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Social capital and neighbourhood cooperation: Implications for development of the urban poor in LDCs

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Abstract

'Neighbourhood cooperation' can be viewed as a key element for livelihood improvement, particularly within areas of urban poverty in Least Developed Countries (LDCs). Such cooperation might be useful for mobilising resources and sharing risks of investing in infrastructures/services and maintaining common goods. This article explores the structural relationships between individual level cooperation and overall social capital, in relation to household and neighbourhood characteristics. These relationships are complex as various factors are interlinked, which influence cooperation at both individual and group levels. Literature on social capital has relied mainly on Western countries; from this starting point, this article analyses the relationships among aspects of social capital. Analytical models are based on Durlauf's approach of measuring 'social capital' and Manski's perspective on social interaction, which are tested on 1800 households' data across three locations in Bangladesh. The estimates reveal that individual level cooperation can be influenced directly by households' socio economic circumstances and indirectly through neighbourhood mediation, while questioning some theoretical generalisations about neighbourhood cooperation. The findings contribute to the literature on neighbourhood effects by revealing that: (a) the relationship between one's socio economic status and one's social capital is less clear than expected; and (b) extreme poverty and proximity of living in a neighbourhood can promote norms of trust and cooperation.

Keywords

Bangladesh, economic development, neighbourhood cooperation, social capital, urban poor

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摘要

“街区合作”可被视为改善生计的关键因素，特别是在最不发达国家（LDC）的城市贫困地区。这种合作可能有助于调动资源、分担基础设施/服务投资风险、和维护公共产品。本文探讨了个人层面合作与整体社会资本之间在家庭和社区特征方面的结构关系。这些关系很复杂，因为各种因素是相互关联的，这会影响个人和团体层面的合作。关于社会资本的文献主要依赖西方国家；以此为出发点，本文分析了社会资本各方面之间的关系。分析模型基于杜劳夫（Durlauf）测量“社会资本”的方法和马斯基（Manski）关于社会互动的观点，这些方法在孟加拉国三个地点的1800户家庭数据中进行了测试。这些研究一方面表明，个人层面的合作可能会受到家庭社会经济环境的直接影响，也可能以街区为中介被间接影响，另一方面，研究对一些关于街区合作的理论概括提出了质疑。研究结果通过揭示以下方面对关于街区效应的文献做出贡献：（a）一个人的社会经济地位与一个人的社会资本之间的关系不如预期的明显；（b）当生活在同一个街区中时，极端贫困和居住的接近可以提高信任与合作水平。

关键词

孟加拉国、经济发展、街区合作、社会资本、城市贫民

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Introduction

The literature on social capital crosses disciplinary boundaries, and many of the studies suggest its potential applications in livelihood-related problems. A general assumption in the literature is that social ties promote social virtues such as trust and cooperation that might address some of the livelihood problems faced. However, the theories are largely placed in the context of developed countries (Coleman, 1988; Putnam, 1995), and remain outside the proximate domain of developing countries. Some literature, including the work of Harris (2001) and Grootaert and Van Bastelaer (2002), is relevant but represents specific ideological positions particularly popular in political science. Nonetheless, the paper by Pargal et al. (2002) is to some extent contextually relevant, and the work of Serra (2001) and Chopra (2002) on social capital in India focuses on measurement and effects at the regional level. Blomkvist and Swain (2001) focus on the effect of social capital on the functioning of democracy and in promoting social movements. Dowla (2006) focuses on the role of the Grameen Bank in building social capital in Bangladesh. None of these, however, have studied social capital at the neighbourhood level.

This study explores individual level cooperation in a wider context of social capital within poor neighbourhoods by investigating how the *expected level of cooperation*[1] at the individual level is influenced by contextual factors surrounding social capital, assuming that individual cooperation varies across households and neighbourhoods. This question is relevant and addresses a gap in the literature, while drawing lessons for neighbourhood development. We frame structural models, which are tested on 1800 households' data, to explore relationships between individual cooperation and variables relating to social capital. The estimates suggest that significant cooperation exists within these poor neighbourhoods that has potential implications for neighbourhood interventions. The findings contribute to the literature on neighbourhood effects (Hedman et al., 2015;

Van Ham et al., 2012) as well as international development.

The article proceeds with a brief review of literature on social capital. It then describes the scope and methodology of the field survey and variables derived. This section is followed by an analytical section and then presentation and discussion of results in terms of key relationships among variables. The conclusions draw out the significance and wider implication of the findings for neighbourhood development, while noting some limitations and future research directions.

Social capital in theory

Bourdieu (1986: 21) describes social capital as the 'circumstances in which individuals can use membership in groups and networks to secure benefits'. Important to Bourdieu's understanding of social capital is that the extent of social capital generated depends on features of the social network and the volume of social capital which already exists in it. Those with higher quantities of economic capital are in a better position to generate higher social capital. Depending on the social classes involved, individuals' social networks may be formed at different levels. The networks formed through frequent interaction within the same social group are known as bonding networks (Adler and Kwon, 2002; Ferlander, 2007). However, as 'bridging' networks are formed between more heterogeneous groups of people, the connections are more likely to be fragile and loose (Schuller et al., 2000). They are formed and reinforced by frequent *interactions*,[2] and assist the process of 'getting by' on a daily basis (Stone et al., 2003). Depending on social class, the number (*volume*) of social networks varies and there is a general assumption that a higher social network structure yields higher cooperation (Lin, 2001) (*Assumption 1*).

The literature on social capital assumes 'cooperation' as a tangible form of outcome, with potential to mobilise economic resources for an individual or neighbourhood (group) in a society. On the other hand, social capital is manifested by network structure, with shared norms and values which potentially yield social virtues such as trust and cooperation (Australian Bureau of Statistics, 2006; Bourdieu, 1986; Coleman, 1988; Fukuyama, 1996; Putnam, 1995). Such virtues have potential implications in areas such as health, education, employment and family wellbeing, thus fostering community (Bouma et al., 2008; Knack and Keefer, 1997; Whiteley, 2000; Woolcock and Narayan, 2000; World Bank, 2001). Cooperation facilitates various social exchanges that could yield economic or other benefits. Cooperation in financial exchanges, such as lending money, is one kind of social benefit which is evident in empirical studies (Bouma et al., 2008; DeSteno et al., 2010; Jackson et al., 2012).

Again, an association between 'trust' and 'cooperation' is established in the literature of social science. According to Fukuyama (1996: 26), 'Trust is the expectation that arises within a community of regular, honest, and cooperative behaviour, based on commonly shared norms, on the part of other members of that community'.

Trust is abstract, a latent psychological phenomenon, a combination of feeling and judgement, which is more or less positive. In contrast, cooperation is more of a behavioural action. Implicitly, engaging in cooperation involves give-and-take, and is an act of putting trust into practice. Thus, financial cooperation is facilitated or stimulated by implicit or explicit trust (Cheshire et al., 2010; Deutsch, 1962). Moreover, trust within a group is developed through multiple social exchanges as the subject changes behaviour, informed by others, and later acts accordingly (e.g.

cooperation or defection). Cooperation occurs under the possibility of continuation and the payoff from cooperation (Bo and Frechette, 2011). Financial cooperation requires a certain level of trust among networks (Fukuyama, 1996; Putnam, 1995). Such trust is based on past experiences of reciprocal financial transactions and other socioeconomic factors, but may be reinforced by socio-psychological sanctions, such as shaming, shunning or ostracisation of those who break trust within the group. We assume that trust is an explanatory variable factor in understanding cooperation (*Assumption 2*).

Cooperative behaviour may also be driven by goals and expectations, particularly within a context where trust may be one of many contextual moderators affecting cooperation (Bogaert et al., 2008). Higher trust is expected within a group that shares similar socioeconomic characteristics (Bouma et al., 2008). Carpenter et al. (2004) observed high levels of financial contribution among participants in a study on voluntary cooperation among Thai and Vietnamese poor in slums. They argued that this cooperation is subject to socio-cultural factors.

Social capital is generally seen as contingent on 'social class' or socioeconomic status (Bourdieu, 1986; Coleman, 1988; Lin, 2001). Such a proposition implies that socioeconomic factors such as income, education and residential stability (e.g. years of living, risk of eviction) contribute to access to social opportunities and to the formation of social capital. Those factors facilitate a particular condition for the access to social opportunities or deprivation (Sen, 2003). The differences in status and culture affect individual as well as group cooperation (Akerlof, 1997), so are important to an understanding of cooperation. The socioeconomic opportunities and challenges that facilitate individual cooperation provide a basis for understanding of the formation of social capital (*Assumption 3*) (Guiso et al., 2006).

The socio economic and interaction culture of a group is subject to variation and may cross the social and/or spatial boundaries, and so affects social capital at the individual and group levels (Blalock, 1984; Buck, 2001; Friedrichs et al., 2010; Galster, 2007; Manley et al., 2013; Overman, 2002; Sampson et al., 2002). The process of generating social capital (via networks and interactions) thus is contingent on social context and subject to endogenous social effects (Manski, 1993). This means that individual characteristics shape group norms, whereas groups' norms are continuously moderated by individual behaviours. These features – contingency of the context and continuous moderation – are necessary elements when analysing individual behavioural outcomes in relation to social capital (Durlauf, 2002; Galster, 2003).

Group level variables, such as trust or expectations of cooperation, are influenced by neighbourhood characteristics *as well as* individuals' characteristics. Such relationships entail that there is a potential *endogeneity* issue in the analysis of individual level cooperation. The endogeneity relevant to social capital can be dealt with in a Structural Equation Model (SEM), which is discussed at length by Durlauf (2002). It might be argued in the analysis that there is a degree of spurious correlation involved in having an individual 'cooperation' regressed on a group 'cooperation' or 'trust' variable. However, some of the group level variables can be an average expectation of others, which is common across members of a group living in a shared neighbourhood (*Assumption 4*). Such structural issues of relationships surrounding cooperation are rather fundamental to understanding neighbourhood cooperation. Such understanding is critical for the applicability of social capital to Least Developed Countries (LDCs).

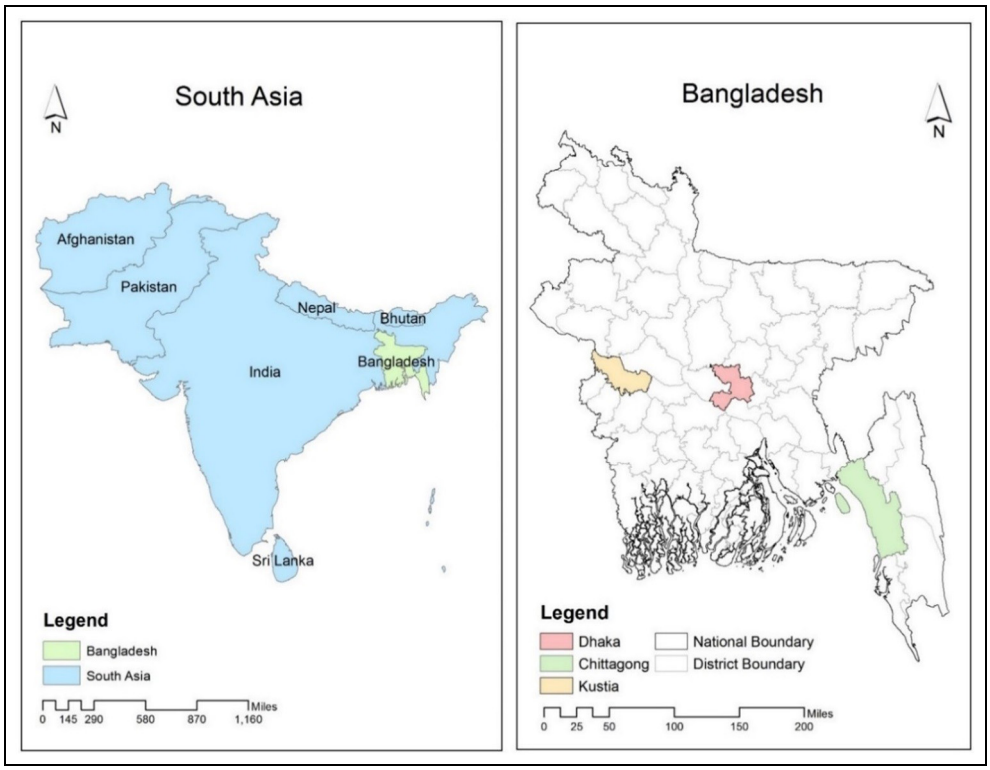

Figure 1. Location map of the study areas.
Source: Authors' own.

Research methodology

Survey strategy

In order to explore and develop propositions of the kind developed from the literature, it is necessary to establish an empirical base utilising social surveys with specific sets of questions addressing networks, trust and cooperation in an appropriate range of urban/neighbourhood contexts. This study is based on a cross-sectional household survey designed to collect data on different aspects of the social capital of the urban poor in Bangladesh. Approximately 1800 households from 18 clusters across Dhaka, Chittagong and Kushtia were sampled[3] (the location of the study areas is shown in Figure 1) and the households were selected for interview in a two-stage sample design process.

In reference to previous studies (Center for Urban Studies, 2006) which identified the poor/informal areas, 18 primary sampling units (PSUs) were selected from three locations representing different social and economic primacy (i.e. Dhaka – the capital city; Chittagong – a metropolitan city; and Kushtia – a secondary town). Then, 100 households were selected from each of the 18 PSUs, which included 11 'poor' and seven 'comparator' neighbourhoods. The poor neighbourhoods are essentially informal housing areas (slums) which largely lack proper utility services, and the land ownership is mixed (e.g. largely public but extended to private) but is typically

controlled by the local power-brokers, who rent informal housing to the urban poor.

The comparator neighbourhoods were selected from slightly better off areas nearby, where the next stage of mobility of the urban poor might have taken place. The purpose of selecting comparator neighbourhoods was to provide a comparative benchmark with the poor neighbourhoods. Such distinctions might be expected in terms of the legal right to land, the availability of urban services (e.g. electricity, gas, piped water, schools) and the somewhat higher income of the residents. Such conditions offer better livelihood opportunities to the residents compared with those in poor neighbourhoods. The comparator samples were random selections of households in areas which were carefully selected to have those characteristics.

The Center for Urban Studies study has provided a list of PSUs throughout Dhaka and Chittagong, each containing varying numbers of households in the cluster (Center for Urban Studies, 1996, 2006). This study has considered those PSUs as having approximately 1000 households or more. No such sampling frame for the selection of PSUs was available from the secondary town, Kushtia. The list of the Coalition for the Urban Poor (CUP), a confederation of all NGOs working for the urban poor, has provided a basis for the selection of the PSUs in Kushtia. Eleven poor PSUs were selected randomly from the lists of 141 clusters from three locations and seven comparator PSUs from immediately adjacent, moderately higher-income group neighbourhoods, based on contextual knowledge. The number of Dhaka's PSUs were the highest (five poor and three comparator PSUs, compared with three poor and two comparator PSUs in each of other two cities) because Dhaka alone accommodates approximately 55% of the total urban poor in the country.

There were 1800 households randomly selected, which yielded 100 households per PSU from both owner-occupiers and tenants. Only one eligible representative from each sample household was interviewed. If an indexed household representative was not available for the interview, the next preselected sample household became involved. Field investigators visited the sample households physically to conduct the face-to-face interviews; the overall rate of response was more than 90% of the sample.[4]

Study population

The study locations of Dhaka, Chittagong and Kushtia in Bangladesh represent respectively the capital city, a metropolitan city and a secondary town. The population samples in each city comprise two groups – the 'poor' and the 'comparator' – who live in slums and in an adjacent/immediate higher economic neighbourhood, respectively.

The poor. The typical poor household comprises four members on average, which is similar to the national average. Ninety per cent of the household heads are illiterate or have a primary level education up to level five (class I to class V). Mean monthly incomes of households vary between £90 and £108 across the three locations, which is clearly lower than the national average (Bangladesh Bureau of Statistics, 2010: 201–202),[5] and most of the households lack assets. Nonetheless, they have small savings, ranging from £20 in Dhaka to £70 in Kushtia. These savings are mainly with the microfinance institutions (MFIs). The monthly expenditure is £166 on average (which is reportedly higher than the monthly incomes), with little variation between the three locations. The main expenses are: food £60, rent £20 and education £5. Such a gap between expenditure and income inflicts an outstanding debt – varying between £250 in Chittagong and £296 in Kushtia. This situation strains the group living in slums.

The comparator. The education level of this group is noticeably higher compared with that of the poor. The mean incomes vary between £150 and £170, which is higher than those of the poor. The proportion of households with assets is also higher, and the average savings of the group vary from £150 in Dhaka to £300 in Kushtia. Monthly expenditure is £235, spent mainly on food £75, rent £40 and children's education £15. The average outstanding debt varies between £230 in Kushtia and £450 in Dhaka.

Variables to capture the key dimensions of social capital

Our key subject of interest is 'expected degree of cooperation'.[6] The respondents were asked to state whether they had borrowed money from a neighbour during the past year,[7] and if they had, what the *amount* had been. The follow-up question, if they had borrowed, was what was the *level (significance) of cooperation* from that amount? It is worth noting that the subjective values of an amount may vary across individuals. The answer represents a prospective level of individual cooperation. The responses were recorded on a 7-point Likert scale; a higher score represents a higher level of cooperation.

We asked the respondents about the amount of money borrowed in the past. This is an explanatory variable for measuring expectations of present or future cooperation based on past experience. Further, we asked about the level of trust in the particular network. Equally, the 'amount' of financial cooperation received in the past is an indicator of the extent of trust.

There is a distinction between variables at two levels. Individual level variables represent the household level characteristics, whereas group level variables represent the neighbourhood/group characteristics. The 'group' is defined here as respondents who live in the same sub-neighbourhood area based on map and physical survey of areas, having a social and spatial boundary. Table 1 represents the list of specific variables used in the analytic models. The descriptions of variables in the table explain what we mean by some of the variables not explained above.

Analytical framework

As argued in *Assumption 4* – individual behaviour as a function of only exogenous factors – analysing individuals as members of a neighbourhood limits the perspective in understanding individual cooperation in a broader structural context (Manski, 1993, 2000; Sampson et al., 2002). Such argument implies that individuals' cooperation is subject to the neighbourhood and its residents' characteristics (Weerdt, 2002). The group's characterstics, such as its social structure or general expectation of trust and cooperation from others, are constructed and reconstructed through a long social process in which members and the group as a whole define and redefine its characteristics. These group characteristics are 'endogenous' factors of variables characterising the members, and such factors influence individual cooperation (Bauder, 2002; Cialdini and Trost, 1998; Goux and Maurin, 2007; Hollander, 1964; Maxwell, 2002; Reno et al., 1993). This endogeneity issue surrounding the social capital leads us to follow the structural model, SEM.

Three structural or contextual effects are discussed in the literature of social interaction in relation to effects of context on individual behaviour (Durlauf, 2002; Glaeser et al., 2002; Manski, 1993). *First*, the effects of endogenous characteristics of members, which differentiate individual from group yet are influenced or modified by the group. For example, individuals' non-cooperative behaviour, which is subject to varying individual factors such as income and education,

Table 1. Variable names used in the models and their descriptions.

Variable names (normalised)		**Description of the variables**
zlogincom	:	Household's monthly income (in log). This is total income of all working members living in a single family.
zfreq_nei	:	Frequency of (daily) contact with the neighbour. The data were collected on a 6-point Likert scale.
zformal_edu1	:	Formal education of the household head. This is catagorised data, collected on a 5-point Likert scale.
zlev_coop_neigh	:	Expected level of cooperation at the individual level. Respondents reflected on a 7-point Likert scale based on their financial transactions in the last year. See the discussion above.
znneigh	:	Number (volume) of neighbours in networks with the household.
zcoop	:	Expectation of group/neighbourhood cooperation. This is based on cooperation at the individual level.
ztrust	:	Expectation of group/neighbourhood trust. Similar to group cooperation, this is based on trust at the individual level.
zftrust_nei	:	Individual level trust in neighbour. The respondents were asked to rank (1–10) their trust in their neighbour (among 10 possible network types).
zliv_period	:	Residency period of household in the current neighbourhood.
zr_eviction	:	Household's subjective risk of eviction from the residence, which was collected on a 6-point Likert scale (where 6 represents the highest possibility). Households living in the slums, particularly those on public land, are exposed to the constant threat of eviction without prior notice.
zr_incomloss	:	Household's subjective risk of income loss. This may be caused by no regular source of income or sickness of income earner(s). It was collected on a 6-point Likert scale (where 6 represents the highest possibility).
zlogasset	:	Household's total assets value (in log). This represents the aggregate value of the households' savings/land assets/furniture/gold ornaments.
zctype	:	Type of neighbourhood: poor neighbourhood (= 1) and comparator neighbourhood (= 0). See above for details about the two types of study neighbourhood.
zmfi_mem	:	Household's membership of the microfinance institute (MFI). We asked whether the respondents are MFI members (= 1) or not (= 0).
zcity_cat	:	City category. We collected data from the three locations – Dhaka (= 1), Chittagong (= 2) and Kushtia (= 3) – which have different socio economic characteristics, as described above.
Zlandown	:	Land ownership of the household in the neighbourhood. This can be public (= 1) or private (= 2).
Zlognbexp	:	Neighbourhood expenses (in log). Neighbourhood expenditures vary across city, neighbourhood land-ownership pattern and availability of urban services in the neighbourhood. These factors influence the rent and utility services costs. Also see above.
Zage	:	Age of household head (in years).

Notes: Several scales were used for collecting data on the above variables. However, now they are standardised z-scores rather than in original units and all variables come with the prefix 'z'. Higher positive scores indicate positive meanings, except for neighbourhood type, MFI (Microfinance Institution) membership, city category and land ownership.

but is likely to be influenced by other members of the group. *Secondly*, the effects of exogenous group level factors which influence an individual of a particular group. *Third*, there are effects whereby members within a group tend to behave in similar ways because of having shared characteristics.

The 'neighbourhood' can be defined by the social boundary of the groups; however, it is not necessarily limited by the physical boundary (Blalock, 1984; Galster, 2001). So, the context attributed to broader spatial characteristics, in which a particular neighbourhood is set, can be extended to the city, regional or even national level. According to Manski (1993), the effects of such spatial characteristics are exogenous and are different from those brought in by the residents.

The structural analysis presupposes that the variables possess 'conditionally exchangeable errors', as they arise from the indistinguished error structure, or there is no clear way of separating variables (Durlauf, 2002). That means that the exchangeability of errors of one equation affects the vector of parameters in other equations in the model. In our model, the exchangeability condition is necessary given the particular vagueness of the definition of social capital. This means that the instruments that account for the issues of 'endogeneity' are not guaranteed, and nor can the unobserved heterogeneity be identified with confidence. Such a limitation would reduce the power of interpreting parameters, and provides no guarantee of causality. However, it does provide a standard of comparable parameters in the model.

The identification of the model is another issue of concern, when estimating relationships among aspects of social capital. Such a concern arises from interlinkages among variables – what are causes and what are outcomes – at individual and group levels, which brings complexity in identifying individual and neighbourhood factors influencing the individual behaviour (Andersson, 2001; Brock and Durlauf, 2001; Durlauf, 2002; Manski, 1993). Under such complexity, we assume that individual cooperation is a function of household characteristics and neighbourhood characteristics that both *directly* and *indirectly* influence the outcome. Some of these characteristics (at both levels) are endogenous factors of members, whereas others are not. According to Durlauf (2002), social capital can be estimated in two models; detailed specifications of the two models are presented below.

Model 1: Social capital is predetermined

Individual cooperation (*zlev_coop_neigh*) can be estimated based on the presumption that social capital is predetermined. Under this assumption, individual and neighbourhood characteristics provide a basis for measuring social capital. There is no linear dependency among characteristics[8] and the errors in the estimation are uncorrelated. Identification of such a model can be achieved under the assumption that individual and group level variables are independent, and that there is at least one variable of each endogenous function whose characteristic is different from others (see the discussion in Durlauf, 2002).

Suppose an individual's willingness to cooperate depends upon both individual and neighbourhood characteristics. Individual characteristics may include variables such as income (*zlogincom*), education (*zformal_edu1*), network volume (*zneigh*) and frequency of contact (*zfreq_nei*), which directly or indirectly influence an individual's cooperativeness. Neighbourhood characteristics may include the neighbourhood type (*ztype*), group membership (*zmfi_mem*), city category (*zcity_cat*), residency status (*zlandown*) or rent and utility expenditures (*zlogexp*) (rent and utility costs depend upon neighbourhood characteristics – whether living on

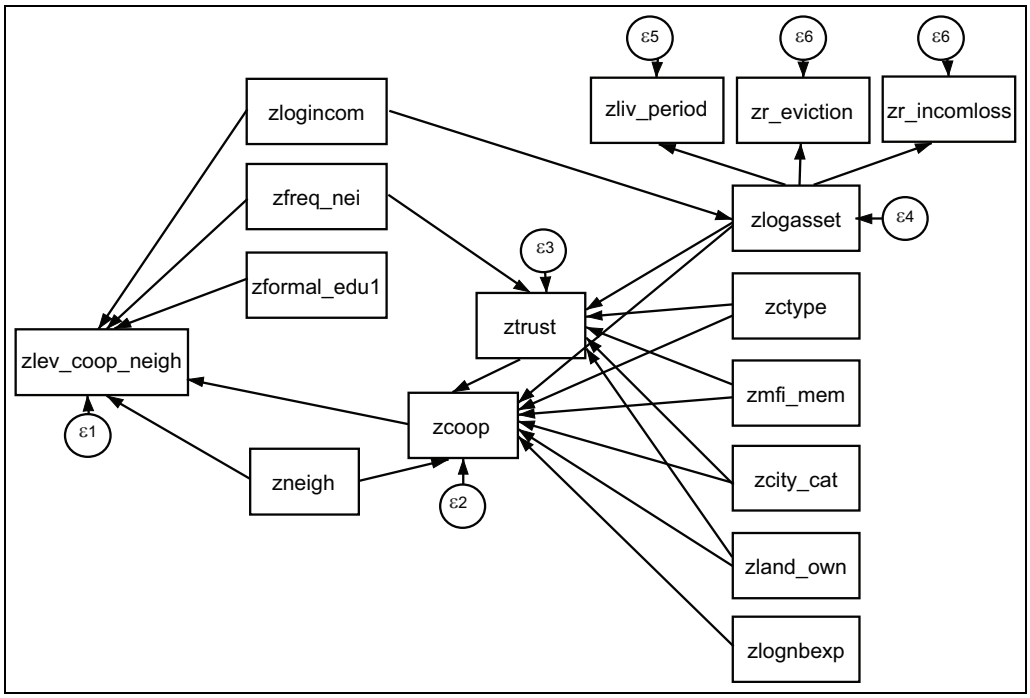

Figure 2. Conceptualised structural relationships in the case of predetermined social capital (Model 1).
Notes: ε_1 represents unexplained factors in the model.
Source: Authors' own.

public or private land, if any utility is present). Depending on the question at hand, some can be either exogenous or endogenous. Some neighbourhood characteristics are endogenous to the neighbourhood, but exogenous to the individual, such as group expectations about cooperation (*zcoop*) or trust (*ztrust*). (See above for a discussion of plausible relationships and a description of the variables).

Individual characteristics that influence group norms may have a more distant influence upon individual trust and cooperation. Such variables may include one's perception of social risks (*zr_incomloss*, *zr_eviction*), and residency period (*zliv_period*) may define the social structure of a particular group (e.g. social vulnerability), which may influence the group's trust/cooperation, and so may distantly affect individual behaviour. Uncertainty about income, and the possibility of eviction, might indicate a group's social vulnerability and demonstrate its potential to avail itself of social opportunities. Access to social opportunities such as income, education and healthcare facilitate access to social capital, and this is likely to influence both individual and group behaviour. A possible pathway of structural relationships of (predetermined) social capital can be seen in Figure 2.

Model 2: Social capital is co-determined

Alternatively, individual cooperation may be assumed to be co-determined with individul trust (*zftrust_nei*) in neighbours. In such a situation, individual cooperation and

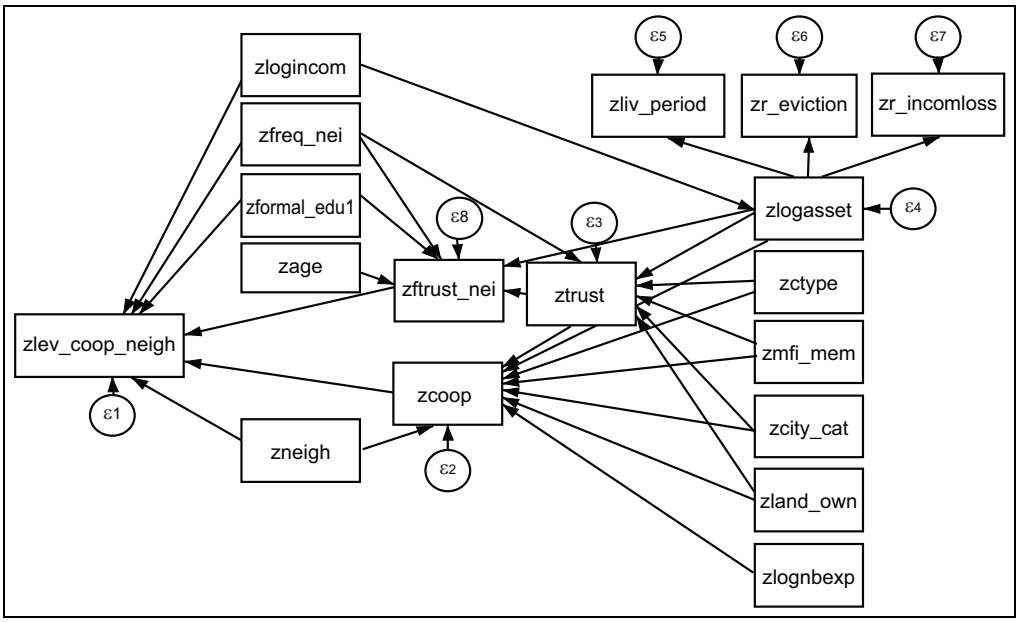

Figure 3. Conceptualised structural relationships in the case of co-determined social capital (Model 2).
Notes: ε_i represents unexplained factors in the model.
Source: Authors' own.

individual trust are subject to simultaneous functions of each other, reinforced by the group's average expectation of trust and cooperation (Durlauf, 2002; Glaeser et al., 2002; Manski, 1993). This assumes that any effort an individual might make towards cooperation relies on the perception of trust in a particular neighbour. The identification of such a model can be achieved in a similar way as discussed for Model 1, that at least three individual level characteristics are not elements of neighbourhood/group level variables which provide instruments for solving the system of equations.

Individual trust, which directly affects one's cooperation, is subject to characteristics of household and neighbourhood/group, while group cooperation (*zcoop*) is influenced by group trust (*ztrust*) and other group factors such as average assets level (*zlogasset*), neighbourhood-type (*zctype*), group membership (*zmfi_mem*), city category (*zcity_cat*), land ownership (*zland_own*) and neighbourhood expenses, and also by individual households' network volume (*zneigh*). Again, group trust may be related to factors at the individual level, characteristics such as frequency of contact (*zfreq_neigh*) and assets (*zlogasset*), and group level factors such as neighbourhood type, group membership, city category and land ownership. A possible pathway of such relationships (co-determined) is demonstrated in Figure 3.

The findings

The estimations are based on Generalised Structural Equation Modelling (GSEM) using STATA software, and the reported estimates are at a 95% level of confidence. The estimations are based on the

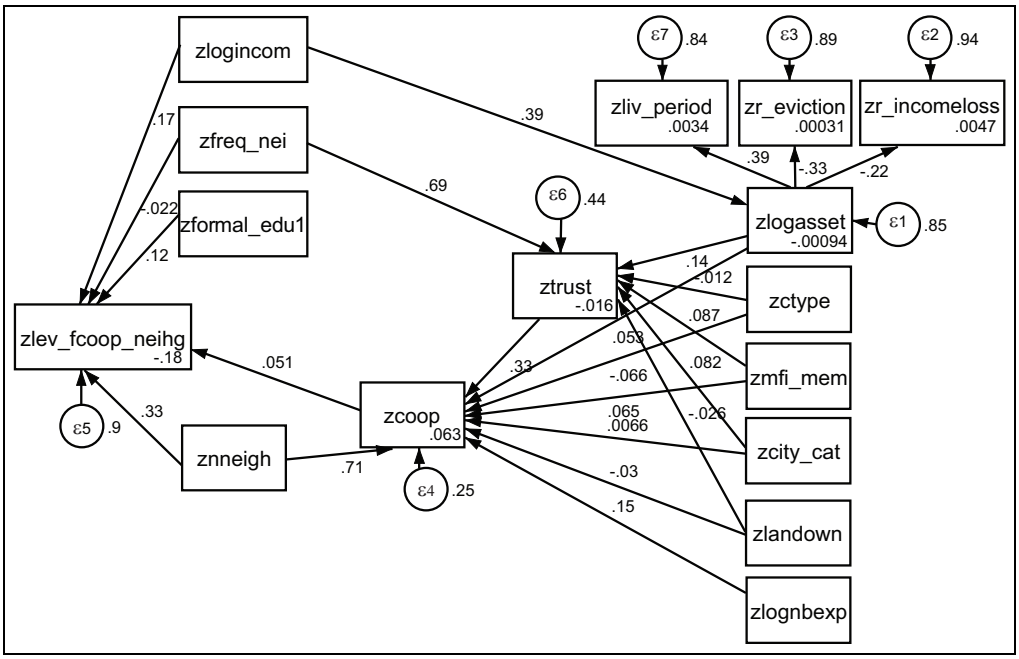

Figure 4. Estimated effects where social capital is predetermined for the case of neighbours in financial cooperation (Model 1).

Notes: Generalised structural equation model; number of obs. = 1760. The estimates are at a 95% level of confidence.

Source: Authors' own.

specifications of two models and applied to the primary data to predict individuals' expected level of *financial* cooperation from neighbours. The estimates explore the relationships between individuals' 'expected degree of cooperation' and the characteristics of the individual households and neighbourhood. As the models are designed, the parameters explore mainly three effects – direct, indirect and correlated (distant) effects. The underlying relationships of the structural models can be interpreted in terms of causal effects since the paths contain no cycles. It might be argued that there is also an issue of complex correlation (see above), linked to 'identification' and 'exchangeability' problems (see above), which enforces restrictions on causal interpretation. The estimates suggest that some relationships in the predicted models are statistically strong whereas some are weak. We present weak relationships as they affect other relationships in the models. (Models with only the significant relationships can be found in Figure 4).

Direct effects

The *direct* relationships between network with neighbours (*znneigh*), income (*zlogincom*) and formal education (*formal_edu1*) and the individual's cooperation (*zlev_fcoop_neigh*) are significant. According to estimates of Model 1, for one standard deviation increase of network volume, income or education, the individual's expected level of cooperation increases by 0.33, 0.17 and 0.12 standard deviations

respectively, *ceteris paribus*. Similarly, the corresponding estimates are 0.31, 0.17 and 0.09 in Model 2. Such a similarity indicates some robustness of relationship between the outcome and explanatory variables. Other estimates, including those for expectation of group cooperation, which was predicted to directly influence individual cooperation, are not statistically significant in either model. However, indirect relationships involving variables such as network volume or expectation on group trust (*ztrust*), which are directly or indirectly linked to individual cooperation, appear to be significant. Moreover, individual cooperation in relation to individual trust is insignificant (Model 2). These findings imply that individual cooperation is less reliant on interpersonal trust, but rather depends on embedded trust and cooperation in a particular context.

Indirect effects

Some relationships were expected to be moderated by group characteristics, such as neighbourhood's cooperation and trust or amount of average assets level (*zlogasset*). Variables including neighbourhood type, MFI membership, neighbourhood expenses (*zlognbexp*) and number of networks were expected to *indirectly* influence individual cooperation, through a group's trust and cooperation. The corresponding relationship of each of these variables with a group's cooperation is significant but varied over a wide range (compare Models 1 and 2). The effect of group trust on individual cooperation (Model 1) is a joint probability (0.33 x 0.71 x 0.33), whereas the effect of the number of neighbours is (0.33 x 0.71).[9] Other characteristics at the individual level, including frequency of contact (*zfreq_nei*), which have strong relationships with a group's trust and so with its cooperation, are more likely to influence individual cooperation via a group. The group's trust is assumed to influence individual behavioural outcome.[10] The variables affecting group trust, such as frequency of contact, assets, institutional membership and city category, are significant in both models, with the highest value (0.69) being for the frequency of contact, which is constant for two models (pathway *zfreq_nei* → *ztrust*).

Correlated effects

According to the estimates, the relationships between an individual's perception of subjective risks (*zr_eviction* and *zr_incomeloss*), residency period (*zliv_period*), income (*zlogincom*) and household assets (*zlogasset*) are significant and constant across both models. According to the estimates, the effects of income and residency period are equal and high at 0.39. Such effects corresponding to risk of eviction and income uncertainty are −0.33 and −22. That means that one standard deviation increase of household asset reduces the risk of eviction possibility and income uncertainty by 0.33 and 0.22 standard deviation, respectively.

Discussion

Having a higher volume of neighbours in contact increases individual level cooperation, which has impacts on group or neighbourhood cooperation. The strength of network is facilitated by interaction, which substantially promotes 'trust' at the aggregate (group or neighbourhood) level (see *zfreq_trust* → *ztrust*), and so too cooperation at the individual level. This trust at the neighbourhood level is significant and potentially influences (or balances) members' trust (or distrust), as evidenced by the insignificant effect of interpersonal trust on individual cooperation. Such findings are in line with theoretical expectations (see Assumptions 1 and 2), and suggest that intense networks among neighbours support neighbourhood cooperation. Such cooperation potential

might have further implications for enabling greater use of cooperative approaches in microfinance, housing upgrading, infrastructure/service enhancement, small enterprises and economic resilience, in the absence of conventional collateral for minimising risks. The substantial trust and cooperation evidenced in the study neighbourhoods might act as a positive asset, as risks are shared in order to gain from and maintain the economic viability of these interventions (Dowla, 2006).

The neighbourhood provides a broader context of cooperation to individuals, and crucially affects collective cooperation and trust. Such neighbourhood virtues are critical when seeking to promote or understand well-being (Bailey et al., 2015; Van Ham and Manley, 2015), and vary across neighbourhood boundaries. In the context of the study neighbourhoods, the extent of cooperation is perhaps distinct; the interdependent livelihoods, as well as their extreme physical proximity, both require and reinforce trust, which later facilitates cooperation. Such a distinctive feature of neighbourhood cooperation could support the theoretical proposition of higher cooperation within homogeneous groups (*Assumption 3*). It could also substantiate the contingent or multi-variate proposition – that economic homogeneity at the bottom of the socio economic scale supports cooperation, whereas it might have less impact further up the scale.

Socioeconomic factors – residency period, income uncertainty and eviction possibility – that might demonstrate a group's social position/vulnerability have no immediate effects on interpersonal cooperation. But they are directly associated with households' assets (strongly linked to households' income), which has a significant influence on the group cooperation, thereby more distantly affecting individual cooperation. Those factors potentially characterise a group and influence the group's behavioural norms, which may directly and/or indirectly influence individual behaviour. A positive and significant relationship between assets and residency period might also indicate that a long residency is an important factor for reducing social risks and generating the overall social capital of a group.

All of these findings perhaps confirm the structural embeddedness of social capital. They imply the existence of complex relationships among aspects of social capital, in which some factors are deeply rooted and influence individual cooperation indirectly as well as directly. Some relationships, particularly between group cooperation and individual cooperation, are not as significant as predicted from the literature; however, we cannot rule out the possibility that they are linked with variables that can influence the outcome more remotely, and follow different pathways of influence. Such structural relationships are subtle, latent and disguised under possible unobserved variables.

Implications and conclusion

This article has explored different ways of conceiving and modelling social capital in the context of the urban poor neighbourhood in Bangladesh. Two models present consistency in relationships between variables as the corresponding estimates are very similar, though Model 2 has more explanatory capacity (see Figure 5). Taking this on board, any presumption in measurement as to whether social capital is *predetermined (Model 1)* or *codetermined (Model 2)* is perhaps less important in understanding individual level cooperation in a neighbourhood context. It is rather more important to understand the neighbourhood's socioeconomic composition and the pathways through which various factors affect its norms of social behaviour – trust and cooperation. Since individual and neighbourhood level factors collectively construct the micro social context for such behaviour, measures of

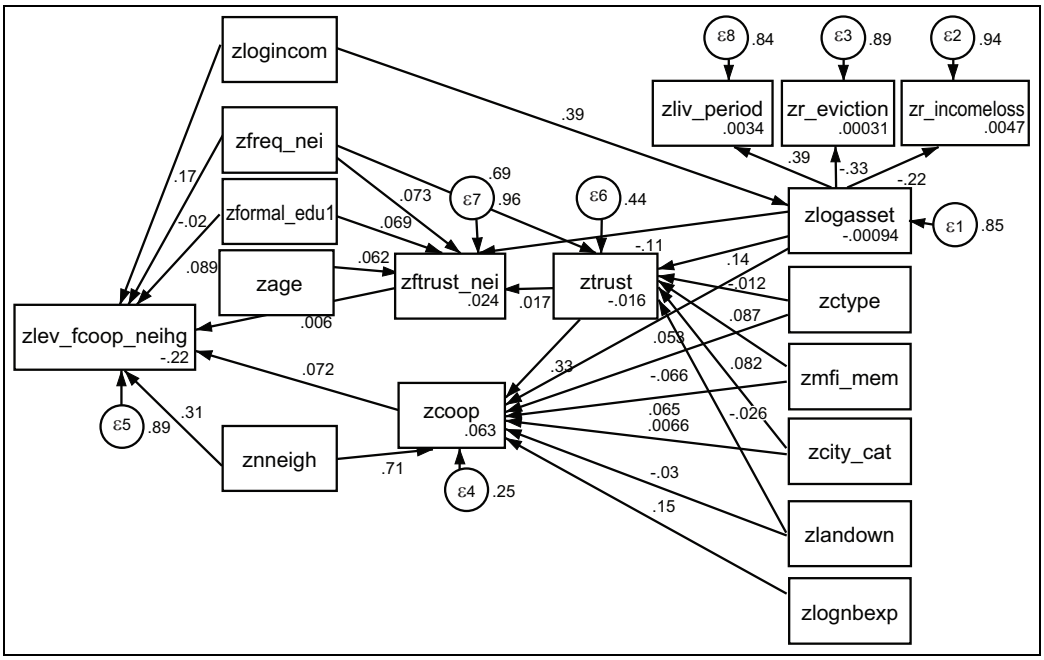

Figure 5. Estimated effects where social capital is co-determined for the case of neighbours in financial cooperation (Model 2).

Notes: Generalised structural equation model; number of obs. = 1760. The estimates are at a 95% level of confidence.

Source: Authors' own.

individuals' cooperation are subject to various observed *as well as* latent factors. Individual cooperation is substantially determined by the neighbourhood's norms and cultures of cooperation. These findings contribute to a broader understanding of how the socioeconomic structure of households could affect the social capital of the individual poor, and how individual level factors could affect the aggregate cooperative behaviour.

Having said that, two important inferences can be drawn on the relationships among aspects of social capital. *First*, neighbourhoods' norms and cultures of cooperation are constructed on a general expectation of trust among neighbours (though interpersonal trust seems to be less important in this particular context). This finding could demonstrate a strong link between neighbourhood level trust and individual cooperative behaviour (research question 2). *Second*, more connections and frequent interactions with neighbours matter in individual level cooperation regardless of social context, although these are also subject to residency period and education of the household concerned. More connections mean a higher expectation of cooperation at both the individual and neighbourhood levels. Again, frequent interaction means a higher expectation of cooperation at the individual level and higher cooperation at the neighbourhood level (via group trust).

Generally speaking, the findings substantiate the claims made by Bogaert et al. (2008) and Bouma et al. (2008) that the vulnerable group, particularly those living in the urban slums, is more likely to cooperate. This implies that livelihood in poor neighbourhoods relies on mutual trust and cooperation (see Bashar and Rashid, 2014). The

effectiveness of collective cooperation thus relies largely on the neighbourhood norms, and the longer-term residency period or security of tenure seems crucial to supporting cooperative norms. Such security reduces social risks of eviction and income loss, and facilitates strong social capital, which is important for resolving some of the neighbourhood problems of cities in LDCs (Bashar, 2017), particularly slum upgrading and infrastructure development (Bashar, 2017; Moser, 1998; Tipple, 1996).

This study offers some evidence of collective cooperation within poor neighbourhoods, which is important for neighbourhood intervention for sustainable development, rather than reliance purely on household interventions (Forrest and Kearns, 2001). This could inform urban poverty policy in LDCs that might contribute to ensuring sustainable development. Also, the study presents new empirical evidence on the phenomenon of social capital in poor urban areas of Bangladesh (one of the most populous LDCs of the world) and sheds light on the structural construct of social capital. Yet the study clearly has some limitations in respect of potential issues explored. There is no doubt that a particular analytical framework will not always reveal the whole picture of the structural construct. The interpretation needs to be nuanced; it will vary and depend on the conceptualised model, as well as on the part of the social system represented in any particular dataset – clearly in this case we have only sampled a particular slice of the urban poor and near-poor in one country. Again, the analysis has ignored the potential significance of 'selection effects', whereby certain like-minded people tend to end up living as neighbours in a particular neighbourhood, although this may be more of an issue further up the social scale. It is also quite possible that other models (e.g. a multi-level model) could reveal some differences in the findings around cooperation. If it were possible to conduct a repeat survey with the same sample of households/neighbourhoods, and/or to widen the sample to more socio economic strata or cities, then further insights and inferences might be drawn from an extension of the research described here.

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Notes

1. We use the term 'expected level of cooperation' which is the essential concept we are working with here. 'Expected level of cooperation' is certainly relevant, derived from past experience, which is meaningful from an economic perspective.

2. 'Interaction' refers to the frequency of meeting with a particular network in a given time period (a week).
3. The survey was conducted in a collaboration between the Institute for Inclusive Finance and Development (InM), Bangladesh and Heriot-Watt University, UK.
4. Challenges in the field: (1) Identification of the PSUs (consultation with local people); (2) Identification of the comparator PSUs (use of contextual knowledge and consultation with a number of local scholars); (3) Differential perspectives on aspects of social capital among the surveyors as well as the respondents (the surveyors were well-trained in-house and in the field to minimise the differences); (4) Lists of poor households were not available, particularly in Chittagong and Kushtia (the surveyors prepared a list of households living in a PSU before sampling and interviewing); (5) Local powerbrokers stopped the interview in two PSUs in Kushtia (local political leaders and the city mayor helped with continuing the survey); (6) The sampled respondents were absent during the day (the surveyors had either visited them on the previous day to inform them about the next day's interview or revisited the household to complete the interview); and (7) A few communities in Kushtia and Dhaka refused to accept compensation (the suspicion was that the compensation might lead to enlistment for eviction as they had received such a threat before).
5. This is the latest National Survey available.
6. This is a hypothetical construct about the expected degree of cooperation, rather than a hard measure of actual cooperation experienced. So the findings will be predictive for real cooperation in potential neighbourhood interventions, e.g. upgrading of housing.
7. This is asked to understand the extent of financial cooperation happening within the bonding networks in poorer neighbourhoods.
8. Such an assumption is somewhat strong, since variables can be predetermined, but does not necessarily mean that they are uncorrelated.
9. This pathway involves a mixture of going in the direction of the arrow and going against the direction of the arrow. The latter would be an example of a 'correlated' effect (as opposed to a direct or indirect causal effect).
10. Individual cooperation in the case of Model 1, and both individual cooperation and individual trust in the case of Model 2.

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