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Empirical study on the Cooperative Prevention and Control of Social Risks in Digital Enabling Cities

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Abstract

In order to tell the story of digital technology enabling urban social risk collaborative prevention and control from an empirical point of view, this paper first systematically combs the digital changes, digital characteristics and digital practice of urban social risk collaborative prevention and control in China, and clarifies the realistic background of social risk collaborative prevention and control in digital enabling cities. Secondly, on the basis of literature review and review, this paper clarifies the theoretical logic and operation mechanism of social risk collaborative prevention and control in digital enabling cities, and constructs the analytical framework of "dynamic mechanism-initial conditions-collaborative process-accidental factors". Third, through the network crawler to obtain the research document data and the statistical yearbook collection data data, has selected 7 explanation elements, takes 26 provincial people's governments as the research object, uses the QCA fuzzy set qualitative comparative analysis method, carries on the inspection to the city social risk coordination prevention and control influence factor combination allocation. Fourth, three driving modes of urban social risk prevention and control are found, which are comprehensive development type, multi-factor driving type and high conversion ability type.

Keywords

Digital Enabling; Cooperative Prevention; Social Risks; fsQCA.

1. Introduction

From the perspective of tools, in the more advanced areas or departments of digital government construction, the use of digital means to promote cross-level, cross-regional, cross-system, cross-departmental, cross-business coordination is in full swing, and many innovative practices have emerged. Specifically, digitization has brought about changes in governance paradigm, governance thinking, governance objectives and governance technology for the prevention and control system of urban public security in China.

The governance paradigm has changed from control to cooperation, governance thinking has changed from sample thinking to global thinking, from precise thinking to trend thinking, from causality thinking to related thinking, governance objectives from emergency to pre-prevention, governance technology from traditional space technology to big data space-time analysis technology, from traditional two-dimensional geographic information and three-dimensional visualization to big data era. The transformation from the static data of the traditional cycle to the real-time acquisition of dynamic big data technology, from the traditional limited service to the modern big data extensive service, from the separation of traditional risk information acquisition, processing and application to the "trinity" analysis technology in big data era, and from the traditional narrow sense risk information to the broad sense of networked 3500 risk information technology. From the traditional ex post analysis to big data mining and pre-and real-time decision-making technology transformation.

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2. Theoretical Explanation and Literature Review

2.1. Cooperative Advantage Theory

Huxham first put forward the concept of "synergistic advantage" in 1993, which holds that when the parties achieve some creative results, they can be said to have achieved "synergistic advantage". The result of this creativity can be the achievement of a goal that cannot be achieved by the participants on their own. In some cases, the goal of achieving synergies has gone beyond the organizational objectives of the various participants and has reached a higher social level.

In the field of public policy, the theory of synergy has recognized the universality and importance of collaborative behavior, but at the same time, it is also pointed out that the benefits of synergy often only stay at the conceptual level, in fact, it has not been proved. Because collaborative parties are not always open to the desired synergies, and may even have significantly different goals in the same collaborative behavior. In such cases, synergies are defined as achieving value added through joint work, and the added value can also be achieved only in the context of cooperation.

However, although synergy itself is often regarded as a "good thing", but the methods that can make the collaborative subject to obtain output or effect have not been developed enough, resulting in weak, slow or even costly production of synergy. As a result, the concept of collaborative inertia (collaborative inertia) emerges as the times require, which refers to the fact that the collaborative behavior has not achieved any significant results, the efficiency of achieving results is too low, or the price paid for success is too high.

In a word, the key question to be answered by the theory of synergy is: if the acquisition of synergy is the original intention of all parties to adopt synergy, then why is collaborative inertia often obtained? Specifically, the theory of collaborative governance includes the following:

At the motivation level. Motivation refers to the themes that contribute to the realization of collaborative behavior, including leadership and interdependence; the ideological level, including common goals, trust, power, autonomy and compromise; and competence, including leadership, membership structure, learning, resources, social capital and so on.

2.2. Literature Review

The generation mechanism of digital enabling effect. Positive functional level. Yang Dongmei scholars believe that digitization can promote the construction of a pluralistic model of local government governance and reshape the operation process of local government government. starting from risk management, the digitization of urban risk management will inevitably form a positive strengthening loop between the infrastructure, industrial development, governance system and the overall reform of the system system, facing the key areas such as natural disasters, safe production, urban safe operation, network public opinion and so on. Comprehensively improving the level of risk monitoring and early warning and comprehensive disaster reduction science and technology informatization is helpful to promote the ability of disaster prevention and control and the modernization of prevention and control system.

Digital enabling prevention and control cooperative path. Within the organization, information technology helps to aggregate different departments into governance systems, so as to reduce the complexity of governance cooperation, and through real-time feedback and communication within the structure, increase the visibility between government organizations, and further promote the establishment of cooperation between different departments.

Through technical means, the previously unstable cooperative relationship within government departments can be "solidified" by means of software and data exchange, and cooperation and coordination can be transformed into a "routine" and "stable" process, so as to ensure the normalization of the social security cooperation system. Outside the organization, with the

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opening, sharing and dissemination of data, everyone is the receiver and communicator of governance information, which is convenient to bring residents and enterprises into the process of urban public safety governance, further consolidate the operational basis of the "group prevention and group control" mechanism, and realize the participation of multiple subjects.

The establishment of participation mechanism not only improves the ability of citizens and enterprises to solve their own problems, but also helps to improve the efficiency of the dynamic nature of social relations and social activities and the integration of public safety governance, and provides more windows for policy innovation.

Digital enabling ability to improve prevention and control ability. With the increasing complexity of modern government functions, the effect of fine decomposition of processes and tasks on improving the governance efficiency of government departments is gradually weakened, and the complicated administrative procedures between departments, as well as the cost of communication and coordination between each other, make emergency management present disunity, uncoordinated, unshared fragmentation and other issues, and the overall thinking value is becoming increasingly prominent.

The application of government internal management information system is helpful to realize cluster decision-making and execution activities at all levels, overcome the discrete problem of management functions, break through the barriers of business segmentation between departments, realize business cooperation, integrate management objects, and improve the degree of emergency management cooperation.

3. Research and Design of Cooperative Prevention and Control of Social risk in Digital enabling City

3.1. Case Selection and Description

The data of this study mainly use the data of 26 provinces, the reasons are as follows: on the one hand, in the administrative system of our country, the provincial administrative region, as the unit located in the middle of the political pyramid, undertakes the important role of Shangtong, and the effective working documents used by prefectural cities are often produced by the provincial level, so it is easy to have the problem of excessive homogenization in policy.

On the other hand, from the point of view of data quality, there is no authoritative statistical data to measure the level of social security in all prefectural cities, and because the construction of digital government takes a certain time, coupled with the timeliness of the publication of various data, the specific data in this paper come from the Statistical Yearbook of China, the Survey and Evaluation report on the Integrated Government Service capacity of Provincial governments and key cities Assessment of the safest cities in China, the government's official website, supplemented by other Internet information.

The sample situation is shown in Table 1, we can see that the selected provinces cover 287 prefecture-level cities in the country, the eastern, central and western provinces are involved, and the sample selection is more comprehensive.

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Table 1. Summary of research samples

Number	Name	Number of prefectural cities	Total households	Resident population (10,000)	GDP (10,000)
1	Hebei Province	11	26518	7448	40391.3
2	Shanxi Province	11	13275	3480	22590.2
3	Jiangxi province	11	14733	4517	29619.7
4	Guangdong province	21	43730	12684	124369.67
5	Guizhou Province	6	12653	3852	19586.42
6	Qinghai Province	2	1965893	594	3346.63
7	Xinjiang Uygur Autonomous region	4	8666	2589	15983.65
8	Ningxia Hui Autonomous region	5	2649	725	4522.31
9	Yunnan Province	8	15001	4690	27146.8
10	Shaanxi Province	10	15101	3954	29801
11	Gansu Province	12	8408	2490	10243.31
12	Sichuan Province	18	30828	8372	53850.8
13	Hunan Province	13	22272	6622	46063.1
14	Fujian Province	9	14614	4187	48810.4
15	Heilongjiang Province	12	13662	3125	14879.2
16	Jilin Province	8	10230300	2375.37	13235.52
17	Liaoning Province	14	18309	4229	27584.1
18	Inner Mongolia Autonomous region	9	9783	2400	20514.2
19	Jiangsu Province	13	31028	8505	116364.2
20	Zhejiang Province	11	25997	6540	73515.8
21	Anhui province	16	23083	6113	42959.2
22	Hubei province	12	18918	5830	50012.94
23	Henan province	17	33193	9883	58887.41
24	Shandong Province	16	38468	10170	83095.9
25	Guangxi Zhuang Autonomous region	14	16179	5037	24740.9
26	Hainan Province	4	3036	1020	6475.2
Sum		287	12656297	131431.37	1008589.86

3.2. Variable Selection and Measure

In the part of model building, a model is formed, which consists of four parts: Starting Conditions, Dynamic Mechanism, Collaborative proces and Accidental.

Among them, the starting conditions are mainly used to measure the technical resources in the initial stage of organizational coordination, including digital infrastructure and coverage; and the dynamic mechanism is mainly used to measure whether the organization, as a work director and regulator, has sufficient leadership in the process of synergy.

Collaborative process is mainly used to measure the ability to define the content and responsibility of work through rules or procedures in the process of coordination between departments, as well as whether there is two-way learning communication between collaborative subjects so as to achieve certain learning results, so as to form the corresponding technological transformation ability. Accidental factors refer to the impact events that occur in the process of carrying out specific collaborative work, which leads to changes in the allocation of political attention of government departments, thus bringing different allocation schemes to the input of collaborative resources.

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These four aspects all exist as conditional variables. The result variable is a variable about collaborative output, which is used to measure the level of urban public safety. Details of the specific variables and codes are shown in Table 2.

Table 2. Description of variable name

Variable classification	Software coding
Result variable	Achievement
Conditional variable	Technology Resources
	Leadership
	Collaborative Process
	Accidentia

Result variables.Public safety in the city. According to the theory of public safety management, the problem of public safety is composed of natural factors, ecological environment, public health, economy, society, technology, information and so on. The city is an important part of a country, and it is a relatively concentrated place of all kinds of important resources. Urban public security involves almost all the urban elements. Therefore, the so-called urban public safety, that is, the urban level of public safety, refers to the operation and development of the city in line with the expected norms and tracks, and can operate normally without being threatened. In practice, the city does not have enough natural disasters, accident disasters, public health events and social security events to impact the normal operation and stability of the city, and the overall development of the city can be supported by a stable social environment.

Initial results. Mainly refers to the digital social risk prevention and control of a series of achievements, encoded as Achievement, using the provinces in the 2015-2022 period, the safest cities (counties) in the administrative region received the safest cities in China as a measure of the number of nominations. The safest city in China is an annual list jointly released by the Institute of Urban Competitiveness between China and Foreign countries in Hong Kong. the main characteristics of the safe city are: no serious and serious safety and responsibility accidents, good social security, superior investment environment, less production accidents, consumer goods safety, ecological sustainable development, can provide citizens, enterprises, and the government with a good information network environment and strong information security guarantee. The "GN China safest city evaluation index system" used in the list consists of four first-level indicators, 10 second-level indicators and 55 third-level indicators, including social security, economic security, ecological security and information security.

Conditional variables.Collaborative digitization, in essence, the original information structure and information process in the collaborative system are digitalized and reorganized, so that the information flows in a more efficient network, so as to realize the optimization of the whole system. Formally speaking, it is the digital construction of the existing collaborative scene within the public organization, which is mainly manifested in the administrative collaborative system within the public organization, which supports the establishment of more efficient communication and interaction between the upper and lower levels or parallel departments, so that the coordination can be carried out more efficiently. In real life, the coordinated digitization of the government is concentrated in the achievements of digital government construction, such as "government affairs cloud", "one code pass" and so on.

Technical resources. In the practice of local governance in our country, although the enthusiasm of local government governance digital construction is high, it can not be ignored that there are different Internet resource endowment among different provinces. According to the Chinese Statistical Yearbook, the main indicators of Internet development include: 1 domain name, 2

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web pages, 3 web pages, 4 Internet broadband access ports, 5 mobile Internet users, 6 mobile Internet access traffic. 7 Internet broadband access users 7 indicators, this paper selects Internet broadband access port access number and mobile Internet users as the measurement data of technical resources in each sample province from two aspects of infrastructure and service coverage, which are encoded as Facility and Consumer, respectively.

Collaborative process. This variable consists of two aspects: on the one hand, rule setting. It mainly refers to the effective policy documents and institutional arrangements on the operation of departmental collaborative process, division of responsibilities, organization setting, power relationship and so on, which are encoded as Rule in the process of carrying out specific work. This part is measured by consulting the existing regulations of the government website, including the cumulative number of public security prevention and control coordination.

On the other hand, it is the conversion ability of provincial government to apply information technology to practical work. The overall index of integrated government services at the provincial level is used to measure the working ability of government departments, encoded as Conversion: among them, the e-government service index of each province is commissioned by the e-government office of the general office of the state council to continue to entrust the central party school (Chinese Academy of Governance) e-government research center for 31 provinces (autonomous regions, municipalities directly under the central government) and Xinjiang production and construction regiment, as well as separately listed cities and provincial capital cities The evaluation of integrated government service capacity has been carried out since 15 years, and there have been seven consecutive annual evaluation reports, with relatively perfect, stable and comprehensive evaluation indicators.

Table 3. Variables and data description

Data description	Measurement	Data source
Achievement	The cumulative number of entries from the safest city is 1, otherwise it is 0	Report on the results of the assessment of the safest cities in China
Facility	Number of broadband access ports per year	China Urban Statistical Yearbook
Consumer	Mobile Internet users	China Urban Statistical Yearbook
Conversion	Annual overall index of provincial government integration government services	Investigation and Evaluation report on the ability of Urban Integrated Government Service
Rule	The existing government regulations include the cumulative number of public security prevention and control coordination	Official government website
Leadership	Political mobilization capacity: The level of head of the leading group for social security shall be 2 for the secretary of the provincial party committee, 1 for the governor and 0 for the rest.	Official government website
	Level of knowledge reserve: Among the members of the leading Group for Social Security The degree level is bachelor's degree, with a value of 1. Master's degree, with a value of 2 Ph.D. graduate, with a value of 3 The other values are 0.	Official government website
Impact	The cumulative number of confirmed cases of COVID-19 in various provinces during 2020 / 2022	Official government website Internet data

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Leadership is the political mobilization ability and knowledge reserve level of the work leader itself, so it mainly uses the administrative level and academic level of the initiating department (or leader) and the competent department (or leader) in the government organization to measure the personal ability of the leader, which is encoded as Leadership.

Accidentia. Comfort and others believe that the state of emergencies will have an important impact on the ability of cross-departmental emergency coordination, and emergencies include a series of impact events that actually occur, and conflicts may occur not only within the collaborative subject, but also in the external environment of the collaborative subject and even the whole cooperative body. Considering that the safest city index has taken into account the consideration of a series of accidents, disasters and public security events, coupled with the impact of COVID-19 epidemic situation in the past 20 years, the political vision and energy distribution of government departments have been greatly impacted, so this variable uses the cumulative number of confirmed cases of COVID-19 in each province since 2020 and codes it as Impact.

Variable measure. Considering the specific situation of different variables, different measurement methods are taken for each variable, including not only the variables that need to be assigned to convert, but also the fixed ratio data that can be anchored directly by QCA software. The specific data description and measurement method are shown in Table 3.

3.3. Research Hypothesis

According to the four levels of synergy elements mentioned in the analytical framework, the following six assumptions are put forward:

Suppose 1a: the more mature the development of information technology in the area where the government departments are located, the richer the information resources, and the easier it is to improve the level of urban public safety.

Suppose 1b: in urban public safety governance, each participant can choose different ways of participation in the actual situation, and the wider the scope of participation that the government can cover, the easier it is to obtain the improvement of urban public level.

Suppose 2A: in practice, the clearer the rules, the more likely the level of urban public safety can be improved.

Suppose 2b: the better the performance of government organizations in the construction of government integration, often means that they have a higher ability of technological transformation, and the stronger this ability, the better the effect of digital application in the field of urban social security, and then improve the level of urban public safety.

Hypothesis 3: in the process of improving the level of urban public safety, a strong leader with sufficient political mobilization ability and knowledge level often plays a vital role.

Hypothesis 4: Emergencies that may impact the political attention allocation of government organizations in the field of social security will further have a negative impact on the improvement of the level of urban public safety.

4. Empirical Analysis

4.1. Model Construction

The key to the application of fsQCA lies in the transformation of the measured variables into set membership, that is, the "calibration" process, and the transformation of variables into sets, thus giving the case set membership degree. It is generally required to set three critical values, that is, complete membership point, intermediate point and completely non-subordinate point. In this process, we need to set "1" (full membership) and "0" according to theoretical or

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practical knowledge. There are 3 anchors: 5 "(intersection) and" 0 "(completely non-subordinate).

This paper draws lessons from the existing research, on the basis of the existing theoretical and empirical knowledge, according to the data types of each condition and result, this paper sets the values of 75%, 50% and 25% of the sample data to calibrate, and the calibration results of each data are shown in Table 4.

Table 4. Variable calibration

Results and conditional variables	Measurement index code	Subordinate point		
		Complete membership	Intermediate point	Completely non-subordinate
initial results	Effectiveness of Urban Safety Governance (Achievement)	8	4.5	1
Technical resources	Digital infrastructure (Facility)	4339.4875	2499.84	1533.25
	Technical coverage (Consumer)	6587.4	3849.745	2472.6
Cooperative process	Technology conversion (Conversion)	17.5	13.5	10
	Rule making (Rule)	87.18	82.05	79.1975
Leadership	Leadership (Leadership)	4	3.1	2
Accidental factor	Public health incidents (Impact)	3839.25	2340.5	1422.75

Follow the analysis steps of fsQCA, first of all, whether the conditional variables are the necessary conditions for the result variables; secondly, the factors that do not constitute the necessary conditions are combined; finally, according to the results of the combination analysis, the core variables and auxiliary variables that lead to the result variables are judged.

4.2. Analysis of Necessity of Univariable

First of all, the necessity of a single conditional variable is analyzed, in which consistency (Consistency) and coverage (Coverage) are the key test indexes of the necessity of a single variable. It is generally believed that if the consistency of a conditional variable is higher than 0.9, the conditional variable is considered to be a necessary condition for the result variable, and the coverage is used to judge the interpretation of the result variable by the conditional variable or the combination of conditions. When the coverage rate is more than 0.5, it is considered that the explanation is sufficient. The calibrated data are imported into the qualitative comparison and analysis software to construct the true value table of qualitative comparison and analysis, and the consistency and coverage of each factor are detected, and the results are shown in Table 5.

The necessity of single variable of urban safety level is analyzed. in the measurement indexes of four conditional variables and their opposite cases (non-set in Table 6), the consistency and coverage of all variables do not meet the necessary criteria (consistency is less than 0.9), so the four conditions are not enough to constitute the necessary conditions for the improvement of urban public safety level. This shows that the independent interpretation ability of each variable to the change of the result variable is weak, so it is necessary to analyze the configuration of each condition variable in order to find out a variety of conditions to improve the level of urban public safety. At the same time, it also shows that urban public safety is a comprehensive governance problem. In order to achieve a high level of safety, a variety of

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factors need to be integrated, there is a complex causality mechanism, and further conditional configuration analysis is needed.

Table 5. Analysis of the necessity of a single conditional variable

Conditional variable	Measurement index (coding)	Consistency	Coverage rate
Technical resources	Digital infrastructure (FAC)	0.58	0.62
	~ Digital infrastructure (~ FAC)	0.54	0.53
	Technical coverage (CONS)	0.59	0.64
	~ Technical coverage (~ CONS)	0.52	0.50
Cooperative process	Rule making (RULE)	0.61	0.62
	~ Rule making (~ RULE)	0.57	0.58
	Technology transformation (CONV)	0.34	0.33
	~ technological transformation (~ CONV)	0.72	0.78
Leadership	Leadership (LEA)	0.51	0.48
	~ leadership ability (~ LEA)	0.60	0.66
Accidentia	Public health incidents (IMP)	0.63	0.63
	~ Public health events (~ IMP)	0.46	0.48

4.3. Sufficient Condition Combination Analysis

After creating the truth table and carrying on the standard analysis, the complex solution, the concise solution and the intermediate solution are obtained. Among them, the intermediate solution contains some counterfactual combinations, but there is not a large number of concise solutions, which is the explanation that the researchers who use qualitative comparative analysis tend to adopt. Follow the recommendation of Fiss, select the consistency threshold of configuration analysis is 0. 5%. 8, the frequency threshold is 1, and the standard analysis is carried out, and the complex solution, concise solution and intermediate solution are obtained. Referring to the methods of other articles, the conditional combination analysis of this paper also focuses on the analysis of intermediate solutions, supplemented by reduced solutions. The intermediate solution model is ACH = f (FAC1, CONS, RULE, ABI1, CONV, IMP). The results are as follows:

In the output result, the intermediate solution and the complex solution have the same output result, in which "*" denotes "and" means that the condition exists and plays a role at the same time, the coverage rate of the solution is 0.55, the consistency is 0.89, and the coverage and consistency of the reduced solution are 0.65 and 0.84 respectively (see Table 6), which has reached the standard sufficient to judge the validity.

After analyzing the combination of conditions that affect the level of urban public safety, combined with the simplified solution and the intermediate solution, we can judge the core conditions in the process of producing the result variables. In the process of analysis, there will be two major elements: core elements and auxiliary elements. The core elements are essential factors in both the intermediate solution and the simplified solution, while the auxiliary elements are the factors that can only appear in the intermediate solution and can be replaced. Therefore, in the results of the analysis, researchers should pay more attention to the core elements. In this study, the intermediate solution is combined and analyzed, and the core elements, auxiliary elements and the antecedent conditional configuration of the foundation's high fund acquisition ability are obtained, such as table 5-4 below.

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Table 6. QCA combined path output results table

Path type	Combination path	Original coverage rate	Consistency	Coverage	Consistency	Typical case
Middle Interspace Solution	~ FAC* *~ CONS*~ABI* *CONV*~IMP	0.2	1	**0.6**	**0.9**	Guizhou Jiangxi
	CONS*RULE*~ABI* *CONV*~IMP	0.2	1			Anhui and Yunnan
	FAC* *CONS*~RULE*~ABI* *IMP	0.3	1			Shandong, Guangdong, Henan
	FAC* *CONS*RULE*~ABI* *CONV	0.2	1			Jiangsu, Anhui, Sichuan
	~ FAC* *~ CONS*~RULE*~ABI* *~ CONV*IMP	0.1	1			Jilin Shaanxi
Single Solution	~ ABI* *CONV	0.5	1	**0.7**	**0.8**	Jiangsu Anhui, Guangdong, Guizhou, Sichuan, Jiangxi, Yunnan, Shandong
	~ ABI* *IMP	0.5	1			Jilin, Guangdong, Sichuan, Shaanxi, Henan, Shandong, Jiangsu

Table 7. Configuration Analysis of Urban Public Safety level

Conditional variable	Essential elements	Configuration 1	Configuration 2	Configuration 3	Configuration 4	Configuration 5
Technical resources	FAC	⊗	⊗	—	●	●
	CONS	⊗	⊗	●	●	●
Cooperative process	RUL	—	⊗	●	○	⊗
	CONV	●	●	○	●	—
Leadership	ABI	⊗	⊗	⊗	⊗	⊗
Accidentia	~ IMP	●	●	○	—	⊗
Consistency		0.984	0.767	0.876	0.902	0.920
Original coverage rate		0.186	0.139	0.182	0.250	0.251
Consistency of solutions		0.895				
Coverage of the solution		0.554				

Note: indicates the existence of the core condition, 0 indicates the existence of the auxiliary condition, and indicates the absence of the core condition, indicating that the conditional variable may exist or be absent.

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There are four kinds of conditional configurations in Table 6, and the consistency of single conditional configurations is higher than 0.8 in Table 7, which indicates that these four conditional configurations are sufficient conditional combinations for high level urban safety. The overall coverage rate is 0.554, indicating that these four conditional combinations can effectively explain 55.4 per cent of the cases, so the four research assumptions described above have been verified. The original coverage rate and the unique coverage rate refer to the proportion of cases that the configuration can explain and the proportion of cases in the case that can only be explained by the configuration.

Where configuration 1 is: ~ FAC*~CONS*~ABI*CONV*~IMP,Configuration 2 is: ~ FAC*~CONS*~ABI*~RULE*~CONV*IMP,Configuration 3 is CONS*RULE*~ABI*CONV*~IMP,Configuration 4 is FAC*CONS*RULE*~ABI*CONV; configuration 5 is FAC*CONS*~RULE*~ABI*IMP.

Because of the maximum coverage of QCA software, the nuances of each case may be magnified by the software by technical means, resulting in the repetition of similar but different configuration sources of the case. Therefore, this study summarizes and merges the combination with the same core interpretation conditions to form the following three driving modes of high urban safety level: mode 1, including configuration 1, configuration 2, their core elements are technology transformation ability and low event impact; mode 2, including configuration 3, the core elements are large technical coverage and perfect collaborative mechanism. Mode 3, configuration 4 and configuration 5, the core elements are digital infrastructure and large technical coverage.

Based on the five configurations obtained by fsQCA, according to the core conditions and auxiliary conditions, this paper sums up three driving modes of "different ways" for the high performance construction of Chinese intelligent cities, which to a certain extent reflect the exploration experience of the first batch of national intelligent city pilot construction in the past five years.

Comprehensive development.The model is Anhui and Yunnan in the typical provinces of configuration 3 (CONS*RULE*~ABI*CONV*~IMP). Under the scenario of a high level of technical resources, the model still has achieved good governance results under the perfect rule making, high technology transformation ability and stable development environment. The provinces under this kind of development model are not a certain element with a very high level of performance, but a comprehensive development. On the whole, this model is suitable for economically developed cities with basic development elements. It is worth noting that this kind of cities have complete development elements, and it is not their core conditions that enrich technological resources, but the perfect rules and strong technological transformation ability under the high attention of the government. Although the coverage of the configuration is low, QCA research and empirical cognition show that attention should be paid to the configuration with low coverage and typical and particularity, because this configuration is of great significance to policy enlightenment and model promotion.

Multi-element driven type.This model has been fully reflected in configuration 4 (FAC*CONS*RULE*~ABI*CONV) and configuration 5 (FAC*CONS*~RULE*~ABI*IMP), representing the provinces of Jiangsu, Sichuan, Shandong, Guangzhou and Henan. These five provinces have rich technical resources, coupled with the high level of political attention to the construction of the prevention and control system of the information society at the government level, the establishment of a perfect social risk prevention and control cooperation mechanism, coupled with their own strong technological transformation ability, multi-factor comprehensive power, so that the city has achieved a higher level of social security effect. This model is used in provinces where the level of information technology development is high but there are certain elements or combinations of elements.

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High conversion power type.This model is manifested as configuration 1 (~FAC*~CONS*~ABI*CONV*~IMP), and the typical provinces are Guizhou and Jiangxi. This model means that even when the technical resources are not rich and restricted by the lack of many factors, the stable development environment itself has provided the development advantage, coupled with the strong technological transformation ability of the government organization, it can also realize the detour overtaking. To achieve a high level of development of urban safety.

4.4. Robust Test

In order to avoid the influence of assignment method on the accuracy of analysis results, this study further carries on the robust test to the above results, the way of inspection is to adjust the calibration standard of each variable once to carry on the calculation, draws lessons from Wang Fazuo and so on inspection method, suitably improves the city high safety level judgment standard, will only nominate the city to be 1 for five years in a row (that is, the safest city to enter the safest city in 2015 / 2022) The value of the nomination is 1, otherwise the original assignment method of 0 is modified to 0.2 for the nomination, otherwise it is 0. After testing, there is no significant difference between the necessary condition analysis and the test results, which shows that the variable selection of this study is reasonable, and the variables that meet the necessary and consistent conditions are not tested, which indicates that the variables still need to be combined and analyzed.

At the same time, the original condition combination of the condition group contract obtained by the robustness test is basically the same, and the consistency of the solution increases to 41.51%, but decreases to 48.14% in terms of coverage, which shows that the original condition combination is not stable to explain the path of improving the fund acquisition ability of the foundation. It can be inferred that the five combinations of conditions explored in this study and their analysis are not robust enough.

5. Summary

The improvement of urban safety level is the result of multi-factor linkage and comprehensive power, and a single development factor can not be used as a necessary condition for the construction of high level of urban safety. This shows that in the work of carrying out high-level urban public safety construction, we can not only see the infinite possibility that technology can bring, we should use a systematic and comprehensive perspective to analyze the matching relationship of elements, and attach importance to the infinite possibilities that can be brought about by the addition of elements combination.

The formation of three conditional configuration modes constitutes the sufficient conditions for urban public safety to reach a high level. Combined with specific cases, it is summed up as three driving modes: comprehensive development type, multi-factor driving type under technical support, and high conversion ability type. These three modes are combined, equivalent and situational.

By analyzing the results of conditional configuration, rich technical resources are important development elements in urban public safety governance, so it is a feasible and effective development strategy to enable urban safety through information technology for those areas with superior technological resource endowment, but for those areas with inherent shortcomings in technological level, the ability of technological transformation should be improved. It is also a feasible way to build a perfect operation mechanism.

After analysis and summary, the article forms the following policy enlightenment: first of all, the governance process of urban public safety risk is essentially a process in which the government and other social subjects provide public safety products and services to the public through the integration of resources and power, which is a test of the ability of the whole social

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system to deal with risks. Therefore, the urban government should carry out strategic combination learning and action according to the local factor conditions and comparative advantages and disadvantages, consider the results of its own conditional endowment and factor superposition effect, and carry out the intelligent city construction of "one city, one policy" according to local conditions. If the construction does not combine with the local actual conditions, blind policy diffusion will only cause greater construction and waste of resources. Second, we should strengthen the attention and continuous allocation of the government. In the research hypothesis, the impact presupposition of emergencies is discussed in the case, which shows that it is necessary for the government to pay attention to the investment and sustainability of urban public safety risk management.

References

[1] Viktor Mayer-Schonbcrgcr& Kenneth Cukior. Big Data: A Revolution That will Transform. How We Live,Work,and Think [M]. Boston: Eamon Dolan/Houghton Mifflin Harcourt. 2013,p. 141-145.

[2] Milakovich ME. Digital Governance: New Technologies for Improving Public Service and Participation[M]. New York:Routledge,2012,p. 381-391.

[3] Bick I A,Bardhan R,Beaubois T,"Applying fuzzy logic to open data for sustainable development decision-making: a case study of the planned city Amaravati",Natural Hazards,Vol. 91(2018),No. 3,p. 1317-1339.

[4] Musa A ,Watanabe O,Matsuoka H,et al,"Real-time tsunami inundation forecast system for tsunami disaster prevention and mitigation",Journal of Supercomputing,,Vol. 74(2018),No. 7,p. 3093-3113.

[5] Zheng Y,Zhao Y,Liu W,et al. ,"An intelligent wireless system for fifield ecology monitoring and forest fifire warning",Sensors,Vol. 18(2018),No. 12,p. 4457.

[6] Richard Berk,“Asymmetric Loss Functions for Forecasting in Criminal Justice Settings,”Journal of Quantitative Criminology,Vol. 27(2011),No. 1,pp. 107-123.

[7] BARBARA A, LUC J,GILLES P. E-Governance&Government OnLine in Canada:Part-nerships, People &Prospects [J]. Government Information Quarterly,Vol. 18(2001),No. 2,p21-32.

[8] BRANSCOMB L M. Sustainable cities: safety and security[J]. Technology in Society,Vol. 46(2006),No. 26,p. 231-236.

[9] FISS P C. Building better casual theories: a fuzzy set approach to typologies in organizational research[J]. Academy of management journal,Vol. 27(2011),No. 2,p. 393-420.

[10] Merrill, S., Sumartojo, S., Closs Stephens, A., & Coward, M. (2020). Togetherness after terror: The more or less digital commemorative public atmospheres of the Manchester Arena bombing’s first anniversary. Environment and Planning D: Society and Space, Vol. 38(2020),No. 3,p. 546-566.

[11] Gregory A. Williams, Chelsea L. Woods & Nicole C. Staricek (2017) Restorative Rhetoric and Social Media: An Examination of the Boston Marathon Bombing, Communication Studies, Vol. 68(2017), No. 4,p. 385-402.

[12] Arvanitis, K. The ‘Manchester Together Archive’: researching and developing a museum practice of spontaneous memorials. museum and society, Vol. 17 (2019),NO. 3,p. 510-532.

[13] Holands, R. G., will the real smart city please stand up? City,Vol. 12(2008),NO. 3,p. 303-320.

[14] Xu Hongxia, in Yongchuan, Yan Jianzhuo. Under the background of big data, urban multi-dimensional risk prediction and comprehensive disaster reduction capacity building. Smart City, Vol. 18(2021),NO. 7,p. 41-43.

[15] Zhou Limin, Luo Yunze. Wisdom and energy: emergency management in the era of intelligent city [J]. Theoretical discussion, Vol. 16(2023),No. 2,p. 69-78.

[16] Zhang Haibo, Dai Xinyu, Qian Depei, Lu Jian. Strategic analysis of modernization of new generation information technology enabling emergency management. Journal of the Chinese Academy of Sciences,Vol. 12(2022),No. 7,p. 1727-1737.

ISSN: 2710-0170

[17] Nazarnia, H., Sarmasti, H. & Wills W. (2020). Application of Household Disruption Data to Delineate Critical Infrastructure Resilience Characteristics in the Aftermath of Disaster: A Case Study of Bhaktapur, Nepal. Safety Science, Vol. 121,No. 9,p. 573-579.

[18] Arvanitis, K. The'Manchester Together Archive': researching and developing a museum practice of spontaneous memorials. Museum and society,Vol. 17(2019),No. 3,p. 510-532.

[19] Gregory A. Williams,Chelsea L. Woods & Nicole C. Staricek Restorative Rhetoric and Social Media: An Examination of the Boston Marathon Bombing,Communication Studies,Vol. 68 \(2017),No. 4,p.385-402.