Jurnal 1

by Jurnal 1

Submission date: 22-Aug-2022 11:34AM (UTC+0700)
Submission ID: 1885313007
File name: Jurnal_1.pdf (403.1K)
Word count: 7021
Character count: 38212

Avalaible online at http://journals.ums.ac.id, Permalink/DOI: 10.23917/jep.v23i1.16302

Jurnal Ekonomi Pembangunan: Kajian Masalah Ekonomi dan Pembangunan, 23 (1), 2022, 43-55

Food Diversification and Dynamic Food Security: Evidence from Poor Households

Dini Yuniarti [1)], **Yunastiti Purwaningsih** [2)], **AM Soesilo** [2)], **Agustinus Suryantoro** [2)]

[1]Faculty of Economics and Business, Universitas Ahmad Dahlan

[2]Faculty of Economics and Business, University of Sebelas Maret

Corresponding Author: author dini.yuniarti@uad.ac.id

Received: November 2021 | Revised: December 2021 | Accepted: June 2022

Abstract

An understanding of the determinants of household food security is fundamental for an appropriate food security strategy. Taking the cases in Kulonprogo and Gunung Kidul, Yogyakarta Special Region, we examine the effect of food diversification on the food security of poor households dynamically related to climate change. In addition, we investigate the impact of socioeconomic factors of human capital such as household age, education, household size, income, livestock, land ownership, and dynamic location on food security. There are four categories of dynamics of food security, namely always safe, improving, worse, and always food insecure. We use primary data with longitudinal surveys during El Nino and La Nina. The sample size is 195 households receiving the Family Hope program. To examine the relationship between livelihood assets and food security dynamics, we used Multinomial Logit Regression. The study found that food diversification significantly increases the food security of poor households. Besides that, income, maternal education, livestock, and land ownership can maintain household food security. Therefore, appropriate food security strategies can focus on food diversification programs, education, and financial sector interventions.

Keywords: food diversification, food security, climate

JEL classification: I30, R20, Z10

How to Cite: Yuniarti D., Purwaningsih Y., Soesilo AM., Suryantoro A. (2022). Food Diversification and Dynamic Food Security: Evidence from Poor Households, 23(1), 43-55. doi:https://doi.org/10.23917/jep. v23i1.16302

DOI: https://doi.org/10.23917/jep.v23i1.16302

1. Introduction

Food security will be achieved if everyone is physically able to always meet their food needs. However, this situation cannot always be fulfilled, especially for poor households. The poor have higher levels of food insecurity in terms of their ability to purchase food commodities. Poverty is one of the indicators of food security, especially from the aspect of food access. Poverty is a factor that directly affects food insecurity (Misselhorn, 2005). Several studies that examine the relationship between the two include (Pangaribowo & Tsegai, 2011), (Warr & Yusuf, 2013), (Vu & Glewwe, 2011), (Piaseu & Mitchell, 2004) which shows the relationship between poverty and food security.

Furthermore Shahid & Siddiqi (2010) states that food insecurity is the result of poverty and insufficient food availability. In addition, the poor are more vulnerable to climate change because of the limited options for dealing with it (Gregory et al., 2005). It is related to the phenomenon of climate change in El Nino in the form of a prolonged drought and La Nina in the form of a very wet rainy season. The phenomenon of climate change affects food security.

The poor in facing vulnerabilities due to climate change have strategies to overcome them.

When vulnerability occurs, each person has a different way of dealing with it. In other words, the household tries to adapt. According to (Leroy et al., 2015) coping strategies refer to a person's response when facing difficulties or vulnerabilities such as food insecurity. Several studies have shown that to deal with food conditions that limit (Maxwell et al., 2013), the household performs a coping strategy. Each location shows a different coping strategy, but in general, it shows two strategies, namely consumption-based and income-based. According to (Makoti & Waswa, 2015), residents diversify their jobs and diversify their food in the short and medium-term to overcome the drought. For job diversification, households, especially the head of household, diversify their jobs (Robaa et al. 2016) and (Kassie et al., 2017) apart from crop diversification (Silvia et al., 2015). One of them is related to limitations if you do not have enough food or money to buy food. Households diversify income by looking for other jobs. Some income-based strategies include migration (Makoti & Waswa, 2015) and (Gupta et al., 2015). According to Warner & Afifi (2014), migration is a risk management strategy in dealing with variability related to livelihoods and food insecurity. Apart from that, I also work sideways and do small trades (Chagomoka et al., 2016), odd jobs (Ndhleve et al., 2012), selling livestock (Makoti & Waswa, 2015) even send kids to work (Gupta et al., 2015).

One strategy that is also implemented to deal with vulnerability in food diversification. The most commonly used strategy is to consume cheap and less desirable (Cordero-Ahiman et al., 2018), (Ziaei et al., 2013), and (Tanziha & Mewa Ariani, 2010). According to Sumaryanto, (2009) diversification of food production is one of the effective ways of adaptation to reduce production risk, one of which is climate change. For Indonesia, diversification of production and consumption based on local food is very urgent. The definition of food diversification according to Pakpahan & Suhartini (1989) in the Indonesian context, is often interpreted as a reduction in rice consumption that is compensated by an increase in consumption of non-rice food items

So far, empirical studies have focused more on the effect of income diversification on food security. Studies emphasize that the effect of food diversification on food security is still relatively limited. Sandyatma (2015) stated that increasing food security through a community-based diversification movement is one solution in food development. Therefore, food diversification is considered essential in sustainable food development and becomes part of increasing food security. Although households have very diverse livelihoods, according to (Robaa et al., 2016) it was found that diversification of livelihoods by poor households did not make these households food secure. In addition, according to Purwantini et al (2016) Indonesian population consumes more rice than the required intake. The Widyakarya Pangan recommendation for improving the Hope Food Pattern recommends that only about 50 percent of the food comes from grains, and the rest can be met from tubers (Ministry of Agriculture, 2010 in (Purwantini et al., 2016). With the above conditions, the development of food diversification needs to be encouraged. Therefore, this study intends to examine the effect of food diversification on food security. To achieve this goal, information and data are needed, including identifying staple food substitute, Identifying the main reasons for choosing staple meal substitutes, and Assessing the effect of food diversification on food security

2. Research Method

2.1 Data

The source of data used in this study is primary data with cross-section and longitudinal data types. Cross-section data is used to examine the dynamics of food security between regions, while longitudinal data are used to examine the dynamics of food security over time. Time execution of inter-time dynamics research is carried out at two-time points or using longitudinal data types. Data collection was carried out in November 2015 and December 2016 to January 2017. Data were collected in November 2015 to obtain data during the long dry season as the impact of El Nino, while data collection from

December 2016 to January 2017 was to obtain the phenomenon of the wet rainy season as a result of the impact La Niña.

The unit of analysis in this study is the individual, namely the impoverished household. election of impoverished households because poverty is a driving factor for food insecurity (Misselhorn, 2005). The selected respondents are women. According to (Quisumbing & Meinzen-Dick, 2001), women have an essential role in food security. In addition, according to Sharaunga et al.,(2015), women have the potential to reduce vulnerability to food insecurity, if women gain empowerment

Respondents who meet these two criteria are households that receive assistance from the Family Hope Program (PKH). According to the National Team for the Acceleration of Poverty Reduction, the Family Hope Program (PKH) is a social protection program that provides cash assistance to Very Poor Households. The second criterion is that the recipients of PKH assistance are mothers or adult women who take care of the household concerned. Therefore, based on these two criteria, PKH recipients are the right respondents for the analysis.

The research location is in Kalibawang District, Kulonprogo and Saptosari District, Gunungkidul Regency, Special Region of Yogyakarta. The choice of the two locations was because they met the three criteria, namely poverty, dynamic food security, and having different natural conditions. The population in this study was impoverished households. The population in the four research villages in the Kalibawang sub-district amounted to 211 impoverished households, while the population in the two research villages in the Saptosari sub-district was 126 households (Families Program Assistant for the DIY Social Service in 2015). Determination of the number of samples using the method of Isaac and Michael with an error rate of 5%. The number of samples after going through the process of missing data and outliers in 195 households. Respondents were spread across four villages in Kalibawang Subdistrict (Banjarharjo, Banjaroyo, Banjarum, and Banjarasri Villages) and two villages in Saptosari Subdistrict (i.e., Jetis and Ngloro Villages). Sampling is done randomly or using a lottery system based on numbers. Data collection techniques used two methods, namely Focus Group Discussion (FGD), to obtain the Coping Strategies Index weight based on differences in severity of coping strategies. The second method is using personally administered questionnaires. The instrument used to measure food security is the Coping Strategies Index/CSI questionnaire prepared and used by (Maxwell et al., 2008).

2.2 Research variable

The dependent variable in this study is the dynamics of food security over time obtained through three stages. First, calculate the Coping Strategies Index (CSI) food security indicator. CSI calculations are performed for each season of both El Nino and La Nina. Second, we set the position of food security into three categories, namely food security, light food insecurity, and moderate/severe food insecurity (Maxwell et al., 2013). Analysis tool to determine food security category using K-Mean Cluster (Ziaei et al., 2013). Third, after determining the condition of food security over time. There are four categories of food security, category 1, which is food security at any time for households experiencing food security in two seasons. Category 2 is for households experiencing increased food security. Category 3 is households experiencing a decrease in food security, and category 4 is food insecurity over time, where households experience food insecurity in both seasons. The four categories become reference categories in this study. The explanatory variables include food diversification in the form of a dummy for households that have a substitute for rice, household income, livestock ownership dummy, agricultural land ownership dummy, father's education (years), mother's education (years), number of families (people),

2.3 Analysis Tools

The analytical tool used is Multinomial Logit Regression (MNL). The use of multinomial logit analysis tools to assess the dynamics of

food security or poverty has been carried out by Habtezion (2012) and Suyastiri (2008). In the article Habtezion (2012) assessing food security in three periods, there are three categories of dynamics of food security, namely household food insecurity all the time = 0, changes at least once = 1, and always safe = 2. Next, Suyastiri, (2008) examines the dynamics of poverty in two periods which shows the position of poverty that is always poor, transitory, and chronic poverty.

The Multinomial Logit (MNL) model equation in this study consists of three equations. Equation 1 shows the probability of food-insecure category over time with food insecurity over time. Equation 2 presents the categories of households experiencing improved food security with food insecurity over time. Finally, equation 3 shows the category of households experiencing a decrease in food security with food insecurity over time.

$$Ln\ DKP\left(\frac{P(Y=1|x)}{P(Y=4|x)}\right) = \beta o + \beta_1 U + \beta_2 LSI + \beta_3 LSS + \beta_4 JK + \beta_5 PD + \beta_6 DT + \beta_7 DLP + \beta_8 DDP + \beta_9 DLK \quad (1)$$

$$Ln\ DKP\left(\frac{P(Y=2|x)}{P(Y=4|x)}\right) = \beta o + \beta_1 U + \beta_2 LSI + \beta_3 LSS + \beta_4 JK + \beta_5 PD + \beta_6 DT + \beta_7 DLP + \beta_8 DDP + \beta_9 DLK \quad (2)$$

$$Ln\ DKP\left(\frac{P(Y=3|x)}{P(Y=4|x)}\right) = \beta o + \beta_1 U + \beta_2 LSI + \beta_3 LSS + \beta_4 JK + \beta_5 PD + \beta_6 DT + \beta_7 DLP + \beta_8 DDP + \beta_9 DLK \quad (3)$$

Information:

DKP	:	The dynamics of food security 1 = food security all the time 2 = experienced an improvement in food security 3 = experienced a decrease in food security 4 = food insecurity all the time
U		Age of head of household (years)
LSI	:	Wife's education (years)
LSS	:	Husband's education period (years)
JK	:	Number of the family (people)
PD	:	Household income (Rp)
DT	:	Dummy livestock ownership, 1= owning livestock
DLP	:	Dummy farmland, 1= owns farmland
DDP	:	Food diversification dummy, 1 = has a substitute for rice
DLK	:	Dummy Location = 1 for Saptosari District; 0 Kalibawang District

3. Results and Discussion

3.1 Results

3.1.1 Food Diversification

Table 1 presents households that diversify their food, types of food substitutes and the main reasons for choosing staple meal substitutes. Households stated that they had substitute commodities when their income was insufficient to buy staple food (rice). As many as 80.4% of households in the Kalibawang Sub-district stated that they had rice substitute commodities, while in Saptosari District, the number was more significant, namely 93.2%. This finding shows that poor households have implemented strategies to achieve food security through food diversification.

Furthermore, Table 1 presents foodstuffs that are substitutes for rice. The type of food chosen by most households is cassava which is chosen by more than fifty percent in both Kalibawang District (50.3%) and Saptosari District (52.8%). Another substitute food is corn, where households in Kalibawang choose as much as 28.0 % and Saptosari (38.2%). The selection of cassava food ingredients is in line with the Habtezion (2012),

which states that households face food shortages due to lack of land fertility and exacerbated by erratic rainfall patterns choosing to consume cassava, as one of the adaptation strategies of households to choose to cultivate cassava as a staple food, because cassava is better planted in dry areas. Cassava is an option other than rice because it is affordable, and you do not need to buy it. This finding is consistent with studies Suyastiri (2008) showing that staple food based on local potential is still dominated by rice, cassava, and corn. The staple food diversification system is rice, and rice substitutes such as corn, corn rice, cassava rice, and cassava corn rice. Different findings are shown by studies Arumsari et al., (2005) in Sleman Regency, Special Region of Yogyakarta, which shows that the main household food diversification design is rice, followed by potatoes, noodles, wheat, and corn.

Households have various reasons for choosing a rice substitute. The reasons for choosing a substitute for rice are affordable prices, income, own property, habits, and others. There is a difference in the proportion of reasons between the districts of Kalibawang and Saptosari. In Saptosari Subdistrict, the main reason is a habit (36.5%), then followed by price (34.1%), and property itself (16.5%). Meanwhile, in Kalibawang Regency, it is a factor price (23.9%), the property itself (23.9%), habit (19.6%), and income (8.7%). Habits are the main reason for diversifying food in Saptosari District. This district is a dry area, so households are accustomed to carrying out food diversification strategies to overcome food difficulties in the face of prolonged droughts. This finding indicates that households in Saptosari Sub-district are more accustomed to diversifying food than Kalibawang Sub-district because having a substitute for rice is due to local community habits. It is made possible by the dry natural conditions in the area

Table 1. Rice Substitute Ownership

Categories	Kalibawang District		Saptosari	
	Amount	Proportion (%)	Amount	Proportion (%)
Consuming food substitute for rice				
Yes	86	80.4	82	93.2
Not	21	19.6	6	6.8
Substitute Meal				
Cassava	79	50.3	76	52.8
Corn	44	28.0	55	38.2
Others (yam, taro/ kimpul)	34	21.7	13	9.0
Reasons for choosing rice substitute commodities				
An affordable price	22	23.9	29	34.1
Income	8	8.7	7	8.2
One's own	22	23.9	31	16.5
Habit	18	19.6	14	36.5
Other	22	23.9	4	4.7

Avalaible online at http://journals.ums.ac.id, Permalink/DOI: 10.23917/jep.v23i1.16302

Jurnal Ekonomi Pembangunan: Kajian Masalah Ekonomi dan Pembangunan, 23 (1), 2022, 43-55

3.1.2 Determinants of Food Security: The Effect of Food Diversification

Food diversification in this study is a household dummy that has a staple food substitute for rice. Analysis of the determinants of food security using multinomial. Table 4 shows the results of the estimated -2LL (Log-Likelihood) value. There is a significant decrease in the Chi-square value at p-value 0.000. These results suggest that models with independent variables provide more accurate results in predicting food safety dynamics than those that have just entered the intercept. The deviation value shows that the Chi-square has a probability of 0.999 greater than 5%, so the Chi-square is not significant. This finding indicates that the model fits the empirical data. To see how much variation in the dependent variable is affected by the independent variable, the Pseudo R^2 value is used.

Furthermore, Table 4 presents the results of a multinomial logit regression analysis consisting of probability estimates from 3 categories, namely food security over time, experiencing improvement, and experiencing a decline in the position of food security with the reference category of food insecurity from time to time. Based on the multinomial logit estimation model 1, the variables that can predict the position of food security at any time significantly are food diversification, income, livestock ownership, mother's education, family size, age of the head of the household, and the location of the dummy. Equation 2 shows that the variable that affects households experiencing improved food security is ownership of agricultural land, increasing the likelihood of households experiencing increased food security. For model 3, no variable can predict the position of households experiencing a decrease in food security. These results indicate that households experience a decrease in food security because none of the variables in the model can support households in maintaining food security.

Table 4. Multinomial Logit Results

Variable	Always Food Safe			Having repair Food security			Deteriorating Food Security		
	Coef	Wald	*Opportunity ratio*	Coef.	Wald	*Opportunity ratio*	Coef.	Wald	*Opportunity ratio*
Constant	3.67	5.03		-1,62	0.82		-0.97	0.31	
Food diversification (Yes = 1)	2.16	10,4 *	8,65	0.07	0.01	1.08	1.02	2.29	2,77
Age of head of household	-0.06	6,40 *	0.94	0.01	0.11	1.01	0.00	0.00	1,00
Household size	-0. 54	3,25 *	0.58	0.11	0.33	1.11	-0.10	0.34	0.90
Mother's education	0.13	4,49 *	1.15	-0.04	0.34	0.96	0.09	2.13	1. 09
Head of Household Education	-0.06	0.72	0.94	-0.00	0.00	0.99	0.06	0.73	1. 06
Income	0.00	3,55 *	1,00	0.00	1,59	1,00	0.00	0.32	1. 00
Cattle	1,29	8,42 *	3.65	0.16	0.103	3.11	0.69	2.23	1. 99

Avalaible online at http://journals.ums.ac.id, Permalink/DOI: 10.23917/jep.v23i1.16302
Jurnal Ekonomi Pembangunan: Kajian Masalah Ekonomi dan Pembangunan, 23 (1), 2022, 43-55

Variable	Always Food Safe			Having repair Food security			Deteriorating Food Security		
	Coef	Wald	*Opportunity ratio*	Coef.	Wald	*Opportunity ratio*	Coef.	Wald	*Opportunity ratio*
Household owns the land (Yes = 1)	-003	0.01	0.97	1,27	6,57 *	3.57	-0.08	0.03	0.92
District (Saptosari = 1)	-0.85	2,99 *	0.43	-0.3	0.42	0.73	-0.50	1.08	0.61
Number of observations	195								
-2 Likelihood logs intercept	517. 92								
-2 Possibility of Final Log	453. 7								
Deviance	0.98								
Nagelkerke	0.32								

3.2 Discussion

Model 1 shows that the estimate of households experiencing food security over time is significantly affected by food diversification, age of head of household, family size, maternal education, household income, livestock ownership, and location. Furthermore, the food diversification variable has an odds ratio greater than one, which indicates that households with rice substitutes are more likely to achieve food security at any time than those without rice substitutes. It shows that food diversification can be a coping strategy for poor households facing limited income and food ingredients. Food diversification is an effort to maintain food security through the pillar of food availability. When rice as a staple food is not available, households replace it with other foods. This finding is consistent with Megersa, Markemann, Angassa, Zárate (2013) which suggest diversification (especially livestock) has role to modified household food insecurity .

One of the programs that meet the elements of food diversification is the Sustainable Food House Area (KRPL). This program fulfills the element of increasing community empowerment and changes in community food consumption patterns directed from a food pattern dominated by rice to various food patterns based on the diversity of food sources, institutions, and local culture initiated by the Ministry of Agriculture through optimizing the use of yards. According to(Badan Penelitian dan Pengembangan Pertanian, n.d.), one of the basic principles of KRPL is food diversification based on local resources. Therefore, in the future, it is necessary to optimize the KRPL program to support food diversification so that this coping strategy is proper as an adaptation strategy and can improve the Food Hope Pattern. A study conducted by Anindiya et al (2021) suggest that the KRPL program in Kediri has succeeded in reducing household spending on food consumption and influences household food consumption patterns. Another study from Annisahaq et al (2014) found food consumed by the community participating in KRPL such as tubers met the ideal score for the Food Hope Pattern Program/ Program Pola Harapan Pangan/PHH), and the grains, fruits, and vegetables which were grouped as the close plants to the ideal PPH score.

Another influential variable is the age of the head of the family, showing an odds ratio of less than one. It indicates that households with an older head of household have a smaller probability of achieving food security over time. The same

ing is also shown by family size, where the odds ratio is less than one. This finding shows that households with a larger number of families tend to have a lower probability of food security over time than households with fewer families. Households with more families reduce the likelihood of storing food all the time. This finding is in line with research Demeke, A. B., Keil, A., & Zeller, M. (2011), (Purwaningsih et al., 2010), (Li & Yu, 2010). In addition, the location variable has an odds ratio of less than 1, which indicates that households in the Saptosari Regency have a lower probability of food security over time than households in the Kalibawang Regency.

Household income, livestock ownership, and mother's education have odds ratios more significant than one indicating that these households have a greater probability of achieving food security over time. Income will increase the ability to buy food. Therefore, income is significant in predicting food security over time with food insecurity. This finding is in line with the study (Purwaningsih et al., 2010) and (Li & Yu, 2010). The odds ratio value shows that the greater the income, the greater the probability of experiencing food security over time than impoverished households with lower incomes.

An opportunity ratio of land ownership greater than 1 indicates that households that have agricultural land have the opportunity to experience increased food security compared to those that do not have agricultural land. It is because households with agricultural land can increase food security by producing their food. According to [21], one of the household adaptation strategies to maintain food availability is cultivating cassava as a staple food. It is following the reason for rice substitution because the commodity is owned by itself. This finding is consistent with studies covering(Amwata et al., 2016), (Osayande & Ada-Okungbowa, 2014), (Ejaz et al., 2012) and(Li & Yu, 2010).

Livestock ownership shows a positive influence on the dynamics of food security. It shows that the probability of households achieving food security over time is more significant if they have livestock. Livestock is an asset owned by households in rural areas. Livestock ownership aims to provide food as a source of income and buffer stock when times are difficult. Furthermore, livestock ownership can be converted quickly to cash(Demeke & Zeller, n.d.). This finding is in line with the findings(Demeke & Zeller, n.d.),(Li & Yu, 2010), (Gemechu et al., 2016),(Amwata et al., 2016), which show the effect of livestock ownership on food security.

Mother's education affects food security over time. The longer the education of housewives will increase the probability of households holding food all the time. This finding indicates that with an increase in education, household food security will increase. Furthermore, education allows housewives to manage and regulate food with better strategies to reduce food insecurity and strengthen food security when there is a vulnerability in extended dry season shocks. In other words, a mother's education can be a food supporting factor to secure when the vulnerability occurs. This finding is consistent with research (Ejaz et al., 2012)and(Shahid & Siddiqi, 2010).

Some households have decided to make rice substitutes a habit. It means that food diversification is not a new phenomenon. In terms of policy, the Government of Indonesia has also drawn up regulations for food diversification. According to Sandyatma (2015), regulation on food security has come a long way. From the old approach with a centralistic paradigm, the government dominates the new approach with a decentralization paradigm and increasing community empowerment. Likewise, food consumption patterns are directed from a diet dominated by rice to a diverse food pattern based on food sources, institutions, and local culture. Table 5 presents food security policies and food diversification from time to time. The food improvement program began in 1960 with the issuance of the People's Food Quality Improvement Program, until PP No. 86 of 2019 concerning Food Safety.

Table 5. Government Food Security and Food Diversification Policy

Year	Regulation/Program
1960	For the first time, the government launched a program to improve the quality of people's food.
1974	Presidential Instruction (Inpres) Number 14 of 1974 concerning Improvement of the People's Food Menu (PMMR) proclaimed an increase in the production and consumption of telo (sweet potato), peanuts, and corn, known as "Determination."
1979,	Presidential Instruction Number 20 of 1979 concerning Diversifying Types of Food and Improving the Nutritional Quality of People's Food The policy of diversification of food substitutes Presidential Instruction Number 14 of 1974 The Presidential Instruction is more about developing the sago industry, especially in Eastern Indonesia (KTI) emphasizing on the utilization of sago plants
1989	In the development of food institutions, in Development Cabinet VI, the Office of the State Minister for Food was formed, which launched the slogan "I Love Indonesian Food (ACMI)
1993-1998	The Food and Nutrition Awareness Movement implemented by the Ministry of Health includes a Food and Nutrition Diversification Program known as DPG and is implemented together with the Ministry of Agriculture and related agencies
1996	Law Number 7 of 1996 concerning Food
2002	Government Regulation Number 68 of 2002 concerning Food Security.
2009	Presidential Regulation No. 22 of 2009 concerning Policies for Accelerating Diversification of Food Consumption Based on Local Resources
2009	Regulation of the Minister of Agriculture Number 43/Permentan/OT.140/10/2009 concerning the Movement for the Acceleration of Food Consumption Diversification (P2KP)
2012	Law No. 18 of 2012 instead of Law No. 7 of 1996
2015	A change of Government Regulation Number 17 of 2015 concerning Food and Nutrition Security instead of Government Regulation Number 68 of 2002
2019	• PP 86 of 2019 concerning Food Safety

Source: Excerpted from Sandyatma (2015)

However, Efforts to diversify food consumption to date have not run as expected (Rachman & Ariani, 2008)its problems and implications on policy and program formulation. Secondary data from relevant institutions were used in the analysis. The results show that the diversification of food consumption in Indonesia is far from what is expected. Rice and noodles are becoming more popular than local food staples. On average, the quality of food consumption in Indonesia is still low and less diversified, mainly comprising of carbohydrates, especially rice. As a result, a breakdown of the main strategy or pertinent factors that relate to food security policy is required. Strategies for diversifying food consumption includes: (1. One of the programs is food consumption diversification (DKP). According to(Ariani & Ashari, 2003), DKP's policy aimed at reducing rice consumption has been initiated since the early 1960s, but the reality shows that rice as a staple food in all provinces is getting stronger. Local foods such as corn and tubers were abandoned by the community, replaced by the consumption of noodles. It is due to the taste of rice being more delicious and easy to process. However, the concept of not eating if you have not eaten rice, rice as a superior commodity, easy to obtain at a low price, people's incomes are still low, non-rice food processing and promotion technology are still low, food policies and policies wheat imports and vigorous promotion of noodle products. In addition, according to Hardana et al., (2019), the main problem of food diversification is the problem of imbalance between consumption patterns and food production and availability in the community. In addition, there is a lack

of government commitment to using the concept of food diversification to replace rice consumption patterns as the dominant commodity.

4. Conclusions

Field findings indicate that poor households in both sub-districts have diversified food. Impoverished households substitute rice by most respondents in both sub-districts, especially in Saptosari District, indicating that more and more poor households are doing it. Food substitutes for rice are cassava, corn, and others. In general, cassava is the main food substitute for rice in the two districts. I need to diversify the food that is more varied, fulfilling the elements of complete nutrition. The food diversification program adapts to local geographical conditions. The government and society need to develop a food diversification program to maintain food security stability for poor households.

5. References

Anindya, D.A.E., Putri, D. N., Priambodo, N. Dwi. 2021. Efektivitas Program Kawasan Rumah Pangan Lestari (KRPL) dalam Mendukung Ketahanan Pangan Rumah Tangga Selama Pandemi Di Kota Kediri. *Agrisaintifika: Jurnal Ilmu-Ilmu Pertanian* Vol. 5, No. 1.

Annisahaq, A., Hanani N., Syafrial. (2014). Pengaruh Program Kawasan Rumah Pangan Lestari (KRPL) dalam Mendukung Kemandirian Pangan dan Kesejahteraan Rumah Tangga (Kasus di Kelurahan Rejomulyo, Kecamatan Kota, Kota Kediri). *Habitat*. Volume Xxv, No. 1, Issn: 0853-5167

Amwata, D. A., Nyariki, D. M., & Musimba, N. R. K. (2016). Factors Influencing Pastoral and Agropastoral Household Vulnerability to Food Insecurity in The Dryland of Kenya: A Case Study of Kajiado and Makueni Counties. *Journal OfInternational Development J. Int. Dev. 28, 771–787 (2016)*, *787*(July 2015), 771–787. https://doi.org/10.1002/jid

Ariani, M., & Ashari, N. (2003). Arah, Kendala dan Pentingnya Diversifikasi Konsumsi Pangan di Indonesia. *Forum Penelitian Agro Ekonomi*, *21*(2), 99. https://doi.org/10.21082/fae.v21n2.2003.99-112

Arumsari, V., Dwi, W., & Rini, E. (2005). *the Role of Woman on Household Food Security in*.

Badan Penelitian dan Pengembangan Pertanian. (n.d.). *Mengenal KRPL*.

Chagomoka, T., Unger, S., Drescher, A., Glaser, R., & Marschner, B. (2016). Food coping strategies in northern Ghana . A socio - spatial analysis along the urban – rural continuum. *Agriculture & Food Security*, 1–18. https://doi.org/10.1186/s40066-016-0052-x

Cordero-Ahiman, O. V., Santellano-Estrada, E., & Garrido, A. (2018). Food access and coping strategies adopted by households to fight hunger among indigenous communities of Sierra Tarahumara in Mexico. *Sustainability (Switzerland)*, *10*(2), 1–14. https://doi.org/10.3390/su10020473

Demeke, A. B., Keil, A., & Zeller, M. (2011). Using panel data to estimate the effect of rainfall shocks on smallholder's food security and vulnerability in rural Ethiopia. *Climate Change*. 108: 185-206. DOI 10.1007/s10584-010-9994-3.

Ejaz, R., Khan, A., Azid, T., & Tosee, M. U. (2012). Determinants of food security in rural areas of Pakistan. *International Journal of Social Economic*, *39*(12), 951–964. https://doi.org/10.1108/03068291211269082

Gemechu, F., Zemedu, L., & Yousuf, J. (2016). Determinants of farm household food security in Hawi Gudina district , West Hararghe zone , Oromia Regional National State , Ethiopia. *Journal of Agricultural Extension and Rural Development Full*, *8*(February), 12–18. https://doi.org/10.5897/JAERD2014.0660

Gregory, P. J., Brklacich, M., & Ingram, J. S. I. (2005). Climate Change and Food Security. *Philosophical Transactions. Biological Sciences*, *1463*(360), 2139–2148. https://

doi.org/10.2307/30041400

Gupta, P., Singh, K., Seth, V., Agarwal, S., & Mathur, P. (2015). Coping Strategies Adopted by Households to Prevent Food Insecurity in Urban Slums of Delhi , India. *Journal of Food Security*, *3*(1), 6–10. https://doi.org/10.12691/jfs-3-1-2

Habtezion, S. (2012). *Gender , agriculture and food security* (Gender and). http://www.undp.org/content/dam/undp/library/gender/Gender and Environment/Training-Module-Gender-Agriculture-and-Food-Security.pdf

Hardana, A. E., Pratiwi, D. E., & Ambayoen, M. A. (2019). Analisis Faktor-Faktor yang Mempengaruhi Keputusan Petani Hortikultura dalam Mengakses Pembiayaan Mikro di Jawa Timur. *Prosiding Seminar Nasional Lingkungan Lahan Basah*, *4*(April), 38–44. https://snllb.ulm.ac.id/prosiding/index.php/snllb-lit/article/viewFile/156/157

Kassie, G. W., Kim, S., & Fellizar, F. P. (2017). Determinant factors of livelihood diversification: Evidence from Ethiopia. *Cogent Social Sciences*, *3*(1), 1–17. https://doi.org/10.1080/23311886.2017.1369490

Leroy, J. L., Ruel, M., Frongillo, E. A., Harris, J., & Ballard, T. J. (2015). *Measuring the Food Access Dimension of Food Security : A Critical Review and Mapping of Indicators*. *36*(2), 167–195. https://doi.org/10.1177/0379572115587274

Li, Y., & Yu, W. (2010). Households Food Security in Poverty-Stricken Regions: Evidence from Western Rural China. *Agriculture and Agricultural Science Procedia*, *1*, 386–395. https://doi.org/10.1016/j.aaspro.2010.09.048

Makoti, A., & Waswa, F. (2015). Rural Community Coping Strategies with Drought-Driven Food Insecurity in Kwale County, Kenya. *Journal of Food Security*, *3*(3), 87–93. https://doi.org/10.12691/jfs-3-3-4

Maxwell, D., Caldwell, R., & Langworthy, M. (2008). Measuring food insecurity: Can an indicator based on localized coping behaviors be used to compare across contexts? *Food Policy*, *33*(6), 533–540. https://doi.org/10.1016/j.foodpol.2008.02.004

Maxwell, D., Coates, J., & Vaitla, B. (2013). How Do Different Indicators of Household Food Security Compare ? Empirical Evidence from Tigray. *Feinstein International Center, Tufts University: Medford, USA.*, *August*. https://fic.tufts.edu/assets/Different-Indicators-of-HFS.pdf

Megersa, B., Markemann A., Angassa A., Zárate, A.V. (2013). The role of livestock diversification in ensuring household food security under a changing climate in Borana, Ethiopia. *Food Security*. 17 December. DOI 10.1007/s12571-013-0314-4

Misselhorn, A. A. (2005). What drives food insecurity in southern Africa? a meta-analysis of household economy studies. *Global Environmental Change*, *15*(1), 33–43. https://doi.org/10.1016/j.gloenvcha.2004.11.003

Ndhleve, S., Musemwa, L., & Zhou, L. (2012). Household food security in a coastal rural community of South Africa : Status, causes and coping strategies. *Journal of Agricultural Biotechnology and Sustainable Development*, *4*(November), 68–74. https://doi.org/10.5897/JABSD12.040

Osayande, I., & C.I. Ada-Okungbowa. (2014). Determinants of Food Security Status of Yam-Based Farmers in Orhionmwon Local Government Area of Edo State , Nigeria. *International Journal of Agriculture Innovations and Research*, *3*(1), 281–286.

Pakpahan, A., & Suhartini, S. H. (1989). Permintaan Rumah Tangga Kota di Indonesia terhadap Keanekaragaman Pangan. *Jurnal Agro Ekonomi*, *8*(64–77). https://doi.org/http://dx.doi.org/10.21082/jae.v8n2.1989.64-77

Pangaribowo, E., & Tsegai, D. (2011). Food demand analysis of Indonesian households with particular attention to the poorest.

ZEF-Discussion Papers on Development Policy, *151*, 1–42. http://www.zef.de/fileadmin/webfiles/downloads/zef_dp/zef_dp_151.pdf

Piaseu, N., & Mitchell, P. (2004). Household food insecurity among urban poor in Thailand. *Journal of Nursing Scholarship : An Official Publication of Sigma Theta Tau International Honor Society of Nursing / Sigma Theta Tau*, *36*, 115–121.

Purwaningsih, Y., Hartono, S., & Mulyo, J. H. (2010). Analisis Permintaan Pangan Rumah Tangga Menurut Tingkat Ketahanan Pangan di Provinsi Jawa Tengah (Analisis Data Susenas 2008) (The Analysis of Household Food Demand on Central Java Province) (Analysis of Susenass Data 2008). *EKO-REGIONAL*, *5*(1), 43–52.

Purwantini, T. B., Saptana, S., & Suharyono, S. (2016). Program Kawasan Rumah Pangan Lestari (KRPL) di Kabupaten Pacitan: Analisis Dampak dan Antisipasi ke Depan. *Analisis Kebijakan Pertanian*, *10*(3), 239. https://doi.org/10.21082/akp.v10n3.2012.239-256

Quisumbing, A. R., & Meinzen-Dick, R. S. (2001). Empowering Women to Achieve Food Security. *Focus*, *1*(2).

Rachman, H. P. S., & Ariani, M. (2008). Penganekaragaman Konsumsi Pangan di Indonesia: Permasalahan dan Implikasi untuk Kebijakan dan Program. *Analisis Kebijakan Pertanian*, *6*(2), 140–154.

Robaa, B., Tolossa, D., Barrett, C., Stamoulis, K., Haggblade, S., Hazell, P., & Reardon, T. (2016). Rural Livelihood Diversification and its Effects on Household Food Security: A Case Study at Damota Gale Woreda, Wolayta, Southern Ethiopia. *Eastern Africa Social Science Research Review*, *32*(1), 93–118. https://doi.org/10.1353/eas.2016.0001

Sandyatma, Y. H. (2015). Pemantapan Ketahanan Pangan Melalui Diversifikasi Pangan Berbasis Pemberdayaan Masyarakat. *Buletin Jendela Data*, 23–29.

Shahid, A., & Siddiqi, M. W. (2010). Food Security Analysis of Pakistan: Time Series Approach. *Interdisciplinary Journal of Contemporary Research in Business*, *2*(2008), 288–307. http://content.ebscohost.com.library3.webster.edu/ContentServer.asp?T=P&P=AN&K=58737346&S=R&D=bth&EbscoContent=dGJyMNXb4k-SeqLA4xNvgOLCmr0qep7ZSsKq4TbeWx-WXS&ContentCustomer=dGJyMPGut-1G1qLdKuePfgeyx44Dt6fIA%5Cnhttp://library3.webster.edu/login?url=http://sear

Sharaunga, S., Mudhara, M., & Bogale, A. (2015). *Forum for Development Studies The Impact of ' Women ' s Empowerment in Agriculture ' on Household Vulnerability to Food Insecurity in the KwaZulu-Natal Province*. *9410*(September 2016). https://doi.org/10.1080/08039410.2014.997792

Silvia, S., Sabine, D., Patti, K., Wiebke, F., Maren, R., Ianetta, M., Carlos, Q. F., Mario, H., Anthony, N., Nicolas, N., Joash, M., Lieven, C., & Cristina, R. M. (2015). Households and food security: lessons from food secure households in East Africa. *Agriculture & Food Security*, *4*(2015). https://doi.org/10.1186/s40066-015-0042-4

Sumaryanto. (2009). Diversification as One of the Food Security Pillars. *Forum Penelitian Agro Ekonomi*, *27*(2), 93–108.

Suyastiri, N. M. (2008). Diversifikasi Konsumsi pangan Pokok Berbasis Potesi Lokal dalam Mewujudkan Ketahanan Pangan Pededaan di Kecamatan Semin Kabupaten Gunung Kidul. *Jurnal Ekonomi Pembangunan*, *13*(1), 51–60.

Tanziha, I., & Mewa Ariani. (2010). Determinan Intensitas Kerawanan Pangan serta Hubunganya Dengan Food Coping Strategies (Food Insecurity Determinat and The Relation with Food Coping Strategies). *Jurnal Gizi dan Pangan*, *5*(51), 39–48.

Vu, L., & Glewwe, P. (2011). Impacts of Rising Food Prices on Poverty and Welfare in

Vietnam. *Journal of Agricultural and Resource Economics*, *36*(1), 14–27.

Warner, K., & Afifi, T. (2014). Where the Rain Falls: Evidence from 8 Countries on How Vulnerable Households Use Migration to Manage the Risk of Rainfall Variability and Food Insecurity. *Climate and Development*, Vol. 6 No. 1, pp. 1–17. https://doi.org/10.1080/17565529.2013.835707

Warr, P., & Yusuf, A. A. (2013). World food prices and poverty in Indonesia. *Australian Journal of Agricultural and Resource Economics*. 58. pp 1–21. https://doi.org/10.1111/1467-8489.12015

Ziaei, M., Shirani, F., Eshraghi, F., & Keramatzadeh, A. (2013). Food Security and Coping Strategies Case Study of Rural Areas of Gorgan. *International Journal of Agriculture and Crop Science*, *6*(4), 225–231. www.ijagcs.com

Jurnal 1

ORIGINALITY REPORT

23%	23%	10%	4%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	giapjournals.com Internet Source	10%
2	Submitted to Universitas Negeri Jakarta Student Paper	4%
3	ejurnal.litbang.pertanian.go.id Internet Source	2%
4	journal.unnes.ac.id Internet Source	2%
5	ejournal.kemsos.go.id Internet Source	1%
6	goodwoodpub.com Internet Source	1%
7	ijaeb.org Internet Source	1%
8	jurnal.untagsmg.ac.id Internet Source	1%
9	"Sustainable Agriculture and Food Security", Springer Science and Business Media LLC, 2022	1%

	Publication	
10	jurnal.untirta.ac.id Internet Source	1 %
11	www.neliti.com Internet Source	1 %

Exclude quotes	On	Exclude matches	< 1%
Exclude bibliography	On		