



## **FACTORS AFFECTING THE WELFARE LEVEL OF RICE FARMERS IN KLAMBIR V KEBUN VILLAGE**

**Ahmad Fadlan<sup>1</sup>, Rizal P. Lubis<sup>2</sup>, Muhammad Handoko Tarigan<sup>3</sup>**

<sup>1,2,3</sup>Universitas Pembangunan Panca Budi, North Sumatra, Indonesia

Email: [ahmad\\_fadlan@dosen.pancabudi.ac.id](mailto:ahmad_fadlan@dosen.pancabudi.ac.id)<sup>1</sup>, [rizalplubis@dosen.pancabudi.ac.id](mailto:rizalplubis@dosen.pancabudi.ac.id)<sup>2</sup>,  
[handoko@gmail.com](mailto:handoko@gmail.com)<sup>3</sup>

### **Abstract:**

This study purposed to empirically prove that land area, production, prices, education, labor, capital, government policies, and technology as factors influencing farmers' welfare. The SPSS program was utilized to illustrate the Path Method Analysis in the present research. The study's participants were all Klambir V Kebun village farmers. 226 respondents who were rice farmers made up the study's sample. Data for this study were gathered by questionnaires, documentation, interviews, and observation. The findings proved that three factors—the land area factor, the capital factor, and the pricing factor—were found out of the eight variables investigated through factor analysis. Simultaneously, land area, capital, and price significantly influenced the welfare of rice farmers in Klambir V Kebun Village, Hamparan Perak Subdistrict, Deli Serdang Regency. There needs to be a market that provides agricultural needs, such as fertilizers, seeds, pesticides and others, both before the planting season and during the harvest season. There is a need for transportation of paddy buyers during the harvest process so that farmers do not have to incur transportation costs to deliver the harvest to the buyer. Government policy that can help farmers is to prioritize farmers' crops over imported rice, so that it can make farmers' income increase.

**Keywords:** *Price, Production, Land Area, Farmers' Welfare*

### **INTRODUCTION**

The ability to control resources, including land, agricultural expertise, and the ability to adjust to new technologies, is closely associated with farmers' incomes. Inevitably, inadequate resource management results in lower revenue levels and, as a result, lower welfare standards. Therefore, there is a close relationship between farmers' total welfare and the degree of resource ownership they possess (Saleh, 2022). For example, a lack of creative farming methods and poor management over rice fields indicate that farmers are not as capable of managing agricultural operations well, which leads to low yields. As a result, farmers continue to have low welfare and living standards (Lubis et al., 2024a).

Government involvement is essential for controlling costs of inputs as well as outputs in order to raise the Farmers' Exchange Rate (FER) and meet family consumption needs as well as the needs for sourcing production inputs. Enhancing farmer welfare essentially means raising the standard of living and providing for the nutritional needs of the household. According to (Rangkuty et al., 2024), Farmer welfare is measured using the family's income from non-farm, off-farm, and on-farm activities. At the village level, on-farm income makes a larger contribution than income from other sources (Hasanah et al., 2023).

By looking at a variety of variables, several scholars have determined the determining elements impacting farmers' welfare levels. One important element that

scholars frequently bring up is the unique traits and skill of farmers in running their farming businesses. Accordingly, under specific circumstances and settings, farmers' behavioral patterns within the agricultural sector are greatly influenced by their traits and abilities in running their enterprises (Fadlan et al., 2024). Tangerang Regency, which is located near the ocean, has a rich potential for many agricultural resources. Thus, it is essential to properly utilize farmers' personalities and behaviors. Character and capacity-related difficulties emerge, such as restricted access to and ownership of resources like capital ownership, complex land, and management (Nasution et al., 2022).

Additionally, particular challenges facing small-scale farmers include: (i) low educational attainment, with only 20% of 100 farmers having a college degree, leaving the remaining 80% without one; (ii) restricted land ownership, which frequently results in landlessness; and (iii) limited access to markets, capital, and technology (Eka et al., 2022). Farmers' productivity, income, and family welfare are all impacted by these difficulties. As a result, this situation highlights farmers' inadequate skills and methods for overseeing household welfare and food security.

The welfare of rice farming families is a vital aspect of sustainable agricultural development. The local economy and food security are significantly impacted by rice producers. Farming families depend on farmers' livelihoods. Income from farming will affect the welfare of farming families. Many households that grow rice nonetheless spend a lot of money on both food and non-food necessities. The size of the paddy fields, the number of family members, the income level, and the degree of education all affect how much this expense is (Stefani et al., 2024).

In order to generate good rice, we actually need supporting variables; if we make good rice, we will also produce wonderful results. If the current production variables in farming are used effectively, high-quality products will be generated (Faried & Sembiring, 2020). The small area of rice fields, the scarcity of manpower, and the lack of appropriate technology and skills are the main obstacles to rice production. In addition to the fact that fertile soil greatly influences the quality of rice produced, farmers must practice excellent management in order to yield high-quality rice. For farmers to succeed, their land must be healthy.

A complicated interplay of internal and external factors determines how much money farmers make. The farmer's age, educational attainment, and land area comprise the internal factor. Prices and the accessibility of producing facilities are examples of external influences. Farmers engage in farming operations with the expectation that their revenue will rise, enabling them to meet their basic needs. In addition to increasing exports, farmers' income, job opportunities, and encouraging opportunities, the expansion of the agricultural sector sought to increase the productivity of agricultural products in order to meet the state's industry and community's food needs. Similar to other Indonesian regions, North Sumatera province has a sizable rural population, with the agriculture industry serving as the primary focus of attention. Unquestionably, the majority of them continue to live in poverty. If left untreated, this disease leads to significant development disparities, particularly between rural and urban areas (Rahayu et al., 2024).

Finding the factors affecting the welfare condition of the rice farmers in the Klambir V Kebun village is the aim of this study. The study's findings should help shape agricultural development policies in Klambir V Kebun village and aid in the formulation of suitable agricultural development programs, particularly rice farming, which is anticipated to boost farmer income in the community.

## **RESEARCH METHODS**

This study used a quantitative research methodology, which sought to ascertain the link between two or more variables. A hypothesis that explains, predicts, and regulates a symptom can be developed based on this research (Rusiadi et al., 2024). The phenomena pertaining to study data are explained by the application of descriptive statistical approaches. While the relationship between the research variables is explained by the quantitative method. The study design is a survey, with data being gathered via

research tools and respondents being given questionnaires, the answers to which are analyzed using the SPSS software to ascertain the correlation between known factors. The relationship between a number of independent and dependent variables is investigated using this method.

There were 521 farmers living in Klambir V Kebun village at the time of this study. Nonprobability sampling combined with purposive sampling using the Slovin formula was the sampling strategy employed in this investigation., as follow:

$$n = \frac{N}{1 + (N(e)^2)}$$

$$n = \frac{521}{1 + (521 \times 0,05^2)}$$

$$n = \frac{521}{1 + (521 \times 0,0025)}$$

$$n = \frac{521}{1 + 1,3}$$

$$n = \frac{521}{2,3}$$

$$n = 226$$

In order to get 226 respondents for this study. Several methods were used to acquire data for this study, including:

1. Observation, which involves directly observing the subject of the investigation.
2. Questionnaire: this refers to gathering data through the use of a pre-made list of questions or questionnaires that are distributed to respondents. wherein the respondent selects one of the questionnaire's options. The validity and data reliability tests were conducted in this study.

Additionally, the standard assumption tests were conducted, which included the coefficient of determination test (R<sup>2</sup>), heteroscedasticity test, multicollinearity test, partial t test, simultaneous F test, and multiple regression analysis. The data analysis was aided using SPSS version 25. To ascertain whether a questionnaire is suitable for use as a research tool, validity and reliability tests are conducted. The degree to which an objective measure accurately captures the desired data is known as its validity. The meter is deemed legitimate if it measures its intended usage clearly and correctly. Reliability demonstrates the measurement's accuracy and consistency (Lestari et al., 2024).

The data analysis method used in this research was the Path Method Analysis. Path analysis aims to prove the hypothesis, i.e. proving whether Costs are the main or mediating variable in supporting Income as seen from Land Area, Market, Capital, Production and Price with the following equations:

$$Y_1 = a + b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4 + b_5 x_5 + e$$

$$Y_2 = a + b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4 + b_5 x_5 + Y_1 + e$$

Direct Equation

$$X_1 Y_1 = PY_1 X_1$$

$$X_2 Y_1 = PY_1 X_2$$

$$X_3 Y_1 = PY_1 X_3$$

$$X_4 Y_1 = PY_1 X_4$$

$$X_5 Y_1 = PY_1 X_5$$

$$X_1 Y_2 = PY_2 X_1$$

$$X_2 Y_2 = PY_2 X_2$$

$$\begin{aligned}
X_3 Y_2 &= PY_2 X_3 \\
X_4 Y_2 &= PY_2 X_4 \\
X_5 Y_2 &= PY_2 X_5 \\
Y Y_2 &= PY_2 Y
\end{aligned}$$

Indirect Equation

$$\begin{aligned}
X_1 Y_1 Y_2 &= (PY_1 X_1) (PY_1 Y_2) \\
X_2 Y_1 Y_2 &= (PY_1 X_2) (PY_1 Y_2) \\
X_3 Y_1 Y_2 &= (PY_1 X_3) (PY_1 Y_2) \\
X_4 Y_1 Y_2 &= (PY_1 X_4) (PY_1 Y_2) \\
X_5 Y_1 Y_2 &= (PY_1 X_5) (PY_1 Y_2)
\end{aligned}$$

Total Impact

$$\begin{aligned}
X_1 Y_1 Y_2 &= (PY_1 X_1) + (PY_1 Y_2) \\
X_2 Y_1 Y_2 &= (PY_1 X_1) + (PY_1 Y_2) \\
X_3 Y_1 Y_2 &= (PY_1 X_1) + (PY_1 Y_2) \\
X_4 Y_1 Y_2 &= (PY_1 X_1) + (PY_1 Y_2) \\
X_5 Y_1 Y_2 &= (PY_1 X_5) + (PY_1 Y_2)
\end{aligned}$$

Path analysis supported by mediation test aims to test whether intervening variables function as mediation or intermediaries with conditions:

$P_1 < P_2 \times P_3$  or the direct effect is lower than the indirect effect, then  $H_a$  is accepted.

$P_1 > P_2 \times P_3$ , or in order to assess the viability of the path analysis model, a traditional assumption test will be conducted to ascertain whether or not the outcomes of the route estimation process are truly practicable to use. If the direct effect is higher than the indirect effect,  $H_a$  is rejected.

## RESULTS AND DISCUSSION

### Validity Test

Using product moment correlation, the validity test determines how strongly the item score and the total variable score are correlated., if the correlation is significant then the item or question item is valid. For testing the validity of this construction is done using a one-way approach (single trial). If there is an invalid item, then the item is deleted. In validity testing, if a value of more than 0.3 is found, the question is declared valid. The validity values of the questions for land area, market, capital, production, price, cost and farmer income were all valid because the validity values were all higher than 0.3.

### Reliability Test

The reliability test in this study was measured using a one-shot approach, meaning it was only measured once. This study measured the correlation between questions and answers by measuring the variable once and comparing the results with subsequent questions. If a construct or variable has a Cronbach Alpha value more than 0.600, it was considered dependable. The reliability value obtained from the questions for variables of land area, market, capital, production, price, cost and farmer income all had reliability values of each item higher than 0.6.

### The Result of Path Method Analysis

The t test aims to test the significant level of the variables of land area, market, capital, production and price on farmer income. Based on the results of the t test calculation, it is known that:

1. Farmer income was positively and significantly impacted by land area. With a significant value of  $0.00 < 0.05$ , the tcount result of land area was higher than the t table, namely  $4.700 > 1.660$ , according to the test findings, where the tcount result was 4.700 using a significant level of 5%. This suggested that farmer income was positively and significantly impacted by land area.

2. Farmer income was directly impacted negatively and negligibly by the market. With a significant value of  $0.10 > 0.05$ , the market tcount result was  $-2.646$  using a 5% level of significance, resulting in a t table of  $1.660$ . This indicated that the tcount result was lower than the t table, specifically  $-2.656 < 1.660$ . This suggested that farmer income was directly impacted by the market in a negative and negligible way.
3. Farmer income was positively and significantly impacted by capital. Using a significant value of 5%, the test results showed that the tcount value of land area was  $7.160$ , while the t table was  $1.660$ . This indicated that the tcount value was higher than the t table, namely  $7.160 > 1.660$  with a significant value of  $0.00 < 0.05$ . This suggested that farmer income was positively and significantly impacted by capital.
4. Farmer income was directly impacted negatively and negligibly by production. Using a significant level of 5%, the test results showed that the production tcount result was  $1.727$ , while the t table was  $1.660$ . This indicated that the tcount result was more than the t table, namely  $-1.727 > 1.660$  with a significant value of  $0.88 > 0.05$ . This suggested that farmer income was directly impacted negatively and negligibly by productivity.
5. Farmer income was positively and significantly impacted by price. With a significant value of  $0.03 < 0.05$ , the price tcount result was  $3.072$  using a 5% value of significance, while the ttable was  $1.660$ . This indicated that the tcount value was higher than the ttable, specifically  $3.072 > 1.660$ . This shown that farmer income was directly and significantly positively impacted by the market.

It is possible to test the impact of factors and draw conclusions. The F test is used to compare the costs of land area, market, capital, production, and price. Fcount > Ftable is the comparison parameter. With a significant level of  $0.000 (<0.05)$ , the F test calculation yielded an Fcount value of  $71.145$ , while the F table value was  $2.03$  (derived from calculated  $dk = 100 - 6 = 106$  to obtain F table of  $2.03$ ). This indicated that the value of F table  $71.145 > F$  table  $2.03$ , indicating that land area, market, capital, production, and prices all have a simultaneous impact on farmers' income.

The path analysis equation in this study is as follows:

$Y_1 = 0.332X_1 + 0.527X_3 + 0.154X_5$  el. Furthermore, to find the error value (el) in the structural path analysis equation, it is done with the formula  $el = \sqrt{1-R^2}$  so that  $el = \sqrt{1-0.791} = 0.791$  then the structural path equation is obtained, as follows:

$Y_1 = 0.332X_1 + 0.527X_3 + 0.154X_5 + 0.429$ . Then, from this equation, a path diagram is obtained.

In the results of the research that has been done, there are several variables that have no effect and are not significant from the processing results of Y (farmer income) on X<sub>2</sub> (market) and X<sub>4</sub> (production) where the market has no effect on farmer income and production has no effect on farmer income. The agricultural production process fosters various production factors such as capital, labor, land, and agricultural management that function to coordinate the three other production factors so that they actually produce production results. The contribution of land is in the form of native elements and soil properties that cannot be perceived with agricultural products can be obtained. But to make it possible to obtain production, human hands are needed, namely farmer labor (Lubis et al., 2024b).

So, the solution to the results of variables that have no effect and are insignificant, namely for market variables on farmers' income, where the solution is that the government must pay more attention to the prices of farmers' needs, for example, such as fertilizer prices which are very high, making the costs incurred by farmers increase. Preferably, the price of fertilizer should not be too expensive and the stock of fertilizer is increased so that farmers are easy to get fertilizer sometimes farmers have difficulty getting fertilizer. Production variables on farmers' income which have no effect and are not significant, the solution is that farmers must understand more in rice production

which must often check the growth of rice which before there are pests or obstacles to rice growth must be handled immediately to avoid the expansion of damage to rice plants due to pests in the process of plant production not much cost is incurred which makes farmers' income can increase. For the production variable on income that has no effect and is not significant in the process of rice production, farmers must choose good seeds and fertilizers so that the income earned every harvest can increase (Nasution & Yusuf, 2018).

According to the findings, which were consistent with (Pradnyawati & Cipta, 2021)'s research, land area and capital had a favorable and considerable impact on farmers' income. According to this study, land area, capital, and total production account for 44.2% of revenue, with additional factors not included in the analysis influencing the remaining 55.8%. According to the findings, price significantly and favorably affected farmers' income, which was consistent with Rozaini & Silaban (2023) research. They claimed that the income of red chili growers in Doloksanggul District, Humbang Hasundutan Regency, is impacted by both production costs and selling prices at the same time.

## CONCLUSION

It may be inferred from the research findings that farmer income is positively and significantly impacted by land area. With a significant value of  $0.00 < 0.05$ , the tcount value of land area was larger than the t table, namely  $4.700 > 1.660$ , according to the test findings, where the tcount value was 4.700 using a significant level of 5%. This suggested that farmer income is positively and significantly impacted by land area. Farmer income is positively and significantly impacted by capital. Using a significant threshold of 5%, the test results showed that the tcount value of land area was 7.160, while the t table was 1.660. This indicates that the tcount value was greater than the t table, namely  $7.160 > 1.660$  with a significant value of  $0.00 < 0.05$ . This suggested that farmer income is positively and significantly impacted by capital. Farmer income is directly and significantly impacted by price. With a significant value of  $0.03 < 0.05$ , the price tcount value was 3.072 using a 5% threshold of significance, while the ttable was 1.660. This indicates that the tcount value was greater than the ttable, specifically  $3.072 > 1.660$ . This shown that the price directly and significantly benefits farmers' income.

There needs to be a market that provides agricultural needs, such as fertilizers, seeds, pesticides and others, both before the planting season and during the harvest season. There is a need for transportation of paddy buyers during the harvest process so that farmers do not have to incur transportation costs to deliver the harvest to the buyer. Government policy that can help farmers is to prioritize farmers' crops over imported rice, so that it can make farmers' income increase.

## REFERENCES

- Eka, M., Indri, J., Friska, S., & Dini, D. (2022). VARIOUS SOURCES OF RICE FARMERS INCOME AND ITS CONTRIBUTION TO THE LEBAK SWAMP RICE FARMING HOUSEHOLD INCOME. *RJOAS*, 2(122), 84–90. <https://doi.org/10.18551/rjoas.2022-02.10>
- Fadlan, A., Lubis, R. P., & Tarigan, M. H. (2024). The Effect of Production and Capital on the Farmers' Welfare in Klambir V Kebun Village, North Sumatra. *Jurnal Masyarakat Maritim*, 08(1), 54–63.
- Fariad, A. I., & Sembiring, R. (2020). Creative Economy Potential through Typical Ulos Fabric Small Industries to Promote the Economy of Lumban Suhi-Suhi Village, Toruan Samosir Regency. *International Journal of Management and Humanities*, 4(5), 116–122. <https://doi.org/10.35940/ijmh.E0550.014520>
- Hasanah, U., Fadlan, A., & Monica, S. (2023). AFFECTING RICE PRODUCTION ON THE INCOME AND WELFARE OF RICE FARMERS IN DESA MANGGA.

- Proceedings The 1st Annual Dharmawangsa International Conference*, 636–648.
- Lestari, M., Pratama, S., & Ario, F. (2024). The Impact Analysis of Job Satisfaction, Work Motivation, and Loyalty on Performance Improvement at Éclat Beauté House. *International Journal of Global Accounting, Management, Education, and Entrepreneurship*, 4(2), 306–316. <https://doi.org/10.48024/ijgame2.v4i2.145>
- Lubis, R. P., Abdiyanto, & Sabilayana. (2024a). Increasing the Income of Rice Farmers in Klambir V Kebun Village, Hamparan Perak District, Deli Serdang Regency. *The 2nd Tanjungpura International Conference on Management, Economics, and Accounting (TICMEA)*, 432–436.
- Lubis, R. P., Abdiyanto, & Sabilayana. (2024b). Increasing the Income of Rice Farmers in Klambir V Kebun Village, Hamparan Perak District, Deli Serdang Regency. *The 2nd Tanjungpura International Conference on Management, Economics, and Accounting (TICMEA)*, 432–436.
- Nasution, L. N., Rusiadi, Novalina, A., Nasution, D. P., Efendi, B., & Suhendi. (2022). IMPACT OF MONETARY POLICY ON POVERTY LEVELS IN FIVE ASEAN COUNTRIES. *The Seybold Report*, 17(09), 761–769. <https://doi.org/10.5281/zenodo.7081013>
- Nasution, L. N., & Yusuf, M. (2018). ANALISIS KONSUMSI, EKSPOR, DAN PERTANIAN TERHADAPPERTUMBUHAN EKONOMI DI SUMATERA UTARA. *Jurnal Kajian Ekonomi Dan Kebijakan Publik*, 3(2), 82.
- Pradnyawati, I. G. A. B., & Cipta, W. (2021). Pengaruh Luas Lahan, Modal dan Jumlah Produksi Terhadap Pendapatan Petani Sayur di Kecamatan Baturiti. *Ekuitas: Jurnal Pendidikan Ekonomi*, 9(1), 93–100. <https://doi.org/10.23887/ekuitas.v9i1.27562>
- Rahayu, S., Faried, A. I., Sembiring, R., & Sumaya. (2024). Analysis of Business Capital, Ability and Will to Sales of Small Businesses in Kota Pari Village North Sumatra. *1st International Conference in Artificial Intelligence, Navigation, Engineering and Aviation Technology (ICANEAT)*, 1(1), 158–166.
- Rangkuty, D. M., Nasution, L. N., Hasyiyati, Z., Siregar, S. D., Firmansyah, D., & Rusiadi, R. (2024). How Is the Monetary and Fiscal Policy Related To International Trade? *International Conference on Humanity Education and Society (ICHES)*, 3(1), 1–7.
- Rozaini, N., & Silaban, S. J. (2023). Pengaruh Biaya Produksi Dan Harga Jual Terhadap Pendapatan Petani Cabai Merah Di Kecamatan Doloksanggul Kabupaten Humbang Hasundutan. *Jurnal Publikasi Sistem Informasi Dan Manajemen Bisnis*, 2(2), 128–141. <https://doi.org/10.55606/jupsim.v2i2.1314>
- Rusiadi, Adivia, A., Yusuf, M., & Rangkuty, D. M. (2024). THE IMPACT OF THE GREEN ECONOMY ON SUSTAINABLE DEVELOPMENT IN THE ABRIC COUNTRIES. *ICHES: International Conference on Humanity Education and Society*, 1–15.
- Saleh, K. (2022). The Role of Social Capital in Improving the Welfare of Rice Farmers in Tangerang Banten Regency. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, 4, 29648–29657. <https://doi.org/10.33258/birci.v5i4.7117>
- Stefani, E., Maharani, A. D., & Septyarini, E. (2024). Level of Welfare of Rice Farming Families in Sewon District, Bantul Regency. *Journal of Integrated Agribusiness*, 6(1), 69–78. <https://doi.org/10.33019/jia.v6i1.5147>