International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426

The Impact of Rice Field Size and Rice Price on Farmers Welfare in Indonesia

Made Kembar Sri Budhi[1], I Nyoman Mahaendra Yasa[2]

[1, 2]Udayana University, Faculty of Economics and Business, Jalan P.B. Sudirman, Denpasar 80112, Indonesia

Abstract: ***Rice is a basic need of people in Indonesia. The rapid development of tourism and industry resulted in the conversion of agricultural land, even though land is the main requirement for farming. Indonesia's rice policy has so far been less pro-farmer, because the government has always prioritized that rice stocks and prices are affordable for the community as consumers of rice. Whereas Indonesia is also an agrarian country, where the number of residents involved in agricultural activities is very large, although the contribution of the agricultural sector is not very significant. Therefore, it is important to conduct a study on the welfare of farmers, in this case in Farmers Term of Trade of Food Crops (FTT-FC) to be used as study material in realizing agricultural sustainability and national food security. The purpose of this study was to find out the impact of rice fields size and rice prices on the FTT of food crop (as a proxy of paddy farmers welfare) in Indonesia. This study uses panel data in all provinces in Indonesia over a period of five years. Data were analyzed with multiple regression techniques with eviews application. The results showed that the area of paddy fields had a positive but not significant effect on the FTT of food crop. But on the contrary the price of rice turned out to have a negative and significant effect on the FTT of food crop in Indonesia. This shows that the retail price of rice does not directly affect the welfare of farmers, so it is necessary to do further research on the supply chain of off-farm products (dry grain harvest) on the welfare of farmers.***

Keywords: agricultural policy, Farmers Terms of Trade-Food Crop (FTT-FC), rice price, size of rice field**.**

1. Introduction

The agricultural sector has an important role in the Indonesian economy. In addition, the agricultural sector also plays a role in national development in order to achieve a sustainable economy [1]. The role of agriculture as follows: (1) as a provider of food needed by the community to meet food needs; (2) providers of industrial raw materials; (3) as a potential market for products produced by industry; (4) as a source of labor and capital formation; (5) sources of foreign exchange earnings; (6) reducing poverty; and (7) contributing to rural development and environmental preservation [2]. Although agriculture has a small contribution to the Indonesian economy, agriculture is a strategic sector to improve the Indonesian economy and largely determines the people's food welfare [3].

Food security is very important for a country's conductivity [4], moreover the Indonesian economy is strongly influenced by the availability of rice as primary needs and main foodstuffs [5]. Therefore it is very important for all countries to develop and maintain the sustainability of the agricultural sector.

Indonesia is a developing country, where industrialization is also happening fast. The development of the tourism sector and industry on a large scale also has an impact on the conversion of agricultural land, especially rice fields. Because of the decrease in paddy fields, the government is trying to develop agricultural intensification. National rice production tends to decrease along with the deteriosation and decrease in soil fertility due to continuous intensification [6].

As we know, land is a main requirement in farming. In accordance with the existing theory that the greater the area of land, the greater the productivity produced [7]. Land is one of the factors of production, a place where agricultural products are produced which have a significant contribution to farming, because many of the results of production from farming are greatly influenced by the breadth of land used [8].

Rice is indeed the main food need of people in Indonesia, so it is the spearhead of national food security. Thus, the interests of food security as well as economic and population interests are no longer just economic and trade issues, but instead become a political economic area because of the strategic aspects of various fields that demand the role of government proportionally and effectively [9].

The price of rice continues to increase from year to year. This is partly due to the issue circulating about the implementation of rice import policies [10]. For fear of low domestic rice production, the price of local rice is increasing. Basically, rice imports can harm the fate of farmers. But if the government does not import rice, maybe more Indonesians will have difficulty with the high price of rice. The community wants affordable (cheap) rice prices, but this is not in line with the hopes of farmers whose fate continues to plummet. Farmers certainly want a higher price (of grain). Rice price policy is often a dilemma for the government.

According to the World Bank, the high price of rice is one of the causes of the increase in the number of poor people [10]. This reason is one of the weapons for the government to import rice. This condition puts the government in two choices, sacrificing petunia or rice consumers. During this time the government more often sacrificed farmers, and defended the interests of rice consumers by opening a rice import tap to suppress prices.

As an agrarian country, the number of people involved in agriculture/agribusiness activities is very large, so attention to the welfare of farmers is considered to be very strategic.

In the long-term national development plan, improving the welfare of farmers has been and will be the priority of future agricultural development. One indicator/measuring instrument used to assess the level of welfare of farmers is Farmers Term of Trade (FTT). In-depth knowledge of farmer exchange rate behavior, development impacts and identification of exchange rate determinants will be very useful for development policy planning, improvement of development programs going forward. Correspondingly, a study of FTT as material in formulating policies to improve farmers' welfare [11].

2. Literature Survey

2.1 Rice Policy in Indonesia

The role of government in food marketing between countries is generally different. This is adjusted to the existence of differences in interests and goals in handling the domestic food market. When viewed from the intensity of the government's role in food marketing. A number of forms that were quite extreme with direct involvement in operations, such as in the African countries of the 1960s, but some were limited to the form of fostering and creating a climate that encouraged the creation of healthy food marketing [12].

The level of government interference in rice can change at any time according to economic, labor, environmental, social, cultural, and political conditions. But giving up all government interference in national rice has never been done because of the enormous risk. Partially, various changes in policy instruments have been made by the government, but the basic objectives of the national rice policy have never changed, namely maintaining the continuity of domestic rice production, protecting rice farmers, and maintaining sufficient rice for the people so that they get easy access economically and physically in a sustainable manner.

Government policies can also cause asymmetric price transmissions that occur between marketing levels [13]. Price changes at the farmer's level which are relatively frequent basically will cause uncertainty for intermediary traders in determining the selling price, considering that prices at the farm level are input costs for intermediary traders [14]. If the change in input costs is temporary, there is no incentive for intermediary traders to make price adjustments.

Every government in almost all countries has a price intervention policy (in the form of floor prices) to protect farmers in the event of a price decline at the farm level. Conversely, if there is an increase in prices at the farm level, the government will not intervene in prices. This policy can indeed reduce the uncertainty of changes in costs faced by intermediary traders, but on the other hand it actually results in the transmission of prices from the farmer level to the consumer level being asymmetrical. This happens because at the time the price increase at the farm level, traders assume that the change is permanent, because there will be no government intervention. Furthermore, traders immediately adjust the selling price of products according to prices at the farm level. Conversely, if there is a price decline, the trader considers it to be temporary because the government will immediately intervene, so the trader will not quickly adjust the selling price. Eventually a positive asymmetrical price transmission occurs [15].

2.2 FTT as Farmers Welfare Indicator

An important element used as an indicator of farmers' welfare is the amount of income and its balance with expenditure. In this connection, one of the measurement tools that is often used is the farmer term of trade (FTT). FTT calculation is obtained from the comparison of the price index received by farmers against the price index paid by farmers. Farmer exchange rates describe the level of exchange power/purchasing power of farmers against products purchased/paid by farmers that include consumption and production inputs purchased. The higher the exchange rate of farmers, the better the purchasing power of farmers against consumption products and production inputs, and means relatively more prosperous.

Unique welfare markers for farm households are practically non-existent, so FTT is the only choice for observers of agricultural development in assessing farmers' welfare levels [16]. Thus, FTT is an indicator of the relative level of welfare of farmers. The higher the FTT, the relatively more prosperous the level of life of farmers [17] [18] [19] [20].

The FTT concept developed by Statistics Central Bureau of Indonesia is identical to the concept of the parity ratio developed in the United States in the 1930s [21]. The concept is still used and dynamically carried out several modifications in accordance with the relative changes in its constituent commodities.

General balance theory shows that FTT can be used as a measure of farmers' welfare level [22]. Conceptually the direction of the FTT (increase or decrease) is the resultant of the direction of each of its constituent components, namely the revenue component that has a positive direction on the welfare of farmers and the payment component which has a negative direction on welfare. If the rate of revenue component is higher than the rate of payment, the farmer exchange rate will increase, and vice versa. Movement up or down of FTT illustrates the rise and fall of the level of farmers welfare.

3. Problem Definition

Given the vulnerability of farmers' welfare issues in FTT food crop, it is very important to study the factors that influence it. This research will focus on the impact of rice fields and rice prices on the FTT of food crops, because these two factors are strategic issues that need to be considered at this time in Indonesia. The purpose of this study was to find out the impact of rice fields size and rice prices on the FTT of food crop (as a proxy of paddy farmers welfare) in Indonesia.

4. Method

This research is an associative type of research, namely research that connects between variables, in this case the area of paddy fields, the price of rice, and the FTT of food crops. This study uses secondary data types, namely panel data. Panel data is a combination of time series data and cross section data, namely data for the last five years in each province in Indonesia.

The data analysis method used in this study is regression analysis. Regression using panel data is called the panel data regression model. There are several benefits obtained by using panel data. First, panel data is a combination of time series data and cross section data capable of providing more data so that it will produce a greater degree of freedom. Second, combining information from time series data and cross sections can overcome problems that arise when there are ommited-variables.

Panel data is a combination of cross section data and time series data, the model in this study can be written as follows:

$$FTTit = \beta 0 + \beta 1\ RFit + \beta 2\ RPit + eit \qquad (1)$$

Where:
FTT : Food Trade of Term (Food Crop);
RF : Size of Rice Field;
RP : Rice Price;
e : error term;
i : object (province);
t : time (year).

5. Results and Discussion

5.1 Results of Panel Data Regression

5.1.1 Ordinary Least Square (OLS)

The results of panel data regression testing with the Ordinary Least Square model will be explained in Table 1.

Table 1: Estimation Output of Ordinary Least Square

Dependent Variable: FTT-FC Method: Panel Least Squares Sample: 2013 2017 Periods included: 5 Cross-sections included: 32 Total panel (balanced) observations: 160				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	163.6913	9.377581	17.45560	0.0000
RICEFIELD	4.35E-06	4.38E-06	0.992744	0.3224
RICEPRICE	-0.005011	0.000923	-5.430601	0.0000
R-squared	0.203447	Mean dependent var		116.8398
Adjusted R-squared	0.193299	S. D. dependent var		16.66951
S.E. of regression	14.97197	Akaike info criterion		8.268809
Sum squared resid	35193.12	Schwarz criterion		8.326469
Log likelihood	-658.5047	Hannan-Quinn criter.		8.292223
F-statistic	20.04958	Durbin-Watson stat		1.908648
Prob(F-statistic)	0.000000			

Based on the panel data regression results in Table 1 it is known that the coefficient of determination shown by the adjusted R-squares value is 19.32%. The coefficient of determination with the OLS model is not very good. In addition, the test results also showed that the Durbin-Watson stat value was also quite good at 1.908.

3.1.1Fixed Effect Model

Panel data regression test results with the Fixed Effect Model will be explained in the following Table 2.

Table 2: Estimation Output of Fixed Effect Model

Dependent Variable: FTT-FC Method: Panel Least Squares Sample: 2013 2017 Periods included: 5 Cross-sections included: 32 Total panel (balanced) observations: 160				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	186.8814	41.81748	4.468979	0.0000
RICEFIELD	5.57E-05	0.000159	0.350749	0.7264
RICEPRICE	-0.008796	0.001377	-6.386456	0.0000
R-squared	0.375288	Mean dependent var		116.8398
Adjusted R-squared	0.211673	S. D. dependent var		16.66951
S.E. of regression	14.80049	Akaike info criterion		8.413305
Sum squared resid	27600.85	Schwarz criterion		9.066780
Log likelihood	-639.0644	Hannan-Quinn criter.		8.678659
F-statistic	2.293728	Durbin-Watson stat		2.397552
Prob(F-statistic)	0.000539			

Based on the panel data regression results in Table 2, it is known that the coefficient of determination shown by the adjusted R-squared value is 21.16%. The coefficient of determination with the fixed effect model is considered sufficient. The Durbin-Watson stat test results also showed a pretty good value of 2.339.

5.1.2Random Effect Model

The results of panel data regression testing with the Random Effect Model will be explained in Table 3.

Table 3: Estimation Output of Random Effect Model

Dependent Variable: FTT-FC Method: Panel EGLS (Cross-section random effects) Sample: 2013 2017 Periods included: 5 Cross-sections included: 32 Total panel (balanced) observations: 160 Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	163.6913	9.270171	17.65785	0.0000
RICEFIELD	4.35E-06	4.33E-06	1.004246	0.3168
RICEPRICE	-0.005011	0.000912	-5.493523	0.0000
	Effects Spesification		S.D.	Rho
Cross-section random			0.000000	0.0000
Idiosyncratic random			14.80049	1.0000
	Weighted Statistics			
R-squared	0.203447	Mean dependent var		116.8398
Adjusted R-squared	0.193299	S. D. dependent var		16.66951
S.E. of regression	14.97197	Sum squared resid		35193.12
F-statistic	20.04958	Durbin-Watson stat		1.908648
Prob(F-statistic)	0.000000			
	Unweighted Statistics			
R-squared	0.203447	Mean dependent var		116.8398
Sum squared resid	35193.12	Durbin-Watson stat		1.908648

Based on the results of panel data regression in Table III it is known that the coefficient of determination shown by the adjusted R-Squared value is 19.32%. The coefficient of determination with the random effect model is considered sufficient. In addition, the test results showed a sufficient Durbin-Watson stat value of 1.908. The results of panel data regression using the random effect model also show the individual influence of the cross section (province) data on the constants of this research model.

5.2 Determination of Analysis Model

5.2.2Likelihood Ratio Test (Chow Test)

Likelihood Ratio Test is conducted to determine whether the model will be analyzed using the pooled least square or fixed effect method. This test is carried out by the F-stat test procedure with a hypothesis.

H0: Model Pooled Least Square (restricted)

H1: Model Fixed Effect (unrestricted)

The results of the Likelihood Ratio Test are presented in Table 4.

Table 4: Output of Likelihood Ratio Test

Redundant Fixed Effects Tests Equation: Untitled Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.118041	(31.126)	0.3250
Cross-section Chi-square	38.880610	31	0.1563

From the results of processed Eviews 10, it is known that the p-value is 0.3250. With a p-value greater than α (0.05), the conclusion from the Likelihood Ratio Test results is accepting H0, so the better model used in this study is not the Fixed Effect Model (FEM).

5.2.3Hausman Test

The Hausman Test is used to choose the best approach between the Fixed Effect Model and the Random Effect Model. This test follows the chi-square distribution with a hypothesis:

H0: Model Random Effect

H1: Model Fixed Effect (unrestricted)

The results of the Hausman Test are as follows:

Table 5: Output of Hausman Test

Correlated Random Effects-Hausman Test Equation: Untitled Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	13.456772	2	0.0012

In processing using Eviews 10 software, known p-value = 0.0012. With a p-value greater than α (0.05), the conclusion of the Likelihood Ratio Test results is accepting H0, so the better model used in this study is the Random Effec Model (REM).

5.2.4Analysis the Result of Random Effect Estimation

Random effect estimation gets the results of the influence of land area variables and rice retail price on the welfare of farmers (FTT of food crops) in the form of equations:

$$FTTit=163.6913+0.00000435RFit–0.005011RPit+\varepsilon it \quad (2)$$

So that when described in the table it looks as follows.

Table 6: Summary of Random Effect Model Estimation Results

Variable	Coefficient	Std. Error	t. statistic	Prob.
Constanta	163.6913	9.270171	17.65785	0.0000
Size of Rice Field Area	0,00000435	0,00000433	1.004246	0.3168
Rice Price	-0.005011	0.000912	-5.493523	0.0000
R^2	0,203447			
Adjusted R^2	0,193299			
F. statistic	20,04958			

5.2.5Overall Regression Equation Test (F Test)

The F test basically shows whether all independent variables or independent variables entered in the model have a joint influence on the dependent variable. This test can be done by comparing the probability value with a size of 5% or 1%. If the probability shown is> 5%, then the model is rejected, whereas if <5%, then the model is accepted.

The test results using the Fixed Effect Model show an F-Statistical value of 20.04958 and a probability value (F-statistic) of 0.000000. By looking at the comparison of probability values (F-statistics) that are smaller than the value of α = 0.05, it can be concluded that simultaneously all independent variables have a significant influence on the dependent variable. In other words, the area of paddy fields and the retail price of rice simultaneously have a significant effect on the welfare of farmers in Indonesia, which is proxy through the FTT of food crops.

5.2.6Coefficient of Determination (R^2)

The coefficient of determination is denoted by R^2. This coefficient is a measure that informs whether or not the estimated regression model. Or in other words, that number can measure how close the estimated regression line to the actual data. However, many studies recommend using the Adjusted R^2 value because unlike R^2, the Adjusted R^2 value can go up or down if an independent variable is added to the model.

The test results using the Random Effect Model produce an adjusted R^2 value of 0.193299 (19.33%). This shows that the area of paddy fields and the retail price of rice have an effect of 19.33% on the welfare of farmers (FTT of food crops) in Indonesia, while the remaining 80.67% is influenced by variables or other factors outside the study.

5.2.7Partial Test (t Test)

Partial statistical analysis is used to see the significance of each independent variable individually in explaining the dependent variable to the model using the t test, where the null hypothesis (H0: $\beta = 0$) means the coefficient value is equal to zero, while the alternative hypothesis (H1: $\beta \neq 0$) means the coefficient value is different from zero. This significance can be directly seen from the magnitude of the

probability number. If the p-value (t-stat) is smaller than (α = 5% or 0.05) then the independent variable significantly influences the dependent variable or rejects H0. In addition to testing the significance with the p-value (t-stat) with α of 5%, a direction test on the coefficient value is also carried out.

The results of regression testing on this research model partially for each independent variable can be interpreted as follows:

(a) The constant value is 163.6913. This means that if the area of paddy fields and the retail price of rice is fixed or not experiencing an increase or decrease (the value is zero), then the FTT of food crops is equal to a constant value of 163.6913.
(b) Rice field coefficient value of 0.00000435. This implies that for every one percent increase in paddy land area, the FTT variable of food crops will increase by 0.00000435% assuming that the variable retail price of rice is fixed.
(c) The coefficient value of the retail price of rice is -0.005011. This implies that for every one percent increase in retail price of rice, the FTT variable of food crops will decrease by 0.005011% assuming that the variable area of paddy fields is fixed.

5.3 Discussion

Based on the results of data analysis, it is known that the area of paddy fields has a positive but not significant effect on the FTT of food crops in Indonesia. This shows that the more extensive paddy fields will have a positive influence on the FTT of food crops, although not significantly. Some of the results of previous studies also mentioned that the area of paddy fields had a positive effect on the welfare of rice farmers proxied by FTT. A research on the influence of land area, production, food security and grain prices on the welfare of rice farmers in Pasuruan Regency, finding that land area significantly affected the welfare of rice farmers (FTT) and showed a positive relationship [3]. This finding is in line with the criteria used that land area is one of the main factors in increasing rice production which in turn can also improve the welfare of rice farmers [3]. But now the role is decreasing due to the shrinking of agricultural land, land transformation has an impact on changes in the level of welfare of farmers who also declined. Research about the factors that affect the FTT of lowland rice, with a case study in Karang Gading Village, Secanggang sub-district, Langkat Regency, found that land area has a positive and significant effect on FTT [23].

The results of the data analysis show that the retail price of rice has a negative and significant effect on the FTT of food crops in Indonesia. This means that an increase in the retail price of rice is actually followed by a decrease in the FTT of food crops in Indonesia. As explained earlier that FTT is the ratio between the price received and the price paid by farmers. The price received by farmers is the price of grain sold by farmers as a result of their production. However, when analyzed using the retail price of rice, it had a negative impact on the farmers' FTT. The findings of this study are very interesting to study further related to the causes of food crops unconformity with the retail price of rice.

Rice is the main food commodity in Indonesia, where fluctuations in rice prices will certainly affect the prices of other needs. This is what causes an increase in rice prices can trigger an increase in prices paid by farmers (farmers' consumption) thereby reducing the value of FTT. Another cause is that there are still farmers who sell their crops with the bonded system, namely selling their crops not in the form of grain, but before the rice harvest has been sold to other parties, which is due to limited harvest ability or urgent farmers' needs.

Efforts to improve farmers' welfare through price policies and other market incentives will be effective if farmers are directly related to the market so that they can catch the incentives. The relation of farmers to the market is important for various farmers' decisions in determining the way of farming [23]. Farmers in developing countries are often inseparable from competitive markets because of the share of farm products consumed (subsistence motives) as well as sales practices with less transparent traders, for example through slash systems or other non-market mechanisms [24].

In the era of the implementation of regional autonomy, which must be avoided is the emergence of policies that impose various levies and levies on the traffic flow of agricultural products that can cause obstacles and inefficiencies [23]. It is necessary to think about the formation of a national food reserve system which is a network of inter-regional (and inter-season) food stocks that can be easily mobilized for market operations in the event of a food shortage in a place. This is better than importing, considering that based on the calculation of the availability of national rice per year, in fact there are still sufficient amounts of food reserves to be traded on the domestic market.

6. Conclusion

Based on the results of research and discussion, it can be concluded as follows that the size of rice fields has a positive but not significant effect on the farmers welfare in Indonesia, which in this case is proxied by the Farmers Term of Trade (FTT) of food crop. The price of rice has a negative and significant effect on the exchange rate of food crop farmers in Indonesia. This is due to changes in rice prices will trigger changes in prices that must be paid (consumption) farmers. Where the results of previous studies indicate that the grain and rice trade system in Indonesia is not yet efficient, so the price of rice is not directly based on its effect by farmers.

7. Future Scope

The things that are recommended as a follow-up to the research results are as follows: (1) The government needs to develop various agricultural innovations, especially through intensification efforts, given that extensification efforts with expansion of agricultural land turned out to have insignificant effects; (2) To improve the welfare of farmers, it should be done through a policy mechanism that can be

directly enjoyed by farmers and their families without intervening in the market mechanism; (3) Further research needs to be done on the supply chain of off-farm products (dry unhusked rice) on the welfare of farmers. Given that the retail price of rice has a negative impact on the exchange rate of food crop farmers, the follow-up study is very important to know the root of the problem and alternative solutions that can answer the problem of why fluctuations in rice retail prices are not in line with fluctuations in farmers' welfare.

References

[1] V. A. Singgih, W. Sudirman, "Pengaruh Produksi, Jumlah Penduduk, PDB dan Kurs Dolar Terhadap Impor Jagung di Indonesia," E-Jurnal Ekonomi Pembangunan Universitan Udayana, 4(2), pp. 71-79, 2015.

[2] P. D. Arimbawa, A. A. B. P. Widanta, "Pegaruh Luas Lahan, Teknologi, dan Pelatihan Terhadap Pendapatan Petani Padi Dengan Produktivitas Sebagai Variabel Intervening di Kecamatan Mengwi," E-Jurnal Ekonomi Pembangunan Universitan Udayana, 6(8), pp.1601-1627, 2017.

[3] M. K. Dewi, I K. Sutrisna, "Pengaruh Tingkat Produksi, Harga Dan Konsumsi Terhadap Impor Bawang Merah di Indonesia," E-Jurnal Ekonomi Pembangunan Universitan Udayana, 5(1), pp. 117-137, 2016.

[4] M. Wahed, "Pengaruh Luas Lahan , Produksi, Ketahanan Pangan dan Harga Gabah Terhadap Kesejahteraan Petani Padi di Kabupaten Pasuruan," E-Jurnal Ekonomi Bisnis, Universitas Brawijaya Malang, 7(1), pp. 68-74, 2015.

[5] R. Zaeroni, D. Rustariyuni, "Pengaruh Produksi Beras, Konsumsi Dan Cadangan Devisa Terhadap Impor Beras di Indonesia," E-Jurnal Ekonomi Pembangunan Universitan Udayana, 5(9), pp. 993-1010, 2016.

[6] R. Asnawi, 2014. "Peningkatan Produktivitas dan Pendapatan Petani Melalui Penerapan Model Pengelolaan Tanaman Terpadu Padi Sawah di Kabupaten Pesawaran Lampung," Jurnal Penelitian Pertanian Terapan, 14(1), pp. 44-52, 2015.

[7] P. Ambarita, N. Kartika, "Pengaruh Luas Lahan, Penggunaan Pestisida, Tenaga Kerja, Pupuk Terhadap Produksi Kopi di Kecamatan Pekutatan Kabupaten Jembrana", E-Jurnal Ekonomi Pembangunan Universitan Udayana, 4(7), pp. 746-872, 2015.

[8] Mubyarto, Pengantar Ekonomi Pertanian, Third Edition, LP3S, Jakarta, 1989.

[9] D. J. Rachbini, Ekonomi Politik : Kebijakan dan Strategi Pembangunan, Granit, Jakarta, 2004.

[10] M. Hutagalung, "Dampak Peningkatan Harga Beras Terhadap Tingkat Kesejahteraan Petani pada Beberapa Strata Luas Lahan (Studi Kasus: Desa Kota Rantang, Kecamatan Hamparan Perak, Kabupaten Deli Serdang)," Student Paper, Universitas Sumatera Utara, Medan, 2007.

[11] N. A. Rusono, A. Sunari, I. Candradijaya, T. Martino, Analisis Nilai Tukar Petani (NTP) Sebagai Bahan Penyusunan RPJMN Tahun 2015-2019, Direktorat Pangan dan Pertanian, Bappenas, Jakarta, 2013.

[12] S. Mardianto, Y. Supriatna, N. K. Agustin, "Dinamika Pola Pemasaran Gabah dan Beras di Indonesia," Forum Penelitian Agro Ekonomi, 23(2), Pusat Analisis Sosial Ekonomi dan Kebijakan Pertanian, Bogor, 2005.

[13] H. W. Kinnucan, O.D. Forker, "Asymmetric in Farm-Retail Price Transmission for Major Dairy Products", American Journal of Agricultural Economics, 69(2), pp. 285-292, 1987.

[14] F. Yustiningsih, "Analisa Integrasi Pasar dan Transmisi Harga Beras Petani-Konsumen di Indonesia", Master Thesis, University of Indonesia, Jakarta, 2012.

[15] N. N. R. Suasih, "Analisis Determinan Kesejahteraan Petani (Studi Kasus di Subak Pulagan, Desa Tampaksiring, Kabupaten Gianyar)", Doctoral Disertation, Udayana University, Denpasar, 2016.

[16] P. Simatupang, M. Maulana, "Kaji Ulang Konsep dan Perkembangan Nilai Tukar Petani Tahun 2003-2006", Jurnal Ekonomi dan Pembangunan, LIPI, 2008.

[17] C. Silitonga, "Diagnosa Metoda dan Penafsiran Angka Nilai Tukar Petani dalam Pangan", BULOG, 6 (23), pp. 23-39, 1995.

[18] Sumodiningrat, "Kepemimpinan dan Pemberdayaan Ekonomi Rakyat", Professor Oration, Faculty of Economics and Busines, Gadjah Mada University, Yogyakarta, 2001.

[19] Tambunan, Perkembangan Sektor Pertanian Di Indonesia (Beberapa Isu Penting), Penerbit Ghalia, Jakarta, 2003.

[20] Masyhuri, "Revitalisasi Pertanian Untuk Mensejahterakan Petani", Paper at Konpernas XV and Kongres XIV PERHEPI, Surakarta, 3-5 Agustus 2007.

[21] W. G. Tomek, K.L. Robinson, Agricultural Product Prices, 2nd Edition, Cornell University Press, Ithaca, 1981.

[22] M. Rachmat, "Analisa Nilai Tukar Petani Indonesia", Doctoral Disertation, Bogor Agricultural Institute, Bogor 2000.

[23] R. Kurniawan, M. Jufri, L. Fauzia, "Analisis Faktor-Faktor yang Mempengaruhi Nilai Tukar Petani (NTP) Padi Sawah (Kasus: Desa Karang Gading, Kecamatan Secanggang, Kabupaten Langkat)," Journal on Social Economic of Agriculture and Agribusiness, 9(9), pp. 1-16, 2018.

[24] F. Ellis, Agricultural Policies in Developing Countries, Cambridge University Press, Cambridge, 1992.

Author Profile

Prof. Made Kembar Sri Budhi is a professor at the Faculty of Economics and Business of the University of Udayana. He has published a number of books on micro and macro economics, and is currently a group of experts at the regional development planning and research agency of the Province of Bali.

Dr. I Nyoman Mahaendra Yasa is a lecturer in the Faculty of Economics and Business at Udayana University, especially in the field of development economics. He currently serves as dean of the faculty of economics and business.