# Mapping embeddedness: a multidimensional index of social capital using the Indonesia Family Life Survey

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## Introduction

Embeddedness of individuals in the social structure is a fascinating thought that inspired number of social scientists. In economics this subject has been developed towards what is better known as social capital. Together with a growing interest, also strong criticisms evolved around this concept. Especially in economics, the use of the term "capital" and the lack of a theoretical framework are arguments in favor of the abandonment of the concept (Arrow 2000; Fine 2001). We defend the existence of social capital for two main reasons. First, we think that the idea behind social "capital" has to be interpreted in the sense of the symbolic forms of capital that Pierre Bourdieu referred to in his writings (Bourdieu 1986). Second, empirical applications that differently engaged with this concept appraised a wide range of opportunities and constraints that deserve to be further investigated, as they are relevant for assessing individual well-being and more in general welfare outcomes.

However, we acknowledge the fact that the debate over social capital definition and measurement is still intense. For this reason, in a previous article we developed a renewed conceptual framework to define social capital and to identify its underlying dimensions (Lollo 2012). Through the analysis of different theoretical and empirical perspectives we proposed a definition of social capital as the amount of expectations and obligations that individuals accumulate because they are embedded in the social structure. This amount of expectations and obligations are at the base of the mechanism of reciprocity and of coordination among individuals. To appreciate this amount and understand how it may different shape individuals ability to reciprocate, it is necessary to identify social capital dimensions. Relying on the structural perspective of social capital we look to groups individuals belong to and we consider homogeneity among individuals, frequency of contacts and hierarchy as underlying social capital dimensions. We support the idea that these dimensions shape individual belongingness to groups and are responsible of different sets of expectations and obligations, that is to say to different sets of social capital endowment. In the present article we further develop our work and we operationalize this conceptual framework. We first analyze few examples of indices of social capital and then measure a multidimensional index at the individual level, using data from the Indonesia Family Life Survey. The index here proposed substantially improves previous indices with two respects: it goes beyond the simple use of proxies and proposes a matrix of variables that reproduces the identification of social capital dimensions for each of the groups individuals belong to; it enlarges the set of groups usually considered when measuring social capital through surveys. The aim of the present study is to provide for a comprehensive measure of social capital at the individual level to further improve empirics over the distribution of social capital itself and its relationship with welfare outcomes.

## 1. Multidimensional indices of social capital: state of the art

We review few examples of indices of social capital proposed in literature (Grootaert 1999; Krishna 2008; Narayan and Cassidy 2001; Sabatini 2009). These indices defend the idea that social capital is linked to the quality and quantity of social relationships in a community and that it is essentially a multidimensional concept. We overview existing indices through four criteria: the definition of social capital, its constituting dimensions, the dataset, and the methodology used to aggregate variables over dimensions. We start with the sole example of index measured in Indonesia, which therefore is the benchmark I refer to, and then proceed chronologically.

### Grootaert (1999)

Following Portes (1998), Grootaert conceives social capital as the ability of actors to secure benefits from membership in the social structures. Developing from that, he makes a distinction between the micro and macro levels and specifies that his study refers to the former one. In his words : "At the macro level, social capital includes institutions such as government,

the rule of law, civil and political liberties, etc. (...). At the micro and meso levels, social capital refers to the networks and norms that govern interactions among individuals, households and communities" (Grootaert 1999, p.5).

Looking for an empirical application, Grootaert considers that, at the micro and meso levels, local associations are "manifestations of social capital" (Grootaert 1999). He acknowledges the fact that social capital and local associations are not synonymous. Not only social capital exists in other contexts but most importantly the mere presence of local associations does not imply any social capital endowment. In order to better capture and measure social capital endowment linked to local associations he thus proposes six dimensions: the density of associations, their internal heterogeneity, the frequency of meeting attendance, members active participation, payment of dues, and community orientation.

To operationalize the concept of social capital and its dimensions Grootaert measures an index at the household level using a dataset that comes from the Local Level Institutions Study, a comparative study designed and conducted by the World Bank in three countries (Bolivia, Burkina Faso and Indonesia)<sup>1</sup>. In Indonesia data were collected in the fall of 1996 from a sample of 1.200 households that cover three provinces (Jambi, Jawa Tengah, Nusa Tenggara Timur). Although the author acknowledges the fact that this sampling framework cannot guarantee national representativeness, these provinces have been selected to represent different socio-economic and institutional environments.

Grootaert measures the six dimensions of social capital at the household level as follows:

- Density of membership: the number of memberships of each household in existing local associations.
- Heterogeneity index: for the three most important associations cited by the interviewee, questions were asked about the internal homogeneity of the group. The final heterogeneity index is average of the three associations' scores, each measuring on a 0-8 scale whether in the association members where "mostly from different" neighborhood, kin group, occupation, economic status, religion, gender, age, and level of education.

<sup>&</sup>lt;sup>1</sup> For further detail on this study see World Bank (1998)

- Meeting attendance: average number of times someone from the household attended group meetings in a three-month period (normalized for the number of memberships of the household).
- Decision making index: for the three most important associations cited by the interviewee, were asked questions to evaluate if members were "very active" "somewhat active" or "not very active" in the group's decision making. The final decision making index is the average of the three associations' scores, each measuring participation on a 0-2 scale (final index re-scaled from 0 to 100).
- Membership dues: amount paid to enter/participate to the association (Rupiahs per month) and labor provided as contribution (number of days per year).
- Community orientation: percent of membership in community-initiated organizations.

His model on the relationship between social capital and household welfare is then tested using the resulting index and alternatively its disaggregated dimensions. The final social capital index is the composite aggregation of two out of the six dimensions: density of memberships and active participation (but alternative compositions are reported as having being tested and yielding similar results).

## Narayan and Cassidy (2001)

Following Putnam et al (1993) the authors define social capital as "these patterns of social interrelationships that enable people to coordinate action to achieve desired goals" (Narayan and Cassidy 2001, p.59).

To identify social capital dimensions, Narayan and Cassidy consider not only the connections among individuals but also their nature and characteristics. They list as social capital dimensions: group characteristics, generalized norms, togetherness, everyday sociability, neighborhood connections, volunteerism and trust.

The dataset used by Narayan and Cassidy comes from the Global Social Capital Survey, a project developed by the World Bank, whose questionnaires were administrated in Ghana and Uganda during summer and fall of 1998. In Ghana 1471 households from 4 regions have been

interviewed, selected from a previous research project run by the Ghana Statistical Service<sup>2</sup>. In Uganda authors acknowledge the fact that, due to circumstances, it was not possible to select a random representative sample and 950 individuals were finally interviewed from urban households in Kampala.

Narayan and Cassidy explain how they operationalized dimensions of social capital specifying, for each of them, underlying questions and measurements. We resume the whole list here below:

- Group membership: number of groups the individual belongs to (absolute frequency); money the individual contribute (absolute frequency per month); frequency of individual participation (absolute frequency per month); extent to which the individual participate in the group (1-5 scale); homogeneity in terms of neighborhood, kin, ethnic, religion, education/income, gender (sum of yes/no answers).
- Generalized norms: whether most people can be trusted (1-4 scale); whether people try to be helpful (1-4 scale); whether people try to be fair (1-4 scale).
- Togetherness: whether people get along (1-5 scale); subjective perception of togetherness (1-5 scale).
- Everyday sociability: participation to arts or other recreational activity; participation to games; shoping or spending time (absolute frequency per month); for each branch of question, with whom (scale 1-3= family, friends same caste/ethnicity/education/religion/wealth/gender, friends from different caste/ethnicity/education/religion/wealth/gender); who visit you at home, with whom vou home (scale 1-3= family, friends eat at same caste/ethnicity/education/religion/wealth/gender, friends from different caste/ethnicity/education/religion/wealth/gender).
- Neighborhood connections: whether you ask your neighbors to take care of your children and to help you if you are sick (1-6 scale= very unlikely/veru likely).

<sup>&</sup>lt;sup>2</sup> For more detail on the sample see Narayan and Cassidy (2001, p. 68)

- Volunteerism: subjective perceptions over community propensity of volunteering; over propensity of punishment if people do not volunteer; whether most people fairly contribute to the community (1-5 scale= strongly disagree/strongly agree); frequency of individual's volunteering (absolute frequency per month).
- Trust: whether individual trusts people of same ethnicity/religion/tribe, people of different ethnicity/religion/tribe, neighbors, people form same groups/organizations, business owners individual is in contact with, politicians, family, government service providers, local government, police (scale 1-5).

Narayan and Cassidy run an exploratory factor analysis and a confirmatory factor analysis to better define and select this list of dimensions over a larger set. They use these techniques also to show patterns of interrelationships among dimensions and comment differences between Ghana and Uganda, generally confirming the importance in both countries of the dimension of group membership. They run several models on the relationship between social capital and societal well-being but they always enter the set of social capital dimensions and not an index, eventually resulting from their factor analysis.

### Krishna (2008)

Following Putnam (1995), Krishna defines social capital as those "features of social organization such as networks, norms and social trust that facilitate coordination and cooperation for mutual benefit" (Krishna 2008p. 439). The author acknowledges the fact that there exist different conceptions of social capital linked to different societal aggregations, namely individual, community and national levels, and makes explicit his choice of developing on the community-based conception.

In his analysis, Krishna first explains that any proposed dimension of social capital is necessarily context depending. He develops in particular a critic over the sole use of group membership as dimension of social capital arguing that this is a valid proxy only in West countries, where formal associations are prevalent and represent bottom-up initiatives. In the context of Rajasthan, the country-field of his study, he argues that the most appropriate dimensions to be considered should be: membership in labor-sharing groups, dealing with cropdisease, dealing with natural disaster, trust, solidarity, and reciprocity.

Data used to measure these dimensions come from a field study conducted by Krishna himself and 16 field investigators over eight months during 1998-1999. In total, 1989 villagers have been interviewed, from sixty villages in Rajasthan.

Social capital dimensions have been measured at the village level as follows:

- Membership in labor-sharing groups: whether the individual is a member or not (proportion of the village population being a member).
- Dealing with crop disease: perception over the proportion of the village population that would help in case of crop disease (1-5 scale= none/the whole village; individuals' scores averaged at the village level).
- Dealing with natural disaster: perception over the proportion of the village population that would help in case of natural disaster (1-5 scale= none/the whole village; individuals' scores averaged at the village level).
- Trust: perception over how trusting people are, in the case of sharing cultivated land (1-2 scale= people prefer to cultivate alone/people prefer to share).
- Solidarity: perception over the behavior of village leader towards the village population (1-3 scale=village leader put first his own welfare/village leader favor village welfare; individuals' scores averaged at the village level).
- Reciprocity: perception over the willingness of other people to intervene in children's education in case of children's misbehaviors (1-4 scale= none in the village would intervene/the whole village would intervene; individuals' scores averaged at the village level).

Krishna synthesize these dimensions into an index of social capital and investigate the link between social capital and development performance (expressed as livelihood stability, employment generation, poverty reduction, and quality of basic services). The index of social capital introduced in the model wis an additive index of the five dimensions. Krishna preliminary run a factor analysis to show that all dimensions load highly on a single common factor. Each item has been previously divided by its range (then all items are from 0 to 1), then they are added with equal weights and the final index is re-scaled from 0 to 100.

#### Sabatini (2009)

Following Coleman (1988) Sabatini defines social capital as those aspects of the social structure that facilitate the action of actors within the structure and make possible the achievements of certain ends. Sabatini underlines the fact that, being the concept of social capital multidimensional, any empirical application necessarily has to explicit which aspects and contexts are measured.

In this study he makes reference to the structural approach to social capital, identifying social capital with social networks. He then explicit five social capital dimensions: strong family ties (*bonding social capital*), weak informal ties (*bridging social capital*), voluntary organizations (*linking social capital*), active political participation and civic awareness.

The dataset used to measure these dimensions has been collected by Sabatini himself drawing from a set of multipurpose surveys carried out by the Italian National Institute of Statistics. The sample consist of 20.000 individuals, interviewed between 1998 and 2002. Here below an overview of variables representing each social capital dimension. For a full description see tables A1, A2, A3, A4, and A5 in appendix in Sabatini (2009, pp.440-441). Variables have been aggregated per enumeration area, as the index of social capital is measured at the community level:

- Family social capital: family composition (number of components for every 100 families in the same area); spatial distance between family members; relevance of other relatives; quality of relationships both with family members and with the other relatives (people that meet relatives and family every 100 people in the same area).
- Bridging social capital: informal networks of friends (people that meet friends in informal activities; people that do sports and attend bar, pubs, and circles).
- Linking social capital: density of associations; involvement degree (people that do volunteering; voluntary organizations for every 10.000 people).

- Political participation: degree of involvement in political life (people being part of a political party, spending time or money to support a political party every 100 people in the same area).
- Civic awareness: interest in politics (people reading newspapers, talking about politics every 100 people in the same area).

Principal component analysis is run on each of the five groups in order to build a synthetic index for each dimension. On the other side a multiple factor analysis is run on the entire dataset to build a unique social capital index. Sabatini argues that the index of social capital differs substantially from the indices of its five dimensions because the former captures what literature generally conceive as "positive" social capital (in the sense it it enhances different socio-economic outcomes). The five social capital dimensions are supposed to capture, on the contrary, both positive and negative outcomes.

These studies all represent good starting points on how to operationalize the concept of social capital. They show which variables can be selected to appreciate the quality and quantity of social relationships individuals develop. Also, they provide examples of measurement and aggregation methods. In particular Sabatini (2009) relies on a conceptual framework that is similar to the one we use in the present study. In the present article we improve existing indices in two directions. First, we measure social capital at the individual level and we do not aggregate at upper levels. This choice has been made because of the micro-macro paradox in social capital research (Portes 1998). This implies that no macro form of social capital is taken into consideration, a part from the measurement of group characteristics. Also, we assume that social capital at upper levels would probably have emerging properties that are other than the sum of individuals scores. Second, even if we limit our analysis at the individual level we took into consideration the widest set of social relationships, groups, ever considered. In addition to that we do not only assess the belongingness to these groups but we measure also corresponding social capital dimensions, coherently with the conceptual framework presented in our precedent study.

## 2. Indonesia: country profile and presentation of the dataset

Indonesia is capturing the attention of researchers since decades. Its history, cultural heterogeneity, and geo-political position provide social scientists with a great variety of critical research questions. In this section we outline main characteristics of this country, presenting its actual profile and historiography<sup>3</sup>. The Unitary State of the Republic of Indonesia (NKRI) is a country in South-East Asia located between the Asian and the Australian Continent and between the pacific and Atlantic Ocean (see the map below). Consisting of 17.508 islands, it is the largest archipelago in the world. Indonesia is a presidential republic and its city capital is Jakarta, situated in the island of Java.

With a population of more than 240 millions of people, Indonesia is the fourth most populous country in the world. Islam is the dominant religion and for this reason Indonesia is also the largest Muslim country in the world. However, other religions, namely Protestantism, Catholicism, Hinduism, and Buddhism, are numerically well-represented. We find the same scenario looking to country's ethnic composition. Although Javanese is the dominant ethnic group, Indonesian population is subdivided between more than thirty large ethnic groups (and hundreds of ethnicities). While each ethnic group speaks its own language in daily life, the national language, Bahasa Indonesia, is currently spoken by the majority of the population.

Indonesia is classified by the World Bank as lower middle income country, with a GNI per capita well below the average of the Asia and Pacific region (at 2.940 US \$ against 4.248 for the reference area in 2011). Around 12% of the population is below the poverty line and also life expectancy at birth is below the regional average (69 against 72 years in 2010). Adult literacy rate, at the 92.6% in 2009 and constantly growing, is more homogeneous and similar to the reference area. In spite of a strong presence of state-owned enterprises, with a GDP growth of 6.4% in 2011 Indonesia is considered by foreign investors as one of the most promising emergent economies.

<sup>&</sup>lt;sup>3</sup> For further details on the country profile see also the official web-site of the government of Indonesia (http://www.indonesia.go.id/index.php) and the country's page on the United Nation's web-site (http://data.un.org/CountryProfile.aspx?crName=Indonesia).

The economy, demographics and cultural traits of contemporary Indonesia can be better appreciated considering its history. For this reason we overview here below major events that characterized country's colonization and post-independence era. Before colonization, Indonesia developed intense relations especially with China and India. Trade and religious exchanges continued not only during Hindu and Buddhist kingdoms but also when Muslim traders brought Islam. The richness of the region, the position right on the Strait of Malacca (which is still one of the most important shipping lanes in the world) and the possibility to control the spice trade attracted also various European countries, especially Portuguese Dutch and British. Dutch colonized the archipelago for about 350 years. Although Dutch colonization is often described as having maintained existing structures of native society, researchers have questioned this postulate especially looking at three main evolutions: the transformation of Javanese political articulation into a strongly authoritarian structure peasantry organization became more and more communalistic in its economic organization, weakened by ruling Javanese aristocracy and worsened by the common practice of leasing villages to Chinese, designated by Dutch as elite immigrants; and the disappearance of native middle-class, represented in the pre-Dutch society by a flourishing Javanese merchant class (Geertz 1963; Kahin 1952). After a brief Japanese occupation, Indonesia declared its independence in 1945. It is with the Indonesian Independence movement and the Indonesian National Revolution that Indonesians, through their common hostility towards foreign interference, found some unity despite their internal divisions (Kahin 1952). During these years the national motto "Unity in diversity" (Bhinneka Tunggal Ika) became the symbol of country's emancipation. Nevertheless, the first decades after independence have been characterized by violent conflicts between nationalists, communists and the army. At the economic level, in this period Indonesia remained a prevalent agricultural economy. The State, leaded by President Sukarno, nationalized ex-colonial manufacturing companies but was unable to avoid a long period of economic stagnation (Vial thesis). The period that followed radically changed this scenario. Subarto came into power in 1968 and inaugurated the New Order Regime. Under his leadership Indonesia opened his market to foreign investors and experienced a strong economic growth. These changes were accompanied by a rise of corruption and authoritarianism. The resignation of Suharto in 1998 coincided with the peak of the Asian financial crisis. The evolution that Indonesia has experienced after this turnover is characterized by projects aiming at strengthen administrative decentralization and democratic processes. Indonesia is today one of the most promising emergent economies in the world. However, Indonesia today faces also important challenges linked to frequent natural disasters, endemic corruption, separatist movements and a rapid economic growth. In particular, although its living standards are constantly raising, still inequalities between ethnicities and socio-economic classes are especially large .

The Indonesia Family Life Survey, the dataset used in the present study, is an ongoing, longitudinal, nationally representative survey, carried out in Indonesia since 1993 by RAND Foundation. At the moment five waves are available to researchers: IFLS1 (1993), IFLS2 (1997), IFLS2+ (1998), IFLS3 (2000) and IFLS4 (2007). The sample consists of approximately 30,000 individuals, 12.000 household and more than 300 villages, spread across 13 of the 27 Indonesian provinces, and it is representative of about 83% of the population. Data are collected through questionnaires. There are in total 30 "books", that are organized per theme, issue or interviewee's target. There are two categories of books: those administrated to individuals and that collect both individual and household's information and those administrated to village leaders or other village representatives and that collect community's information. Among issues treated in books we can find: household composition, consumption attitudes, socio-economic status of individuals, behaviors and expectations, community's education and health systems, infrastructure's development, local governance, and many others. For a more detailed description of the survey see Strauss (Strauss et al. 2004; 2009). To build up the index of social capital we use the last wave of the survey, the IFLS4. This wave has been fielded in 2007 and 2008 by RAND foundation in collaboration with the center for Population and Policy Studies (CPPS) of the University of Gadjah Mada and Survey METRE. IFLS4 offers the most rich set of data (questionnaires are updated after each wave) and for this reason it is at the moment the only wave we use to measure the index. We acknowledge the fact that it would be possible to build up the index using panel data. At the moment, however, we privilege the completeness of data available in this wave to the possibility to build up a reduced form of the index over several waves.



Figure 1. Map of Indonesia (Source: Map No 4110, Rev. 4, United Nations, Cartographic Section, January 2004)

# 3. Measuring social capital dimensions using the Indonesia Family Life Survey

To operationalize the concept of social capital and to propose an index at the individual level, we proceed following three principal steps. First, we identify those groups individuals belong to. For each group, we define which variables measure the three social capital dimensions that we proposed in our conceptual framework (namely homogeneity, frequency and hierarchy). Second, we describe how we measure these variables using the Indonesia Family Life Survey. Third, we explain how we aggregate these variables in order to obtain the index of social capital at the individual level. In this section we develop the first two steps.

We first had to identify those groups individuals belong to in society. To represent a comprehensive set of groups we considered three different categorizations. The first categorization comes from social capital literature, in particular from the structural perspective (Sabatini 2009) that classifies groups distinguishing between bonding, bridging and linking ties. Two criteria distinguish among groups: whether the group is considered as a formal organization and the strength and quality of ties among members. These groups are then represented for example by networks among: family members (bonding), acquaintances (bridging) and voluntary associations (linking). Other groups within the same categorization (although with no official "label") are networks built trough political participation and civic engagement. The second categorization refers to cognitive psychology (Lickel et al. 2000), which differentiates among intimacy groups, task oriented groups, social categories and weak social relationships. To distinguish among these groups, five criteria are applied: quality of interaction, level of commitment, established goals, expected outcomes and perceived similarity. These classes are represented by networks respectively within family and small groups of friends (intimacy groups), committees and working groups (task oriented groups), religious and ethnic groups (social categories), and neighbors and leisure groups (weak social relations). The third and last categorization is based on new institutional economics (Ahn and Ostrom 2008). Groups are organizations that can be separated into two types: those based on formal institutions and those based on informal ones. Institutions being defined by institutional economists as the rules

of the game. Groups are identified looking to those organizations in which individuals are embedded, ranging in scale from the level of households to the level of the entire community.

We analyzed all questionnaires of the Indonesia Family Life survey and identified groups individuals belong to baring in mind these different categorizations. Groups selected are: household, non-co-resident family, job, Arisan, religious group and the entire community. To our knowledge this is the first study that takes in consideration such wide range of groups using survey data. Although not exhaustive due to lack of information in the dataset, this list is our best representation of the individual embeddedness in the social structure.

For each group we then identify the set of variables that measure social capital dimensions: homogeneity, frequency, and hierarchy. Table 3.1, here below, shows the entire set of variables, organized per group and dimensions. In few cases, as for Arisan and job groups, the transformation process has been relatively simple starting from original variables from IFLS4. In other cases, as for non-co-resident family and religion, final variables represent several sub-components. This variety in the number of sub-components is due to the attempt, when data were available, to obtain final variables as combinations of group and individual characteristics. The assumption is that social capital available to an individual depends both on individual and group characteristics. Considering the fact that two individuals within the same group (thus sharing the same group variable) may have different roles and relationships with other group members (then having different individual variables), whenever possible, we measured the individual variable and then selected individuals belonging to the same group to measure the corresponding group variable.

Table 1. An overview of social capital variables per dimensions and groups

	Social capital dimensions							
	Homogeneity	Frequency	Hierarchy					
Household	Ethnic homogeneity Religion homogeneity Education homogeneity Economic homogeneity Salary homogeneity	Household size	Household member's centrality					
Non co-resident family	Education homogeneity with father, mother and children Economic homogeneity	Number of non-co-resident family Father, mother and children's residence distance Contacts with father, mother, children, adopted children and non-bio parents Exchange with	Assistance to/from parents Assistance to/from siblings Assistance to/from children Assistance to/from non-bio parents					
Job	Belongingness to firm	Number of co-workers Weeks worked per year Need relational skill for job	Responsibility in job Member of labor union or business association					
Arisan	Participants' status homogeneity	Number of participants Frequency of meetings Number of meetings last year	Organization type					
Religion	Religiosity homogeneity Education homogeneity Economic status homogeneity	Religious practice Belongingness to village's main religion	Role of religion in politics Role of religion in marriage					
Community	Ethnic homogeneity Religion homogeneity Education homogeneity Economic homogeneity	Population Village classified as urban Number of and population participating to community projects Number of projects participated by the individual Presence of activities of mutual cooperation Presence of communal lands in the village	Presence of a system of community organization in the past Resolution of conflicts by formal institutions Village head chosen by formal institutions Individual is a government worker					

#### 3.1 Household

The first group we identify is the household. We used data from section "BK" of "book K", in which we can collect information about all household members.

Homogeneity is supposed to capture the extent to which individuals share similar identities. In the household as in any other group the operationalization of this concept is subject to great debate. We identify two macro-categories that are cited as characterizing individual identities: identity as culture, represented among others by ethnicity and religion (Beard 2007), and class identity represented by variables as education and economic status (Kipp 1993). We thus create five variables that represent ethnic, religion, education and economic homogeneity in the household. The transformation process is the same for each variable. As it was possible to identify in the dataset individuals belonging to the same group (the household) transformation consists in measuring the individual and group characteristics, then aggregating the two scores. For ethnic homogeneity we first calculate the ethnic homogeneity of the group, which is the inverse of the number of ethnicities in the household, and the number of members that share the same ethnicity of the individual. We then sum the two values and rescale the variable from 0 to 1 to obtain the individual ethnic homogeneity in the household. Similarly, religion homogeneity is composed by the inverse of the number of religions represented within the household and the number of individuals that share the same religion of the individual. Variable on education level has been rescaled, recoding several education grades from 0, "no education", to 5 "university education" (following the classification proposed within the questionnaire). Then education homogeneity is calculated aggregating group and individual homogeneity similarly to religion and ethnicity. There are two variables representing homogeneity in economic status. The first one aggregates the number of household members economic active on the total number of household members with a dummy assuming value "1" if individual is economic active. The second one measures also homogeneity in economic status but considering the salary individuals declared to perceive during the last year. Group homogeneity is measured as the standard deviation of the average salary in the household and individual homogeneity as the absolute value of the difference between individual and average salary.

Frequency within the household is supposed to describe the volume of contacts between household members. Living together already guarantees a high degree of frequency in contacts. Unfortunately we do not have more detailed information concerning specific exchanges among household members or daily activities within the household. Therefore, we approximate the dimension of frequency as a continuous variable that measures the number of household members, arguing that bigger households will enjoy greater volumes of exchanges.

The dimension of hierarchy is supposed to describe the composition of the household. To operationalize this dimension we make reference to Burt's definition of centrality as the redundancy of contacts around one individual (Burt 2005). High levels of hierarchy mean that in the household roles are well defined and power is concentrated on the hands of one household member (most probably the household head). Household composition, especially in developing countries, can vary from nuclear (household head, his/her spouse and children) to complex forms (including extended family members as non-kin individuals). Different compositions, in particular the number of adult members and the total number of household members, will influence the centrality of the household head and consequently the relative centrality of other household members. Household members are subdivided into six categories that correspond to six different ordinal degrees of centrality within the household (household head; household head; household head; spouse; household member with a direct kin link with household head; other household members; children; servants). We then measured the final variable multiplying individual's centrality for the number of household members (to capture the potential volume of contacts) and dividing by the number of adult members (to capture the effective redundancy of contacts)

## 3.2 Non co-resident family

The second group we identified is composed by non-co-resident family members. Most of information for this group comes from sections "BA" and "TF" from "book 3B". We separated this group from the previous one because we considered that the fact of sharing the same living space is a peculiar feature of the household group. However, we acknowledge that these groups share some important characteristics. Especially, the dimension of homogeneity is interpreted and measured in the same way as in household group. Limited by the availability of data, we measure education and economic homogeneity with father, mother and children outside the household.

For the dimension of frequency we have extensive information about the contacts the individual has with parents, children, adopted children and non-biological parents. We first transformed original answers to have homogenous time units. Then we summed up all answers through different types of contact: visit, telephone, and mail. We also have information about the distance of residence of father, mother, and children. Original variables have been transformed into ordinal ones so that highest scores are attributed to non co resident family living in the same village. In addition, we created variables that take into consideration not only if the individual is in contact with his/her family but also if he/she engages in any exchange with them. For each category of non co resident family (parents, children, non bio parents and siblings) we then measure if the individual received and gave any amount of money, good or help for chores. We previously created dummies to take into account any exchange from or to the individual, for each type of exchange and non co resident family members, and then summed up all variables. Finally we add a variable taking into consideration the number of non co resident family similarly to what we have measured for the household group.

Concerning the last dimension, hierarchy, we based our final variables on net exchanges between the individual and non-co-resident family. We assume that wealth-flows represent an important aspect of hierarchical relations between family members. Social capital is considered as the amount of expectations and obligations linked to social relationships and hierarchy plays a role shaping the direction of these expectations and obligations, in this context the direction of wealth-flows. We acknowledge the fact that great diversity in the structure and meaning of intra family wealth-flows exist. This is true especially in Indonesia. We can take as example Koto Kayo, in West Sumatra, where downward flows from parents to children could be source of shame for the child receiving assistance and Kidul, in East Java, where the same behavior is a demonstration of mutual reciprocity (Kreager and Schröder-Butterfill 2008). However, at the moment we consider out-flows as positive (like an "investment" in social relationships) and inflows as negative (like a "need" for assistance). We first transform variables in order to apply the same money and time units to all answers. For each non co resident type (parents, non bio parents, children and siblings) we then calculate the amount of money, good and chores that the individual received (in-flows) and provided (out-flows). We aggregated these variables first measuring the total volume of exchange (out-flows plus in-flows) and then the direction of exchange (out-flows minus in-flows). The final variables that measures hierarchy is the sum of volume and direction of exchanges for each non co resident family type.

#### 3.3 Job

The third group we selected refers to the working environment in which the individual is eventually embedded. Usually, studies on social capital and job environment focus on network analysis and use specific case studies to collect directly both qualitative and quantitative data. It is also rare to find within a social survey, especially at the national level, such detailed information. Although not exhaustive, within IFLS there is a section in "book 3A", "TK", dedicated to this topic.

Measuring homogeneity within the work environment was not easy in terms of ethnicity, education and the other variables previously used as we could not identify individuals working together. However, we were able to use a proxy that measures homogeneity in terms of sense of belongingness to the firm. This measure of homogeneity refers to the concept developed in the specialized literature as commitment (Meyer and Allen 1991). This variables is measured from the number of years the individual is working in the firm.

For the dimension of frequency we measured the amount of contacts within the individual's working environment. We then created three variables directly from question in the survey. We first measured the number of co-workers and the number of weeks worked per year as proxies of the volume of contacts. We also added a variable measuring if yes or no the individual needs relational skills in his/her job. These variables all together give a good approximation of the amount and quality of contacts the individual may develop within his/her working environment.

For the last dimension, hierarchy, we measured two variables supposed to capture the extent to which the individual has job responsibilities. The first variable measures in an ordinal scale the type of job. At the top of the scale we place government workers, then self-employed

workers, private workers, casual and unpaid family workers). The second variable considers not only the type of work but also the relative power of the individual in his.her working environment. This variable then measures whether yes or no, the individual belongs to a labor union or business association.

#### 3.4 Arisan

The fourth group covers is represented by Arisan, the local version of the worldwide rotating savings and credit association scheme. In Indonesia Arisans are active in most villages and represent a popular gathering among Indonesians. For a focused review and a deeper comprehension of this phenomenon, we refer to an extensive literature ranging from anthropology to economics (Ardener and Burman 1995; Bertrand and Schoar 2006; Dagnelie and Lemay-Boucher 2011; Geertz 1962). Part of section "PM", in "book 3B" questions individuals about their participation into Arisan. Homogeneity and Hierarchy dimensions are measured using the same variable on the type of Arisan.

Without direct information on the composition of Arisan or on the presence of formalized hierarchy, for the dimensions of homogeneity and hierarchy we classified Arisans types into different classes. For the dimension of homogeneity we took into consideration the information we had concerning memberships' profile: which are the individual's characteristics need to enter into the group. The lowest score in homogeneity was given to village, subneighborhood and neighborhood Arisan. Organized by local government we do not find here the typical auto selection of group members that characterize traditional Arisans. Members are here grouped by geographical residence and meetings are the opportunity for the local government to share information about the village. Most of these information are linked to administrative procedures or implementation of development programs. Second homogeneity class is represented by office, Darma Wanita and pkk arisans. Always organized by local government or government associations, these Arisans are at least characterized by exclusive membership and a certain degree of homogeneity among participants (as being co-workers or women participating to the same development program). Third homogeneity class comprehends groups that apply the principle of auto-selection of the group. Individuals participating to these groups gather together because they have common interests or objectives and participate to the same "task oriented Arisan". These are market, farmers and motorcycle Arisan. Finally the highest score in homogeneity is given to the class comprising family, religious, friends, youth and retirees Arisans. These groups are exclusive to certain categories of individuals. Individual's identity plays here the most important compared to all the other classes (Chen 2011).

The classification of Arisan type for hierarchy similarly takes into consideration the combination of formality/exclusivity of participation. Lowest scores are assigned to market, motorcycle, friends, youth and retirees Arisans. Here gathering is motivated by certain short-term objectives or by the pleasure of the meeting and normally do not develop clear and strict hierarchies (Hospes 1995). We then have family and religious Arisans that also gather together people mostly for pleasure or short-term activities but may reproduce power distributions similar to those present in the original group. The third class is represented by village, neighborhood, sub-neighborhood and farmers Arisans, which refer to formal organizations and respect formal rules for functioning (Kawagoe, Ohkama and Bagyo 1992). The highest score is finally assigned to office, pkk and Darma Wanita Arisans that are not only organized by formal institutions but are questioned by recent literature in terms of their internal functioning that apparently follows rigid hierarchical schemes (with contexts in which participation is even mandatory).

For the last dimension, frequency, we have data both on group attendance and individual participation. We have variables on the number of participants to the Arisan, frequency of meetings and number of meetings attended by the individual. These variables all together represent the potential quantity of exchange and relationships developed by the individual within the group.

### 3.5 Religious group

The fifth group we took into consideration is the religious group individuals belong to. To delimit the identification of a religious group we considered the group of individuals that belong to the same religion and live in the same village. Although we acknowledge the fact that

religious identities do not necessarily fit administrative borders, we limit our analysis to the village level considering that it is one of the most important places where the religious community evolves. Variables that measure social capital dimensions for religious group come from several sections in the IFLS questionnaires. Those referring to religious attitudes come from section "TR" in "book 3A". Those referring to the role of religion in other sphere come from "adat" book and section "PM" of "book 3B".

To measure homogeneity we focused on three main characteristics. Education and economic status represent homogeneity as they did in previous groups. Similarly measured, final variables are the sum of group and individual homogeneity scores. We also add a variable that measure the level of religiosity of the individual summed to the level of religiosity among his/her religious members. This variable represents the extent to which the individual's identity is linked to religion and is reinforced by the religiosity of the group as a whole.

Frequency is well represented by a set of questions on religious attitudes and practices. Each religion is represented by a different set of questions coherently with its specific religious practices. We summed data on group and individual practices to appreciate the total amount and potential volume of interactions available to the individual within the religious community. We also added a dummy variable that takes into consideration the fact that the religion of the individual is the main religion in the village.

Finally for hierarchy we selected two variables that we consider representative of the role of religion in community. These variables are: the influence of religion in the selection of local representatives and in the selection of a spouse. These two variables imply a certain control exerted by the religious community over the formal or informal rules that govern daily life. They also are representative of the presence and application of social sanctions linked to religion whenever these rules are not respected (Suryadinata 2002). We acknowledge the fact that recent studies also put into question the real role of religion in politics (Liddle and Mujani 2007) but considering that the survey dedicates a full section to this issue we believe that it is still of great relevance. The first variable, whether the main factor in electing a representative is his/her religion, is measured at the group level and then summed to the individual answer to the question. The second variable, whether individuals' religion is a formal criteria in marriage,

is crossed with the information on individual's sex as it is possible that marriage among different religions is forbidden, permitted, or forbidden only for women (as a consequence the control over the individual is different).

#### 3.6Village

The last group analyzed in this study is the entire community the individual belongs to, considered as a whole. We decided to include this group to take into account the overhall environment in which the individual spends his/her daily life. We argue that also community characteristics in terms of homogeneity, frequency and hierarchy make available to the individual a certain amount of social capital.

Homogeneity within the village is measured taking into account the two macro categories we presented for previous groups: ethnicity and religion for culture identity, education and economic status for class identity. Transformation of variables replicates the one we applied for household group, with the sole difference that here we aggregated data within each community instead of within households. We therefore have variables that measure individual ethnic, religious, education, and economic homogeneity within the village.

Frequency within the community is measured taking into consideration a wide variety of variables. The attempt is to appreciate and measure different situations that provide individuals with opportunities to exchange. First we consider two variables that are extensively used in social capital literature: population in the village and its classification as urban or rural community. These variables represent the density of population and thus more intense contacts among citizens. However they could also represent a lack of cohesiveness (Coleman 1988) due to a poor quality of contacts. For this reason we also add two variables that measure the presence in the village of collective activities and the amount of population participating to them. A fourth variable measures individual's participation in these activities, thus taking into consideration also the effective involvement and integration of the individual in the community. Finally we include a dummy variable that measures the presence of communal lands. Communal lands represent a tradition belonging to adat law that establish rules of public property and collective use of land for agriculture. This variable can represent the existence of cooperative

activities in rural villages and compensate the lack of more formal collective activities that eventually occurs.

# 4 Social capital endowment: construction and overview of a multi-

## dimensional index

Our final dataset contains information on social capital endowment for 20.966 individuals, aged 15 or older, belonging to 7.974 households in 305 villages. The sample is almost perfectly represented by men and women in equal parts (49.82% of women and 50.18% of men). The majority of individuals are economic active as around 61% declared that he/she was working during the week prior the survey. Individuals' education level ranges from a large amount of individuals with elementary education (around 37%) to an important share that has junior or senior high education (respectively 17% and 27%). A large amount of individuals in the sample are household head (around 35%) or spouse of the household head (around 34%). Households (53%) is composed by four members or less, there is an important percentage of large households (around 43% has between 5 and 8 members). In line with national representativeness, the great majority of the sample is Muslim (around 90%). Also, individuals live in urban and rural area in equal percentages (around 51% and 49% respectively).

For each individual in the sample we have a VxG social capital matrix, which contains a set of variables V, subdivided per social capital dimensions, for each of the G groups individuals belong to. To normalize variables in our matrix we decided to apply standardization and rescaling. We needed to reduce this wide range of variables to obtain first an index of social capital for each group and finally a unique index of social capital at the individual level. We opted for an additive index of social capital with equal weights. We acknowledge the fact that there are limits linked to the sole use of rescale and standardization as normalizing methods. We are familiar, more in general, with the debate over the wide range of aggregation methods linked to multi-dimensional indices (Nardo and et al. 2005). In our work, in particular, the role of outliers and the wide range of measurement units and computing methods may represent a risk of distortion of the index, influencing values distribution and reducing the comparability among

them. Nevertheless, we privileged these methods following the example of similar studies (Grootaert 1999)<sup>4</sup>. The final index of social capital at the individual level is then the result of several aggregations. First, variables are aggregated per dimension. At the end of this process we have, for each of the six groups, three variables measuring homogeneity, frequency and hierarchy (3 variables x 6 groups, for each individual). To aggregate variables, we calculated the mean for the dimensions of homogeneity and hierarchy and the sum for the dimension of frequency. We always re-scale variables from 0 to 1 at the end of each aggregation process. Table 2, here below, summarizes these 18 variables, subdivided per dimensions and groups.

Group	Dimension	Obs	Mean	Std. Dev.	Min	Max
Household	HOhh	20966	.8522611	.1022958	0	1
	FRhh	20966	.1665435	.116671	0	1
	Hlhh	20966	.2406253	.1074919	0	1
Non co-resident family	HOnc	20966	.090287	.1275993	0	1
	FRnc	20966	.1798955	.1234782	0	1
	HInc	20966	.2350008	.1285814	0	1
Job	НОјо	20966	.1186876	.1708296	0	1
	FRjo	20966	.3893618	.2717441	0	1
	HIjo	20966	.1859856	.2035848	0	1
Arisan	HOar	20966	.0607952	.1351587	0	1
	FRar	20966	.0090917	.0297474	0	1
	Hlar	20966	.0610502	.1343023	0	1
	_			_	_	
Religious group	HOre	20966	.4094288	.1159175	0	1
	FRre	20966	.9291869	.1420786	0	1
	HIre	20966	.633402	.2161572	0	1
Village	НОсо	20966	.6276488	.1401368	0	1
	FRco	20966	.3544499	.1444096	0	1
	HIco	20966	.322913	.1702296	0	1

Table 2. Social capital endowment per dimension and group (re-scaled 0-1)

<sup>&</sup>lt;sup>4</sup> Grootaert (1999) applies only re-scaling over his variables before aggregation. We thus considered that adding also standardization could reinforce the aggregation methodology.

Second, these variables are aggregated per group. At the end of this process we have, for each individual six variables measuring social capital endowment at the group level (6 variables for each individual). Table 3, here below, reports main descriptive statistics for each group. To be noticed that for three out of six groups the minimum of variables is not "0" due to the nature of the group represented. Re-scaling social capital variables mean to attribute the value of "0" to the case of "no social capital endowment". For groups as "Non co-resident family", "Job" and "Arisan" this means to allocate "0" values to individuals that does not belong to these groups and thus does not enjoy any endowment. For groups as "Household, "Religious group" and "Village" there is no "0" value because all individuals belong to these groups and thus are endowed at least of a minimum amount of social capital<sup>5</sup>.

Group		Obs	Mean	Std. Dev.	Min	Max
SChh	Household	20966	.5396093	.0809724	.1338923	1
SCnc	Non co-resident family	20966	.2450439	.1475116	0	1
Scjo	Job	20966	.2820757	.2118367	0	1
Scar	Arisan	20966	.0536925	.1138427	0	1
Scre	Religious group	20966	.7382564	.1258524	.1899064	1
Scco	Village	20966	.5308303	.1017029	.2313441	1

Table 3.Social capital endowment per group (re-scaled 0-1)

Finally, we aggregated social capital scores over the six groups into a unique index of social capital at the individual level. The final index of social capital is a continuous variable, rescaled between 0 and 1, with a mean of 0.54 and a standard deviation of 0.09. We develop in the next section some descriptive statistics to appreciate its distribution, and those of its dimensions, over Indonesian population.

We grouped individuals in quintiles based on their ranking on the index of social capital. We wanted to observe, for each quintile, the likely profile of individuals, their households and communities where they live. Table 2.4, here below, provides a descriptive answer. Women are

<sup>&</sup>lt;sup>5</sup> We have to underline the fact that in Indonesia agnosticism and atheism are not recognized and consequently all individuals declare to belong to a religious group.

endowed with lower scores of social capital as it is possible to observe both in the total scores and in quintiles distribution. Individuals enjoy higher scores of social capital while they get older and this relationship appears quite linear. On the contrary the education level of individuals seems to draw a U curve, where better educated are endowed with lowest and highest amount of social capital and less educated are represented in the middle of quintile distribution (we remember that "2" score in education correspond to "elementary education" and "3" score to "junior high education"). Finally, we observe that Muslim citizens enjoy higher scores in social capital (data that do not surprise, being Indonesia a largely Muslim country and given the spread and importance of confessional activities in society). We completed the overview of social capital distribution considering also some household and community characteritics. Concerning the household we notice that the distribution of assets is similar to what observed for individual education. Household with highest scores in assets also enjoy the lowest and highest scores in social capital. On the contrary, and similarly to individual's age, the number of children in the household describes some linear increasing relationships. The only variable at the community level, "urban", again draw a U relationship where urban villages prevail in the first and last quintile and rural villages in the central ones.

	Social capit	Social capital				
	1	2 3 4		5	Social capital	
Individual characteristics						
Being a woman (d)	.5991893	.6088719	.4774624	.3882662	.4173623	.4982352
Age (years)	30.61755	35.23015	37.87288	39.19699	41.71047	36.92531
Education (1-5 scale)	3.232713	2.913904	2.851419	2.818984	2.985213	2.96046
Being Muslim (d)	.8257034	.8721679	.9091343	.9420463	.9639876	.9026042
Household characteristics						
Log assets	8.355777	8.125126	8.133892	8.134468	8.401401	8.230139
N. children	1.055556	1.222752	1.284999	1.374911	1.504889	1.28861
Comunity characteristics						
Urban (d)	.5190749	.4800859	.4772239	.4645838	.5218221	.4925594

Table 4. Individual, household and communi	ty characteristics, b	y levels of social capital
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This overview permit to appreciate the differences in the distribution of social capital . To better assess these differences we disaggregate the index into its components and we observe social capital scores through the lenses of a wide range of individual, household and community characteristics. Table 2.5, here below, shows descriptive statistics for each social capital group and for the index score. It is important to underline here that "lowest" or "highest" scores in social capital are not linked necessarily to lowest or highest welfare outcomes or to any other level of individual well-being. At the moment our analysis is limited to the investigation of the distribution of social capital per se.

The index of social capital is lower for women than for men, but here we can from which social capital groups this difference steams from. Women have lower scores in household, job and village groups. On the contrary, they seem to rely more on non-co resident family, religious group and Arisan. Concerning individual's, age we observe an inverted U curve distribution, being seemingly skewed on the right, for the total as well as for each social capital group. With the sole exception of religious group (where social capital scores increase with age) individuals probably cumulate social capital especially during their adult life and then start to be less active, and less integrated in society, while getting older. The scenario is less clear looking to the distribution of social capital through education levels. Although, in general, being less educated is associated with lower levels of social capital, there is not a linear progression toward highest scores of education. This could be influenced by the high percentage of individuals with "elementary education" ("2" label). However religious group experience the opposite trend, with individuals with no education showing the highest scores in social capital and vice versa individuals with university education the lowest (and the distribution seems linear through education levels). The peculiarity of religious group is even more evident considering the distribution of social capital for Muslim citizens. Being Muslim is linked with social capital scores that are slightly better than belonging to other religions. Muslim are even worse off in job and village groups. However, the final index of social capital shows an higher score for Muslims, driven by religious group score, which is clearly more important for citizens belonging to the dominant religion.

Looking to household characteristics the trends in distribution are very different between social capital groups. The distribution of social capital per quintiles of assets is an example of that. In three groups it tends to grow together with higher asset endowment. It is the case for job, Arisan and village group. To be noticed that these are groups where the economic status of the individual plays a role, or in terms of earning a salary (thus having the possibility to buy assets) or in terms of the economic participation to activities or projects (then households with more assets have also more opportunities to participate). In the other groups social capital endowment decreases with the increase of asset endowment or decrease to finally increase only for highest assets values. The distribution of social capital per number of children in the household is less obvious to interpret. Only for some groups we observe a trend. Social capital scores increase together with children number and on the contrary decrease for job and Arisan group. We suggest the idea that for these groups the trend is driven with women scores that have less time to dedicate to work and Arisan when they have children to care about (also considering that Arisan are in majority attended by women).

We finally observe trends in distribution of social capital between urban and rural villages. The total score of the index does not quite make any difference between the two contexts. But observing groups scores it is clear that rural villages are better off in household, non co resident family and religious groups, although urban scores higher for Arisan and village groups. It seems that the quality and quantity of social relationships in the two contexts provide to individuals different endowments of social capital. It is also possible to appreciate the difference in social capital distribution towards IFLS provinces. An element can be particularly underlined at this stage of analysis. It seems that there is a separation between "family" and "community" in the variance of distribution among provinces. It is possible to notice that household and non co resident family do not variety that much (well below 0.08), especially in comparison with other group scores (as religious group that varies approximately of a 0.4).

		Social capital groups						
		Household	Non co-res. family	Job	Arisan	Religious group	Village	Social capital
Individual characteristics								
Being a woman (d)	0	.5541998	.2333048	.3506889	.0274369	.7351578	.5432611	.5554381
	1	.5249156	.2568662	.2129766	.0801341	.741377	.5183116	.5305602
Age (quintiles)	1	.5086927	.1764709	.1524278	.0297376	.7164378	.4998873	.4735342
	2	.5405112	.2727936	.2698841	.0573451	.7303347	.5307334	.5457915
	3	.5756537	.2793833	.3194855	.0649984	.7333242	.5442875	.5720472
	4	.5613882	.2543505	.3643658	.0675264	.7526905	.5501845	.5796316
	5	.5148599	.2544538	.319792	.0519433	.761123	.5327914	.5533733
Education (1-5 scale)	1	.5146581	.2405693	.2824004	.0272392	.7908677	.4901188	.533122
	2	.550314	.2805313	.293721	.0462447	.7778609	.5314259	.5636305
	3	.5344388	.2267481	.2364734	.0531813	.7379212	.4978939	.5196688
	4	.5359046	.2168819	.2597565	.0585682	.6953158	.5414291	.5244866
	5	.5358071	.2281623	.3987095	.0888767	.6715463	.5942729	.5721022
Being Muslim (d)	0	.5364754	.2233178	.3166185	.04782	.5086326	.5328833	.4921909
0 ( )	1	.5399475	.2473883	.2783484	.0543262	.7630341	.5306088	.5485303
Household characteristics								
Log assets (quintiles)	1	.54183	.2724639	.2580641	.033671	.7459325	.522521	.5396283
	2	.5399681	.2577093	.2799086	.0429087	.7559723	.526391	.5460769
	3	.538056	.2445945	.2791475	.0495392	.7571868	.5230647	.5435159
	4	.537207	.2318876	.2935287	.0652065	.7338103	.5353047	.5447331

Table 5. Social capital groups, per individual, household and province characteristics

	5	.5409852	.2184662	.2998321	.0772206	.6982927	.5469271	.541274
N. children	0	.4664583	.2245994	.2896365	.050258	.7358123	.5307682	.5221405
	1	.5241501	.2540697	.2805156	.055541	.7401171	.5311174	.5421346
	2	.5813248	.2553066	.2829322	.0586298	.7395768	.5331001	.5569883
	3	.6344177	.2439348	.2736366	.0490108	.7356993	.525846	.5596415
	4	.687229	.230823	.2716764	.0402297	.7303618	.5270333	.5652794
	5	.7287936	.2266888	.2315088	.0334964	.7527409	.5097062	.5642753
	6	.776249	.2554875	.2297318	.0329355	.6995063	.5535277	.5789343
	7	.8075984	.288584	.2213714	.0164321	.7609922	.5339487	.5974536
Comunity characteristics								
Urban (d)	0	.543335	.2522684	.2839959	.0428898	.763349	.4995938	.5421166
	1	.5357711	.2376012	.2800976	.0648216	.7124058	.5630107	.5439974
Province	1	.5435275	.2463669	.2616911	.0323101	.7900981	.5377607	.5480987
	12	.553752	.2312295	.2840607	.0372453	.7030107	.4738618	.5188742
	13	.5495971	.242487	.2830872	.0435757	.7567886	.5341343	.547625
	16	.5436924	.2492045	.239943	.0455701	.7677657	.5322343	.5405208
	18	.542335	.2765715	.2690001	.0237318	.8086743	.5398645	.5591034
	31	.5230042	.2373508	.2839677	.0652976	.6937807	.5388906	.5323125
	33	.5419695	.2671143	.3065546	.0774055	.7407808	.5621017	.5672278
	34	.5247356	.2519674	.3283248	.1561074	.7060654	.6076955	.5851745
	35	.5296338	.228189	.2853743	.0687947	.7281764	.4851226	.5284489
	51	.5423085	.234342	.3270557	.0256766	.4674393	.5864161	.4961658
	52	.5432269	.261304	.2733886	.0178852	.8448817	.5070834	.5562836
	63	.534615	.2448024	.2746482	.0432063	.7829071	.5082958	.5428082
	73	.5480705	.2118988	.2564319	.0541691	.6817563	.5231916	.5171375
Total		.5396093	.2450439	.2820757	.0536925	.7382564	.5308303	.543043

#### Conclusion

In line with literature we referred to, we support the idea that social capital is multidimensional. Although it has a unique function, coordination among individuals, it also implies a wide range of effects at the individual, group and community levels. For this reason it is necessary to measure social capital and analyze which individuals, in which contexts, may enjoy different endowments and therefore benefit from a wide range of outcomes. The objective of the present study is to propose such a measurement and to observe to which extent social capital can be differently distributed among a population.

This index is a contribution to existing literature in two respects. First, by choosing the structural perspective and proposing a new conceptual framework, we avoid the main criticism directed to social capital empirics: the sole use of proxies supposed to measure a vague ensemble of "trust, civicness and networks". The conceptual framework we referred to describes social capital as those expectations and obligations inherent to the embeddedness of individuals in the social structure. To appreciate this amount of expectations and obligations it is necessary to observe individuals' belongingness to a wide range of formal and informal organizations. We identified, in particular, three main characteristics of individual belongingness to groups -homogeneity, hierarchy and frequency- and we argued that they are the underlying dimensions of social capital. Second, to our knowledge this is the first index that measure social capital at the individual level through such a wide range of groups. This conceptual framework is in fact operationalized measuring the index with the Indonesia Family Life Survey. We built up a multidimensional index of social capital that measures homogeneity, frequency and hierarchy for six groups: household, non co resident family, job, Arisan, religious group and the village.

The distribution of the index and those of its components among Indonesian population is discussed in detail. In particular, distribution is analyzed through the lens of several individual, household and community characteristics (as individual's age, sex, education, religion, household assets, number of children, and urban environment). Social endowment is differently distributed and men, middle-age, Muslims, with good education levels enjoy the highest scores. It is also possible to find even more differences when observing disaggregated components of

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the index. Women, for example, have lower scores in social capital but are better off in some groups, as they rely more on non co resident family and Arisan participation.

Our main interest in measuring an index of social capital at the individual level is to investigate patterns of inequalities among a population and to develop studies on the relationship between social capital and well-being. In particular, a working paper on the relationship between social capital and women empowerment is under preparation. More in general, the index we propose improves the understanding of the extent to which individuals are embedded in their social structure and we hope that this will give new impulse to the investigation of social capital and welfare outcomes

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