



InJAR

Indonesian Journal of Agricultural Research

Journal homepage: <https://injar.usu.ac.id>



The influence of socioeconomic factors, accessibility, and production on the welfare of maize farmers

Sasmita Siregar^{*1}, Khairunnisa Rangkuti¹, Rini Sulistiani², Nurhajjah², Syahib Ashiddiq Panggabean³

¹Departemen of Agribusiness, Faculty of Agriculture, Universitas Muhammadiyah Sumatera Utara, Medan, Indonesia

²Departement of Agrotechnology, Faculty of Agriculture, Universitas Muhammadiyah Sumatera Utara, Medan, Indonesia

³Departement of Agribusiness, Faculty of Agriculture, Universitas Sumatera Utara, Medan, Indonesia

*Corresponding author: sasmitasiregar@umsu.ac.id

ARTICLE INFO

Article history:

Received 27-03-2025

Revised 03-06-2026

Accepted 18-06-2026

Available online 30-07-2026

E-ISSN: 2615-5842

P-ISSN: 2622-7681

How to cite:

S. Siregar, K. Rangkuti, R. Sulistiani, Nurhajjah and S. A. Panggabean, "The Influence of Socioeconomic Factors, Accessibility and Production on the Welfare of Maize Farmers", *Indonesian J. Agric. Res.*, vol. 9, no. 2, pp. 80-89, Jul. 2026.



This work is licensed under a Creative

Commons Attribution-ShareAlike 4.0

International.

<https://doi.org/10.32734/injar.v9i2.20326>

ABSTRACT

Corn (*Zea mays* L.) is a major food commodity that plays an important role not only as a source of carbohydrates but also as a raw material for various industries. In Indonesia, corn is considered a strategic commodity that can help reduce dependence on rice as a staple food. This study aims to analyze the factors influencing the welfare of maize farmers in Simalungun Regency, North Sumatra, using Structural Equation Modeling (SEM) based on Partial Least Squares (PLS). The variables examined included socioeconomic factors, accessibility, production, and farmer welfare. Data were collected from 100 maize farmers in Simalungun Regency. The results indicate that socioeconomic conditions, accessibility, and corn production significantly affect farmer welfare. The model produced an R^2 value of 0.387, suggesting that the independent variables explain 38.7% of the variation in farmer welfare. Measurement model evaluation showed satisfactory validity and reliability, with loading factors above 0.60, Cronbach's Alpha values above 0.60, Composite Reliability values above 0.70, and Average Variance Extracted values above 0.50, indicating that the model is fit and the latent variables have substantial effects on welfare. The findings imply that improving farmer welfare requires strengthening socioeconomic conditions, enhancing access to production inputs and infrastructure, and increasing farm productivity. Policy support through improved access to capital, agricultural extension services, infrastructure development, and stronger farmer institutions is therefore recommended.

Keywords: accessibility, production, smart-PLS, socio-economic, welfare

1. Introduction

One of the developing countries that continues to strive to become a developed country is Indonesia. Improving the standard of living and family welfare is the goal of Indonesia's sustainable development [1]. The process of developing the overall system of state administration to achieve national goals is known as national development. Activities that aim to improve or change the condition of society are called development.

National development is highly dependent on family life, which is the core part of society, so that families have a strategic value in national development and become the foundation for full human development. The success of a region's development can be seen from the extent to which the development is able to improve family welfare, where the level of welfare is studied by covering several fields, one of which is socioeconomic factors [2]. Economic development that aims to improve people's welfare requires

components that are closely related to each other. Elements-any aspect, including the economy [3, 4] can be modified to increase the value of economic development according to local characteristics or local wisdom [5].

The agricultural sector supports various economic activities, including farming. Improving the accessibility of agricultural roads is one of the government's plans, as stipulated in the Regulation of the Minister of Villages, Development of Disadvantaged Regions, and Transmigration (Permendes PDRT) regarding the Priority Allocation of Village Funds, which is intended to facilitate the development of village roads, agricultural access roads, and supporting infrastructure for local economic activities [6]. Both directly and indirectly, the availability of adequate agricultural roads will have an impact on the high cost of production and distribution of agricultural commodities. Moreover, the presence of proper road infrastructure may enhance the mobility of agricultural products and related services. In contrast, inadequate agricultural facilities and infrastructure tend to increase production as well as distribution expenses, thereby reducing the competitiveness of agricultural commodities within the market [7].

In order to encourage the rural economy, one of the ways is through accessibility [8]. Accessibility may be interpreted as the degree of convenience in obtaining or reaching required goods and services. A high level of accessibility can be achieved through the existence of adequate infrastructure, particularly road networks, accompanied by the provision of supporting transportation and mobility facilities [9]. In rural areas, accessibility has an important role. The existence of this accessibility can stimulate the growth of markets and economic growth centers in a village area [10, 11, 7]. With easy accessibility, agricultural productivity will also increase [12, 13].

In family life today, there are still many families who have not reached the desired level of welfare. This condition may arise due to the relatively low income earned by the husband or head of the household, resulting in an inability to adequately meet the family's essential needs and consequently affecting the overall level of household welfare. In this case, family members must have the ability to overcome these problems [14]. In this case, the family is the smallest social unit in society, consisting of father, mother, and children. The family is the institution most responsible for safeguarding the welfare of its family members, including their social, economic, and survival well-being. [15, 16].

National development is highly dependent on family life, which is the core part of society, so that families have a strategic value in national development and become the foundation for full human development. The level of welfare is studied by covering several fields, one of which is socioeconomic factors besides the accessibility factor of roads or infrastructure, production, and access to capital. There is a relationship between income from farming and income from alternative non-farm work to increase total income and farmer welfare, Sirajuddin [17, 18]; in which socioeconomic conditions constitute one of the determinants influencing farmers' income levels [19, 20, 21].

Currently, farmers' welfare is a major concern as it is expected to decline. This can be seen from the relatively low level of farmer income and the purchasing power of farmers, which is reflected in the Farmer Exchange Rate (NTP), which often fluctuates and even tends to decline in certain periods [22, 23, and 24]. Some of the factors that are thought to contribute to the decline in farmers' welfare levels are the decline in production caused by cultivation aspects, one of which is pest attacks on maize plants [25]. reduction in the area of land owned by farmers, a decrease in commodity prices at harvest, and an increase in input components that contribute to farm production [26]. This is supported by Wahed et al. [27] in which production exerts a significant influence on the welfare level of farmers [28, 29].

Corn production is influenced by a combination of agronomic, economic, social, environmental, and policy factors. Understanding these factors is crucial for designing effective strategies to increase corn production and improve farmers' well-being. Efforts to increase corn production must involve a holistic approach that takes all these factors into account [30, 31].

In 2023, with a land area of 36,733.9 hectares, Simalungun District produce 213,828 tons of maize, with a productivity of approximately 5.82 tons per hectare. Multiple aspects, including accessibility, the application of agricultural technology, and the involvement of farmer groups, show good potential for increasing maize production and productivity in Simalungun District. For this reason, the lives of farmers and the sustainability of maize production in Simalungun District must continue to be improved.

In their farming activities, maize farmers in Simalungun District face various challenges that affect their income, including socioeconomic factors, accessibility, and production levels. This study formulates a model illustrating the interrelationship between socioeconomic conditions, accessibility, production factors, and the welfare of farmers. The model was analyzed using Smart-PLS, a statistical tool that allows testing structural and measurement relationships on latent variables.

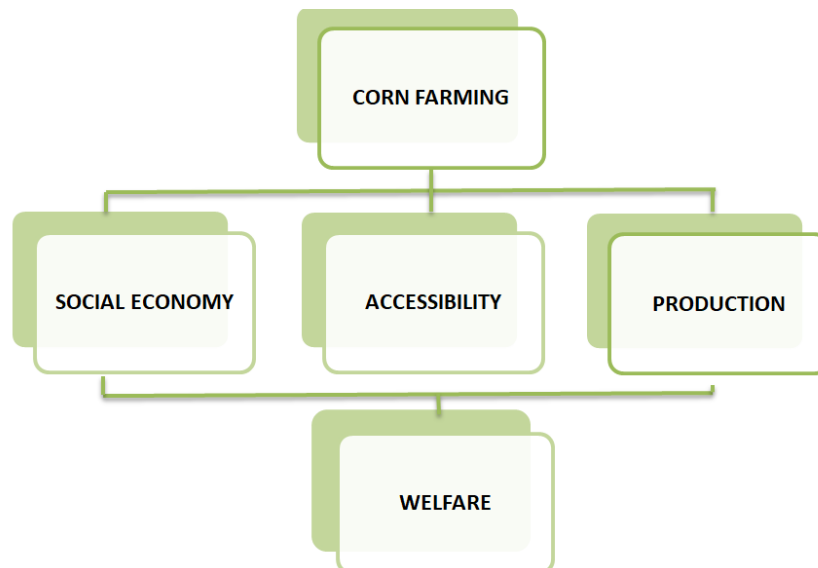


Figure 1. Research framework

2. Materials and Methods

2.1. Research Methods

The study employed a case study approach, which involves an intensive, detailed, and comprehensive examination of particular individuals, groups, institutions, or events in order to obtain an in-depth understanding of the subject under investigation. Data collection in this research incorporated both qualitative and quantitative approaches. The qualitative descriptive approach was applied through a descriptive-analytical framework to examine and interpret the identified problems systematically. This approach was expected to provide a clearer depiction of the observed phenomena as well as a deeper interpretation of the relationships among those phenomena. Furthermore, quantitative analysis was conducted through statistical testing using the Structural Equation Modeling (SEM) technique with a Partial Least Squares (PLS) approach.

2.2. Location determination method

This study was conducted in Simalungun Regency, which is known as one of the major corn-producing regions in North Sumatra. The research locations were selected using the one-stage cluster sampling technique with a sampling proportion of 30%, resulting in the selection of three subdistricts. These locations were determined through purposive sampling based on the principle of representing areas with high, medium, and low production levels, which are: Sidamanik Subdistrict with high production scale (>10.000 tons/year); Raya Subdistrict with medium production scale (5.000–10.000 tons/year); and Hutabayu Raja Subdistrict with low production scale (<5.000 tons/year).

2.3. Sampling method

The population studied in this research consisted of 700 farmers engaged in corn cultivation. The sample size was determined using Proportional Stratified Random Sampling, with the sample consisting of 100 farmers selected through purposive sampling. Thus, the sample size can be determined as shown in Table 1.

Table 1. Research sample size

Scale of Production	Population (Farmers)	Sample (Farmers)
High (Sidamanik)	280/700 x 100	40
Medium (Raya)	210/700 x 100	30
Low (Hutabayu Raja)	210/700 x 100	30

2.4. Data collection methods

The data utilized in this research comprised both primary and secondary sources. Primary data were gathered through field-based research activities, including direct visits to the study area and interviews with respondents using structured questionnaires, as well as observation and documentation techniques. In contrast, secondary data were obtained through literature reviews and institutional sources, including the Statistics of the Central Bureau, the Agriculture Office of Simalungun Regency, village administrative offices, and various other relevant sources. Additional supporting information was also collected from community leaders, local government representatives such as village secretaries and neighborhood heads, as well as other parties relevant to the objectives of this study.

2.5. Data analysis method

The principal analytical approach applied in this study was the mixed methods approach, which integrates both qualitative and quantitative research perspectives within a single framework. Furthermore, the data analysis process employed the Structural Equation Modeling (SEM) technique based on Partial Least Squares (PLS), supported by measurements using a Likert scale with the following research variables:

Table 2. Measurement of research variables

Variables/Constructs	Variable Types	Indicators
Social economy (se)	Exogenous	Social characteristics (se1) Social capital (SE2) Agricultural Extension (SE3) Marketing (SE4) Production Input Assistance (SE5) Fertilizer subsidies (SE6) Farming Experience (SE7)
Accessibility (A)	Exogenous	Access to farm roads (A1) Environment (A2) Access to capital (A3) Cultivated area (A4) Access to technology (A5)
Production (P)	Exogenous	Output (P1) Land Productivity (P2) Labor Productivity (P3)
Welfare (W)	Endogenous	Production Cost Efficiency (W1) Income (W2) Product Price Increases (W3) Household consumption (W4)

3. Results and Discussion

The findings derived from the Structural Equation Modeling (SEM) analysis based on Partial Least Squares (PLS), which examined the effects of socioeconomic factors, accessibility, and maize production on farmers' welfare in Simalungun Regency, produced a model as illustrated in Figure 2.

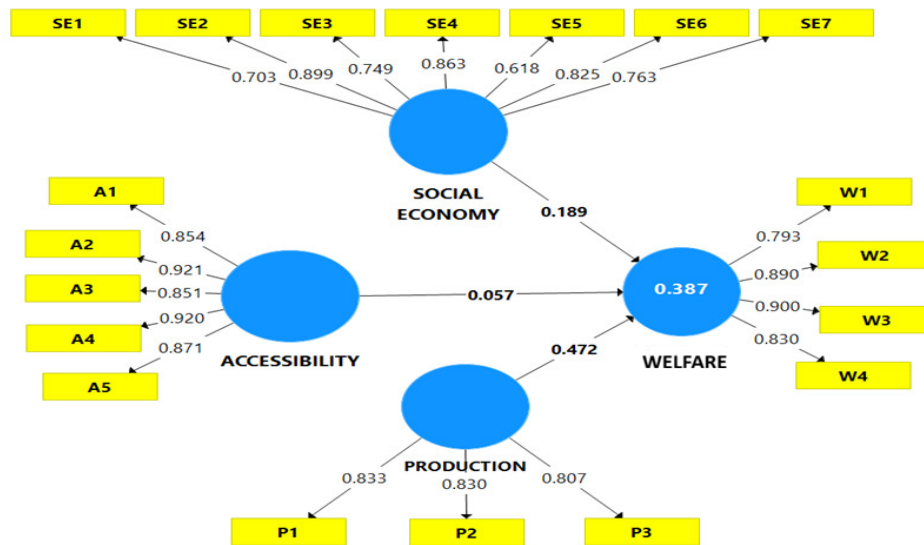


Figure 2. Loading factor value of farmer welfare model

3.1. Socioeconomic variables

All indicators representing the socioeconomic variables in this study demonstrated loading factor values exceeding 0.60, as indicated by the PLS data processing results presented in Figure 1. These findings suggest that indicators with loading values greater than 0.60 possess a strong level of validity [32, 33, 34], which means that the seven indicators on socio-economic variables meet the criteria for convergent validity.

3.2. Accessibility variables

The PLS data analysis results indicate that all indicators associated with the accessibility variable obtained loading factor values greater than 0.60. These findings demonstrate that the indicators measuring the accessibility variable possess a strong degree of validity, indicating that they satisfy the requirements of convergent validity.

3.3. Production variables

Based on the PLS data processing results, all indicators representing the production variable exhibited loading factor values above 0.60. This finding indicates that the production variable indicators generally demonstrate a high degree of validity, meaning that each indicator fulfills the established criteria for convergent validity.

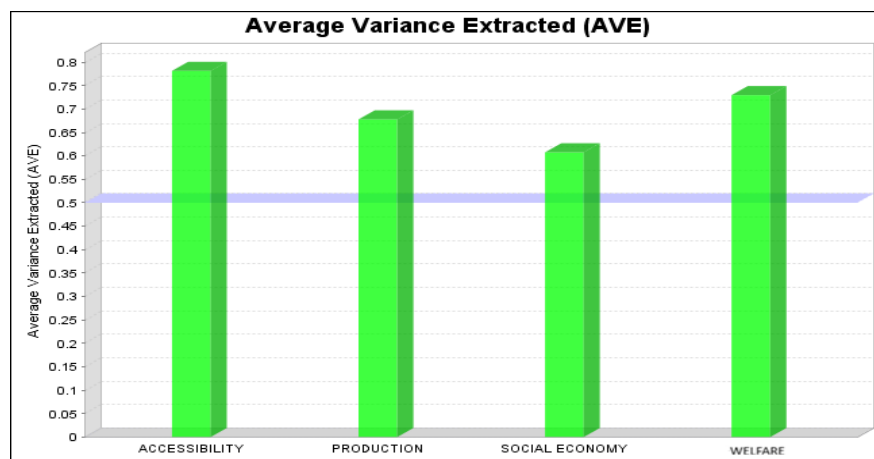
3.4. Welfare variable

This welfare variable has a loading value above 0.60 as a whole. Overall, this welfare variable indicator also has a high level of validity, which can be interpreted as meaning that all indicators in the welfare variable also meet the criteria of convergent validity. This finding indicates that the welfare level of maize farmers in Simalungun Regency is affected by several factors, including socioeconomic conditions, a conclusion that is consistent with the findings reported in previous studies by Ismawati [35] which concluded that socioeconomic conditions have an effect on farmers' welfare and are further reinforced by findings from other related studies [36]. Accessibility factors influence the level of farmer welfare, as stated by Sitorus [37] who stated that good accessibility to markets and transportation facilities can increase the efficiency of agricultural product marketing, thereby impacting the improvement of farmer welfare. Likewise, production variables are important factors that influence the level of farmer welfare. Increased production and productivity in farming will increase farmer income, thus impacting the improvement of farmer household welfare [38, 35].

Table 3. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Accessibility	0.93	0.94	0.95	0.78
Production	0.76	0.76	0.86	0.68
Social Economy	0.89	0.92	0.92	0.61
Welfare	0.88	0.89	0.92	0.73

The constructs included in this research model were regarded as having satisfactory discriminant validity, as the PLS data analysis results revealed no issues related to convergent validity within the tested model. These findings indicate that the constructs employed in the study are both valid and reliable.

**Figure 3.** Average variance extracted (AVE)

The values of Cronbach's Alpha (CA), Composite Reliability (CR), and Average Variance Extracted (AVE) for each construct in this study also demonstrated acceptable results, indicated by Cronbach's Alpha values exceeding 0.60, Composite Reliability values above 0.70, and AVE values greater than 0.50. These results confirm that the model possesses adequate validity and reliability.

Table 4. Discriminant validity

	Accessibility	Production	Social Economy	Welfare
Accessibility	0.88			
Production	0.29	0.82		
Social Economy	0.49	0.56	0.78	
Welfare	0.28	0.59	0.48	0.85

The loading factor of each indicator on its respective construct was found to be higher than its cross-loading values on other constructs. Accordingly, each construct or latent variable in the study can be considered to possess adequate discriminant validity. This condition indicates that the indicators within each construct demonstrate stronger associations with their own construct compared to indicators belonging to other construct groups. Based on the cross-loading analysis results, no issues related to discriminant validity were identified.

The examination of each relationship was conducted through a simulation procedure employing the bootstrapping technique on the research sample. This procedure was intended to reduce potential issues associated with the non-normal distribution of the research data. The outcomes of the SEM-PLS analysis using the bootstrapping approach are presented as follows.

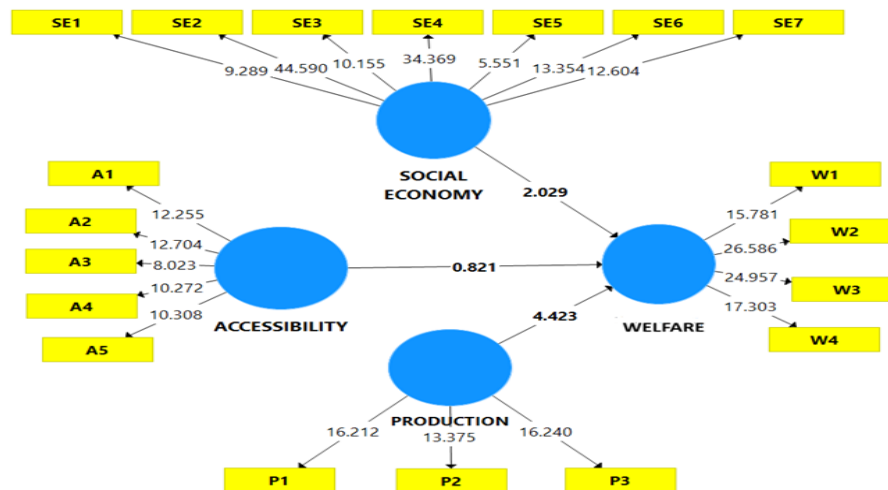


Figure 4. Bootstrapping

Based on the bootstrapping procedure, the calculation results are presented in the following table:

Table 5. Outer loadings from bootstrapping

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
A1 <- Accessibility	0.85	0.86	0.07	12.26	0.00***
A2 <- Accessibility	0.92	0.91	0.07	12.70	0.00***
A3 <- Accessibility	0.85	0.83	0.11	8.02	0.00***
A4 <- Accessibility	0.92	0.91	0.09	10.27	0.00***
A5 <- Accessibility	0.87	0.86	0.08	10.31	0.00***
P1 <- Production	0.83	0.83	0.05	16.21	0.00***
P2 <- Production	0.83	0.82	0.06	13.38	0.00***
P3 <- Production	0.81	0.81	0.05	16.24	0.00***
SE1 <- Social Economy	0.70	0.71	0.08	9.29	0.00***
SE2 <- Social Economy	0.90	0.90	0.02	44.59	0.00***
SE3 <- Social Economy	0.75	0.74	0.07	10.16	0.00***
SE4 <- Social Economy	0.86	0.87	0.03	34.37	0.00***
SE5 <- Social Economy	0.62	0.60	0.11	5.55	0.00***
SE6 <- Social Economy	0.83	0.82	0.06	13.35	0.00***
SE7 <- Social Economy	0.76	0.77	0.06	12.60	0.00***
W1 <- Welfare	0.79	0.79	0.05	15.78	0.00***
W2 <- Welfare	0.89	0.89	0.03	26.59	0.00***
W3 <- Welfare	0.90	0.90	0.04	24.96	0.00***
W4 <- Welfare	0.83	0.83	0.05	17.30	0.00***
R Square	0.39				
R Square Adjusted	0.37				

Based on the PLS calculation results derived from the outer loading values and statistical testing, the existence of relationships among variables can be identified through the p-value. A p-value below 0.05 indicates a statistically significant effect, whereas a p-value greater than 0.05 signifies the absence of a significant effect. Table 5 demonstrates that all indicators associated with each variable obtained p-values of 0.000 (<0.05), indicating that every indicator exerts a statistically significant effect on the socioeconomic, accessibility, production, and welfare variables.

3.5. Structural model

The structural model testing results indicate that socioeconomic conditions, accessibility, and production significantly affect farmers' welfare. The coefficient of determination (R^2) for the farmer welfare variable was recorded at 0.387, suggesting that the model is capable of explaining 38.7% of the variation in farmers' welfare.

4. Conclusion

Based on the findings obtained from the Structural Equation Modeling (SEM) analysis using the Partial Least Squares (PLS) approach, it can be concluded that socioeconomic conditions, accessibility, and maize production exert significant effects on the welfare level of farmers in Simalungun Regency. The results of this study further emphasize the crucial role of socioeconomic, accessibility, and production-related factors in enhancing farmers' welfare, thereby providing a foundation for the formulation of policies and farmer empowerment initiatives within the region. Overall, this study implies that efforts to improve the welfare of corn farmers need to be carried out in an integrated manner through increasing the socio-economic capacity of farmers, improving infrastructure accessibility, and increasing corn production in Simalungun Regency. Future research can use the results of this study as part of creating a corn agribusiness development model by integrating other variables.

References

- [1] R. G. Busyra, "Dampak Fluktuasi Harga Jagung Terhadap Kesejahteraan Petani Jagung", *Jurnal MeA (Media Agribisnis)*, vol. 5, no. 2, pp. 83-94, 2020, doi: 10.33087/mea.v5i2.80.
- [2] A. A. Bakar, M. M. Osman, S. Bachok, M. Ibrahim, and M. Z. Mohamed, "Modelling Economic Wellbeing and Social Wellbeing for Sustainability: A Theoretical Concept", *Procedia Environmental Sciences*, vol. 28, pp. 286–296, 2015, doi: 10.1016/j.proenv.2015.07.037.
- [3] R. Astika, L. Harudu, and Surdin, "Faktor-Faktor Yang Mempengaruhi Tingkat Kesejahteraan Keluarga", *Jurnal Penelitian Pendidikan Geografi*, vol. 8, no. 4, pp. 171–178, 2023.
- [4] M. S. Argo, F. Tasik, and S. Y. V. Goni, "Peningkatan Pendapatan Kesejahteraan Keluarga di Masa Pandemi Covid-19 (Studi Kasus Pada Penjual Makanan Di Kawasan Boulevard II Kelurahan Sindulang Dua Kecamatan Tuminting Kota Manado)", *Jurnal Ilmiah Society*, vol. 1, no. 1, pp. 1–10, 2021.
- [5] B. Purba, M. F. Rahmadana., E. Basmar., D. P. Sari., A. Klara., D. Damanik., A. I. Faried., D. Lie., N. Fazira., N. Rozaini., R. Tanjung, and N. A. Nugraha, "*Ekonomi Pembangunan*", Yayasan Kita Menulis, Medan, 2021.
- [6] Kementerian Desa, Pembangunan Daerah Tertinggal, dan Transmigrasi, "Peraturan Menteri Desa, Pembangunan Daerah Tertinggal, dan Transmigrasi Nomor 13 Tahun 2023 tentang Petunjuk Operasional atas Fokus Penggunaan Dana Desa Tahun 2024", [Online]. Available: <https://peraturan.bpk.go.id/Details/280616/permendesa-pdtt-no-13-tahun-2023> [Accessed: Jun. 25, 2026].
- [7] A. Sihombing, T. Sipayung, S. E. Damanik, and P. Nainggolan, "Pengaruh Pembangunan Infrastruktur Jalan, Pertanian Dan Kesehatan Terhadap Pendapatan Asli Daerah (PAD) Di Kabupaten Simalungun", *Jurnal Regional Planning*, vol. 5, no. 2, pp. 79–89, 2023, doi: 10.36985/jrp.v5i2.755.
- [8] G. Renatha, "Identifikasi Peranan Sektor Basis dan Tingkat Aksesibilitas Dalam Meningkatkan Pertumbuhan Ekonomi Kabupaten Jayapura", *Parahyangan Economic Developmen Review*, vol. 1, no. 1, pp. 54–62, 2022, doi : 10.26593/pedr.v1i1.6515
- [9] M. C. Hajia, M. Defri, and L. J. Buton, "Pembangunan Infrastuktur Jalan Tani Dalam Mewujudkan Ketahanan Pangan dan Keberlanjutan Ekonomi Masyarakat Pesisir Desa Lamaninggara", *JPM : Jurnal Pengabdian Masyarakat*, vol. 5, no. 1, pp. 21–27, 2024, doi: 10.47065/jpm.v5i1.2048.
- [10] M. Karateng, Mulyadi, and Masweni, "Pengaruh Pembangunan Infrastruktur Jalan Tani Terhadap Kesejahteraan Masyarakat Di Desa Lauwa Kecamatan Pitumpanua Kabupaten Wajo", *Journal of Research. Development Public Policy (Jarvic)*, vol. 2, no. 2, pp. 98–113, 2023, doi: 10.58684/jarvic.v2i2.61.

- [11] K. M. A. Wenggol, F. W. Ballo, and M. I. H. Tiwu, “Pengaruh Infrastruktur Pedesaan Terhadap Produktivitas Pangan di Kecamatan Titehena Kabupaten Flores Timur”, *Inisiatif : Jurnal Ekonomi Akuntansi dan Manajemen*, vol. 3, no. 3, pp. 261–277, 2024, [Online]. Available: <https://doi.org/10.30640/inisiatif.v3i3.2755>
- [12] U. Farida, “Pengaruh Aksesibilitas Terhadap Karakteristik Sosial Ekonomi Masyarakat Pedesaan Kecamatan Bumijawa Kabupaten Tegal”, *Jurnal Wilayah dan Lingkungan*, vol. 1, no. 1, p. 49, 2013, doi: 10.14710/jwl.1.1.49-66.
- [13] G. L. Samputri, H. Hendrarini, E. Antriyandarti, “Pengaruh Aksesibilitas Fisik dan Ekonomi terhadap Persepsi Petani Dalam Pemanfaatan Combine Harvester (Studi Kasus di Kecamatan Tulangan Kabupaten Sidoarjo)”, *Agroteknos*, vol. 35 no.1, pp. 338-352, 2025, doi : 10.29303/agroteksos.v35i1.
- [14] Hernidar, P. A. Ningsih, and M. M. Hamzah, “Perempuan Dan Kesejahteraan Keluarga Dalam Perspektif Ekonomi Islam (Studi Pedagang Perempuan Di Pasar Jum’at Desa Kotabaru Seberida Kabupaten Indragiri Hilir Riau)”, *jkpim : Jurnal Kajian dan Penalaran Ilmu Manajajemen*, vol. 1, no. 4, pp. 269–282, 2023, 10.59031/jkpim.v1i4.247
- [15] D. N. Saragih and D. Damanik., “Pengaruh Pendapatan dan Konsumsi Rumah Tangga Terhadap Kesejahteraan Petani Jagung Di Desa Mariah Bandar Kecamatan Pematang Bandar Kabupaten Simalungun”, *EKUILNOMI : Jurnal Ekonomi Pembangunan.*, vol. 4, no. 2, pp. 116–129, 2022.
- [16] D. K. Sari, D. Haryono, and N. Rosanti, “Analisis Pendapatan dan Tingkat Kesejahteraan Rumah Tangga Petani Jagung di Kecamatan Natar Kabupaten Lampung Selatan”, *Jurnal Ilmu-Ilmu Agribisnis*, vol. 2, no. 1, pp. 64–70, 2014.
- [17] Z. Sirajuddin, “Diversifikasi pendapatan petani jagung di Desa Isimu Raya, Kabupaten Gorontalo”, *Magister. Agribisnis*, vol. 21, no. 2, pp. 141–149, 2021.
- [18] Nilmawani and M. L. A. Kurniawan, “Analisis Kesejahteraan Petani Jagung (Studi Kasus Kecamatan Dompu, Kabupaten Dompu, Ntb)”, *Jurnal Ilmiah Maksitek*, vol. 7, no. 2, pp. 13–19, 2022.
- [19] S. Siregar, Sirojuzilam, Sumono, and T. Supriana, “Socio-Economic Characteristics That Affect The Income Of Corn Farmers In Simalungun District”, *Journal Agribusiness Sciences.*, vol. 01, no. 02, pp. 90–100, 2018.
- [20] S. Sarno, E. Apriliyanto, “Analysis Of The Effect Of Social Economic Factors On The Level Of Revenue Of Singkong Village Women Tani Village Majalengka Sub-District Bawang Banjarnegara”, *Jurnal Ekonomi Pertanian dan Agribisnis*, vol. 5, pp. 125–134, 2021.
- [21] M. Z. Arifin, M. Mahfudz and S. Hindarti, “Analisis Faktor-Faktor Sosial Ekonomi Yang Mempengaruhi Pendapatan Usahatani Padi Sawah Di Desa Sukorejo Kecamatan Sukorjo Kabupaten Ponorogo”, *Jurnal Sosial Ekonomi Pertaian*, 2019.
- [22] Badan Pusat Statistik, “Statistik Nilai Tukar Petani Indonesia Tahun 2023”, [Online]. Available: <https://www.bps.go.id/id/publication/2024/04/23/d49e2636396e0b8311a2b53b/statistik-nilai-tukar-petani-2023.html> [Accessed: Jun. 25, 2026].
- [23] A. Suryana, “Pembangunan Pertanian dan Peningkatan Kesejahteraan Petani”, *Forum Penelitian*, 2016.
- [24] M. Rachmat, “Nilai Tukar Petani : Konsep, Pengukuran dan Relevansinya sebagai Indikator Kesejahteraan Petani”, *Forum Penelitian Agro Ekonomi*, vol. 31 no. 2, pp. 111 – 122, 2013.
- [25] Nurhajjah, W. U. Harahap, Widiastuty, I. H. Bangun. S. Siregar, and W. Fadhillah, “Extract of Oil Palm Empty Fruit Bunches Waste As An Potential Insecticide For Controlling Spodoptera frugiperda J.E.SMITH”, *Serangga*, vol. 29, no. 1, pp. 108–118, 2024.
- [26] Wiryono, “*Kekalahan Manusia Petani*”. Yogyakarta: Rineka Cipta, 1997.
- [27] M. Wahed, “Pengaruh Luas Lahan, Produksi, Ketahanan Pangan dan Harga Gabah Terhadap Kesejahteraan Petani Padi di Kabupaten Pasuruan”, *JESP*, vol. 7, no. 1, pp. 68–74, 2015.
- [28] H. Setyawan, K. Setiawan, and N. Fatmawati, “Pengaruh Produksi Kebun Petani Kelapa Sawit Rakyat Terhadap Kesejahteraan”, *JAMI Jurnal Ahli Muda Indonesia*, vol. 2, no. 2, pp. 106–116, 2021, doi: 10.46510/jami.v2i2.84.
- [29] A. Efrida, W. Hamidi, S. P. Desweni, “Analisis Faktor-Faktor yang Mempengaruhi Kesejahteraan Petani Kelapa Sawit Dengan Pendapatan Petani Sebagai Variabel Intervening di Kecamatan Tambusai Utara”, *Journal Economy Currency Study (JECS)*, vol. 5, no. 2, pp. 95–104, 2023, doi: 10.51178/jecs.v5i2.1575.
- [30] F. Djafar, M. Y. L. Astika, W. Hendrawan, F. Hasan, and F. Moh Yunus, “Analisis Faktor-Faktor yang Mempengaruhi Produksi Jagung Kelompok Tani Bangkit Bersama di Desa Ambara”, *Agribesia*, vol. 5, no. 2, pp. 156–161, 2021.
- [31] G. Rampengan, J. R. Mandei, and E. G. Tangkere, “Faktor Faktor Yang Mempengaruhi Produksi Jagung di Desa Raraatean Kecamatan Tomposo Baru Kabupaten Minahasa Selatan”, *Agri-*

- Sosioekonomi*, vol. 19, no. 3, pp. 1739–1744, 2023, doi: 10.35791/agrsosek.v19i3.54345.
- [32] H. Ghozali, I., & Latan, “*Partial Least Squares: Konsep, Teknik dan Aplikasi Menggunakan Program SmartPLS 3.0*”, Badan Penerbit Universitas Diponegoro, Semarang, 2015.
- [33] M. Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, “*A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*”, Sage Publications, 2017.
- [34] W. W. Chin, “The Partial Least Squares Approach for Structural Equation Modeling. Modern Methods for Business Research”, 1998.
- [35] Ismawati and S. R. Amalia, “Analisis Faktor-Faktor yang Mempengaruhi Kesejahteraan Petani”, *Jurnal Ekonomi dan Bisnis : LPPM Universitas Samawa*, vol. 9 no. 2, pp. 109-118, 2021, doi : 10.58406/jeb.v9i2.493.
- [36] W. N. Khasanah, K. Murniati, and S. Widjaya, “Pendapatan dan Kesejahteraan Rumah Tangga Petani Padi Ladang di Kecamatan Sidomulyo Kabupaten Lampung Selatan”, *JIIA (Jurnal Ilmu-Ilmu Agribisnis)*, vol. 6 no. 4, pp. 430-436, 2018, doi : 10.23960/jiia.v6i4.3064.
- [37] R.A. Sitorus, Abita, N. P., Arsal, N.F., Dewi, R.W., “Pengaruh Infrastruktur Pertanian Terhadap Pertumbuhan Ekonomi di Kawasan Metropolitan Barlingmascakeb”, *AGRIDEVINA Berkala Ilmiah Agribisnis*, vol. 14 no. 1, pp. 87 – 96, 2025, doi : 10.33005/agridevina.v14i1.4948.
- [38] S. Abdurahman, S. Imran dan Y. Boekoesoe, “Analisis Pendapatan dan Kesejahteraan Rumah Tangga Petani Jagung di Desa Karyamukti Kecamatan Mootilango”, *Agrinesia*, vol. 5, no. 1, pp. 65-72, 2020, doi : 10.37046/agr.v5i1.11818.