AGRO EKONOMI, Vol 33, Issue.1, June 2022, Page. 1-10
DOI : http://doi.org/10.22146/ae.63497
ISSN 0215-8787 (print), ISSN 2541-1616 (online)
Available at https://jurnal.ugm.ac.id/jae/

Farmers' Perception Of The Implementation Of Farmer Cards Policy In Klaten Regency

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Submitted : 22 January 2021 ; Revised : 7 July 2021 ; Accepted : 2 June 2022

ABSTRACT
The Indonesian Farmer Cards is a government policy that aims to improve the distribution pattern of subsidized fertilizers. This study aims to determine the factors that influence farmers' perceptions of implementing the farmer card policy in the Klaten Regency. Klaten Regency was selected purposively as the research site because since the inception of Farmer Card policy, Klaten Regency has been designated as a pilot location for implementing the program. The data was collected by conducting surveys and interviews by using questionnaires. Moreover, ninety-two respondents were chosen by using a simple random sampling method. Data analysis employed the Likert scale to measure farmers' perceptions of the Farmer Card Policy. Farmers' perceptions constituted two categories based on the weighting from the Likert scale. The first category refers to farmers that have a positive perception of the application of the Farmer Card and the second category represents farmers who have negative perceptions of the program implementation. The Likert scale in this study used to determine farmers' perceptions of the application of subsidized urea fertilizer distribution policies using farmer cards in Klaten Regency. Furthermore, logistic regression determined the factors influencing farmers' perceptions. The results showed that most farmers had positive perceptions. Four variables (experience, land area, time & convenience risk, and psychological risk) positively impact the farmers' perceptions of the Farmer Card. The other variables (urea allocation) negatively affect the farmers' perception of the Farmer Card Policy.

Keywords: farmers card; likert; logistic regression; perception; policy

How to cite : Patria, A.M., and Mulyo, J.H. 2022. Farmers' Perception Of The Implementation Of Farmer Cards Policy In Klaten Regency. Agro Ekonomi 33(1), 1-9

INTRODUCTION

The primary problem at stake in fertilizer subsidies is the weak supervision of fertilizer distribution, which leads to a shortage of fertilizers during the planting season almost every year (Darwis & Supriyati, 2016). Some of the problems with fertilizer subsidies include the fluctuating and unsteady amount of subsidies (Zhong et al., 2013). One of the policy programs that the government has implemented to address the problem of subsidized fertilizer distribution is a trial of a closed

distribution system, known as a control card (smart card) in 2007 and 2008, in several agricultural center provinces. This closed system was controlled centrally through computer network devices and information technology, where subsidized fertilizer was distributed to farmer groups based on a needs planning document called RDKK (Definitive Plan for Group Needs) (Sudjono, 2016).

Subsidized fertilizers are of great importance for farmers because good fertilization helps them achieve land intensification as a way to prevent land conversion and increase food security (Widada et al., 2017). In an effort to ensure transparency and accountability in the distribution of subsidized fertilizers to farmers/farmer groups, the government implemented the Farmer Card (*Kartu Tani*) as a means of exchange for subsidized fertilizers for farmers. The implementation trial is planned to take place in several provinces of Indonesia, but down to many obstacles in synchronizing farmer data and card distribution, from mid-2017 to early 2020 the new farmer card policy can only be implemented in Central Java Province. Klaten and Batang Regencies are among the earliest regencies to carry out the farmer card trial and serve as pilot regencies. Problems that occur in the application of farmer card include technical problem in card distribution, database that are not appropriate and the refusal by farmers to use farmer card. Farmer who reject the farmer card program have concern that the implementation of the farmer card policy will reduce the allocation of subsidized fertilizer and cause problems in the distribution of subsidized fertilizer. Similarly, such hurdles in the real implementation of similar policies also occur in the application of e-voucher programs to access subsidized inputs in Zambia (Kuteya et al., 2015).

A previous research regarding the implementation of the farmer card policy in Indonesia only focused on the implementation effectiveness of the Farmer Card and its impact on the distribution of subsidized fertilizers (Chakim, 2020), while another research was aimed at knowing the public perception of the use of farmer cards by comparing topographic conditions (Kurniawati & Kurniawan Andri, 2013). However, no research has yet to examine the factors that influence farmers' perceptions of the Farmer Card. This significance of this research lies on its attempt to find out how farmers respond to the farmer card policy and what variables affect farmers' perceptions, so that the results can be used as an evaluation for further policies. Therefore, this study aims to determine farmers' perceptions of the Farmer Card and the factors that influence their perception.

METHODS

Klaten Regency was selected purposively as the research site because since the inception of Farmer Card policy, Klaten Regency has been designated as a pilot location for implementing the program as a

requirement for farmers to buy subsidized fertilizers (Based on the letter of the Indonesian Minister of Agriculture dated 08 May 2017). The research samples in this study were selected through simple random sampling method, where each and every member of a population has the same chance of being included in the sample and where all possible samples of a given size have the same chance of selection (West, 2016).

The number of farmer samples was determined using the following Slovin formula (Supriyanto & Iswandari, 2017):

$$n = \frac{N}{1 + Ne^2}$$

Description:
n = number of samples
N = number of population
e = margin of error

In this study, the number of farmer groups in Klaten Regency registered in the e-RDKK system was 1,062 groups. Based on this data with a margin of error of 10%, the number of samples in this study amounted to 92 farmer groups. With simple random sampling method each farmer group will be represented by 1 group member for having an interview, and thus making the number of samples taken of 92 farmers (groups).

Farmers' perceptions of the Farmer Card

Farmers' perceptions of the farmer card policy are farmers' responses to government policies related to the purchasing mechanism of subsidized fertilizers using farmer cards. Farmers' perceptions of the farmer card policy in Klaten Regency were measured using several indicators, which were divided into the four aspects listed in the followings:

a. Farmers' perceptions of the ease and safety of transactions

b. Farmers' perceptions of prices, availability, and purchase of fertilizers

c. Farmers' perceptions of program objectives and socialization

d. Farmers' perceptions of program sustainability

Each question was answered using a 5-level Likert scale, where respondents were asked about their agreement regarding the program. The respondents were required to show their response to the question by choosing the following options: Strongly agree, agree, neutral, disagree, and strongly disagree. The weighted score for each answer is 5,4,3,2,1 for positive questions and vice versa for negative questions (Luangduangsitthideth et al., 2019).

Logit regression model

In this study, farmers' perceptions constituted two categories based on the weighting from the Likert scale. The first category refers to farmers that have a positive perception of the application of the Farmer Card and the second category represents farmers who have negative perceptions of the program implementation. The Likert scale in this study used to determine farmers' perceptions of the application of

subsidized urea fertilizer distribution policies using farmer cards in Klaten Regency, with the answer scale used was 1-5. According to Luangduangsitthideth et al. (2018) the average score of all these perception indicators can be grouped into two levels of perception, namely positive perception and negative perception using the weighted mean (WM) method. The mean score of 1.00-2.49 is included in the negative perception category, while the mean score of 2.50-5.00 can be categorized as a positive perception.

The two categories can be written as perception = 1 if the farmer's perception is positive, and perception = 0 if the farmer's perception is negative. The analysis of this research was conducted using STATA 14 software. The panel data of regression equation of determinant factor of farmer's perception was as followed:

$$\text{Perception} = \beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\beta_6X_6+\beta_7X_7+\beta_8X_8+\beta_9X_9+\beta_{10}X_{10}+\beta_{11}X_{11}+\beta_{12}X_{12}+\beta_{13}X_{13}+e$$

Description:

Perception = Farmers' Perception of the implementation of the farmer card policy
β_0 = Constant
$\beta_1 - \beta_{13}$ = Regression Coefficient
X_1 = Age (years old)
X_2 = Education (years)
X_3 = Land area (m2)
X_4 = Farming Experience (years)
X_5 = Access to agricultural information
X_6 = Knowledge of Farmer Cards
X_7 = Allocation of subsidized urea fertilizer (tonnes)
X_8 = Distance to retail kiosk (km)
X_9 = Family members
X_{10} = Purchase reduction
X_{11} = Sufficiency of subsidized urea fertilizer
X_{12} = Availability of subsidized fertilizer at kiosks/retailers (time & convenience)
X_{13} = Concerns on Farm card related to the elimination of subsidies (Psychological risk)
e = Error term

RESULTS AND DISCUSSION

Characteristics of the respondent

A total of 92 farmers which have Farmer Card complete the survey, they representing their farmers group in every area. About two-thirds of the sample was between the ages of 15-64 years. Thirty eight percent had a

Table 1. Characteristics of participants sample

Variable	Total (Person)	Pecentage (%)
Sex		
Male	0	0.00
Female	92	100.00
Age (years)		
0-14	0	0.00
15-64	65	70.65
>64	27	29.35
Education (years)		
≤ 6	38	41.30
7-9	14	15.22
10-12	34	39.96
> 12	6	6.52
Experience (years)		
≤ 5	6	6.52
6-19	22	23.91
20-32	21	22.83
33-45	35	38.04
≥ 46	8	8.70

Source: Primary data analysis for 2020

primary school education or lower. More than a half have experience as a famer more than 20 years. Table 1 shows the characteristics of participants sample.

Farmers' Perceptions of the Implementation of the Farmer Card Policy

Perception is defined as the process experienced by farmers in filtering and interpreting certain information from their environment (Moyo et al., 2012). Farmers' perceptions of the implementation of the farmer card policy in Klaten Regency refer to all views or assessments made by farmers in Klaten Regency on the distribution of the subsidized urea fertilizer policy using farmer cards. Farmers' perceptions can be used to evaluate farmers' tendencies, either to support or reject the program.

The distribution of farmers' perceptions of the implementation of the farmer card policy in Klaten Regency in Figure 1 is as follows.

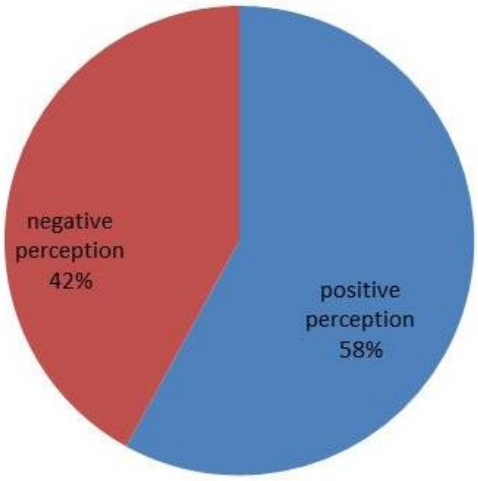

Figure 1. Farmers' perceptions in Klaten Regency of the implementation of the Farmer Card Policy
Source: Primary data analysis for 2020

Figure 1 presents that, overall, 58% of farmers in Klaten Regency shared a positive perception of the distribution policy of subsidized urea fertilizer policy using farmer cards. However, at the same time, 42 % of farmers had a negative perception of the implementation of the farmer card policy as a requirement for purchasing subsidized urea fertilizer. These results are consistent with the research of Nurulfahmi and Maria (2020). However, at the same time, 42 % of farmers had a negative perception of the implementation of the farmer card policy as a requirement for purchasing subsidized urea fertilizer. These results illustrate that even most farmers in Klaten Regency have a positive perception of the implementation of the farmer card policy there is still so many farmers who have negative perception. It means the farmer card still need extensive information and promotion regarding the Farmer Card Policy

Factors to influence farmers' perceptions

This study examines the factors to influence farmers' perceptions of the implementation of the farmer card policy. The dependent variable in this study is the farmer's perception of the implementation of the farmer card policy. The farmers' positive perception of the implication of the farmer card policy will be scored 1, while the farmers' negative perception will be scored 0. Table 2 presents the results of the logit analysis using the STATA 14 application. The results show the Pseudo R2 score of 0.5128, indicating that the independent variables tested are able to explain the factors that influence farmer perceptions by 51.28%, while 48.72% are explained by variables outside the model.

Table 2. Results of Logit Regression Analysis of the factors that influence farmer's perceptions

log	Expect. Symbol	Coef.	Std. Err.	z	P >| z |	Odds Ratio
Age	-	-0.0205	0.0400	-0.50	0.616	0.9796
Education	+	0.0859	0.1533	0.61	0.542	1.0896
Land	+	0.0001*	0.0000	1.86	0.063	1.0001
Experience	+	0.0611*	0.0380	1.71	0.088	1.0631
Information	+	0.0780	0.0724	1.17	0.244	1.0812
Knowledge kt	+	0.4007	0.7737	0.77	0.439	1.4929
Urea Allocation	+	-0.0036**	0.0014	-2.46	0.014	0.9963
Distant	-	0.0000	0.0004	0.09	0.928	1.0000
Family	-	-0.0635	0.2691	-0.22	0.825	0.9384
Reduction	-	-1.0797	0.3376	-1.09	0.277	0.3396
Fertilizer Sufficiency	+	2.3491	16.1255	1.53	0.127	10.4765
Availability	+	1.4136**	2.7011	2.15	0,031	4.1107
Concerns	+	2.4061***	6.7324	3.96	0.000	11.0912
_cons		-12.8263	0.0000	-3.51	0.002	0.0000

* Significant at the α 10% level
** Significant at the α 5% level
*** Significant at the α 1% level
Source: Primary Data Analysis, 2020.

Did not same as Ntshangase et al. (2018) pointed out the other 8 (eight) variables : Age, education, information, knowledge, distant, family, reduction and fertilizer sufficiency are insignificant at the 10% level or above. Meanwhile, the area of land tenure and farming experience showed a significant influence on farmers' perceptions with a confidence level of 90%. The odds ratio score for land area and farming experience is 1 with a positive coefficient sign. This score indicates that the increase of the farmer's land area or farming experience by 1 unit will increase the chances of farmer to have positive perception by 1 times better than before.

The allocation for the purchase of subsidized urea fertilizer by farmers shows a significant effect on farmers' perceptions with a 95% confidence level. The score of the subsidy allocation odds ratio was 0.996 with a negative coefficient sign, which means that each additional 1 tonne of subsidized urea fertilizer allocation will reduce the chances of farmers to have positive perceptions by 0.996 times lower than before. In other words, any increase in the allocation of subsidies will have a negative impact on farmers' perceptions of the implementation of the Farmer Card policy. This condition is because the higher the allocation of subsidies a farmer has, the larger the amount

Farmer Cards for subsidized fertilizers purchased by the farmers. Given the limited amount of cash owned by farmers, farmers will be more frequently use Farmer Cards to make transactions based on the cash they top up to the card balance. The technical top-up requirement is somehow burdensome for farmers, because if the kiosk/retailer is unable to top up the balance, the farmers will be required to go to the bank for having a top up. In addition, farmers will also have to pay the administrative cost of every top up transaction. This is the reason why the allocation has a negative effect on farmers' perceptions.

The availability of subsidized fertilizer at the kiosk/retailer (time & convenience risk) refers to how consumers see the availability of subsidized urea fertilizer when needed after the implementation of the farming card. The variable availability of subsidized fertilizers at the kiosk/retailer (time & convenience risk) shows a significant effect on farmers' perceptions with a confidence level of 95%. The score of the odds ratio variable for the availability of subsidized fertilizers at the kiosk/retailer (time & convenience risk) is 4 with a positive coefficient sign. This score indicates that the farmers' belief on the implementation of a subsidized urea fertilizer using Farm Card will increase the availability when needed by 1 point and, as a result, it will increase the chances of farmers to have positive perceptions 4 times better than before. These results are consistent with the research of Arshad et al. (2015), who concluded that time & covenience risk has a significant effect on buyer behavior in buying and selling transactions.

The variable of concern on the relation between Farmer Card and the elimination of subsidies (psychological risk) showed a significant effect on farmers' perceptions with a confidence level of 99%. Psychological risk is a condition and background that varies from one person to another, which will likely affect farmers' perceptions in making transactions using farmer cards. In this research, psychological risk refers to the farmers' concern that the implementation of the farmer card policy will cause the elimination of fertilizer subsidy. The odds ratio score for the farmers' concern that the farmer card is related to the elimination of subsidies (psychological risk) is 11 with a positive coefficient sign. This score indicates that if the farmer's belief that the implementation of the farmer card is not related to the elimination of subsidies increases by 1 point, it will increase the chance for farmers' positive perceptions as much as 11 times better than before. According to Arshad et al. (2015), psychological risk has a significant effect on buyer behavior in making some transactions. In addition, Khosla (2018) also concluded that consumer behavior in transactions is influenced by psychological factors of potential buyers.

CONCLUSION AND SUGGESTION

Most of farmers in Klaten Regency (58%) have a positive perception of the implementation of the farmer card policy. The perception of farmers are positively affected by : experience, land the farmer has, the availability of fertilizer at the kiosk/retailer (time & convenience risk) and the Farmer Card issue of elimination of fertilizer subsidies (psychological risk). Meanwhile the perception are negatively affected by : farmers' expenses on the purchase of subsidized urea fertilizer. Based on this research, it is suggested that policy makers or the government through its trainers provide farmers with more extensive information and promotion regarding the Farmer Card Policy. extension workers provides more massive information and socialization to farmers regarding the Farmer Card. This program promotion shall highlight the beneficial purpose of the Farmer Card for farmers' better understanding on its use. It should be emphasized on the fact that the implementation of the farmer card policy has nothing to do with the issue of eliminating fertilizer subsidies, so as to remove farmers' concern over the farm card program and ensure its effective operation. Of the least importance, the government also needs to provide all kiosks/retailers with top-up facilities in order to provide farmers with free top-up services for farmer card balances as a way to ease the cashless Farmer Card transaction as simple as cash.

REFERENCES

Arshad, A., Zafar, M., Fatima, I., & Khan, S. K. (2015). The Impact of Perceived Risk on Online Buying Behavior. *International Journal of New Technology and Research (IJNTR)*, *1*(8), 13–18.

Chakim, M. L. (2020). Pengaruh Implementasi Kartu Tani terhadap Efektivitas Penyaluran Pupuk Bersubsidi di Kabupaten Kendal, Jawa Tengah. *Jurnal Pangan*, *28*(3), 171–182. https://doi.org/10.33964/jp.v28i3.444

Darwis, V., & Supriyati, N. (2016). Subsidi Pupuk: Kebijakan, Pelaksanaan dan Optimalisasi Pemanfaatannya. *Analisis Kebijakan Pertanian*, *11*(1), 45–60. https://doi.org/10.21082/akp.v11n1.2013.45-60

Khosla, S. S. (2018). Impact of Psychological Risk Factors on the Buying Decisions of The Consumers. *International Journal of Management Studies*, *V*(3(7)), 54. https://doi.org/10.18843/ijms/v5i3(7)/06

Kurniawati, E. K., & Kurniawan Andri. (2013). Persepsi Masyarakat terhadap Penggunaan Kartu Tani di Kabupaten Pati (Kasus di Desa Wotan dan Desa Pakem, Kecamatan Sukolilo). *Jurnal Bumi Indonesia,* vol. 7, no. 4, 2018..

Kuteya, A. N., Lukama, C., Chapoto, A., & Malata, V. (2015). Lessons Learnt from the Implementation of the E-voucher Pilot. *Indaba Agricultural Policy Research Institute*, *81*, 1–4.

Luangduangsitthideth, O., Limnirankul, B., & Kramol, P. (2019). Farmers' Knowledge and Perceptions of Sustainable Soil Conservation

Practices in Paklay District, Sayabouly province, Lao PDR. *Kasetsart Journal of Social Sciences*, *40*(3), 650–656. https://doi.org/10.1016/j.kjss.2018.07.006

Moyo, M., Mvumi, B. M., Kunzekweguta, M., Mazvimavi, K., & Craufurd, P. (2012). Farmer Perceptions on Climate Change and Variability in Semi-arid Zimbabwe in Relation to Climatology Evidence. *African Crop Science Journal - A Journal of Tropical Crop Science and Production*, *20*(2), 317–335.

Nurulfahmi, D., Maria. (2020). Farmer's Perception of the Implementation of the Farmer Card (Case Study in Kadirejo Village, Pabelan Subdistrict, Semarang Regency). *Jurnal Agrisep*. DOI: 10.31186/jagrisep.19.2.315-330.

Sudjono, S. (2016). Sistem Distribusi Berbasis Relationship: Kajian Penyempurnaan Penyaluran Pupuk Bersubsidi kepada Petani. *Analisis Kebijakan Pertanian*, *9*(4), 313–330. https://doi.org/10.21082/akp.v9n4.2011.313-330

Supriyanto, W., & Iswandari, R. (2017). Kecenderungan Sivitas Akademika dalam Memilih Sumber Referensi untuk Penyusunan Karya Tulis Ilmiah di Perguruan Tinggi. *Berkala Ilmu Perpustakaan Dan Informasi*, *13*(1), 79–86. https://doi.org/10.22146/bip.26074

West, P. W. (2016). Simple Random Sampling of Individual Items in The Absence of A Sampling Frame that Lists the Individuals. *New Zealand Journal of Forestry Science*, *46*(1), 1–7. https://doi.org/10.1186/s40490-016-0071-1

Widada, A. W., Masyhuri, M., & Mulyo, J. H. (2017). Determinant Factors of Food Security in Indonesia. *Agro Ekonomi*, *28*(2), 205. https://doi.org/10.22146/jae.26245

Zhong, C., & Chen, Sanpan Xiao, Q. (2013). A case study of the Effectiveness of Agricultural Subsidies Policies : Theory and Evidence from Huangpi District, Hubei, China. *Journal of Economics and Development Studies*, *1*(2), 1–18. http://jedsnet.com/journals/jeds/Vol_1_No_2_September_2013/1.pdf