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The structure of social relations in the community: An empirical analysis for achieving social and economic inclusion

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The Structure of Social Relations in the Community: An Empirical Analysis for Achieving Social and Economic Inclusion

Aubrey D. Tabuga and Carlos C. Cabaero



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An Empirical Analysis for Achieving Social
and Economic Inclusion

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PHILIPPINE INSTITUTE FOR DEVELOPMENT STUDIES

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Abstract

Achieving inclusive development has become the mantra in the global and national development discourse. A great deal of the initiatives towards inclusive development entails redistributive efforts such as the provision of social protection for the poor. But the conditions of the poor may not be characterized only by their limited economic means and low level of skills but also their tendency to be socially excluded from others from whom they can obtain information on services and opportunities that can help them improve their well-being. Poverty and social exclusion, if not isolation, form a vicious cycle wherein the poor are often excluded because their lack of means limit them from extending their reach to others, and this exclusion in turn enforces their dire condition because they are unable to learn new and better opportunities. This paper examines the extent of social deprivation, if any, among the poor and other segments of the community. Specifically, it aims to illustrate the characteristics of social networks that poor families have through social network analysis (SNA). It inquires on the questions – How are the poor situated within the community network? Are they isolated, excluded, or integrated? To examine social inclusion or exclusion, this study uses social relations data (i.e. kinship and friendship ties) gathered in 2016 on all households residing in a rural, fishing village in the Philippines. Its primary objective is to draw insights for developing or improving efforts towards social and economic inclusion of the poor.

Keywords: Social network analysis, social inclusion, social exclusion, inclusive development, Philippines

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The structure of social relations in the community: An empirical analysis for achieving social and economic inclusion

Aubrey D. Tabuga and Carlos C. Cabaero¹

*“You see, when you’ve developed a wealth of social capital,
you can obtain any other resources you need” (Forbes, 2014)²*

1. Introduction

The Filipino’s sense of community or bayanihan is often symbolized by an image of people carrying a hut to portray how a socially cohesive community can accomplish a seemingly impossible task of moving an entire house to a different location. Although ‘moving a hut’ may no longer be necessary in this day and age of concrete dwellings, community engagement and social cohesion are aspects that bring about a resilient society. The Philippines is a country that faces multiple risks and challenges, both manmade and natural, having resilient and cohesive communities are crucial in managing all these risks and challenges. It is therefore imperative that we revisit this concept and empirically examine it.

This exploratory study aims to analyze what hasn’t been expounded in the past - the structure of social relations empirically based on a novel set of kinship and friendship data collected from a rural fishing village in the Philippines. The goal is to draw insights for achieving social and economic inclusion. Among other things, it aims to illustrate graphically what the entire village network looks like. It focuses on describing the characteristics of the so-called ‘core’ households that act as bridges that bind the society together. Core households are potential influencers and leaders because of their strategic position within the network. Given proper intervention, they are efficient disseminators of information because they act as hubs within the network, connecting otherwise separate clusters. Although this paper does not provide a normative stance with respect to how cohesive the community is, knowing what constitutes the core has important practical implications. Such knowledge can inform decision-making at the local level with respect to program planning and implementation, providing strategies for penetrating the localities in information and education campaigns that are vital to any program’s success. It benefits practitioners that conduct information dissemination at the local level – government extension workers, local health workers, local economic planners, civil society organizations, and even local business managers intending to expand their reach.

Amidst the popularity of online social media platforms and high-technology communication services, many people may argue that personal kinship and friendship ties may no longer have significant effect on people’s lives like they may have in the past. However, while such tendency is more likely in the urban areas where people do not rely much on non-market institutions like personal networks because of their access to wider markets and opportunities, it may be less likely in the rural areas where people are generally less mobile, face greater economic and political constraints, more socially rooted to their origin, and have less access to advanced technology.

This paper posits that social deprivation has the ability to hamper inclusive development. It therefore aims to illustrate the characteristics of social networks that poor families have through

¹ Research Fellow and Research Analyst, respectively, at the Philippine Institute for Development Studies (PIDS); the paper uses data from the former’s doctoral dissertation at the Lee Kuan Yew School of Public Policy, National University of Singapore; the usual disclaimer applies

² (Cancialosi, 2014)

social network analysis (SNA). It inquires on the questions – How are the poor situated within the community network? Are they isolated or integrated? It has been argued that the Filipino’s sense of community does not go beyond one’s own family. Are families closely tied with one another similar or comparable in economic status? To examine social cohesion, this study uses an original social relations data (i.e. kinship and friendship ties) gathered in 2016 on all households residing in a rural, fishing village in the Philippines. Its primary objective is to examine the association between social capital and economic status. The aim is not to isolate the effects of social connectedness with economic status or poverty status but rather to examine how integrated or unintegrated the poor are and in what way so that insights can be drawn for purposes of improving the poor’s well-being.

2. Social cohesion literature

2.1. Review of Related Literature

Social network analysis (SNA) as a tool for analyzing societal issues has recently expanded significantly. Understanding the structure of social networks has been instrumental in advancing various policies. One particular area that uses SNA widely is environmental policy. In Europe, the Europeans Commission implemented a green infrastructure strategy which aims to reverse the trend of biodiversity loss through connecting habitats in a wider landscape. This bottom-up approach entailed the inclusion of landscapes that are used in conventional agriculture, where conservation is not a priority. Thus, the use of SNA, combined with qualitative methods, helped the commission identify on a local and regional level the key actors in influencing land-use help decisions. This analysis also helped identify relationships and dynamics with regards to information, regulation and social pressure that could affect successful implementation (Hauck et al, 2016).

A similar SNA approach in Victoria, Australia with regards to community based natural resource management programs (CBNRM) such as Landscape (LC) also helped emphasize the social drivers behind effective natural resource management, which was a revelation to funding authorities that only focused on environmental outcomes. More specifically, the study highlighted how social resilience in a community, characterized by networks’ ability to show diversity, modularity, redundancy and feedback helped create local environmental knowledge (LEK) in the community, which is undervalued by funding agencies despite acknowledgement of its importance (Beilin et al, 2013).

SNA has also been widely used to look into a broad range of issues in social policy. Afridi (2011) further highlights various examples in the UK that illustrate how an understanding of social networks benefit programs and policies. One such initiative is the Think Family approach of the Revolving Doors Agency (www.revolvingdoors.org.uk) an organization that seeks to help protect and rehabilitate youth that experience mental health problems, homelessness, and other forms of exclusion, through an approach geared towards building family relationships and social networks for their beneficiaries.

Another organization, Southwark Circle (www.southwarkcircle.org.uk) utilizes old trade and barter networks in local communities to create mutual support circles that act as Neighborhood Helpers, that provide services such as childcare, education and welfare.

SNA also provides useful insight in terms of education. A study in online learning used network density and centrality as measures to evaluate student performance and participation in an online setting. The study suggested that the network density in online learning, captured by the number of interactions between students in online forums begin low and only increase overtime. Additionally, the research showed that the intervention of a moderator or instructor must be done strategically, as while there are benefits to prompts from moderators to start discussion, students tend to be less open when there is too much adult presence. With regards to centrality, students in the center of the network tend to have better learning outcomes than those in the periphery. SNA provides a useful method to distinguish groups in the center and groups on the outside, which allows for more nuanced group analysis, applicable to a wide number of fields (Ergun and Usluel, 2016).

With regards to economic development and poverty, another case study is Acumen Community Enterprise Development Trust (www.acumentrust.org.uk) which engages a former coal mining community through creation of community projects that engage the residents, allowing the Trust to build social capital among its stakeholders as they assist them towards economic development. Afridi also highlights general features of social networks that help address poverty:

- a.) It enables sharing of resources and information
- b.) It provides mutual support and opportunities to learn and develop skills
- c.) It creates strength in numbers and allows for greater collaborative effort and collective action

Social network analysis also provides new insight on how various spatial characteristics and dynamics affect social capital and development opportunities for communities over time. In northeastern Germany, a study was conducted comparing the social networks of rural communities as compared to urban ones. Findings show that, in comparison, rural networks have a higher share of familial links and have less supportive connections that connect them to various economic opportunities. The importance of being linked to other families and social circles in the community is important as it allows actors to have more self-efficacy in adapting to their constraints or overcoming poverty. The study also highlights how the migration of professionals and youth to other areas adversely affect development outcomes in the community, as members are deprived of access to social services and opportunities for innovation (Klarner & Knabe, 2019).

SNA has even contributed significantly the research on terrorism and criminology. The use of social network analysis also provides new and dynamic dimensions to explore social networks and its effects that other methods of inquiry cannot provide. This is evident in the use of SNA in matters of security. An example of this is a study of Veilleux-Lepage and Archambault (2019) which maps transnational extremist networks, particularly the extreme-right wing group the Sons of Odin in Finland and Canada. This study was achieved by mining data of identified members in social media such as Facebook, and matching connections with one another. The study showed that despite claims of autonomy of these groups from one another, social media showed that in fact members of these groups are well-connected and that they tend to share same types of rhetoric, propaganda and social action across countries.

Social network analysis has also been particularly useful in addressing issues in the field of criminology. For example, SNA has enriched the discussion between the relationship of peer selection and delinquency by emphasizing that beyond the association to delinquents, it is the strength and cohesion of these networks that strengthens tendency towards delinquency. SNA was also used to analyze co-offending, or the process that criminals choose their accomplices, as a network issue. This provides more nuance in co-offending analysis; for example, gangs tend to choose fellow gang members for crimes such as homicide, but preferred to work with non-members when it comes to selling drugs. Furthermore, SNA studies of gangs supported findings in other fields that even criminal networks utilize and benefit from weak ties, that is, connections to criminal institutions beyond their gangs, which allow them greater opportunities for criminality. SNA has also been used in mapping out systems and networks for crimes where no explicit organization exists, such as the market for illegal drugs. In this case, by tracing the contacts and associations of individual drug players, researchers were able to create a network that managed connect all of these actors to one another, and illustrated a specific and efficient distribution of the drug trade. Other examples of SNA in criminology delve in terrorism and crime control (Bouchard & Malm, 2016).

In the Philippines context, several empirical analyses of social cohesion have been conducted. Cruz, Labone and Querubin (2017) examined Philippines' village social networks in relation to electoral competition. This study used inter-marriage ties between families followed Padgett and McLean (2006, 2011) where a tie between two families exists if there is at least one marriage between members of any two families. The importance of social cohesion for attaining economic development has been stressed by experts³ whether in terms of greater integration in the value chain, in overcoming issues brought by multiple ethnicity, or in attaining resiliency amidst risks and uncertainties. Yet empirical analyses of social cohesion at any level in the Philippines, a highly diverse and multi-ethnic country, is extremely rare.

Another study that analyzed the potency of social cohesion in terms of collective action was done by Dahal and Adhikari (2008) on the indigenous community managing the Kalahan Forest Reserve in Nueva Vizcaya. It explored the ability and limitations of indigenous organizations to expand relationships and its relation with management of collective affairs in local communities. It was highlighted that high social capital within a community does not necessarily benefit public affair management if it is unable to expand its linkages and draw benefits from other external networks, such local government.

In a study on how inequality affects social cohesion in Mindanao, (McDoom, 2017) found that “as socio-economic disparities between groups increase, the prospects of intermarriage decline” (p.14). He then went on that “insofar as cross-ethnic marriages may also promote social integration and stability; it implies that policies to reduce ethnic inequality have the potential to improve interethnic relations.” This study used micro-data on marriages from the 2000 and 2010 Census of Population.

A rare study that examined social cohesion at the community level is that by (Godquin & Quisumbing, 2006). They used the Bukidnon Panel Study of 510 families in rural Mindanao and found that the “asset-rich and better-educated households are more likely to participate in groups and to have larger social and economic assistance networks. This may reflect higher returns to social capital for the wealthy, or greater barriers to participation for the poor” (p.71). In their study, they noted the importance of exploring the roles and types of social relations,

³ See for instance <https://pids.gov.ph/press-releases/74>

the need to map networks and examine power relations. In this study, network density is operationalized as the sum of a person's networks. They found that network density increases with education and assets, which reflects that the rich are more capable of investing in informal social capital. Membership in groups (religious, civic, credit, production, burial) does not increase network density. Furthermore, kinship variables also significantly determine network size. Interestingly and in contrary to expectation, they did not find evidence of positive correlation with regards to membership in groups and higher per capita expenditure.

Coward et al (n.d.) described the importance of family for the typical Filipino. They noted that, especially for Filipinos, family and kin groups comprise the most important ties. The kin group dynamic is found in a complex and complicated system of reciprocal rights and obligations; loyalty and unity are expected for family and kin members, while non-kin are often regarded with more scrutiny and caution. Thus, the connections that they establish with kin groups for support, loyalty, and social capital also tend to separate them from other people. The benefits (and constraints) of partaking in affairs of the community, in clubs and associations, in religious and other social activities, are all closely related to the family and wider kinship network. The Filipino family is bilateral, that is, kinship descent is outlined through both the maternal and paternal sides of the family, although the surname is carried patrilineally. Filipinos are expected to be loyal to all people associated to them through both parents as well as marriage." For Filipinos, family refers not only to spouse and children, parents and siblings, but also aunts, uncles, cousins as well as grandparents. In other words, family encompasses all blood and affinal relations. They noted that therefore, the household is a subset or subunit of the extended kin network beyond the basic family unit. Given such observation, it is therefore reasonable to speculate that the Filipino's key network of support is likely to be his or her family both by blood and marriage. In fact, because much of the activities done by the person in the community are closely linked to his or her kinship network, one can use this network as a proxy of the total social capital the person has.

The primacy of blood relations in the social networks of Filipinos is particularly interesting when placed in connection with poverty and exposure to social and economic opportunity. Various studies suggest a relationship between small-family centered social networks and low income. Furthermore, these relationships are strengthened amidst intense economic disadvantage, highlighting the importance of family in coping with poverty, especially when provided with minimal social assistance (Bohnke and Link, 2017). An analysis of longitudinal data in Germany supports the notion that long-lasting poverty in a social network tends to decrease the material resources that people within it have access to, as well as the erosion of weak ties within the network. Evidence affirmed the idea that strong family ties are able to resist this disconnection within the social network.

What factors contribute to social exclusion? It is said that high unemployment and job insecurity, difficulty entering the labor force, lack of access to income and social networks a person can associate with, increase likelihood for exclusion (HDSE, Council of Europe, 2001). From the same reference, social inclusion is having access to 'social rights' such as access to employment, housing, social protection, health and education.

2.2. Contributions of this study

Networks are vital non-market institutions whom people rely on to smoothen consumption and weather effects of economic and natural shocks. It is therefore essential to examine such

networks, their types and structure, particularly in the rural areas where most of the poor and vulnerable groups are. Knowing the social systems' structure can help augment the current mechanisms or strategies for reaching the poor. The studies reviewed above did not implement a system approach of analyzing the networks and connections. While group membership and inter-ethnic marriages are important aspects of social cohesion to examine, the literature lacks the meso-level perspectives of how people within society, rich or poor, educated or not, are connected or unconnected. This study is the first of its kind in the country that examines the extent of social deprivation of the poor vis-à-vis those in better economic positions by exploring inter-household links. It ultimately draws insights as to whether how the current approaches of improving economic opportunities can be supplemented with efforts of socially integrating them.

2.3. *Research Questions*

How do people within society, rich or poor, educated or not, are connected or unconnected? Do households who are more socially integrated or are in more socially cohesive networks tend to be in a better economic situation than those who are less integrated? If the rich and more educated are more capable of developing larger networks, what are the opportunities for linking the poor with the richer members of the societies so that they may also access the social capital that the rich ones have?

3. **Data and methodology**

3.1. *Data and data collection method*

The analysis utilizes primary data of kinship and friendship relations collected in February 2016 from all 365 households within Brgy. Camachile, allowing for the creation of the complete village social network. To obtain the social network data, each household was asked to provide all the names of their kin and friends residing within the village. The points of reference in ascertaining the social connection between two households are the household's head and spouse. Household A (HA) is socially tied with Household B (HB) if either HA's head or spouse is related to HB's head or spouse, or vice versa. The relations obtained are precise (e.g. sibling, cousin, aunt/uncle, distant relative, close friend, other friend), therefore providing nuances on the strength of ties that bind people in the village. Only the strongest relation between any two households is obtained in the data collection process. Edges are usually just undirected with binary value (0,1). But since the precise relations were collected, one can analyze the close social circles from the less close or weaker social relations. These links can also be illustrated and studied together in a single graph where a stronger social relation can be illustrated as a thicker line between the nodes depending on the weight assigned.

The completeness of data in network analysis is vital. The presence of missing or incorrect data can result to incorrect network attributes from the social network analysis. One may argue that recall error, which leads to missing data, may be an issue in this paper, as in every survey data collection. However, since the study aims to obtain, at the minimum, the current set of blood,

marriage, and friendship relations amongst households, and not past ones, recall error may not be that significant. In addition, relations with mere acquaintances are excluded in the analysis. This exclusion of acquaintances diminishes the people's inability to recall their acquaintances, especially if there are too many acquaintances involved.

In addition to social ties amongst households, demographic and economic characteristics of all households were also gathered. The primary data on social relations are complemented by secondary data, that is - information from the locality's Community-based Monitoring System – a database of socio-economic information of all households in the village. This enables for analysis of node annotations such as income class.

3.2. *Study area*

Camachile is a rural fishing village within the jurisdiction of the municipality of Orion, Bataan province in the Philippines. A significant proportion of the households rely on fishing or trading fish and other seafoods for their livelihood. The network data along with some socio-economic information were obtained, through face-to-face administration of questionnaire for each household, from a study that focuses on the social economics of international migration.⁴ In Camachile, a sizable proportion of the population rely on overseas remittances from their migrant kin and at least thirty percent of the households have at least one migrant member. Hence its selection as a study site was based on its migration incidence. Nevertheless, the social structure of kinship and friendship relations within the village need further analysis.

3.3. *Methodology*

This paper examines the socio-centric networks within the boundary of the village and ego-centric networks of individual nodes or households to draw insights about social inclusion and economic status. It implements social network analysis, a scientific paradigm based on analysis of relationships in a system. As an approach, SNA focuses on relations between and among members of a system rather than individuals and their properties. It is a research method that examines the social structure that emerges from the network of relationships and social dynamics among members in a population (Hampton & Wellman, 1999; Paolillo, 2001, Wellman, 2001).

There are basic concepts that one needs to understand in social network analysis. A member of the network is called a node or actor, or in graph theory, a vertex. The node of interest is what we call an ego. Any other node directly connected to the ego is called an alter. The existence of a link between any two nodes is often denoted by a line or edge. In this paper, the node or unit is a household and the link between two nodes is represented by either blood, affinity or friendship relation. Usually, the relations data are portrayed in a valued matrix, if the relations vary but these can also be shown in an adjacency matrix, hence, containing only 1's and 0's with 1 representing the presence of link and 0, otherwise. The SNA is largely a mathematical tool to characterize the structure of the matrix of relations. The NxN matrix of relationships is analyzed by a software package called UCInet (Borgatti, Everett, & Freeman, 2002). This application visually shows the networks as graphs and, at the same time, provides parameters of connectivity from the whole network perspective and relevant sub-groups.

Networks can be socio-centric or complete which is comprised “of all relational ties among members of a single, bounded community. An example would be relational ties among all of

⁴ The procedure of collecting data on social relations is described in greater details in Tabuga (2018).

the teachers in a high school. Ego-centric or personal networks are defined from a focal actor's perspective only. This refers to the ties directly connecting the focal actor (ego) to others (ego's alters) in the network, plus ego's views on the ties among his or her alters" (Hawe, Webster and Shiell, 2004, p.972). If person B is connected to J and K, then the egocentric network of B consists of B, J, and K. An ego's degree pertains to the sum of all the ego's alters.⁵ For B's case, its degree is 2 (i.e. J and K).

Social cohesion is a concept in social network analysis which has an important social implication. Hawe et al (2004, p. 973) describes cohesion as the "interconnectedness of actors in a network". Cohesion can be measured by these concepts – distance, reachability, and density. Distance between two nodes is simply calculated by adding the number of distinct links or edges existing along the shortest path between the two. This is also known more popularly as the "degrees of separation." Reachability measures the extent to which actors are related to others, directly or indirectly. Isolates are nodes that are not connected to any other nodes. Lastly, a network's density is calculated by dividing the number of relational ties by the total number of possible ties or $N*(N-1)/2$ where N is the total number of nodes in the (bounded) network of interest.

Another important concept in SNA is centrality. Network centrality measures simply identify the most important or key actors – that is "those who are extensively involved in relationships with other network members" (Hawe, Webster and Shiell, 2004, p.974). Centrality can be measured in various ways. Degree centrality accords an importance score to the node based purely on the number of its direct links, hence degree.⁶ A household with the highest degree is considered the most popular. Closeness centrality measures efficiency of, or independence in reaching others. In other words, if a household is close to all other households in the village, that household does not depend on others to reach everyone else. It is therefore based on the notion of distance described earlier. Being central based on the closeness measure means that the household can easily reach other households, that is why it is an efficiency measure. The fewer households one needs to reach others, the more independent it is. Meanwhile, betweenness centrality provides the frequency a node connects pairs of other nodes, which otherwise would not be able to reach one another. It measures the potential for a node for acting as a gatekeeper or bridge that controls the information or resource flow between the nodes that it connects. Another measure of centrality is the eigenvector centrality which is a measure that accounts for being connected with those who are central in the network. A node may have a low degree centrality score but can still be influential if it is connected to a highly central node. This measure puts more importance in being connected to important nodes than in being connected to unimportant nodes.⁷

This paper examines the network in terms of cohesion at the community level and centrality at the individual household level. Furthermore, given these connectedness scores, this paper also associates these characteristics with socio-economic information of the households to gain an understanding of how the networks are structured for different groups. The method is primarily descriptive and correlational. The focus on the rural context is important in the light of observations that the issue of poverty in the country is still largely a rural phenomenon. People in the rural areas also face greater limitations in terms of information access, infrastructure, public services and in accessing credit and capital as opposed to people from the urban areas.

⁵ <https://jech.bmj.com/content/58/12/971>

⁶ <https://cambridge-intelligence.com/keylines-fags-social-network-analysis/>

⁷ <https://www.sciencedirect.com/topics/computer-science/eigenvector-centrality>

4. Theoretical framework

There is an increasing interest in the role of social capital and social cohesion in developing strategies for poverty reduction and improvement of well-being in a society. To quote (Oxoby, 2009), “While traditional economics research has focused on productivity and factor endowments in determining growth and development, there is increasing recognition that the ingredients for a proper functioning economy (i.e., one experiencing higher levels of growth and individual well-being) are perhaps more subtle. Thus, researchers have turned their eyes towards the issues of social capital and social cohesion, trust and trustworthiness, and reciprocal altruism in understanding economic performance” (2009: p.1). This paper examines the aspect of social cohesion and connectedness and their relation with economic well-being in a rural village in the Philippines.

It has been noted that Filipinos typically organize most of their activities around family affairs and usually interact with their families even in civic events, church-related events, and in economic activities especially for those in the rural areas (e.g. agricultural production is carried out by family members and other kin). The Filipino custom of close family ties has been noted as an aspect that has important role in building resilience in times of risks and uncertainties. By extension, with all else being equal, those with extensive social relations are in a better position to weather shocks and risks because they have greater social capital than those with fewer or no social relations at all.

This paper defines the level of social capital based on the estimated network parameters. If the household holds the most central position within the network, it has greater social capital than the rest of the community, holding other factors constant including external networks, that is connections beyond the village of interest. If the household is isolated or at the periphery (which means they have low network connectivity), then it has the lowest level of within-village social capital compared to those which have better positions within the village network. We assume for now that the village network the household is in proxies for the real networks of the household which may be broader than the village network.

Social capital has been defined in many different ways. The OECD⁸ defines social capital as the “networks together with shared norms, values and understandings that facilitate co-operation within or among groups.” But this study chooses that which has implications on one’s ability to improve one’s self. According to Bourdieu (as cited in Siisiäinen , 2001), social capital is a resource that is related to membership with groups and social networks. Further, it is noted that:

The volume of social capital possessed by a given agent ... depends on the size of the network of connections that he can effectively mobilize” (Bourdieu 1986, 249). It is a quality produced by the totality of the relationships between actors, rather than merely a common “quality” of the group (Bourdieu 1980, 2). Membership in groups, and involvement in the social networks developing within these and in the social relations arising from the membership can be utilized in efforts to improve the social position of the actors...Differences in the control of social capital may suggest why the similiar amount of economic and cultural capital can lead to different levels of profit, and different degrees of influence to various actors (Siisiäinen , 2001).

⁸ <https://www.oecd.org/insights/37966934.pdf> Retrieved August 15, 2019

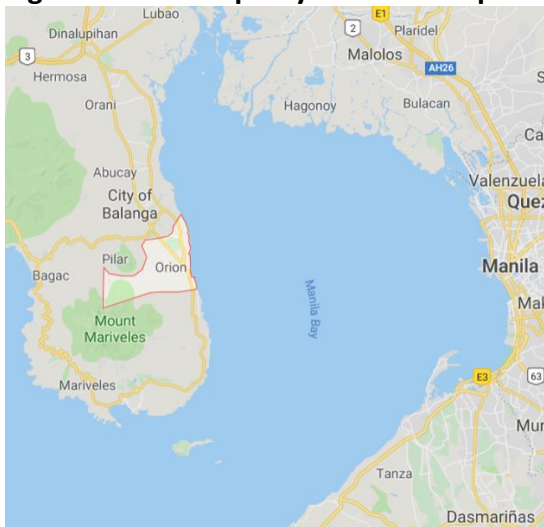
Therefore, having a bigger-sized network or high level of connectedness within social networks therefore enables one to access higher amounts of social capital. Social capital within a network enables members to alleviate financial problems (Yu and Nilsson, 2019). Therefore, social capital can be converted into financial capital. This paper posits that the real poor are those who have limited means and at the same time are not getting help from their social relations, if any, or those with no functioning social relations at all like those with no leader figure who can inspire them or bridges who can connect them to other people and opportunities that can capitalize on for improvement of their well-being. Social cohesion therefore has the potential for improving the well-being of network members, *ceteris paribus*. Yet for social cohesion to translate into favorable outcomes of well-being, it can be argued that there has to be meaningful interactions and some members must be able to access useful information and resources, whether from other sources, external informal networks, or formal associations.

This paper seeks to examine the following the hypothesis: Households who are more socially integrated or are in more socially cohesive networks tend to be in a better economic situation than those who are less integrated, all else being equal. Their supposedly larger social capital enables them to access other types of capital particularly financial or economic capital.

5. Socio-economic profile of the study area

The community of interest is Barangay Camachile in Orion, Province of Bataan. Orion is a second-class municipality located along the Manila Bay, west of Manila (see Figure 5.1). Based on the 2015 Philippine Census of Population, Camachile has a population of 1,587 or 2.83 percent of Orion's total population. It has experienced a negative growth in its population from its 2010 population of 1,645. In 2015, its median age is 29 and has dependency ratio of 50.57 percent.⁹

Figure 5.1 Municipality of Orion Map



Source: Google Maps (Retrieved August 16, 2019)

Camachile, shown in Figure 5.2, is a fishing village. A great proportion of the dwellings are tightly knit along the shoreline (see right photo of the map), since a primary source of livelihood for many is fishing. There are also very few dwellings which are separated from the main

⁹ <https://www.philatlas.com/luzon/r03/bataan/orion/camachile.html>

cluster of settlements. The venues for gathering such as the barangay hall which also houses the health center and the chapel are situated within the heart of the village and houses surround these areas making it easy for people to congregate. Although Camachile is considered rural, there is a system of roads inside the village. Also, it is located not too far from the national highway. Unlike in remote areas where people are situated in patches and some do not have access to the main road, the study site is accessible via the national road (see left photo).

Figure 5.2 Barangay Camichile Map



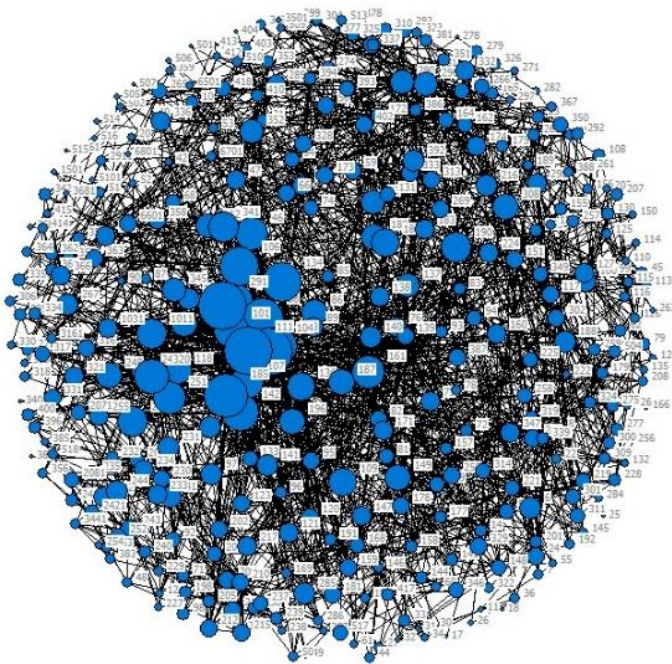
Source: Google Maps (Retrieved August 16, 2019)

6. Camachile village network

6.1. *The village network*

The complete graph of social ties in the village of study is shown in Figure 6.1. The ball of connections shows that every household has at least 1 connection and all are integrated into the whole network. In other words, all households comprise a single component.

Figure 6.1 The complete network of social relations in Brgy. Camachile (2016), node size by degree



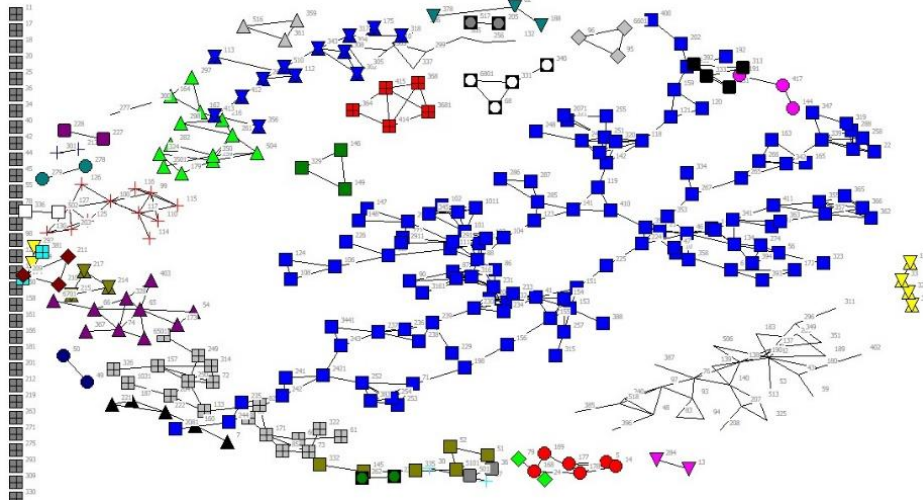
6.2. *The family network*

We examined the close family network. The objective of illustrating the close family network made up of only the first-degree (parent-child) and second-degree relations (sibling, parent-in-law) is to examine the structure of clans within the village to gain understanding about family cohesion. There is an adage that in the Philippines, social cohesion does not go past the family or clan, that we are so fragmented, issues of communal nature are extremely difficult to address. Though the objective of this paper is not to prove this adage, it aims to illustrate the family network structure as it has never been done in the past. If families are truly cohesive, then they are likely to trust one another and support one another. If this is true, then it is likely that many if not most of them are relatively or roughly of the same economic well-being.

Figure 6.2 shows the village network's different components (distinct network clusters) in different colors with the links being shown only for first and second-degree relations, each color corresponds to a single component. Because the connected nodes are parents, children, parents-in law, children-in-law, or siblings of each other, the graph shows the closest kinship ties there are. Therefore, one component is a cluster bound by blood or marriage. There are 79 components, 8 consist of 10 or more nodes, the biggest of which is comprised of 127 nodes

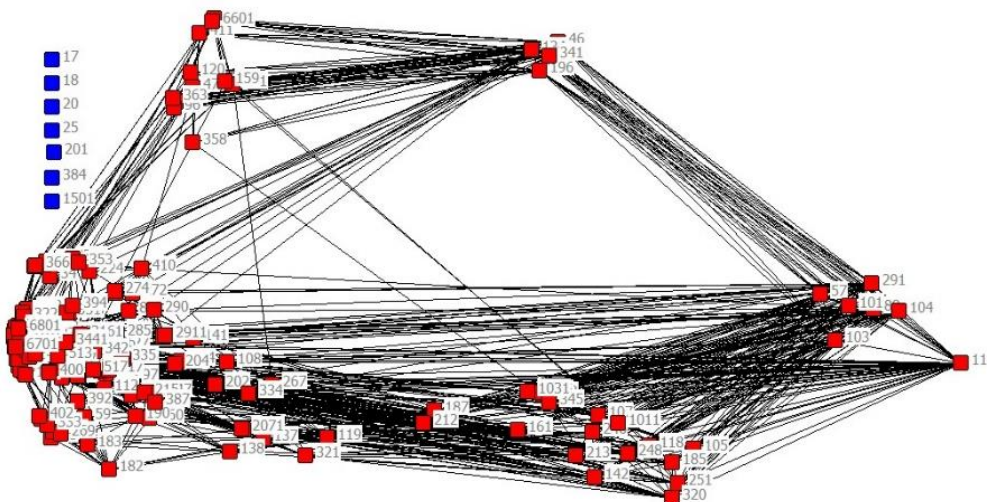
(see dark blue square nodes); there are also 14 components with 3 to 6 nodes, 14 pairs, and 43 isolates (or unconnected nodes). Note though that these 43 isolates are not necessarily unconnected through other ties. They are just not linked through first- and second-degree relations to other households in the village. Such graph is useful for examining the social status of the members of a component.

Figure 6.2 The close family network (first and second degree) of blood or marriage, Camachile (2016)



Accounting for all family ties, Figure 6.3 shows that nearly all families in Camachile are relatives of each other through varying degrees of kinship and affinity as illustrated by the connections of red nodes. Few nodes (seven) are not related to the group or any other node by any familial tie. The layout of the graph uses the principal components approach – which shows five connected clusters of families, bound by marriage.

Figure 6.3 The whole family network by component

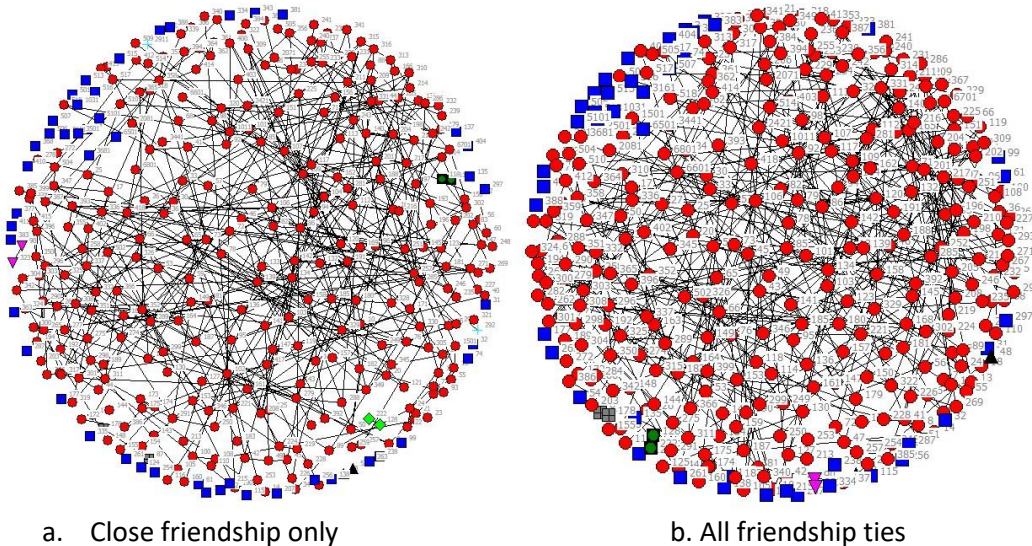


6.3. The friendship network

People cannot choose their family, but they can choose their friends. Figure 6.4 shows the structure of friendship within the village. The node color and shape vary for each component. Figure 6.4a corresponds to close friendships only while Figure 6.4b shows all friendships. The biggest component is shown in red for both graphs. This illustrates that though the village is

comprised of many distinct families, many are friends of each other. The blue nodes are isolated nodes – that is they do not have friends in the area, though they may have other types of social relations. The other colors of nodes are separate components.

Figure 6.4 Friendship network, Camachile (2016)



This section on the village network shows that within Camachile exists a single connected component wherein all nodes, rich or poor, are integrated within the network through varying types of social ties – kinship or friendship. Based on this, it is considered that Camachile is a socially cohesive community and has a high potential for inter-household social influencing and support. How such cohesion may be associated with economic status is the subject of the succeeding section. Meanwhile, the local government can use such a structure for the benefit of its interventions, say, for poverty reduction or information dissemination, among others. For information campaign, for instance, the LGU can identify the information hubs – the households located at the heart of the network, or what we call as core and central households, because these can act as brokers or bridges that have greater ability to reach more households in an efficient way.

7. Social capital and economic status

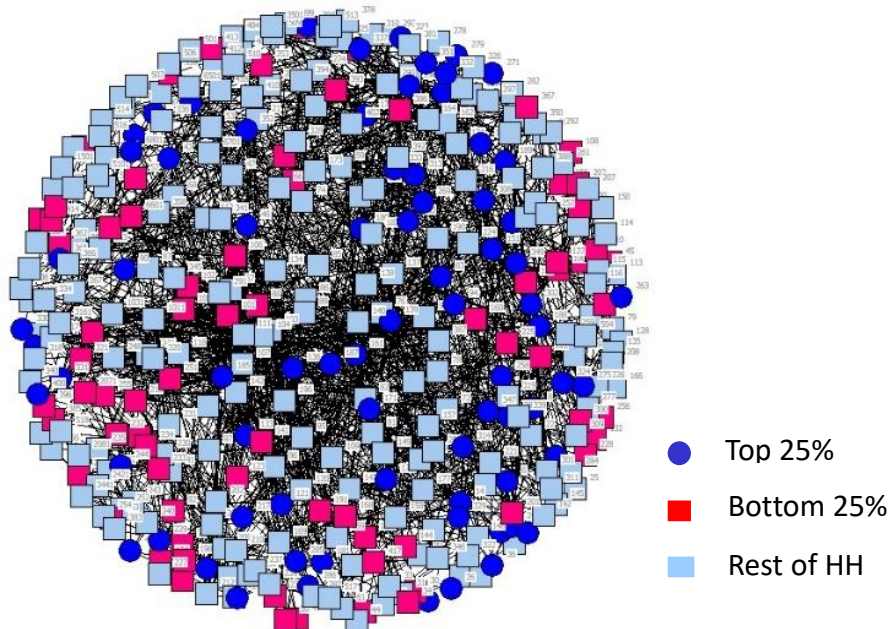
We examine the social capital of the poor, their links, their geodesic distance from the more affluent households and the potential barriers for social inclusion. We try to link such social capital with their human capital and capabilities; the economic opportunities in the study area, the opportunities for resource-sharing and possible extent of social influencing to provide some insights about their ability for economic inclusion. This section is guided by the following research questions - Is the poor's level of social capital necessarily different from that of the rest? What seems to be the hurdles for harnessing this social capital? How far are the poor in terms of geodesic distance from the rich? Are they connected more closely to poor also? Do the poor comprise the peripheral nodes of the community network? What are the opportunities for inter-household social influencing and support which are essential for building resiliency?

7.1. Structure of social networks

The custom of close family ties has been noted as a key attribute of the Filipino community essential for building resilient communities. We examine the structure of family ties to

determine any extent of social deprivation among the poorest. We complement this with analysis of the structure of friendship network. Figure 7.1 provides the whole network but with the nodes colored depending on economic status herein operationalized by an asset index developed using 2012 economic variables of the households from the Community-based Monitoring System (CBMS). The asset index was sorted from lowest to highest such that the bottom 25 percent are shown as red nodes, the royal blue as richest 25 percent, and the light blue correspond to the middle-income group. The whole graph shows that the poorest households and richest households are dispersed throughout the network; with the boundary between the richest and the poorest unclear. The area at the center of the graph is usually comprised of those with the most central position in the network. It can be observed that while the poor are scattered, there are only a few of them occupying the most central nodes. It is mostly the richest (royal blue) and the middle-income groups (light blue) who are at the center of the circle. The red nodes seem to concentrate at the outskirts. The whole network is quite complex for a deeper analysis though. So, each type of social tie was analyzed – family ties and friendship ties.

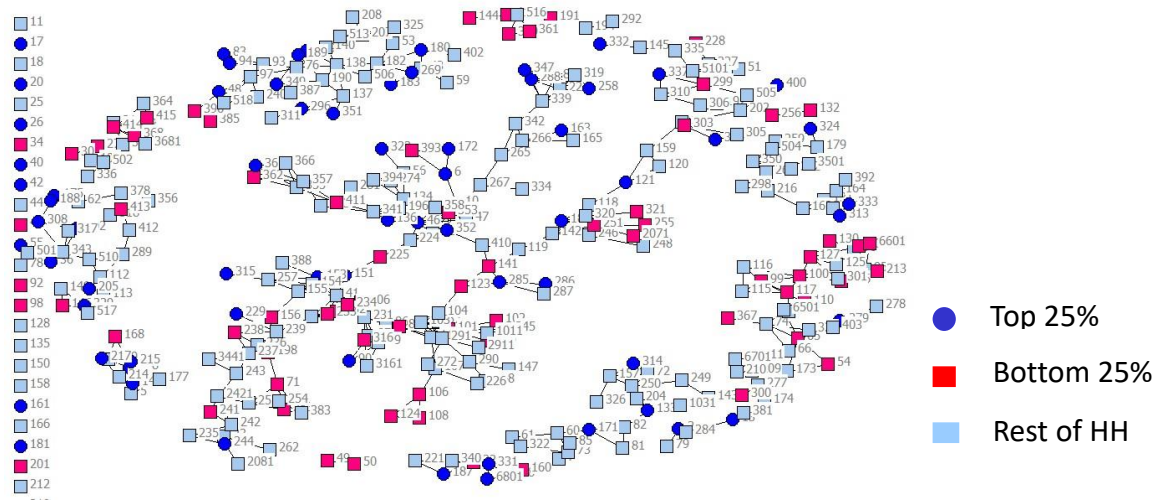
Figure 7.1 Whole network by economic status



7.1.1. Close family ties and economic status

Figure 7.2 shows the whole village network, but which is made up of only the closest family ties. Again, we assign the red nodes to those in the bottom 25%, the royal blue ones represent the richest 25%, and the light blue nodes comprise the rest of the nodes. While the graph does not show a clear separation of the red from the blues, and that no big components are colored the same, the graph shows that the poorest 25 percent tend to be closely related to each other while the richest also tend to be closely linked to one another.

Figure 7.2 The close family network (first and second degree) of blood or marriage by economic status, Camachile (2016)



For purposes of clarity, we zoomed in to the main component of the network, the biggest cluster, shown in Figure 7.3, to gain some insights. Again, it shows the red nodes (those from bottom 25%) and the royal blue nodes (richest 25%) from the rest of the nodes. It can be observed that the poor tends to sit together. The richest 25% are also shown to be closely connected to one another, save for a few nodes scattered throughout the sub-network. Some selected, albeit smaller, components, shown in Figure 7.4, reflects the clustering of households of the same economic status more visibly. The red nodes concentrate in a more distinct way; the blue ones are usually linked in pairs.

These findings suggest some level of cohesiveness. There are families that are not just closely related to each other; they also tend to share roughly the same economic characteristics. This is also reflective of the intermarriages of people of the same social status. Hence, birds of the same feather, flock together.

Interestingly, the graph of the main component shows that some of the poor are well-integrated or have potentially very influential position within the network (see for instance, node 19, 225, 57, and 118). This suggests that some of the poor have high level of potential social capital as they occupy important positions within the network. They are integrated in a strong way and this presents an opportunity for those in better-off status to support some of these poor households. The social influencing between the poor and the richer ones is also more likely. If the richer ones would set out to motivate them, act as the leader, and support them in an emotional and concrete way, there is a good chance for improvement of the well-being of the highly connected poor. Nevertheless, the clustering of many of the poorest families (see Figure 7.3 and 7.4) indicates that they may face constraints in their ability to access resources beyond that which their kin can provide. Connections have social capital embedded in them, if most strong connections a poor family has are with the same poor families, then the social capital they have amounts only to what these families can offer, if at all. The potential for social influencing like for inspiring and motivating may also be less likely.

Figure 7.3 The close family network (first and second degree) of blood or marriage by economic status (asset index), Camachile (2016), main component only

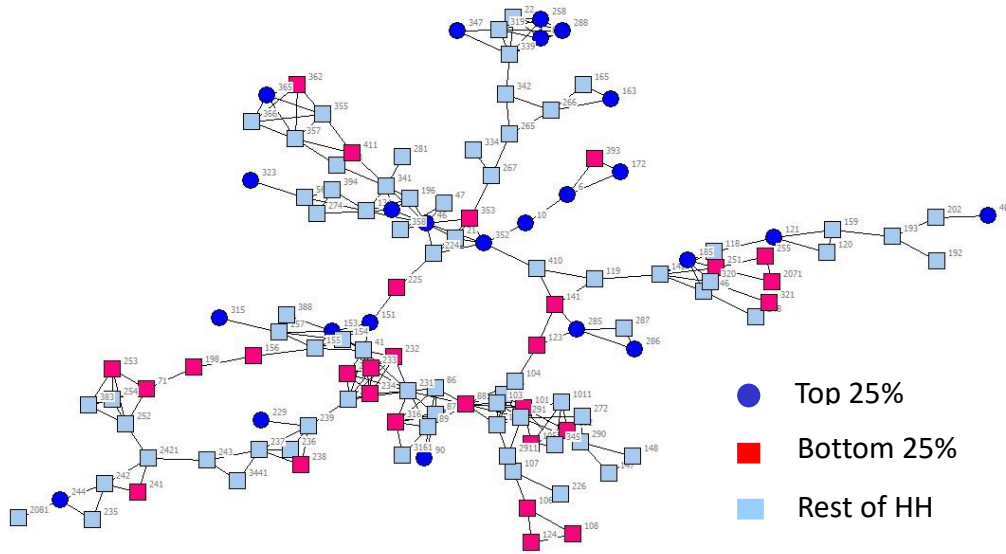
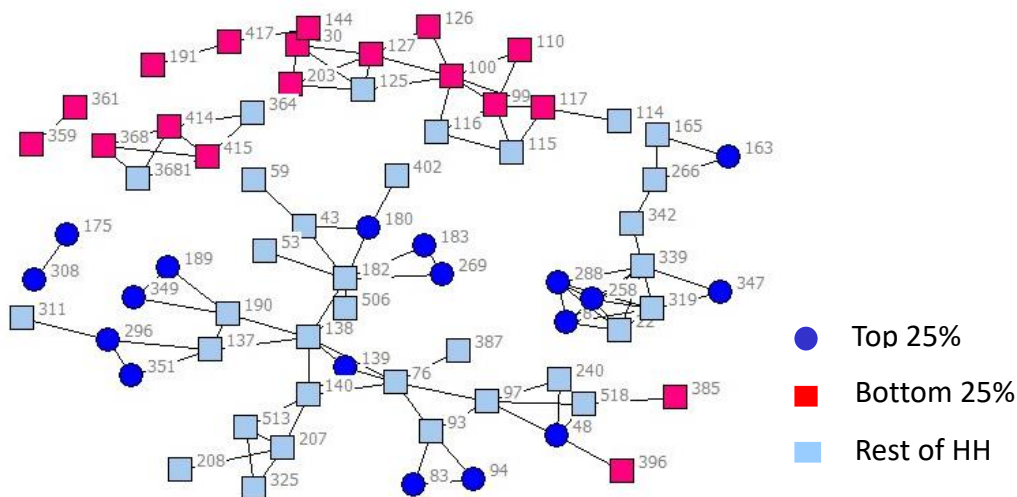


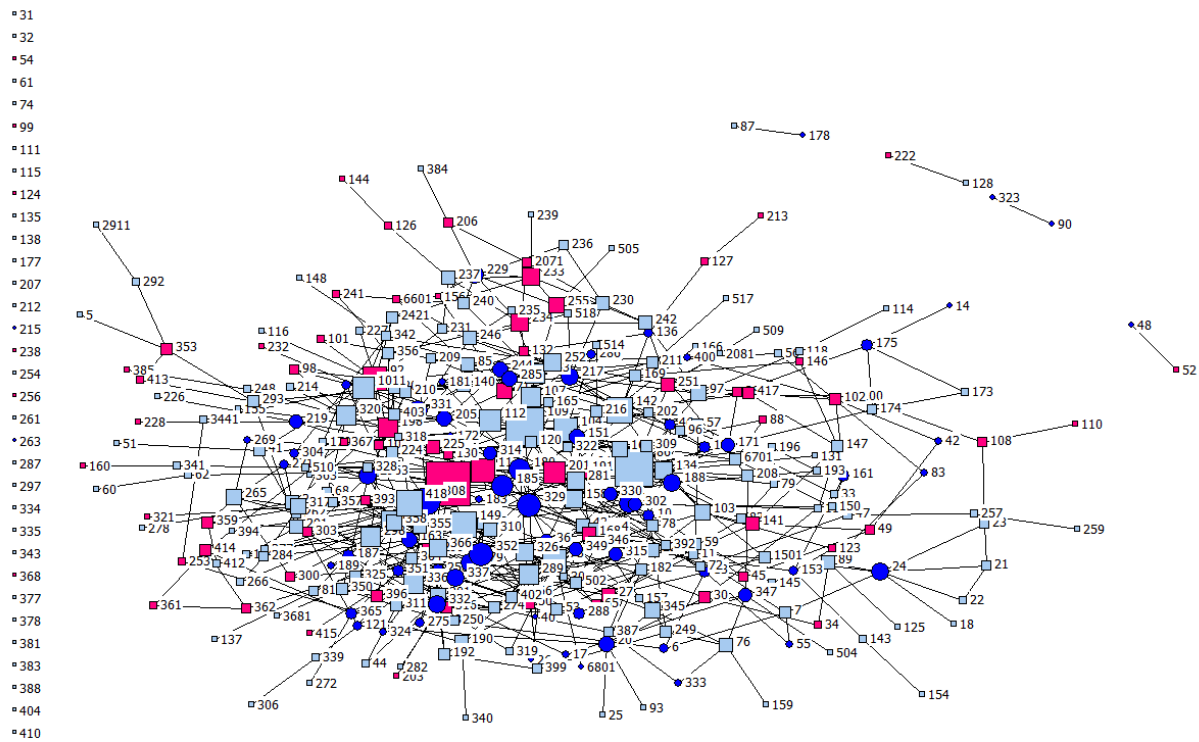
Figure 7.4 The close family network (first and second degree) of blood or marriage by economic status



7.1.2. Friendship and economic status

The graph of friendship network shows the integration of the richest and poorest in the largest component of the network. This means that households of different economic groups are friends with those in other groups and it is difficult to separate a group from the others. It is interesting that the households with the highest degree come from poorest and middle income (see large red and light blue nodes).

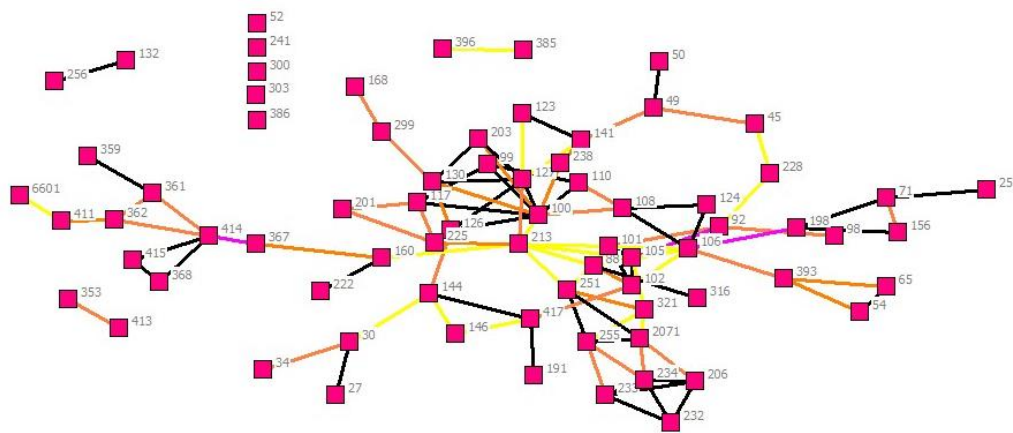
Figure 7.5 Friendship links by economic status, node size is proportional to degree



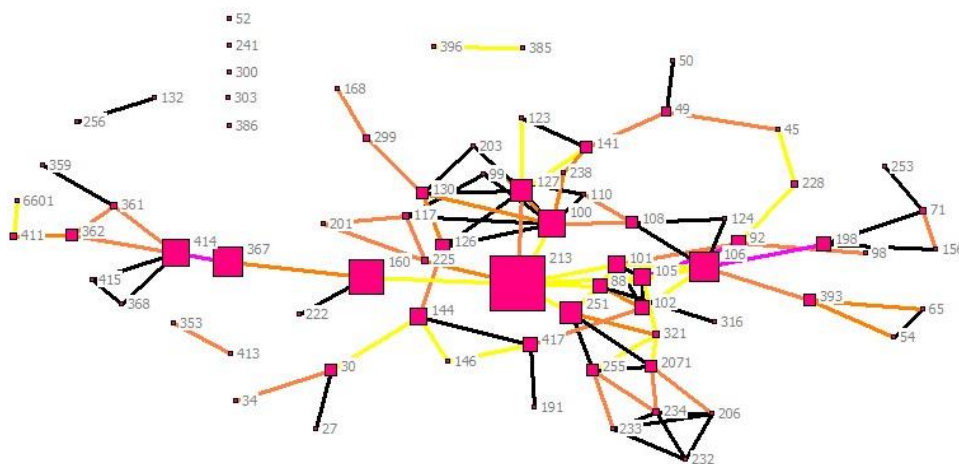
7.1.3. Links within homogenous groups/Homophily

It may be interesting to examine how nodes from a homogenous group relate to one another like those from the poorest and those in the richest. Figure 7.6 shows all the social ties that link the poor with one another. There are several poor households that are not connected to any of the other poor households. This graph is different from the previous network graphs in that the links are colored to reflect the degree of strength in the relations. Black is for the first- and second-degree relations, third- and fourth-degree relations including close friendships are marked orange, yellows are for friendship links and other family links, while pink line denotes the weakest link. Interestingly, in the network of the poorest families, the strong links dominate the weaker ones as shown by the greater number of black and orange edges than yellow and pink ones. Many of the poor are therefore closely connected to one other. A closer look, though, shows that the links that bind the strongly linked nodes are relatively weaker ones (yellow mostly). The node that bridges the otherwise separate parts is the one with the highest score in betweenness – node 213 (see Figure 7.6b).

Figure 7.6 Network of the poorest 25%



a. Similar node size



b. Node size proportional to betweenness

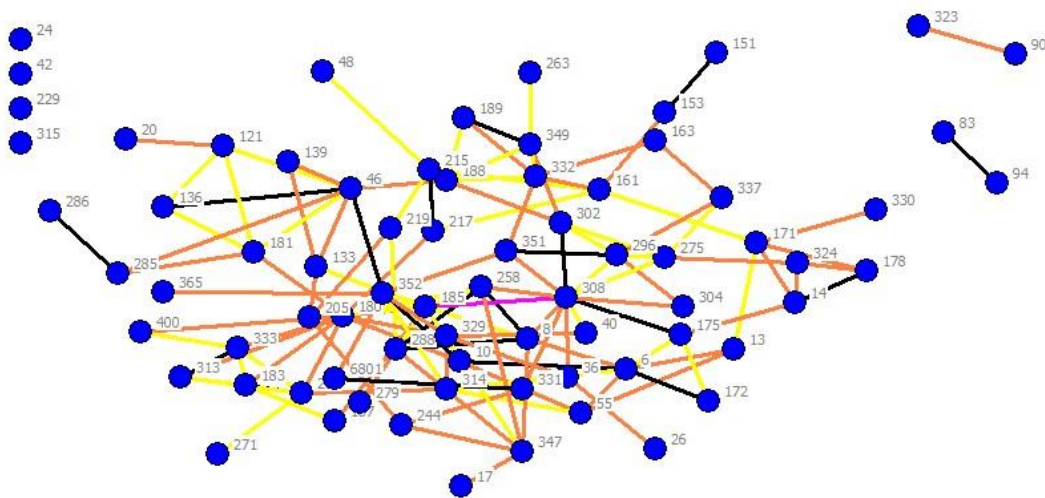
Link Legend:

Black – Strongest link (1st and 2nd degree); Yellow – Weakest link (friends)

Orange – Other familial link (3rd and 4th degree, close friendship); Pink – Weakest link

There is a subtle difference between the networks of the poor and the rich. The ties among the rich (see Figure 7.7) consist mostly of orange and yellow links (relatively weaker family and other friendship links) while those of the poor consist more of the stronger links. There are more weaker links among the richest which shows the importance of bridges. In network analysis, weaker links are what bring people novel information, hence, new opportunities. Strong links, in contrast, are sources of redundant information. So, the greater number of weak, bridging links one has, the greater the likelihood of accessing new opportunities that can help enhance one's well-being. The poor then interact strongly with similarly poor households while the rich are usually weakly linked with those of similar social status.

Figure 7.7 Network of the richest 25%



Link Legend:

Black – Strongest link (1st and 2nd degree)

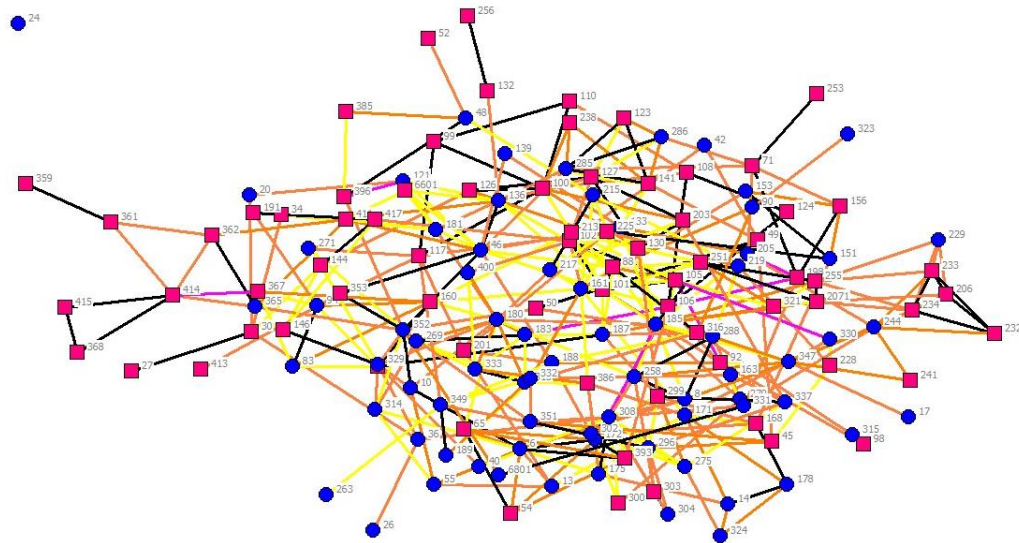
Orange – Other familial link (3rd and 4th degree, close friendship)

Yellow – Weaker link (friends)

Pink – Weakest link

We tried to examine the links between the two homogenous groups (bottom 25% and richest 25%) shown in Figure 7.7. It is quite difficult to assess the graph visually. The links are mostly orange- and yellow-colored, rather than black or pink. Hence, the poor are connected to the rich by some not so strong and relatively weaker relations. But Figure 7.8 simply indicates that the poor are not disconnected from the rich; that there are opportunities for meaningful and possibly well-being-enhancing interactions. The ability to gainfully capture the social capital requires that the rich do engage with gainful economic activities and/or must be well-connected to those with access to economic opportunities beyond the boundary of the community.

Figure 7.8 Links between the rich and the poor



Node Legend:

Red – bottom 25%

Blue – richest 25%

Edge Legend:

Black – Strongest link (1st and 2nd degree)

Orange – Other familial link (3rd and 4th degree, close friendship)

Yellow – Weakest link (friends)

Pink – Weakest link

7.1.4. Egocentric networks of the poorest and the richest

How do we characterize the networks of the poor and the rich? What do these characteristics say about their ability for meaningful interaction and in accessing opportunities? Are they homophilous, meaning that they merely associate usually with their own kind? To do this, there is a need to analyze the egocentric networks of individual nodes of interest. In particular, we compared the ego networks of the poorest and the richest. Egocentric network simply refers to the ego (the node of interest) and its alters (nodes directly connected to it). In Figure 7.8, we illustrate the egocentric network of the ten poorest households. The poorest 25% are colored red while the richest 25% are in royal blue. Like in the previous section, the links are colored based on strength of ties – black refers to the first- and second-degree of consanguinity or affinity, orange are links of close friendship and 3rd and 4th degree family relations, yellow is for weaker family ties, while pink pertains to the weakest friendship ties.

Table 7.1. Networks of the poorest ten households in Camachile

Household No.	% of close links* (to total number of alters)	% of in-group links	% of links with the contrasting group
49	4/4	¾	1/4
367	4/8	2/8	2/8
156	7/8	2/8	2/8
386	5/9	0/8	6/8
415	5/5	2/5	0/5
233	15/16	4/16	2/6
206	12/13	4/13	2/13
234	11/12	4/12	2/12
6601	4/15	1/15	2/15
34	3/5	1/5	1/5

*Close links – family links up to fourth degree PLUS close friendship

What the egocentric networks clearly show is that the poor are not isolated, with their degrees (total number of alters) ranging from 4 to 16. Except for one node (49), the alters of the poorest households are also related to each other through varying relations– showing a high level of cohesion within their egocentric networks. Most of them have direct connection to at least one node belonging to the richest 25 percent. Looking at the ego networks of the richest ten households (see Figure 7.9), they have a relatively larger ego networks with degree ranging from 7 to 24. There is high social cohesion in that most of the alters of all these households are also directly connected to each other by varying types of relations. Many of them also have direct links with at least one node of the poorest 25%.

In terms of the proportion of links that are made up of the closest/strongest ties, there is slightly higher proportion of such among the poorest with 76 percent of their ties comprising of stronger bonds than among the richest (at 71%). The richest also has a higher average number of total links than the poorest.

Table 7.2. Networks of the richest ten households in Camachile

Household No.	% of close links* (to total number of alters)	% of links with those from own group	% of links with the contrasting group
337	9/10	3/10	2/10
187	9/24	2/24	5/24
139	13/14	2/14	0/14
275	5/10	5/10	1/10
36	7/7	2/7	1/7
269	7/15	6/15	0/15
347	14/16	6/16	2/16
332	13/16	6/16	0/16
13	5/8	3/8	1/8
323	4/7	1/7	0/7

Figure 7.9 Ego networks of poorest of the poor

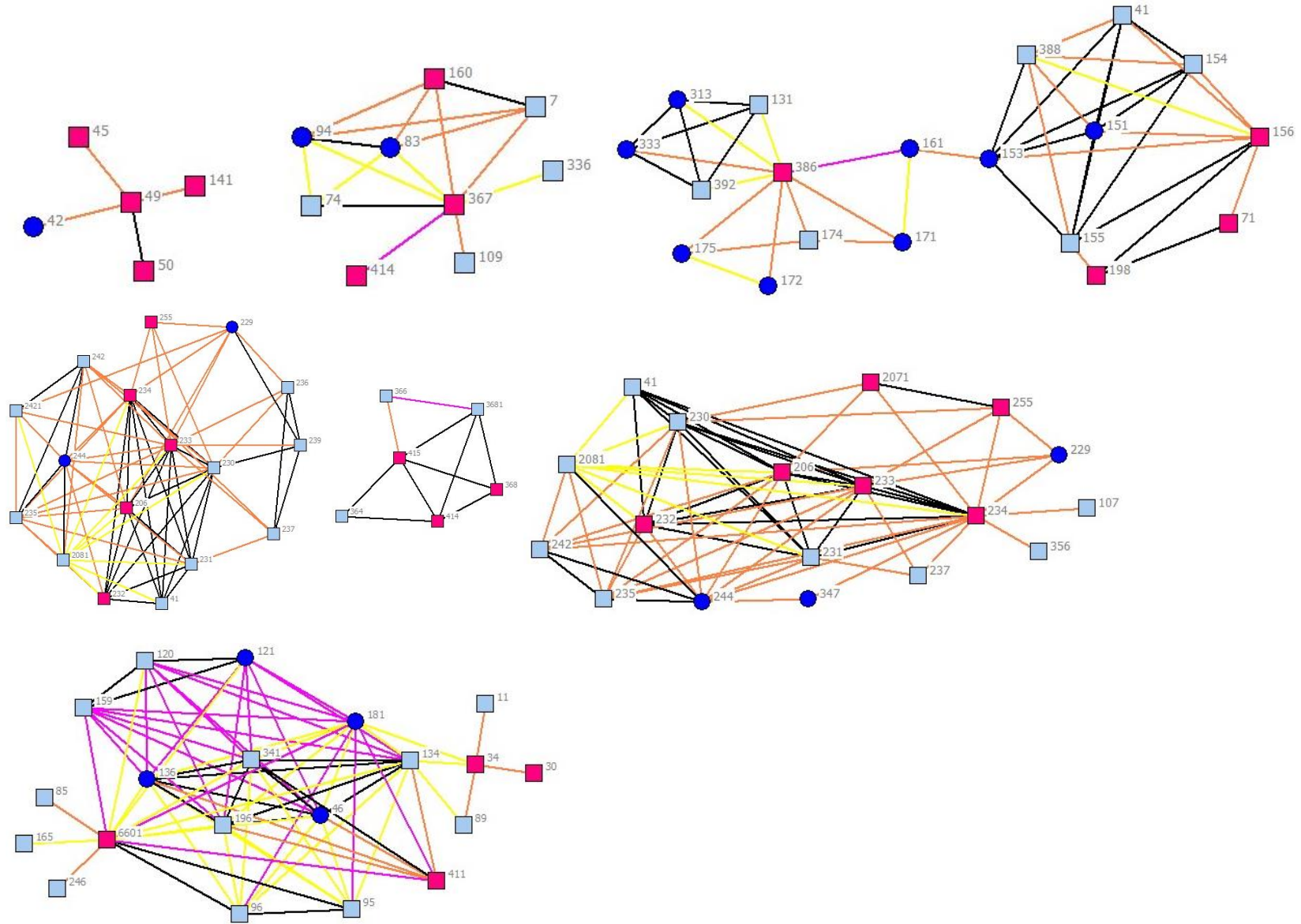
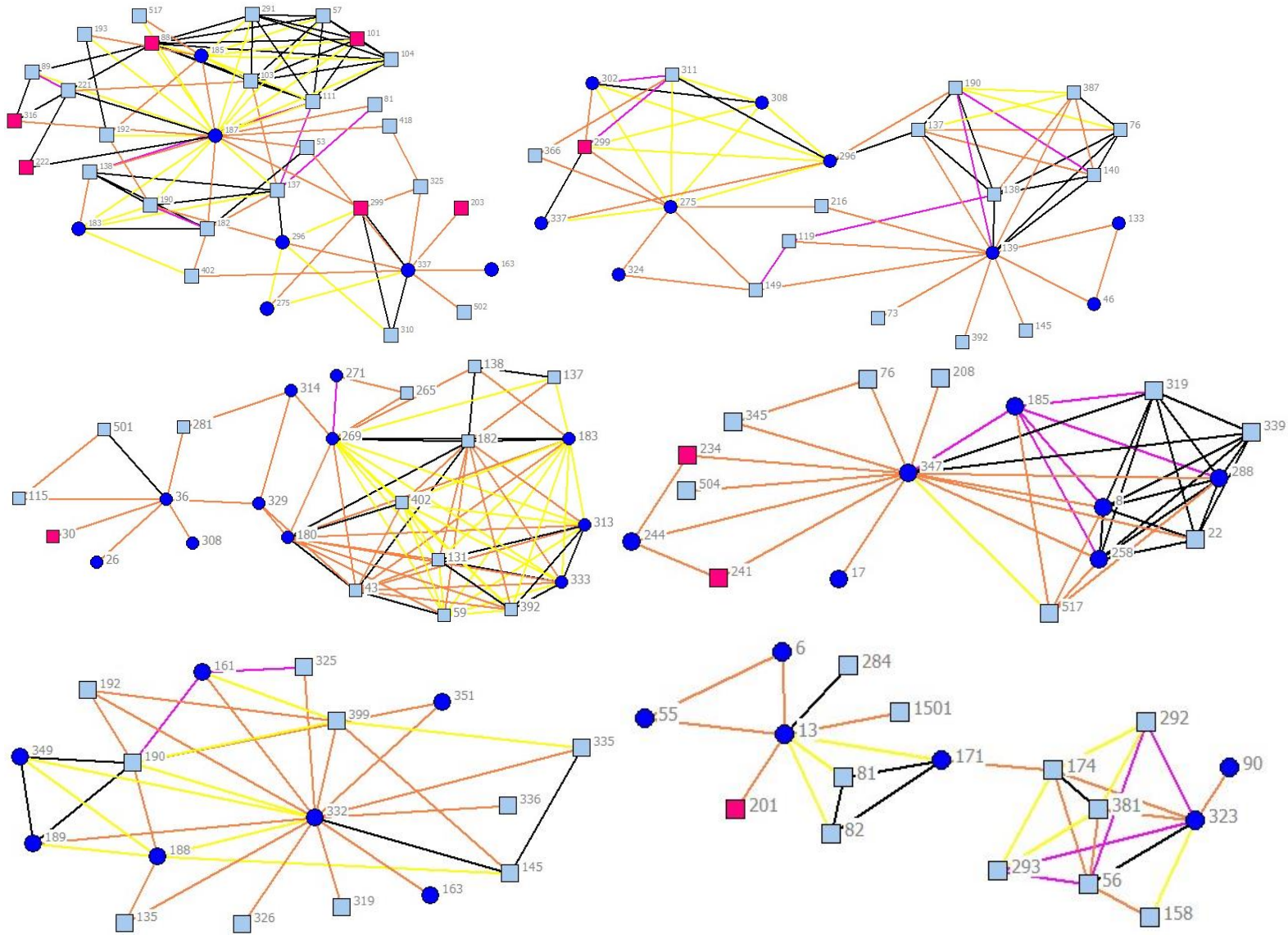


Figure 7.10 Ego networks of the richest ten households in Camachile



It is interesting to examine how these groups interact within and with other groups. An average of 22 percent of the poorest group's relations are with households that belong to the richest 25 percent. In contrast, only 9 percent of the richest group's links are with the poorest 25%. A far greater percentage of the richest group's links are with households who are likewise considered the richest. To examine which group tends to associate more with its own kind, this study developed a homophily index. Homophily is the tendency to be associated to nodes in its own group (poor with poor, rich with rich). In a heterogenous society, there is greater cohesion if the relations are more heterophilous rather than homophilous because we want people to interact not only with their own kind but also with other groups. Through such interactions, people from different groups can gain access to opportunities or information about new opportunities. If group members interact only with their own group members (hence, engage in homophilous relationships), the society is less cohesive. The homophily index is simply the ratio of average ingroup links to the average links with the contrasting group. The poor's ingroup links are its links with the poor, while its links with the rich comprise what we call (for lack of better term) contrasting links. The index for each group is calculated as:

$$\text{Homophily index} = (\text{mean of ingroup links}) / (\text{mean of contrasting group links})$$

Where ingroup (contrasting group) links is obtained by dividing the number of ingroup links (contrasting group) to the total number of links at the individual node level. This index roughly provides the extent to which the group is homophilous. A value of 1 means that it has roughly the same number of connections with its group and the contrasting group. An index higher than 1 shows that the group is quite homophilous, in that it tends to associate to its own kind more than the contrasting group (or the group that is different from it, based on some basis like economic affluence). An index less than 1 means that the group has fewer links with its own kind than those with the contrasting group. The analysis that involves the poorest and richest households shows both values higher than 1 (see Table 7.3). Furthermore, it shows that the richest tend to behave in a more homophilous way than the poorest group such that it has a homophily index of 3.31, or more than twice that of the poorest household (1.28).

Table 7.3 Networks and homophily index by group

Group	Average no. of total links	Average no. of close ties*	Mean ratio of close links to total	Homophily Index
Poorest 10 households	10	7	0.76	1.28
Richest 10 households	13	9	0.71	3.31

*Close ties include family ties up to the fourth degree and close friends

7.2. Characteristics of the core versus periphery

The core households are considered the glue that binds the community together. Distinguishing the core based on a selected set of economic and demographic variables is not straightforward. There is no clear line between the core and the periphery as far as economic variables are concerned. For instance, the core households are not necessarily richer than peripheral ones. Based on the complete network, the peripheral households have a higher average per capita income than that for the core households. However, if the core and periphery is defined based on friendship network instead of the complete network that includes the blood relations, the

pattern changes – the core becomes relatively richer having a higher mean per capita income than the peripheral households. It is interesting to observe such change when the friendship network is used instead. If the friendship network is used to identify the core from the peripheral households, relations that households do not have a control of are excluded. This paper argues that the real sociability of a person can be measured by his or her ability to develop friendship ties since that person cannot choose his/her own relatives. And therefore, the friendship network proves more useful in characterizing the core, most central households in the network. Both core and peripheral households have similar proportion of heads currently working. Core households are usually headed by older men, mostly former migrant workers. These heads' lines of work are varied but many of them are in fishing, government service (village officials), and transportation (e.g. tricycle drivers).

Table 7.4 Comparison between the core and peripheral households

Characteristic	Based on complete network		Based on friendship network	
	Core (n=28)	Peripheral (n=319)	Core (n=60)	Peripheral (n=287)
Mean per capita income	46,266	58,171	66,334	55,303
Per capita income, standard deviation	57,809	71,721	74,365	69,898
With fishing boat, %	42.9	10.0	13.3	12.5
Age, household head (years)	53.7	51.5	57.1	50.7
Male-headed, %	89.3	77.4	90.0	75.9
Head is current or former migrant, %	57.1	46.7	53.3	46.7
Head is currently working, %	75.0	75.6	75.0	75.6

Correlational analysis between economic and social variables (See Table 7.5) shows that ownership of various assets is positively correlated with network parameters (i.e. direct links), wherein *ceteris paribus*, richer households tend to have larger networks. Conversely, poorer households also have fewer social connections. There is some evidence of a negative relationship between connectivity and education; this could have adverse implications, particularly in the context of knowledge sharing, as this shows that the more well-educated members of the network are not as connected to the less educated ones, widening information asymmetry amongst the two groups. Furthermore, the higher the years of education a household has, the lower the direct connections with other households within the community, thereby suggesting that educated persons look to beyond their local community with regards to their connections.

It appears that overall connectedness of a household is largely determined by its familial links – consistent with other studies. There is no evidence from the data positively correlating a household's number of familial links to their number of friends, suggesting that if the household already has a large family circle, they may no longer feel the need to interact with people beyond it. This implies that membership and participation in more formal groups (credit coop, church groups, etc.) may not necessarily increase their social networks. This compels the need for initiatives to be well-crafted, and for the benefits to be very clear and visible/concrete, so that they can effectively improve social capital among people.

Table 7.5 Correlation between economic and social variables – direct connection

Variable	Dependent variable = overall degree (direct links)				Dependent variable = degree based on friendship links			
	A	B	C					
Household size	0.0004	0.0003	**	0.0001	0.0006	**		
Asset index	0.0002	0.0004	***	-0.0003	0.0009	***		
Mean years of education	-0.0005	**	-0.0003	**	-0.0002	-	**	
Migration culture (years)	0.0001	***	0.0000	**	0.0001	**	0.0001	***
Degree_family			1.0286	***			0.0444	
Degree_friendship					0.5415	***		
Constant	0.0181	0.0060	0.0108	0.0130				
N	297	297	297	297				
R2	0.0726	0.8347	0.2691	0.0991				

Table 7.6 Correlation between economic and social variables – indirect connections

Variable	Dependent variable = betweenness based on all links					
	D	E	F			
Household size	0.02155013	0.01783804	-0.00864181			
Asset index	0.02538291	0.03744026	**	-0.01963762		
Mean years of education	-0.04166645	**	-0.03126969	-0.00555265		
Migration culture (years)	0.01213445	***	0.00658116	**	0.00867548	***
Degree_family		51.712828	***			
Degree_friendship				51.017293	***	
Constant	0.73189067	0.12518108	0.04320961			
N	297	297	297			
R2	0.0827	0.3973	0.3676			

8. Summary & Policy Insights

In this study, we noted that the poorest of the poor are closely related to each other. Nevertheless, they are not disconnected from the rest. Many of them are in fact well-integrated to the rest of the community which suggests that there are opportunities for productive interaction among the groups. Furthermore, the community network has a structure that roughly allows for social inclusion among all households because it is a connected network (every household is connected to others through at least 1 link). While the potential connections are present, what seems to be the problem is the quality of the social capital that the poor has. Although they are considered integrated, they are mostly closely linked to relatively poor

households also. Another potential issue is their poor ability to harness the social capital they have, perhaps because of lack of education or capabilities. Future studies must look into this aspect.

The evidence of homophily, more so among the richest in the community, suggests that there is a need for greater, more meaningful interactions among clusters/segments. The highly educated members are also shown to be less integrated which indicates that efforts for improving social cohesion must focus on incentivizing and encouraging the educated members of the community to interact more with other community members so that there is greater social influencing and productive interactions. One of the potentially fruitful ways of engaging the highly educated members is for them to share their knowledge in information and education campaigns such as in Family Development Sessions (FDS) which is conducted for 4Ps beneficiaries. It may be useful and socially engaging to expand the beneficiaries of FDS to all members of the community, not just 4Ps beneficiaries so this can serve not just for education purposes but also for enhancing social cohesion in the area.

Although social capital is said to be convertible to other types of capital like financial capital, it still depends whether the networks of the poor do have access to such capital or resources. One other possible determinant is the nature of economic activities present in the area. A great proportion of the households in the community are overseas remittance-receiving households, and most people engage in small-scale fishing industry, with both activities offering very few opportunities for decent employment, if at all. While there have been quite a lot of referrals being made for international labor migration, the poor may have limited resources to finance the migration. Hence, they are unable to benefit from the social capital they have with migrant-sending families. Although the physical location may not be a significant factor in the exclusion of some households in this study (because the dwellings are quite compactly situated along the bay area and are quite accessible from the city center), this is probably an important barrier for social inclusion for people in remote areas. For such cases, improving well-being would be very much linked to the provision of important infrastructure to improve people's social inclusion and allow for better access to where the economic opportunities are. Based on this limited study, it can be hypothesized that while social capital and social inclusion are important, other factors like improved capabilities and expansion of economic opportunities in the locality, matter as well for the achievement of economic inclusion and improvement of well-being.

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