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Article

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GENERAL & APPLIED ECONOMICS | RESEARCH ARTICLE

Measuring household social capital in rural Vietnam using MIMIC approach

Huynh Ngoc Chuong^{1*} and Nguyen Chi Hai¹

Abstract: The concept of social capital has gained significant attention in recent years due to its potential for improving individual and collective well-being, and for its significance in shaping social, economic, and political structures. This study aims to measure the social capital of rural Vietnam households with data from 2008 to 2016. The authors identified different aspects of household social capital as well as social capital proxies from livelihood papers. This paper applied the fundamental theories (the resource theories and network theories to measure the household social capital in Vietnam. We propose to apply the MIMIC model (multiple indicator multiple cause model) to construct the household social capital along with integrating the indicators in both views of household social capital. Results highlight the importance of understanding the multifaceted nature of social capital, which includes different forms of social networks, social participation, and social costs. The findings suggest that participation in diverse organizations plays a vital role in the formation of household social capital. In addition, the MIMIC model shows that participation in social networks is the most important factor in the formation of household social capital. Therefore, we give some implications for the measurement as well as characteristics in the social capital of households in Vietnam. The study contributes to the existing literature on social capital by emphasizing the importance of understanding the different aspects of social capital and how they interact with each other in shaping the livelihoods of rural Vietnamese households.

Subjects: Development Studies; Rural Development; Research Methods in Development Studies; Economics; Sociology & Social Policy

Keywords: social capital; Vietnam rural household; MIMIC model; VARHS

1. Introduction

Social capital has been explored by sociologists primarily from a structural and network perspective. One of the earliest modern theorists to study social capital was Bourdieu, as highlighted by Portes (1998). Bourdieu's research focused on meso- and macro-level units of analysis, and he examined differences in social capital across socioeconomic classes to demonstrate how these differences impact development

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outcomes (Lin, 1999). Woolcock and Narayan (2000) have identified four distinct perspectives for viewing social capital: community, institutional, network, and integration perspectives. From these perspectives, social capital can be analyzed in terms of its role in community building, institutional development, social network formation, and the integration of diverse social groups (Woolcock & Narayan, 2000). According to Durlauf and Fafchamps (2005), social capital was introduced to economics through studies by scholars, such as Coleman, Lin, Putnam, or Evans. These scholars have examined the role of social capital in livelihood studies and the role it plays in broader development processes.

In livelihood studies, social capital is one of the core assets of a household's livelihood. According to DFID (1999), there are five types of household livelihood assets (natural capital, physical capital, financial capital, human capital, and social capital). Winters et al. (2001) added other assets to point out six types of assets in the household livelihood resources (natural capital, social capital, human capital, financial capital, physical capital, and other assets). However, social capital is always considered one of the core factors influencing the choice of household livelihood. Moreover, social capital can replace other official institutions to ensure trust and principles of the community, thereby promoting social development and reducing transaction costs (Portes, 1998). DFID (1999) emphasizes that social capital is not only a livelihood capital that promotes sustainable livelihoods but also promotes other types of livelihood capital of the household. Nonetheless, the measurement of social capital at the household level remains not clearly and has different measurement approaches (Aquaah et al., 2015; Siegler, 2014).

Social capital has been a significant topic in livelihood frameworks, including livelihood choices, strategies, and frameworks (Chuong, 2020; Chuong et al., 2022; DFID, 1999; Winters et al., 2002). It plays an essential role in household livelihood through both direct and indirect effects (Hua et al., 2017; Kelemen et al., 2008; Zhang et al., 2019). Livelihood studies have provided useful understanding of households' social capital and the role of social capital on household livelihood. However, these studies often simplify the quantification of social capital and use various proxies to measure it, such as: close friends, neighbors, relatives (Kuang et al., 2019; Newman et al., 2014; Zhang et al., 2019; Story & Carpiano, 2017), frequency of shopping (Kuang et al., 2019), number of visits (Alemayehu et al., 2018), trust in neighbors (Torres et al., 2018), or cellphone (Nguyen et al., 2017). While these indicators show different aspects of household social capital, they are not sufficient and result in a diverse range of variables in the scope of livelihood contexts.

In Vietnam, the urban population increased from about 19% in 1990 to 34% in 2015. Most of the Vietnamese population still live in rural areas, of which the household is the smallest and most traditional social structure unit in Vietnam. Studies showed that Vietnam is different from the world and other countries in terms of social capital characteristics (Hak, 2012; Inoguchi, 2017), but there is a lack of measuring the social capital of households in Vietnam. According to Hak (2012), although Vietnam share some similarities with Korea in confucian culture, the diverse and open functions of household social capital in Vietnam make it easier to establish wide social relationships. Murakami (2013) argues that "the key to open the door to development" and family connection is the core value sharing among family members. Inoguchi (2017) showed that the trust in merit-base utility is especially high in Vietnam. These authors provided insight into personal social capital or some unique dimension of household social capital (Durlauf & Fafchamps, 2005). In the context of livelihood studies in Vietnam, the social capital of household is often viewed as a livelihood capital, based on the DFID framework, and it measure using indicators such as: organization participation, friends, cell phone (Chuong et al., 2022; Huang et al., 2021; Nguyen-Trung et al., 2020).

Both theoretical framework and empirical evidence suggest that social capital plays a crucial role in household livelihoods. However, there is a gap in the measurement of social capital proxies, particularly in the context of household social capital. This reflects the multidimensional nature of social capital. It is necessary to gain insight into the structure of household social capital to clarify the relationships between different aspects of household social capital and understand their roles.

Therefore, this study aims to measure the social capital of Vietnam's rural households through an integrated approach to identify aspects of their social capital, as well as formalize the structure of Vietnam's household social capital. The structure of this paper contains the literature review of social capital theories which present the theoretical view of household social capital along with livelihood view of social capital proxies. Main of this paper focus on synthesis both theoretical social capital views and the livelihood views to enhance the household social capital indexes for household livelihood research. In the third part, this paper describes the data set as well as MIMIC approach to estimate the conceptual framework. In the part 4, we illustrate overview of the aspects of household social capital in rural Vietnam, then discuss the model results. In the end, this paper implies some recommendations for measuring household capital for the livelihood research.

2. Theoretical approaches in social capital views and livelihood views

2.1. Concepts of social capital

Social capital was noticed in the mid-19th century with Tocqueville's view of meeting and participation in American society. Putnam, Bourdieu, and Coleman contributed to the milestone of social capital views (Nauenberg et al., 2011; Siisiäinen, 2000). Social capital under Bourdieu's view, social capital is institutionalized from a network of acquaintances that create the existing or potential resources (Portes, 1998). In the view of A. Coleman (1988), "Social capital is defined by its functions". According to Coleman (1988), social capital is different from other types of capital, social capital is not tangible but is the accumulation through connections or relationships between individuals and organizations. In the view of Putnam, social capital is considered from a macro perspective in aspects: norms, trust, or social values (Coleman, 1988).

According to Fukuyama (2001), social capital cannot be an individual activity, it creates and transmits cultural elements such as traditions, religions, historical habits, constructing prices, ethics and common goals. Meanwhile, according to Wilson (1997), social capital is a self-organizing system with many stakeholders connected in community. According to Nahapiet and Ghoshal (1998), social capital is the aggregation of real and potential resources which rooted individuals' network. Portes (1998) defined social capital as (1) a resource controlled by society, (2) a resource of family benefits, (3) resources through non-family networks. In the other view, Fukuyama (2001) social capital is connections through social relationships that foster trust and cooperation. Therefore that connections are the core elements in social capital, helping to reduce transaction costs in economic activities or support the success of democratic society.

Lin develops social capital concepts based on literature of networks and social capital. Lin argued the position of social capital is identified in social networks, or through investment in social capital networks, or access to social resources to achieve a value like financial benefit (Lin, 1999, 2003). Moreover, Lin asserted that the higher level of social position in the social capital network achieve a higher level of benefit return. Meanwhile, Woolcock and Narayan (2000) reinforces the concept of social capital from the perspective of the object of research, which separates into four perspectives: the public view, institutional view, network perspective, and integrated perspective.

2.2. Social capital views

In the initial concept of social capital, Coleman (1988) identified that social capital is a actively resource. There are three forms of social capital: negotiation and expectation, information, social norms (Dasgupta & Serageldin, 1999). Putnam also contributed to the theories of social capital in the dimension of resource social, such as social norms and trust, is the core elements to exploit the resources of social capital. The resource social capital theory is developed and examined by many researchers (Portes, 1998, 2000; Portes & Landolt, 2000).

Portes had a positive view of social capital through access to resources. Individuals through social capital can access resources as well as protect assets (Portes, 2000; Portes & Landolt, 2000).

However, Portes also points out four possible negative effects of social capital: excluding people outside the network, rules, or requirements to members in the organization, limits of personal freedom and the dark sides of norm.

Accessing resources of social capital is widely used in livelihood approaches, DFID (1999) defines social capital as the social resources that people rely on to pursuit of livelihood goals. Many studies on household livelihoods as well as the livelihood frameworks also use the view of social capital in terms of resources. The social capital as other types of capital (natural, physical, financial, human capital) are exploited to meet livelihood goals (DFID, 1999; Ellis, 1998; FAO, 2000). Thus, in the aspect of social capital resources, the exploitation of social resources, access to resources from household networks can be used and exploited to pursue livelihood strategies.

At the network view, the connections between individuals as well as groups, organizations are the core elements of social capital. In Putnam's book "Bowling alone", he pointed out the decrease in social capital in USA, and hypothesis in the role of member links of organisations on social activities as well as economic benefits (Dasgupta & Serageldin, 1999; Field, 2003). Putnam focuses on the formal links among individuals. Besides that, weak tie theory and structural holes theory are developed by Granovetter and Burt. Granovetter (1973) developed the theory of weak ties that view social capital to demonstrate not only strong ties or formal relationship but also weak ties in networks. The strength of weak ties gives them more new information than the strong ties, creating more opportunities (Granovetter, 1973).

Burt developed the theory of structural hole in his books "structural holes" and "Brokerage and closure" (Burt, 1995, 2005). In the network view of social capital, the theory of structural holes deepens in the models of individual connections in networks and social structure. In which, social capital is formed by four patterns: contagion, prominence, closure, and brokerage; and three main empirical evidence: the link between rewards and performance with the mediator, proof of creativity and learning.

Thus, the development of the social capital theories show that the characteristics of household capital are inside the relationships including strong ties, weak ties, and structural holes. In the social network complex, households can get opportunities or information through the structural gaps to take their own benefits.

From the perspective of theory and empirical research, Woolcock and Narayan (2000) emphasize the "dynamic" nature in social capital with three forms (bonding, bridging, and linking), which also creates unity. most on the general patterns of social capital (Hamilton et al., 2016; Woolcock, 2001; Woolcock & Narayan, 2000). Specifically, social capital contains three components: (i) First, social capital bonding includes the direct relationships that are family, friends, and neighbors. It is based on strong interpersonal relationships and direct interactions; (ii) Second, social capital bridging: includes further relationships such as colleagues, organizations, and homogenous connections; (iii) Third, social capital linking: connections to people with hierarchical links.

2.3. Livelihood views and conceptual framework

Livelihood studies are based on theoretical frameworks from the view of sustainable livelihood analysis, including: Scoones (1998), DFID (1999), and FAO framework. DFID (1999) becomes a fundamental theoretical foundation for livelihood studies. From the viewpoint of DFID, the household's livelihood capitals are the conditions which are determinants of the livelihood strategy decisions. There are five core capitals: human capital, social capital, natural capital, physical capital, and financial capital. In this framework, social capital plays a special role which is not only be a source of livelihood assets but also impacts on the other capital. Social capital is discussed in aspects: networks, organizations, trust, and exchange.

So that, most livelihood papers highlighted social capital like a core factor in any livelihood framework/model. Anyway, social capital indicators are still different variables in livelihood

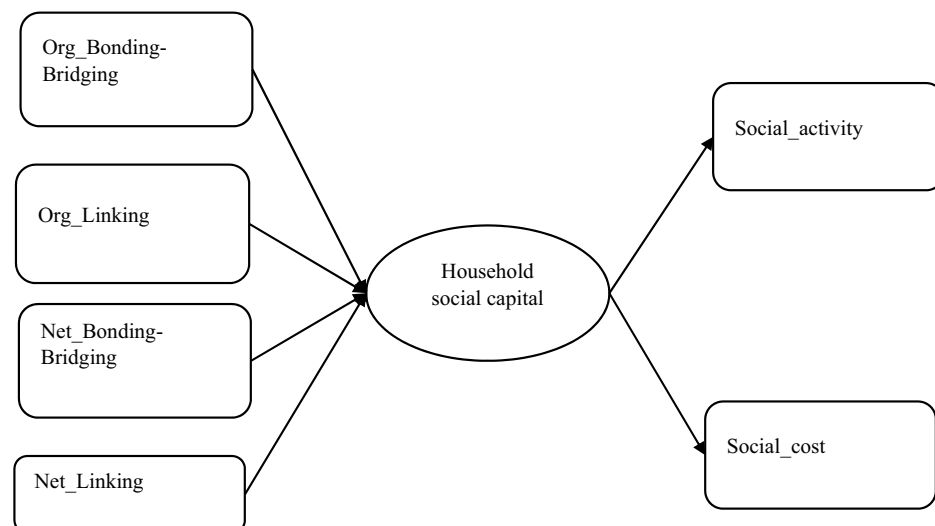
literature. Many papers applied the relationship indicators are the numbers of close friends, neighbors, relatives, and friends to measure the household social capital (Kuang et al., 2019; Newman et al., 2014; Story & Carpianto, 2017; Zhang et al., 2019). These are the indicators of the network aspect of social capital. In those papers, social capital is an element of social relations which can be exploited to pursue the livelihood of households. Besides, studies mostly use indicators of participation in different organizations (Alemayehu et al., 2018; Chuong, 2022; Vo, 2018; Xu et al., 2019) along with political linking. In the other papers, authors applied the resource aspect of social capital and social capital linking (Mogues, 2019; Su et al., 2019; Tian & Lemos, 2018). Other researchers use a variety of indicators in the expressions of social capitals, such as grants, social cost, gifts, or participation in social activities (meetings, festivals), exchanges, etc. (Hsueh, 2019; Mogues, 2019; Núi et al., 2016; Qin & Flint, 2012; Torres et al., 2018; Zhang et al., 2019). In these approaches, the authors used the index of social capital output of household to measure the household social capital. Moreover, other livelihood studies use many different indicators, such as frequency of shopping (Kuang et al., 2019), number of visits (Alemayehu et al., 2018), trust in neighbors (Torres et al., 2018), or cellphone (Nguyen et al., 2017) to present the social capital in their livelihood estimation model.

The literature of measuring household social capital is not only diverse in the measuring aspects but also different in indicators. Additionally, the available livelihood data is often lack of the indicators to measuring social capital. In this paper, we propose the MIMIC model (multiple indicator multiple cause model) to measure the household social capital which relies on both of organizations and social network views and the expression of household social capital, including six observed variables and one latent factor (Figure 1).

Household social capital outputs are indicated by the social activities (Social_activity) and the social cost (Social_cost). These indicators reveal the social characteristics in the network of household as well as household relationships (Hsueh, 2019; Mogues, 2019). Besides, social costs are used to maintain connections and enhance the social relationships in Vietnam (Núi et al., 2016).

In the structure of social capital formation, the authors propose to use both structural and network aspects. The indicators of structural social capital are based on three main components: social capital bonding, social capital bridging and social capital linking. Not only that, the measurement of social capital is also approached on both perspectives: organization (Org) and social network (Net). In which, social capital bonding and social capital bridging are two faces of one dimension in social capital, so we combined and named it “Social Capital Bonding_Bridging” in one indicator. So that we propose two variables: Org_ Bonding_Bridging, Net_ Bonding_Bridging to

Figure 1. Conceptual framework.



measure the Social Capital Bonding_Bridging of household in Organization aspect and Network aspect; two variables: Org_Linking, Net_Linking to measure the Social Capital Linking of household in both organizational and network aspects.

3. Data and econometric approach

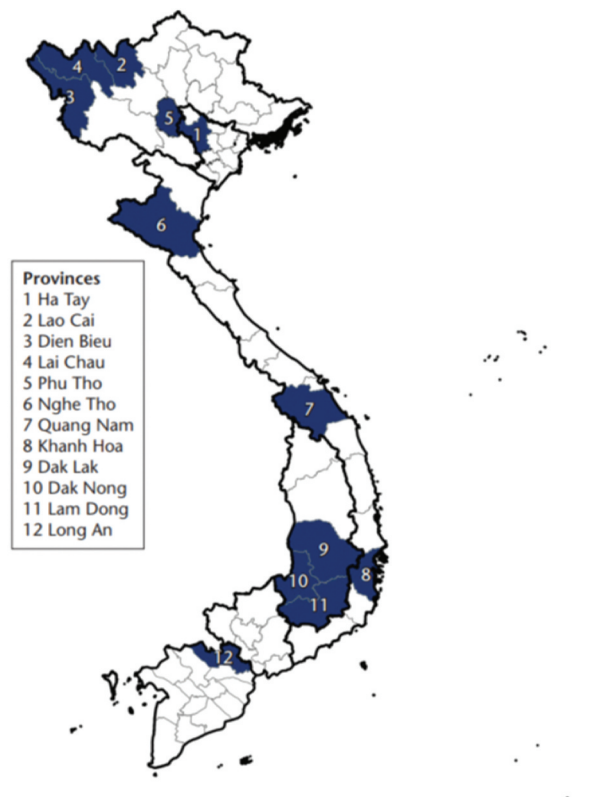
The data in this study is secondary dataset from the Vietnam Access Resource Household Survey (VARHS) data from 2008 to 2016 (with data collected every 2 years). Through five waves of the VARHS, households' assessments on the social capital aspects were collected on a large sample size - 16,286 observations in 12 provinces (ex-Ha Tay (now belong to Ha Noi), Phu Tho, Lao Cai, Dien Bien, Lai Chau, Nghe An, Quang Nam, Khanh Hoa, Dak Lak, Dak Nong, Lam Dong and Long An) (Figure 2). Therefore that are reliable data about farmers' views on the social capital aspects as well as enough information for measuring and observing the changes in household social capital.

Households were surveyed the three most important organizations they participated. So that, author calculate the similarity of organizations through their own perspective. There are three levels of hierarchy of organizations depending on decision making: discussing together decision making, leaders consult with members, and leading decision-making. Maximum level of linking is 2 (decision leader) and minimum of 0 (all members discuss together to make decision).

In the network view, the similarity of network depends on the characteristics of household's relationships: relatives, friends, and colleague. The maximum boding level is 3 and the minimum is 0 (in the maximum bridging level respectively). And the linking of network is the connection of the household to public institutions, we use weighting based on the position of that connection (the organization leader is 2 and the staff is 1). All variables aggregated at the household level by these weights.

Figure 2. The surveyed locations.

Source: Tarp (2017).



Based on the proposed model, the social capital factor is formalized from two pillars of social capital in organization perspective and network perspective and is indicated through two variables: social activities and social cost (Table 1). Authors use the MIMIC approach for estimation. The MIMIC was developed in the 1970s which is recognized a suitable model to measure hidden factors or hidden variables. It helps to separate components of measuring factor from observed variables. Moreover, the MIMIC model contains the structural model and measurement model helps to test the expected relationships in research hypotheses. Several studies applied MIMIC approach to structuralize personal social capital (Huang et al., 2023; Zhang & Lu, 2019), additionally, other authors also determined the livelihood effects of household through MIMIC estimations (Chiwaula et al., 2022; d’Errico et al., 2018). Given the potential of the MIMIC approach in capturing complex relationships between variables, we propose to employ it to structure household social capital in this paper. By leveraging MIMIC’s ability to handle multiple indicators and causes, we aim to develop a comprehensive understanding of the dynamics of social capital within households.

The MIMIC model of the households’ social capital (HH_SC) uses a linear equation which is determined by the observed variables on 4 specific forms of social capital $x' = (\text{Org_bonding_bridging}, \text{Org_linking}, \text{Net_bonding_bridging}, \text{Net_linking})$: $\text{HH_SC} = \beta'x + \varepsilon$ On the other hand, HH_SC is also determined through two indicators $y' = (\text{Social_activity}, \text{Social_cost})$: $\text{HH_SC} = \lambda'y + \xi$

$$\text{HH_SC} = \beta'x + \varepsilon \quad (1)$$

$$\text{HH_SC} = \lambda'y + \xi \quad (2)$$

The MIMIC model is a structural equation modeling (SEM) technique that is used for estimating and evaluating equations (1) and (2) simultaneously. Its purpose is to monitor the restrictions of observed indicators and produce effective and robust results. To assess the model’s performance, SEM indicators, such as Chi-squared (χ^2), error criterion RMSEA (<0.1), TLI (≥ 0.9), and CFI (≥ 0.9), are used. Several studies, including Beran and Violato (2010), Ketchen (2013), and Kline (2015) have shown that these criteria must be met for the MIMIC approach to be effective. Our study used Stata 16 for statistical analysis, preliminary descriptive analysis, and hypothesis testing.

Table 1. Variable Description and Measurement

Model	Variable	Description & Measurement
Measurement model	Org_bonding_bridging	The hierarchy of organizations: a weighted sum of organization (standardized variable).
	Org_linking	The similarity of household’s relationships: a weighted sum of relationship (standardized variable).
	Net_bonding_bridging	the similarity of organizations: a weighted sum of organizations (standardized variable).
	Net_linking	the hierarchy of household’s relationships: a weighted sum of relationships (standardized variable).
Structure model	Social_activity	Total social Activities: This is a standardized variable representing the total amount of social activities.
	Social_cost	Total value of the social Cost: This is a standardized variable representing the total cost of social activities.

4. Estimated results and discussion

4.1. Overview of Organization Participation in Vietnam

General statistics show that the majority of farmers are member at least of an organization (Table 2). In 2016, the results showed that less than 26% of households are not participating in any organization, and this proportion has decreased significantly from approximately 35% in 2008. Besides, the number of organizations in which the household participates is also increasing shows the expansion of the household's network of formal organizations. The highest total number of organization participation is 10, and 2 organizations is the number of organizations that households participate the most (more than 29% households).

As for the bonding- bridge of organizations, statistics from this survey show that the Farmers' Union is considered to be the organization with the highest average similarity level (on average 1.826/3). Besides, irrigation groups, business associations, and cooperatives all rated above 1.5 in terms of average value. In which, the standard deviation (SD) of the top three groups (farmers' associations, irrigation cooperatives, and business associations) is only the lowest values. This is quite reasonable for the region survey in rural areas, the participation in organizations related to agricultural activities has the high similarity (bonding). Meanwhile, the organizations like the Red Cross or microfinancial-credit groups are the most diversified equivalent the highest bridging score (averaging 1.167 and 1.183 respectively). Finally, the interest groups of farm households and the Communist Party are also organizations with a relatively high level of social capital Bridging.

The bonding-bridging level and linking level of organizations which households participate clearly show a distinguished picture between organizations in Vietnam from the perspective of farmers (Figure 3). Accordingly, the Communist Party and religious organizations have the highest level of linking social capital. According to Table 3, the Communist Party having a relatively high level of bridging social capital, the religious organizations have the balanced level of bonding—bridging social capital. The women's union is similar to the religious organizations in the balance level of bonding-bridging social capital, even though the Women's Union only has a relatively low linking social capital. The relatively low linking

Figure 3. The bonding-bridging and linking degree of organizations.

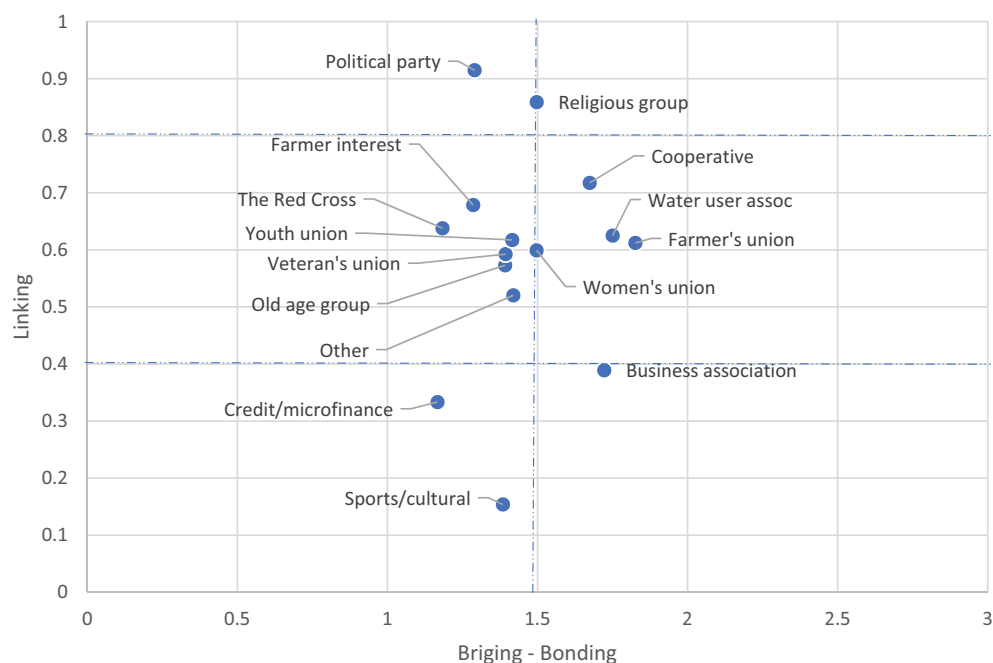


Table 2. Organization Participation

Year	The number of participating organizations (percent)										
	0	1	2	3	4	5	6	7	8	9	10
2008	34.84	12.44	29.25	11.93	6.45	3.02	1.21	0.5	0.3	0.05	0
2010	30.77	15.31	26.79	13.75	8.26	2.87	1.21	0.6	0.35	0.1	0
2012	25.88	14.45	29.41	16.62	8.86	3.07	1.06	0.5	0.1	0	0.05
2014	23.82	16.01	29.51	17.32	8.06	3.02	1.16	0.76	0.1	0.15	0.1
2016	25.73	19.08	29.61	14.7	7.1	2.22	1.11	0.2	0.05	0.2	0
Total	28.21	15.46	28.91	14.86	7.74	2.84	1.15	0.51	0.18	0.1	0.03

degree of organizations can be divided into two groups: organizations with a high level of bridging (the farmer interest groups, the Red Cross, the Youth Union, the Veterans Association, and the Old Age Group) and relatively high bonding organizations (irrigation, cooperatives and farmers' union). In addition, microfinancial-credit groups, business associations and sports-cultural groups have the lowest levels of linking degree even though the business association group has a higher bonding level than the other two organizations.

4.2. Overview of Vietnam rural households' network

The proportion of household members participating in public organizations in 2016 accounted for less than 6%, of which, family members are the leaders of organizations were only about 2.7% households (Table 4). In other words, the number of households directly linked to public organizations is quite low. As for family relatives work at public organizations about 16% in 2016, in which, more than 5% of households have connections with leaders of the organization through their relatives. In addition, statistics in 2016 show that about 23% of households have at least one close friend working in organizations. Moreover, more than 17% family have connections with leaders of that organization through their friends. The relationships with public organizations through family friends have been a significant increase about 5% point compared to statistical values in 2008. These are important connections, while the others are relatively small changes.

Table 3. The degree of social capital bonding-bridging of organizations

Organizations	Min	Mean	Median	Max	SD
Farmers' Union	0	1.826	2	3	0.715
Irrigation Group	1	1.750	2	2	0.463
Business associations	0	1.722	2	2	0.575
Cooperative	0	1.674	2	3	0.790
Religion Groups	0	1.497	2	3	0.772
Youth Union	0	1.497	2	3	0.826
Others	0	1.420	1	3	0.739
Weman Union	0	1.415	1	3	0.776
Veterans Union	0	1.394	1	3	0.813
Old age Group	0	1.392	1	3	0.802
Sport Group	0	1.385	1	3	0.768
Party	0	1.290	1	3	0.805
Interest groups	0	1.286	1	3	0.815
Cross-Red	0	1.183	1	3	0.770
Microfinance – credit	0	1.167	1	3	0.983

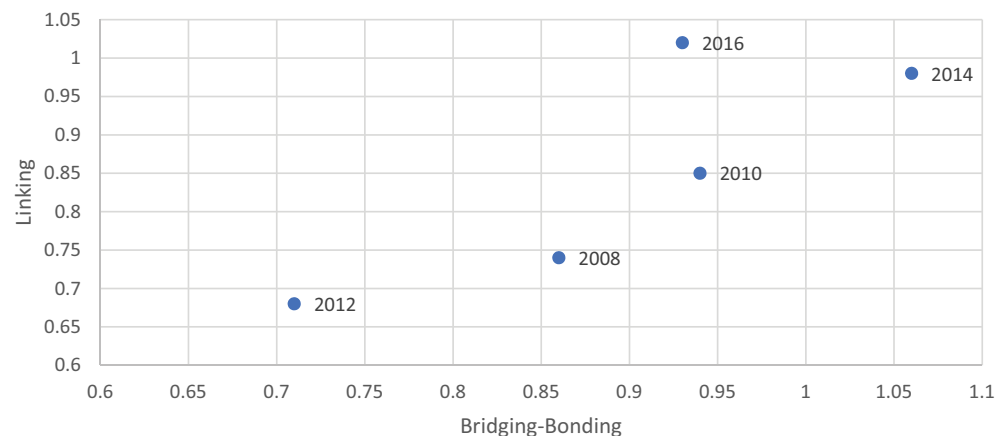
Table 4. Households' connections

The number of connections	The number of leader connections	Percentage (%)
Family member		
0	no	94.16%
1	no	2.57%
1	yes	2.37%
2	no	0.55%
2	yes	0.35%
Family's friends		
0	no	77.14%
1	no	3.32 %
1	yes	2.37%
2	no	3.22%
2	yes	13.95%
Family's relatives		
0	no	84.39 %
1	no	9.52 %
1	yes	5.19%
2	no	0.76%
2	yes	0.15%

The size of social capital based on the aspect of bonding social capital increased from 2008 to 2012 with the median value from 0.86 to 1.06. However, from 2014 to 2016, the level of bonding—bridging does not change significantly.

The average results show that the hierarchical relationship of the household increases over the years, in which the standard deviation also expands over time (Figure 4). Therefore, the size of linking social capital increased continuously from 2008 to 2016 with the median value from 0.74 to 1.02. However, the standard deviation has also changed markedly, the gap in linking social capital between households was increasingly widening. The difference test in the total level of linking social capital over time is significantly at the 1% significance level.

Figure 4. The bonding-bridging and linking degree overtime.



4.3. Social outputs of Vietnam rural households

In the general, every rural household in Vietnam join averagely 17 social activities per year and changes less over time (Table 5). There is 50% of households join more than 1 social activity per month in Vietnam's rural areas. Additionally, one of the most characteristic of Vietnam culture is gift in households' relationship. The tradition of gift-giving also plays a significant role in maintaining and building social connections in Vietnam, particularly during traditional festivals. In 2016, the minimum of social cost is 40 thousand VND (approximately 2 USD) and the maximum of social cost is larger than 875 times (35 million VND, approximately 1590 USD). The gap between households' social costs seems to be widening over time, as the standard deviation in 2016 was more than three times larger than that of 2008.

4.4. MIMIC estimation

The estimation results from Table 6 show that the mimic model is highly suitable when the χ^2 indicator reaches 2.09 and the RMSEA reaches the average level of 0 (the upper limit value at 90% confidence is only 0.015), TLI and CFI are approximately equal to 1. This shows that the estimated model has a high relevance level.

Figure 5 visually depicts how the covariates affect the latent constructs and the MIMIC model. Results from the measurement model show that social capital expressed through two indicators (social costs, social participation) are statistically significant at 1%. Meanwhile, four indicators on two aspects of organization and network are statistically significant, in which, linking social capital of organization aspect (Org_Linking) is significant at 1%, bonding-bridging social capital (Org_Bonding-Bridging) and linking social capital of network aspect (Net_Linking) are both statistically significant at 5%. The linking social capital from the organization aspect (Org_Linking) is the largest contributor to the formation of household social capital in Vietnam. The proportion of linking social capital from organizational aspects is more than 0.51 that is twice as large as

Table 5. Social activity and social Cost

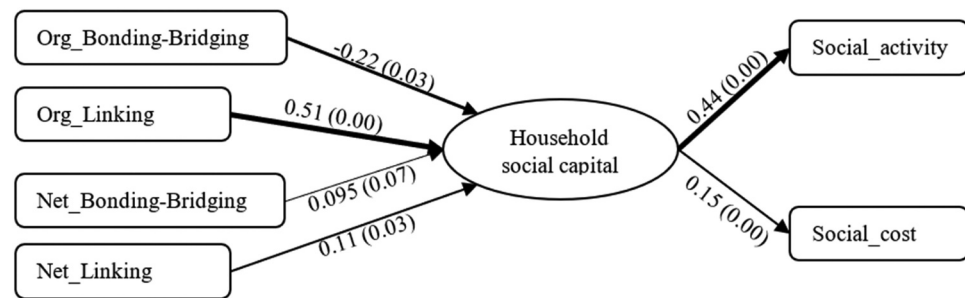
Year	Min	Median	Mean	Maximum	Standard Deviation
Social Activity					
2008	0	14	17.05	221	16.02
2016	0	15	16.87	112	11.21
Social Cost (thousand Vietnam Dong – VND)					
2008	2	50	62.95	500	63.61
2016	40	300	1077.04	35000	3242.65

Table 6. MIMIC estimation

Model	Variable	Coefficients	Standard error	p value
Measurement model	Org_bonding_bridging	−0.2192	0.1023	0.032
	Org_linking	0.5123	0.1122	0.000
	Net_bonding_bridging	0.0952	0.0521	0.068
	Net_linking	0.1109	0.0515	0.031
Structure model	Social activity	0.4413	0.0464	0.000
	Social cost	0.1503	0.0184	0.000
Model indicators	Log LL = −60222.515 $\chi^2(3) = 2.09$, pvalue = 0.5538; RMSEA = 0.015 TLI = 0.95, CFI = 0.99			

Figure 5. MIMIC estimation.

Note: coefficient (p value).



the second largest contributor (Org_Bonding-Bridging). Meanwhile, the contributors from the network aspect are much lower than the factors of organization aspect. The lowest contributor of household social capital is the bonding-bridging of network aspect (Net_Bonding-Bridging), it only contributes 0.095 equivalents a fifth of the contribution of organization linking (Org_Linking).

5. Discussion

Based on the results of the MIMIC model, it showed that social capital expressed through social costs and social participation, as well as linking social capital from organization and network aspects are significant contributors to household social capital in Vietnam. Among these factors, linking social capital from the organization aspect has the largest contribution to household social capital, followed by bonding-bridging social capital from the organization aspect. The contributors from the network aspect are much lower than those from the organization aspect, with the lowest contributor being the bonding-bridging social capital from the network aspect. These results suggest that household social capital in Vietnam is heavily influenced by the social connections and relationships that are formed through various organizations and groups.

The organizational bonding-bridging factor has a negative significance on the formation of household social capital with relatively high coefficient. In other words, participation in more and more homogeneous organizations does not increase the scale of household social capital. Moreover, the organization linking is the most important factor to expand the household social capital. Therefore, these imply that households take part in the different organizations can promote the scale of household social capital, especially in hierarchy organizations like organizations in government sectors, party in Vietnam. And, expanding the social capital of farmers in Vietnam through joining hierarchical organizations is the fastest method. In contrast to the organization bonding-bridging contribution, the network bonding-bridging had a positive significant impact on the formation of household social capital. In other words, the more closed (or homogenous) relationships are, the more social capital scale expands. But it has a lowest impact on the contribution to the household social capital formation. On the other hand, MIMIC results show that households have high network linking, particularly in political networks, help upgrading their social capital remarkable. This means that households can increase their social capital forms through joining various formal organizations, especially in vertical organizations, such as party organization, political groups. According to Markussen and Ngo (2018), participating in Party can provide households with access to resources, information that can improve their livelihoods. Several papers pointed out that social capital is the important role on households' livelihood decisions in order to enhance their livelihood strategies (Sultana & Thompson, 2004).

Social capital is not a homogenous dimension or a pure index. It can take different faces. The household social capital is constructed and vary by context (DFID, 1999; Street, 2003). In Vietnam, the formation of social capital of household is based on the index of organization participation which showed that they are the largest contribution. The characteristics of organizations generate the scale of household social capital in terms of bridging and linking dimensions. Households can exploit the faces of social capital like a mystery resource in the livelihood view. In Vietnam, households access the information easily if their family members take part in

the core organizations like Party, Youth union, woman union, veteran union, farmers' union. Members of that unions not only have an advantage in useful information but also get the priority access of livelihood capitals (Chuong, 2020; Dalton & Ong, 2005; Huang et al., 2021; Nguyen Thi Tuong & Tran Quynh, 2015). On the other hand, the network sides contribute to the formation of household social capital on the lower but unquestionable effects. Its effects enhance the scale of household social capital, especially in the network linking. From the view-point of livelihood papers, social capital rooted from network side plays an important role in support for disaster recovery or livelihood shock context (Huynh, 2016; Sina et al., 2019; Tran, 2015; Tuihedur Rahman & Hickey, 2019). In which, network linking is of great source for recovery pathway of household and network bonding directly maintain the food insecurity in the shock context, particularly in rural regions and the poorest households (Alam et al., 2016). In Vietnam, closed network of household is often the relatives of household, so that they exploit the informal channels more than formal channels; consequently, the contribution of network side may not be fully observed (Markussen et al., 2018).

The indicators of household social capital in rural Vietnam refer to two important indexes: social activity and social cost. The estimation results of social capital indicators show that the higher social capital is the more social activities and social cost are. The gift cost is the highest cost of social spending, it implies that households have the large size of social capital, it takes high cost. The other element of social cost is the organizations, unions spending. It seems similar to the cost of maintaining network like gifts. However, there is an important difference between the social costs and the cost of gifts in their nature meaning. If the union spending is related to the team, group, or organizational activities in which household members are involved, gifts are the nature of maintaining and expanding the network of households. That is reasonable norms in Vietnam as well as East-Asia countries where gifts become one of the most important ways of establishing and maintaining social relationships. In Vietnam, traditional folk songs or proverbs, fairy tales¹ have mentioned the important role of gifts in the expression of social relationships. According to Grootaert and BastelaerVan (2001), the gift is also present the level of trust or the re-creation of relationships. A gift is not only the calculation of the private utility but also the general reciprocity. According to Wilson (1997) that are common sense for the general trust in a long time cycle.

The clearest expression of household social capital in rural Vietnam is the behavior of social participation which is higher three times than social cost. Maintaining the social connections require household to join the social activities, especially in traditional festival, village events, etc. The large network mean that household has many connections, many contacts to keep in touch. In the view of traditional culture in Vietnam, an invitation to join a traditional festival or a village meeting, or neighboring events are respectful thing. At these events, households can connect with other members of high social class or expand their network. Therefore, joining a social activity is not only the respectful expression to the host but also the expression of social position of household (household member). Social activities are the actual engagement in these associations as well as social networks, that is closely related to the subjective elements of social capital (Pileček et al., 2013).

6. Conclusion

Many indicators were used in livelihood papers to measure household social capital, resulting in diverse and varying scales and roles of household capital. In this paper, with the synthesis of organization and network views, the authors formalized the structure of household social capital in rural Vietnam. This study synthesized and combined the livelihood view and the theories of social capital to measure household social capital through quantitative methods. The structure of households' social capital was visualized in terms of bonding-bridging and linking aspects, and the indicators of social capital expression were identified as important channels for observing the manifestation of social capital.

Research findings show that there is a significant variation in the social capital of households in rural Vietnam, particularly in terms of the size of their social network, level of participation in social

activities, associated social costs, and this variation is observed both between different regions and over time. Using the MIMIC model, this paper formalizes the structure of household social capital in Vietnam using both the organization view and network view. It explores the structure of household social capital along with social capital reflections. The most important contributions to household social capital are organization bonding-bridging and organization linking. In Vietnam, the smaller contribution to social capital formation is network bonding-bridging and network linking. However, all aspects of the organization and household network formalize the structure of household social capital. Measurements of the MIMIC model point out that social activity is the clearest indicator of household social capital manifestation. Therefore, this way can be improved by using more indicators as well as testing in other scopes of research. In Vietnam and with the same scope of research, livelihood papers can use organization indicators to measure the formation of household capital or use social activities to reflect the manifestation of household social capital.

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Correction

This article has been corrected with minor changes. These changes do not impact the academic content of the article.

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Note

1. Gift: the philosophy of life from historical stories (in Vietnamese). Link: <https://tuoitre.vn/quang-tang-triet-ly-nhan-sinh-tu-nhung-cau-chuyen-lich-su-20181016173549265.htm>

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