, the higher the transaction costs that farmers must bear. This finding is consistent with Werner Heisenberg's uncertainty theory, which asserts that uncertainty has a significant influence on transaction costs, and is reinforced by research by Ikhlasi, Cahyono, and Windari (2024) which shows a positive relationship between uncertainty and transaction costs. From the interview results, it was discovered that the dominance of middlemen in controlling the market in Muara Sungkai leaves farmers with no alternative sales partners, thus increasing uncertainty regarding prices, discounts, and transaction mechanisms. This condition is similar to the findings of Fisheries (2023) in the fisheries sector, where middleman dominance reduces partner choices and influences uncertainty in transactions, although it differs from Engwerda (2021) who showed that increased uncertainty directly increases transaction costs for fishermen. Overall, this study confirms that uncertainty is an important factor driving the increase in transaction costs for rice farmers in Muara Sungkai.

The influence of trust on transaction costs of rice farmers in Muara Sungkai District, North Lampung Regency

Based on the research results, the trust variable has a positive coefficient of 1.214502 with a probability value of 0.0000 < 0.05, so it can be concluded that trust has a positive and significant effect on rice farmer transaction costs in Muara Sungkai. This finding indicates that increasing trust actually encourages increased transaction costs, because higher trust makes transaction activities more efficient. including negotiation and supervision This leads to more intense transactions, while simultaneously reducing information search costs, thus strengthening relationships with middlemen. This explanation aligns with Oliver Williamson's theory that trust can influence transaction costs and is also consistent with research by Mulyani et al. (2022), which found a positive effect of uncertainty on transaction costs.

Interviews revealed that mutual trust within farmer groups fosters collective action, such as information sharing and negotiation assistance. However, this high level of trust also makes farmers increasingly dependent on existing transaction patterns, leading to increased transaction costs, even though individual burdens appear to decrease within the group context.

Institutional influence on the transaction costs of rice farmers in Muara Sungkai District, North Lampung Regency

Based on the research results, the institutional coefficient value is 0.230426 with a positive coefficient direction. Having a probability value of 0.2517>0.05, it can be concluded that in this study, the institutional coefficient has a positive direction but its influence is not significant on the transaction costs of rice farmers in Muara Sungkai, North Lampung Regency. These results indicate that the institutional hypothesis has a positive and insignificant effect on the transaction costs of rice farmers in Muara Sungkai, North Lampung Regency. The analysis results indicate that institutions have a direct relationship with the transaction costs of rice farmers in Muara Sungkai, North Lampung Regency. This means that when institutions increase in Muara Sungkai, transaction costs decrease. This positive relationship indicates that institutional fluctuations have an insignificant effect on transaction costs, where institutions can influence price information for transaction costs. Thus, institutional stability is an important factor in maintaining and increasing the volume of transaction costs.

Based on observations and interviews with respondents during the study, it was found that the institutional structure in the Muara Sungkai sub-district rice farmer group, where formal rules, informal rules, and mechanisms have been enforced, has been able to reduce transaction costs. This is characterized by good communication between administrators and members. Furthermore, institutional development has led to increased capacity so that it can meet the needs of members to support rice harvesting activities. This research is supported by research by (Haryanto et al. 2022) , whose results, institutions with formal rules, informal rules, and sanctions thanks to the performance of actors directly involved, are able to reduce transaction costs. In addition, the results of this study are the same as those conducted by (Anantanyu 2021) .

The effect of extension on rice farmer transaction costs in Muara Sungkai District, North Lampung Regency

Based on the research results, the extension variable has a negative coefficient of -0.406899 with a probability value of 0.0622 > 0.05, so it can be concluded that extension has a negative but insignificant effect on rice farmer transaction costs in Muara Sungkai District, North Lampung Regency. This means that increasing extension activities tends to reduce transaction costs, but this effect is not statistically strong enough. This condition may occur because the level of awareness and participation of farmers in extension is still low, so that extension does not have a direct impact on transaction efficiency. This finding is in line with the Diffusion of Innovations theory from Everett M. Rogers which explains that information adoption does not always have a significant effect on changes in economic behavior. Research by Rivana Maharani (Dzulfian Syafrian 2025) also shows that extension has a negative effect on transaction costs. However, interview results indicate that the high frequency of extension activities and remote activity locations actually increase farmers' transportation costs, thereby increasing total transaction costs. These findings align with a report from the Training and Extension Center, which stated that extension activities can increase transaction costs when not tailored to regional conditions. Unlike Amanah's research, which showed that needs-based extension services for coastal communities can reduce transaction costs, the Muara Sungkai case demonstrates that extension services have not been effective in reducing transaction costs because they are not aligned with the actual needs and conditions of farmers.

The influence of uncertainty in institutional trust and extension on transaction costs of rice farmers in Muara Sungkai District, North Lampung Regency

Based on the results of the study conducted with regression of corrective data, then using the simultaneous significance test (F Test) obtained with the results of the probability value (F-statistic) of 0.000000 smaller than the significance of 0.05. It can be concluded that the variables of the uncertainty index, trust, institutions and extension together have a significant effect on the transaction cost variable of rice farmers in Muara Sungkai sub-district. While the results of the regression analysis of corrective data obtained from the value $R^2$of 0.75319 . These

results indicate that the influence of uncertainty, trust, institutions and extension is 75% while the remaining 25% is influenced by other variables not included in the regression model.

The significance of this study is due to the three variables' crucial roles in determining transaction costs. Reducing transaction costs improves market access and lowers transaction costs, thus driving an increase in transaction costs. Stable or depreciating uncertainty can make rice prices more competitive in the market, increasing supply demand. Meanwhile, increased farmer trust in middlemen and decreased information search costs in trading partner countries reflect economic growth and higher purchasing power. Thus, these four variables simultaneously explain 75% of the variation in transaction costs, indicating that macroeconomic factors and policies influence rice farmer transaction costs in Muara, North Lampung Regency. (Islam, Raden, and Lampung 2025)

D. CONCLUSION

The results of the study indicate that uncertainty has a significant influence on the transaction costs of rice farmers in Muara Sungkai District, with a probability value of 0.0131 < 0.05. Trust also has a positive and significant influence on transaction costs, evidenced by a probability of 0.0000 < 0.05, which indicates that the higher the trust, the lower the transaction costs. Institutional variables have a positive but insignificant effect on transaction costs, with a probability value of 0.2517 > 0.05, indicating that high institutionalization still tends to increase transaction costs, although the effect is not strong. Meanwhile, extension has a negative and insignificant effect, with a probability of 0.0622 > 0.05, indicating that increased extension tends to reduce transaction costs but does not yet have a significant effect. Simultaneously, uncertainty, trust, institutions, and extension variables all influence the profitability of rice farmer transactions. The Adjusted R^2 value of 0.753191 indicates that these four variables can explain 75% of the variation in transaction costs, while the remaining 25% is influenced by other variables outside the study.

REFERENCES

Abas, A., Helmiyanto, H., Niswatin, N., & Badu, R. S. (2022). Analysis of farming costs and income for rice farmers in Kemiri Village, Paguat District, Pohuwato Regency. *Accounting Student Journal, 1*(2), 27–40. https://doi.org/10.37479/jamak.v1i2.29

Anantanyu, S. (2011). Farmer institutions: Their role and capacity development strategies. *Journal of Rural Development, 7*(2), 102–109.

Ar-Rozi, A. M., Kolopaking, L. M., & Agusta, I. (2019). The role of self-village marketing institutions in increasing farmers' income. *Sodality: Journal of Rural Sociology, 7*(1), 1–9. http://journal.ipb.ac.id/index.php/sodality/article/view/24441

Azhari, R., Amanah, S., Fatchiya, A., & Kinseng, R. A. (2023). The role of extension, communication, and farmer organizations in building small-scale farmer resilience. *Agro-Economic Research Forum, 41*(1), 45–63.

Dharmawan, K. S., & Sunaryanto, L. T. (2020). Factors influencing youth attitudes towards agricultural work. *Agrinesia, 4*(2), 134–141.

Dini Aulia, A., & Kurniati, E. (2024). Application of economic principles in determining pepper selling prices and their impact on farmers' profits in South Lampung. *JUEPA, 1*(2), 3063–1920.

DWP, Sucihatiningsih, & Waridin. (2022). Model for strengthening the institutional capacity of agricultural extension workers in improving farm business performance through transaction costs. *Journal of Development Economics, 11*(1), 13–29.

Engwerda, J. (2021). Stabilization of an uncertain simple fishery management game. *Fisheries Research, 203*, 63–73. https://doi.org/10.1016/j.fishres.2017.07.018

Fitriani, I. F., Ridho, I. N., Triono, B., & Hilman, Y. A. (2024). Strengthening farmer capacity through extension studies at the agricultural extension center (BPP) of Sukorejo District, Ponorogo Regency. *Jurnal Dinamika, 4*, 1–10. https://unbara.ac.id/journal/index.php/dinamika/article/view/2872

Ghassani, S. A., Priyarsono, D. S., Rindayanti, W., & Seminar, A. U. (2022). Analysis of regional development through the village fund program in Bogor Regency: An institutional theory approach. *Indonesian Geography Magazine, 37*(1), 48. https://doi.org/10.22146/mgi.75432

Haryanto, Y., Rusmono, M., Aminudin, Purboingtyas, T. P., & Gunawan. (2022). Analysis of farmer economic institutional strengthening in rice farming communities at food estate locations. *Extension Journal, 18*(2), 323–335.

Hermawan, H., & Andrianyta, H. (2016). Agribusiness micro finance: Strengthening rural agricultural institutions and finance. *Agricultural Policy Analysis, 10*(2), 143–158.

Ikhlasi, H. H., Cahyono, E. H., & Windari, S. (2024). Analysis of potential and challenges of rice farming in Jember Regency: A triple helix approach. *JIA (Jurnal Ilmiah Agribisnis), 9*(6), 591–602. https://doi.org/10.37149/jia.v9i6.1701

Ilma Satriana Dewi, S., Elida, S., & Putri, D. A. (2021). Analysis of rice farming transaction costs in Bangkinang District, Kampar Regency. *Agricultural Dynamics, 35*(2), 85–92. https://doi.org/10.25299/dp.2019.vol35(2).7695

Ishak, A., & Luthfi, Z. (2021). The influence of consumer satisfaction and trust on loyalty. *Journal of Business Strategy, 15*(1), 55–66.

Kurniati, E., & Wardhani, A. S. (2025). From field to market: Unraveling the economic traces of agriculture in Jember. *Joint Journal of Economics (EKONOM), 1*(1), 64–73. https://doi.org/10.55123/ekonom.v1i1.56

Mulyani, A., Mulyanto, B., Barus, B., Panuju, D. R., & Husnain. (2022). Analysis of rice field production capacity for national food security by 2045. *Journal of Land Resources, 16*(1), 33–50. http://dx.doi.org/10.21082/jsdl.v16n1.2022.33-50

Nethania, C., & Nisa, F. L. (2024). HARE: Sharia economic review. *Syaria Economic Review, 1*(1), 12–19.

Pakpahan, T. E., Wicaksono, M., & Handari, Q. H. (2021). The role of agricultural extension centers as agricultural data information centers in supporting the Kostratani Program. *Integrated Agribusiness Journal, 14*, 46–67.

Prasetyo, A. S. (2020). The role of economic policy uncertainty and geopolitical risk in the United States on the composite stock price index. *Business Sketches, 7*(1), 56–71.

Prayoga, T. N. (2022). *The influence of transaction costs and institutional aspects on rice business performance in flood-prone areas of Klaten Regency* [Thesis].

Prayogi, A., & Kurniawan, M. A. (2024). National qualitative and quantitative approaches: A review. *Complex: Multidisciplinary Journal of Science, 1*(2), 30–37.

Sespiani, K. A., Apilia, M., & Irwansyah. (2021). Uncertainty reduction theory in cyber romantic relationships. *Journal of Communication Pearl Lens, 5*(1), 52–71. https://doi.org/10.51544/jlmk.v5i1.1599

Setyanto, A. R., & Iskandar, D. D. (2021). Analysis of transaction cost determinants: A case study of milkfish ponds in Juwana District, Pati Regency. *Journal of Maritime Socioeconomics and Fisheries, 16*(1), 13. https://doi.org/10.15578/jsekp.v16i1.8105

Sihombing, Y. (2023). Institutional innovation in agriculture in achieving food security. *Proceedings Series on Physical & Formal Sciences, 5*, 83–90. https://doi.org/10.30595/pspfs.v5i.707

Suhartatik, E., & Batubara, M. M. (2022). Factors affecting farmers' decisions selling harvested products to middlemen. *Societa, 9*(2), 112–116.

Syafa Kurniasari, D., Yuliati, N., & Mirza, A. S. (2025). Analysis of transaction costs in rice farming in Wilayut Village, Sukodono District. *Journal of Agribusiness Studies, 10*(1), 20–29.