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Study on the Effect of Emergency Management based on the Investigation of Fuyang City, Anhui Province

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Abstract

Due to the rapid development of China and the reform of market economic structure, various kinds of social emergencies emerge one after another. How to strengthen the management of emergency treatment and promote the efficiency and standardization of emergency treatment has become a subject that governments at all levels attach great importance to. Experiences of stampedes, mountain torrential floods, explosions and other sudden events, China.Emergency management capacity has been gradually improved, but due to the restrictions of various conditions, how to carry out effective emergency management is still a problem. Through the investigation of the effect of emergency management in Fuyang City, this project studies the handling of emergencies, with a view to promoting the management of emergencies in this region and putting forward corresponding suggestions for related work.

Keywords

Emergency; Emergency Management; Public Security; Social Governance.

1. Introduction

The research background of emergency disposal and management in the formation of concrete system in our country only a short decade, hundreds of years ago, the drought and waterlog, earthquake and other natural disasters directly caused by the huge social emergencies, itself can directly cause the social economy and property loss and personal deaths have is very big, so to speak. China public security situation is grim and complex. Traditional and non-traditional security risks are highly concentrated. Improper emergency response may lead to political and security risks and affect national security. Nowadays, with the improvement and development of the emergency management system, the loss of unknown natural disasters has been reduced to a minimum. Although the emergency management methods of emergencies are relatively perfect, how to evaluate the emergency effect still needs to be explored.

In 2020, Fuyang Emergency Management Bureau continuously innovates the working mechanism, strengthens the legal construction of the emergency system, and promotes the legal standardization of emergency management. The number of production safety accidents, the number of deaths and the number of fires has achieved the lowest new results in recent years. The following is an example of emergency management in Fuyang City to make a performance analysis and evaluation of the emergency management effect.

2. Emergency Management Example

2.1. Anti Epidemic

The COVID-19 epidemic in 2020 is a typical public health emergency. From the perspective of the intensity and impact of the epidemic, it is a long-projection crisis, while the sudden outbreak will last for a long time. History shows that in the difficult progress of human society, diseases or pandemics always follow one another and exert profound and comprehensive influence on

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human civilization. After the outbreak of the epidemic, Fuyang entered into a state of emergency immediately. The governments at all levels, the epidemic emergency prevention and control center, relevant departments, grass-roots personnel and the general public acted quickly and cooperated and worked together to win the war against the epidemic.

2.1.1. Pre Emergency

Before the new coronavirus was officially reported, the Infection Management Department of Fuyang People. Hospital made preparations for the prevention and control of the epidemic wit h keen insight and awareness. As early as January 16, 2020,the hospital fever department info rmed the equipment department to urgently purchase a batch of protective clothing and medi cal protective masks and other protective equipment, and completed the distribution of fever clinics and key departments on the 17th. This batch of protective equipment purchased in adv ance has ensured the smooth development of the preliminary work of epidemic prevention an d control.

2.1.2. Crisis Decision Making

Crisis Decision-making After the outbreak of the epidemic, the municipal Party committee held several standing committee and leading group meetings, and the municipal government held regular meetings and special dispatching meetings of the headquarters for many times, shouldering extraordinary responsibilities in extraordinary times. We will play a chess game in command and dispatch, and fight the overall battle of epidemic prevention and control. Establish an authoritative, efficient and coordinated command and dispatch system.

2.1.3. Resource Allocation and Guarantee

Fuyang City has strictly implemented the four-star principle of centralized diagnosis and treatment of "centralized patients, centralized experts, centralized resources and centralized treatment". At the same time actively integrated disaster area as a whole medical and health resources, forming the municipal treatment on the panel in the disaster areas, key experts reserve area treatment, send professional staff (mainly including senior technical personnel of traditional Chinese medicine) on the medical treatment in the disaster areas, provincial medical expert group on the stationary point work to organize and guide all the relevant work of disaster medical treatment.

2.1.4. News Publishing

During the period of fighting against the epidemic in Fuyang, the Information Office of the Municipal Government held several press conferences on the effective prevention and control of COVID-19, releasing the information on the effective prevention and control of COVID-19 in Fuyang at each stage, and answering some hot questions that the general public are concerned about.

2.1.5. Control and Treatment

In the prevention and control of the epidemic, travel control measures have been strictly implemented, and key areas and units have been closed off. With strict discipline, the supervision and inspection teams went to the most complex and severely affected areas and to the smallest and smallest cells to carry out "point-point" supervision and inspection around key areas and key personnel.

2.1.6. Treatment after the Accident

On the basis of making every effort to prevent and control the epidemic, we started to plan and formulate a series of "1+4" policies and measures, that is, to introduce a series of preferential policies to help enterprises save losses from the epidemic; In order to promote construction industry enterprise to return to work, to return to work in the service industries, the construction industry enterprises to return to work, stability, expanding employment, strictly control the conditions of the return to work and apply for examination and approval process,

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classification time to return to work, and production again, more measures and the influence of the outbreak of the buffer, a doctor of the economic and social efforts to maintain and keep the whole town will be stable and healthy development.

2.2. Results

A total of 155 COVID-19 patients were admitted, diagnosed and treated, and no nosocomial infectious agent infection was achieved. As of July 8, the city had no new confirmed cases for 140 consecutive days and no new suspected cases for 141 consecutive days. There are as many as 16 comprehensive medical and health service institutions with the capacity to organize and carry out nucleic acid supervision and testing. There are nearly 9,000 nucleic acid supervision and testing personnel with the largest scale in a single day, which basically meet the needs of key groups of people who "should be checked and tested as much as possible" and other groups who "are willing to be checked and tested as much as possible".

2.3. Anti Flood

In 2020, there will be seven heavy rains and heavy precipitation in Anhui Province for two consecutive days, and the average maximum precipitation days is 25.4 days, breaking the record of the same period since the statistical data. On July 17, 2020, the Huaihe River basin broke out the first flood of this year.

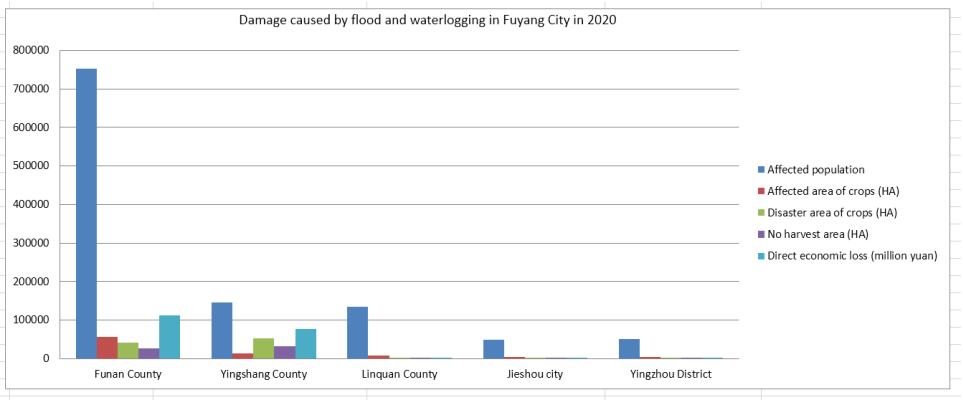

Figure 1. Damage Caused by Flood and Waterlogging in Fuyang City in 2020

The total number of residents in the four free water storage areas in Fuyang has exceeded 340,000, but only 2,860 people needed to be moved when the disaster occurred. The gates of the four automated flood storage areas were all closed within five hours of use, while the local non-safe population was relocated within a few hours, with no casualties. These surprising figures reflect the changes that have taken place in flood storage areas over the years and the enhancement of the government's role in emergency management. The gradual improvement of flood control infrastructure also lays a solid foundation for the government to effectively exercise its functions and scientifically and steadily fight floods and floods. This disaster, fuyang city government to take the following measures is the key to success against flood factors.

To further strengthen the leadership, carries out the responsibility, a clear division of responsibilities important speech of general secretary of the municipal people's government to xi thought to guide urban development strategy and the work principle, adhere to correctly implement the "four consciousness", firmly "four confidence", accomplish "two maintenance"; Clear the three-level flood control tasks of each city, county and township and the division of responsibilities of each department, so as to provide guarantee and standard for promoting the city's coordinated flood control work; The government has set up a number of special working

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groups to detail their responsibilities for geological monitoring, risk inspection and rescue, and material safety.

The cadres at various levels through into the first line after the outbreak of the flood, provincial, city and county governments at all levels leadership and local head has arrived in funan county to do a good job of flood control command, coordination and organization of floodplains the safe evacuation of all residents, supervised the Wang Jiaba brake flood detention, sympathy in front of fire control, medical staff and evacuate area, etc.

All departments should coordinate with each other in a scientific and efficient manner to respond quickly to disaster relief and emergency. Whether it is government departments such as Urban Management Bureau, Transport Bureau, Water Resources Bureau and Emergency Management Department, or social organizations such as hospitals, power companies and fire police, they should take prompt actions and cooperate at the first moment of a disaster.

Giving full play to the role of community-level organizations and guiding the masses to help themselves scientifically.Careful organization to ensure the safety of the people in the disaster area. At the first critical moment when a major disaster may occur, the plan of submitting relief materials reserve was quickly formulated, and a long-term mechanism of coordinated support, emergency procurement, and emergency allocation and distribution of relief materials was established. According to the occurrence of the disaster and its change and development trend, correctly judge and timely start the Ⅱ disaster emergency response.

Actively carry out production self-help in disaster areas. The disaster relief strictly followed the "Fuyang City Emergency Plan for Flood Control and Drought Relief" issued by the Municipal Government Office, insisting on starting from reality, widely mobilise the masses to carry out production and self-help. From the reconstruction of people's living environment in villages to the timely restoration of water-damaged traffic equipment to the timely restoration of local residents' daily life and production, with all the spontaneous efforts of the people in the flood storage areas and the powerful help of all social parties, the residents' daily life gradually returned to the calm of the past.

2.4. Summary

The scientific research, formulation and effective application of emergency plans for flood prevention and flood fighting have played an important role in the development of flood prevention, flood fighting and disaster relief work, ensuring that flood prevention and disaster relief work are carried out in a scientific and orderly manner. Making progress in a stable way has accumulated experience for emergency resource management.

3. Research on the Evaluation of Emergency Effect

3.1. Selection of Variables

3.1.1. Selection of Explained Variables

The study of the effect of emergency management can be reflected from the aspects of disaster prevention and emergency management expenditure. The more attention is paid to emergency management, the more it is invested and the more it is spent.

3.1.2. Selection of Explanatory Variables

3.1.2.1 Population

The growth and decrease of population groups are of great significance to China's social and economic development. The implementation effect of emergency management is closely related to the quantity and quality of the population.

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3.1.2.2 Number of Beds

In flood relief or epidemic fighting, the supply of beds reflects a region's ability to deal with emergencies or emergencies, and reflects the strength of material donations and medical assistance in the rear area, thus reflecting the effect of emergency management.

3.1.2.3 Number of Education Received

Nowadays, colleges and universities around the country basically organize regular and quantitative emergency drills, and most of the teachers and students have basic emergency management and rescue knowledge reserve. In the higher education management system, the effect of timely emergency response to public security emergencies can be reflected mainly from the number of people who have received higher education.

3.1.2.4 Financial Revenue

Should the main expenditure on disaster prevention and emergency management be government fiscal expenditure? The higher the revenue, the more financial support the country or region has for disaster prevention and emergency management.

3.1.2.5 Model Setting

In order to verify the relationship between all the above explained variables and the explained variables, we adopt a measurement model:

$$Yi=\beta+\beta1X1+\beta2X2+\beta3X3+\beta4X4+\mu i$$

In which, Y_i represents the expenses for prevention and control of natural disasters and emergency supervision and management (unit: 10,000 yuan), and x1 represents the number of poor people (unit: 10,000 people). X2 represents the number of beds in hospital (unit: 10,000), x3 represents the number of people receiving education (unit: 10,000), and x4 represents financial revenue (unit: ten thousand yuan).

3.2. Data Capture

In order to study the four factors influencing the expenditure of disaster prevention and emergency management, the data of Anhui Province from 2010 to 2019 are collected.

3.3. Estimation and Adjustment of Model

In order to study the four factors influencing the expenditure of disaster prevention and em ergency management, data from 2010 to 2019 in Anhui Province were collected.

Table 1. Data on Emergency Management and Its Influencing Factors,2010-2019

particular year	Expenditure on disaster prevention and emergency management	Urban population (10000 people)	Number of beds (10000)	Number of educated (10000 people)	Fiscal revenue (10000 yuan)
2010	3947.21	239.31	1.83	29.94	411810.00
2011	5201.26	253.72	2.21	44.03	557333.00
2012	6539.59	266.60	2.49	40.27	693125.00
2013	7508.97	259.77	2.68	40.74	854566.00
2014	8486.36	293.36	2.93	44.37	1035094.00
2015	10365.72	302.71	3.13	44.21	1200425.00
2016	10466.81	321.30	3.56	63.30	1334441.00
2017	12379.04	337.90	3.97	50.70	1576195.00
2018	13801.92	355.30	4.42	65.82	1871449.00
2019	15738.00	368.52	4.67	72.47	2006296.00

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3.3.1. Initial Estimation of the Model

Using the least binary addition and multiplication, we can get the estimation result by Eviews software:

Table 2. Heteroscedasticity Test

Dependent Variable: Y
Method: Least Squares
Date: 04/03/21 Time: 02:07
Sample: 2010 2019
Included observations: 10

Variable	Coefficien...	Std. Error	t-Statistic	Prob.
C	2403.268	5697.509	0.421810	0.6907
X1	-2.777671	26.62725	-0.104317	0.9210
X2	-88.26871	2614.860	-0.033757	0.9744
X3	-12.58760	32.16472	-0.391348	0.7117
X4	0.007607	0.004464	1.704097	0.1491

R-squared	0.991300	Mean dependent var	9443.488
Adjusted R-squared	0.984339	S.D. dependent var	3806.845
S.E. of regression	476.3961	Akaike info criterion	15.47723
Sum squared resid	1134766.	Schwarz criterion	15.62852
Log likelihood	-72.38615	Hannan-Quinn criter.	15.31126
F-statistic	142.4235	Durbin-Watson stat	2.266122
Prob(F-statistic)	0.000025		

According to the data in the figure, the estimated result of the model is:

$$Y=2403.268-2.7777*X1-88.2687*X2-12.5876*X3+0.0076*X4$$
$$(5697.509)\ (26.6273)\ (2614.860)\ (32.1647)\ (0.0045)$$
$$t=(0.4218)\ (-0.1043)\ (-0.3378)\ (-0.3913)\ (1.7041)$$
$$R^2=0.991300\ \bar{R}^2=0.9843\ F=142.4235\ S.E=476.3961\ DW=2.2661$$

Goodness of fit: $R^2=0.991300$,$\bar{R}^2=0.9843$, The model fits the sample well.

F Function test: At the level of significance test, In the list of the degrees of freedom of F-function distribution, we can check and find that the critical mean values of a number of degrees of freedom are respectively k-1 = 3 and n-k = 22, which are 3.05. By calculating the least square progression and multiplicative number, we can get the result that f = 142.4235, f = 142.4235 is greater than the critical mean value of 3.05, which shows that the regression equation is significant.

T-coefficient test: in a graph with an absolutely given explicit coefficient level, the degree of freedom of the coefficient obtained by looking up the graph representation under t-distribution is the coefficient n-k = 22, and the critical average value is 2.074. The parameters obtained by the multiplication operation of the least quadratic function are equivalent to the corresponding coefficients t-k and the coefficients of statistical invariants are -0.1043, - 0.3378, - 0.3913, and 1.7041, respectively. T test showed that there was no multicollinearity among the variables.

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3.3.2. Heteroscedasticity Test

Test whether the model has heteroscedasticity.

Table 3. Heteroscedaticity Test

Heteroskedasticity Test: Glejser

F-statistic	0.846274	Prob. F(4,5)	0.5517
Obs*R-squared	4.037040	Prob. Chi-Square(4)	0.4010
Scaled explained SS	2.008859	Prob. Chi-Square(4)	0.7341

Test Equation:
Dependent Variable: ARESID
Method: Least Squares
Date: 04/03/21 Time: 02:30
Sample: 2010 2019
Included observations: 10

Variable	Coefficien...	Std. Error	t-Statistic	Prob.
C	1814.528	2645.787	0.685818	0.5233
X1	0.692537	12.36506	0.056008	0.9575
X2	-1574.581	1214.278	-1.296722	0.2513
X3	0.536136	14.93652	0.035894	0.9728
X4	0.002810	0.002073	1.355395	0.2333

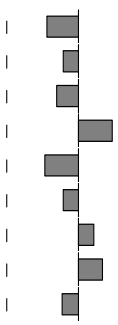
R-squared	0.403704	Mean dependent var	269.1446
Adjusted R-squared	-0.073333	S.D. dependent var	213.5359
S.E. of regression	221.2269	Akaike info criterion	13.94311
Sum squared resid	244706.8	Schwarz criterion	14.09440
Log likelihood	-64.71554	Hannan-Quinn criter.	13.77714
F-statistic	0.846274	Durbin-Watson stat	2.464651
Prob(F-statistic)	0.551685		

The test shows that the model has no heteroscedasticity.

3.3.3. Autocorrelation Test

Table 4. Autocorrelation Test

Date: 04/03/21 Time: 02:33
Sample: 2010 2019
Included observations: 10

Autocorrelation	Partial Correlation	AC	PAC	Q-Sta...	Pro...
		1 -0.27...	-0.27...	1.020...	0.31...
		2 -0.13...	-0.23...	1.298...	0.52...
		3 -0.18...	-0.33...	1.892...	0.59...
		4 0.30...	0.11...	3.747...	0.44...
		5 -0.29...	-0.32...	5.892...	0.31...
		6 -0.12...	-0.40...	6.385...	0.38...
		7 0.14...	-0.13...	7.230...	0.40...
		8 0.21...	-0.10...	10.10...	0.25...
		9 -0.14...	-0.14...	12.56...	0.18...

The model has no autocorrelation.

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3.3.4. Correlation Test

Table 5. Correlation Test

	X1	X2	X3	X4
X1	1	0.9900403755055312	0.9093586865929539	0.9903673478367541
X2	0.9900403755055312	1	0.9154906865006387	0.9972314033517739
X3	0.9093586865929539	0.9154906865006387	1	0.9020532308448184
X4	0.9903673478367541	0.9972314033517739	0.9020532308448184	1

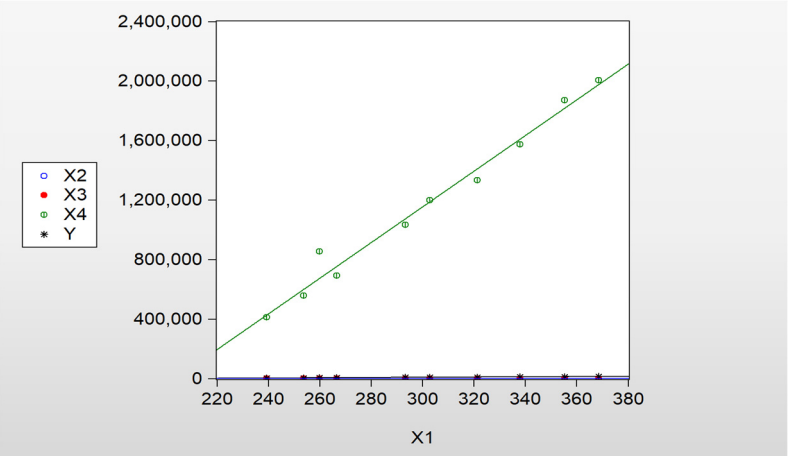

Figure 2. Correlation Test

After testing, X1, X2, X3 have high correlation with Y, X4 has low correlation with Y so we need to eliminate this variable. The final result of this paper is as follows:

$$Y=2403.268-2.7777*X1-88.2687*X2-12.5876*X3$$
$$t=(0.4218)\quad(-0.1043)\quad(-0.3378)\quad(-0.3913)$$
$$R^2=0.991300\quad \bar{R}^2=0.9843\quad F=142.4235\quad DW=2.2661$$

3.4. Conclusion

It can be seen that there is an obvious linear relationship between the number of educated population and the number of inpatient beds and the cost of emergency management. There is an inverse relationship between the number of hospital beds and the number of educated population and the cost of emergency management. If the number of educated people is large, it indicates that the education level of the country or region is generally high, and the emergency management knowledge reserve of the residents is relatively large, and the emergency management effect is better. It can be seen that improving a country's education level plays a guiding role in improving a country's emergency management level.

4. Suggestions on Emergency Management in China

4.1. Pay Close Attention to the Construction of the Political System and Stick to People-oriented

General Secretary Xi Jinping stressed the need to adhere to the People-oriented concept of socialist development and stressed that economic and social development decisions can never be made at the expense of one's own people's security. We should always put people's life safety in the first place, and use scientific and efficient emergency rescue to meet the requirements of social and public security governance.

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4.2. Pay Close Attention to the Construction of Legal System and Construct the Legal Standard System of Emergency Management

We must always implement Xi Jinping's thought of the rule of law. The modernization of the emergency management system system and capacity has been formally put on the track of the development of the rule of law, legislation and law enforcement have been strengthened, and reform of the comprehensive administrative law enforcement system for emergency management has been promoted. We will accelerate the establishment of an organic and unified legal and regulatory system for emergency management.

4.3. Pay Close Attention to the Construction of Management System

Based on and supported by the mobile Internet and information technology, we will build a network processing platform for emergency management, and control the input and outflow of information related to emergencies. Timely inform the relevant departments to take measures, timely inform the people of disasters and incidents without causing social panic, and strive for the support and help of social forces.

4.4. Change the Concept of Emergency Management

4.4.1. Transition from Fragmentation to System Governance

Faced with unpredictable disasters, emergency management departments should not only fill the gap of disasters and accidents that have occurred, but also gradually build an interrelated, coordinated and guiding policy system to deal with problems such as information asymmetry and resource waste, and shift from dealing with simple emergencies to improving the treatment of systemic wind.

4.4.2. Change from Independent Emergency Response by the Government to Social Joint Governance

The cooperation between the government and social forces has also become a good development path for social governance in the new era. Drawing on the experience of community emergency response team (CERT) system in developed countries, a standing emergency response force system consisting of community staff, industry committee members, property service personnel, grid personnel and community members is constructed.

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