

The Effects of Homeownership on Social Capital

Ryan Aldiansyah Akbar¹, Djoni Hartono², and Adiwah Fahlan Aritenang³

[Received: 5 October 2022; 1st revision: 3 February 2023; 2nd revision: 28 March 2023; accepted in final version: 14 April 2023]

Abstract. *Access to homeownership is becoming increasingly limited due to various factors related to a decline in social capital, including sense of stability, security, and community attachment. This study examined the relationship between homeownership and social capital in Indonesia at the household level while addressing endogeneity and heterogeneity issues. This research used panel data from the IFLS-4 and IFLS-5 surveys, employing a fixed-effect regression model with robust standard error and instrumental variables. The study found that homeownership significantly impacts social capital in Indonesia. Furthermore, the effect of homeownership differs between Java and non-Java households and between urban and rural households. The study also identified other significant influencing factors of social capital, such as household size and monthly income. It is concluded that policies aimed at increasing homeownership may positively impact social capital in Indonesia. This research has provided evidence of the heterogeneity of the effect of homeownership on social capital based on geographical location and household characteristics, suggesting that policymakers should develop policies to meet the specific needs of each group to maximize the positive impact of homeownership on social capital.*

Keywords: *endogeneity; homeownership; household; social capital.*

Abstrak. *Akses kepemilikan rumah menjadi semakin terbatas karena berbagai faktor yang terkait dengan penurunan modal sosial, antara lain rasa stabilitas, keamanan, dan keterikatan komunitas. Kajian ini mengkaji hubungan antara kepemilikan rumah dan modal sosial di Indonesia pada tingkat rumah tangga sambil membahas masalah endogenitas dan heterogenitas. Penelitian ini menggunakan data panel dari survei IFLS-4 dan IFLS-5, menggunakan model regresi fixed-effect dengan standard error robust dan variabel instrumental. Studi ini menemukan bahwa kepemilikan rumah berdampak signifikan terhadap modal sosial di Indonesia. Selanjutnya, pengaruh kepemilikan rumah berbeda antara rumah tangga Jawa dan non-Jawa dan antara rumah tangga perkotaan dan pedesaan. Studi ini juga mengidentifikasi faktor lain yang signifikan mempengaruhi modal sosial, seperti ukuran rumah tangga dan pendapatan bulanan. Disimpulkan bahwa kebijakan yang ditujukan untuk meningkatkan kepemilikan rumah dapat berdampak positif terhadap modal sosial di Indonesia. Penelitian ini telah memberikan bukti heterogenitas pengaruh kepemilikan rumah terhadap modal sosial berdasarkan lokasi geografis dan karakteristik rumah tangga, menyarankan agar pembuat kebijakan mengembangkan kebijakan untuk memenuhi kebutuhan spesifik masing-masing kelompok untuk memaksimalkan dampak positif kepemilikan rumah terhadap modal sosial.*

¹ Master Program in Economic Planning and Development Policy, Faculty of Economics and Business, Universitas Indonesia, Jakarta, Indonesia. Address: MPKP FEB UI Building, UI Salemba Campus. Salemba Raya No.4, Jakarta 10430. Phone: +62 21 391 2007; Fax : +62 21 392 5339. Email: ryan.aldiansyah@gmail.com.

² Research Cluster on Energy Modeling and Regional Economic Analysis, Department of Economics, Faculty of Economics and Business, Universitas Indonesia, Depok, Indonesia. Email: djoni.hartono@gmail.com.

³ Urban and Regional Planning, Institut Teknologi Bandung, Bandung, Indonesia. Email: a.aritenang@itb.ac.id.

Kata kunci: : *endogenitas; kepemilikan rumah; modal sosial; rumah tangga.*

Introduction

As the world's population continues to grow at a rate of 1.1%, there is a continuous increase in housing demand. In densely populated areas, houses have become luxury items, compelling many people to rent houses. Globally, the rate of homeownership is in a downward trend. In the United States, there has been a downward trend in homeownership since 2005, from 69.2% to 65.1% in 2019 (U.S. Census Bureau, 2021). Based on the data from 1999 to 2019, homeownership in Indonesia decreased from 84.7% to 80.1% (Susenas BPS, 2020). This condition is not encouraging because there are many benefits to owning a house, such as increasing an individual's happiness and life satisfaction (Rohe & Stewart, 1996). Various studies have shown that homeownership can increase an individual's capability to accumulate financial, natural, and social resources involving capital (Retsinas & Belsky, 2002; Rohe & Stewart, 1996).

Social capital, as a form of social resource, contributes significantly to sustainable development (Haridison, 2013). It also positively affects people's welfare (Grootaert & Narayan, 2004). However, social capital has received less attention in academia than other forms of development capital (Gould & Hijzen, 2016). According to measurements conducted by the Indonesia Central Bureau of Statistics, Indonesia's social capital index in 2017 was 47.86. This represents a decrease compared to the social capital index in 2014, which was 49.45. Similar to homeownership, social capital in Indonesia is also experiencing a downward trend.

This shows that for most people, owning a house is unaffordable, so their only option is to rent one. This condition is feared to harm the renter's household, as the relationship gap that will arise between neighbors and an environment in which they feel they do not belong could cause the renter to feel inferior. If this happens, it will result in a deficit in the accumulation of social capital, hindering self-development from improving welfare. For this reason, the present study attempted to explain many people's concerns related to this issue through analysis relevant to the condition of Indonesian society.

Many studies have been done on the social effects of homeownership. The results of previous studies have shown that homeowners tend to have a non-moving commitment, which leads to intensive social interactions (Rohe & Stegman, 1994). Extensive social interactions with a longer duration of stay have a linear effect on social capital (Manturuk et al., 2009). A recent study by Lee & Jeong (2021) examined social capital as a mediator between residential environmental satisfaction and place attachment. The study found that social capital significantly moderates various residential environment satisfaction variables, such as housing tenure, accessibility, and comfort, that correlate with place attachment. Hu & Ye (2020) explored the effect of home ownership and the subjective well-being of its residents in China and found that the effects vary depending on ownership type. Other recent studies by Fraser (2021), Halstead et al. (2022), and Hwang et al. (2021), have shown that social capital is widely determined by various factors, such as neighborhood-built environment, socio-economic similarity, social embeddedness, and the role of state organizations to link social capitals.

Despite the extensive studies on the determinants of social capital, specifically on how homeownership affects the variation of social capital, few studies linked homeownership with social impacts and social capital. The most related study that examined the effect of homeownership on social capital was conducted by Leviten-Reid & Matthews (2018) and showed the effects of housing tenure and social capital. Despite being very thorough in formulating the social capital variable, the study did not consider endogeneity in the housing tenure variable. The

present study explored homeownership as a factor of social capital formation to fill the literature gap. Besides that, it used data on households and homeownership, which are currently more limited due to the high land fares and house prices. Indonesia's potential for social capital could be optimized by identifying factors that significantly influence continuous development and homeownership.

The relationship between homeownership and social capital has been widely studied, with many studies finding a positive association between the two. However, there is still much debate about how homeownership may affect social capital and the circumstances of this relationship. Previous research on this topic has often been limited by a reliance on cross-sectional data or by a failure to control for potential confounding factors, leading to uncertainty about the direction and strength of the relationship between homeownership and social capital.

By considering several different household variables, such as age, number of household members, and income level, we can better understand the complex relationship between homeownership and social capital. Additionally, our study divided the analysis into rural and urban areas, economically centralized and non-centralized regions, to examine the potential heterogeneity of this relationship in different regional contexts. This approach contributes to the literature on the relationship between homeownership and social capital, providing a more comprehensive understanding of how homeownership may affect social capital in different geographic and economic contexts.

In explaining these issues, this article is divided into six sections. The first section contains the introduction and motivation for seeking the relationship between homeownership and social capital. The second part describes theoretical and empirical reviews related to homeownership and social capital. The third part describes the materials and methodology that were used to estimate the constraints found. Next is the Result and Discussion section, which gives descriptive statistics of the sample and the estimation results while explaining the relationship between the variables in various conditions. Finally, the conclusion section summarizes the research results and provides policy suggestions that can be applied.

Literature Review

Social Capital

The concept of social capital was originally introduced by Bourdieu (1972), and later further developed by Coleman in 1988 (Hauberer, 2011). Bourdieu defined social capital as a resource inherent in social relations that can be utilized for specific purposes. Meanwhile, Coleman (1990) defined social capital as a single entity, but various entities facilitate individual actions within the structure. This concept is inherent in the structure of the relationship between actors. From this initial definition, a consensus developed that social capital was the ability of individuals to earn profits based on membership of a social network or social structure (Portes, 1996). It refers to social beliefs, norms, and networks that individuals can use to solve problems (Lang & Hornburg, 1998).

Social Capital Indicator

Grootaert & Narayan (2004) developed a method of measuring social capital, later known as the Integrated Questionnaire for the Measurement of Social Capital. This model focuses on measuring people's social capital in developing countries and is also used by the Central Bureau of Statistics

of the Republic of Indonesia in publications related to social capital. It aims to obtain quantitative data with household-level unit analysis through six indicators.

The first indicator is the Collective and Participatory Action Indicator. This indicator reflects the collective action of group members in various activities for the public interest (Grootaert & Bastelaer, 2002). The second indicator is the Social Cohesion and Inclusion Indicator. According to the Council of Europe's Strategy for Social Cohesion (2010), social cohesion as the necessary elements of wholeness, unity, and cohesion that are essential for the survival of a community.

The third indicator is the Trust and Solidarity Indicator. Trust is positioned as one of the collective assets that can exert individual influence on the resources in the network (Lin, Ye, and Ensel, 1999). Mutual trust is agreed upon as the primary dimension of social capital (Woolcock, 2001). The fourth indicator is the Group and Network Indicator. The more comprehensively the social network is established, the more opportunities there are to take advantage of social capital in the network (BPS, 2016).

The fifth indicator is the Information and Communication Indicator, which reflects a community's ability to access information and communication. The easier it is to access information and to communicate, the higher the social capital will be (Grootaert & Narayan, 2004). The last indicator is the Empowerment and Political Indicator. Empowerment refers to increasing people's assets and abilities to participate, negotiate and control the organizations/institutions that affect their lives (Woolcock & Narayan, 2001)

Home Ownership and Social Capital

The relationship between homeownership and social capital has been a topic of longstanding interest in the social sciences, with many studies finding a positive association between the two (Rohe & Stewart, 1996; Retsinas & Belsky, 2002). However, there is still much debate in the literature about the mechanisms through which homeownership may affect social capital and the circumstances under which this relationship holds.

One perspective on the relationship between homeownership and social capital is that it can be seen as an opportunity structure that facilitates social interaction, housing attachment, and individual mobility (Manturuk et al., 2009). Opportunity structures can be defined as social spaces that facilitate routine interactions with others (Granovetter, 1973). In this context, homeownership functions as an opportunity structure that facilitates the owner's interaction with neighbors and the environment in which they live, thereby opening up opportunities for benefiting and social capital from that interaction (Van De Bunt, 1999).

Another perspective suggests that homeownership creates a strong bond between the owner and the house and all its surroundings, leading to increased interaction with other people as a form of expanding social networks (Woldoff, 2002). This sense of attachment to a place and the community can result in higher participation in local organizations and engagement in neighborly activities (Alderman et al., 2014). Additionally, homeownership may increase social capital through the accumulation of financial and human capital, as homeowners may have more resources and skills to contribute to their communities (Lin et al., 2012).

However, these explanations have been challenged by research that found that homeownership may have a negative impact on social capital, particularly in areas with high levels of segregation or inequality. For example, Lefebvre et al. (2016) argues that homeownership may reinforce

social divides and undermine collective action in communities with high income levels or racial segregation.

Empirical Studies

Most studies have shown that access to homeownership may affect individual well-being by increasing social capital. Homeowners can improve individuals' subjective well-being by boosting their self-esteem and social status (Rohe & Stegman, 1994). Compared to renters, homeowners will not worry about the obstacles that come with renting and fluctuations in rental prices. A lack of certainty can cause renters to be unable to focus on pursuing their goals (Elsinga & Hoekstra, 2005).

The first comprehensive empirical study of the relationship between homeownership and social capital was conducted by Rohe & Stewart (1996). This model showed that homeowners have different interests than renters. Homeowners commit not to move because it will incur higher costs, leading to the development of more intense social interactions within their living environment. Homeowners also have a psychological closeness to the environment. They have more opportunities to participate in community organizations, socialize with neighbors, and develop a sense of community.

A similar study has been conducted by Manturuk et al. (2009) using survey data from North Carolina, United States. The study found a significant relationship between homeownership and social capital in population migration and neighborhood effects such as length of stay. Renters living in high homeownership neighborhoods have high social capital as well. Bloze & Skak (2015) found different results. They found that homeownership in developed countries positively correlates to several measures of social capital. Homeowners tend to be less actively involved in political participation compared to renters. According to Becker (1977), in a society with high welfare and a good democratic tradition, homeownership policies do not significantly impact the quality of social capital but significantly increase community political participation.

The most recent study on the relationship between homeownership and social capital was conducted by Lee & Jeong (2021). The study treated social capital as a mediator between residential environmental satisfaction and place attachment. It included the housing tenure variable in its analysis and determined that it significantly influences social capital. Some other studies, for example, Anton & Lawrence (2014), have shown that housing tenure depicts the perceptiveness of its residents towards the surrounding areas. Since housing tenure is closely associated with homeownership, Lee & Jeong (2021) argued that social capital may mediate between this variable and place attachment.

There is still a lack of depth in the literature on homeownership and social capital. Leviten-Reid and Matthew (2018) examined housing tenure's effect on bridging, bonding, and linking social capital using data from Canadian households. The results indicated that the effect of housing tenure is strongest on bonding social capital. In contrast, a weaker effect was observed on linking social capital, and no clear effect was observed on bridging social capital. Related empirical findings, including Fraser (2021) and Hwang et al. (2021), show that various factors, such as demographic characteristics and dwelling characteristics, largely determine a community's social capital level. Dealing with municipality-level data, Fraser (2021) specifically examined social vulnerability indicators and their effects on social capital to assess community resilience. Hwang et al. (2021) found that all built environment characteristics affected social capital significantly for the elderly, while for the middle-aged only some of the characteristics yielded significant results.

Material and Method

Data

The data used in this study came from the Indonesia Family Life Survey (IFLS). This survey was conducted using a sample of households representing about 83% of the Indonesian population by taking samples from thirteen provinces in Indonesia. The thirteen provinces, representing 83% of the population, are four provinces in Sumatra (North Sumatra, West Sumatra, South Sumatra, and Lampung); five provinces in Java (DKI Jakarta, West Java, Central Java, DI Yogyakarta, and East Java); and the remaining are the four major island group provinces (Bali, West Nusa Tenggara, South Kalimantan, and South Sulawesi) (Strauss et al., 2019).

The IFLS data used comprise 29,739 household unit data consisting of 13,535 household data from the IFLS-4 survey and 16,204 household data from the IFLS-5 survey, conducted mid-2007 and in 2014 (Strauss, Sikoki, and Witoelar, 2016). These last two waves of IFLS data were chosen because they had questionnaires related to community social capital, namely the trust module (TR) and community participation (PM), representing the six social capital indicators to be studied. Meanwhile, in the previous wave of the IFLS survey, no confidence module (TR) was present. This data is accessible by registering to the study site www.rand.org.

Measurement

Forty-six questions in the TR and PM modules were selected based on the six social capital indices from Grootaert & Narayan (2004). Meanwhile, the weight of each questionnaire was not determined objectively, nor was it generalized. Principal component analysis (PCA) was carried out for factor extraction. PCA is often used to simplify data by transforming the data linearly to a new coordinate system with maximum variance (Miranda, Borgne, and Bontempi 2007). Furthermore, measurements of the six indices were carried out using the weighted average of all question points in the questionnaire. These measurements were determined using the following formula:

$$\text{index value} = \frac{\text{questionnaire score} - \text{lowest score}}{\text{highest score} - \text{lowest score}} \dots\dots\dots (i)$$

After determining the index values for the six social capital indicators, the individual social capital index values were calculated from the weighted average of the six social capital indicators. The weight for each dimension was also calculated using PCA, as in the calculation for each indicator. The following equation determines the social capital index for the i -th individual:

$$\text{ind_soscapi} = \sum_{j=1}^6 w_j \text{ind_Z}_{ij} \dots\dots\dots (ii)$$

where ind_soscapi = the i -th individual social capital index; w_j = the j -th dimension of social capital; and ind_Z_{ij} = the j -th social capital dimension index of the first individual.

Operational Variables

The primary variable is the dummy of homeownership with a value of 1 if the household owns a house. This study added other control variables covering demographic and regional aspects to strengthen the comprehensive understanding of other factors affecting social capital apart from homeownership. The selected control variables are variables that have been proven to have an influence on social capital in previous studies (see Table 1).

Table 1 Specification of the research variables.

Determinants	Variables	Specifications of variables
Dependent variable	Social capital index	Measured based on 46 questions that make up the variables (indicators), with each indicator having a weight calculated by PCA and a value ranging between 0 and 10.
Main independent variable	Homeownership	Dummy home ownership; 1 if you have a house and 0 for others.
Independent variable control	Location of the household	Dummy location; 1 if located in Java, and 0 for areas outside Java
	Characteristics of the areas	Dummy character of areas; 1 for urban, and 0 for rural
	Marital status	Dummy marital status; 1 for married, and 0 for others
	Education	Numerical data with units of year
	Gender	Dummy gender: 1 if male, and 0 otherwise
	Age	Dummy age; 1 if you are over 40 years old, and 0 is 40 years old and under
	Number of family members	Numerical data on the number of people occupying one house
	Monthly income of the household	Numerical data with units of million rupiah

Source : IFLS 4 & IFLS 5, processed

Empirical Model

The regression model used in the thesis to answer the problem formulation, i.e., ‘the effect of homeownership on the social capital of the community,’ is as follows:

$$ind_soscap_{it} = \alpha_0 + \alpha_1 home_ownership_{it} + \gamma X_{it} + \epsilon_{1it} \dots\dots\dots (iii)$$

The coefficient α_1 is the multiplier coefficient of the impact of homeownership on the social capital index, which is measured from a proportional calculation of the six dimensions of social capital using PCA. Meanwhile, X_{it} represents a control variable that has been empirically confirmed as statistically affecting social capital. The control variables in this study included household administration areas on the island of Java or outside Java (in_java), urban or rural areas of residence (in_urban), marital status of the head of the household (dummy_marital), age of the head of the household (dummy_age), gender of the head of the household (dummy_gender), length of study from the head of the family (dummy_educ), number of household members (home_member), and yearly family income (dummy_income).

The hypothesis created in this study was ‘homeownership has a positive and significant effect on community social capital.’ The assumptions made in this study also express that regional characteristics, household characteristics, and household demographics also influence social capital formation.

Endogeneity Problem

Endogeneity is a big problem in empirical research, in this case especially regarding how homeownership and social capital are related. This happens because there is a chance of reverse causality, which means that each variable can affect another in both directions. The two-stage least squares (2SLS) method is often used to deal with this problem. It uses instrumental variables to get around endogeneity.

In the second stage of the regression model, the 2SLS method uses instrumental variables strongly linked to the endogenous variable of interest but have nothing to do with the dependent variable. This study used regional home credit and home renovation as instrumental variables. These things are not likely directly related to social capital but may be related to homeownership status. Some studies have suggested a positive correlation between homeownership and social capital. Still, the relationship between housing credit and social capital must be clarified. Burton (2017) found that while the level of housing credit in a region strongly correlates with the number of homeowners, it has little impact on social capital. This finding is consistent with previous research suggesting that the relationship between housing credit and social capital is weak or nonexistent (Van der Meer & Tolsma, 2014).

Also, home renovations are an excellent way to measure this, as they typically reflect an individual's personal tastes and financial capabilities rather than being influenced by social pressure or influence. However, the link between home renovations and social capital may need to be more substantial or indirect, as Van der Meer & Tolsma (2014) found. While owning a home and staying in one place for extended periods may lead to increased social capital, improving one's home may not have the same effect.

Based on these theoretical and real-world reasons, it can be argued that regional home credit and home renovations are a great way to measure how housing and social capital affect each other. However, we should also be aware of this method's possible limits and assumptions, such as whether or not the exclusion restriction is valid and whether or not the instrument itself is causing this behavior.

In this study, *credit_rate* and *home_renov* are used as 'instrumental variables' to figure out how housing and social capital affect each other. The first-stage regression model using the two-stage least squares (2SLS) method is as follows:

$$\mathit{home_ownership}_{it} = \beta_0 + \beta_1 \mathit{credit_rate}_{it} + \beta_2 \mathit{home_renov}_{it} + \varepsilon_{2it} \dots \dots \dots \text{(iv)}$$

In Equation (iv), *home_ownership_{it}* represents the homeownership status of individual *i* at time *t*, *credit_rate_{it}* represents the level of housing credit in the region where individual *i* lives at time *t*, *home_renov_{it}* represents whether or not the individual *i*'s house has undergone significant renovation activities at time *t*, and ε_{2it} represents the error term. The coefficient β_1 shows the multiplier coefficient of the effect of the region's housing credit level on homeownership status. At the same time, β_2 is the multiplier coefficient of whether or not there have been significant renovation activities on the house occupied on homeownership status.

After completing the validation of the instrument variables, the second-stage regression model resulted in the following correlation between homeownership and social capital:

$$\mathit{ind_soscap}_{it} = \mu_0 + \mu_1 \mathit{home_ownership}_{it} + \theta \mathbf{X}_{it} + \varepsilon_{3it} \dots \dots \dots \text{(v)}$$

In Equation (v), ind_soscap_{it} is the social capital index of person i at time t . This index is made up of six different types of social capital. $Home_ownership_{it}$ shows whether or not person i owns a home at time t , and X_{it} shows a set of control variables, such as age, gender, education level, income, and employment status. The coefficient μ_1 represents the correlation between homeownership and social capital. If μ_1 is positive and statistically significant, it would suggest that homeownership is positively associated with social capital after controlling for other factors.

Heterogeneity Analysis

Heterogeneity is the impact of the influence of the area of residence, both in terms of location and regional characteristics affecting social capital. According to Woolcock & Narayan (2000) and Flora & Thiboumery (2005), there are differences in social capital in urban and rural areas. There are conditions where there are differences in regional location conditions between Java and outside Java in the regional characteristics.

In urban areas, high residential area density often leads to increasing the chances of an individual to encounter other individuals outside their homes. Meanwhile, the level of community heterogeneity is higher in urban areas than in rural areas, which can have a negative effect on social capital (De Decker et al., 2010; Putnam, 2007). In the Indonesian context, there are regional differences between people living in Java and outside Java. This difference is related to population density as well as the distance to access resources. Distance has always been an essential factor regarding the relationship between individuals and the resources they use (Mok, Wellman, and Carrasco, 2010). Meanwhile, Javanese people are considered to be more culturally homogeneous. This is because the Javanese population comprises individuals from various tribes and cultures, but they share a common cultural identity.

Result

For this study, a total of 29,739 data points were used, consisting of 13,535 household data from the IFLS-4 survey and 16,204 household data from the IFLS-5 survey. After merging the two surveys, 16,998 household data points were obtained and used as panel data. The household data panel in IFLS-4 and IFLS-5 comprised 9,454 records. However, 532 data points were excluded from the panel, as they corresponded to households possessing multiple properties. As a result, the effective panel size was reduced to 8,922 data points (see Table 2). The average homeownership rate in this study was around 86%. Meanwhile, the standard deviation of homeownership was 0.35, with the dummy variable value ranging between 1 and 0.

Regarding the household characteristics in this study, the total average household income was 2.75 million rupiah per month with a relatively large standard deviation of 5.41 and in the range of 420 thousand rupiah to 168 million rupiah per month. Meanwhile, the average number of household members was 7 people with a significant standard deviation of 2.95 and in the range of 2 to 40 people. The sample was dominated by people living in Java, representing about 59%, and those living in urban areas about 55%.

Individual-level characteristics of the households sampled in this study refer to the characteristics of the household head. The research sample had an average duration of education of approximately 8.18 years or had completed primary education with duration of education ranging from 0 to 22 years. As many as 97% of household heads were male, evenly distributed between those over and under 40 years old. The marital status of the majority of the sample was married and not divorced. Meanwhile, the social capital index average was 5.14, with a standard deviation of 8.65 and a range of 2.1 to 8.6.

Table 2. Summary of research sample statistics.

Variables	Observation	Mean	Std. Dev	Min	Max
Household characteristics					
homeownership	8,922	0.86	0.34	0	1
home_member	8,922	6.97	2.95	2	40
fam_income	8,922	2.75	5.41	0.42	168.07
Household area characteristics					
in_java	8,922	0.59	0.49	0	1
in_urban	8,922	0.54	0.5	0	1
Demographic data of the head of the household					
educ	8,922	8.18	3.84	0	22
gender	8,922	0.97	0.18	0	1
age	8,922	0.49	0.5	0	1
marital	8,922	0.95	0.19	0	1
Instrument variable					
home_renov	8,922	0.16	0.36	0	1
home_credit	8,922	29.64	14.31	7	70
Social capital index					
soscap	8,922	5.14	8.6	2.1	8.6

Source : IFLS 4 & IFLS 5, processed

Table 2 describes descriptive statistics of the overall research sample, while Table 3 displays descriptive statistics related to homeownership in this study. In this study, the number of respondents who owned a house was 7,698 households, taken at two different times, while the remaining 1,224 households in this study did not occupy their own homes and instead either rented or used official housing.

From the data processing results, descriptive statistics of homeownership were obtained (Table 3). Furthermore, the control variables that are factors influencing social capital can be summarized as follows:

a. Number of household members

The number of household members affects social capital. This study found that the larger the household, the smaller the social capital. In contrast, the smaller the household, the greater the social capital. This finding follows Rupasingha (2006), stating that the number of children or family members negatively correlates with social capital because childcare is believed to have a negative impact on social capital. After all, parents spend more time at home rather than interacting with neighbors or the environment (Alesina & La Ferrara, 2000). Meanwhile, the social capital of homeowners is always higher than that of families who are not homeowners, except for households with more than ten members. With more than ten members, it can be assumed that more than one family inhabits the household. Such households are similar to renters, so there is a bias in comparing less similar objects.

b. Monthly income of the family

Regarding the family's monthly income, the higher the income, the higher the social capital, and homeowners always have higher social capital at various income levels. This result shows that the higher the income, the higher the value of social capital. According to Stack (1983), social capital is closely related to a person's income level. Household income has a significant reverse causality with social capital (Grootaert & Narayan, 2004). Low incomes can cause individuals to

work longer hours to earn additional income, so they have less time to participate in community activities (Rupasingha, 2006).

c. Location of residence

As previously discussed, the high heterogeneity of conditions on the island of Java and outside Java makes it necessary to separate those conditions. Households in Java have higher social capital than those outside Java, both homeowners and non-homeowners. Homeowners have a relatively large social capital gap with households that are not homeowners. This condition is because people outside Java have a relatively high distance of access to public and economic resources and facilities, thereby reducing the potential for social capital formation (Brueckner & Largey 2008). In contrast to the people living on the island of Java, which is the center of government and the national economy, access to resources can be more easily obtained.

Table 3. Summary of homeownership statistics.

Variables	Homeowner (N = 7,698)		Non-Homeowner (N = 1,224)	
	Composition	Average social capital index	Composition	Average social capital index
Number of Households				
ART 1-4 people	17.9%	5.24	27.2%	4.87
ART 5-6 people	33.2%	5.26	31.9%	4.91
ART 7-10 people	37.7%	5.12	29.3%	4.92
ART over 10 people	11.3%	5	11.6%	4.9
Monthly household income				
Below 420 thousand	15.8%	5.04	13.1%	4.81
500 thousand-1 million	22.2%	5.06	22%	4.88
1-4 million	43.6%	5.21	49.9%	4.92
4-20 million	17.6%	5.34	14.3%	4.96
Over 20 million	0.8%	5.38	0.7%	4.86
Location				
Outside Java	38.9%	5.07	48.6%	4.85
In Java	61.1%	5.27	51.4%	4.96
Household areas				
Rural	49.2%	5.16	24.3%	4.96
Urban	50.8%	5.19	75.7%	4.88
Education				
0-6 years	57.8%	5.09	34%	4.82
7-12 years	33.6%	5.25	57.2%	4.93
Over 12 years	8.7%	5.43	8.7%	5.02
Gender				
Male	96.7%	5.19	97.3%	4.91
Female	3.3%	4.83	2.7%	4.61
Age range				
< 25 years	5.5%	4.84	15.1%	4.66
25-40 years	40.8%	5.15	56.7%	4.93
41-64 years	49.2%	5.25	26.4%	5.01
> 64 years	4.5%	4.97	1.9%	4.6
Marital Status				
Not married	0.1%	4.54	-	-
Divorced	3.7%	4.86	2.9%	4.71
Married	96.2%	5.19	97.1%	4.91

Source : IFLS 4 & IFLS 5, processed

d. Characteristics of residential area

Based on heterogeneous urban and rural areas, there is a social capital gap between homeowners and non-homeowners in urban areas. It is relatively high compared to the same conditions in rural areas. Homeowners in urban and rural areas have a higher average social capital than those who do not own a house. Many studies state that people living in rural areas have a higher social capital index than urban communities due to the higher social cohesion. Community activities and mobility in urban areas reduce the intensity of social interaction with neighbors or the environment (Muzayanah et al., 2020). However, the results of this study's analysis indicate that homeowners' social capital in urban areas is slightly higher than that in rural areas. This result is different from other studies, perhaps because of the information and communication indicators that place urban communities benefit more than rural communities.

e. Educational background

Educational background is often associated positively with each individual's social capital condition. These results indicate that household heads with a more extended study period have higher levels of social capital (Glaeser et al., 2002; Putnam, 1995). Education positively correlates to citizen involvement in community activities and increased social trust and membership in various groups. Citizens with higher levels of education have more insight and broader social networks (Rupasingha, 2006; Putnam, 1995).

f. Gender of the Head of the Household

The gender of the sample taken was approximately 97% male. Therefore, samples from female household heads were not appropriately captured. Table 3 shows that male household heads have relatively more social capital. Men have more responsibilities to themselves, their partners, and their children, so they must optimize their social capital such as social networks and participation. Female household heads who work often have limited time to engage in social activities, which can result in lower levels of social capital formation. (Alesina & La Ferrara, 2000; Putnam, 1995).

g. Age of Head of Household

The head of the family in the productive age of 25 to 64 years typically has a higher social capital index. In various age ranges, homeowners always have higher social capital than those who do not own a home. The more mature a person's age, the more they understand the importance of owning a house (Manturuk et al., 2009). Putnam (1995) shows that older individuals tend to have higher levels of social participation, leading to increased social capital over the life cycle. In contrast, young people often prioritize caring for children and working (Glaeser et al., 2000).

h. Marital Status of the Head of the Household

The sample consists predominantly of married households, comprising as much as 96% of the sample. The remainder are either divorced or unmarried. Marriage affects social capital positively. Married people have higher social capital than unmarried people and are more confident interacting with neighbors and the environment. On the other hand, disorganized families, such as those who have gone through a divorce, have a negative effect on the formation of social capital (Putnam, 1995). However, several anomalies among unmarried persons or divorcees who do not own a house have a higher social capital than those who own a house (Table 3). The reason for the bias in the data is the small proportion of unmarried or divorced families in the sample, which was less than 10%.

Discussion

Discussion: Homeownership and Social Capital

Table 4 shows that homeownership has a significant positive effect on social capital. Recent studies (Lee & Jeong, 2021; Leviten-Reid & Matthews, 2018) using datasets from different countries showed similar results. Other variables, such as age and the number of household members, have a more significant effect on social capital than homeownership. Homeownership has a significant impact on one's sense of security, as having a specific place to live provides a sense of stability. The sense of security that comes with homeownership is a result of achieving life satisfaction through the accumulation of assets that secure primary personal needs (Rohe & Stewart, 1996). Meanwhile, expecting to be staying in one place causes homeowners to have a higher intuition of participating in their residential environment. This is reinforced by the acceptance of their neighbors towards them. These two factors lead to the formation of an opportunity structure in an environment with a high level of homeownership (Manturuket al., 2009).

The opportunity structure provides space for homeowners to gain privilege in socializing and taking advantage of social access to resourceful people in their environment. This opportunity structure primarily forms more significant social capital for homeowners (Van De Bunt 1999). As a result of this expectation of mobility, there is also high interaction between homeowners and their neighbors. High intensity also contributes to strengthening the formation of social capital. Previous research has found that areas with a high immigrant composition produce low collective social capital (Coffe, 2009; Coffe & Geys, 2006). Manturuk et al. (2009) support that this significant relationship between population migration and the neighborhood effect is present. The variable duration of residence is a crucial supporting variable to see social impact. Renters who live in high-homeownership neighborhoods over long durations also have high social capital. Thus, the effect of homeownership on social capital can be explained as a form of causality mediated by interaction.

From the estimation results in Table 4, the coefficient value of the influence of homeownership on social capital and several control variables can be seen. The coefficient of the homeownership variable in the first model (0.272) is of great value compared to the other estimated control variables. To be significant, the variable of homeownership has to have a more dominant quantitative influence. Furthermore, higher results were obtained when using the instrumental variable method (0.98) due to adding the variable instrument for home renovation and regional housing credit. The coefficient value decreases when the model is estimated robustly in the fixed effect model (0.688). The increase in this variable is due to the estimation of the two additional variables. It seems as if the homeownership coefficient combines the three variables. This result follows the statement of Grootaert & Narayan (2004), according to whom most social capital research uses the instrument variable (IV). It causes a higher coefficient than when using the OLS model. This finding shows that the equation is appropriate to solve endogeneity.

The significant influence of homeownership on social capital is because homeowners commit not to move, causing the formation of significant and intensive social interactions (Rohe & Stegman, 1994). The high interaction intensity also positively affects local community involvement and political participation (Huber & Montag, 2019; Bloze & Skak, 2015). In addition, homeownership functions as an opportunity structure that facilitates the owner's interaction with neighbors and the living environment to open up opportunities for benefits and social capital from that interaction (Van De Bunt, 1999). Individuals can choose whom they form social bonds with. Not

everyone in a given environment will form a social network. When choosing, people will consider the potential disadvantages and benefits to be gained (Van Der Gaag & Snijders, 2005).

Table 4. Comparison of estimated results with multiple regression options.

Independent Variables :	Dependent Variables: Social Capital			
	OLS	OLS with Control Variable	IV Regression	IV-Data Panel with Robust Standard Error Model
home_ownership	0.272*** (0.263)	0.26*** (0.265)	0.98*** (2.125)	0.688** (2.484)
home_member		-0.029*** (0.031)	-0.0308*** (0.033)	0.072*** (0.115)
fam_income		0.094*** (0.1)	0.088*** (0.106)	0.072*** (0.134)
age		0.109*** (0.136)	0.047* (0.229)	0.257*** (0.293)
educ		0.132*** (0.148)	0.157*** (0.73)	0.022 (0.416)
gender		0.153* (0.702)	0.153* (0.73)	0.216* (0.955)
marital		0.142* (0.631)	0.162* (0.658)	0.03 (0.745)
In_java		0.202*** (0.212)	0.189*** (0.224)	0.278 (2.15)
In_urban		-0.146** (0.218)	-0.059 (0.341)	-0.011 (0.43)
constant	4.902*** (0.263)	3.964*** (1.065)	3.404*** (1.977)	3.389*** (2.619)
Adj R2	0.0118	0.063	-	0.004
Observation	8,922	8,922	8,922	8,922
T statistic in parentheses, *p < 0.05. **p < 0.01. ***p < 0.001				
Source: IFLS 4 & IFLS 5, processed				

The estimation results in Table 4 show that the number of family members and the age of the head of the family significantly affect various models. This aspect indicates that these two variables strongly influence social capital. A negative correlation was found in the OLS model and regression IV regarding the number of household members. More children in the family reduced the interaction time with the environment (Rupasingha, 2006; Alesina & La Ferrara, 2000). Meanwhile, in the fixed-effect model, it was positive. Another argument states that the more members/children there are in the family, the more activities the head of the family has, which increases social networking (Rupasingha, 2006). Also, in this study, the selected research subject was the head of the family. The form of the data panel correlates with the number of household members and age. Age has been shown to have huge significance in various reports from the literature included in this study. It has a relatively high coefficient, so it dramatically affects social capital. This aspect also makes the estimation results positive.

The age variable in the estimation results has a significant positive effect in various models because age is universal and relatively unaffected by culture and geographical location. The more people mature, the wider their experience of interaction and social networking. This result contrasts with young people who spend relatively more time with children and work (Glaeser et

al., 2000; Putnam, 1995). Over time, the formed and accumulated social capital is more significant. By getting older, people tend to be more accustomed to the interactions and participation factors in forming social capital.

The difference in results on the variable length of schooling contradicts previous research (Rupasingha, 2006; Putnam, 1995). This difference may be due to the heterogeneity of individual characters with territorial aspects. More than 57.8% of homeowners did not go to school or only completed primary education. Only about 8.7% were highly educated. The results were different for households that did not have a home with a better education composition. Only about 34% were not in school or only finished primary education. From the statistical description above, there is a bias in the management of estimates because education is not linear with homeownership, resulting in insignificant effects on social capital.

Meanwhile, other variables such as marital status and gender of the head of the family and the character and location of residence did not have a significant effect on social capital for two reasons. Firstly, there was heterogeneity and differences in the character of people living in urban and rural areas and differences in Java and outside Java. Secondly, the sample was unbalanced when viewed based on marital status and gender. Heads of married and male-status families dominated more than 95% of the sample composition. The estimation results were also biased and different from that of previous studies.

Discussion: Impact of Declining Social Capital

If social capital continues to decline due to limited homeownership, the impact creates new problems. The first is related to community happiness. Decreasing levels of social capital result in a decrease in the individual happiness index (Arundel & Ronald, 2017; Glaeser, Henderson, & Inman, 2000). This happens because individuals will have a narrow space in social networking and interacting with others, even though an individual's basic social needs must be met. When the fulfillment of needs is low, it can lead to decreased happiness, as expectations are not being met. Besides, low social capital also has an indirect financial impact. Individuals with low levels of social capital tend to be less than optimal in taking advantage of opportunities. The lack of access to information and weak interaction with the community result in individuals not getting opportunities for self-development, collaboration with the community, and mutual assistance (Bowen, 1986; Dokhi et al., 2017). Collectively, the decline in the level of community social capital affects the community's social life and regional development. This happens because social capital is one of the non-physical factors affecting urban social sustainability development. In the urban economy, the interaction between individuals is a fundamental factor influencing regional development (Yoo & Lee, 2016). Finally, the cumulative decline in social capital on a large scale will reduce national productivity because social capital is one of the development sources to achieve sustainability (Putnam, 1993). Decreased productivity will slow down economic growth and the achievement of welfare (Grootaert, 1999).

Discussion: Regional Diversity

This study observed heterogeneity effects from area characteristics and household geographical location. The estimation results solved endogeneity and heteroscedasticity problems using the IV-Data Panel with Robust Standard Error model. It applied to the following four conditions: households in Java, outside Java, urban areas, and rural areas. The results are presented in Table 5. The estimation results with robust standard error found differences related to the effect of homeownership on social capital in the four models. Model I, or the model with households in

Java, had the highest coefficient and significance, followed by the urban areas. Meanwhile, for households outside Java, the influence of homeownership on social capital was not very strong. In Model IV, or conditions in rural areas, homeownership did not influence the community's social capital.

Table 5. Estimation results based on region.

Independent Variables :	Dependent Variables: Social Capital			
	Model I (Java)	Model II (Outside Java)	Model III (Urban)	Model IV (Rural)
homeownership	0,978*** (3,551)	0,316* (3,3)	0,539** (2,575)	0,1 (5,32)
in_java			0,514 (5,21)	0,152 (5,13)
in_urban	0,004 (0,646)	-0,019 (0,64)		
home_member	0,076*** (0,181)	0,072*** (0,181)	0,058*** (0,153)	0,089*** (0,174)
fam_income	0,071** (0,168)	0,066** (0,254)	0,07** (0,201)	0,08*** (0,211)
age	0,179*** (0,412)	0,109*** (0,341)	0,232*** (0,358)	0,109** (0,378)
educ	0,031 (0,548)	0,028* (0,64)	0,009 (0,535)	0,019 (0,741)
gender	0,137* (1,249)	-0,002 (1,18)	0,232* (1,239)	0,176 (1,53)
marital	-0,018 (0,922)	0,286* (1,261)	0,066 (1,192)	0,064 (1,05)
constant	3,475*** (3,395)	3,23*** (3,912)	3,426*** (2,775)	3,658*** (5,896)
Ovr R2	0,012	0,0031	0,0106	0,0001
Observation	5.264	3658	4.818	4,104
T statistic in parentheses, *p < 0.05, **p < 0.01, ***p < 0.001				
Source: IFLS 4 & IFLS 5, processed				

The estimation results in Table 5 show that the most potent effect of homeownership on social capital was in Models I and III. Javanese people who have their place to live without renting have additional financial capital for self-development and increased social capital. The price of renting a house in Java is relatively high, affecting the level of security and individual freedom. Meanwhile, households that do not have houses in urban areas, have the additional burden of working harder and not having much time to interact with their neighbors (Grootaert & Narayan, 2004; Stack, 1983). This affects the difference in coefficients and significance between households in Java and outside Java. This significant difference is also related to the culture inherent in Javanese society. Javanese society is famous for implicit symbols that are often conveyed by actions and possessions, one of which is related to the shape of the house. In Javanese society, a house is a masterpiece resulting from the struggle of life. Apart from homeownership, the exterior and interior design of a house is also a concern and has meanings in Javanese culture (Subiyantoro, 2011). Thus, for the Javanese community, the impact of homeownership will be more significant in raising their social status, which impacts confidence in their social interactions and participation. Besides, when viewed from ethnic variation, conditions in Java are more homogeneous than outside Java. This aspect also results in the perception of homeownership, which is also influenced by the point of view of Javanese culture, being more influential in the

formation of social capital than conditions outside Java where ethnicity and culture are very heterogeneous.

Meanwhile, the estimation results show that homeownership in urban areas significantly and robustly affects social capital. The result is that statistically there are far fewer homeowners in urban areas due to limited land availability. In the countryside, owning a house or not can make a difference because the activities are more homogeneous than in urban areas. A heterogeneous community is why a neighborhood chooses only to interact intensely and build a network with fellow homeowners (Van Der Gaag & Snijders, 2005; Putnam, 1995). Also, the characteristics of urban communities that are more individualistic instill a perception that social interactions with neighbors and the environment around a house that they do not own become less critical. This aspect causes many renters to choose not to interact with their environment too much, and when they do not feel like they fit in with their environment, they will look for a new house to rent. This is in contrast to households that own a house. Buying a house is one of the most critical decisions in a person's life, so households that own a house in an urban area tend to stay longer. This aspect impacts homeowners tending to have more intense social interactions with neighbors and the environment (Manturuk et al., 2009). This social interaction and participation have a linear impact on social capital.

Conclusion

In conclusion, this study provides insight into the relationship between homeownership and social capital in the Indonesian context. The results indicate that homeownership positively influences social capital formation, but other factors, such as age, number of household members, and income level, also play a significant role. Additionally, the study highlighted the importance of considering regional variations in housing policies, as the impact of homeownership on social capital formation may differ between urban and rural areas and between Java and non-Java regions.

In terms of policy recommendations, this study suggests that a progressive tax on land ownership and housing assets could be implemented to address the limited availability of land for housing and promote more equitable access to homeownership. However, it is important to consider this approach's potential costs and benefits and other policy options.

Other policy options that could be considered include promoting homeownership through incentives or subsidies, encouraging rental housing development, and increasing tenants' tenure security. Each of these options can potentially increase social capital, but they also come with their own set of costs and benefits. Promoting homeownership, for example, may increase demand for housing and lead to price increases, making it less affordable for some individuals. Encouraging rental housing development may also lead to rising prices and decreasing affordability. Increasing tenure security for tenants may increase stability in the housing market but also potentially increase the cost of rental housing or decrease the availability of rental units.

In light of these policy options, policymakers must carefully consider each approach's potential costs and benefits and tailor their housing policies to the specific needs and circumstances of their respective regions.

This study also highlighted the need for further research on the relationship between homeownership and social capital. For instance, the use of more complex measurements of homeownership, such as multi-ownership or multi-residency. Future studies also require more comprehensive data that allow for a detailed examination of how homeownership affects social

capital. Other research may include alternative approaches to increasing social capital, such as increasing tenure security for tenants, which would provide valuable insight into the potential costs and benefits of different policy options.

References

- Alesina, Alberto & La Ferrara, Eliana. (2000). Participation in Heterogeneous Communities. *The Quarterly Journal of Economics*, 115(3), 847–904. doi: 10.1162/003355300554935
- Alderman H, Haddad L, Headey DD, Smith L. Association between economic growth and early childhood nutrition. *Lancet Glob Health* 2014; 2.
- Anton, C. E., & Lawrence, C. (2014). Home is where the heart is: The effect of place of residence on place attachment and community participation. *Journal of Environmental Psychology*, 40, 451-461.
- Austin, D Mark & Baba, Yoko. (1990). Social Determinants of Neighborhood Attachment. *Sociological Spectrum: Mid-South Sociological Association* 10(1), 59-78. doi: 10.1080/02732173.1990.9981912
- Arundel, R., & Ronald, R. (2017). The role of urban form in sustainability of community: The case of Amsterdam. *Environment and Planning B: Urban Analytics and City Science*, 44(1), 33–53. doi:10.1177/0265813515608640
- Becker, Lawrence C. (1977). A Definition of Philosophy. *Metaphilosophy*, 8(2-3), 249-252. doi: 10.1111/j.1467-9973.1977.tb00279.x
- Bløze, Gintautas & Skak, Morten. (2015). Housing Equity, Residential Mobility and Commuting. *Discussion Papers on Business and Economics*, University of Southern Denmark, 16. doi: 10.2139/ssrn.2703833
- Bowen, J. R. (1986). On the political construction of tradition: Gotong Royong in Indonesia. *The Journal of Asian Studies*, 45(3), 545–561. doi:10.2307/2056530
- BPS. (2016). *Publikasi Statistik Modal Sosial 2014*. Jakarta: Badan Pusat Statistik.
- BPS. (2018). *Publikasi Statistik Modal Sosial 2017*. Jakarta: Badan Pusat Statistik.
- BPS. (2020). *Publikasi Survei Sosial Ekonomi Nasional 2019*. Jakarta: Badan Pusat Statistik
- Brown, B., Perkins, D., & Brown, G. (2003). Place Attachment in a Revitalizing Neighborhood: Individual and Block Levels of Analysis. *Journal of Environmental Psychology*, 23, 259-271. doi: 10.1016/S0272-4944(02)00117-2
- Brueckner, Jan & Largey, Ann G. (2008). Social Interaction and Urban Sprawl. *Journal of Urban Economics*, 64(1), 18-34. doi: 10.1016/j.jue.2007.08.002
- Burton, Dawn. (2017). Credit Inclusion and The Home Credit Market in Post-communist Member States of the European Union. *Critical Social Policy*, 37(3), 444-463. doi: 10.1177/0261018316672991
- Coffee, Hilde. (2006). Community Heterogeneity: A Burden for the Creation of Social Capital?. *Social Science*. doi: 10.1111/j.1540-6237.2006.00415.x
- Coffe, Hilde & Geys, Benny. (2005). Toward an Empirical Characterization of Bridging and Bonding Social Capital. *Nonprofit and Voluntary Sector Quarterly*, 36(1), 121-139. doi:10.1177/0899764006293181
- Coleman, J. S. (1990). *Foundations of Social Theory*. Cambridge: Belknap Press of Harvard University Press.
- De Decker, Pascal et al. (2010). Understanding Housing Sprawl: The Case of Flanders, Belgium. *Environment and Planning A: Economy and Space*, 43(7), 1634-1654. doi:10.1068/a43242
- Elsinga, M. & Hoekstra, J. (2005). Homeownership and Housing Satisfaction. *Journal of Housing and the Built Environment*, 20, 401-424. doi: 10.1007/s10901-005-9023-4
- Flora, C. B. & Thiboumery, A. (2005). Community Capitals: Poverty Reduction and Rural Development in Dry Areas. *Annals of Arid Zone*, 45(3&4), 239–253.

- Fraser, T. (2021). Japanese social capital and social vulnerability indices: Measuring drivers of community resilience 2000–2017. *International Journal of Disaster Risk Reduction*, 52, 101965.
- Glaeser, Edward L et al. (2000). Measuring Trust. *The Quarterly Journal of Economics*, 115(3), 811–846. doi: 10.1162/003355300554926
- Glaeser, E., Henderson, J. V., & Inman, R. P. (2000). The Future of Urban Research: Non-market Interactions. *Brookings-Wharton Papers on Urban Affairs*, 2000(1), 101–138. doi:10.1353/urb.2000.0004
- Gould, E. D. & Hijzen, A. (2016). Growing Apart, Losing Trust? The Impact of Inequality on Social Capital. *IMF Working Papers*, 176 . doi:10.5089/9781475529487.001
- Granovetter, M. (1973). The Strength of Weak Ties. *American Journal of Sociology*, 78, 1360-1380. doi: 10.1086/225469.
- Grootaert, C. (1999). Social capital, household welfare and poverty in Indonesia. In *Local Level Institutions Study Social Development Department Environmentally and Socially Sustainable Development Network The World Bank*. <https://doi.org/10.1111/1467-9663.00036>
- Grootaert, C. & Van Bastelaer, T. (2002). *Understanding and Measuring Social Capital: A Synthesis of Findings and Recommendations from the Social Capital Initiative*. Washington, D.C : World Bank
- Grootaert, C. & Narayan, D. (2004). *Local Institutions, Poverty and Household Welfare in Bolivia*. World Development
- Halstead, J. M., Deller, S. C., & Leyden, K. M. (2022). Social capital and community development: Where do we go from here?. *Community Development*, 53(1), 92-108.
- Haridison, Anyualatha. (2013). Modal Sosial Dalam Pembangunan. *Jurnal Ilmu Sosial, Politik dan Pemerintahan*. doi:10.37304/jispar.v2i2.363
- Hauberer, Julia. (2011). *Social Capital Theory: Towards A Methodological Foundation*. Prague: VS Verlag für Sozialwissenschaften & Springer Fachmedien Wiesbaden.
- Häuberer, Julia. (2011). The Founding Concepts of Social Capital - Bourdieu's Theory of Capital and Coleman's Rational-Choice Approach to Social Capital.
- Hu, M., & Ye, W. (2020). Home ownership and subjective well-being: A perspective from ownership heterogeneity. *Journal of Happiness Studies*, 21(3), 1059-1079.
- Huber, Peter & Montag, Josef. (2018). Homeownership, Political Participation, and Social Capital in Post-Communist Countries and Western Europe. *ISE Working Paper*, 8, doi:10.2139/ssrn.3109230
- Hwang, E., Brossoie, N., Jeong, J. W., & Song, K. (2021). The impacts of the neighborhood built environment on social capital for middle-aged and elderly Koreans. *Sustainability*, 13(2), 756.
- Lang, Robert T. & Steven P. Hornburg. (1998). What is Social Capital and Why Is it important to Public Policy. *Housing Policy Debate*, 9(1).
- Lee, K. Y., & Jeong, M. G. (2021). Residential environmental satisfaction, social capital, and place attachment: the case of Seoul, Korea. *Journal of Housing and the Built Environment*, 36(2), 559-575.
- Lefebvre, Virginie, Douglas Sorenson, Maeve Henchion, and Xavier Gellynck. 2016. "Social Capital and Knowledge Sharing Performance of Learning Networks." *INTERNATIONAL JOURNAL OF INFORMATION MANAGEMENT* 36 (4): 570–579. doi:10.1016/j.ijinfomgt.2015.11.008.
- Leviton-Reid, C., & Matthew, R. A. (2018). Housing tenure and neighbourhood social capital. *Housing, Theory and Society*, 35(3), 300-328.
- Lin, N., Ye, X., & Ensel, W. M. (1999). Social support and depressed mood: A structural analysis. *Journal of Health and Social Behavior*, 40(4), 344–359. <https://doi.org/10.2307/2676330>

- Manturuk, K., M. Lindblad & R. Quercia. (2009). Homeownership and Social Capital Among Low to Moderate Income Family. *Journal of Urban Affairs*, 32(4), 471 – 488 doi:10.1111/j.1467-9906.2010.00494.x
- Miranda, A.A., Le Borgne, YA. & Bontempi, G. New Routes from Minimal Approximation Error to Principal Components. *Neural Process Lett* 27, 197–207 (2008). <https://doi.org/10.1007/s11063-007-9069-2>
- Mok, D., Wellman, B., and Carrasco, J. (2010). Does Distance Matter in The Age of The Internet?. *Urban Studies*, 47(13), 2747-2783. doi: 10.1177/0042098010377363
- Muzayanah, Irfani F.U., Nazara, Suahasil, Mahi, Benedictus R. & Hartono, Djoni. (2020). Is There Social Capital in Cities? The Association of Urban Form and Social Capital Formation in The Metropolitan Cities of Indonesia. *International Journal of Urban Sciences*. 24-4. 532-556. doi: 10.1080/12265934.2020.1730934
- Portes, A. & Landolt, P. (1996). The Downside of Social Capital. *The American Prospect*, 26: 18-21.
- Putnam, Roberst D. (1993). The Prosperous Community: Social Capital and Public Life. *American Prospect*, 13, Spring, 35- 42. In Elinor Ostrom and T.K. Ahn. 2003. *Foundation of Social Capital*. Massachusetts: Edward Elgar Publishing.
- Putnam, Roberst D. (1995). Bowling Alone: America’s Declining Social Capital. *Journal of Democracy*, 6 (1), 65-78.
- Putnam, Roberst D. (2007). E Pluribus Unum: Diversity and Community in the Twenty-first Century The 2006 Johan Skytte Prize Lecture. *Scandinavian Political Studies*, 30(2), 137174. doi:10.1111/j.1467-9477.2007.00176.x
- Retsinas, & Belsky, E. S. (2002) *Low-income Homeownership: Examining the Unexamined Goal*. Washington DC: Brookings Institution Press.
- Rohe, W. M. & Stewart, L. S. (1996). Home Ownership and Neighborhood Stability. *Housing Policy Debate*, 7(1), 37-81.
- Rohe, W. M. & Stegman, M. A. (1994). The Impacts of Home Ownership on the Self-Esteem, Perceived Control and Life Satisfaction of Low-Income People. *Journal of the American Planning Association*, 60(1), 173-184. doi: 10.1177/004208169403000108
- Rupasingha, A., Goetz, S. J., & Freshwater, D. (2006). The Production of Social Capital in US Counties. *Journal of Socio-Economics*, 35(1), 83-101. doi: 10.1016/j.socec.2005. 11.001
- Saunders, P. (1990). *A Nation of Home Owners*. London: Unwin Hyman. doi:10.1177/030913259101500330
- Subiyantoro, Slamet. (2011). The Interpretation of Joglo Building House Art in The Javanese Cultural Tradition. *Mudra*, 26-3, 221-231
- Stack, Carol. (1983). *All Our Kin: Strategies for Survival in a Black Community*, Basic Books: New York.
- Stock, J.H. & Yogo, M., (2005). Testing for Weak Instruments in Linear IV Regression. In D.W.K. Andrews & J.H. Stock (eds.) *Identification and Inference for Econometric Models Essays in Honor of Thomas Rothenberg*. Cambridge: Cambridge University Press, 80-108.
- Strauss, J., Sikoki, B., & Witoelar, F. (2016). *The Fifth Wave of The Indonesia Family Life Survey (IFLS5): Overview and Field Report*. Santa Monica: RAND.
- Strauss J., Witoelar, F., Sikoki, B., & Wattie, A.M. (2009). *The Fourth Wave of The Indonesia Family Life Survey (IFLS 4): Overview and Field Report*. Santa Monica: RAND.
- U.S. Census Bureau. (2021). *Homeownership in the United States: 2005 to 2019*. Washington: U.S. Census Bureau
- Van de Bunt, G.G. (1999). *Friends by Choice: An Actor-Oriented Statistical Network Model for Friendship Networks in Time*. Amsterdam: Thela Thesis

- Van Der Gaag, M., & Snijders, T. A. B. (2005). The Resource Generator: Social Capital Quantification with Concrete Items. *Social Networks*, 27(1), 1–29. doi: 10.1016/j.socnet.2004.10.001
- Van der Meer, T. G. L. A., & Tolsma, J. (2014). Homeownership and social capital: An empirical study using Dutch survey data. *Urban Studies*, 51(12), 2558-2575. doi: 10.1177/0042098013518518
- Woldoff, R. A. (2002). The Effects of Local Stressors on Neighborhood Attachment. *Social Forces*, 81(1), 87–116. doi: 10.1353/sof.2002.0065
- Woolcock, M., & Narayan, D. (2001). Social Capital: Implications for Development Theory, Research, and Policy. *The World Bank Research Observer*, 15(2), 225–249. doi:10.1093/wbro/15.2.225
- Woolcock, M. (2001). The Place of Social Capital in Understanding Social and Economic Outcomes. *Isuma: Canadian Journal of Policy Research*, 2(1), 1-17
- Wooldridge, J.M. (2006). *Introductory Econometrics: A Modern Approach*. 3rd Edition.
- Yoo, C., & Lee, S. (2016). Neighborhood built environments affecting social capital and social sustainability in Seoul, Korea. *Sustainability (Switzerland)*, 8(12), 1–22. doi:10.3390/su8121346