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Dynamics of the Farmers' Terms of Trade and Macroeconomic Factors in the Agricultural Sector on the Island of Sulawesi: A Trend Analysis Approach

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Abstract

The agricultural sector is a major economic pillar on Sulawesi Island, yet increases in macro-level production often do not correlate directly with farmers' actual well-being at the field level. This study aims to analyze trends in key agricultural sector indicators on Sulawesi Island and map the influence of macro factors on farmers' well-being. The method used is descriptive quantitative with a trend analysis approach utilizing secondary panel data from 6 provinces on Sulawesi Island over the period from 2012 to 2023. The variables observed include the Farmer's Price Index (FPI), agricultural Gross Regional Domestic Product (GRDP), labor productivity, and agricultural sector inflation. The research results indicate a sharp polarization in agricultural economic performance across regions in 2023. West Sulawesi Province achieved the highest FER on record (121.47), driven by momentum in plantation commodity prices, despite being shaken by extreme inflation of 15.33% in 2021. Conversely, South Sulawesi Province established itself as a production giant with the highest agricultural GRDP (Rp72,266,300 million), but its per capita productivity remains low due to an agricultural structure that is still labor-intensive. Meanwhile, Gorontalo Province is the region with the most vulnerable purchasing power, trapped with an NTP below 100 (99.98), triggered by the massive conversion of rice fields and high inflation in production inputs. This study concludes that the slogan of increasing production is insufficient to improve farmers' welfare without controlling rural inflation and ensuring price stability at the producer level.

Keywords: Trend Analysis, Inflation, Farmer Welafare, Farmer Price Index, Agricultural GRDP

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INTRODUCTION

The agricultural sector serves as the backbone of the economy for communities on the island of Sulawesi. For years, this region has been known as the nation's food basket, boasting an abundance of flagship commodities. However, high agricultural production figures do not always guarantee that farmers' livelihoods improve (Reuter & MacRae, 2024) . There is a significant challenge in maintaining a balance between the volume of harvested crops and the economic value returned to farmers' pockets.

One of the most commonly used indicators to gauge farmers' well-being is the Farmer's Price Ratio (NTP) . Simply put, Ningsih et al.(2025) explain that the NTP indicates whether the proceeds from farmers' crop sales are sufficient to cover their living expenses and planting costs. On the island of Sulawesi, the NTP figures fluctuate significantly. Although production is often reported to be increasing, the reality on the ground shows that price fluctuations and operational costs frequently weaken farmers' bargaining power.

The issue becomes even more complex when we consider labor productivity. In today's digital era, the labor force in the agricultural sector is beginning to shift, yet demands for high-quality products are growing ever higher. If labor productivity does not match the yields obtained, farmers' workloads will feel increasingly heavy without adequate income compensation (Romadhon et al., 2023) . This is precisely what we need to analyze more deeply through data trends over the past decade.

Additionally, Gapari(2021) explains that the primary threat to farmers' well-being is inflation in the agricultural sector. When the prices of fertilizers, seeds, and basic necessities rise faster than the selling prices of paddy or cocoa, farmers' purchasing power automatically declines. On the island of Sulawesi, which consists of six provinces with distinct geographical characteristics, the impact of this inflation is uneven. Some areas may remain relatively stable, while in others, farmers must struggle just to break even due to the pressure of high inflation.

Looking at the period from 2012 to 2023, a clear pattern of ups and downs in Sulawesi's agricultural dynamics is evident. Panel data from these six provinces tell the story of how the agricultural sector has weathered shifts in policy and macroeconomic conditions. Therefore, this study aims to map these trends in depth. By understanding the patterns at play, we can gain a clearer picture of where the primary obstacles lie and what steps to take moving forward so that the agricultural sector in Sulawesi can truly improve the well-being of its practitioners.

METHOD

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This study employs a descriptive quantitative approach using secondary data. The data utilized consists of panel data covering six provinces on the island of Sulawesi: South Sulawesi, West Sulawesi, Central Sulawesi, Southeast Sulawesi, North Sulawesi, and Gorontalo. The observation period for this study spans 12 years, from 2012 to 2023. All data were obtained from official publications of the Central Statistics Agency.

The data used consists of ADHK GRDP, ADHB GRDP, the Farmer's Price Index, and the number of people employed in the agricultural sector. Data analysis in this article was conducted descriptively using a Trend Analysis approach by describing or illustrating the data obtained (Tuzaman et al., 2024) . Descriptive statistics include the presentation of data through tables, graphs, pie charts, and so on (Sugiyono, 2022)

RESULTS

Sulawesi is the fourth-largest island in Indonesia after Papua, Kalimantan, and Sumatra, with a land area of 174,600 square kilometers. Its unique shape resembles a spider rose or a capital letter K extending from north to south, with three peninsulas extending to the northeast, east, and southeast. The island is bordered by the Makassar Strait to the west, separating it from Kalimantan, and is also separated from the Maluku Islands by the Maluku Sea. Sulawesi borders Borneo to the west, the Philippines to the north, Flores to the south, Timor to the southeast, and Maluku to the east. Administratively, the island of Sulawesi is divided into 6 provinces, namely: 1) South Sulawesi, with its capital in Makassar. 2) Southeast Sulawesi, with its capital in Kendari. 3) North Sulawesi, with its capital in Manado. 4) Central Sulawesi, with its capital in Palu. 5) West Sulawesi, with its capital in Mamuju. 6) Gorontalo, with its capital in Gorontalo

Farmers' Price Index

The fundamental objective of agricultural development is to improve farmers' welfare. The success of development in the agricultural sector can be gauged, in part, by the level of farmers' welfare, as measured by the Farmers' Price Index (Pangestika & Prihtanti, 2020) The following data illustrates the trend in the Farmers' Price Index in Sulawesi over the past 12 years

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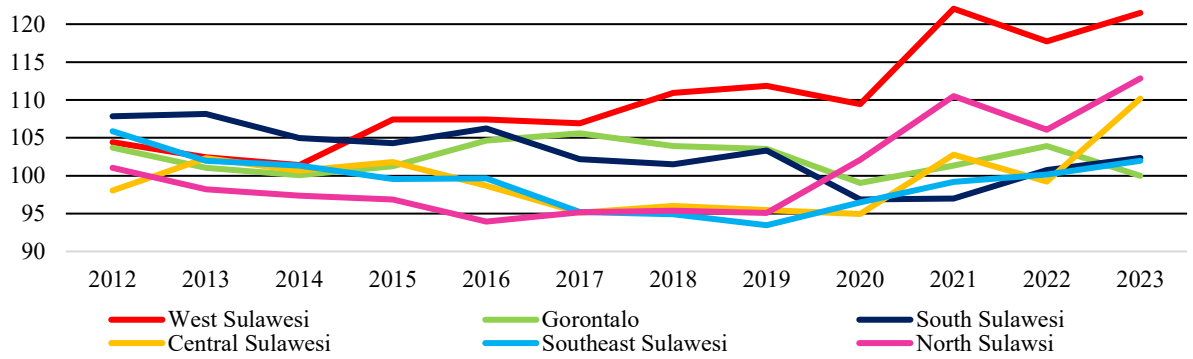


Figure 1. Trend Chart of the Farmer's Exchange Rate in Sulawesi

Based on the visualization of the NTP trend line chart from 2012 to 2023, there is a highly dynamic and varied movement pattern across provinces on the island of Sulawesi. Entering the final year of observation, 2023, a rather interesting trend polarization has emerged. The provinces of Gorontalo, South Sulawesi, and Southeast Sulawesi showed a trend that tended to level off with a low level of fluctuation. Conversely, the other three provinces Central Sulawesi, North Sulawesi, and West Sulawesi actually managed to achieve significant NTP growth trends in 2023, although looking back, these three regions had experienced fairly sharp fluctuations over the past eleven years.

When analyzed in more detail for 2023, West Sulawesi led with the highest NTP in Sulawesi, reaching 121.47. This was followed by North Sulawesi at 112.84 and Central Sulawesi at 110.18. On the other hand, South Sulawesi and Southeast Sulawesi were at a safe level, closely clustered at 102.35 and 101.97, respectively (differing by a mere 0.38 points). A rather concerning contrast is evident in Gorontalo Province, where the NTP stands at the bottom or lowest in Sulawesi, reaching only 99.98.

Agricultural Production on the Island of Sulawesi

Agricultural production is a region's capacity to produce agricultural, forestry, fisheries, and livestock products over the past 12 years, as measured by figures based on Gross Regional Domestic Product (GRDP) at constant prices. For further details, please refer to the diagram below.

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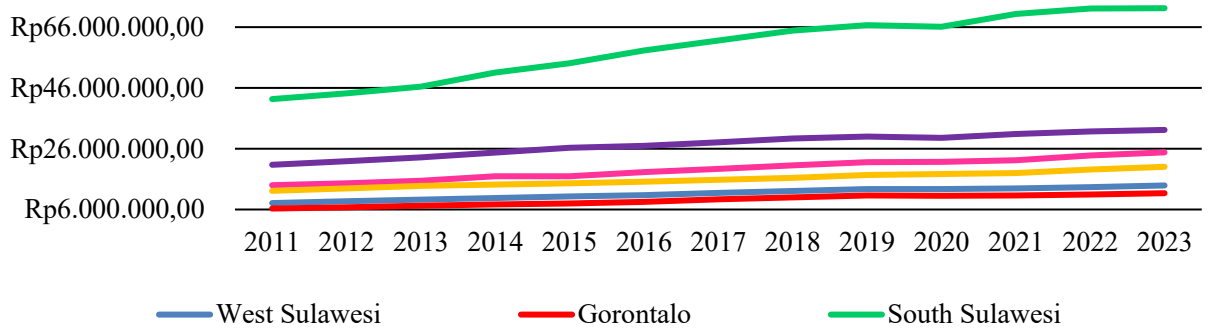


Figure 2. Diagram of Agricultural Production Trends in Sulawesi

Through the line chart visualizing data over the past twelve years, it is evident that all provinces on Sulawesi Island generally show a positive and significant growth trend in the GRDP of the Agriculture, Forestry, and Fisheries sectors (based on constant prices). Nevertheless, the production pie on this island is not evenly distributed but is dominated by certain regions. South Sulawesi Province has solidified its position as the epicenter or primary hub of agribusiness production on Sulawesi Island. This dominance is evidenced by the highest agricultural sector GRDP value, reaching Rp72,266,300 million in 2023.

Following South Sulawesi, Central Sulawesi Province secured second place with an agricultural sector GRDP of Rp32,186,013 million in 2023, followed by Southeast Sulawesi at Rp24,791,260 million. An interesting phenomenon emerges when comparing West Sulawesi and North Sulawesi Provinces. Although these two regions have relatively comparable levels of agricultural employment, their real agricultural output shows a significant gap. In 2023, West Sulawesi's agricultural output reached Rp20,044,504 million, while North Sulawesi's remained at Rp13,915,059 million. This spatial contrast is completed by Gorontalo Province, which ranks last with the lowest production capacity in Sulawesi, where its agricultural GRDP in 2023 reached only Rp11,369,433 million a figure that is starkly disproportionate when compared to neighboring provinces.

Labor Productivity in the Agricultural Sector

The success of agricultural sector development can be gauged, among other things, by the level of labor productivity in the agricultural sector. Agricultural labor productivity reflects two critical aspects: the volume of production the sector can generate relative to the number of workers it can employ (Astrini, 2013) . The following outlines the trend in agricultural labor productivity across the Sulawesi region.

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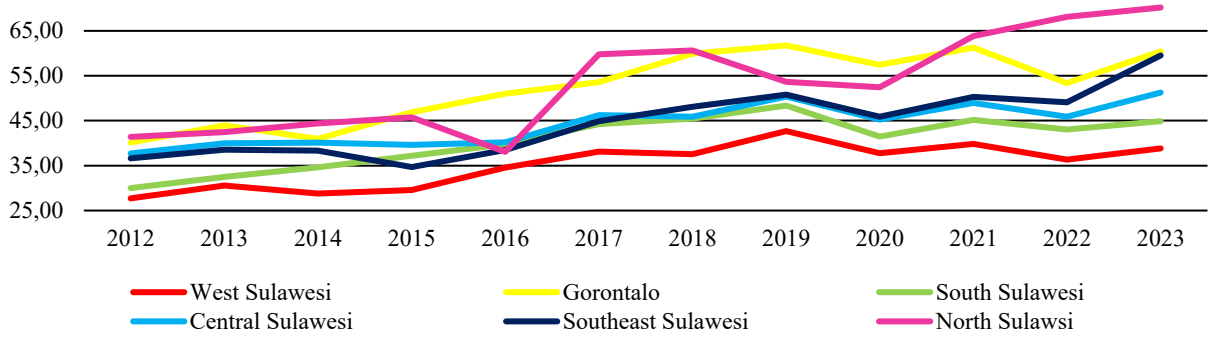


Figure 3. Diagram of Labor Productivity in the Agricultural Sector Trends in Sulawesi

In the top group, North Sulawesi achieved the highest productivity record in 2023, reaching Rp70,200 per capita a significant surge compared to its lowest point in 2016, which stood at just Rp38,050 per capita. Gorontalo Province followed in second place with strong labor efficiency, where its peak output reached Rp61,766 per capita, despite a contraction in 2022 to Rp53,399 per capita. Meanwhile, Southeast Sulawesi recorded its peak performance in 2023 with a figure of Rp59,522 per capita, moving far beyond its lowest point in 2015, which stood at Rp34,688 per capita.

A contrasting picture is shown by the other three provinces Central Sulawesi, South Sulawesi, and West Sulawesi which fall into the category of lowest labor productivity. Central Sulawesi reached its peak in 2023 at Rp51,266 per capita, up from its lowest point of Rp37,711 per capita in 2012. The most striking phenomenon occurred in South Sulawesi; although this region is an agribusiness giant with the largest production volume and labor absorption on the island of Sulawesi, its labor productivity is relatively low, as its peak only reached Rp48,366 per capita. Finally, West Sulawesi ranks last in terms of individual productivity, with its peak capacity in 2019 standing at just Rp42,688 per capita, having risen from a low of Rp27,711 per capita in 2012.

Agricultural Sector Inflation

Inflation is a condition in which agricultural product prices experience a sustained increase. This is particularly significant given that Sulawesi relies heavily on agricultural commodities as its mainstay. The following is a line chart illustrating agricultural sector inflation across Sulawesi over the past 12 years.

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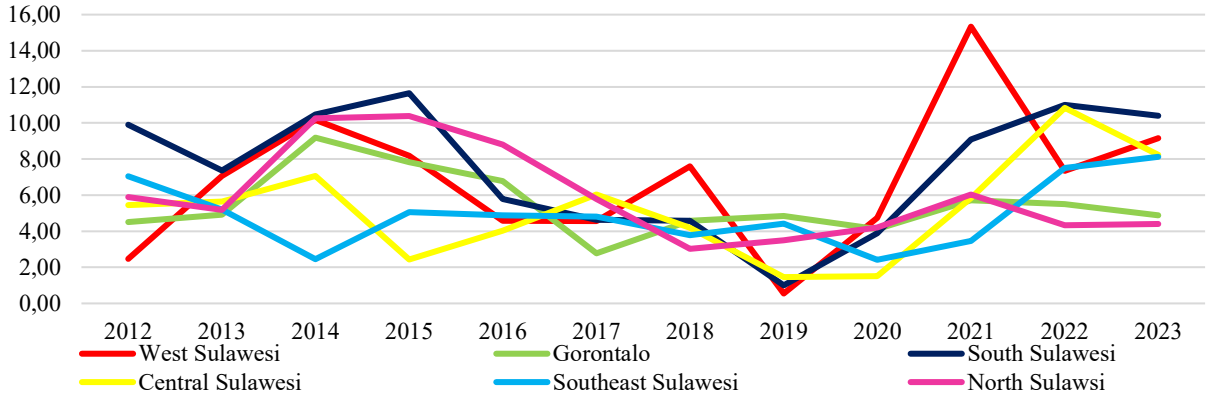


Figure 4. Diagram of Agricultural Inflation Trends in Sulawesi

Based on the bar chart visualization presented, it is clearly evident that every province on the island of Sulawesi has faced highly fluctuating agricultural sector inflation pressures throughout the observation period. These price fluctuations reflect just how vulnerable the agricultural upstream sector is to market shocks and changes in economic policy. The most extreme fluctuations occurred in West Sulawesi Province, which surprisingly recorded both the highest and lowest inflation rates in Sulawesi. This region experienced a severe spike in agricultural inflation, reaching 15.33% in 2021, but managed to bring it down to its lowest point of 0.55% in 2019.

In other parts of Sulawesi, these peaks and troughs in inflation occurred in different years. Gorontalo Province recorded its highest inflation pressure much earlier, at 9.18% in 2014, before eventually leveling off to a low of 2.78% in 2017. Furthermore, South Sulawesi was hit by the highest agricultural inflation of 11.65% in 2015, and recorded its most stable conditions in 2019 with inflation at just 1.00%. A different trend is observed in Central Sulawesi, which was hit by high inflation of 10.84% in 2022 after enjoying a period of stability in 2019 with a rate of 1.46%. Meanwhile, Southeast Sulawesi only experienced its highest inflation peak in the final year of observation (2023), reaching 8.12% due to post-pandemic price fluctuations, with the lowest point in 2020 at 2.42%. This pattern is similar to that of North Sulawesi, which experienced difficult times in 2015 with inflation at 10.38% and relatively stable levels in 2018 at 3.02%.

DISCUSSION

Conversely, the specific case in Gorontalo Province, where the NTP is below 100 (99.98), serves as a warning that farmers' well-being in that region has not yet been optimally achieved. This sub-100 condition indicates an economic deficit, where the income farmers receive from their harvest is entirely spent or even insufficient to meet their basic

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living needs. This phenomenon can be explained by the argument put forth by Darwis et al.(2020) , who state that a decline in the NTP is generally triggered by the slow rise in the selling prices of local agricultural commodities which cannot keep pace with the rapid increase in household consumption goods prices along with rising production input costs (such as fertilizers and seeds), and the high cost of acquiring agricultural capital goods.

Cumulatively, trend analysis for the 2012–2023 period demonstrates that the NTP in Sulawesi has never been static, as it is highly sensitive to changes in the real income and expenditure components of farming households. As concluded by Aulia et al.(2021) , the magnitude of NTP fluctuations is driven by a combination of structural and external factors, including land ownership area, production volume, market price stability, and pressure from both food and non-food consumption costs. Therefore, the significant surge experienced by farmers in West Sulawesi indicates effective management of production factors or the right timing of commodity price trends opportunities that were not fully capitalized upon in the Gorontalo region.

In agribusiness economics, the figure of 100 is the critical threshold for measuring the purchasing power of the agricultural sector. The success of the five provinces in Sulawesi in maintaining an NTP above 100 serves as a positive indicator that farmers in these regions are generally in a phase of economic surplus or prosperity. This aligns with the perspective of Aulia et al. (2021), who assert that the higher the nominal NTP figure exceeds the 100 threshold, the higher the level of well-being and economic savings capacity possessed by farmers.

South Sulawesi's extraordinary capacity to drive the agriculture, livestock, forestry, and fisheries subsectors is strongly supported by the availability of natural resources and vast land areas. Although Siswadharma & Burhanuddin(2022) classify this sector as a potential sector (rather than a primary sector in some of its internal regions), this does not diminish its absolute contribution to regional food security. This performance is reinforced by Yusran et al.(2023) , who state that South Sulawesi possesses a large agricultural economy, bolstered by regional development policies focused on maximizing downstream processing and optimizing the domestic market.

Conversely, the stagnation of agricultural production in Gorontalo Province which has made it the region with the lowest agricultural GRDP cannot be separated from structural issues, one of which is the alarming rate of land conversion. According to findings by Koto et al.(2023) , in 2021 there were four regencies in Gorontalo Province that simultaneously experienced a reduction in the area of irrigated rice fields, namely Boalemo, Pohuwato, Bone Bolango, , and North Gorontalo. Cumulatively, the Central Statistics Agency recorded that non-irrigated rice paddy land in this region plummeted by 31.34%, equivalent

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to the loss of 2,324 hectares of productive land in just a short period. This limited production capacity is exacerbated by low technology adoption and ecological awareness among local farmers, with Lakatara et al.(2024) and Diko et al.(2024) confirming that the implementation of sustainable agricultural practices in Gorontalo remains at a very low level.

The noticeable fluctuations in labor productivity reflect the dynamics of internal factors within farming households in the field. Referring to prior research (Dia & Hamid, 2023; Fernando, 2022) , variations in agricultural labor productivity are positively and significantly determined by farmers' formal education levels, accumulated farming experience, productive age, number of family dependents, clarity of land ownership status, capital strength, and production management quality. Conversely, unfair agricultural sales agreements (such as the ijon system or middleman dominance) often have a negative impact, while the inherent capabilities of the workforce without the intervention of cutting-edge technology are deemed to have no significant impact on boosting productivity.

The success of North Sulawesi, Southeast Sulawesi, and Gorontalo in boosting their labor productivity to its peak in 2023 carries a linear implication for improvements in macro-level welfare indicators, particularly in reducing rural poverty rates. This positive transformation is visually confirmed by the declining poverty rates in these three regions. This causal link aligns with research (Siswantoro & Gandhi, 2025; Udi & Rosyadi, 2023) which states that growth in agricultural labor productivity has a strong correlation and a direct impact on alleviating farmer poverty, where positive growth will automatically widen the real income margin of the target community. Furthermore, (Fadlan et al., 2024; Soedarto & Ainiyah, 2022) adds a structural argument that under certain modernization conditions, worker efficiency can act as a substitute for land constraints; increased individual capacity enables a skilled farmer to independently manage a much larger scale of farming operations profitably.

Theoretically, these sectoral inflation dynamics do not exist in isolation but are closely intertwined with other macroeconomic indicators. Drawing on the framework of Hati et al. (2025) and Shihab (2025), exchange rate movements play a crucial role in triggering the transmission of domestic inflation. When the exchange rate depreciates, import costs for agricultural capital goods such as machine components, chemical fertilizer raw materials, and pesticidesautomatically surge, which in turn drives up the price index that farmers must pay. Conversely, exchange rate appreciation serves as an effective safety net in mitigating inflation rates at the rural level.

The fact that West Sulawesi is the region with the most pronounced inflation volatility confirms the existence of structural vulnerabilities in their agricultural commodity

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supply chains. The empirical findings of this study align with the analyses by Sabyan & Herlin (2025) and Ahmad & Linge(2024) , which affirm that vertical inflation has the potential to exert a destructive impact on labor absorption in the agricultural sector due to business uncertainty. Furthermore, the food commodities and agricultural production inputs groups have been shown to make a highly dominant contribution to the formation of the regional inflation matrix. When this inflation is not offset by an increase in the selling prices of harvested crops at the producer level, such price volatility will directly become the primary factor eroding the purchasing power and real profit margins that farmers on Sulawesi Island should otherwise enjoy.

If we draw a common thread from all the indicators analyzed, the agricultural economic landscape on the island of Sulawesi during the 2012–2023 period reveals a paradoxical reality across regions. South Sulawesi stands firmly as an agribusiness giant, with its agricultural GRDP contributing an overwhelming majority to the entire region. However, this massive scale of production does not necessarily correlate linearly with the productivity levels of individual workers, which tend to be low, nor does it result in the highest farmer price-to-input ratio. This phenomenon indicates that agriculture in Sulawesi's main production centers remains highly labor-intensive, where the economic pie generated must be divided among many people, resulting in suboptimal real profits reaching individual farmers.

In stark contrast, West Sulawesi Province presents a different picture. This region lacks the massive production base of South Sulawesi, yet it managed to record the highest NTP in Sulawesi in 2023 (121.47). West Sulawesi's success in improving farmers' welfare is driven by the high market value of their flagship plantation commodities in the global market. Although this region experienced severe structural shocks due to the highest agricultural inflation in 2021 (15.33%), the resilience of their commodities proved capable of a rapid recovery once inflationary pressures eased in subsequent years, which ultimately significantly boosted farmers' purchasing power.

Meanwhile, the situation requiring the most serious attention is in Gorontalo Province. This region is caught in a double bind: it has the lowest production capacity (GRDP) while also recording the lowest farmers' terms of trade at the end of the observation period (99.98). Interestingly, in terms of individual efficiency, Gorontalo actually has very high labor productivity. This provides a crucial indication that Gorontalo farmers, on an individual level, are skilled and efficient workers; however, their progress is hindered by the shrinking of agricultural land due to the massive conversion of irrigated rice fields and their weak bargaining power in the market. Consequently, the high individual labor output is completely eroded by the high cost of living and agricultural inputs in the region.

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Ultimately, an analysis of panel data trends over the past decade confirms that to improve the welfare of farmers on the island of Sulawesi, the government cannot focus solely on the slogan of "increasing production." The key lies in controlling inflation of agricultural capital goods at the rural level and improving the agribusiness supply chain to ensure stable prices at the producer level. Without synchronization between the protection of productive land, price stability, and technological modernization for labor efficiency, the annual reported growth in the agricultural economy will remain merely a macroeconomic figure that fails to address the reality of farmers' well-being on the ground.

CONCLUSION

A sharp polarization in welfare occurred on the island of Sulawesi in 2023. Five provinces succeeded in maintaining their farmers' welfare levels above the critical threshold (NTP > 100), with West Sulawesi recording the highest figure at 121.47. Conversely, Gorontalo Province became the region with the most vulnerable farmer purchasing power as it was stuck at the bottom with an NTP below 100 (99.98), indicating an economic deficit for its farmers.

There is a mismatch between total production volume and labor efficiency. South Sulawesi has proven to be an agribusiness giant with the highest agricultural GRDP (Rp72,266,300 million), yet its per-capita productivity remains low due to its agricultural structure, which remains highly labor-intensive. Conversely, regions with small total production, such as North Sulawesi and Gorontalo, actually recorded very high individual efficiency or per capita labor productivity.

Inflationary pressures in the agricultural sector on the island of Sulawesi fluctuate significantly and are a major factor eroding farmers' real profits. West Sulawesi experienced the most extreme volatility (with inflation peaking at 15.33% in 2021), while the primary issues in regions with low NTPs, such as Gorontalo, stem from a combination of input price inflation, massive land conversion from rice fields, and low adoption of sustainable agricultural practices.

Recommendations

Further research is needed, focusing on supply chain analysis and price transmission for specific commodities (e.g., corn in Gorontalo or oil palm/cocoa in West Sulawesi). This step will help uncover why regions with high labor productivity, such as Gorontalo, continue to yield a low NTP.

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It is recommended that future researchers conduct micro-level studies on the impact of agricultural land conversion on the real income structure of farming households, in order to formulate more effective land protection strategies.

REFERENCES

Ahmad, U. S., & Linge, A. (2024). Inflasi Dan Pertumbuhan Perekonomian Di Indonesia. *Brilliant: Journal of Islamic Economics and Finance*, *2*(2), 223–240.

Dia, H. S., & Hamid, R. S. (2023). Peran modal kerja, tenaga kerja, dan luas lahan dalam meningkatkan Pendapatan Petani. *Jesya (Jurnal Ekonomi Dan Ekonomi Syariah)*, *6*(1), 479–491.

Diko, R. C. F., Baruwadi, M., & Sirajuddin, Z. (2024). Inovasi pertanian dan adopsinya oleh petani jagung di Kecamatan Suwawa Selatan Provinsi Gorontalo. *ZIRAA'AH MAJALAH ILMIAH PERTANIAN*, *49*(2), 174–188.

Fadlan, A., Lubis, R. P., & Tarigan, M. H. (2024). *Ekonomi Pertanian Pelaku Usaha Tani Kecil: Sebuah Perspektif Global*. Serasi Media Teknologi.

Fernando, F. (2022). *Sosiologi Pedesaan*. Zahir Publishing.

Gapari, M. Z. (2021). Pengaruh kenaikan harga beras terhadap kesejahteraan petani di desa sukaraja. *PENSA*, *3*(1), 14–26.

Hati, A. K., Isnainiah, N., Oktavianingrum, T. P., & Astuti, R. P. (2025). Peran kebijakan moneter dalam pemulihan ekonomi nasional. *Menulis: Jurnal Penelitian Nusantara*, *1*(5), 250–256.

Koto, A. G., Koto, H. A., & Dangkua, T. (2023). Spasial Luas Tanam Padi Sawah Irigasi Berdasarkan Citra Satelit Optis. *JTPG (Jurnal Teknologi Pertanian Gorontalo)*, *8*(2), 63–69.

Lakatara, C., Sirajuddin, Z., & Arsyad, K. (2024). Keragaman adopsi pertanian berkelanjutan untuk mitigasi perubahan iklim di Desa Molintogupo dan Desa Pancuran, Provinsi Gorontalo. *VIABEL: Jurnal Ilmiah Ilmu-Ilmu Pertanian*, *18*(1), 1–12.

Ningsih, A. C., Mardiyanti, S., Amruddin, A., & Natsir, M. (2025). Dinamika Luas Panen dan Harga Komoditas terhadap Nilai Tukar Petani Subsektor Tanaman Pangan di Provinsi Sulawesi Tengah: Analisis Time Series. *SENTRI: Jurnal Riset Ilmiah*, *4*(12), 4035–4042.

Reuter, T., & MacRae, G. (2024). *Petani Kecil Untuk Ketahanan Pangan Global*. Yayasan Pustaka Obor Indonesia.

Romadhon, A. R., Mochklas, M., & Hadi, S. (2023). Dampak Pemberian Kompensasi dan Beban Kerja Terhadap Kinerja Buruh Panen Kelapa Sawit Di Desa Sigenti Selatan. *Improvement: Jurnal Manajemen Dan Bisnis*, *3*(2), 161–169.

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Sabyan, M., & Herlin, F. (2025). Peran Investasi Sektor Pertanian Dan Industri Pengolahan Terhadap Penyerapan Tenaga Kerja Di Masa Ketidakpastian Ekonomi Global Di Indonesia. *Jurnal Dinamika Manajemen*, *13*(4), 183–192.

Shihab, A. (2025). Analisis Pengaruh Neraca Perdagangan Dan Suku Bunga Acuan Terhadap Stabilitas Nilai Tukar Rupiah Di Indonesia. *Jurnal Media Akademik (JMA)*, *3*(11). https://jurnal.mediaakademik.com/index.php/jma/article/view/3199

Siswadharma, A. B., & Burhanuddin, N. F. (2022). *Analisis Subsektor Unggulan Pertanian di Sulawesi Selatan*. *1*(1). http://journal.unhas.ac.id/index.php/jeds/article/view/20588

Siswantoro, A., & Gandhi, E. A. (2025). Dinamika Pertumbuhan Ekonomi, Kepadatan Penduduk, dan Peran Sektor Pertanian dalam Mengentaskan Kemiskinan. *Ecoplan*, *8*(1), 1–15.

Soedarto, T., & Ainiyah, R. K. (2022). *Teknologi Pertanian Menjadi Petani Inovatif 5.0: Transisi Menuju Pertanian Modern*. Uwais Inspirasi Indonesia.

Sugiyono, D. (2022). *Metode penelitian kualitatif*. https://library.stiepemuda.ac.id/index.php/index.php?p=show_detail&id=21&keywords=

Tuzaman, A. A. I., Khoirunnisa, S., & Aviani, R. (2024). Analisis Tren Media Sosial dengan Menerapkan Model Matematika Menggunakan Metode Kualitatif. *Diskusi Panel Nasional Pendidikan Matematika*, *10*. http://proceeding.unindra.ac.id/index.php/DPNPMunindra/article/view/7417

Udi, K., & Rosyadi, R. (2023). Pengaruh pertumbuhan sektor pertanian, jumlah pekerja sektor pertanian dan nilai tukar petani terhadap tingkat kemiskinan perdesaan di Indonesia. *Jurnal Ekonomi Pembangunan*, *12*(1), 42–53.

Wahyudi, W., & Agustian, A. (2025). Kajian Kritis Pengukuran Kesejahteraan Petani Melalui Metode Nilai Tukar Petani dan Indeks Kesejahteraan Petani. *Jurnal Perencanaan Pembangunan Pertanian*, *2*(1), 44–60.

Yusran, Y., Rosada, I., & Haris, A. (2023). Strategi Pengembangan Komoditi Unggulan Pertanian Di Kabupaten Bone Provinsi Sulawesi Selatan. *AGrotekMAS Jurnal Indonesia: Jurnal Ilmu Peranian*, *4*(2), 277–288.

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