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DETERMINANTS OF RICE CONSUMPTION IN SOUTH SULAWESI WITH A PANEL DATA APPROACH

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Abstract

This study aims to analyze the factors that affect rice consumption in South Sulawesi Province using a panel data approach for 2018–2024. The dependent variables used are rice consumption (tons), while the independent variables include per capita income, household size, rice production, human development index (HDI), and percentage of poor population. The analysis was performed with a panel data regression model using R software, with a series of model specification tests including the Chow test, the Hausman test, and the Lagrange Multiplier (LM) test. The best model obtained is the Fixed Effect Model (FEM). Partially, the variables of household size and rice production had a significant negative effect on rice consumption, while HDI had a significant positive effect. The variables of per capita income and poverty level have a negative but not significant effect. These results indicate that rice consumption in South Sulawesi is more influenced by social aspects and quality of life than purely economic factors. These findings affirm the importance of food security policies that focus on improving human development, rice distribution efficiency, and strengthening social protection programs to maintain the stability of household food consumption.

Keywords: *Rice Consumption, Panel Data, Food Security, Human Development*

1. INTRODUCTION

Rice is the main staple food for the majority of the Indonesian population. As the dominant source of carbohydrates, this commodity supplies almost half of the average calorie needs and about 47% of people's daily protein intake. The participation rate of rice consumption in Indonesia is close to 100%, which means that almost all households consume rice. This makes rice very strategic in terms of national, social, and economic food security. The government has long made rice self-sufficiency and price stabilization a priority, considering that fluctuations in rice supply or prices have a wide impact on people's welfare and economic stability (Wardani et al., 2019) (Wardani et al., 2019) (Saliem et al., 2023) . Instability in the rice sector can trigger socio-political turmoil, given that rice accounts for more than 20% of total calorie intake and is the mainstay of food for millions of families

As one of the national rice production centers, South Sulawesi Province contributes greatly to Indonesia's rice supply. South Sulawesi is known as the main rice barn outside Java which accounts for more than 8% of national rice production. The latest data shows that South Sulawesi ranks as the 4th largest rice-producing province in 2023, with the production

of around 4.94 million tons of milled dry grain (equivalent to ±2.84 million tons of rice). (Luthfia, 2024) This contribution is significant considering that national rice production in 2023 is around 30.90 million tons. Rice from South Sulawesi not only meets local needs, but is also supplied to eastern Indonesia such as Kalimantan, Maluku, and Papua. This condition confirms South Sulawesi's strategic role as a support for food security, especially for the Eastern Indonesia region.

Although rice is widely consumed, there are variations in rice consumption between regions and changes in consumption patterns over time**.** Several provinces recorded very high per capita consumption, for example West Nusa Tenggara, West Sulawesi, and Bali, reaching ±110–119 kg/capita/year in 2023. On the other hand, in provinces such as Papua rice consumption is only around 59 kg/capita/year (Agricultural Data and Information Systems Center, 2021) . This difference is influenced by the availability of local food and dietary habits: in Papua and Maluku some of the population traditionally consume sago and tubers, while in Nusa Tenggara there is the consumption of corn as an alternative source of carbohydrates (Wardani et al., 2019) . However, due to various intensive pro-rice policies since the New Order (e.g., food transmigration programs and Raskin), there has been a shift in local food patterns towards rice dominance at all levels of society (Wardani et al., 2019). Temporally, Indonesia's per capita rice consumption shows a downward trend in the last two decades. The average national household rice consumption fell from 102.87 kg/capita/year in 2011 to 93.79 kg/capita/year in 2023, a decrease of around 0.59% per year. This decline is consistent with the diversification of diets as incomes increase and urbanization: the portion of rice in total calories is gradually decreasing. A similar phenomenon occurs in other more developed Asian countries, where per capita consumption of rice has declined significantly as modernization has been. For example, Taiwan has seen a decline in rice consumption by more than two-thirds in the last 50 years due to urbanization, increased incomes, and changing people's food preferences. (Agricultural Data and Information Systems Center, 2021) (Chandran, 2018)

Understanding the factors that determine household rice consumption is crucial both academically and policy-wise. In theory, *Engel's Law* states that the proportion of income spent on food decreases as income increases. Specifically for staple foods, *Bennett's Law* asserts that as incomes rise, consumption patterns shift from carbohydrate foods (such as cereals) to more diverse animal and plant foods. In other words, at very low income levels, additional income tends to increase rice consumption, but after crossing a certain threshold, the increase in income actually reduces dependence on rice as households turn to other sources of nutrition (meat, eggs, vegetables, fruit). (Bennett, 1941) (Mottaleb & Mishra, 2016) Empirical evidence in Asia supports this theory: in many Asian countries rice has become an inferior commodity at high income levels, with the income elasticity of rice consumption ranging from zero to negative (World Bank, 2020) . Cross-border studies in the 1980s showed that rice income elasticity declined and was even negative in most of the 14 Asian countries analyzed. Countries such as Japan, South Korea, and Hong Kong have experienced a 40-60% decline in per capita rice consumption in line with the surge in income since the 1960s. However, in lower-middle-income countries, rice is generally still classified as an inelastic normal item – consumption increases with income but at a slow pace. In Nigeria, for example, the average rice consumption is 78 kg/capita/year and 80% of households consume rice daily. Income elasticity in Nigeria is recorded as positive but <1

(inelastic), indicating that rice is a normal *necessity* whose consumption increases with income but is disproportionate. Meanwhile, Thailand shows a pattern of transition: per capita rice consumption fell from 119 kg (1990) to 101 kg (2002) when the economy grew rapidly, with very low income elasticity (Ogundele, 2013) (Patmasiriwat, 2010) .

In Indonesia, a number of empirical studies have examined the determinants of rice consumption and produced various findings. Economic factors such as income and rice prices clearly play a role, but the direction of their influence can differ between segments of the population. A study of urban households in DKI Jakarta found that per capita income has a positive effect on rice demand per capita income has a positive effect on rice demand (both quantity and quality) Rising income encourages more rice consumption and/or better quality rice in big cities, likely because low-income groups have not previously reached full consumption levels. However, in the national aggregate, the influence of income tends to weaken. An interprovincial panel analysis showed that GDP per capita did not significantly affect rice consumption when other factors were controlled (Windiyarti et al., 2020) (Wardani et al., 2019) . This indicates that on the national average, rice consumption is approaching the saturation point (*saturation*) of additional income no longer increasing the physical consumption of rice. On the other hand, the factor of rice prices and substitution commodity prices consistently affect consumption. An increase in rice prices will reduce consumption (negative rice price elasticity), while alternative food prices (e.g. corn, wheat) affect consumers in replacing some rice consumption. The findings of Malian et al. (2016) underline that the number of population, domestic rice prices, and corn prices are significant determinants of Indonesia's rice consumption, in addition to imports in the previous year. (Leki, 2017)

Socio-demographic factors also play an important role. Household size (number of family members) has a positive correlation with total rice consumption: larger households certainly need more rice in total. Indonesia's 2010-2018 data panel shows the elasticity of rice consumption to the number of households around +1.11 – meaning that a 10% increase in the number of family members increases rice consumption ±11%. However, per capita, large households can have slightly lower consumption due to economies of scale and age composition (e.g. the proportion of children with smaller calorie consumption). Poverty levels and (Wardani et al., 2019) (Lake, 2017) socioeconomic status also determine consumption patterns. Poor households generally allocate a larger portion of expenditure to rice (since rice is the cheapest source of calories). Susenas data shows that the poorest families are highly dependent on rice, so programs such as Raskin/Rastra (Rice for Poor Families) are run by the government to ensure access to rice for vulnerable groups (Mottaleb & Mishra, 2016) . Meanwhile, quality of life indicators (e.g., education, health, urbanization) tend to be inversely related to excessive rice consumption. Nutrition education and a healthy lifestyle can make households switch to a more diverse diet to reduce the dominance of rice. A study in Bangladesh found that more educated and high-income urban households are more likely to reduce their consumption of low-quality rice and switch to high-quality rice or other carbohydrate sources. Similarly, concerns over health and obesity prompted some urban people in Asia to reduce their portions of rice and replace it with high-fiber or protein foods.

Based on the description above, it is clear that household rice consumption is influenced by a complex combination of economic and socio-demographic factors. It is important to pay attention to how factors such as income, family size, poverty, production, and quality of life together determine rice consumption patterns in an area. South Sulawesi as a rice barn area as well as a region with its own socio-economic character, is interesting to study in particular. *This study aims to analyze the determinants of rice consumption in South Sulawesi with a panel data approach*. By analyzing data across time and between regions in this province, the study will identify the influence of factors such as household income, number of family members, poverty level, rice production, and quality of life indicators on rice consumption. The results of the study are expected to make an empirical contribution to food policy formulation, especially in an effort to maintain food security and improve nutrition through a better understanding of rice demand patterns at the household level, both in South Sulawesi and Indonesia in general.

2. RESEARCH METHOD

This research is a quantitative research with a panel data econometric approach. This approach was used to analyze the influence of economic and social variables on household rice consumption in South Sulawesi Province. The panel data was chosen because it was able to capture *cross-section* and *time series* variations simultaneously (Baltagi, 2005; Rahman, 2020)

The following are the variables and operational definitions of the variables used in this study

Table 1 Operational Definition

Variabel	Operational Definition	Symbols	Units
Household Rice Consumption	The amount of rice consumed per district/city per year	Y	Tone
Per Capita Income	Average people's income (purchasing power indicator)	X_1	Rp/soul
Household Size	Population dependency burden figures	X_2	Ratio
Rice Production	Total regional rice production (food availability indicator)	X_3	Tone
Human Development Index	Indicators of people's quality of life	X_4	Table of Contents
Percentage of Poor Poplation	Proportion of poor to total population (P0)	X_5	%

The data used is secondary data with an observation period of 2018–2024, covering 24 districts/cities in South Sulawesi Province. Data sources were obtained from: Central Statistics Agency (BPS) – South Sulawesi publications in Figures, Household Consumption Statistics, and Susenas; Ministry of Agriculture of the Republic of Indonesia – rice and rice production data; National Food Security Agency – food availability indicators; Bappenas – Human Development Index (HDI) data; Central Statistics Agency of the Republic of Indonesia – data on poverty rates and per capita income. The type of data used is *unbalanced panel* data.

The analysis was carried out using a panel data regression model, which can be formulated as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + e_{it}$$

Description:

i = 1, 2, ... n shows districts/cities in South Sulawesi

t = 2018, 2019

t =2018,2019,...,2024 indicates time period

εi = is *error term*

Based on the equation, model estimation can be done through three main approaches used in panel data analysis:

Pooled Least Square (PLS) Model

Assumes that the combined data has the same intercept and slope for all observation units and time.

Fixed Effect Model (FEM)

Assuming differences between regions are captured through different intercepts (αi). This model is appropriate if there are fixed characteristics of each region (e.g. consumption culture or regional policies).

$$Y_{it} = \alpha_1 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + e_{it}$$

Random Effect Model (REM)

Assume the differences between regions are random and fall into the error (ui) component. This model is more efficient if the variation between regions is not correlated with the explanatory variable.

REM model shape:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \mu_{it} + e_{it}$$

To determine the most suitable model to use, the following three panel model specification tests were performed:

Uji Chow (F-Test)

Used to choose between *Common Effect Model* (CEM) and *Fixed Effect Model* (FEM).

H_0: *Pooled Least Square model* is more suitable

H_1: *Fixed Effect models* are more suitable

If the p-value < 0.05 → use FEM.

Uji Lagrange Multiplier (LM Test)

Used to choose between *Common Effect Model* and *Random Effect Model*.
H_0: CEM models are more suitable
H_1: REM models are more suitable
If the p-value < 0.05 → use REM.
(Performed using the Breusch–Pagan LM Test method.)
Hausman Test
Used to choose between *Fixed Effect Model* (FEM) and *Random Effect Model* (REM).
H_0: *Random Effect model* is more suitable
H_1: *Fixed Effect models* are more suitable
If the p-value < 0.05 → the right model is FEM.
Before the interpretation of the regression results, a classical assumption test is performed to ensure the validity of the model:

- Multicollinearity test: is done by looking at the *value of the Variance Inflation Factor* (VIF); if the VIF is < 10 then there is no multicollinearity.
- Heteroscedasticity test: performed by Breusch–Pagan test; If the p-value > 0.05 then the model is heteroscedasticity-free.

The entire analysis was performed using R software (latest version) with packages: plm for panel data analysis, lmtest for LM test, car for multicollinearity test (VIF), and bptest for heteroscedasticity test. The selection of R as an analysis tool is based on its reliability in the estimation of the panel model as well as the flexibility of visualizing the results.

3. RESULTS AND DISCUSSION

3.1 Results

Statistics Descriptive

Table 2 Descriptive Statistics

Variabel	Red	Minimum	Maximum	Units
Rice Consumption (Y)	41,792.00	4,295.00	70,909.00	Tone
Per Capita Income (X_1)	2,727.00	5,075.00	65,954.00	Thousands/rupiah
Household Size (X_2)	6.09	9.80	60.45	Presses
Rice Production (X_3)	22,296.00	6.50	88,730.40	Tone
Human Development Index (X_4)	71.08	63.33	83.90	Table of Contents
Poor Population (X_5)	9.35	4.28	15.48	Presses

Source: data processed from BPS, Year 2025

Table 1 shows the basic characteristics of the variables used in the analysis of rice consumption in South Sulawesi Province during the period 2018–2024. The household rice consumption variable (Y) has an average value of 41,792 tons with a range of 4,295 tons to 70,909 tons, indicating that there is a considerable difference in consumption levels between regions in the province. This reflects the variation in the needs and consumption capacity of staple foods influenced by demographic, economic, and distribution factors in rice production.

The variable income per capita (X_1) has an average of 2,727 thousand rupiah, with a minimum value of 5,075 thousand rupiah and a maximum of 65,954 thousand rupiah. This fairly wide variation illustrates income inequality between districts/cities, which can have implications for food consumption patterns and people's purchasing power. Furthermore, the household size (X_2) proxied through the dependency burden figure showed an average value of 6.09 percent, with a range between 9.80 percent to 60.45 percent. This high variation illustrates the heterogeneity of regional demographic structures that have the potential to affect the per capita rice consumption rate.

Rice production (X_3) has an average of 22,296 tons, with a range ranging from 6.50 tons to 88,730.40 tons, reflecting a significant difference in production capacity between regions. Production center districts such as Bone, Wajo, and Sidrap tend to show values close to the maximum, while urban and coastal areas show lower values. The Human Development Index (X_4) variable has an average value of 71.08, with a range of 63.33 to 83.90, indicating that most areas are in the medium to high human development category.

Meanwhile, the percentage of poor people (X_5) has an average value of 9.35 percent, with a minimum value of 4.28 percent and a maximum of 15.48 percent. This variation illustrates the unequal level of welfare between regions, which has the potential to affect the stability of household rice consumption, especially in vulnerable groups. Overall, these descriptive statistics show that there is substantive heterogeneity between regions in South Sulawesi, both from social, economic, and demographic aspects, which supports the use of panel data models to identify determinants of rice consumption more accurately.

Panel Model Selection Test Results

Panel data analysis was carried out using R software, with plm, lmtest, and car packages. Three model tests were performed to determine the best model:

Table 3 Model Selection Test

Test Type	Tested Models	Statistical Value	Probability	Selected Models
Chow Test	CEM vs FEM	F = 1325.8	2.20E-16	FEM
Hausman Test	FEM vs REM	x^2 = 58.283	2.75E-11	FEM
Uji LM (Breusch–Pagan)	CEM vs REM	x^2 = 422.43	2.20E-16	REM

Source: Output R Studio, Year 2025

The results showed that *the Fixed Effect Model* (FEM) model was the most suitable model, as the results of the Chow Test and Hausman Test were significant ($p < 0.05$). Thus, the next analysis uses the FEM model.

Classical Assumption Test Results

Before interpreting the estimation results, the panel regression model is tested against classical assumptions to ensure the validity and reliability of parameter estimation. The multicollinearity test was carried out using the Variance Inflation Factor (VIF) value in the *Ordinary Least Squares* (OLS) model. The test results showed that all independent variables had a VIF value below 10, so it can be concluded that there was no serious multicollinearity between the explanatory variables in the model. This indicates that each independent variable has the ability to explain the variation in rice consumption independently and that there is no excessive linear correlation.

Furthermore, the heteroscedasticity test was carried out using the Breusch–Pagan Test (BP Test). The test results showed a BP value of 57.496 with a p-value of 3.996×10^{-11}, which means it is smaller than the significance level of 0.05. Thus, it can be concluded that there is an indication of heteroscedasticity in the model. This condition implies an inhomogeneity of error variance between observation units, which has the potential to cause standard error values to be biased when using the conventional OLS approach.

To overcome this, a reestimation was carried out using *robust standard errors* (*White–Huber heteroskedasticity-consistent covariance matrix*) through the vcovHC() function on the plm package in the R software. and the Human Development Index (X_4) which remains statistically significant. Thus, it can be concluded that the panel regression model used has met the BLUE (*Best Linear Unbiased Estimator*) assumption after heteroscedasticity correction, so that the estimation results can be interpreted econometrically.

3.2 Discussion

Table 4 Estimated Results of Rice Consumption

Variabel	Estimate	Std. Error	t-Statistics	Prob.
Income per Capita (X_1)	-0.0602	0.0508	-1.1838	0.23851
Household Size (X_2)	-0.0034	0.0016	-2.1683	0.03184 *
Rice Production (X_3)	-0.0153	0.0069	-2.2264	0.02760 *
Human Development Index (X_4)	0.0402	0.0067	5.9759	1.825e-08 ***

Percentage of Poor Population (X_5)	-0.0021	0.0073	-0.2918	0.77087
$R^2 = 0.639$	Adj $R^2 = 0.566$	F-statistic = 49.151 (p = 0.000)		

Source: Output R Studio, Year 2025
Catatan: *p<0.1; **p<0.05; ***p<0.01

Per Capita Income (X_1)

The per capita income coefficient is negative (-0.0602) and not statistically significant at the 95% confidence level. This shows that the increase in people's income is not necessarily followed by an increase in rice consumption. This finding is in line with Engel's Law (Engel, 1857), which states that the proportion of expenditure on food needs, especially staples such as rice, decreases as incomes increase. In the context of the modern economy, this phenomenon is known as the *Engel Curve effect*, where the consumption of staple foods is income inelastic or has low income elasticity.

This condition is also in line with Bennett's hypothesis which explains that people with higher incomes will experience a dietary transition moving from the consumption of basic carbohydrates such as rice to processed foods, animal proteins, and value-added products. In South Sulawesi, the increase in household income in urban areas is often followed by the diversification of consumption towards instant noodles, bread, and fast food (BPS, 2024). (Bennett, 1941)

The negative influence of per capita income on rice consumption is due to the increase in income does not make the people of South Sulawesi consume rice excessively, because there are still many other expenses that can be used by the community to meet other needs. In theory, Duessenberry states that the percentage of consumption and income will tend to be small when the economy is good, and tends to be high when the economy is bad. When there is a change in income, consumption does not immediately increase, because there is a smaller influence of consumption in the past period. And conversely, when income falls, consumption will not drop sharply because we are used to living happily. (Turvey & Duesenberry, 1950)

Empirically, these results are consistent with studies in Bangladesh and in Riau, which found that rice is a Mottaleb & Mishra (2016) (Partini., Tarumun, S., & Tety, 2014) *necessity good* with income elasticity < 1. In line (Tina Fitriani & Partini Partini, 2019) with income, it is not significant to rice consumption. In contrast to Jakarta, per capita income has a positive and significant effect on rice demand. Windiyarti et al., (2020) Therefore, the policy of improving people's welfare does not directly have an impact on the surge in rice consumption, but rather on diversifying household food patterns.

Household Size (X_2)

The household size has a negative coefficient (-0.0034) and is significant at the level of 5%, indicating that the greater the number of dependents in the household, the lower the per capita rice consumption. Economically, this is explained by the concept *of economies*

of scale in consumption, where large households can divide resources more efficiently (Deaton & Paxson, 1998) .

In a social context, large households in rural areas of South Sulawesi usually have more frugal consumption patterns per individual, as most family members contribute to their own food production or replace some of their rice consumption with alternative carbohydrate sources (corn, cassava, or sago).

Research in Sub-Saharan Africa, in Nigeria showed a similar negative relationship, where an increase in the number of family members decreased per capita consumption of staple foods. It is different from the findings of Herdiansyah (2016) that the number of people has a positive and significant effect on the demand for rice. Thus, these results confirm that food security policies need to pay attention to the demographic structure and distribution of household members in determining rice needs per region. Teklu (1996) Ogundari, (2015) (Tina Fitriani & Partini Partini, 2019)

Rice Production (X_3)

The rice production coefficient is negative (-0.0153) and significant at the level of 5%, which shows an inverse relationship between regional rice production and market rice consumption. This seems paradoxical, but it can be explained through the *household production-consumption model* (Becker, 1965) . For farmer households in rural areas, most of the crops are *self-consumed* without being recorded in the market consumption statistics. The higher the local production, the smaller the volume of rice purchases in the market, so that rice consumption is recorded to decrease. This illustrates the characteristics of South Sulawesi's agricultural economy, where more than 45% of households are still classified as subsistence food producers (BPS South Sulawesi, 2023). These findings support research in Northern Thailand and also find negative patterns between commercial rice production and consumption. Thus, increasing rice production does not necessarily increase market consumption, but rather strengthens independent food security at the producer household level. Limnirankul et al., (2015)

Human Development Index (X_4)

The HDI variable showed a positive coefficient (0.0402) and very significant ($p < 0.001$), indicating that improving people's quality of life had a positive effect on rice consumption. HDI as an indicator of aggregate well-being includes the dimensions of education, health, and purchasing power; These three play an important role in determining preferences and better access to food consumption. Theoretically, this relationship can be explained by *the Human Development Approach* (Mon, 1999) framework, which emphasizes that increasing human capabilities allows individuals to choose more viable and stable consumption. The increase in HDI also strengthens the purchasing power capacity and nutritional awareness of households, thereby maintaining the stability of rice consumption as a national staple food.

These results are consistent with studies by Chandio et al. (2020) in Pakistan and Nasrudin et al. (2022) in Indonesia, which showed that increased human development increases the consumption of nutritious foods, including rice. In the context of regional policies, these results affirm the importance of human development as a pillar of sustainable food security in South Sulawesi.

Percentage of Poor Population (X_5)

The poverty variable had a negative coefficient (-0.0021) and was insignificant (p = 0.7708). The direction of the negative relationship is in accordance with the welfare economic theory that increasing poverty decreases the ability of household food consumption. However, the insignificance of the effect suggests that the government's social interventions have suppressed the direct impact of poverty on rice consumption.

Programs such as the Non-Cash Food Assistance (BPNT), the Family Hope Program (PKH), and Rastra have been proven to be effective in maintaining rice consumption in poor households, as shown in research (Laurentcia & Yusran, 2021) . This shows that although poverty rates are still high in some districts, social protection mechanisms have helped to maintain the stability of basic rice consumption, so that the poverty variable is no longer a direct determinant of food consumption.

The results of the general estimate show that household rice consumption in South Sulawesi is influenced by a combination of economic and non-economic factors. Non-economic factors such as quality of life (HDI) and household structure have been shown to have a stronger influence than classical economic variables such as income. This confirms that the approach to food security does not focus enough on increasing income, but must be balanced with human development and social protection.

In addition, the negative relationship between rice production and consumption implies the importance of distinguishing between market consumption and subsistence consumption in the analysis of regional food data. Thus, regional food policies need to emphasize the integration between production, distribution, and household consumption in order to achieve sustainable and equitable food security in South Sulawesi.

4. CONCLUSION

This study analyzes the factors that affect household rice consumption in South Sulawesi Province using a panel data approach for 2018–2024. The results used fixed effect model estimation. Partially, per capita income has a negative and insignificant effect, indicating that the increase in income does not increase rice consumption in line with Engel's Law. Household size and rice production have a significant negative effect, showing the efficiency of consumption in large families and the phenomenon of self-consumption in farmer households. Meanwhile, the Human Development Index (HDI) has a positive and significant effect, confirming that improving the quality of life strengthens household food security. The poverty variable had a negative but insignificant effect, showing the effectiveness of social assistance programs in maintaining food consumption for vulnerable groups.

These findings confirm that rice consumption in South Sulawesi is more influenced by social factors and quality of life than traditional economic variables. Thus, food security policies need to be directed at improving human development, diversifying food consumption, and social protection for poor households. Local governments are advised to strengthen policy integration between agencies, especially the Food Security, Agriculture, and Social Services in supporting rice distribution, nutrition education, and panel-based food information systems.

Strategically, the results of this study support a sustainable food security approach that places increasing HDI and social equity as the main foundation. Improving human quality and distribution system efficiency will ensure equitable access to food, stability of rice consumption, and household food independence in South Sulawesi Province.

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