Study on the influence of smart city construction on municipal social governance capacity

---Empirical analysis based on panel data from 283 prefecture-level cities

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Abstract. Based on the panel data of 283 prefecture-level cities in China from 2008 to 2022, the municipal social governance capacity index is constructed, and the multi-stage DID model is used to conduct an empirical study on the impact of the social governance capacity of smart cities. The research results show that the smart city can improve the management level of the city area, and there are significant differences between the pilot and non-pilot cities. The test of intermediary effect shows that the construction of smart city can improve the governance ability of the city through the intermediary effect of human capital factor, the resource endowment of system innovation factor and economic capital factor. The heterogeneity test shows that the city scale is large, and the pilot smart cities in the Middle East can improve the city governance capacity more significantly. Therefore, the policy suggestions are put forward on the issues related to the smart city.

Keywords: Smart city construction; Capital elements; Urban social governance ability; Multi-stage DID

1 Foreword

As China has entered a new stage of the development of socialism with Chinese characteristics, China's governance is facing more problems and challenges, which is a huge challenge to a country's management capacity. To accelerate the modernization of urban social management, we must strengthen the management of urban construction and strive to build a country at a higher level. From the overall concept, urban social governance is a kind of hub grassroots social governance, which refers to the cooperative mechanism established in the field of urban social governance to deal with the social contradictions in urban areas through some social control way, solve the social problems in the city, so as to promote social harmony and stability in the city.

This paper aims to study the impact of smart city construction on urban social governance capacity, explore the path and heterogeneity of the impact of smart city construction on urban social governance capacity, and put forward policy suggestions to

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promote the improvement of urban social governance capacity. The research results are of certain significance for promoting the development of urban social governance and the sustained and steady growth of national economy.

2 Literature Review and Research Hypotheses

2.1 The Impact of Smart City Construction on Social Governance Capacity

There are not many direct studies on the role of the construction of smart city on the urban social governance capacity at home and abroad. Urban social governance has become a common concern and research topic of academia and government departments. Urban social governance lacks high-level scientific and reasonable design, so it is urgent to update the theory and paradigm of urban social governance planning, optimize the evaluation mechanism and standard urban social governance system, and have an in-depth understanding of municipal social governance. Based on the three key words of "city area", "social governance" and "modernization", He Yang and other scholars define the modernization of urban social governance as a dynamic process of promoting the transformation of social governance system from traditional to modern to the realization of scientific and systematic system. Li Lanbing and Wang Weiqi believe that the indicators to be considered in the modernization of urban social governance are order and stability. Chen Chengwen and other scholars believe that the city is a specific urban area, focusing on the modern social management concept, and improving the informatization and specialization of social governance is the goal of action. In the research of smart city construction, scholars have put forward suggestions on innovating the urban management system and social governance framework, trying to build a modern urban governance model and explore the way of smart city construction to realize the modernization of urban governance capacity.

Based on the above analysis, there is still a lack of theoretical theories and empirical research on smart city and social governance capacity. Therefore, this paper takes the pilot of some smart cities as an example to study the relationship between them and the social governance ability of the city. Accordingly, make the following assumptions:

H1: The construction of smart city promotes the improvement of social governance capacity in the city, which is a positive correlation.

2.2 The Influence of Smart City Construction and Resource Elements on Urban Social Governance Capacity

According to the existing literature and data, there have been different studies at home and abroad on the influence of smart city construction and factor endowment on the municipal social governance capacity. Guo Guangwei, Xie Lil believes that to accelerate the construction of smart cities, One of the most effective ways is to use innovation to promote smart city construction, Scientific and technological talents are the core human resources for regional innovation-driven development, Talent has become the rigid demand of smart city construction[1]; COWLEY R, CAPROTTI F and so on use the

two-fold difference model, The panel data of prefecture-level cities is selected to study the construction of smart city to promote the development of technology, industry, economy and other aspects[2-3] ; Chu Jinhua and Tang Huan used the empirical methods such as PSM and DID, Study the influence of smart city construction on human and economic aspects of urban innovation ability, Empirical analysis shows that the construction of smart city has a positive impact on the urban innovation ability[4]; He Yang believes that technology is an important driving force for social development. The far-reaching influence of the development of modern technology has led to the reform of social governance, and the development of modern science and technology has promoted the establishment of a modern social management system[5]. Yang Hao and Nan Rui believe that social governance expenditure is closely related to economic growth and affects each other. Based on the above research, this paper divides the resource endowment elements into three aspects: human capital elements, institutional innovation elements and economic capital elements as intermediary effects[6].

Previous studies have shown that the construction of smart city, factor endowment and urban social governance ability influence each other, but the influence mechanism of the three is not systematically analyzed. Accordingly, the following assumptions are made:

H2: Smart city construction has a positive impact on the social governance ability of the city through the intermediary variable of human capital elements in the resource elements.

H3: Smart city construction has a positive impact on the social governance ability of the city through the intermediary variable of institutional innovation elements in the resource elements.

H4: Smart city construction has a positive impact on the social governance ability of the city through the intermediary variable of economic capital elements in the resource elements.

3 Study Design

3.1 Model Construction

The impact of the construction of smart city on the social governance capacity of the city, and the direct effect of the construction of smart city is to improve the social governance system and have a more scientific governance method. The second is the relationship between the construction of smart city and resource endowment. By further refining the categories of resource endowment into human resources, system and economy, it can be seen that the construction of smart city can promote the introduction of talents, improve the level of technology research and development and improve the level of economic development[7-8] .Finally, the factors of human capital, system innovation in the elements of resource endowment, and the elements of economic capital as the intermediary effect.

In order to facilitate the empirical analysis of "whether the construction of smart city can improve the social governance capacity of the city", the quantitative measurement problem of the municipal social governance capacity should be solved first. Referring

to the research of relevant scholars at home and abroad, the index system of social governance capacity constructs the measurement index system of urban social governance capacity from six aspects: science and technology, education, transportation, medical care and social security, as shown in Table 1.

Table 1. Measurement index system of municipal social governance capacity

Measurement index		
science and technology	Library collection (volumes / 10,000 people)	X1
	Number of patent applications (/ 10,000 people)	X2
	The proportion of technology expenditure (%)	X3
Education	The proportion of students in colleges and universities (%)	X4
	The number of institutions of higher learning in the city (place)	X5
	The proportion of education expenditure (%)	X6
Traffic	Actual road area (square meter / 10,000 people)	X7
	Actual number of buses (vehicles / 10,000 people)	X8
Medical treatment	Number of doctors (/ 10,000 people)	X9
	Number of hospital beds (/ 10,000 people)	X10
Social security	Proportion of unemployment insurance participation (%)	X11
	The proportion of urban workers participating in medical insurance (%)	X12
	The proportion of urban workers' endowment insurance participation (%)	X13

In order to avoid the measurement error caused by data heteroscedasticity and index undimensionalization, this paper uses the relative index as far as possible to make the index value more reasonable. At the same time, in order to ensure the objectivity and feasibility of the method, the entropy method is chosen to empower the index system to measure the index of social governance ability in the city. Finally, the municipal social governance capacity index of 283 prefecture-level cities and these cities from 2008 to 2022 was calculated. The original data is from the website of the National Bureau of Statistics. The descriptive statistics of each index are shown in Table 2.

Table 2. Descriptive statistical results of social governance capacity data

Variable name	Sample capacity	Average value	Variance	Least value	Crest value
X1	4245	5.308	7.415	0.128	92.315
X2	4245	10.022	23.402	0.017	308.332
X3	4245	0.016	0.017	0.003	0.246
X4	4245	1.574	2.136	0	15.143
X5	4245	6.624	12.458	0.016	93.106
X6	4245	0.362	0.332	0.028	5.023
X7	4245	4.203	5.132	0.139	80.133
X8	4245	2.976	3.844	0.081	57.325
X9	4245	21.635	11.0871	1.308	98.577

X10	4245	39.324	17.339	2.681	131.224
X11	4245	0.130	0.117	0.003	1.146
X12	4245	0.200	0.234	0.006	4.629
X13	4245	0.186	0.173	0.001	1.633

3.2 Sample Selection and Data Acquisition

Based on accuracy considerations in data selection, the data were removed from the sample due to the inconsistency of statistical methods of Hong Kong, Macao and Taiwan data and the lack of relevant data in Tibet Autonomous Region. In 2012, China launched the first batch of smart city pilot projects, and established the second and third batch of smart cities in 2013 and 2014.In the end, 283 prefecture-level cities in China were selected as samples to explore the role of smart cities on social governance through the study of relevant city data from 2008 to 2022.In this paper, the pilot of "smart city" serves as a "quasi-natural experiment", and includes the three pilot cities in 2012,2013 and 2014.Regarding the partially lost data, the mean or interpolation method is used to ensure the integrity of the data.

3.3 Model Setting and Description of Variables

This paper studies the impact of smart city construction on the urban social governance capacity, and compares the urban social governance capacity before and after the smart city pilot, so as to evaluate the effect of the pilot policy. From the above perspective of the relationship between the construction of smart city and urban social governance capacity, there are many factors affecting the social governance capacity of cities under the actual situation in China. Therefore, the social governance capacity of urban areas cannot be simply attributed to the construction of smart cities. On this basis, the DID model is used to compare the social management level of the pilot and non-pilot smart city, and to verify its role in improving the social governance ability level of the city. Based on the multi-stage DID model method, the model is set as follows:

$$Social_{it} = \alpha_0 + \alpha_1 smartcity_{it} + \sum_{i=1}^{n} \beta_j \, control_{it} + v_i + \mu_t + \varepsilon_{it} \quad (1)$$

In the model,$Social_{it}$ is the explained variable, It represents the social governance capacity of the city i in year j.$smartcity_{it}$ represents the interaction item between the smart pilot city and the pilot time， the value is 1 representing the two variables of smart city pilot and pilot time, and the value of virtual variable is 0 in other cases.α_0 is a constant term. α_1 is the interaction term coefficient, It reflects the influence effect of the pilot of smart city construction on the social governance capacity of the city. If α_1 is greater than zero, it shows that the development of smart city has a certain role in promoting the management level of the city. If α_1 is less than zero, it means that the construction of smart city reduces the social governance capacity of the city.v_i represents the fixed effect of city. μ_t represents the fixed effect of year.$control_{it}$ is the control variable, It includes the degree of opening to the outside world, government

intervention, economic development level and other factors.ε_{it} denote the model random error term.

Explained variable: Urban social governance capacity (Social). Establish evaluation indicators for social governance capacity, the index of municipal social governance capacity is calculated.

Explaining variable: Smart City Pilot City (smartcity). That is, the interaction term of the smart pilot city and the pilot time is represented by the virtual variables 0 and 1.

Controlled variable: By combining the existing research results, it is found that the municipal social governance ability is affected by many factors. On the basis of referring to relevant studies at home and abroad, the following control variables are selected: degree of opening to the outside world, degree of government intervention, level of economic development, natural environment, population density, and infrastructure construction. The names and descriptions of each variable are shown in Table 3.

Table 3. Main variables and their descriptions

Type of variable	Variable name	Representation of symbol	Variable declaration
Explained variable	Urban social governance capacity	Social	Municipal social governance capacity index
Explaining variable	Smart city virtual variable	smartcity	According to the three batches of smart city pilot list, assign the value of 0 and 1
Controlled variable	Density of population	den	Population number per unit area
	Natural environment	nat	Annual average temperature
	Economic development level	eco	Per capita GDP
	Government intervention	int	The ratio of regional fiscal expenditure to GDP
	Open to the outside world	ext	The ratio of foreign direct investment to GDP
	Infrastructure construction	con	The ratio of the actual road area to the total area of the urban land

4 Empirical Inspection and Analysis

4.1 Descriptive Statistics of the Variables

In order to reduce the error, the above variables were analyzed in the empirical analysis. The descriptive statistics of the variables are shown in Table 4.

Table 4. Descriptive statistical results of the variables

Variable name	Observed value	Average value	Standard deviation	Least value	Crest value
Urban social governance capacity (Social)	4245	11.3254	10.4471	3.0014	76.1274
Smart city (smartcity)	4245	0.4325	0.4100	0	1
Open to the outside world (ext)	4245	0.3211	0.3744	0	9.2241
Government intervention (int)	4245	2.7745	0.5106	2.0147	5.1001
Economic development level (eco)	4245	10.0025	0.7225	7.0211	14.2241
Natural environment (nat)	4245	7.6389	0.3110	6.7762	8.2344
Density of population (den)	4245	6.1178	0.8114	2.9773	7.8774
Infrastructure construction (con)	4245	2.5570	0.1679	1.4667	2.6774

4.2 Regression Result Analysis of the Benchmark Model

This paper uses the data information of smart city construction to match the information of municipal social governance ability, and the analysis results are shown in Table 5. Econometric regression equation is used: Model (1) is the regression analysis of the two main variables after fixing the effects of individual effect and time effect. The coefficient of the core explanatory variable, smart city construction, is significantly positive, and all the factors show a positive trend, which indicates that the experiment of smart city has been gradually carried out in China, and the effect of social governance has been greatly improved compared with other smart cities that have not been carried out. Research shows that the intelligent urban management is of great significance for improving the level of social governance. Model (2) was obtained from regression of the control variables from model (1), with an estimated factor of 0.93799 and is significant at the 1% level. Compared with the cities without the pilot program, the overall level of smart cities in the pilot cities increased by 93.799%.

Table 5. Benchmark regression results

Variable name	(1) Social	(2) Social
smartcity	9.6220***	9.3799***
	(0.3547)	(0.3328)
ext		0.1244
		(0.5705)

int		0.2631*** (0.1724)
eco		0.5810*** (0.3106)
nat		-2.7941*** (0.7916)
den		-0.6221*** (0.1705)
con		3.2478*** (0.0884)
Observed value	4245	4245
City fixed effect	Y	Y
Year fixed effect	Y	Y
Adjust R^2	0.646	0.677

Note: Steady standard error is included in brackets.*, **, ***represents ote significant at 10%, 5% and 1% levels, respectively.(similarly hereinafter)

4.2.1 Parallel Trend Test

The necessary premise to meet the double difference method is the parallel trend test. Therefore, this study must pass a parallel trend test to adopt a two-fold differential model. Before the smart city pilot, the change of the municipal social governance capacity of the pilot cities and the non-pilot cities should show the same trend, otherwise, the dual differences may exaggerate or underestimate the effect of the smart city construction. To verify the common trend, the following model is constructed:

$$Social_{it} = \alpha_0 + \sum_{k\geq -7}^{6} \alpha_k \, smartcity_{it}^{k} + \sum_{i=1}^{n} \beta_j \, control_{it} + v_i + \mu_t \qquad (2)$$

$Social_{it}$represents the municipal social governance capacity. The i denotes the individual. The t denotes time. And j represents the time relative to the smart city pilot (j=-7, -6， …, 4, 5, 6), When j= -7, -6,..., 5,6, smartcity This dummy variable takes a value of 1, otherwise 0.Since the first year of the smart city pilot was used as the base period in the parallel trend test, the dummy variables at j=0 were removed from the model.

As shown in Figure 1, in the years before the construction of smart city, the regression coefficient was not significant and the value was relatively small, indicating that there was no significant difference in the urban development trend between the treatment and control groups when the smart city pilot was not involved. After the pilot project of smart city, the development of smart city plays an important role in improving the level of regional social governance. The results show that this method coincides with the parallel trend test, and that the benchmark regression method is used to calculate, and the results are reliable.

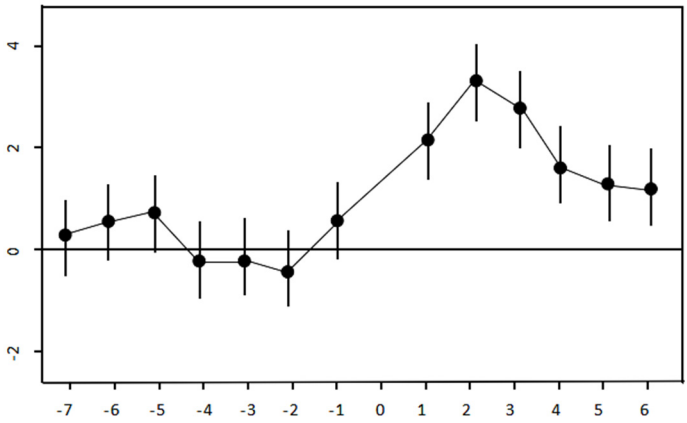

Fig. 1. Parallel trend test

4.2.2 Robustness Test

Furthermore, the sampling error is corrected by using the PSM-DID algorithm. Starting from the gradual implementation of smart city policy, the implementation of smart city policy was adopted as the control group, and the control group was regression year by year according to the three methods of close neighbor matching, nuclear matching and radius matching. Meanwhile, its robustness was tested by using the PSM-DID technique. Table 6 shows the regression analysis for each factor. Studies have shown, After the application of PSM-DID technology, the demonstration role of smart cities has still significantly improved the level of social governance in urban areas. The estimated value of this model is consistent with the benchmark regression analysis, which confirms the conclusion of this paper: the construction of smart city is conducive to improving the social governance level in the city.

Table 6. Results of the robustness test for PSM-DID

Variabl	Close neighbor matching Social	Nuclear matching Social	Radius matching Social
smartcity	0.1022** (0.0631)	0.1106** (0.0588)	0.1022** (0.0630)
Controlled variable	Y	Y	Y
City fixed effect	Y	Y	Y
Year fixed effect	Y	Y	Y
Constant term	10.2485*** (0.4223)	10.2107*** (0.4389)	10.0356*** (0.4365)
Observed value	4115	4089	4132
R^2	0.6363	0.6402	0.6363

4.2.3 Placebo Test

Through the empirical analysis of the level of urban social governance in China, the placebo was tested using the existing studies. In order to ensure that the tested city affected by the wisdom city policy is random, selected in all the samples and control group, and repeated random sampling, through the benchmark regression model for multiple regression analysis, thus the regression coefficient of core explanatory variables, to ensure that the city social governance level is not affected by other. The distribution of the kernel density after the random treatment is indicated in Figure 2.The study showed that the smart city trial had no significant effect on the uncertainty of the level of social governance, indicating the reliability of the PSM-DID model algorithm.

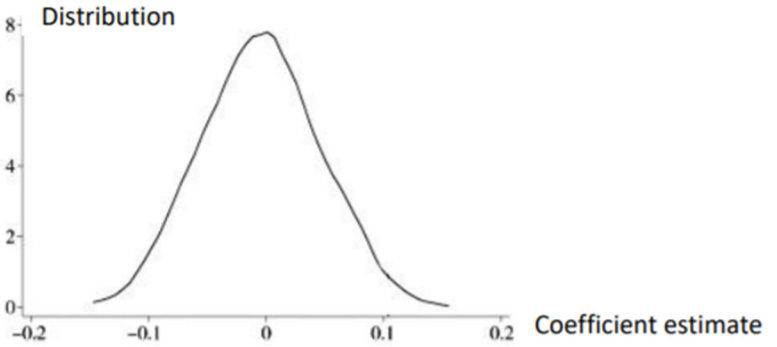

Fig. **2.** Placebo test-kernel density profile

4.3 Mediation Effect Test

Considering that the construction of smart city will have an impact on the municipal social governance capacity from multiple perspectives, it is not a simple direct effect. The construction of smart city has an impact on the social governance capacity of the city through the intermediary variable of factor endowment. The intermediary variable of factor endowment is analyzed from three aspects: human capital element (cap), institutional innovation element (inn) and economic capital element (str).The construction of smart city can improve the social governance capacity of the city from three channels: human capital elements, institutional innovation elements and economic capital elements. For further confirmation of the presence of mediation variables, the following mediation effect test model was established:

$$Social_{it} = \alpha_0 + \alpha_1 smartcity_{it} + \sum_{i=1}^{n} \beta_j \, control_{it} + v_i + \mu_t + \varepsilon_{it} \quad (3)$$

$$cap_{it}, inn_{it}, str_{it} = \gamma_0 + \gamma_1 smartcity_{it} + \sum_{i=1}^{n} \beta_j \, control_{it} + v_i + \mu_t + \varepsilon_{it} \quad (4)$$

$$Social_{it} = k_0 + k_1(cap_{it}, inn_{it}, str_{it}) + k_2 smartcity_{it} + \sum_{i=1}^{n} \beta_j \, control_{it} + v_i + \mu_t + \varepsilon_{it} \quad (5)$$

Based on the estimates of models 2,4 and 6,Results of the mediation effect tests are shown in Table 7.Wisdom city construction can significantly promote human capital elements, system innovation elements and economic capital elements, the other model 3, model 5 and model 7 variable human capital elements, system innovation elements, economic capital elements and wisdom city construction pilot coefficient are significantly positive, through the human capital elements, system innovation elements, capital elements such as analysis, points out the key factors to improve the level of regional social management. The above research results show that the construction of smart city can improve the governance level of urban society from the aspects of promoting human capital, institutional innovation and capital elements.

Table 7. Estimation results of the intermediary effect of the influence mechanism of smart city construction on urban social governance capacity

Variable name	Human capital elements		Institutional innovation elements			Economic capital elements	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	Social	cap	Social	inn	Social	str	Social
smartcity	0.2213*** (3.4712)	0.7348*** (9.7624)	0.1997*** (2.9457)	0.04875*** (7.5997)	0.2003*** (3.4112)	0.2384*** (9.4412)	0.1778*** (2.334)
cap			0.09973*** (6.4487)				
inn					1.8661*** (4.6124)		
str							0.4877*** (10.0012)
Controlled variable	Y	Y	Y	Y	Y	Y	Y
City fixed effect	Y	Y	Y	Y	Y	Y	Y
Year fixed effect	Y	Y	Y	Y	Y	Y	Y
Constant term	-1.6333 (-1.4112)	-9.0047*** (-6.2144)	-0.9001 (-0.6972)	0.7341*** (12.9655)	-2.9983*** (-2.3114)	-2.8876*** (-5.9421)	-0.3881 (-0.2899)

Observed value	4245	4245	4245	4245	4245	4245	4245
QuasiR^2	0.6523	0.3857	0.5774	0.6231	0.5871	0.5541	0.4125

4.4 Heterogeneity Analysis

In order to realize the promoting effect of smart city construction on the social governance capacity of urban areas, the differences between cities in population size, geographical location and administrative level must be fully considered. This paper further explores the heterogeneity analysis of urban regional differences and city size on the influence of smart city construction on urban social governance capacity, and the results are shown in Table 6.

4.4.1 Regional Heterogeneity

Overall, China can be divided into three regions: eastern, central and western regions. There are obvious differences in geographical location and economic strength among the three regions. Considering the huge differences in different regions of China, the role of smart city construction on the social governance capacity level in the city area still needs to be further studied. Based on this, the regression analysis of the social governance capacity of smart city construction was tested by region.

The estimated results show that the construction of smart city in the eastern region has a significant impact on the social governance capacity of the city at 1%, and its regression coefficient is 0.1211, indicating that the construction of smart city is conducive to the improvement of the social governance capacity of the city. The regression coefficient of the influence of smart city construction in central China on the urban social governance capacity is significantly positive at the 1% level, and the coefficient value is 0.1364.The regression coefficient of the influence of smart city construction on the urban social governance capacity in the western region is significantly positive, with 0.1147.In the three regions of the east, the central explanatory variable smartcity regression coefficient of the central region was greater than that of the east. It shows that the policy effect of smart city construction is more obvious in the central region. The development of western China is limited, the economic development is relatively backward, the innovation ability is not high, and the lack of urban development power. The economic development of the central region is at the middle level, with the great potential of optimal allocation of technology and resources, and the positive impact on urban development is very obvious. Different from the Midwest, the eastern region economic development strength, complete infrastructure construction, to improve regional social governance ability has a positive effect, but cannot be ignored is the eastern region is densely populated, cause certain pressure on urban development level, which also will hinder regional social governance, inhibit urban development process. Therefore, the policy effect of smart city construction in central China on the urban social governance capacity is better than that in the east and west regions.

4.4.2 Urban Size Heterogeneity

In order to further verify the heterogeneity of the construction effect of smart cities, the paper divides the city scale grade into megacities, large cities and small and medium-sized cities, and studies that the social governance ability of the city is affected by the heterogeneity of the city scale. Small and medium-sized cities are defined as less than 1 million, big cities have permanent residents of 1 million to 5 million, and megacities are defined as permanent residents of more than 5 million. The estimation results show that the regression results of the impact of smart city construction on the social governance capacity of the city under different city sizes. Through, the regression results of model (4), model (5) and model (6) show that:

The social governance capacity of smart cities and large cities is significant at 1%; instead, the regression coefficient of the construction of smart cities in small and medium-sized cities is 0.1762, which is not significant, indicating that the effect of smart city construction of megacities and big cities is good, while the effect of smart city pilot of small and medium-sized cities is not obvious. This shows that there is scale heterogeneity in the influence of smart city on urban social governance capacity. The construction of smart city has an obvious positive role in promoting megacities. In the construction of scientific and technological innovation capacity, the construction of smart city is constantly improved, the foreign investment increases, and further improves the degree of economic agglomeration, which is conducive to the improvement of urban social governance capacity and the promotion of urban development. Although big cities also have the above advantages, they are obviously insufficient compared with megacities, so the effect of conducting smart city pilot projects in megacities is better. Small and medium-sized cities have a weak ability to carry out technological innovation, and the construction of smart cities relying on modern information technology can not play a full role. Despite the active intervention of the government, the government cannot bear the social governance problems in the city alone.

Table 8. Heterogeneity results of the impact of smart city construction on urban social governance capacity

Variable name	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	The east area	The middle area	The west area part	Megalopolis	Big city	Middle-sized and small cities
smartcity	0.1211*** (2.0645)	0.1364*** (3.0024)	0.1147*** (2.9112)	0.3147*** (0.2651)	0.2844*** (0.1771)	0.1762 (0.9972)
Controlled variable	Y	Y	Y	Y	Y	Y
City fixed effect	Y	Y	Y	Y	Y	Y
Year fixed effect	Y	Y	Y	Y	Y	Y
Constant term	1.1772*** (3.4215)	0.7322*** (2.8997)	0.2461*** (0.8776)	0.8843*** (2.1141)	0.4417** (1.3694)	0.9745 (0.7951)
Observed value	1480	1493	1272	1523	2408	314
QuasiR^2	0.3245	0.4365	0.3677	0.2541	0.2647	0.3616

5 Conclusions and Policy Recommendations

This paper uses the panel data of 283 prefecture-level cities in China from 2008 to 2022, takes the pilot cities as the natural experiment, and uses the multi-stage DID model to explore the influence analysis of smart city construction on the level of social governance capacity in the city, the effect analysis of intermediary variables and the heterogeneity analysis. The study results show that:

First, the construction of smart city is directly related to the level of urban social governance capacity, indicating that there is a significant positive relationship between the construction of smart city and urban social governance capacity in China.

Second, the construction of smart city has enhanced the social governance capacity of the city area by promoting the intermediary effects such as human capital elements, system innovation elements and economic capital elements.

Third, in the process of smart city development, the improvement of social governance level shows the characteristics of regional heterogeneity and scale heterogeneity. Cities of different regions and different sizes have different roles in their social governance capacity.

On the basis of the above research results, the paper gives the following suggestions:

First, the construction of smart cities should be adapted to local conditions and times. Due to different urban sizes and regional differences, there are also differences in social governance capacity, so each city should timely promote the construction of smart city according to the urban economic conditions, governance status and other factors. According to their own development level, different cities can choose combination factors to make full use of strengths and avoid weaknesses, and can formulate differentiation strategies in line with their own situation. The overall level of urban development in the western region is relatively low, and the problem of unbalanced development is particularly prominent. Western cities face both opportunities and challenges. It need not only to provide computing power to the east and serve the digital transformation of the east and the whole country, but also to accelerate their own urban development and narrow the digital gap with the eastern region. However, western cities are still faced with problems such as low overall level of development and unbalanced regional development. Moreover, from the perspective of smart city construction, the paths of high and low urban development level are not the same. Therefore, all regions should base themselves on their own conditions and resource endowment.

Second, the organic combination of smart city construction and social governance. We will vigorously promote the planning and construction of smart cities, encourage competent units or regions to carry out pilot projects, and timely introduce representative regions. With the intelligent functions of information network and hardware and software facilities, smart cities have become an important driving force and carrier of the smart city management system and management capacity of smart cities. Technological innovation is the basic element of high-level urban development and an important direction of urban development in western China in the future. Research has found that technological innovation is a necessary condition to improve the level of urban development. Various types of cities cultivate and attract outstanding scientific and technological talents through the combination of financial support, policy

preference, tax incentives and institutional guarantee, encourage enterprises to carry out technology research and development, promote cooperation and exchanges among innovative enterprises, research institutions and universities, and promote sustainable development. In building a smart city, adhere to the "people-oriented" as the core, the needs of citizens as the center, with the quality public service concept, strengthen systematic planning; ensure the balanced regional development, integrate resources, and seamlessly connect with the social governance system.

Third, we should optimize resource allocation and improve governance capacity. Resources are the foundation of social production and development, and resource allocation determines the utilization efficiency and economic benefits of resources. Reasonable resource allocation can guarantee the sustainable development of the society, improve the overall productivity and economic benefits, and then significantly improve the social governance capacity of the city. First of all, the government should strengthen the supervision and regulation of resource allocation, implement market-oriented reform, reduce the government's excessive intervention in market resources, and provide a level competition environment for enterprises and market entities. Secondly, the government should establish a sound information disclosure system, improve information transparency, and ensure that market participants can timely understand the relevant information of resource allocation, so as to make reasonable decisions. In addition, the government also needs to strengthen its own supervision and accountability mechanism to avoid the abuse of power and corruption and ensure the maximization of public interests.

Fourth, attach the importance of information security in the construction of smart cities. Cloud computing big data center is gradually developing to provide a basic information service platform for smart cities. At the same time, in the process of urban social governance, the city has put forward higher requirements for the application and promotion of modern mobile Internet, big data and other information technologies. In the process of developing smart city construction in China, the government has a leading position, so it must pay close attention to and strengthen its risk management. In the process of data collection and integration, ensure the security of transmission channels, ensure the integrity of data resources, ensure the timely and effective use of data resources, and establish and improve the relevant laws and regulations related to data and information security.

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