Research Paper

Lessons for Community Governance from the Polycentric Governance Model in Urban Villages:

Based on the Effectiveness of COVID-19 Prevention and Control in Different Types of Communities in Beijing, Shanghai, Guangzhou and Shenzhen in 2020

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Abstract

Urban villages mainly refer to rural settlements in China, whose agricultural land have been used by cities during the process of accelerated urbanization, but the homesteads are left and surrounded by the cities. Before 2005, urban villages were considered as "social tumours", and were widely criticised for their disorganised physical space and unmanageable floating population. However, urban villages are also the first choice for migrant workers because of their low rental prices. In Guangzhou and Shenzhen, the two cities with the largest number of urban villages in China, these villages accommodate about 50% and 70% of the city's population respectively, of which about 90% are migrant workers.

Yet during the epidemic, there were surprisingly few confirmed cases in urban villages, and in even smaller proportions compared to the vast migrant population they house, which is assumed to be the main distribution chain for the virus. Of hundreds communities in Guangzhou and Shenzhen with confirmed cases, there are only about 20 urban villages, less than 10% of the total. This research selects Beijing, Shanghai, Guangzhou and Shenzhen, which have the highest total population and a relatively high proportion of floating population, as the case cities. Then it groups the releases according to the category of commercial housing communities, urban villages and old communities, and uses the social network analysis function of ROST CM6 software to analyse the connectedness of actors, action spaces and measures taken in the epidemic prevention in different communities. It found that, unlike the centralised governance model of commercial housing communities and old communities, urban villages present more of a polycentric governance model. In this way, they have advantages in policy publicity, floating population identification and material supply.

Urban villages are networks of social relations based on blood ties, which cannot be replicated in other types of communities. Nevertheless, with the growing awareness of citizenship among community residents, it is an indisputable fact that community self-organisations are developing and playing an increasing role in community governance. The community governance in the future shall focus on the overall interests of the community residents, maximise the participation of different community parties, encourage the community to own a certain amount of properties, and create a polycentric community governance mechanism together.

Keywords

Urban village, Community governance, Polycentric governance



1. Introduction

1.1. 2019-nCoV epidemic is a test for governance in megalopolis

As the centre of national and regional political, economic, cultural and transportation activities, megalopolis are highly concentrated in terms of human, logistic, information and capital flows, and their governance has been a hot topic in the academic world since the day of their birth. The 2019-nCoV epidemic is a serious test of city governance, and as the basic cell, the performance of community governance directly determines that of urban governance. Therefore, the community response in megalopolis during the epidemic deserves a review. This paper selects Beijing, Shanghai, Guangzhou and Shenzhen, which have the highest total population and a relatively high proportion of floating population in China, as the subjects of the research.

1.2. Urban Villages: from "social cancer" to objects for "social integration"

After China's reform and opening up in 1978, the economy grew at a rapid pace and the built-up area of cities continued to expand, with almost all new construction land being acquired by the expropriation of rural land. In order to avoid the huge economic and social costs associated with the expropriation of land and the resettlement of villagers, the urban government chose a roundabout way of development by "acquiring farmland and skirting village settlements", thus forming the rural settlements within the city: urban villages.

Table 1. Top 20 Keywords with the Strongest Citation Bursts. Source: self-drawn via Citespace.

	Keywords	Strength	Begin	End	1993 - 2021
Phase I (1993-2002) Urban Villages as a "social cancer" to be eliminated	problem of urban village	14.13	1999	2011	
	dismantling villages and setting up urban communities	8.54	1999		
	village committee	7.39	2002		
Phase II (2003-2012) Exploration of the mechanism for urban village formation and transformation	low rent housing	14.3	2006		
	urban fringe area	6.52	2006	2008	
	Liede Village (Guangzhou)	8.84	2009	2012	
	"Three-Old" Reconstruction	10.15	2010		
	downtown	4.63	2010	2013	
	government subsidized housing	9.09	2011	2016	
Phase III (2013-present) Urban villages as objects of 'social integration'	"Three Transformations and One Demolition"	10.24	2013		
	citizenship	7.21	2013	2018	
	transformation of shantytowns	26.41	2014	2019	
	population transferred from agriculture	8.58	2014		
	community governance	22.59	2015	2021	
	urban renewal	70.2	2016	2021	
	traditional villages	5.19	2016	2021	
	Nantou City (Shenzhen)	14.57	2018	2021	
	comprehensive improvement	12.29	2018	2021	
	long-term rental flats	8.62	2018	2021	
	governance of urban villages	4.61	2018	2021	

Searching for "urban village" as the theme word on the China National Knowledge Infrastructure (CNKI) for academic journals, dissertations, conference papers and books, a total of 12,751 Chinese articles were found. Use Citespace 5.8.R1 to analyse,from the temporal distribution of the top 20 keywords with the Strongest Citation Bursts, it can be seen that in the early days, urban villages were considered to be a gathering place for urban problems and needed to be "eliminated"; after 2003, the perception of urban villages became dialectical; after 2013, it gradually became a social consensus that urban villages could not be "eliminated", and they became objects of social integration, urban renewal and governance.



Phase I (1993-2002): Urban Villages as a "social cancer" to be eliminated

The first article on "urban villages" in CNKI is an unattributed article published in 1993, entitled "Worries about China's floating population". As mentioned in the article, the settlements of the floating population have formed "cities within cities" and "villages within cities", and the crime rate in urban villages has developed dangerously. They became cancers of the city, difficult to manage, and the floating population also spread endemics to larger areas. Clearly, the urban village has been closely related to the floating population from the very beginning.

Phase II (2003-2012): exploration of the mechanism for urban village formation and transformation

After 2003, the positive aspects of urban villages in the process of urbanisation have been gradually recognized, and the key words "low rent housing" and "government subsidized housing" came to the fore, making urban villages a hot topic for academic research. The representative paper was Li Peilin's article" Tremendous Changes: The End of Villages-A Study of Villages in the Center of Guangzhou City", published in 2002. Li points out, that urban village is a village-based society connected by various deep social networks, and deagriculturalisation and industrialisation cannot put an end to it.

Phase III (2013-present): Urban villages as objects of 'social integration'

Until 2013, governments were still unable to solve the housing gap for the huge number of new urban immigrants, while the special attributes of urban villages in terms of local cultural heritage and transition between urban and rural functions are gradually gaining attention from both academics and governments. The keyword "traditional villages" became prominent, as were "citizenship", "community governance", "urban renewal", "governance of urban villages" and "long-term rental flats".

1.3. The floating population has always been the focus of urban village studies

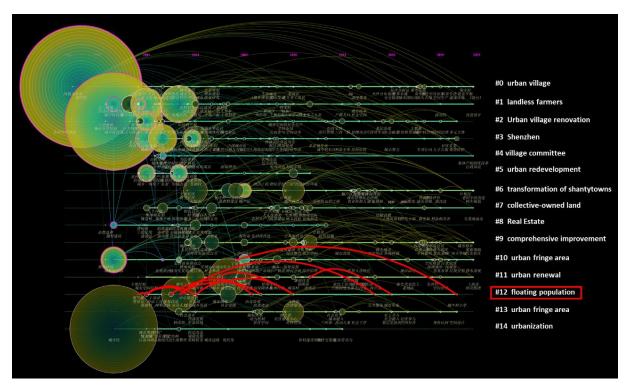


Figure 1. Cluster timeline map of urban village studies based on CNKI. Source: self-drawn via Citespace.

Due to their low rental prices, urban villages are the first choice for floating populations to settle in megalopolis. By June 2019, 58% of the population in Shenzhen and 35% in Guangzhou lived in urban villages, accounting for approximately 71% and 50% of their total floating population respectively. Also



using Citespace 5.8.R1, clustering the keywords by log-likelihood rate, the timeline diagram (Figure 1) shows that "floating population" is the 13th largest keyword cluster, appearing first in 2001 and remaining a topical term until 2020. The relevant clusters are urban renewal and urban fringe area. Top Terms in the cluster include floating population, social security, integrated urban-rural development, developers, urban regeneration, coexistence and resident integration.

1.4. The model of epidemic prevention in urban village communities is worth summarising

In the event of a public health outbreak, the influx of people from the infected area to other areas is the source of the spread of the epidemic, and urban villages carrying large numbers of floating populations are supposed to have a higher number of confirmed cases. However, until November 2020, according to the list of communities with confirmed cases published by the Health and Wellness Committees of four case cities, through satellite map check, the number of urban villages with confirmed cases in each city does not exceed 20, accounting for about 8-10% of the total number of communities, which is far below the proportion of the floating population they carry, and its epidemic prevention model is worth summarizing.

2. Community Classification

Wu Fulong (1992) was the first to classify China's urban communities into four types from cultural perspective: traditional neighbourhood communities, single-unit communities, mixed integrated communities, and evolutionary fringe communities. Traditional neighbourhoods are mainly commercial and industrial neighbourhoods and early workers' new towns formed before China's founding; single-unit neighbourhoods and mixed integrated neighbourhoods are both collective housing units built under the planned economy.

Old communities mainly refer to communities that were built before 2000, where public facilities are outdated to affect the basic life of their residents and there is a strong willingness to renovate them. According to this definition, all three of the above community types can be classified as old community. Evolutionary fringe communities mainly refer to agricultural land that has been transformed into built-up areas by urban influences, which are represented by urban villages and suburban villages. After the reform of housing commercialisation, Zhang Hongyan (2002) added two types of communities on the basis of Wu Fulong, which are commercial housing community and immigrant community. Immigrant communities have been largely replaced by commercial housing communities after years of reorganisation and decongestion by local governments. Despite many subsequent scholars speaking about community classification in different ways, they basically did not go beyond these criteria.

Therefore, based on the different ways of community organisation, this paper categorises China's urban communities into three types for discussion, namely, commercial housing communities, urban village communities and old communities.

3. Data collection

3.1. Time period selection

Using "city name + community + anti-epidemic" and the names of the communities with confirmed cases announced by the four cities, and collecting articles through search engines and WeChat, it appears that the first community anti-epidemic news appeared on January 21, after a gradual decrease in April, by August and September the number of news had dropped to less than ten articles on a single day. Therefore, this paper collects news about community responses to the epidemic in the four cities from 21 January to 30 September 2020, and considers that it can basically present the main process.



3.2. Different community data collection

Because of the relatively small number of urban village and old communities among communities with confirmed cases, to increase comparability, this paper collects anti-epidemic news containing names of communities and villages in all four cities. Checking the spatial characteristics, age of construction and property conditions of communities through Baidu Maps, Shell Housing and Anjuke etc. properties websites to identify community types. A total of 271 commercial housing communities, 142 urban village communities and 130 old communities with a total of more than 440,000 words of news articles were collected.

4. Data analysis

4.1. Data cleaning

To improve the scientificity and accuracy, cleaning the collected text, including:

Eliminate irrelevant Information: eliminate background information, comments, article sources, community profiles, publication dates, names of specific people, etc.; correct typos; filter adjectives, auxiliaries, conjunctions, etc. such as "then", "so", "every day", "in time", etc.;

Elimination of words with loose semantics: elimination words such as "anti-epidemic", "prevention and control", "service", "personnel", etc.;

Uniformity words of close meanings: e.g. "disinfection" and "sterilisation" are unified as "disinfection"; "temperature measurement", "temperature taking", "temperature testing", "temperature monitoring", etc. are unified as "temperature measurement"; "company" and "enterprise" are unified as "enterprise"; "bulletin board", "announcement board", "notice board", etc. are unified as "bulletin board", etc.;

Segmentation check: using Rost CM6 to segment the text, check the validity of the words after segmentation and add relevant words to the database, to ensure that it contains all the specific words related to the epidemic.

4.2. Co-occurrence analysis of high frequency words in different types of communities

Using the social network analysis function of ROST CM6, a co-word matrix was constructed for the top 100 high frequency words of different communities , and a semantic network graph of different communities was obtained. Due to the varying number of press releases for different communities, a normalised conversion of word frequencies was made.

$$N'_a = N_a \times 100/N_{max}$$

 N_a represents the frequency of occurrence of a word in articles of one city; N_{max} represents the maximum word frequency in the articles of that city; N'_a represents the standardized word frequency score of that word.

The size of the keyword circle represents centrality and is related to but not exactly equal to word frequency. Referring to the analytical framework of polycentric governance system theory, this paper classifies high-frequency terms into actors, action spaces, interaction-epidemic prevention measures, and interaction-resident needs, and it can be seen that the three types of communities display distinctly different characteristics:

Commercial housing community

Actors: The main actors in commercial housing communities were the property management companies and the government, which were involved in almost all aspects of epidemic prevention. Volunteers were



also included, mainly from the government and residents of the community, but their involvement was very limited. The property management companies were slightly more central than the government and had a thicker line to "residents", suggesting that property management companies, representing market forces in commercial housing communities, played a key role in the prevention of the epidemic. The term "Homeowners' Committee" does not appear in the top 100 high frequency words;

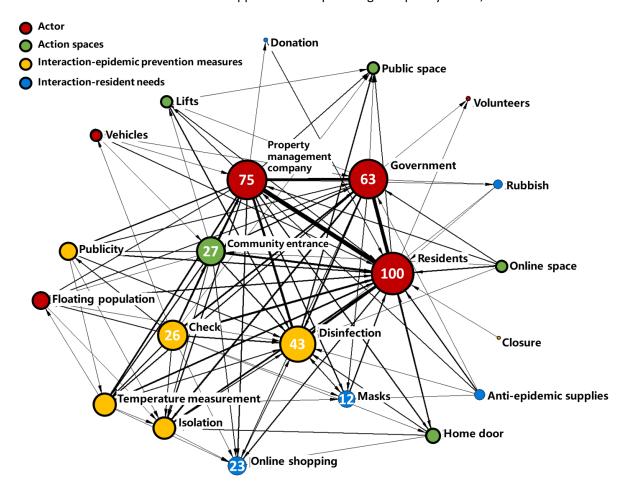


Figure 2. Top 100 Co-occurrence high frequency words in commercial housing community. Source: Self-drawn via ROST CM6.

Action spaces: The community entrances are the most important space for epidemic prevention in commercial housing communities, followed by the home doors, public spaces, public spaces of buildings like the lifts and the online space like WeChat group;

Interaction-epidemic prevention measures: Disinfection is the most prominent measure taken in commercial housing communities, followed by checking. Publicity, isolation and temperature measurement play almost equal roles;

Interaction-resident needs: Online shopping was the most important need for residents of commercial housing communities during the epidemic, including takeaway orders and delivery of items; followed by obtaining epidemic prevention supplies such as masks.

Urban village community

Actors: The property management companies are not among the key actors in the prevention of epidemics in urban village communities. The government is the primary actor, but there is also a clear poly-actor status. Volunteers, enterprises, landlords and tenants all appear in the co-occurrence network of the top 100 high-frequency words. Landlord-tenant is a high frequency relationship specific to urban



village communities. Tenants are more frequently investigated than the floating population, and the link between "floating population" and "tenants" points to "tenants", suggesting that tenants are the more dominant way of investigating the floating population in urban villages. Volunteers are involved in various anti-epidemic measures. "Enterprises" play a number of roles in the network, including publicising the requirements of the epidemic, identifying their employees, restarting work after the epidemic, and making donations to the village;

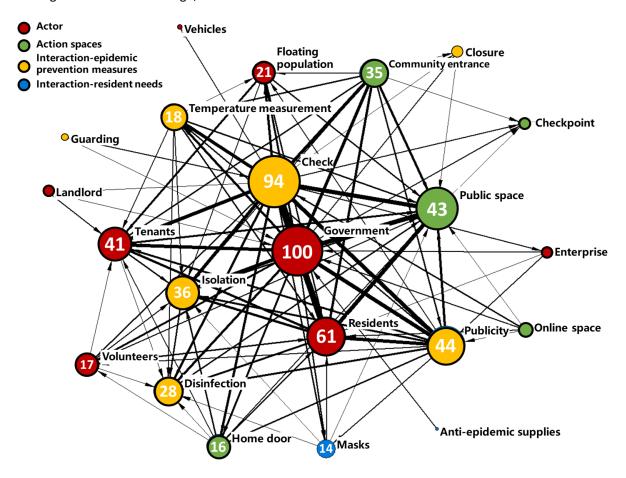


Figure 3. Top 100 Co-occurrence high frequency words in urban village community. Source: Self-drawn via ROST CM6.

Action spaces: The public space is the main action space here, followed by village entrances. Home doors, online space and checkpoints have also entered the network. The term "checkpoints "is a term specific to urban village communities, and is only associated with "check" measures. This indicates that, as open communities, urban villages have a greater scope for investigation than the village area and are guarded at both the checkpoints and village entrances;

Interaction-epidemic prevention measures: Checking is the most important measure here, much more than any other measure. The next were publicity and isolation. Disinfection was not a priority measure in urban village communities;

Interaction-resident needs: "Online shopping" is not the main need. Masks are.

Old community

Actors: The government is the most important actor, followed by volunteers. Volunteers come from government agencies, neighbouring communities and residents of the community, and neighbouring property management companies. The vast majority of older communities do not have property



management companies, where the term "property management companies" here refers mainly to security guards. Shops and homeowners' committees are also present in the network, but their contribution is limited;

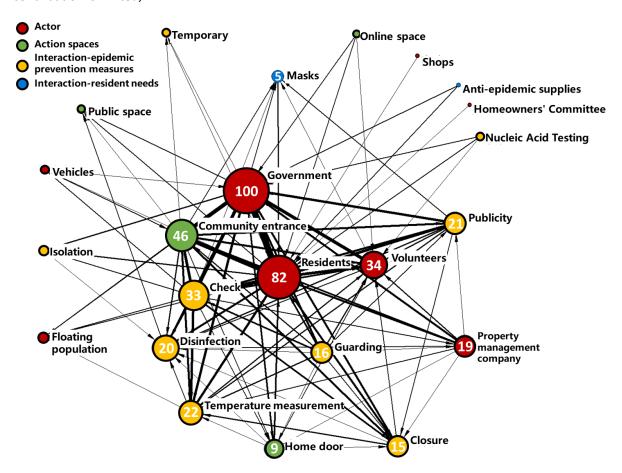


Figure 4. Top 100 Co-occurrence high frequency words in old community. Source: Self-drawn via ROST CM6.

Action spaces: The community entrances are the most important space, followed by the home doors, public spaces, and online space, with less frequencies;

Interaction-epidemic prevention measures: Checking is the main preventive measure, with temperature measurement actually being a form of checking, followed by publicity, disinfection and closure;

Interaction-resident needs: "Online shopping" is also not the main need. Masks are.

4.3 Summary of different community anti-epidemic characteristics

Actors: The government is the main actor in all three types of communities, especially in urban villages and old communities. The property management companies play a great role in commercial housing communities. Due to the abundance of manpower, all preventive measures including checking, disinfection, isolation, publicity, and door-to-door delivery for quarantined residents etc., all can be accomplished very well. In urban village communities and older communities basically only the most basic measures like checking and publicity can be done.

The urban village community presents a clear polycentric governance model. Facing the large number of floating people in the community, the neighbourhood government did not have all their information before the epidemic. This led to the need for the grid inspectors in the very beginning to check hundreds of households per day and work overtime to complete their tasks. In contrast, urban villages rely on landlord-tenant networks to be able to identify floating populations very quickly. But to obtain the tenant



data, the community government has to work with the village company, that is, the economic association. This has resulted in a dual management network of village government+ village companies, on the basis of which a sub-network of landlord (villagers) - tenant (floating population), village company (villagers) - migrant workers (floating population) has been developed. Managers of urban villages are able to grasp the situation of the floating population in the first time, and have extensive experience. At the same time, because of the clan and blood ties that continue in the village community, villagers have more trust in the team members who take on leadership roles in both the village companies and village government than in the other two types of communities, and are more likely to take advice on epidemic prevention. Villagers are also tied to village companies via dividends, and penalties are more likely to act as a deterrent, making them more likely to be cooperative in the prevention of epidemic.



Figure 5. Proportion of word frequency of key actors in different communities. Source: self-drawn.

For old communities, which also lack property management companies, have a large floating population and are mostly open, when the epidemic suddenly began, the first problem is the community government do not have any information about their households, whose information can only be achieved by volunteers to work longer hours, "which is really exhausting at first". Secondly, due to the long period of absence of governance, residents do not know the government staff, and their trust in the government is far less than the trust of villagers in urban villages, and uncooperative situations occur repeatedly. Moreover, the majority of residents in the old communities are elderly and many of them do not have smartphones. This means that the basic knowledge of epidemic prevention needs to be promoted in offline manners. In an emergency situation, this requires more manpower than in commercial housing and urban village communities, and was largely done by volunteers in this case, making old communities a critical part in this epidemic prevention.



Figure 6. Proportion of word frequency of key action spaces in different communities. Source: self-drawn.

Action spaces: Community entrances were the key spaces for all communities in this epidemic. Commercial housing communities have a more balanced action space, with entrances, public spaces, and building areas such as lobbies and lift rooms, and WeChat groups for online communication all involved. Public spaces are the primary prevention spaces in urban village communities, such as the large number



of inner streets and alleys, open-air bazaars and illegal constructions. Old communities, in contrast, can only check for their entrances, reflecting the differences in manpower between communities.

Interaction-epidemic prevention measures: Checking was the primary measure taken in all communities, with a high proportion of publicity, and disinfection was only significant in commercial housing communities. This suggests that in the event of a public health emergency, control of the floating population and making the public aware of the seriousness of the situation and taking care of themselves are far more important than physical protection measures. Most commercial housing communities are gated communities, so "closure" is not a major measure for them; urban village communities and old communities are both open communities, but "closure" was mentioned much more frequently in the news for old communities, which may indicate that it is much more difficult to close old communities without psychological boundaries than to close urban villages with clear village boundaries.



Figure 7. Proportion of word frequency of key Interaction-epidemic prevention measures in different communities. Source: self-drawn.

Interaction-resident needs: Online shopping was the number one need for residents in commercial housing communities, but not so much for urban village communities and old communities, reflecting the differences in the people living in different communities.

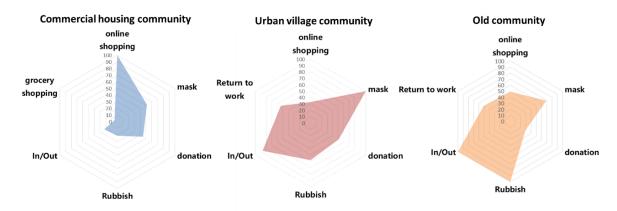


Figure 8. Proportion of word frequency of key Interaction-resident needs in different communities. Source: self-drawn.

5. Conclusion

5.1. Communities should "learn "from urban villages, and cultivate social capital

The predecessor of the urban village community is rural community, which is a society of acquaintances based on geography, blood and kinship. Although the boundaries of acquaintance society have been breached with the influx of floating populations, and residents' needs have also changed as they have



been surrounded by the city for a long time, the sense of ethical kinship and reciprocity that has accumulated due to the same territory, livelihood patterns, and historical memories has not completely disappeared, and these relationships have given rise to what Pierre Bourdieu calls social capital such as familiarity, trust, and authority, which has played an important role in this epidemic's prevention, and is an important reason for the very low infection rate in urban village communities, as well as what is currently lacking in the other two types of communities.

Urban villages are networks of social relations based on blood ties, which cannot be replicated in other types of communities. Nevertheless, with the growing awareness of citizenship among community residents, it is an indisputable fact that community self-organisations such as homeowners' committees are developing and playing an increasing role in community governance. The community governance in the future shall focus on the overall interests of the community residents, maximise the participation of different community parties, encourage the community to own a certain amount of properties, and create a polycentric community governance mechanism together. Different communities should build networks of reasonable social exchange based on the life of different communities and explore the social capital shared by them.

5.2. Government should play more as "pilot" rather than "all-inclusive nanny"

The essence of community life is a partnership between community stakeholders, involving complex power relations between multiple actors. Faced with thousands of different communities, it is easy to be overwhelmed by a single actor, as evidenced by the overload and hardship of community workers in the early days of the epidemic.

The dilemma of public affairs can be solved through the structure of autonomous governance, especially at the grassroots level where government power is difficult to penetrate, and where there is a wealth of autonomous governance resources, such as third-party volunteer teams, economic associations in urban village communities and property management companies in commercial housing communities, all of which have played a huge role in the current epidemic.

In the management of public emergencies, the government must play the most dominant role, but should focus on overall control and coordination, setting the macro framework of polycentric governance and rules of behaviour for participants, while using economic, legal and policy instruments to provide the basis and facilitate the provision of public goods and the handling of public affairs, stimulating the enthusiasm and creativity of all parties, and playing the role of supervisor, facilitator and coordinator.

5.3. Everyone's capacity to build their homes should be motivated

In this epidemic, many property management companies have demonstrated excellent governance skills and played the role of "gatekeepers", giving great support to the government. "Volunteers + community NGOs" also played an important role. In some heavily infected areas, many supermarkets did not welcome individual shopping behaviour, requiring volunteers to form special shopping teams. Community NGOs identified enthusiastic residents, provided them with easy access and a lasting platform and encouraged them to participate, making an outstanding contribution to winning this war against the epidemic, especially in old communities. Urban village communities, on the other hand, have achieved better emergency governance through the dual link of village government and the village companies. Both private institutions representing market forces and third-party organisations representing social forces can be the subject of public governance and should have shared responsibility for the conduct of public affairs.



5.4. Greater private economic investment in the community should be encouraged

A factor that cannot be overlooked in community self-governance is funding. Research has shown that economic authority has overtaken the influence of local government in community governance, and the size, salary and tenure of employees within a community are significantly correlated with business power within the community. In urban village communities, although the village company has formally lost the right to manage community affairs, it actually shares the management functions with the village government, and its responsibility for the dividends strengthens its relationship with villagers; also, the village government cannot organize social activities and daily work in the village without the financial support of the village company. During an epidemic, communities with sufficient funding can also purchase epidemic prevention supplies and daily necessities as soon as possible to meet the needs of their households, effectively supplementing the government's lack of manpower and material in the very beginning.

An inescapable reason for other communities' long-term reliance on the administrative domination is also the government's economic investment in the community. Strong financial support is essential to form autonomous bodies with political influence. Therefore, encouraging greater private economic investment in communities is also an important mean of transitioning from administrative dominance to polycentric governance.

5.5. Community planning should play a greater role in community governance

If community governance is a series of inter-subjective games around the deployment of public resources at the grassroots level, then community planning is the technical means for the layout of related facilities, the formulation and implementation of which is a rich community governance process, the essence of which is community-level spatial planning, development management and planning that leads to democratic governance. Community planning needs to deal first with people, and space is only a carrier of human activity. Planners should make full use of the participative nature of residents evoked in this emergency, enter the community in a scientific, objective and value-neutral role, use community planning as a platform for public participation, assist the community in building neighbourhood networks, cultivate community spirit and improve community governance.

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