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More networks, more financial inclusion? An empirical evidence from Indonesia

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ABSTRACT

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Social capital is essential in mediating financial inclusion. We employ broader horizontal and vertical social engagement of social capital such as bonding, bridging and linking. Meanwhile, financial inclusion is defined as saving ownership in a formal financial institution. Using a logistic regression model and a sample of 74,454 individual respondents from the 2018 National Socioeconomic Survey, we found that social capital is essential in promoting formal saving behavior. Among three indicators (bonding, bridging, and linking), the results show that a rise in the bridging variable was associated with a 10 per cent higher likelihood of having a formal savings, higher in magnitude than the linking variable. Bonding variable had no effect in promoting financial inclusion, but upon further observation, it was still suitable to be implemented in rural area. Our estimates justified the presence of financial information transmission among people in their respective social circles. Our findings suggest that the government should consider a financial campaign using a community-based approach to complement the current inclusion strategy.

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INTRODUCTION

Banerjee & Duflo (2007) identified information failure as one of the root problems in improving financial inclusion. The bridging process between financial knowledge and financial behavior is among the crucial mechanism where a good transmission of information should occur. Trust plays a significant role in this process since people traditionally prefer to engage in financial transactions with reliable parties such as neighbours or family members. It is reasonable since financial transactions, such as saving and financing, are a form of trust-intensive interactions involving money exchange. Such exchanges can occur not only depending on the legal validity of the contract but also on mutual trust among the individuals involved (Guiso et al., 2004). Thus, trust is necessary to encourage good information transmission between them, either for the people doing the transaction or the third party who facilitates the exchange.

Social capital theory, on the other hand, has been acknowledged in economic research to explain trust and measure trustworthiness between people (Putnam, 1993). It is a concept that comprises an accumulated trust within society through repeated social interactions, information sharing, and shared norms (Bongomin et al., 2018; Cull et al., 2016). In a community with a high social capital level, individuals tend to have high trust among members because they obey specific rules and punishments in the community network (Coleman, 1988). In turn, an intense social interaction might influence individual financial decisions through the transmission of information between members (Duflo & Saez, 2003). This mechanism occurs either indirectly, such as through observing the behavior of other members in the network, or direct exposure to information exchange from their relationships. It is also easier to spread information and financial knowledge within a more connected community.

Literature has widely investigated how social capital impacts economic and financial development. For instance, trust as the proxy of social capital in Italy was found to affect local financial sector development and economic growth (Guiso et al., 2004; Helliwell & Putnam, 1995). In addition, the result showed that in areas with high social capital intensity, households tend to use checks, prefer to invest in stock rather than cash, have better access to institutional credit, and have low use of informal credit. Using crosscountry data analysis, Law & Ibrahim (2013) concluded that social capital complements existing formal institutions in promoting financial development. Moreover, it is suggested that social capital plays a more immense and considerable contribution to fostering the financial system in an area with low quality of institutions.

Specifically, social capital is also regarded as a resource to improve financial inclusion. It was found among poor people in Uganda that social capital has a mediating role in the relationship between their financial literacy and financial inclusion (Bongomin et al., 2016). The presence of social capital increases formal financial services access through the mechanism that people learn by observing their role model inside a community whom they believe are credible and knowledgeable. Similar conclusion was drawn in a research in Nigeria which captured SMEs as the unit of analysis. It was found that relationship of SME leader to external stakeholders can enhance their financial access from formal institution. However, social connection among SME leaders does not have the same mediating role to financial inclusion (Onodugo et al., 2021).

Trust as one of the universal parameters in social capital was found to be a leading factor for financial inclusion improvement in India (Ghosh, 2021). It is further concluded that the growing technology should not overtake the human interactions in promoting financial services. Banks can build a sustainable long-term business by earning trust through the integration

Pertiwi & Muzayanah, More networks, more financial...

of their advice and service. A wider cross-country study case also found that social trust is essential for financial service utilization by promoting financial inclusion. It might explain why particular countries experienced underdevelopment in their formal financial sector.

In this paper, we aim to analyze the role of social capital on financial inclusion in Indonesia. The financial inclusion is measured by individual account ownership on formal financial institutions following the World Bank definition. Furthermore, we interpret social capital using R. Putnam's (2000) and Szreter & Woolcock's (2004) definitions to elaborate on different forms of social capital. We include the bonding and bridging concepts as the primary measurement to represent group homogeneity. Bonding refers to a strong network association between members with similar backgrounds and outlooks (homogenous), such as family and neighborhood. Bonding is potentially more visible in rural areas (Glatz & Bodi-Fernandez, 2020; Qin et al., 2022; Sørensen, 2016). Contrarily, bridging comprises respect for value and mutuality character among people with different backgrounds (heterogeneous). This kind of social capital bridging is most prominent in urban society (Glatz & Bodi-Fernandez, 2020; Qin et al., 2022; Sørensen, 2016). Furthermore, we also elaborate the third basic form of social capital called linking ties, which is defined as a relationship by access to power and influence (Scrivens & Smith, 2013).

Indonesia is an interesting case study due to the following reasons. First, the problem of financial inclusion is still challenging in Indonesia. The country still reports a high number of people living without access to any formal financial institution. Although financial authorities have addressed the issue, World Bank reported that in 2017, 51% of Indonesian adults still did not own a bank account (Demirgüc-Kunt et al., 2017). Second, in the same report, Indonesia also ranked as the fifth country with the lowest financial inclusion, following Pakistan, Ethiopia, Nigeria, and Colombia under the same parameter. A recent Financial Services Authority study reported that Indonesia's financial inclusion rate has increased to 76.19%. This number was measured through a combination of people's accessibility to the financial institution, products, and services (OJK, 2020). However, this outcome still needs to be improved since a low financial inclusion can hamper economic development. People without access to formal

financial services tend to be vulnerable to financial instability (Demirgüç-Kunt et al., 2017).

Third, Indonesia is widely known for its traditional social capital embodied in *gotong royong* or mutual aid (Dokhi et al., 2017). The basic idea of *gotong royong* is a form of social engagement that includes participating in communal activities within or across workplaces and neighborhood areas. Social engagement is created to achieve the same vision among community members. Therefore, trust and mutual objectives between people in the group are essential to build social capital seems essential as a medium of policy transmission, especially for increasing financial inclusion in the unbanked society.

To the best of the authors' knowledge, there is a lack of literature investigating the link between social capital and financial inclusion in Indonesia. Previous studies only focused on the city-level case study, making it hard to generalize the results (Manzilati, 2022; Nuryakin et al., 2021; Rokhim et al., 2021). Hence, for a remarkable contribution, this study employs a broad representation of the Indonesian sample using Susenas. Thus, our results can be generalized at the national level and provide more comprehensive policy implications to implement.

RESEARCH METHOD

This study used the 2018 National Socio-Economic Survey (Susenas) datasets. Susenas is a national-level household survey conducted by the Indonesian Central Bureau of Statistics. It covers all 34 Indonesian provinces, making it an adequate representation of the national sample. The social capital and financial inclusion variables were obtained from the latest Social, Culture, and Education module, first introduced in 1994 and covered around 75,000 households. The data were collected once in three years and designed in a cross-sectional study employing different samples in every data collection period.

The dependent variable defined in this study is the ownership of individual savings in formal financial institutions. The questions in the Susenas questionnaire were: "Does (name) have any savings/savings in the form of money?". This question was rated using four answers: (1) Yes, in financial institutions (banks, cooperatives), (2) Yes, in nonfinancial institutions, (3) Yes, in financial institutions and non-financial institutions, and (5) No. The answers of (1) and (3) were recoded as 1 to represent savings ownership in formal and informal institutions and the answer of (2) was recoded as 0, meaning that the person does not have saving ownership in formal financial institution. Meanwhile, respondents who answered option (5) were excluded from the observation.

The present study interpreted the concept of social capital as bonding, bridging, and linking. Bonding is a social tie within members of a homogenous social group (Putnam, 2000), while bridging is that which is focused on a heterogeneous society. Furthermore, linking covers the relationship between people with different statuses or power. In the Susenas survey, the bonding variable was best proxied using individual attendance in neighborhood meetings, involvement in social services around neighborhood areas, and participation in the organization outside the workplace/school. The bridging variable was probed by participation in activities held by different ethical and/or religious groups. Last, the linking variable was measured by participation in the provincial/national election because participation in the political events indicates trust in people of higher status (Scrivens & Smith, 2013).

We estimated the value for bonding, bridging, and linking variable by putting binary value for each question first. The value would be summed according to their respective social capital variable and re-coded relative to the average value (Dokhi et al., 2017; Muzayanah et al., 2020). For bonding variable, total value ranged from 0 to 3. Each individual value would then be coded as 1 if higher than average and 0 if lower. The same re-coding treatment was implemented for bridging variable where total value only ranged from 0 to 2. For linking variable, binary value was directly employed since the variable was only represented by one question (Table 1).

Furthermore, this research included sociodemgraphic variables of the respondents to control the different individual background. It is necessary as knowledge formation about financial issue might vary according to individual condition. Following Bekele (2022), Devlin (2009), and Percoco (2015), variables chosen as individual characteristics were education level, marriage status, sex, age, number of children, and household size. We also employed people involvement in *arisan*, which is a regular social gathering involving saving rotation activity among members (Rammohan & Johar, 2009). All of these variables are continuous, except marriage status, sex, asset ownership, and residential area. Age square was employed in order to model the effect of differing ages, rather than assuming that the effect is linear for all ages. Meanwhile, observations in this research only employed individuals over 15 years old. By restricting the age, our sample only observed adult respondents which are capable to make savings decision either in formal or informal institution.

Table	1.	Research	Variables
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Variable	Definition
Financial	Own saving in formal financial institutions
Inclusion	(bank, cooperatives)
Bonding	1. Attend neighborhood meetings
	Involve in social services in
	neighborhood area
	3. Join other organizations outside the workplace/school
Bridging	4. Participate in activities from other racial
	5 Attend activities of other religious groups
Linkina	6 Participate in provincial/national level
Eniking	election
Socio Demogra	phy
Education	Highest education status
Marriage	Current marriage status. Married=1,
Status	Unmarried=0
Sex	Gender. Female=1, Male=0
Arisan	Involved in <i>arisan</i> activity. Involved=1,
	Uninvolved=0.
Age	Individual age
Age Square	Square value from age
Number of Children	Total unmarried children in the family
Household Size	Total family member under the same
	household
<u>Wealth</u>	
Asset	Housing ownership dummy. Self-owned=1,
Ownership	Not self-owned= 0
Working Status	Status in main occupation
Geography	
Area	Residence location. Urban=1, Rural=0

Wealth category was also employed to control income variation between respondents. It is commonly analyzed in microeconomics theory that personal saving is directly influenced by individual income and consumption (Pindyck & Rubinfeld, 2013), hence income is an important determinant of saving decision. However, Susenas Social, Culture, and Education Module did not provide data on this matter. Thus, we represented income by working status and housing ownership. Geographical background was also composed by a dummy variable accounting 1 for urban

and 0 for rural living. It is important because issues in financial inclusion typically differ in these two areas (Ghosh, 2021).

We integrated this information into empirical framework to estimate the correlation of social capital on financial inclusion, while controlling other factors. To quantify the correlation between financial inclusion and social capital, we employed logistic regression method. Such method is useful to analyze and interpret data with binary number as the dependent variable and understanding the relative impact on different household characteristics. The following equation was estimated:

$$P(y_{i} = 1 | X1_{i}, X2_{i}, X3_{i}, Z_{i}) = \alpha + \beta_{1}X1_{i} + \beta_{2}X2_{i} + \beta_{3}X3_{i} + \beta_{4}Z_{i} + e_{i}$$
(1)

where i refers individual sample, to i=1,2,3,.....,74.454. Yi refers to likelihood of formal saving ownership from individual i as the dependent variable representing financial inclusion. We used binary value to adjust to the type of survey data. The value was accounted as one if a formal saving account was present and zero if otherwise. X1i, X2i, and X3i are predictor variables containing Bonding, Bridging, and Linking measurement respectively. Each variable was also employed in binary value. The value of $\beta 1$, β 2, β 3 should be statistically different from zero if the effect of social capital was present. Zi is a vector of individual control variables capturing sociodemography, wealth, and location characteristics. To accomondate arbitrary correlation within the same family, we clustered the standard errors at the household level (Xu, 2019; Yudhistira et al., 2021).

RESULT AND DISCUSSION

Overview of Research Object

Summary statistics for variables included in this research are presented in Table 2. After dropping observations with missing values and respondents aged below 15 years old, we reached a sample size of 74.454 observations. Across the samples, almost 83% people were formal account holders. The value was higher than the national estimation which only reported around 51% of adult formal saving in 2017 (Demirgüç-Kunt et al., 2017). For the social capital measurement, our sample also shows that more than half of them were engaged in bridging and linking activity. Only around 48% had bonding engagement.

Variable	Observation	Mean	Std. Dev.	Min	Max
Financial Inclusion	74,454	0.828377	0.377055	0	1
Bonding	74,454	0.479988	0.499603	0	1
Bridging	74,454	0.761934	0.425903	0	1
Linking	74,454	0.696376	0.459825	0	1
Control: Socio Demography					
Education Level	74,454	3.490706	1.191783	1	5
Marriage Status	74,454	0.729390	0.444278	0	1
Sex	74,454	0.505722	0.499971	0	1
Arisan	74,454	0.276157	0.447098	0	1
Age	74,454	40.13584	14.30744	15	97
Age Square	74,454	1815.586	1258.181	225	9409
Number of Children	74,454	1.146292	1.249590	0	10
Household Size	74,454	4.189285	1.756447	2	18
Control: Wealth					
Asset Ownership	74,454	0.832004	0.373866	0	1
Working Status	74,454	1.635587	1.300925	0	5
Control: Geography					
Area	74,454	0.562643	0.496064	0	1

Table 2. Descriptive Statistics of Research Variable

Regarding the individual characteristics, the average of our respondents reported completing at least a junior high school degree. More than half of respondents were married (72%), owned a housing property (83%), and lived in an urban area (56%). For the continuous variables, on average, our sample was around 40 years old, had one child, and lived with four people in a household. Gender, on the other hand, was equally distributed, with 50% of respondents being female and the rest male.

Table 3. Correlation Matrix among Social Capital Variable

	Formal Saving	Bonding	Bridging	Linking		
Formal	1.0000					
Saving						
Bonding	0.0922***	1.0000				
Bridging	0.0987***	0.0051***	1.0000			
Linking	0.0730***	0.1306***	0.0583***	1.0000		
*** denote significant level at 1%.						

Before doing the descriptive statistics, we estimated the correlation matrix of key variables in Table 3. It can be seen that the social capital variable had a statistically significant positive correlation with formal saving ownership. However, the value was relatively small in magnitude, as also found in Ghosh (2021). The result indicates a weak correlation among key variables, suggesting that our estimation did not encounter a severe collinearity problem (Gujarati,

2003). Interestingly, the bridging and bonding variables had a negative correlation, which means that the two variables tend to move in opposite directions. In addition, the magnitude of the correlation between these two variables was very small and negligible. Thus, bonding and bridging might be mutually exclusive or possibly related, but not in a linear way. This finding indicates that each social capital estimation is independent and fulfils the necessary regression analysis condition (Gujarati, 2003).

Factors Affecting Saving Behavior

We provide the main logit regression result in Table 4. As the first step, we regressed only the main without interest variable controlling sociodemography, wealth, and geographical characteristics. The result is presented in column 1. In general, our estimates support the hypothesis that social capital may positively affect financial inclusion, shown by the higher likelihood of formal saving ownership. The bonding, bridging, and linking social capital were positive and statistically significant at 1%. The following three columns of Table 4 present the complete result of each social capital indicator. In column 2, the bonding variable was positively associated with financial inclusion but statistically insignificant. Columns 3 and 4 also exhibit a similar positive association in 1% and 5%, respectively.

Table 4. Social	Capital,	Socio-Demography	, Wealth	, and	Geography	Variable	Affecting	Saving I	эу L	ogistic
Regre	ssion									

	Dependent Variable (1=Formal Saving, 0=No Formal Saving)				
Independent Variable	No Control	Bonding &	Bridging &	Linking &	Full Model
Bonding	0 0058***	0.0228	CONTROL	COLLIO	0.0154
bonding	(0.0225)	(0.0220			(0.0154)
Bridging	0.0223)	(0.0255)	0 200***		0.025***
bildging	(0.0276)		(0.0203)		(0.0293)
Linking	0.0270)		(0.0292)	0 0866**	0.0295)
Linking	(0.0269)			(0.0284)	(0.0285)
Socio-Demography	(0.0205)			(0.0201)	(0.0205)
Education					
Elementary School		0.366***	0.357***	0.351***	0.339***
,		(5.34)	(5.17)	(0.0689)	(0.0694)
Junior High School		0.688***	0.675***	0.669***	0.653***
		(9,44)	(9.19)	(0.0734)	(0.0739)
Senior High School		1.311***	1.295***	1.290***	1.272***
5		(17.96)	(17.64)	(0.0734)	(0.0740)
Diploma and above		2.644***	2.623***	2.622***	2.598***
		(31.46)	(0.0845)	(0.0844)	(0.0849)
Marriage Status (Married=1)		0.0159	0.0150	0.0164	0.0132
		(0.0326)	(0.0326)	(0.0326)	(0.0326)
Sex (Female=1)		-0.488***	-0.490***	-0.491***	-0.485***
		(0.0237)	(0.0231)	(0.0231)	(0.0238)
Arisan		-0.142***	-0.146***	-0.143***	-0.156***
		(0.0270)	(0.0265)	(0.0265)	(0.0270)
Age		0.0692***	0.0694***	0.0689***	0.0687***
		(0.00490)	(0.00490)	(0.00489)	(0.00491)
Age Square		-0.0006***	-0.0006***	-0.0006***	-0.0006***
		(0.00005)	(0.00005)	(0.00005)	(0.00005)
Number of Children		0.0461***	0.0471***	0.0476***	0.0477***
		(0.0126)	(0.0126)	(0.0126)	(0.0126)
Household Size		0.0106	0.00877	0.0101	0.00884
		(0.0101)	(0.0101)	(0.0101)	(0.0101)
Wealth					
Asset Ownership		0.0411	0.0541	0.0320	0.0427
		(0.0379)	(0.0378)	(0.0380)	(0.0381)
Working Status					
Self-Working		0.0800**	0.0821**	0.0828**	0.0827**
		(0.0303)	(0.0303)	(0.0303)	(0.0303)
Officer/Employee		0.488***	0.485***	0.489***	0.485***
		(0.0346)	(0.0346)	(0.0346)	(0.0346)
Freelance		-0.506***	-0.496***	-0.500***	-0.495***
		(0.0578)	(0.0579)	(0.0577)	(0.0579)
Housewife/Unpaid Work		0.010/	0.00894	0.0150	0.0112
		(0.0440)	(0.0441)	(0.0440)	(0.0441)
Un school		0.0430	0.038/	0.0402	0.0350
Coordination		(0.0614)	(0.0615)	(0.0614)	(0.0615)
Geography Area (Urban-1)		0 110***	0 200***	0 100***	0 201***
Area (Orban=1)		U.41U***	0.390***	U.4U8*** (0.0275)	0.391***
Constant	1 11/***	(0.02/0)	(U.U2//)	(0.02/5)	(U.UZ/ð)
CONSIGNE	1.110***	-1.249 ^{***}	-1.3/3***	-1.201***	-1.380***
Obc	(0.0302)	(0.135)	(0.130)	(0.135)	(0.130)
CUS Decudo P2	74,454	/+,404 0 101	/+,404 0 100	/+,+>+	/+,+>+
Prohochi?	0.000	0.121	0.122	0.121	0.122
	0.000	0.000	0.000	0.000	0.000

 Prob>chi2
 0.000
 0.000

 Coefficient value. Robust standard error in parentheses, corrected for household cluster.
 *, **, and *** denote significant level at 10%, 5%, and 1%.

230

Journal of Socioeconomics and Development, Vol 5, No 2, October 2022

	Dependent Variable (1=Formal Saving, 0=No Formal Saving)						
Independent Variable	No Control	Bonding & Control	Bridging & Control	Linking & Control	Full Model		
Bonding	0.0135***	0.0028			0.0019		
Bridging	(0.0032) 0.5503***	(0.0032)	0.0265***		(0.0032) 0.0260***		
Linking	(0.0039) 0.0259***		(0.0037)	0.0109***	(0.0037) 0.0096***		
	(0.0038)			(0.0036)	(0.0036)		
Control: Socio-Demography		Yes	Yes	Yes	Yes		
Control: Wealth		Yes	Yes	Yes	Yes		
Control: Geography		Yes	Yes	Yes	Yes		
Obs	74,454	74,454	74,454	74,454	74,454		
Pseudo R2	0.006	0.121	0.122	0.121	0.122		
Prob>chi2	0.000	0.000	0.000	0.000	0.000		

Table 5. Marginal Effects of Social Capital variable affecting Saving by	oy logit moae	ы
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Coefficient value. Robust standard error in parentheses, corrected for household cluster.

*, **, and *** denote significant level at 10%, 5%, and 1%.

Table 6. Marginal Effects of Social Capital Variable and Its Interaction affecting Saving by Logit Model

	Dependent Variable (1=Formal Saving, 0=No Formal Saving)				
	Full Model	Interaction with	Interaction with		
		Urban dummy	<i>Arisan</i> dummy		
Bonding	0.0154	0.0764*	0.0152		
	(0.0254)	(0.0329)	(0.0301)		
Bridging	0.205***	0.204***	0.205***		
	(0.0293)	(0.0293)	(0.0293)		
Linking	0.0758**	0.0768**	0.0758**		
	(0.0285)	(0.0286)	(0.0286)		
Bonding x Urban		-0.141**			
-		(0.0472)			
Bonding x Arisan			0.00049		
			(0.0495)		
Control: Socio-Demography	Yes	Yes	Yes		
Control: Wealth	Yes	Yes	Yes		
Control: Geography	Yes	Yes	Yes		
Constant	-1.380***	-1.409***	-1.380***		
	(0.136)	(0.136)	(0.136)		
Obs	74,454	74,454	74,454		
Pseudo R2	0.122	0.123	0.122		

Coefficient value. Robust standard error in parentheses, corrected for household cluster.

*, **, and *** denote significant level at 10%, 5%, and 1%.

The last column in Table 4 provides our full model estimation with all social capital indicators and control variables. The regression result generally shows that social capital associated with a higher likelihood of financial inclusion. Hence, it supports our hypothesis that bigger exposure to social capital might stimulate higher trust to engage with formal financial service provider. In turn, it will decrease the reliability on informal institution while increasing the level of financial inclusion following Ghosh (2021) and Xu (2019).

Along with the marginal effect estimation in Table 5, the bridging social capital showed the highest significant coefficient and marginal value. The

coefficient on bridging was 0.205 (significant at 1%) Thus, one standard deviation increase in bridging improved formal saving participation by almost 0.09 or around 11% relative to the sample mean. This result is consistent with the previous study but shows a relatively smaller magnitude compared to Ghosh (2021) and Xu (2019), with 30% and 40% increase, respectively. Meanwhile, the linking social capital also appeared to have a positive and significant association with formal saving, but their magnitude is far lower. These findings suggest that people engaging with the heterogeneous community are more likely to save money in formal institutions. The results for the control variables also showed a significant association. It is shown that the higher the education level, the higher the probability of saving money in formal institutions. This finding indicates that education is still essential in providing an understanding for people to engage with financial services. It also supports the financial literacy argument which concludes that education attainment can improve financial knowledge and inclusion (Devlin, 2009).

Meanwhile, age variable also had a statistically significant and positive association with financial inclusion. One potential explanation may come from OECD (2020) mentioning that the group of middle aged (aged 30-59) has significantly higher scores in financial literacy and its elements, as well as financial well-being. It is also supported by adult exposure in workplace (e.g. payroll, insurance, pension fund) or daily routine (e.g. mortgage, saving, payment). On the other hand, the younger community have lower financial knowledge and less prudent financial behavior due to relative dependency in parents or caregiver (OECD, 2020). This pattern, however, provides an inverted U-shaped as shown by a significant negative coefficient on squared age variable. Thus, people reaching a certain age might experience a decline in financial literacy since they are more prone to a poorer decision making and lower wellbeing (Shimizutani & Yamada, 2020; Yu et al., 2021).

Marriage status and household size had no association with financial inclusion. In terms of wealth characteristics, asset ownership also appeared to have an insignificant association with financial inclusion. It is notable that the relationship between asset ownership and saving are commonly found in inverse association since people motivated to save to buy asset. Hence for family with homeownership, their motive to save is lower and even disappears. The result of present study supports previous findings such as by Percoco (2015) and Tan et al. (2022), arguing that asset ownership, especially housing, can lead to а consumption effect where people with homeownership have a lower saving rate and higher consumption for elastic goods. People with asset ownership also tend to substitute their cash-saving behavior with the asset and treat them as financial cushion. Thus, in times of difficulties, people with asset ownership choose to leverage their asset in the same manner of people with saving withdrawal (Noerhidajati et al., 2021). People living with an active payroll (i.e. officer/employee, self-working, and freelancer) were reported to have a significant association with financial inclusion. People with passive income such as housewife and student, on the other hand, does not possess significant relationship with the inclusion. This finding is similar with Bekele (2022) and Devlin (2009) mentioning that employed people are living with income receipt and most likely disbursed via financial institutions. Thus, the possibility of having a bank account is higher in this group. Moreover, among the significant variables, freelance job was found to be inversely correlated with financial inclusion. Following Bekele (2022), a possible explanation for this result might be related to job security. Employee/officer is highly related with stable wage system while freelancer is living with more volatile income. Hence, employment in less secure status will lead to a lower financial inclusion.

Lastly, people living in urban areas had a higher likelihood of financial inclusion. This relationship supports previous research including Bekele (2022) and Yangdol & Sarma (2019) which elaborated the transaction cost theory as the main reason. Urban society mostly lives with medium to high income, making them a good market for financial services. Rural people, on the other hand, belong to low-income category and reside in remote area. Thus, financial service provider will face a higher operating cost in rural compared to the urban area. The business decision will then affect the financial inclusion rate.

The bonding social capital showed a positive relationship with preference to save in formal saving, but was statistically insignificant. The bridging and linking variable, however, showed a significant positive sign. The findings corroborate the study of Onodugo et al. (2021), who observed firm-level social capital on their financial inclusion. The research concludes that bonding has no effect and bridging has the significant moderating effect to induce financial inclusion. People will take more advantage of their heterogenous community to gather various perspectives and information, including financial knowledge. The information will then be used to create a financial decision making and in turn will led to a higher financial inclusion.

We also extend the estimation by employing the interactions of the bonding variable with location (urban dummy) and *arisan* activity to elaborate the bonding social capital creation. The estimation results are presented in Table 6, column 2 and 3. For the first estimation, the result implies that bonding social

capital can be crucial to increasing financial inclusion in rural areas, indicated by a significant negative sign. One possible explanation is the argument that bonding is indeed more prominent in rural area due to the less institutional support services and smaller group sizes. This characteristic can lead to a bigger incentive for rural people to maintain good and loyal relationship with peers (Glatz & Bodi-Fernandez, 2020; Qin et al., 2022; Sørensen, 2016). Thus, although the overall estimation indicates that bonding did not have a significant association with financial inclusion, it is still advisable to be taken into account in rural area.

Furthermore, arisan is also included due to its characteristic as one of the popular community gatherings in Indonesia involving a financial activity during the meeting. It is a kind of group lottery where members contribute a predetermined amount of money at periodic meetings (Rammohan & Johar, 2009). The sum of all collected money goes to a member whose name comes out at a random draw and the gathering ought to be held until all members win the draw. By participating in this gathering, people will be forced to set aside a certain amount of money periodically and earn the complete collected money when they win the lottery. This kind of activity is similar to informal saving behavior, hence indicating that arisan could be a substitute for saving money at a formal financial institution.

To rule out the possibility of substituting formal financial activity with *arisan*, we added it as an interaction variable in the model. The information was obtained from the questionnaire question "does respondent follow *arisan* as a social activity in the surrounding neighborhood?" with answer (1) Yes, (2) No, or (5) No Activity, where the result is presented in Table 4, column 3. Upon this estimation, it was found that *arisan* had a positive but statistically insignificant association with financial inclusion. Hence, we can imply that bonding variable created during *arisan* gathering had no association with financial inclusion.

Research Implication

This paper highlights the role of social capital in promoting financial inclusion. The development of social capital within a society is crucial as a means of mediation exchange among members. Our results confirm previous literature that found a positive relationship between social capital with the preference to save in formal institutions, hence increasing the financial inclusion level (Ban et al., 2020; Cull et al., 2016; Newman et al., 2014)). This finding supports the idea that information, including financial knowledge, might be transmitted among community members.

From a policy perspective, awareness of the importance role of social capital should be included in the Indonesian financial inclusion agenda. The intervention can be enabled through the promotion and formation of community-based program such as self-help groups (Ban et al., 2020; Dowla, 2006; Ksoll et al., 2016). These groups has been widely implemented in developing countries and originally arranged to encourage microcredit in rural area. For instance, Grameen Bank establishment in Bangladesh was among the notable practice on self-help group (SHG) formation focusing in microcredit. Currently, SHGs practice is also developed to contribute more on household saving improvement, as found in Cambodia (Ban et al., 2020), Malawi (Ksoll et al., 2016), and eastern India (Nichols, 2021).

However, the formation and implementation of SHG policy for financial inclusion vary across countries. In Cambodia, each group is required to meet weekly for financial training and contribute to the savings pool monthly. The membership is open for men and women as long as they have full commitment to join the program (Ban et al., 2020). Meanwhile, members of SHG in eastern India are obliged to put a weekly deposit into the group account managed by bank agent. This routine enables them to connect with formal financial institution and receive loan in the future as well. The membership in this program, however, is limited to women (Nichols, 2021). Combination of saving and loan promotion is found in Malawi's SHG. The program is specifically endorsed by a local financial institution. Members are required to pay a certain minimum saving level on a weekly basis. Once a month, the pooled fund will be offered as a loan to the member (Ksoll et al., 2016).

In line with the result of this study, the government should be encouraged to highlight more on the development of bridging and social linking. Practical implication of this policy can be carried on during membership selection before a SHG is formed. A group consists of people with various backgrounds who should already possess trust among members. With this arrangement, each person is expected to exchange heterogenous information particularly regarding the financial knowledge and formal saving. Meanwhile, community-based programs with bonding social capital are advisable to be implemented in rural areas. It can be arranged in a union of homogenous affiliation such as farmer's association or small business community.

Motivated by the current practices in another countries, this policy needs the involvement of multiple stakeholders including governments, financial supervisors, banks, and civil society at large. As the field officer, the government might arguably choose banks that focuses in microfinance as the pilot project executor (Ban et al., 2020; Ksoll et al., 2016; Nichols, 2021). This institution helps in working with unbanked people and allows them to create a better information exchange. Once the program is designed, monitored, and evaluated, other financial institutions are encouraged to duplicate the plan or develop a better scheme based on the pilot practice.

It is also advisable to appoint a bank agent that already has social networks with their members, or even has their own members. This strategy mainly emphasizes the established trust among financial facilitator and members. Such model is already implemented in India through Bank Sakhi, when banks are authorized to designate third party agents to offer banking and financial services on their behalf (Pinto et al., 2020). The bank is responsible to train and deploy SHG members as agents. In turn, the agents are responsible for transmitting their financial knowledge to other members whilst encouraging the utilization of formal financial institution especially for their saving purpose. Since the program establishment in 2016-27, Bank Sakhi has successfully operated across 12 states and collectively completed 748,454 transactions worth over approximately USD 40 million (Pinto et al., 2020).

While SHG program requires а lona implementation period, our research could not capture the unobserved time varying factors due to the observational data characteristics. It is also limited to the explanation about the mechanisms through how the network operates especially in financial transaction. Future research should address these issues and develop an experimental-based design as well as randomized control trials technique (Ban et al., 2020; Ksoll et al., 2016).

CONCLUSION AND SUGGESTION

Evidence from the logistic regression estimation shows that, in general, social capital has a significant association with financial inclusion. It may confirm that information exchange among community members is essential to influence formal saving behavior. This mechanism occurs because members trust each other, thus creating an automatic validation for the information shared. Further, it can affect their financial decision by choosing to save their money in formal institutions rather than engaging in informal practices such as keeping cash at home. The social capital development within a more heterogonous society was also found to have a more significant influence on financial inclusion than the homogenous one.

This research is explored using a large and representative individual dataset for Indonesia to examine how social capital associated with financial inclusion. The financial inclusion is measured through preference to save money in the bank (formal institutions), while social capital consists of bonding, bridging, and linking variables. These three indicators of social capital consider both the horizontal and vertical engagement among people, hence allowing a more comprehensive information transmission model.

This study suggests that Indonesian policymaker may develop a community-based program such as self-help group to increase financial inclusion and people's involvement in formal financial institutions through bridging and linking social capital. Meanwhile, community-based programs with bonding social capital are more encouraged to be implemented in rural areas.

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