

Cyberspace Participation, Expectations of Social Mobility, and Residents' Sense of Social Equity

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Abstract: At present, cyberspace and residents' daily life have been deeply integrated, and the degree of participation in cyberspace reshapes the individual's perception logic of social justice. Based on the survey data of CGSS2023, this paper constructs the cyberspace participation index from the three dimensions of equipment foundation, use intensity and information dominance, and systematically examines the impact of cyberspace participation on Residents' sense of social justice. The study found that excessive participation in cyberspace would significantly reduce residents' sense of social justice. In this process, the subjective perception of upward mobility played a partial intermediary role, while the use of traditional media had a significant positive regulatory effect on Residents' sense of social justice; The impact effect is more prominent in rural areas and vulnerable groups with low education. The research reveals the impact of information differentiation on Residents' perception of social equity in the digital age. Based on this, policy suggestions are put forward to bridge the digital divide, play the buffer role of traditional media, and improve the social equity security system, which provide empirical support for optimizing digital governance and enhancing residents' sense of equity.

Keywords: Cyberspace Participation; Sense of Social Equity; Subjective Perception of Class Mobility; Traditional Media

1. Introduction

Social equity is the core value premise of modern national governance (Wang Huxue, he Xiaoxiao, 2024), and it is also an important part of people's needs for a better life. Fairness and justice are not only the essential requirements of the socialist system, but also the fundamental support for promoting common prosperity and

social harmony and stability in the new era. As an individual's subjective evaluation of resource allocation, access to opportunities and the fairness of system operation, the sense of social justice covers three structural dimensions of politics, security and economy (Li Wei, 2019). It not only directly reflects the effectiveness of social governance, but also profoundly affects residents' sense of happiness, sense of access and social cohesion. It is a key indicator to measure social mentality, social trust and social stability. With the leap forward development and comprehensive popularization of digital technology, digital media such as the Internet, mobile terminals, social media and short video platforms have been deeply integrated into residents' daily life, profoundly changing the mode of information dissemination, interpersonal communication mode and cognitive logic among individuals. The advent of the digital age has broken the traditional information barriers, greatly widened the channels for residents' information access, reduced the cost of information access, and made it easier for residents to participate in public discussions, understand social issues of interest, and express their interests. Residents' lives have gradually entered the digital age. However, at the same time, the massive, fragmented and emotional transmission characteristics of digital information have led to distortion in the process of information transmission. At the same time, the problems of information cocoon and circle differentiation caused by algorithm recommendation are also intensifying social contradictions by strengthening social comparison and amplifying class differences, which has a complex and profound impact on Residents' perception of social equity (liruoxuan, chenfajing, 2025). Cyberspace participation has become a key variable shaping residents' social attitude and influencing their perception of fairness. Clarifying the internal relationship between the two has important practical significance and

academic value.

Since entering the new era, with the rapid development of China's economy and society, the continuous improvement of people's material living standards, the income gap, urban-rural differences, restricted class mobility and other social issues have gradually attracted residents' attention, and social equity has become the core issue that residents are increasingly concerned about. In recent years, academic circles have carried out a lot of research around digital technology, Internet use and social justice. Some studies have pointed out that the application of digital technology has strengthened residents' awareness of social inequality by enhancing residents' sense of relative income inequality. Under the background of the digital age, how the degree of residents' cyberspace participation affects the perception of social equity by influencing individual class cognition and mobility expectation remains to be further studied.

In this context, based on the 2023 China Comprehensive Social Survey (CGSS) data, this paper constructs the cyberspace participation index from the three dimensions of digital equipment foundation, use intensity and information dominance, and systematically examines the impact of cyberspace participation on Residents' sense of social justice, mediation path, regulation mechanism and group heterogeneity. The research aims to respond to the realistic concerns of social justice perception in the digital age, enrich the theoretical connotation of digital sociology and social justice research, and provide empirical evidence and policy enlightenment for optimizing digital governance, improving information dissemination guidance, and enhancing residents' sense of fairness.

2. Literature Review and Research Hypotheses

2.1 Analysis of the Main Effect of Cyberspace Participation on Residents' Sense of Social Equity

The sense of social justice is people's subjective perception and evaluation of the allocation of social resources based on moral standards (xuyanhuai, kongyizhou, 2023), covering multidimensional factors such as process, allocation, interaction, and results (stokan et al., 2023). The relative deprivation theory points out

that compared with the objective individual socio-economic status index, residents' actual income level and subjective perception of social class mobility can better affect residents' sense of social justice (weiqingong, 2020; Wang et al., 2021). The rapid development of digital technology provides residents with great convenience and freedom to obtain information. Digital technology not only improves the efficiency of individual learning and work, but also enhances the ability of human beings to adapt to the social environment. At the same time, it also makes social interaction diversified and frequent, which makes the social system structure increasingly complex. This increase in complexity is one of the important inducements for the formation of the current social equity dilemma (Liu Li, guosujian, 2020). Therefore, the impact of cyberspace participation on individual social justice shows a significant duality. On the one hand, the digital information channel provides residents with a convenient way of information in all fields of society, breaking the traditional information barrier and improving their perception of social justice to a certain extent. However, on the other hand, the information dissemination in cyberspace is characterized by fragmentation, Emotionalization and layering, and some platform algorithms have the characteristics of identity discrimination and directed push. They tend to push the content that is easy to cause emotional resonance to the audience after analyzing the audience's preferences and estimating their social environment and class, which makes the issues such as the gap between the rich and the poor, class differentiation and social contradictions repeatedly amplified in the process of social comparison among residents, forming an "information cocoon room" (wenfengming, Xie Xuefang, 2022). Residents are frequently exposed to such information, and their sense of scarcity in comparison is constantly strengthened, thus weakening the overall evaluation of social equity.

Combined with the core variables of this paper, the cyberspace participation index comprehensively reflects the residents' digital equipment foundation, use intensity and information dominance. The higher the degree of cyberspace participation, the greater the probability that individuals are exposed to the negative narrative and social contrast information in digital space, and the more

vulnerable their perception of social fairness is to be negatively affected. Based on this, this paper puts forward the following assumptions:

H 1: the higher the residents' participation in cyberspace, the lower their sense of social justice.

2.2 Analysis of the Moderating Effect of Traditional Media

According to the characteristics of information flow, existing studies have made a conceptual division between traditional media and new media. Among them, newspapers, radio, television and periodicals with one-way information dissemination attribute are classified as traditional media, while Internet, mobile push messages and other carriers that rely on two-way interactive mode to transmit information are defined as new media (Lu Chunchun and Quan Xiaojuan, 2015). There are significant differences between traditional media and new media in the logic of information production and communication, which together constitute the dual dimensions of residents' information environment.

In the process of information transmission, traditional media shape residents' fair cognition of social facts through authoritative information sources and positive value guidance, so as to play a buffer and compensation role when negative digital information affects residents' emotions and perceptions. Traditional media plays a key role in the process of residents' cognition and emotional construction. The higher the residents' contact frequency with traditional media, the more significant the impact on their social cognitive evaluation (yaojunxi, 2006). When residents use digital media, they also use traditional media channels to obtain information. The information they are exposed to will be more diverse and balanced, which can effectively reduce the impact of negative information in digital space on social justice. On the contrary, if residents rely too much on digital information, they are more likely to fall into a single narrative framework, thus strengthening their perception of social injustice (longshuqin, tengqinyuan, ban Xingling, 2025). Based on this, this paper puts forward the following assumptions:

H2: the use of traditional media has a significant positive impact on Residents' sense of social justice, and can play a positive regulatory role in the negative impact of cyberspace participation

on social justice.

2.3 Analysis of the Mediating Effect of Subjective Class Mobility Perception

In the modern society with the prevalence of scientific and technological revolution and rapid economic development, the class structure of Chinese society is also evolving, with the dual connotation of subjective construction and objective evolution (Zhou Yang, 2022). In the process of residents' access to digital information, they reshape their own class cognition and mobility expectations, and then act on the sense of social justice. In the digital information space, the spread of issues such as class solidification and the gap between the rich and the poor will strengthen residents' negative cognition of class mobility opportunities and reduce their subjective perception of upward mobility; The perception of subjective class mobility is the key psychological mechanism that affects the sense of social justice. When it is difficult for individuals to achieve their own upward mobility, their awareness of social justice will also be relatively weakened (Gong Feng, Li Bofeng, Lei Xin, 2021). In the process of using the Internet, residents' sense of social justice is mainly affected by the following ways: the higher the degree of participation in cyberspace, the more vulnerable individuals are to the influence of stratum differentiation narrative, and the weaker the subjective perception of upward mobility of stratum, which makes residents' sense of social justice decline. Based on this, this paper puts forward the following assumptions:

H3: Residents' subjective perception of class mobility plays a mediating role in the process of the impact of cyberspace participation on social justice.

3. Data Sources and Research Methods

3.1 Data Sources and Variable Descriptions

This paper uses the data of the 2023 China Comprehensive Social Survey (cgss2023) to measure and empirically analyze the relationship and mechanism between residents' cyberspace participation and social justice. CGSS is the earliest national, comprehensive and continuous academic survey project in China. The questionnaire contains multiple modules such as sociodemographic attributes, social attitudes, class identity, digital use and media contact,

which provides reliable data support for the core variables of this study.

In order to ensure the quality of research, this paper systematically preprocesses and screens the original data:

firstly, the missing values, abnormal values and invalid observations of key variables are systematically cleaned up to ensure the quality of samples; Secondly, the annual income of the family is reduced by 1% and the logarithm is taken to alleviate the heteroscedasticity problem; Limit the age to 18-90 years old to ensure the validity of the sample and the practical significance of the study. After the above processing, a total of 4923 valid samples were finally obtained. The overall distribution of the sample is basically consistent with China's urban and rural population structure, and has a good national representation. Descriptive statistics and distribution test were carried out on the processed data. The results showed that the mean and standard deviation of each core variable were in a reasonable range, and the distribution and overall characteristics of the sample on key demographic variables had little difference, and there was no significant structural deviation, which could provide reliable data support for this study.

The explanatory variable "cyberspace participation" of this study is the combination of multiple related questions in the questionnaire. This paper constructs a comprehensive index of cyberspace participation from the three dimensions of equipment foundation, use intensity and information dominance, and comprehensively summarizes the level of cyberspace participation of residents. For the basic dimension of digital equipment, select the question a30a of cgss2023 questionnaire: "do you have a mobile phone for your own use?" the valid options are "yes" and "no". This paper converts it into a virtual variable, with a value of 1 representing a personal mobile phone and 0 representing No. This index reflects the basic conditions of residents' participation in cyberspace and is the direct embodiment of the ability of cyberspace participation. The dimension of cyberspace contact intensity is comprehensively measured by two items:

"Internet use in the past year" and "whether the Internet has been frequently used in the past year". The intensity of the two items in the questionnaire is in the opposite direction, so this paper deals with them, so that the options of the two questions are positive ordered grade data, and the assignment range is 1-5. Then the two scores are averaged, and the frequency and intensity of residents' daily cyberspace participation are measured in the form of continuous data. The higher the value, the more frequently digital information is used. Finally, the dominant dimension of network information is comprehensively judged from the comparison of information sources and channels. A29 question: "which is your main source of information in the above media?" is adopted. If the answer is "Internet", it is assigned a value of 1, otherwise it is 0 to measure the status of the Internet as the primary information channel; At the same time, the a285 Internet frequency and a284 TV frequency are compared. If the Internet frequency is not lower than the TV frequency, it is assigned a value of 1, otherwise it is 0 to reflect the dominant position of digital channels relative to traditional media. The two indicators are directly aggregated, with a value range of 0-2. The higher the value, the stronger the dominance of the digital information channel. In order to reflect the importance differences of different dimensions in cyberspace participation, this paper uses the weight assignment method of existing scholars (Li Yang, 2024) in the research to give different weights to three dimensions and synthesize the cyberspace participation index. The calculation formula is: cyberspace participation index = $1 \times \text{equipment foundation} + 2 \times \text{use intensity} + 3 \times \text{information dominance}$. The evaluation range of the index is 2 - 17, which is sequential data. The higher the value, the more frequent the residents' participation in cyberspace, the stronger the dependence on digital channels, and the more prominent the impact of digital information on social cognition. The index comprehensively reflects the breadth, depth and dominance of residents' participation in cyberspace, and has strong theoretical rationality and measurement stability.

Table 1. Descriptive Statistics of Variables

Variable Name	observable variable	least value	crest value	mean	standard deviation
Cyberspace Participation Index	X1	2	17	12.64899	5.388474
Sense of social equity	Y1:	1	5	3.304083	1.026645

Frequency of traditional media usage	M1	1	5	2.375482	0.8231675
controlled variable	Z1 Gender	0	1	0.5395084	0.4984873
	Z2 Age (years)	18	90	54.15336	16.07538
	Z3 Years of Education (years)	0	19	9.243754	4.480657
	Z4 Marital Status	0	1	0.7339021	0.441961
	Z5 Household Registration Type	0	1	0.5945562	0.4910276
	Z6 Household Annual Income (RMB,)	0	13.30469	10.4944	2.04498
	Z7 Self-assessment of Health Status	1	5	3.379647	1.1241
Subjective perception of upward social mobility	M2	0	1	0.4391631	0.4963355

3.2 Model Specification

As residents' sense of social justice is a typical ordered discrete variable, this paper uses existing research methods for reference, and constructs an ordered probit regression model to test the impact of cyberspace participation on Residents' sense of social justice. The model settings are as follows:

$$Fair_i = \beta_0 + \beta_1 \cdot Digital_index_i + \beta_2 \cdot M_i + \gamma \cdot X_i + \varepsilon_i$$

Among them: $Fair_i^*$ represents the latent variable of residents' social fairness perception, corresponding to the actual observed ordinal variable $Fair_i$ (with values ranging from 1 to 5); $Digital_index_i$ is the core explanatory variable, which is the residents' participation index in the online space, with a higher score indicating a higher degree of participation in the online space; M is the variable for the frequency of traditional media usage; X_i is the vector of control variables, including gender, age, age squared, years of education, marital status, household registration type, logarithm of family annual income, self-assessed health status, etc.; β_0 is the constant term; β_1 is the estimated parameter of the core explanatory variable; γ is the estimated parameter vector of the control variables; ε_i is the random error term. The model is mainly used to identify the basic impact of cyberspace participation on Residents' sense of social justice, and preliminarily verify the relationship between cyberspace participation and social justice. In order to further identify the mediating role of traditional media use, the frequency variable of traditional media use is incorporated into the model to reveal the buffering effect of traditional media use on the negative impact of cyberspace participation on social justice

3.3 Robustness Test

In this paper, we use two methods to test the robustness: replacement regression model and

data tailing processing. The explained variable "sense of social justice" is regarded as a continuous variable, and the ordinal logit model is used to re estimate the benchmark equation, and the results are compared with those of the ordinal probit model; Secondly, by eliminating the extreme value and other methods, we can test whether the estimation results are biased.

3.4 Moderation Effect Test

In order to further explore whether the impact of cyberspace participation on social justice is moderated by the use of traditional media, this paper introduces the interaction between cyberspace participation index and the frequency of traditional media use to construct a moderating effect model. On the basis of benchmark regression, the model includes the variables of traditional media use frequency and its interaction with cyberspace participation index, and judges the regulatory effect of traditional media use by testing the significance and direction of the interaction coefficient. If the interaction coefficient is significantly positive, it shows that the use of traditional media can weaken the negative impact of cyberspace participation on social justice, that is, the higher the frequency of traditional media use, the weaker the negative effect of cyberspace participation. The test results of moderation effect help to reveal the boundary conditions of cyberspace participation affecting social justice, and provide richer empirical evidence for understanding the relationship between media use and social justice perception.

4. Empirical Analysis

4.1 Benchmark Regression Results

The ordered probit regression results of the impact of cyberspace participation on Residents' sense of social justice are shown in Table 2.

Model 1 only includes the core explanatory variable cyberspace participation index. The results show that the regression coefficient of the degree of cyberspace participation is -0.0217, which is significantly negative at the 1% statistical level, indicating that the higher the degree of residents' cyberspace participation, the lower the level of their sense of social justice, which preliminarily verifies the negative impact of cyberspace participation on the sense of social justice. This result is consistent with the existing research conclusion that the digital information environment is easy to amplify the negative social narrative and strengthen the perception of individual injustice, which lays the foundation for the subsequent model test.

Model 2 introduces the variable of traditional media use frequency on the basis of model 1. The results show that the coefficient of cyberspace participation index is still significantly negative at the 1% level, and the coefficient of traditional media use frequency is 0.1247, which is also significantly positive at the 1% level, indicating that traditional media use has a positive impact on Residents' sense of social justice, which can alleviate the negative impact of cyberspace participation to a certain extent, and initially reflects the "information buffer" effect of traditional media.

On the basis of model 2, model 3 further adds control variables such as gender, age, years of education, marital status, household registration type, logarithm of family annual income, and self-rated health status. The results show that the coefficient of cyberspace participation index is still significantly negative, indicating that after controlling the variables such as individual characteristics and family characteristics, the negative impact of cyberspace participation on social justice is still stable, and the research hypothesis has been fully verified.

From the results of the control variables, the coefficient of years of education is significantly negative at the 1% level, indicating that the residents with higher education level have a lower sense of social justice, which may be related to the higher educated groups' more sensitive perception of social justice and deeper cognition of social development issues. The coefficient of the logarithm of family annual income is significantly positive, indicating that the higher the family economic level, the stronger the residents' sense of social justice, and the improvement of economic conditions helps

to enhance the individual's evaluation of the fairness of social resource distribution. The coefficient of self-rated health status is significantly positive at the 1% level, indicating that the higher the residents' evaluation of their own health status, the higher their sense of social justice. The improvement of health level helps to enhance the positive perception of individual to society. The coefficients of gender, age, marital status, household registration type and other variables did not pass the significance test, indicating that these factors have no significant impact on Residents' sense of social justice.

From the model fitting results, with the gradual addition of control variables, the Wald chi square value of the model increased from 52.08 in model 1 to 176.59 in model 3, the pseudo R^2 increased from 0.0044 in model 1 to 0.0133 in model 3, and the log pseudo likelihood value decreased from -6673.995 to -6614.3836, indicating that the overall significance and explanatory power of the model were gradually improved, and the selection of control variables was reasonable, which further verified the reliability of the core conclusion.

On the whole, the regression results from model 1 to model 3 are highly consistent, and the coefficient of cyberspace participation index is always significantly negative, indicating that under other conditions, cyberspace participation has a stable negative impact on Residents' sense of social justice. The one-sided emotional characteristics of digital information dissemination, as well as its narrative way of amplifying social contradictions and strengthening class contrast, are easy to reduce the overall evaluation of individual on social justice. The subsequent analysis of mediation effect and regulation effect will further reveal the internal mechanism and boundary conditions of this effect.

**Table 2. Ordinal Probit Regression Results
Examining the Impact of Cyberspace
Participation on Residents' Sense of Social
Equity**

	model 1	model 2	model 3
Cyberspace Participation Level	-0.0217***	-0.0174***	-0.0176***
	(0.0030)	(0.0031)	(0.0039)
Frequency of traditional media usage		0.1247***	0.1406***
		(0.0195)	(0.0209)
sex			-0.0441

			(0.0309)
age			-0.0030
			(0.0060)
Educational Attainment			-0.0185***
			(0.0046)
marital status			-0.0144
			(0.0376)
Hukou Type			0.0466
			(0.0357)
Annual Household Income			0.0176*
			(0.0090)
Self-assessment of health status			0.1036***
			(0.0159)
Waldchi2	52.08	90.95	176.59
PseudoR2	0.0044	0.0076	0.0133
Logpseudolikelihood	-6673.995	-6652.4762	-6614.3836
	model 1	model 2	model 3
Cyberspace Participation Level	-0.0217***	-0.0174***	-0.0176***

Note: *p < 0.05, **p < 0.01, ***p < 0.001; values in parentheses represent the standard error.

4.2 Robustness Test

In this paper, two methods of substitution estimation and data tailing are used for robustness test, and the results are shown in Table 3. The benchmark regression uses the ordered probit model, so the model is replaced by the ordered logit model for re estimation in the robustness test. From the results, the coefficient of cyberspace participation index is still significantly negative, the coefficient of traditional media use frequency is still positive, and the significance and direction of each control variable are consistent with the benchmark regression. This shows that even if the assumption of error term distribution is changed, the core conclusion is still valid, proving that the negative impact of cyberspace participation on Residents' sense of social justice is not caused by specific model settings. At the same time, the data were tailed at 1% level to reduce the interference of extreme values on the estimation results before regression. After tail shrinking treatment, the significance and direction of each variable coefficient did not change. This shows that after eliminating the influence of extreme values, the core conclusion remains stable, excluding the estimation bias caused by abnormal values of samples. In general, the results of the two robustness tests

are highly consistent with the benchmark regression, and the negative impact of cyberspace participation on Residents' sense of social justice is always significant, indicating that the research conclusion of this paper is robust and reliable.

Table 3. Robustness Test of the Impact of Cyberspace Participation on Residents' Sense of Social Equity

	Ordered Logit Regression	1% tail truncation
Cyberspace Participation Level	-0.0299***	-0.0174***
	(0.0070)	(0.0039)
Frequency of traditional media usage	0.2475***	0.1460***
	(0.0366)	(0.0212)
sex	-0.0903*	-0.0443
	(0.0537)	(0.0309)
age	-0.0021	-0.0044
	(0.0104)	(0.0058)
Educational Attainment	-0.0281***	-0.0188***
	(0.0081)	(0.0046)
marital status	-0.0272	-0.0112
	(0.0648)	(0.0375)
Hukou Type	0.0763	0.0458
	(0.0618)	(0.0357)
Annual Household Income	0.0253	0.0174*
	(0.0158)	(0.0090)
Self-assessment of health status	0.1929***	0.1030***
	(0.0282)	(0.0159)

Note: *p < 0.05, **p < 0.01, ***p < 0.001; values in parentheses represent the standard error.

4.3 Regulatory Effect Analysis

There are significant differences between traditional media and digital media in the logic of information production and communication mechanism, which together constitute the dual dimensions of residents' access to information. Traditional media, characterized by authoritative sources of information, fact verification and positive value guidance, can shape residents' positive cognition of social justice by delivering mainstream narratives of social justice, reporting the achievements of people's livelihood improvement and interpreting public policies, so as to form a buffer and compensation for the negative narratives of digital information. To verify this logic, this paper introduces the interaction term between cyberspace participation index and the frequency of traditional media use to test the

moderating effect of traditional media in the process of cyberspace participation affecting social justice. The regression results are shown in Table 4.

From the regression results, the main effect coefficient of cyberspace participation index is significantly negative, indicating that the higher the degree of cyberspace participation, the lower the residents' sense of social justice, which is consistent with the core conclusion of the benchmark regression. The main effect coefficient of the use frequency of traditional media failed to pass the significance test, indicating that after controlling cyberspace participation and other variables, the direct impact of traditional media on the sense of social justice is not significant. The key interaction coefficient is significantly positive, which verifies the positive regulatory effect of traditional media use, that is, with the increase of traditional media use frequency, the negative impact of cyberspace participation on Residents' sense of social justice is significantly weakened, and the hypothesis H2 is supported. With its more comprehensive and objective reports, traditional media can provide residents with a diversified social picture, convey mainstream values and positive social narrative, help residents more rationally view the problems in social development, and alleviate the negative impact of cyberspace participation. At the level of control variables, the coefficients of years of education, annual family income and self-rated health status are still significant, and their influence direction is consistent with the benchmark regression, indicating that the estimation results of the model are stable. Overall, the results of the regulatory effect fully prove that the use of traditional media can play a significant positive regulatory role between cyberspace participation and social justice, and become an important force to alleviate the negative impact of digital information.

Table 4. Regression Results of the Moderating Effect of Cyberspace Participation on Social Justice

Regression coefficient	
Participation in Cyberspace	-0.0454***
Traditional media usage frequency	(0.0116) -0.0029 (0.0610)
Interactive item	0.0107** (0.0042)
Gender	-0.0487 (0.0310)

Age	-0.0042
Education level	(0.0060) -0.0177*** (0.0046)
marital status	-0.0126 (0.0377)
Household registration type	0.0451
Annual household income	(0.0357) 0.0188** (0.0090)
Self assessment of health status	0.1042*** (0.0159)

Note: *p <0.05, **p <0.01, ***p <0.001; values in parentheses represent the standard error.

4.4 Mediation Effect Analysis

In order to further reveal the internal path of the impact of cyberspace participation on Residents' sense of social justice, this paper uses the stepwise test method to test its mediating effect in the relationship between the two with the subjective perception of upward mobility as the mediating variable. The regression results are shown in Table 5.

Model 1 is the total effect test, reflecting the benchmark regression results of the degree of cyberspace participation on the sense of social justice. The results show that the regression coefficient of cyberspace participation is -0.0180, which is significantly negative at the significance level of 1%, indicating that cyberspace participation has a significant negative impact on Residents' sense of social justice, which is consistent with the previous benchmark regression conclusion. At the same time, the coefficient of traditional media use frequency is significantly positive, indicating that the use of traditional media has a positive effect on the sense of social justice, and can alleviate the negative impact of cyberspace participation to a certain extent. In terms of control variables, the influence direction and significance of variables such as education level, self-rated health status and annual family income are also basically consistent with the benchmark regression results, and the overall results of the model are stable and reliable.

Model 2 is the intermediary variable regression, which is the test of the impact of cyberspace participation on the subjective perception of upward mobility. The results show that the coefficient of cyberspace participation is -0.0228, which is significantly negative at the significance level of 1%, indicating that the higher the degree of cyberspace participation,

the weaker the residents' subjective perception of upward mobility. This result is consistent with the theoretical expectation. Excessive exaggeration of issues such as class solidification and the gap between the rich and the poor in the digital information space will strengthen individuals' pessimistic expectation of their future class rising opportunities, and then weaken their subjective perception of upward mobility.

In model 3, both the degree of participation in cyberspace and the perceived upward mobility of subjective stratum are included to test the role of mediators. According to table 5, the coefficient of cyberspace participation is still significantly negative at the 1% level, and the absolute value is -0.0169 lower than -0.0180 of model 1; At the same time, the coefficient of subjective class upward mobility perception is 0.2110, which is significantly positive at the significance level of 1%, indicating that the stronger the subjective class upward mobility perception, the higher the residents' sense of social justice.

According to the results of the three-step test, the total effect of cyberspace participation on social justice, the impact of cyberspace participation on intermediary variables, and the direct effect of intermediary variables on social justice are all significantly established. After the intermediary variables are included, the absolute value of the coefficient of the core explanatory variable decreases, indicating that the subjective perception of upward mobility plays a partial intermediary effect between cyberspace participation and social justice. The logic of this path of action is that residents' participation in cyberspace will first weaken their subjective perception of upward mobility of the stratum, while individuals' pessimistic expectation of the opportunity of rising the stratum will further reduce their evaluation of the distribution of social resources and the fairness of opportunities, and ultimately weaken their sense of social justice. This discovery reveals the internal psychological mechanism of the impact of cyberspace participation on social justice, and provides new empirical evidence for understanding the relationship between media environment and individual social attitudes.

Table 5. Mediation Effect Test for the Perception of Upward Social Mobility

	model 1	model 2	model 3
Cyberspace	-0.0180***	-0.0228***	-0.0169***

Participation Level			
	(0.0039)	(0.0071)	(0.0039)
Frequency of traditional media usage	0.1409***	0.0182	0.1406***
	(0.0209)	(0.0398)	(0.0209)
sex	-0.0439	0.0447	-0.0466
	(0.0309)	(0.0600)	(0.0309)
age	-0.0002	-0.0257***	0.0011
	(0.0013)	(0.0026)	(0.0013)
Educational Attainment	-0.0181***	-0.0408***	-0.0163***
	(0.0046)	(0.0089)	(0.0046)
marital status	-0.0208	0.1172*	-0.0261
	(0.0349)	(0.0692)	(0.0351)
Hukou Type	0.0472	0.3474***	0.0302
	(0.0357)	(0.0709)	(0.0358)
Annual Household Income	0.0177**	0.0535***	0.0152*
	(0.0089)	(0.0177)	(0.0090)
Self-assessment of health status	0.1038***	0.1751***	0.0958***
	(0.0159)	(0.0288)	(0.0160)
Subjective perception of upward social mobility			0.2110***
			(0.0313)
_cons		0.2840	
		(0.3180)	

Note: Model 1 and Model 3 employ ordered Probit regression; Model 2 employs binary Logit regression; *p < 0.05, **p < 0.01, ***p < 0.001; the values within parentheses denote the standard errors.

4.5 Heterogeneity Analysis

The impact of cyberspace participation on Residents' sense of social justice varies significantly among different groups. The results of heterogeneity analysis are shown in Table 6. This paper explores the group differences of the effect of cyberspace participation by grouping regression from the three dimensions of urban and rural household

registration, education level and gender.

From the perspective of household registration type, the negative impact of cyberspace participation on rural residents' sense of social justice is more prominent. In the rural grouped sample, the coefficient of cyberspace participation index is negative at the significance level of 5%, while in the urban grouped sample, the negative impact is significant at the level of 1%, but the absolute value of the coefficient is slightly lower than that of the rural group. This may be due to the difference between urban and rural residents' digital media use environment and digital information literacy. Compared with urban residents, rural residents' access to information is relatively single, and their ability to distinguish digital information is also weaker.

They are more likely to be influenced by the narrative of amplified social contradictions and class gap in the network. Therefore, the negative impact of cyberspace participation on their sense of fairness is stronger.

From the perspective of education level, the degree of cyberspace participation has a significant negative impact on the social justice of low educated groups, while the impact in high educated groups fails to pass the significance test. This result is consistent with the conclusion of the existing research, indicating that the education level can effectively alleviate the negative impact of cyberspace participation on the sense of social justice. The information discrimination ability and critical thinking ability of low educated groups are relatively weak, and they are more likely to be affected by the narration of class opposition and social contradictions in the Internet, thus strengthening their perception of social injustice; The highly educated group has stronger information interpretation ability and dialectical thinking ability, can rationally view the one-sided content in digital information, and reduce the impact of extreme cognition on their sense of social justice.

According to the results of gender grouping regression, the degree of cyberspace participation has a significant negative impact on the sense of social justice of men and women, and the impact intensity on women is slightly higher than that of men. In the male grouped sample, the coefficient of cyberspace participation index is negative at the significance level of 1%; In the female sample, this negative effect is also significant at the level of 1%, and the absolute value of the coefficient is greater. Female groups are more sensitive to negative issues in the digital information environment, and are more likely to be affected by gender inequality, workplace discrimination and other related narratives, thus amplifying the negative impact of cyberspace participation on their sense of fairness.

In general, the negative impact of cyberspace participation on the sense of social justice is more prominent among rural residents, low educated groups and female groups, reflecting that the impact of information differentiation on the sense of fairness of vulnerable groups in the digital age is more significant.

Table 6. Heterogeneity Analysis of How Cyberspace Participation Affects the Sense of Social Equity

	model 1 (townsfolk)	model 2 (Township residents)	model 3 (Low education level)	model 4 (High education level)	model 5 (the male sex)	model 6 (femininity)
Cyberspace Participation Level	-0.0157*** (0.0050)	-0.0160** (0.0066)	-0.0191*** (0.0039)	-0.0237 (0.0228)	-0.0166*** (0.0058)	-0.0182*** (0.0054)
Frequency of traditional media usage	0.1481*** (0.0293)	0.1478*** (0.0307)	0.1180*** (0.0231)	0.1984*** (0.0476)	0.1305*** (0.0303)	0.1574*** (0.0290)
sex	-0.0829** (0.0404)	0.0407 (0.0491)	-0.0304 (0.0342)	-0.0224 (0.0727)		
age	-0.0049 (0.0079)	-0.0069 (0.0096)	0.0010 (0.0070)	0.0289* (0.0159)	0.0046 (0.0087)	-0.0133 (0.0083)
Educational Attainment	-0.0183*** (0.0060)	-0.0206*** (0.0075)			-0.0112* (0.0068)	-0.0250*** (0.0064)
marital status	-0.0374 (0.0506)	0.0406 (0.0577)	-0.0050 (0.0415)	-0.0748 (0.0988)	0.0135 (0.0585)	-0.0138 (0.0500)
Annual Household Income	0.0188* (0.0105)	0.0245 (0.0165)	0.0140 (0.0092)	0.0196 (0.0246)	0.0206 (0.0133)	0.0144 (0.0121)
Self-assessment of health status	0.0966*** (0.0193)	0.1203*** (0.0277)	0.0969*** (0.0170)	0.1366*** (0.0447)	0.0994*** (0.0222)	0.1089*** (0.0227)
Hukou Type			0.1228*** (0.0385)	-0.0194 (0.0857)	0.1366*** (0.0519)	-0.0279 (0.0496)

Note: *p < 0.05, **p < 0.01, ***p < 0.001; values in parentheses represent the standard error.

5. Conclusion and Recommendations

5.1 Research Findings

The advent of the digital information age has

reshaped residents' access to information and social cognitive logic, and also brought new issues for understanding the formation mechanism of residents' sense of social justice. With the deep integration of digital media into

people's daily life, residents' perception of social reality is increasingly shaped by the digital information environment. How this information contact affects their subjective evaluation of social resource allocation and opportunity fairness has become an important research direction of Sociology in the digital era. Based on the cgss2023 data, through ordered probit regression, regulatory effect test, mediation effect analysis and heterogeneity analysis, this paper systematically discusses the impact of cyberspace participation on Residents' sense of social justice and its mechanism, aiming to reveal the complex relationship between the digital information environment and individuals' perception of social justice

First, cyberspace participation has a significant negative impact on Residents' sense of social justice. The research shows that the one-sided emotional negative narrative in the digital information space is easy to strengthen the individual's perception of social gap and class differentiation, and then weaken their overall evaluation of social justice, which verifies the negative impact of cyberspace participation on the sense of social justice.

Second, the use of traditional media plays a significant positive regulatory role between residents' exposure to digital information and their perception of social justice. With the increasing use of traditional media, the negative impact of cyberspace participation has been effectively weakened, reflecting the "information buffer" effect of traditional media. Traditional media reports focus on presenting the overall picture and mainstream narrative of social development, which can provide individuals with a more balanced and diverse information perspective, so as to effectively offset the one-sided impact of negative content in the digital information environment, and form a buffer barrier in the process of residents' frequent exposure to digital information and thus reducing their perception of social fairness.

Third, the perceived upward mobility of subjective stratum plays a partial intermediary role in the process of cyberspace participation affecting social justice. The high degree of participation in cyberspace will significantly reduce residents' subjective perception of upward mobility, and the weakening of subjective perception of upward mobility will further reduce their sense of social justice. The logic of this mechanism is that the overly

exaggerated issues such as class solidification and the gap between the rich and the poor in the digital information space will strengthen individuals' pessimistic expectation of their future class rising opportunities, and then weaken their evaluation of social justice, revealing the internal psychological path of the degree of participation in cyberspace affecting the sense of social justice. Individual residents' sense of social justice is largely based on their understanding of opportunity fairness. When digital information makes individuals think that the channel of class flow is blocked and personal efforts are difficult to change their destiny, their evaluation of social justice will naturally decline. Fourth, there is significant group heterogeneity in the impact of cyberspace participation on Residents' sense of social justice. The results of heterogeneity analysis show that the degree of participation in cyberspace has a more significant negative impact on the sense of social justice of rural residents with low education background, while the impact is not obvious among urban residents with high education background, which reflects the situational characteristics of the impact of the degree of participation in cyberspace. Generally speaking, the information sources of low education and rural residents are relatively single, and their ability to distinguish digital information is also weak, which is more likely to be affected by one-sided negative narrative; While highly educated and urban residents usually have richer information channels and stronger critical thinking, and can make more rational judgments on digital information. Therefore, the impact of cyberspace participation on their sense of social justice is relatively limited.

5.2 Recommendations

Based on the above research conclusions, combined with the practical needs of social governance in the digital age, this paper puts forward the following policy suggestions from the aspects of digital information environment optimization, the role of traditional media, the improvement of educational literacy, and social equity protection

1. Optimize the Digital Information Environment and Guide Rational and Fair Cognition. the Fragmentation and Emotional Dissemination of Digital Information Is an Important Incentive to Reduce Residents' Sense of Social Justice. Therefore, Efforts Should Be

Made to Optimize the Digital Information Environment and Deliver a Rational and Positive Social Value Orientation. on the One Hand, We Should Strengthen the Supervision and Guidance Ofthe Network Platform, Improve the Content Review Mechanism, Curb the One-sided and Extreme Class Opposition Narrative Communication, and Reduce the Excessive Rendering of Negative Information; on the Other Hand, Mainstream Media Are Encouraged to Use Digital Platforms to Release Authoritative Information, Interpret Public Policies, Report on the Achievements of People's Livelihood Improvement, and Convey the Mainstream Narrative of Social Equity, Forming an Effective Hedge against Negative Information in Digital Space. at the Same Time, We Should Pay Attention to the Problem of Digital Divide, Carry out Digital Skills Training for Rural Areas and Low Educated Groups, Improve Residents' Information Discrimination Ability and Media Literacy, Guide Residents to Treat Digital Information Rationally, and Avoid Being Affected by One-sided Narration on Social Equity Cognition. Especially in Less Developed Areas, We Should Promote Internet Skills Education, Help Vulnerable Groups Improve Their Ability to Use Digital Information and Narrow the Information Differentiation Caused by the Digital Divide through the Combination of Online Courses and Offline Training.

2. Strengthen Residents' Awareness of Lifelong Learning and Improve Information Literacy and Mobility Expectations. Education Is the Key Factor to Alleviate the Negative Impact of Digital Information and Enhance the Sense of Social Justice. We Should Continue to Promote Education Equity, Ensure That Different Groups Have Equal Access to Education, Increase Investment in Education in Rural Areas and Underdeveloped Areas, and Narrow the Education Gap between Urban and Rural Areas and Regions. at the Same Time, We Should Improve the Lifelong Education System, Strengthen Adult Education and Vocational Training, Improve Residents' Digital Literacy and Critical Thinking Ability, Help Individuals Interpret Digital Information Rationally, and Avoid Extreme Cognition. through Education, We Should Guide Residents to Establish a Correct Idea of Social Mobility, Convey the Positive Values of Striving to Achieve Class Upgrading, and Reduce the Negative Impact of Class Solidification Narrative on Individual

Mobility Expectations in Digital Space; through Policy Publicity, Typical Case Reports and Other Means, Let Residents Realize the Possibility and Path of Social Mobility, and Enhance Their Confidence in Social Equity.

3. Guide Residents' Rational Access to Digital Information and Improve Their Information Discrimination Ability. the Dissemination Characteristics of Digital Information Determine That Individuals Need to Actively Improve Their Information Discrimination Ability to Avoid Being Misled by False and One-sided Information. Therefore, Residents Should Be Guided to Preferentially Choose Official Websites and Authoritative Media Platforms to Obtain Information and Reduce the Exposure to Emotional and One-sided Content. Encourage Residents to Learn Digital Skills and Media Literacy Knowledge through Formal Channels, Improve Their Ability to Distinguish and Critical Thinking of Network Information, and Avoid Being Affected by False Information on Social Equity. Guide Residents to Reasonably Control the Time of Participation in Cyberspace, Balance the Use of Digital Media and Traditional Media, Avoid Relying Too Much on Digital Information Channels to Form an "information Cocoon Room", and Form a Comprehensive and Objective Social Cognition through Multiple Information Contacts.

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