Economics Development Analysis Journal Vol (3) (2021)

Economics Development Analysis Journal

http://journal.unnes.ac.id/sju/index.php/edaj

Food Security: The Role of Social Capital in Indonesia Rural Area

Estiana Rusmawati[1], [2]✉ Djoni Hartono,
[1]Badan Pusat Statistik Kabupaten Tangerang
[2]Klaster Penelitian Pemodelan Energi dan Analisis Ekonomi Regional, Universitas Indonesia

Article Information

History of Article
Received April 2021
Accepted June 2021
Pusblished August 2021

Keywords:
Food Security, Bonding, Bridging, Social Capital Rural.

Abstract

Data from Food Security Agency or BKP in Indonesian indicate that rural areas food security is lower than urban areas. Regarding this fact and findings of previous studies, the present study attempted to determine the effect of social capital (bonding and bridging) on rural households' food security. Compared to the previous study which involved few areas, the present study investigated more representative areas at national level. It covered 38,968 rural households in 34 provinces all over Indonesia taken from Susenas BPS 2018. To analyze the data, the researchers employed Ordinary Least Square (OLS) to examine the association of continuous dependent variable with several independent variables. The results showed that both bonding and bridging as social capital gained positive and significant correlation with food security. Further, it also explained bridging contributed stronger effects on food security than bonding. Thus, these results recommend improvement in the food security policy in Indonesia and provide directions for the future studies.

ISSN 2252-6560

✉ Corresponding author :
Address: Department of Economics Building, Widjojo Nitisastro Campus. Prof. Dr. Sumitro Djojohadikusumo, Str. UI Depok Campus 16424, Depok, Indonesia
E-mail: djoni.hartono@ui.ac.id

INTRODUCTION

In 2020 The World Bank reported less than 690 million people or 8.9 percent of world's population suffered from hunger. This number increased to 60 million people in the last five years (The World Bank, 2020). It proves that food security remains an unresolved global problem.

Similar condition happened in Indonesia as reported by Food Security Agency or *Badan Ketahanan Pangan* (BPK). In 2020 BPK reported 13.61% Indonesia rural and urban areas were at risk of food insecurity. Other data by BPK revealed that the vulnerability of rural areas reached 15.8%, while of urban areas was 4% (BKP, 2020a). The higher vulnerability experienced by rural areas was due to the area characteristics that caused them limited to food stock, variety, and access (Dean, and Sharkey, 2011; Phan and Narayan, 2020; Sseguya, Mazur, and Flora, 2018). Regarding this fact, the researchers focused on rural areas food security.

World Food Summit in 1974 defines food security as the continuous availability and sufficiency of food basic food ingredients as an effort to maintain the increasing consumption and balance the fluctuation of food prices and production (FAO, 1976). As time goes by, food security concepts keep developing and start covering the physical and economic access of food to meet people's food needs and their preferences. The security is built of four main pillars, namely availability, accessibility, utilization, and sustainability.

Availability means the consistently sufficient food quantities in a particular area in a particular period. In addition, accessibility involves the sufficient ownership of resources to obtain food that is in line with nutritional standards. Then, utilization means a guarantee of people's ability to utilize available food according to nutritional needs. Lastly, sustainability refers to the realization of the previous three factors which are sustainable over time (Faqole, Ozkan, and Ayanrinde, 2016).

Several studies have found the effects of areas on the variation of accessibility and food availability. Pearce, et al. (2008) found that New Zealand rural areas location cause low food access due to its difficulty in reaching supermarket or traditional market compared to urban areas. In line with this, Dean and Sharkey (2011) revealed Texas rural residents must travel farther distance than urban residents to supermarket so that there is limited access for buying fruit and vegetable. It affects the low food consumption by rural residents. Of all these studies, it is known that rural areas are more vulnerable to food security compared to urban areas and their surroundings.

Apart from the above aspects, previous studies indicate that social capital has a positive effect on the food security level of rural areas (Dean and Sharkey, 2011; Phan and Narayan, 2020; Sseguya, Mazur, and Flora, 2018). Those study conclude social capital means any capital possible to be made and used by social actors to facilitate people to obtain resources. It helps people through the support of certain communities to keep getting by and provide good access by providing opportunities to get ahead (Woolcock and Narayan, 2000). These social cohesion and trustworthiness can increase chances for individuals who are vulnerable to food to ask for assistance. In addition, higher social capital will motivate the individuals with vulnerable food to ask for food, money, and other resources from their neighbors to meet their food needs (Labianca, 2004). Thus, social capital enables individuals to have needed resources through social interactions among community members.

Unfortunately, conceptualization of social capital is still developing and tends to be multidimensional and multilevel (individual, community, national, and regional) (Scrivens, and Smith, 2013; Sseguya, Mazur, and Flora, 2018; Uphoff, 2000). Of that multidimensional and multilevel manifestation of social capital, Flora and Flora (2013) state that social capital is divided into bonding and bridging social capital.

Bonding social capital is a relationship between people who have similar ethnic, social status, and location. It refers to social cohesion in a group or community that is based on religion, and moral values similarity strengthened by cooperation (Narayan and Pritchess, 1999). Bonding social capital can be generally found in a local/ small scale, such as kinship, friendship, religion, organization, non-governmental

relationship, and others. The relationship exists in each of those groups is built of background similarity so that in turn it can be mutual and emerge solidarity. (Helliwell and Putnam 1999; Hofferth and Iceland 1998).

Bridging social capital is realized by relation and network across social groups. This social capital includes coordination and collaboration with other groups and social support mechanisms or information across community (Narayan and Pritchess, 1999). It can generally be found in an economic relationship and legal or formal institution which often have different region and culture. In addition, this capital connects various groups, such as households, environment, government, and non-government or higher (Helliwell and Putnam, 1999). Bridging social capital can be significant in managing collective resources, especially when there is no government involvement (Chriest and Niles, 2018). It can be realized in information sharing mechanisms and modelling among community members.

The present study involved both bonding and bridging because both of them have a crucial role in improving access to resources. In details, bonding social capital offers community through its strong support among community members to survive (getting by), while bridging gives better access by providing chances to progress (getting ahead) through relationships across community with various background (Woolcock and Narayan, 2000).

Similar to the above ideas, according to Putnam (2000) bonding social capital is useful for households to keep survive because this capital provides social and psychological support. This support can be important for community members who are in less advantaged condition, such as food insecurity. For more, bonding enables households to get loan or job opportunities from local entrepreneurs. Meanwhile, bridging plays more potential role to overcome difficult situations. Bridging can connect to external assets and share information. For example, in finding a job, bridging will connect to more heterogenous environment, while bonding only facilitates assistance from similar sociological condition.

Regarding food security, social cohesion and mutual trust among community members are believed to increase individuals with food insecurity to get some help from neighbor whenever their needs are not met. Higher bonding and bridging social capital will encourage individuals with food insecurity to borrow food ingredients, money, and other resources to meet their food security. This high social capital also motivates individuals to adapt and share information obtained from community to improve their own food security (Putnam, 2000). Therefore, it is inevitable that social capital contributes to the improvement of households' food security.

Some studies have been done to examine the role of social capital in improving food security. One of which is Dean and Sharkey's (2011) which classified social statuses to be low, fair, and high and correlated them to food security. Low social capital represents gap among community members and their perceptions which do not prioritize social cohesion in daily life. Oppositely, high social capital reflects a strong relationship among community members and their perceptions that consider the importance of social cohesion in daily life. This study concludes people with low social capital tend to experience food insecurity.

The above study further indicates people with low social capital are mostly from rural areas. Rural residents tend to judge themselves to be worse than others in a community. This characteristic is sometimes owned by those with food insecurity. Therefore, the study suggests that rural family and individuals should attain more attention in public and private food assistance programs.

Another study is by Chriest and Niles (2018) who examined the effect of social capital on the food security level of urban residents in Vermont, United States of America in facing Extreme Weather Events (EWE) in 2011. It found communities who have high social capital before EWE occur can survive and sustain their own food security. However, the opposite condition in community does not totally indicate negative results as long as bridging social capital can be maintained during and after the EWE. What can be concluded is rural communities with high level

of bonding or bridging social capital can cope with short-term food insecurity during and after EWE.

Lamidi's study (2019) concludes social networks and informal community are beneficial to give access to monetary and non-monetary assistance for poor households. Further, it presents that the support of environment social networks can significantly reduce food insecurity. It is realized by an unconditional loan from the network when the household is experiencing difficult conditions.

In Indonesia, studies focusing on social capital role on households' food security have been done many (Martianto, Alfiasari, and Hadi Dharmawan 2009; Mujiburrahmad 2018; Nasrudin et al. 2020). However, those studies have small coverage and have not distinguished areas where households live. In details, Nasrudin, et al's study (2020) is limited to Maluku Islands, while Mujiburrahmad (2018) focuses on Piddie Regency only. Even, most of the previous studies in Indonesia only covered particular sub-districts and villages, such as what have been done by Martianto, Alfiasari, and Hadi Dharmawan (2009) and Prayitno, Maulida RF, and Nugraha (2019) which cover only Sareal Sub-district and Ngadireso Village, respectively. This has an impact on the limited generalizability of the findings so that in the future they are not reliable to be used as a basis for policy making at the national level for rural households.

Based on the previously mentioned facts, the present study aimed to examine the effect of social capital on households' food security in Indonesia. It offers some novelty to enrich the previous studies. First, the present study used the subsample data of BPS Susenas in 2018 which consisted of 38,968 households spread across villages in the 34 provinces in Indonesia. The use of more representative samples is expected to be a basis for policy making in food security at national level. Second, the current study classified social capital model into two, namely bonding and bridging social capital. It enables the researchers to do more specific analyses of both capital in the way they affect food security. Hence, the findings of this study can be more accurate and a basis for more effective policy making.

RESEARCH METHODS

To answer research questions, this study involved 38,968 rural household samples spread across all provinces in Indonesia taken from the sample used in Survei Sosial Ekonomi Nasional Modul Sosial Budaya dan Pendidikan (Susenas MSBP) or survey of national economy focusing on sociocultural module and education done by Indonesia Statistics or Badan Pusat Statistik in 2018. These samples were chosen because the measurement of bonding and bridging social capital in this Susenas MSBP only takes place every three years with 2018 data as the newest. In sampling the data, BPS used two stages stratified sampling method. In the first stage, BPS chose 7,500 sample blocks of total 30,000 regency/ city census blocks. In the second stage, the households were systematically selected using implicit stratification based on the highest educational level of household head (BPS, 2018).

Household's food security became the dependent variable of this study. According to Wasiu Olayinka Fawole et al. (2016) and Sulihati and Sugiharti (2020), food security is measured using calorie intake per household. The measurement of food security using calorie intake is carried out by adding up the daily calorie consumption data for each household for seven days prior to the 2018 BPS Susenas implementation.

For the independent variable, the researchers employed bonding social capital and bridging social capital. The bonding social capital is determined by analyzing the answers to people's involvement of environmental participation (Zhang, Anderson, and Zhan, 2011). Meanwhile, bridging social capital is a social relationship between individuals who have different characteristics and measured using answers to people's participation in organizations outside their residence, school, and jobs as well as households' tolerance towards activities carried out by other ethnic groups and religions (Zhang, Anderson, and Zhan 2011).

The answers to the above questions were compiled into variables with "yes" and "no" categories to determine whether the households'

members participate in social activities. Then, tetrachoric Principal Component Analysis (PCA) converted all answers into an index as results of bonding and bridging social capital measurement. The use of this analysis method is based on an idea by Kolenikov and Angeles (2004) who state this type of PCS is better to use for "yes" and "no" as nominal variables, while common PCA is usually applied for a continuous variable.

This study used control variable of total ART or total household's members. It covers all people living in a household, such as head of household (KRT), husband/ wife, children, in-laws, grandchildren, parents in law, and other members, including maid. Poverty status is (Dummy_poverty) values 1 if household's income is less than provincial poverty standard, and 0 if it is vice versa. Moreover, head of household's age (Umur) is based on the last birthday, while the squared age of the household head (Umur2) is the age squared. KRT marital status (Dummy_statusnikah) values 1 if KRT divorced/ died, and 0 if it is vice versa. Raskin or rice for poor households status (Dummy_raskin) values 1 if the household receives raskin and 0 if it is vice versa. KRT employment sector (Dummy_sektor) values 1 if the KRT works in agricultural sector, and 0 if he works in other sectors. Lastly, spatial location (Dummy_ provinsi) coded based on the provincial code used in the 2018 BPS Susenas.

Various control variables affecting household's food security have been statistically confirmed to avoid bias. There were number of family members, head of household characteristics, such as age, and gender, poverty status, income, food subsidy program status, and spatial location. Lamidi (2019), on the other hand, found a family who has many members tend to not experience food insecurity. In addition, Dean and Sharkey (2011), and Asa and Archibong (2016) revealed household with older head or woman as a head experiences higher food insecurity.

In terms of household poverty, Asa and Archibong (2016) and De Marco and Thorburn (2009) affirm food insecurity is a general problem of low-income households. Further, Drewnowski and Spectre (2004) conclude the lower income of a household, the higher food insecurity it will have. However, of all these household condition, Sundari and Nachrowi (2015) explain that households which receive food subsidy programs have better food security.

To see the relationship between bonding and bridging social capital on food security, an empirical model of linear regression model in form of Ordinary Least Square (OLS) was employed in this study. It was chosen due to its ability to examine the association between dependent variables, namely continuous variable with one or more independent variables.

OLS method minimizes the number of squares between the observed responses in a group of data and predicted responses through a linear approach. In this way, the research model used in this study is formulated as follows:

$$Food\_security_i = \alpha_0 + \alpha_1 Bonding + \gamma X_i + \varepsilon_i \quad \text{.....(1)}$$

$$Food\_security_i = \beta_0 + \beta_1 Bridging + \gamma X_i + \varepsilon_i \quad \text{.....(2)}$$

Coefficient a1 is the effect of bonding social capital of heads of household on household's food security measured from calorie intake. Then, coefficient β_(1)represents the effect of bridging social capital of household heads on household's food security.

Meanwhile, X_i are control variables of the study, consisting of number of ART, poverty status (Dummy_miskin), KRT characteristics (umur, umur^2, and marital status (Dummy_ statusnikah)), raskin status (Dummy_raskin), employment sector of KRT (Dummy_sektor), and spatial location (Dummy_provinsi).

RESULTS AND DISCUSSION

The mean and standard deviation of all variables are presented in table 1. In this table, it was found that generally households consumed 2,206.70 calories in the last seven days before the survey with the standard deviation of 613.77. Meanwhile, the mean of Bonding social capital was 1.37 or higher than Bridging (1.28). however,

the dispersion of Bonding was higher than Bridging indicated by the value of each standard deviation, namely 0.75 and 0.70. In general, the households consisted of 4 family members with 88% male KRT, 12.4% divorced/ dead, 15% worked in agricultural sector, and aged around 47.91 years. For more, 9.5% of them was categorized as poor and 28% received *raskin* subsidy.

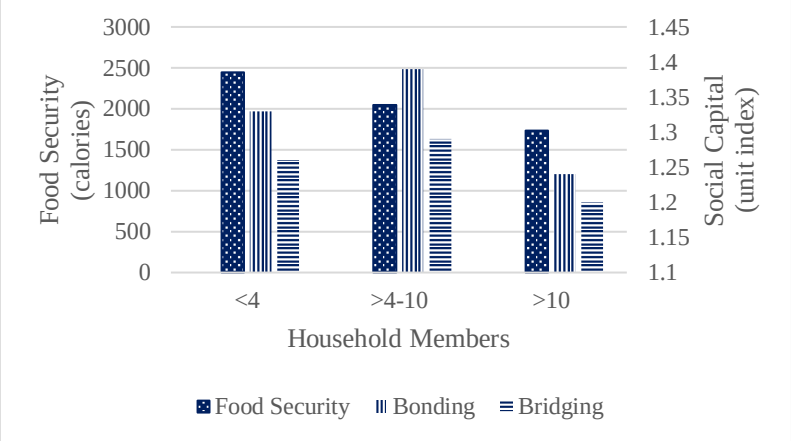
Table 1. The Summary of Variables

Variable	Obs.	Mean	Std. Dev.	Min	Max
Ket_pangan	38.968	2.206,699	613,77	1.000,032	4.498,003
Bonding	38.968	1,37	0,75	0	2.918
Bridging	38.968	1,28	0,70	0	2,68463
ART	38.968	4,00	1,55	2	18
Umur	38.968	47,91	12,80	14	97
Umur2	38.968	2459,82	1304.455	196	9409
Dummy_miskin	38.968	0,095	0,294	0	1
Dummy_statusnikah	38.968	0,12	0,329	0	1
Dummy_raskin	38.968	0,28	0,449	0	1
Dummy_sektor	38.968	0,15	0,353	0	1
Dummy_provinsi	38.968	44,24	6,41	11	94

Source: Susenas 2018, processed

Figure 1 shows the comparison of household's food security in terms of bonding and bridging based on family members. It was known that the highest bonding and bridging social model was owned by the household heads with 4 up to 10 family members, while the highest food security was found in a family with less than 4 members. It is in line with that is reported by Grootaert, et al., (2004) and Hassan and Birungi (2011) in their regression analysis results. This condition implied that fewer family members gained higher food security than larger members.

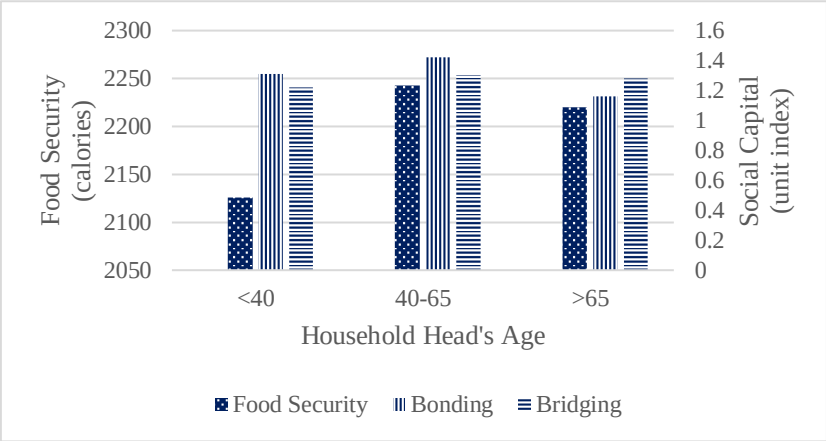
Figure 1. Data on Food Security and Social Capital by Number of Household Members



Source: Susenas 2018, processed

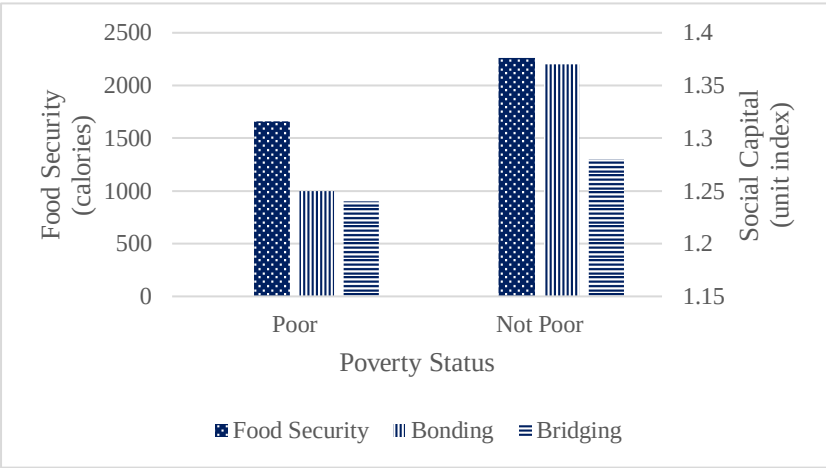
According to age (figure 2), people aged 40-65 years had the mean of food security, bonding and bridging social capital higher than other ages. It implied that at this age, the people had high productivity and energy to build network for bonding and bridging. Similarly, the non-poor status households had higher food security, bonding and bridging social capital than that of poor status (figure 3). It might be because the households with non-poor status had higher confidence and changes to build bonding and bridging social capital relationship which at the end would strengthen their food security.

Figure 2. Data on Food Security and Social Capital based on Age of the Head of the Household



Source: Susenas 2018, processed

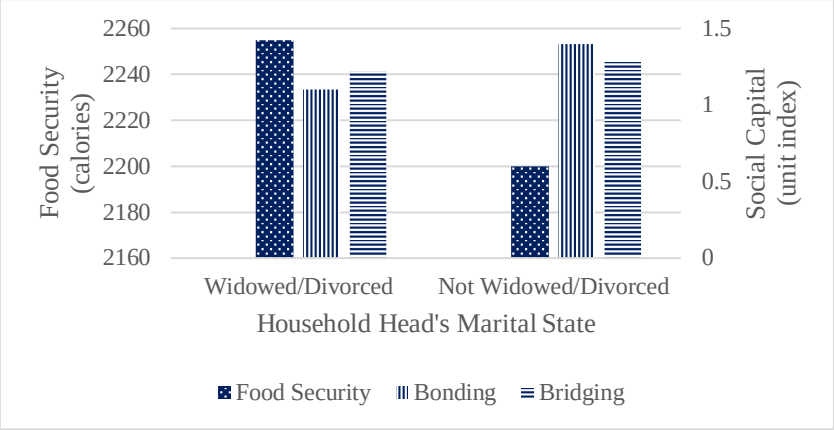
Figure 3. Data on Food Security and Social Capital based on Household Poverty Status



Source: Susenas 2018, processed

Figure 4 explains that those who did not divorce had higher bonding and bridging social capital than those who did. However, the social capital of the households who divorced/ died appeared to be slightly higher. These results might be caused by the imbalanced sample proportion of the households who divorced/ died and those who did not. table 1 shows that the first group consisted of 12% total sample, while the second group which was higher than 12% got higher mean of bonding and bridging social capital than the first group. As a result, when the sample proportion was equal, the bonding and bridging social capital of the first group might be higher.

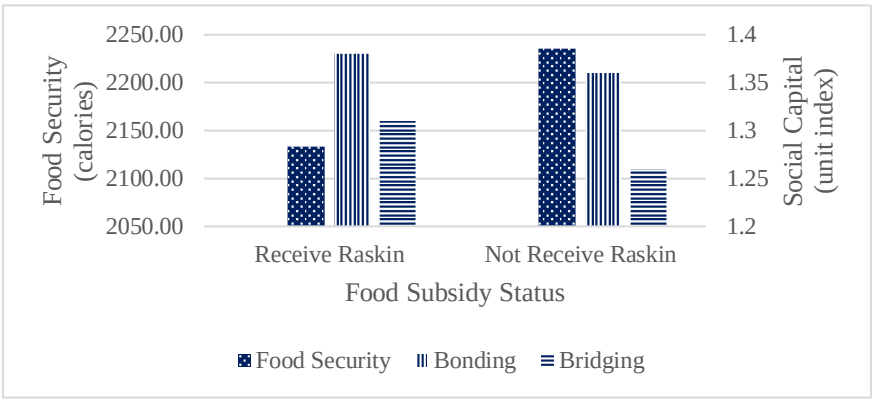
Figure 4. Data on Food Security and Social Capital by Marital Status of the Head of the Household



Source: Susenas 2018, processed

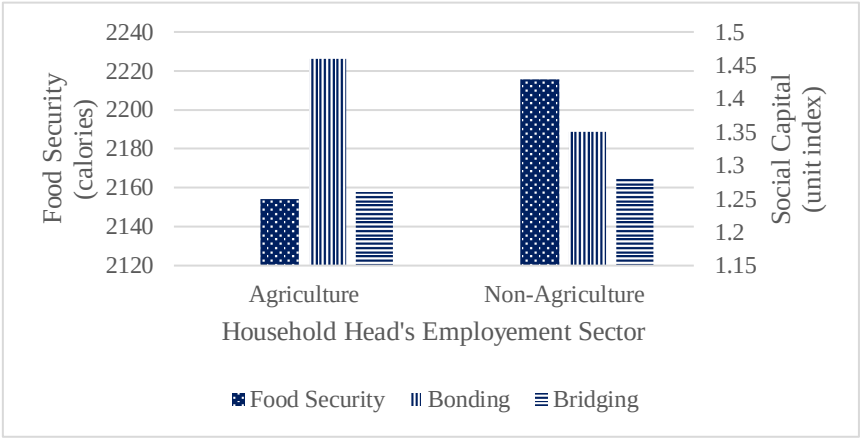
Households which received raskin had lower food security, but this group owned higher social capital compared to those who did not receive raskin as shown in (figure 5) below. This condition is the same as what has been explained in figure 4.

Figure 5. Data on Food Security and Social Capital based on *Raskin* Status



Source: Susenas 2018, processed

Figure 6. Data on Food Security and Social Capital based the Employment Sector of the Head of the Households



Source: Susenas 2018, processed

Last, figure 6 presents the comparison of household heads who work in agricultural sector and non-agricultural sector. According to the illustration, the first group gained lower food security, lower bridging social capital, but higher bonding social capital. This presentation somehow reflects the condition of farmers in Indonesia. Generally, farmers are poor people who have low food security, but based on that figure, they gained high bonding social capital because of living together with other farmers. However, they lacked of network outside their environment and jobs so that the bridging social capital of the farmers was relatively low. This condition was in contrast to the other sectors which had greater chance to interact with more heterogenous groups so that their bridging social capital became higher.

Table 2. The Results of Bonding and Bridging Social Capital Regression on Food Security

Dependent Variable: Food_security	**OLS Regression Model**				
	I	**II**	**III**	**IV**	**V**
Independent Variable:	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Bonding	45.70*** (11,05)	45.37*** (11.67)			30.06*** (7.50)
Bridging			97.64*** (22.21)	71.86*** (18.39)	63.75*** (15.00)
ART		-124.8*** (-66.67)		-125.0*** (-66.93)	-125.1*** (-67.03)
Umur		24.71*** (17.86)		25.61*** (18.70)	24.27*** (17.59)
$Umur^2$		-0.218*** (-16.03)		-0.228*** (-16.97)	-0.214*** (-15.80)
Dummy_miskin		-503.8*** (-51,58)		-501.03*** (-50.52)	-499.0*** (-50.29)
Dummy_statusnikah		-25.35*** (-2.88)		-31.88*** (-3.65)	-24.49** (-2.79)
Dummy_raskin		-7.315 (-1,15)		-10.84 (-1.70)	-11.46 (-1.80)
Dummy_sektor		-16.52* (-1,99)		-15.62 (-1.89)	-18.88* (-2.29)
Dummy_provinsi	No	Yes	No	Yes	Yes
Konstanta	2144.2*** (332.21)	2195.2*** (61.91)	2081.6*** (324.07)	2137.1*** (60.10)	2141.4*** (60.26)
R Squared	0,0031	0.2169	0,0125	0.2203	0.2214
Observation	38.968	38.968	38.968	38.968	38.968

*, **, and *** indicate the level of confidence of 10%, 5%, and 1%

Source: Susenas 2018, processed

The regression results of Bonding and Bridging social capital on food security are presented in table 2. These results were obtained using the estimation of robust ordinary less square because the regression experienced some issues of heteroscedasticity. According to the table, there was a positive association between Bonding and Bridging social capital on food security with the coefficient of 30.6 and 63.75 respectively. Meanwhile, the control variable which had a positive and significant association with food security was KRT age, while other variables, namely number of ART, squared age of KRT, poverty status, marital status of KRT, and KRT employment sector had a negative and significant association with food security. In addition, rasking recipients had no association with food security.

The findings showed that Bonding and Bridging social capital had a positive and significant association with the level of household's food security. It is in line with a study by Dean and Sharkey (2011) that rural residents have low social capital which further result low food security. Their study also proposes the importance of social capital to reduce the food insecurity of households with low income.

By knowing the positive and significant association of Bonding and Bridging social capital with food security, it could be inferred that relatives, neighbours, and friends play a role in helping households to prevent from food insecurity. It shows that communities have high social capital proved by their effectiveness in improving and maintaining the stability of their own food security. A similar idea is argued by Chriest and Niles (2018), namely Bonding and Bridging social capital have a positive effect on survivability during hard times, such as poverty as confirmed by Yamin and Dartanto (2016).

An interesting fact is presented in table 2 that the bridging coefficient (63.75) was significantly higher than bonding (30.06), meaning that the improvement of household participations in community relations outside the group (bridging) will have a stronger association with increasing household food security.

The two kinds of social capital differ in the way they help households when facing difficult situations. Bonding social capital tends to help survive in difficult situations, but bridging helps households to get out of the situations. Bridging can do so because it involves interactions with community groups which have different background, including economic stratum. The difference in this stratum can increase the opportunity of people with food insecurity to get help from bridging communities in form of monetary, non-monetary assistance, or information sharing. The ideas are similar to the findings of studies by (Chriest and Niles 2018; Coffé and Geys 2007; Lamidi 2019; Sseguya, Mazur, and Flora 2018).

The findings of this study can give significant contributions to Indonesia food security, while in the mean time the government is busy with solving food insecurity issues through *Badan Ketahanan Pangan* (BKP) or Food Security Agency, the Ministry of Agriculture. One effort that can be made based on the findings is forming farmer groups as a realization of bonding social capital (BKP, 2020b). It is because farmer groups only consist of people with homogenous background.

Unfortunately, based on the findings, homogenous community is less beneficial than the heterogenous one. In this way, the program shall be improved by involving various community elements which are heterogenous (bridging social capital). For example, the government can invite entrepreneurs to participate in capital, food and agriculture experts to provide education, as well as consumers to provide views of products that can be achieved. Therefore, it is hoped that the effectiveness of the program will increase significantly.

The above idea is related to a study by Chriest and Niles (2018) which states that to encourage the improvement of rural resident's network, the government should do community networks development. It can be done through public institutions, local government involvement, the economy owned and operated at the village level, as well as the implementation of public events focused on rural communities. Community development is a mechanism for the development of individual social capital, which if this is not done will make the community have low social capital which in turn become more vulnerable to food insecurity in the event of a shock. Again, Chriest and Niles (2018) recommend capital investment increase to build infrastructure of large-scale food security, fund public schools, attract local business investment, and hold public events focusing on community. With the increase in rural residents' social capital, there will be an increase in the participation of maintaining security and doing

adaptation for effective community responses to difficult conditions.

Several studies have confirmed the phenomenon of social barrier in the formation of both bonding and bridging social capital (Dean and Sharkey). Here, the government needs to consider rural residents' perception about social network participation. Perception can be significant in social policy implementation because individuals are likely to do an action based on their subjective perceptions. For example, one may live in a community social network as a target of food subsidy recipient. If his subjective evaluation of the community is negative, he probably considers this resource does not exist and will not try to search for it. Further, even though the intervention of community-based food and nutrition subsidy has been available for those who are vulnerable to food insecurity, people with negative perceptions or barrier are possible to neglect this access. Those people must jointly become adjusted targets of intervention to change their low opinion. That way will make such people realize this resource. Another possible effort to deal with this situation is providing transportation to improve accessibility which is assumed to be a barrier to the formation of community social network. With the improvement done by farmers, community social institutions and rural households, it is expected that bonding and bridging social capital can be fostered and in turn increase households' food security.

In relation of control variable, the number of household's member had a negative relationship with the number of food calories consumed. This is similar to what is stated by Grootaert, et al. (2004) and Hassan and Birungi (2011). It explained that the households with few members had more stable food security than those with many members.

Each coefficient umur and umur2 gained significantly positive and negative parabolic relationship with age and food security. This condition is in accordance with human life cycle that productivity will increase as human ages. However, at a certain point, the productivity will somehow decline as human gets older. Yamin and Dartanto (2016) argue the same thing. The present study revealed poor households significantly had lower food security than those who were not. This result is in line with by Dean and Sharkey (2011) and Martin, et al (2004) who conclude that food insecurity still becomes a problem for poor people.

Table 2 indicates that the households whose KRT divorced/ died gad lower food security. This is similar to a study by (Martin, et al., 2004). Moreover, the households whose KRT worked in agricultural sector gained lower food security. It is due to the fact that poverty in Indonesia is concentrated in rural areas which are dominated by farmers (Yamin, and Dartanto, 2016). Farmers are mostly poor because they work as laborers on others' land which is small.

Furthermore, the current study also indicates that rasking receiver had no significant effect on food security. Nasrudin, et al's study (2020) summarizes that poor households averagely needs IDR 234,000 subsidy every week to reduce food insecurity.

To see the heterogeneity effects of bonding and bridging social capital on food security, this study performed a regression analysis based on gender as presented in table 3. In line with the previous results, bridging social capital gained higher coefficient value than bonding. However, the regression results of female as household head variable were different from the former. Here, bonding social capital had not significant association with the level of household's food security. It was because as a household head, women had no time and benefit in building the social capital due to their responsibility to take care of the household.

Table 3. The Results of Bonding and Bridging Social Capital Regression on Food Security Based on the Gender of the Head of the Household.

	OLS Regression Model	
Dependent Varible: Food_security	Male	Female
Independent Variable:	(1)	(2)
Bonding	31.89***	17.39
	(7.51)	(1.37)
Bridging	61.72***	80.96***
	(13.70)	(6.32)
ART	-123.6***	-133.4***
	(-62.04)	(-24.03)
Umur	25.39***	13.85***
	(16.99)	(3.39)
$Umur^2$	-0.224***	-0.129***
	(-15.08)	(-3.44)
Dummy_miskin	-490.6***	-60.5***
	(-46.27)	(-19.75)
Dummy_statusnikah	-38.76*	-50.18
	(-2,31)	(-1.93)
Dummy_raskin	-8,777	-35.09
	(-1,29)	(-1,89)
Dummy_sektor	-21.89*	-4.643
	(-2,51)	(-1,89)
Dummy_provinsi	Ya	Ya
Constant	2097.3***	2448.6***
	(55.21)	(23.23)
R Squared	0,2176	0.2444
Observation	34,535	4433

Source: Susenas 2018, processed

CONCLUSION

Food security is still a problem at both national and global levels. It is because this matter plays a strategic role for health and productivity so that there is a high urgency to increase the security. Additionally, the previous studies found that bonding and bridging social capital have a significant association with food security, but in Indonesia, studies focusing on this matter have not yet been comprehensive since food security covers certain province, regency, and even village. Hence, the present study examined the effect of bonding and bridging social capital on Indonesia food security using 38,968 samples of rural household spread across all provinces in Indonesia based on Susenas BPS data in 2018.

OLS test indicates that there is a positive relationship between bonding and bridging social capital and food security. Alternatively, bridging coefficient is higher than bonding. This happens because bonding characteristic that is only dominated by people with the same background and help their neighbours to survive in difficult conditions. Oppositely, bridging consists of more heterogenous community members in helping households facing difficult situations through monetary, non-monetary assistance, and information sharing among its various members. Therefore, this study shows that bridging social capital has a higher effectiveness in overcoming the problem of food security.

Based on the findings, bridging social capital has higher effectiveness in overcoming food security issue. Thus, this study recommends the involvement of more diverse community (entrepreneurs, food and agriculture experts, and consumers) in communities (farmer groups) formed by the Government as an effort to improve food security in Indonesia. Moreover, suggestions for the future studies is to add another variable to food security other than calorie intake, such as

Dietary Diversity Score (DDS) to know the consistency of this study findings. Then, since the existence of reverse causality between social capital and food security may cause bias against OLS usage, this study proposes 2SLS method with instrumental variables to deal with such endogeneity.

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