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Toward community engagement: Can the built environment help? Grassroots participation and communal space in Chinese urban communities

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Abstract

The scholarship in building community capacity by way of cultivating community social capital and community spirit through neighborhood design has spawned heated debates in urban and community studies. This paper contributes to this scholarship by examining the neighborhood contexts of grassroots participation in Chinese contemporary urban communities. In particular, it explores the relationship between neighborhood communal space and community participation, using a city-wide survey of 1,809 households in 39 commodity housing estates in the city of Guangzhou.

It is found that local residents' participation in community affairs is conditioned by both the social milieu (measured by the overall level of social cohesion) and the physical environment (indicated by effects of communal space) of a neighborhood. Notably, communal space exerts positive indirect effects on grassroots participation by facilitating the development of place-based social capital and neighborhood attachment. These findings point to a civic virtue of communal space and provide nascent evidence regarding neighborhood contexts of grassroots participation in urban China.

Keywords

communal space; community participation; neighborhood attachment; social capital

Introduction

Community participation, that is, a local population's voluntary involvement in community political or social affairs, is a critical component of sustainable community development. Extensive efforts have been made to enhance citizen participation by way of cultivating community social capital and community spirit through neighborhood design. The rationale behind these efforts is that strong associations exist between the neighborhood physical context, individual behaviors (e.g., walking and neighboring), and community sentiment

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(e.g., sense of community) (Hanlon, 2010; Leyden, 2003; Long & Perkins, 2007; Morenoff, Sampson, & Raudenbush, 2001), which in turn are expected to contribute to collective activities. However, the direct relationship between the environmental context and community participation remains unclear. Although some arguments, exemplified by the New Urbanism discourse, have been made about the role of certain community design features, e.g., mixed land use and (semi-) public space, in shaping local participation, few empirical studies exist to substantiate these arguments. The question raised by Fried (1982) 30 years ago remains open for discussion – does the residential environment “derive its functional significance from a commitment to places as physical resources for various activities and experiences, or because it serves as a context for social interaction and interpersonal intimacy, or by virtue of its aesthetic and/or symbolic properties” (p. 109)? This paper aims to contribute to this scholarship in the context of contemporary Chinese communities, drawing on a city-wide survey in the city of Guangzhou.

Due to limited opportunities for grassroots civic participation in the Maoist era, such concepts as community social capital, neighborhood attachment and community participation have been rather new to Chinese urbanites. Studies exist in understanding capacity building in rural communities in China (e.g., Plummer & Taylor, 2004), yet few intellectual efforts have been devoted to urban community experiences. Over the past three decades’ market reforms, China has been exposed to strong forces of globalization dominated by the ideas of free market, small government, and political democracy. Tremendous spatial and social transformations have challenged the logic of neighboring and community spirit that have been long established in traditional close-knit neighborhoods (Zhu, Breitung, & Li, 2012), where the residents were colleagues and community services were delivered by socialist work units (*danwei*). Newly developed urban communities, i.e., commodity housing estates, with distinct physical characteristics and social composition have witnessed mushrooming development, where residents are private market consumers and buy into a desired residence. While some scholars argue that traditional forms of social bonding and civic trust have eroded in these new neighborhoods (Ma, 2002), others believe that privatization of community service delivery and emerging grassroots community organizations, e.g., Home Owners’ Associations (HOAs), have granted the local population greater autonomy over community affairs (Tomba, 2005).

The objective of this paper is two-fold. First, it makes an early attempt to explore the neighborhood contexts, as well as individual determinants, of community participation that are unfolding, yet are not well understood, in post-reform China. Second, it aims to examine the role of the built environment, particularly communal space, in shaping community participation.

Dynamics of Urban Communities in Post-Reform China

Neighborhood transformation

The market-oriented reforms since the late 1980s in China have given rise to tremendous transformation in urban neighborhood landscape, community experience, and grassroots governance. In the Maoist era, state-owned work units, or *danwei*, served as an integral part of the socialist system of production and welfare provision (Bjorklund, 1986). Housing was

provided by work units as social welfare. Respective *danwei* developed self-sufficient integrated compounds for employees, comprising workplaces, housing, and various common facilities. Community management and services were delegated to local neighborhoods via top-down governmental policies (B. Li, 1993; Q. Xu, 2007), and residents enjoyed little autonomy in community affairs. These socialist neighborhoods featured socio-economic homogeneity, low homeownership rate, and relatively static residential mobility. The integration of work, residence, and social facilities resulted in intensive neighboring and strong social cohesion among residents (Hazelzet & Wissink, 2012; S.-M. Li, Zhu, & Li, 2012).

A series of housing reforms since 1978 ended the welfare provision of housing, which stimulated heated real estate development and dramatically changed the socio-spatial landscape of Chinese cities. *Danwei* housing was privatized and sold to sitting tenants at a discounted price. As market reform deepened after the early 2000s, the state-led urban redevelopment projects swept the urban land of the nation (He & Wu, 2007). Dilapidated traditional neighborhoods were replaced with commercial housing projects which have now become the dominant neighborhood form. The 2005 micro census data (State Council & National Bureau of Statistics of China, 2007) show over 50% of urban households in China live in commodity housing, compared with less than 40% for those living in former work-unit housing. In the city of Guangzhou, households in commodity housing reached over 60%, as opposed to 25% for dwellers in work-unit housing.

Commodity housing estates (CHEs), also referred to as *xiaoqu* (literally small district), are enclosed residential compounds built by private real estate developers. Varying in scale and location, these neighborhoods mostly take the form of gated communities although the degree of “gatedness” varies from one place to another (Miao, 2003). They also incorporate some design features of New Urbanist neighborhoods in United States, such as communal spaces and facilities, and mixed land use. Some large estates contain education, healthcare, and commercial amenities.

The growing freedom of choice in housing market has intensified residential mobility among neighborhoods and diversified socio-occupational mixes within the neighborhood. As a result, the traditional cohesive social fabric gave way to individualistic pursuit of privacy and anonymity in modern neighborhoods. Scholars have observed diminished social contacts and group activities among residents in CHEs (Chan, 1993; Forrest & Yip, 2007; Hazelzet & Wissink, 2012). However, less neighborly interaction does not necessarily lead to weaker community affection. Zhu *et al.* (2012) found stronger place attachment for residents in CHEs, despite more superficial socialization, than in *danwei* compounds.

Transformed community governance

The socio-spatial transformation parallels with changes in grassroots governance in contemporary neighborhoods (Read, 2003; Tomba, 2005; F. Xu, 2008). As the state retreated from social welfare provision and community service at the local level, a top-down approach of “community building” was implemented by the central state to restore social control under the propaganda of “building a harmonious society”. Specifically, grassroots government agencies¹, e.g., Residents’ Committees (RCs), were consolidated to maintain

the Communist Party's social control at the grassroots level (Bray, 2006; Ma, 2002). Among other responsibilities, such as basic social service delivery and organization of state-led community building campaigns (Bray, 2006), the most important responsibility of RCs is to oversee community activities, e.g., establishment of HOAs, to limit the chances of possible social turmoil.

To date, urban neighborhoods in China have been incorporated into the administrative territory of RCs – *shequ* (Chinese translation of community). The geography of *shequ* is officially demarcated by municipal governments mostly along with existing neighborhood boundaries. A *shequ* may consist of several neighborhoods, comprising a population between 3,000 and 16,000 (Heberer, 2009). The establishment of *shequ*, coupled with the empowering territorial agencies (i.e., RCs), serves as a spatial strategy to manage urban space and residents (Bray, 2006; Fu & Lin, 2013b). Unlike in the U.S. context, the propaganda of “community building” in China is essentially an institutional model than a civil activity.

In CHEs, neighborhood issues are generally handled by a professional property management company (PMC) and owner-elected Home Owners' Association (HOA), while RC maintains a distant relationship and plays an oversight role (Read, 2003). PMCs provide service regarding property management and maintenance under a contract with homeowners. Meanwhile, HOAs are growing as civic territorial agencies to assert their property rights on behalf of homeowners (Fu & Lin, 2013b; Read, 2003), as demonstrated by many collective endeavors by homeowners to influence the practices or decisions of PMCs, developers, or administrative authorities. While some scholars juxtapose HOAs with the rise of civil society with Chinese characteristics (Shi & Cai, 2006), others (e.g., Spires, 2011) claim that mass organizations in China “survive only insofar as they refrain from democratic claim” (p. 1). Nonetheless, the rise of HOAs has offset the power relations between the state and the society, creating social space for civic participation (Bray, 2006; Read, 2003, 2008).

Changing meanings of communal space

The omnipresence of the party-state in community life in the pre-reform era provided little room for grassroots autonomy. In contemporary neighborhoods like CHEs, communal space has been charged with different functions and meanings from the past. First, communal space is seen less as a locale for intensive social interaction than as a setting imbued with personal meanings and identity (Zhu *et al.*, 2012). Second, in addition to its social functions, communal space has emerged as civic space, albeit only in a limited sense (Boland & Zhu, 2009). Community associational activities, such as homeowners' assembly, are held and neighborhood activism has been seen in these spaces, which were lacking in socialist residential compounds.

The changing meanings of communal space may be attributed to the privatization and commodification of residential properties in the reform-era. In 2007, the *Property Law of the*

¹The communist Party and the state in China penetrate widely and deeply to the grassroots level. There exist certain types of state-sponsored administrative bodies to manage “the grassroots”, such as Residents' Committees. These administrative bodies at the very basic level are often referred to as grassroots government agencies in the literature (Bray, 2006). They are juxtaposed with other less constrained grassroots community organizations, such as HOAs, which enjoy more social autonomy.

People's Republic of China, Article 72 stipulated partitioned ownership of common parts of a neighborhood among homeowners. The recognition of collective property rights not only reinforces sense of ownership, but has also entitled homeowners with legitimate power over both the use value and the exchange value of the common space (Hsing, 2010; Tomba, 2005). However, specific rights to the shared properties (e.g., distribution of income generated from the common parts) are not clearly or consistently regulated in practice. It is not unusual to see a developer claim neighborhood space originally designed for common use (e.g., a playground) to develop profit-generating constructions (e.g., an apartment building) or a PMC expropriate collective income generated from the commons (Fu & Lin, 2013a; Tomba, 2005). Such interest-based conflicts usually lead to contentions between homeowners and other community entities, e.g., the estate developer or PMC. Therefore, neighborhood activism in contemporary China often appears as homeowner activism. Communal space in these neighborhoods has become a platform for grassroots performance of civic participation (Fu & Lin, 2013b), which signifies a pivotal moment to understand how neighborhood communal space is re-coded by local residents to create civic possibilities in rapidly changing cities.

Theoretical Approach

This study defines community participation as a local population's voluntary involvement in community affairs. It is a form of community-based civil participation in a general sense, as opposed to participatory planning or development projects for economic development. Existing studies have focused on neighborhood social contexts (e.g., residential stability and local social relations) on civic participation. Yet, it remains less clear to what extent the physical context can contribute. This section highlights important factors for residents' participatory behaviors, with special attention to the role of the built environment, e.g., communal space.

Neighborhood social context and community participation

Community participation depends to a large extent on a social environment where the local population shares a willingness to maintain public order in the neighborhood – a social norm of informal social control. Sampson, Raudenbush, and Earls (1997) have argued “community collective efficacy,” which consists of both informal social control and neighborly mutual trust, is one of the most important community predictors of physical and social disorders in a neighborhood. This argument echoes the theory of macro social capital proposed by Putnam (2000) who contends that community shared norms, reciprocity, and mutual trust are essentially important for civic engagement, because formation of reciprocation/norms among community members would facilitate sanctions against defection; whereas in a network where actors do not know each other, errant behaviors are less likely to be recognized and sanctions less easily initiated (Coleman, 1988).

Both theories suggest the importance of social resource embedded in local social networks in motivating community actors to achieve common good and both emphasize a collective attribute of community resource which varies from one neighborhood to another. However, the construct of collective efficacy combines two conceptually distinct dimensions: informal social control and community (macro) social capital. These two are not necessarily

positively associated. Many urban communities maintain informal social control in absence of close-knit social relations (Morenoff *et al.*, 2001). In addition, community social capital is often juxtaposed with private social capital – personal networks of social interaction (Hays & Kogl, 2007; Portes, 2000) – in discussion about civic participation. Both concepts pertain to individuals' local social engagement. This study therefore uses informal social control as a proxy of neighborhood social context and examines private and community social capital at the individual level.

Neighborhood physical context and community participation

Neighborhood communal space embraces a potential for building social solidarity and collective spirit among residents and encouraging participation in community affairs (Curley, 2010; Manzo & Perkins, 2006; Parisi, Grice, Taquino, & Grill, 2002; Perkins, Brown, & Taylor, 1996). As Purcell (2001) points out, neighborhood activism may be understood as a politics of space, rather than merely a set of social variables such as race and class. This assertion is particularly relevant for Chinese context where residential space is imbued with stronger individualistic meanings and values than in the socialist era. Existing studies have centered on examining the built environment in relation to social interaction (e.g., Williams, 2005) and personal meaning (e.g., Stedman, 2002), whereas the direct relationship between the environmental context and actual participatory behaviors remains unclear and understudied. These studies, however, do illuminate two pathways whereby communal space may facilitate resident participation: by encouraging social involvement – the social capital mechanism, or by cultivating personal affections to the place – the intra-psychic mechanism.

The social capital mechanism stresses place-based social capital as a mediator between communal space and participation. Environment-behavior studies support the importance of the built environment, especially common spaces, for social integration. It is argued that access to public or semi-public spaces create opportunities for informal interpersonal interaction through which social capital is developed consciously or unconsciously. For example, the placement of stairways and shared access to residences or other common areas, are positively associated with frequency of casual social contacts (Fleming, Baum, & Singer, 1985). These common spaces include sidewalks, open spaces, local amenities and informal meeting places (Oldenburg, 1989; Saleebey, 1996).

Social capital theories (Coleman, 1988; Putnam, 2000) provide the theoretical rationale for the contribution of local social capital to civic participation: the more one regards others as trustworthy and expects reciprocal benefit from others, the more likely s/he is to cooperate with others to act collectively for public good. In this study, the two levels of social capital – private social capital and community social capital – are assessed separately to distinguish the two theoretically distinct concepts (Lin, Cook, & Burt, 2001; Portes, 2000). Private social capital refers to social resource embedded in personal social ties, whereas community social capital is pertains to a general perception of the overall social relation and is more than a mere aggregate of individual social capital (Lin *et al.*, 2001). The two forms of social capital, therefore, might contribute to participation through different mechanisms.

Rather than a venue for social contacts, community psychologists point to the intra-psychic mechanism which emphasizes effects of the built environment on community sentiment, such as place attachment. They maintain that physical environment affects people's thoughts, feelings, and beliefs about local places. People develop affective bonds to a physical setting through different symbolic ties such as economic meaning and sense of loss in land (Low, 1992). Fried (1982) argued that objective features of the physical environment are more important than local social environment as sources for residential satisfaction and neighborhood attachment.

Feeling attached to a neighborhood means that the subject perceives the neighborhood as his/her own place and has a sense of responsibility to contribute as a part of it. In this sense, neighborhood attachment can be translated into commitment to the community and eventually lead to participation in local affairs (Manzo & Perkins, 2006). Scholars generally agree that place attachment can derive from both the physical environment *per se* or from the social environment (Chavis & Wandersman, 1990; Manzo & Perkins, 2006).

Among the few studies that directly address the relationship between the built environment and community participation is the classic model of "defensible space" proposed by Newman (1972). He maintained that certain architectural features (e.g., public space marker, greater visibility) can reinforce "territoriality" and sense of community, which then translate into collective responsibility. However, Perkins *et al.* (1996) found mixed results concerning effects of these physical features. More recently, Parisi *et al.* (2002) revealed significant positive effects of presence of local small service businesses (believed to provide a locale for social interaction) on community participation. Yet, the density of churches shows negative impacts.

Most studies use presence of communal space, rather than usage of or activities that take place in those places, to gauge effects of these spaces. Such an operationalization makes it difficult to disentangle the role of the built environment as an arena for social interaction and its role as a source of place sentiment. This study, hence, differentiates the social and physical domains of communal space by assessing local residents' use and their environmental appraisal of communal space.

Socio-demographic factors and community participation

Existing literature suggests that people with more human capital (e.g., education) and economic resource (e.g., income and occupation) are more likely to be involved in organized community activities (Parisi *et al.*, 2002; Rubin & Rubin, 2001; Smith & Macaulay, 1980). In addition, length of residence and membership in community organizations are associated with more frequent grassroots participation (Perkins *et al.*, 1996; Rubin & Rubin, 2001). Notably, homeownership has been regarded as an important explanatory factor in neighborhood activism (Purcell, 2001), because homeowners share common interests in the residential properties, hence have stronger incentives to act collectively to address community issues (Saunders, 1978).

In China, it remains less clear who gets involved in community affairs and the relationships among social capital, place attachment, and collective participation have not been

systemically studied. Limited research suggests significant effects of local neighboring and reciprocity among residents on political participation at the level of *shequ* in China (Q. Xu, Perkins, & Chow, 2010). A recent study in CHEs also shows importance of private social capital in predicting individuals' participation in collective activities (Fu *et al.*, 2013). Less educated elderly (or retired) persons are found more active as volunteers in providing *shequ* service, mutual help, and public education activities (Q. Xu, 2007). Income is found positively associated with voting activities in *shequ* (Q. Xu *et al.*, 2010). Length of residence and homeownership are positive predictors of neighboring and neighborhood attachment (S.-M. Li *et al.*, 2012; Zhu *et al.*, 2012), but their effects on community participation are unclear.

Working hypotheses

In light of the limitations of prior research, this study is necessarily exploratory. Responding to the research objective concerning effects of neighborhood contexts and that of neighborhood communal space on participatory behaviors, the following hypotheses are proposed:

- Hypothesis 1** At the neighborhood level, stronger degree of informal social control is associated with increased likelihood for individuals to participate in community affairs.
- Hypothesis 2** Presence of more communal spaces within a neighborhood is positively associated the local population's community participation, net of effects of social context and household-level factors.
- Hypothesis 3** Effects of neighborhood communal space on community participation are mediated by neighborhood-based social capital and neighborhood attachment.

Data and Methods

Data source

This study draws on a city-wide household survey conducted in Guangzhou in 2012. As “the door to southern China”, Guangzhou was among the first cities to experience market reforms and has undergone dramatic restructuring of city landscape (S.-M. Li, Hou, Chen, & Zhou, 2010) and urban governance (Fu & Lin, 2013b). Due to its proximity to Hong Kong and relatively weak state intervention into neighborhood affairs (as opposed to cities like Beijing and Shanghai), this city has witnessed active involvement of grassroots organizations, particularly HOAs, in community governance (Fu & Lin, 2013b).

This survey covers the central city area in Guangzhou (Figure 1). A multistage stratified random sampling method was employed to draw the sample. In the first stage, three primary sampling unit (PSU) strata in Guangzhou were determined by land use and residential density: the inner core area, the inner suburb area and the outer suburb area. In the second stage, Street Offices² within each stratum were selected with reference to the total number

²The lowest level of city government in urban China under supervision of city districts.

of Street Offices located in each stratum and their spatial distribution. In the third stage, one neighborhood and a supplemental list of adjacent neighborhoods (consisting of 2 – 8 *xiaoqu*) were determined within a selected Street Office by a GIS sampling method. Because a complete list of all *xiaoqu* in Guangzhou is not accessible and most of them are guarded communities, the neighborhoods to be surveyed were randomly drawn from a list of *xiaoqu* that have established HOAs provided by a local NGO, which served as an access point for the survey. In the final stage, households within a neighborhood were recruited using an interval sampling based on residential distribution of households within the property. The head of a household or his/her spouse was interviewed as a representative of the household. The total number of interviewees has been adjusted according to the total number of households in a neighborhood, ranging from 21 to 144.

In total, 1,809 households in 39 CHEs were surveyed. The survey was conducted at both the household and neighborhood (i.e., HOA) levels, using structured questionnaire. For households, solicited information includes self-evaluation and usage of the neighborhood environment, neighboring behaviors, community activities, community sentiment, residential history, and basic background information. Heads of HOAs were interviewed about the physical setting of a neighborhood, organizational activities, and organizational relationships in the community.

Instruments

Effects of both neighborhood- and individual- level factors for community participation are examined (see Table 1).

Dependent variable—*Community participation* is the outcome variable (Table 2), measured by frequency of a respondent's participation in 10 community activities in the past year. These activities include 1) informal routine activities, e.g., reporting neighborhood problems, and 2) organized associational activities, from voting in RC or HOA elections to getting involved in HOA work. Overall, about 64% of the respondents participated in at least one of these activities over the past year. The average count of participation is slightly more than twice. Organized associational activities, such as voting in HOA elections account for 59%. Another 30% participated in informal routine activities. This variable does not include residents' participation in collective actions, such as petition or protest, because these activities are mostly contentious actions that have a lower rate of occurrence. Including these activities therefore may cause some bias.

Neighborhood-level variables—Neighborhood social context is indicated by *informal social control*, which is measured at an aggregate level by taking the means of individual-level responses to questions about respondent's willingness to engage in maintaining public order (Sampson *et al.*, 1997). Respondents were asked, at a five-level scale, about the likelihood that they would take actions to intervene in the following circumstances on a routine basis: 1) common facilities (e.g., elevators or fire hydrants) are damaged; 2) uncivil activities regarding the *xiaoqu* environment, such as spitting on the ground and painting graffiti on a building; and 3) residents are having confrontations, such as a fight or an oral dispute.

Neighborhood communal space is a dummy variable at the neighborhood level to indicate the presence of various communal spaces (1= various; 0=limited). The head of HOA or a responsible person was asked to report whether (1=yes, 0=no) each of the following communal spaces is located *within* the neighborhood: 1) a club house for homeowners; 2) a lake or pond; 3) recreational places such as shops, cafes; 4) a swimming pool; 5) a sports court, e.g., basketball court; and 6) open spaces, e.g., park and playground. Descriptive analysis of this question (results not shown) shows that only 4 out of the 39 neighborhoods surveyed have none of the identified communal spaces. The prevalence of these spaces makes it difficult to discern the effect of the *presence* of communal space on community participation. Therefore, neighborhoods with none or only one of the listed communal spaces are grouped as one category – neighborhoods with limited communal space (the reference group), whereas other neighborhoods are recorded as another category. The former group with limited communal space accounts for 41% of the sample and the latter accounts for 59% (see Table 1).

Neighborhood scale is measured by the total number of households in a neighborhood. It is used as a control variable. It is essentially more difficult to know one another in a large neighborhood, dampening the effects of communal space. The size of the 39 neighborhoods ranges from 107 to 8,500 households, averaging at 1,004 households. Therefore those *xiaoqu* with more than 1,000 households are defined as large neighborhood (coded as 1, 0 otherwise), which account for 23% of the sample.

Household-level predictors—At the household-level, neighborhood communal space is assessed from two dimensions – *use of communal space* and *appraisal of communal space*. *Use of communal space* for different activities is measured by two questions: 1) frequency (a five-level scale) of *self-oriented activities* in communal space that involve little social interaction with neighbors, such as walking, exercising, or other non-interactional activities; and 2) frequency (a five-level scale) of group activities with non-family residents in communal space, such as playing basketball and chatting.

Appraisal of communal space is used to gauge the effect of physical features of communal space. It is measured by residents' subjective evaluation of six spatial aspects of communal space, rating from 1 (strongly dissatisfied) to 5 (strongly satisfied): closeness/accessibility, spaciousness of the space, esthetics/architectural design, landscape design (e.g., trees, water), comfort of rest area, and the degree to which the spaces satisfy their needs. Average score of the six items is used to indicate residents' overall level of environmental appraisal.

Private social capital represents the quantity of neighborhood-based social capital of local residents. Respondents were asked to give the total number of residents they know by name in a *xiaoqu*. On average, one person knows about 12 residents in a neighborhood.

Community social capital is measured at a five-level scale, by seven items about mutual trust and general reciprocity among neighbors. The average score for community social capital is 3.11, slightly higher than the neutral level, meaning that people in general have a positive perception of neighborly relationship.

Neighborhood attachment refers to positive affective bonds residents establish to their neighborhood. It is measured at a five-level scale by asking respondents the extent to which they agree with the following statements: 1) Overall, I feel attached to this neighborhood; 2) I like the neighborhood as a place to live; and 3) I would be sorry if I had to move out of the neighborhood. The three items is taken average to create a single indicator. People are generally attached to their neighborhood, indicated by the overall average of 3.63.

Control variables: Socio-demographic characteristics are included to control for individual variations. These variables include *sex* (0=female; 1=male), *age*, *residence status* (0=migrant, 1=local), *marital status* (0=never married; 1=otherwise); presence of *children* under 16 years old (0=no; 1=yes); *educational attainment* (7-level interval from primary school or below to doctoral degree); *household income* per capita; economic sector of *work unit* (1=not working; 2=government agencies; 3= public sector, including state-owned enterprise or collective enterprise; and 4=private enterprise); *length of residence*, and *homeownership* (1=owner; 0=other).

Methods

Multi-level regression model—A mixed-effect modeling strategy – multi-level multivariate regression – is employed to ascertain effects of neighborhood social and physical contexts on community participation. This method allows one to discern within-neighborhood variations conditioned by individual characteristics and between-neighborhood variations conditioned by neighborhood contexts. Because the outcome variable, *community participation*, is a count variable with a relatively large number of zero's (34%) and its distribution is over-dispersed, meaning the variance is larger than the mean, an over-dispersed multi-level Poisson model is employed using the statistical software of HLM 6.02 (Raudenbush, Bryk, Cheong, & Congdon, 2004).

In the HLM model, variables of social and physical contexts and individual socio-demographic variables are regressed on the outcome variable to examine whether there are systematical differences in participatory activities as conditioned upon neighborhood predictors. This step responds to the first two hypotheses.

Negative binomial regression model—Following the analysis of neighborhood contexts, negative binomial regression models are preformed to further explore the nature (i.e., physical features and usage) of communal space in relation to community participation at the household level. Specifically, this step addresses how communal space contributes to community participation. Negative binomial regression model takes into account the over-dispersion issue associated with count variables as the dependent variable (community participation) (Allison & Waterman, 2002). Two separate models are performed – Model 1 includes individual-level measures of neighborhood communal space (use and appraisal) and control variables, while Model 2 includes indicators of neighborhood-based social capital and neighborhood attachment in addition to variables in Model 1. If neighborhood communal space has indirect effects on community participation through either social capital or place attachment, one should expect to find changes in the magnitude or

significance level of the coefficients for communal space variables when intervening variables are introduced in Model 2.

Descriptive Results

Neighborhood contexts

Community participation is conditioned on both the physical and social contexts of a neighborhood. Figure 2 shows average counts of community participation for individuals given different neighborhood contextual factors. The descriptive results show that residents in neighborhoods with more communal spaces on average have slightly higher counts of community participation than in neighborhoods with limited communal space. Small-scale neighborhoods also have more active community participation. In addition, higher levels of participation are reported in neighborhoods where there is a higher degree of aggregate informal social control (ISC).

Use and appraisal of communal space

A potential positive link between communal space and community participation is also manifested at the individual level. Table 3 shows that the majority of respondents (60%) participated in self-oriented activities in communal spaces at least once a week. In contrast, over 60% reported low frequency (twice a month or less) of group activities. However, a tendency exists that higher frequency of these two forms of activities are associated with increased participation in community affairs. The pattern for group activities is more evident than that for self-oriented activities. Those who ever participated in group activities reported an average rate of community participation higher than the overall rate (2.18). In contrast, for self-activity participants, only frequent communal space users (more than once a week) reported an average count of community participation (2.35) higher than the overall rate of participation (2.18). Those who had participated in neither of these activities in communal spaces reported the fewest counts of community participation.

Environmental appraisal also shows a positive association with community participation in general. As Table 4 shows, those who have more positive evaluation of communal space tend to have higher counts of community participation in general. Surprisingly, however, the group with the lowest degree of satisfaction also reported a relatively higher level of participation. Similar results have been found in neighborhoods in the United States as well (Hays & Kogl, 2007). This may imply that discontent with neighborhood problems may arouse people's incentive to improve their "home ground" – the intervening effects of place attachment.

Multivariate Regression Results

Social and physical contexts of community participation

Table 5 gives the multilevel model results. The fitness estimate (0.602) suggests that group means of community participation vary across neighborhoods (the more variations between groups, the closer this value approaches to 1), indicating the reliability of the multilevel model. Robust standard errors are reported which are relatively insensitive to

misspecification of the model and distributional assumptions at each level (Raudenbush *et al.*, 2004).

Two parts of results are given. The fixed effects refer to effects of level-1 (individual) variables on the expected occurrence of community participation and the random effects suggest neighborhood variations in community participation conditioned on contextual variables.

All the three neighborhood-level variables are significant. As Hypothesis 1 predicts, the social milieu, indicated by *informal social control*, significantly facilitates community participation (coefficient = 0.515). In other words, people are more likely to participate in community affairs when the local population has a tendency to maintain local social control. This confirms informal social control as an important social contextual factor for participation in Chinese context.

Regarding the physical context, *neighborhood communal space* has a significant and positive effect (0.319) on the outcome, supporting Hypothesis 2. Specifically, people in neighborhoods with more communal spaces have significantly higher propensity to participate in community affairs, although the effects of the physical context is weaker than the social context. In addition, large-scale neighborhoods are negatively (−0.227) associated with individuals' propensity to participate.

At the individual level, private social capital, community social capital, and neighborhood attachment all exert significant and positive effects (the coefficients are 0.002, 0.203, 0.090 respectively) on the outcome. Community social capital, or mutual trust and reciprocity among residents, has the strongest effect among the three variables.

Use and appraisal of communal space and community participation

Concerning the nature of communal space, Hypothesis 3 is examined by two nested negative binomial regression models (see Table 6). Before the three intervening variables are introduced (Model 1), frequency of group activities in communal space (0.054) and environmental appraisal (0.097) are significant and positive predictors of community participation. Effects of frequency of self-oriented activities are non-significant. This is not surprising given that self-oriented activities usually engage little interaction with other residents. Although self-oriented activities involve human-environment interactions, the environmental effects derived from these processes may be mediated by environmental appraisal.

When the intervening variables are included (Model 2), the significant effects of both group activities and satisfaction with communal space disappear while effects of other variables mostly remain unchanged. In other words, effects of communal space on community participation are mediated by the three variables of social capital and neighborhood attachment, supporting Hypothesis 3. It means that neighborhood communal space exerts indirect effects by nurturing place-based social capital and place sentiment; the latter two serve as direct driving forces for neighborhood participation.

Among the three intervening variables, community social capital exhibits the largest size of effect (0.205), followed by neighborhood attachment (0.115) and private social capital (0.006). This result is consistent with the multilevel regression results, implying that mutual trust and reciprocity among residents may be more effective than private social capital in promoting participatory behaviors. It also implies that a strong social network of a collectivity is insufficient for local mobilization as contemporary communities are declining in importance as a locale for building personal social networks (Hazelzet & Wissink, 2012; Wellman & Leighton, 1979). Notably, neighborhood attachment has positive effects regardless of social capital effects, meaning that neighborhood identification and social involvement work simultaneously to motivate residents' participation.

Socio-demographic determinants of community participation

Effects of socio-demographic variables given by the multilevel regression (Table 5) and negative binomial regression (Table 6) are by and large consistent. Individual-level variations in participatory activities are largely explained by homeownership, local residence status, and length of residence. Homeownership exhibits the largest effects among all individual-level factors. This implies that civic engagement in community affairs in CHEs tend to involve homeowners' participation, because homeowners who share a common stake in the compound and are more aware of their rights to the space have stronger incentives to act and are more likely to be mobilized for participation than temporary residents.

In addition, the results of negative binomial regression show that males are more active than females in community participation; the working population, especially government employees, are more active in community affairs as well; but effects of these variables are not consistent. Other socio-demographic characteristics (e.g., age, education, income, etc) show non-significant effects.

Conclusion and Discussion

This study examines the role of neighborhood social and physical contexts in shaping community participation in post-reform China, which has experienced tremendous neighborhood reformation. Echoing findings in the United States (Sampson *et al.*, 1997), informal social control serves as an important social context that facilitates local participation. The hypothesized positive association between communal space and community participation is substantiated. At the neighborhood level, presence of more communal spaces in a neighborhood is associated with a higher likelihood of resident participation. At the individual level, both use and environmental appraisal of communal space are significant predictors of community participation. Yet, communal space works only through indirect pathways – its effects are mediated by place-based social capital and neighborhood attachment. In terms of socio-demographic characteristics, evidences suggest that homeowners, residents with local residence status, those with a longer history of residence, and working population are more likely to be participants in community affairs. Other socio-demographic variables, such as education, income, sex, age, marital status, and presence of young children, do not show consistent effects.

This research points to a civic virtue of neighborhood communal space in the sense that it facilitates resident participation by promoting accumulation of local social capital and formation of place attachment, net of effects of local social milieu. This may be interpreted from two perspectives. First, shared spaces in a neighborhood provide opportunities for passive and active contacts among residents which may otherwise be very limited in an increasingly more fluid society. These in-group processes, as Perkins, Florin, Rich, Wandersman, and Chavis (1990) argued, allow residents to become more acquainted, share information, and discuss community issues, which may translate into collective activities. Second, the neighborhood physical space encapsulates both use values and economic values for local residents, especially homeowners (Saunders, 1978), providing a material basis for the formation of neighborhood attachment. The incentives to maintain these common interests motivate local residents to act independently or collectively to solve community problems or to enhance community stability (Purcell, 2001; Tomba, 2005).

The study provides empirical evidence that the physical context does make a difference for community participation. However, the built environment is by no means a determining factor. Apparently, the social context, e.g., informal social control, exerts strong effects than communal space. Moreover, it is the social values and symbolic meanings attached to it, rather than the space *per se*, that directly influence participatory behaviors. Yet, this study illustrates that physical setting should not be regarded as a non-relevant factor in future community organizing studies and practices.

This research is an exploratory analysis of grassroots participation and neighborhood effects in Chinese context. Despite concerns that the role of neighborhood as a central site for social networking are eroding, the participation rate of 64 percent in the CHE sample suggest that these newly built communities are emerging as an important locale for civic activities. Although it is too early to predict an emergence of civil society in today's China, community awareness for residents in these estates are apparently improving. This study presents is an insightful snapshot of community experiences that are unfolding and yet to be studied in contemporary China.

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- This paper examines the relationship between neighborhood communal space and grassroots participation in Chinese urban communities, drawing on a city-wide household survey in Guangzhou.
- This study performs Hierarchical Linear Models (HLM) and negative binomial regression models.
- Local residents' community participation is positively associated with higher level of social cohesion and the presence of communal space in a neighborhood.
- Communal space exerts positive indirect effects on grassroots participation by facilitating the development of place-based social capital and neighborhood attachment.

Figure 1.
Geographical distribution of *xiaoqu* sample

Figure 2.

Descriptive results of community participation and neighborhood contexts

(Note: communal space in the questionnaire does not include those that are common in all neighborhoods, such as streets and sidewalks; small and large (more than 1,000 household) refer to neighborhood scale; high ISC means neighborhoods with averaged score of informal social control at the community level higher than the grand mean value 3.6, otherwise for low ISC. Source: computed based on survey data)

Table 1

Measurement of variables for analysis

Variables	Type	Mean	S.D.	Min.	Max.	No.
Household level						
Community participation (outcome)	count	2.18	2.43	0	10	1809
Private social capital	continuous	11.77	23.78	0	500	1791
Community social capital	interval	3.16	0.87	1	5	1805
Neighborhood attachment	interval	3.63	0.73	1	5	1804
Uses of communal space						
- Self-oriented activities in communal space	interval	2.63	1.54	1	5	1799
- Group activities in communal space	interval	2.67	1.66	1	5	1801
Appraisal of communal space	interval	3.10	0.81	1	5	1802
Homeowner (<i>ref: renter</i>)	dummy	0.80	0.40	0	1	1788
Local (<i>ref: migrant</i>)	dummy	0.71	0.45	0	1	1808
Years of residence (in year)	continuous	7.30	5.42	0	38	1804
Educational attainment	interval	3.52	1.41	1	7	1804
Household income <i>per capita</i> (10,000CNY/yr)	continuous	6.77	40.77	0	999	1636
Work sector						
- Not working (incl. retired)	dummy	0.06	0.24	0	1	1809
- Government agency	dummy	0.20	0.40	0	1	1809
- Public-sector enterprise	dummy	0.25	0.44	0	1	1809
- Private enterprise (<i>reference</i>)	dummy	0.46	0.50	0	1	1809
Male (<i>ref: female</i>)	dummy	0.45	0.50	0	1	1787
Age	continuous	44.87	15.09	15	92	1796
Never married (<i>ref: otherwise</i>)	dummy	0.12	0.32	0	1	1766
Children (<i>ref: no children under 16</i>)	dummy	0.63	0.48	0	1	1714
Neighborhood level						
Neighborhood communal space (<i>ref: limited communal space</i>)	dummy	0.59	0.50	0	1	39
Informal social control	continuous	3.40	0.21	2.98	3.94	39
Neighborhood scale (<i>ref: household no. <= 1,000</i>)	dummy	0.23	0.50	0	1	39

Table 2

Frequency of participation in community affairs

Community participation	Positive responses	Percentage
Informal routine activities	555	30.7
reporting neighborhood problems	388	21.5
attending hearings	214	11.8
discussing <i>xiaoqu</i> issues at an online forum	138	7.6
Organized associational activities	1,073	59.3
voting for homeowners' association members	784	43.3
giving opinions to homeowners' association	598	33.1
voting for residents' committee members	564	31.2
attending homeowners assembly	440	24.3
giving opinions to residents' committee	420	21.2
negotiating with organization candidates	228	12.6
getting involved in HOA work	169	9.3
Ever participated	1,152	63.7
No. of observations	1,809	100.0

Source: computed based on survey data

Table 3

Tabulation of uses of communal space and community participation

	Observations	Counts of community participation
Frequency of self activities in communal space		
never	247 (13.7%)	1.94
once a month or less	316 (17.6%)	2.00
twice a month	148 (8.2%)	2.13
once a week	224 (12.5%)	2.12
more than once a week	864 (48.0%)	2.35
Total	1,799	2.18
Frequency of group activities in communal space		
never	676 (37.4%)	1.84
once a month or less	382 (21.2%)	2.24
twice a month	104 (5.8%)	2.52
once a week	151 (8.3%)	2.67
more than once a week	488 (27.1%)	2.39
Total	1,801	2.18

Source: computed based on survey data

Table 4

Appraisal of communal space and community participation

Overall satisfaction with communal space	Observations	Counts of community participation
Strongly dissatisfied (mean ≤ 1)	34	2.21
Dissatisfied ($1 < \text{mean} \leq 2$)	128	1.95
Neutral ($2 < \text{mean} \leq 3$)	719	2.04
Satisfied ($3 < \text{mean} \leq 4$)	783	2.26
Strongly satisfied ($4 < \text{mean} \leq 5$)	138	2.75
Total	1,802	2.18

Note: the overall satisfaction with communal space is calculated by taking means of respondents' evaluation on the six dimensions of neighborhood communal space: accessibility, spaciousness, architectural design, landscape design, comfort of rest area, and needs fulfillment.
 Source: computed based on survey data

Table 5

Results of multilevel Poisson regression model

Dependent variable: community participation	Coefficients	Robust standard errors
Fixed effects		
Private social capital	0.002 *	0.001
Community social capital	0.203 ***	0.041
Neighborhood attachment	0.090 *	0.037
Homeowner (vs. renter)	0.512 **	0.149
Local (ref: migrant)	0.355 ***	0.095
Years of residence	0.019 *	0.008
Education	0.026	0.028
Household income per capita	−0.005	0.005
<i>Work sector (ref: private sector)</i>		
- Government agencies	0.117	0.101
- Public-sector enterprise	0.091	0.084
- Not working	−0.249 ^a	0.127
Male (ref: female)	0.060	0.063
Age	−0.001	0.003
Never married (ref: otherwise)	−0.068	0.117
Children	−0.043	0.046
Random effects		
Intercept	−3.253 ***	0.698
Neighborhood communal space	0.319 *	0.116
Neighborhood scale	−0.227 *	0.111
Informal social control	0.515 ***	0.182
Model fitness		
Reliability	0.602	
Pseudo R ²	0.127	

Dependent variable: community participation		Coefficients		Robust standard errors	
Random Effect	S.D.	Variance component	df	Chi-square	P-value
Intercept1	0.23332	0.05444	29	76.66350	0.000
level-1	1.50803	2.27416			

Note:

*** p<0.001;

** p<0.01;

* p<0.05;

^a p<0.1.

Source: computed based on survey data.

Pseudo-R squared should be interpreted with caution, because it does not fully capture the proportion of variations for the response variable explained by the predictors.

Table 6

Results of negative binomial regression models

Dependent variable: community participation	Model 1		Model 2	
	Coefficients	Standard errors	Coefficients	Standard errors
Measures of communal space				
Uses of communal space				
- Self-oriented activities	0.020	0.027	0.027	0.027
- Group activities	0.054 [*]	0.024	-0.0005	0.025
Appraisal of communal space	0.097 [*]	0.042	0.014	0.046
Intervening variables				
Acquaintance (private social capital)	-	-	0.006 ^{**}	0.002
Community social capital	-	-	0.205 ^{***}	0.046
Neighborhood attachment	-	-	0.115 [*]	0.055
Socio-demographic variables				
Homeowner (<i>ref: renter</i>)	0.697 ^{***}	0.099	0.687 ^{***}	0.101
Local (<i>ref: migrant</i>)	0.391 ^{***}	0.084	0.364 ^{***}	0.085
Years of residence	0.029 ^{***}	0.007	0.019 ^{**}	0.007
Education	0.022	0.030	0.027	0.030
Household income per capita	-0.002	0.002	-0.002	0.002
Work sector (<i>ref: private sector</i>)				
- Government agencies	0.239 ^{**}	0.090	0.179 ^a	0.091
- Public-sector enterprise	0.117	0.084	0.101	0.085
- Not working	-0.274 ^a	0.156	-0.273 ^a	0.160
Male (<i>ref: female</i>)	0.161 [*]	0.067	0.136 [*]	0.068
Age	-0.003	0.003	-0.003	0.003
Never married (<i>ref: ever married</i>)	-0.038	0.124	-0.089	0.126
Children	-0.047	0.072	-0.080	0.073
Intercept	-0.942 ^{***}	0.253	-1.570 ^{***}	0.283
Model fitness				
Number of obs		1,486		1,476
AIC		3.834006		3.795013
BIC		-9231.046		-9190.036
Pseudo R ² *		0.036		0.059
Resid. Df.		1,470		1,457
Resid. Dev.		1505.603		1441.825
Degree of freedom			13	
Deviance			63.778 ^{***}	

Note:

p<0.001;

**
p<0.01;

*
p<0.05;

^a
p<0.1.

Source: computed based on survey data.

Pseudo-R squared should be interpreted with caution, because it does not fully capture the proportion of variations for the response variable explained by the predictors.