

# Analysis of the dilemma of the reality of crime forecasting and countermeasures

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**Abstract:** *As an important branch of criminology, crime prediction has greater research and application value. Crime prediction in China started late, and in the course of its development in recent years, it has been characterized as "marginal", with a relatively mature crime prediction system not yet formed, and certain dilemmas exist in its specific application. First of all, it is necessary to specifically analyze the inherent limitations of crime prediction at the technical and value levels, to point out the direction for the further improvement and development of the crime prediction mechanism, and at the same time, to make clear the necessity of establishing a crime prediction mechanism, to provide the necessary realistic impetus for our country's crime prediction to get out of the current predicament, and to put forward the contingent attitude towards crime prediction at the macro level.*

**Keywords:** *Crime prediction, Necessity, Limitations, Contingent attitudes*

## 1. Introduction

Crime prediction refers to the use of scientific theories and methods by human beings, through surveys, statistics and other scientific means to obtain information about crime and offenders, and to analyze and study, within the scope of a certain society, the prediction of past and present crime, the types of future changes in crime, increases or decreases in the number of crimes, development trends, and the likelihood of certain crimes or recidivism. Therefore, crime forecasting is neither a confirmation of the past nor a description of reality, but an exploration of the future and a prediction of future trends in the development of crime. Its purpose is to formulate corresponding countermeasures and take targeted measures. Therefore, it is a conscious and dynamic activity of human beings to understand and transform the world.

## 2. The process of development and the dilemma of the reality of crime forecasting

Through comprehensive analysis of existing crime data and various factors that may affect crime, crime forecasting applies scientific methods and specialized technical means to predict the possible occurrence of criminal acts in the future time and space, with the results serving as a prerequisite for the implementation of crime prevention mechanisms. Crime prediction is a branch of criminology developed to a certain extent, which plays an important role in the theoretical level for the further study of criminal law on how to control crime and prevent crime more effectively, and in practice helps the judicial organs to formulate crime prevention measures reasonably and maximize the effectiveness of social resources. Many countries around the world have earlier used crime prediction to conduct research on criminal behavior, as early as in the early twentieth century, American scholars started from the factors affecting the criminal behavior of all parties, and successively put forward a series of crime prediction methods such as the Burgess crime prediction method, the Gluck juvenile delinquency early prediction method, and Olin's parole prediction method, etc., initially formed a more comprehensive coverage of the crime prediction system. In 1979, China's first Criminal Law Code came out, stimulating a wave of inquiry into criminal law from all walks of life and greatly filling the gaps in China's research in the field of criminal law in the past. Since then, China's criminal law system has been gradually improved and matured, with a broader field of study and a certain degree of development in criminology and even crime prediction. Since 2013, Prof. Jin Gaofeng has published the annual "Analysis and Prediction of China's Crime Situation" in the Journal of the People's Public Security University of China, which can be regarded as a more mature theoretical outcome of China's crime prediction research in the process of development.

By searching the research literature on crime prediction, it is not difficult to find that compared with other social prediction science, crime prediction science in our country as a whole presents the characteristics of "marginalization" and "depression". China's relevant literature first appeared in 1984, crime prediction research started late, the bottom is thin; in the 1990s, the research direction is mainly focused on macro-level crime prediction, the prediction of a certain region or a certain stage of the crime trend has become the main focus of the research in this period, however, this part of the content generally lacks practical significance; in the twenty-first century, when the scale of the publication of academic papers is more prosperous, the number of literature on crime prediction research has decreased rather than increased.<sup>[1]</sup> In the twenty-first century, the number of literature on crime prediction declined rather than increased, Domestic research is still lagging behind, and it is difficult to break through the limitations inherent in the theory of crime prediction itself. In recent years, the public security departments have begun to pay attention to the significance and value of crime prediction, put forward corresponding prediction models for different types of crimes, and promoted the crime prediction research to gradually change from traditional content analysis to the analysis mode dominated by statistical data, which has greatly improved the accuracy and application value of crime prediction research. However, it is undeniable that there is a lack of effective connection between this part of theoretical research and practical application, which makes it difficult to cope with the increasing demand for the value of crime prediction research in judicial practice. If China's crime prediction research wants to get out of the current predicament, first of all, on the basis of correctly sorting out the inherent limitations of crime prediction theory, we should make clear the application value of crime prediction research in China, improve the mechanism of crime prediction research in all aspects, and unshakably develop and utilize crime prediction science.

### **3. Sorting out the inherent limitations of crime forecasting**

Because of its strong social attributes, crime prediction has many inherent limitations. In order to make rational use of the crime prediction mechanism so as to give full play to the positive role of crime prediction in crime prevention and control, while avoiding inaccurate crime prediction becoming a tool for infringing on the personal rights of citizens, it is necessary, first of all, to have a comprehensive understanding of the limitations inherent in crime prediction, and to adopt different countermeasures to alleviate its limitations as much as possible.

#### ***3.1. Technical limitations of crime forecasting***

##### ***3.1.1. Higher subjectivity of the predicted subject and object***

From the perspective of the object of prediction, unlike natural prediction research such as the laws of celestial motion, the object of crime prediction has a strong capacity for consciousness, and the predicted person can perceive a series of observational and analytical activities carried out by the subject of prediction and react based on them so as to change the original behavioral plan, which will greatly reduce the accuracy of the prediction results. From the perspective of the subject of prediction, the purpose of crime prediction research is to prevent crime, the predictor according to the results of the crime prediction to take corresponding countermeasures to avoid the occurrence of criminal activities is the value of crime prediction research. When the implemented countermeasures are effective and the predicted criminal activities do not occur, there is no way to analyze the actual effect of the crime prediction activities. In addition, the predicted object in each of the behavioral aspects of the choice there are greater subjective arbitrariness, even if the crime prediction can be rational, premeditated criminal activities to make a more accurate prediction, but for most of the strong subjective arbitrariness, irrational criminal activities are difficult to realize the prediction in advance.

For example, in the early years when drug smuggling crimes were more prevalent, the public security authorities, by analyzing the trends in the tools used to commit drug crimes and applying the principle of developmental crime prediction, deduced that new smuggling methods might emerge from drug-related criminal activities, thus drawing the great attention of the Customs anti-smuggling police to the need for a proactive response to such criminal activities. However, accordingly, the perpetrators will also improve the method of crime implementation on this basis to avoid legal sanctions, the public security organs have to take new response measures. As a result of the strong individual subjectivity in crime prediction activities, it is impossible to predict objects as stable as natural objects, resulting in a vicious circle of game relations between the subject and the object of the crime, which greatly diminishes the accuracy of the results of crime prediction and the difficulty of crime prediction

activities.

### ***3.1.2. Factors affecting the forecast object are more complex***

Social movements are the most complex of the five forms of material movement, which stems mainly from the constantly evolving forms of movement in society and the great individual variability between predicted objects, a characteristic that inevitably has a negative impact on crime prediction activities.

First of all, the complexity of social factors and the randomness of the development of things will inevitably have an impact on the prediction of the behavioral tendencies of the object. Similar to the "butterfly effect" in the natural world, this complex and unpredictable phenomenon is also prevalent in human society. For example, at the beginning of the twenty-first century, the subprime mortgage crisis in the United States triggered global economic turmoil, and China's economy on the other side of the ocean was hit hard, with a large number of workers being laid off, resulting in more property-type crimes, corporate bankruptcies triggering a large number of economic crimes, and more disputes over market transactions and even providing opportunities for triad crimes, all of which stemmed from the involvement of new and uncertain factors in social behaviors, and which were difficult to predict prior to the occurrence of the incident. In addition, there is no clear correlation between social economy prosperity and depression alone and the crime rate for the same period, and the results of crime prediction based on societies in different periods and geographic areas vary greatly, with the complexity of social factors greatly affecting the accuracy of crime prediction.

Secondly, the individual variability among the predicted objects likewise enhances the difficulty of crime prediction activities. The empirical school of thought believes that crime is not a product of free will, but rather that factors other than one's own will drive the perpetrator to commit crime. Family factors, intellectual factors, individual economic factors, moral level factors and criminal subculture factors in the "chain of causality of crime" advocated by the empirical school are all considered to be the reasons that drive the perpetrators to commit crimes. It is undeniable that the above factors are the main motivation for the perpetrators to commit crimes, and their conclusions are of great significance and value to criminology research. However, in reality, not all such people eventually commit criminal acts, and there is no lack of people with happy families, favorable economic conditions, and prominent status falling into crime, and the differences in choices between individuals make it difficult for forecasters to accurately grasp the laws of crime, thus failing to make criminal prediction conclusions of high application value for the predicted objects.

### ***3.1.3. Insufficient material on which to base crime projections***

In traditional crime prediction research, prediction activities often rely on empirical material at the theoretical level, focusing more on the analysis of cause and effect relationships. However, traditional crime prediction activities are extremely limited in the way of obtaining information, mostly through surveys, interviews and other statistical means, and there are large "criminal black numbers" in the crime statistics held by public security organs, making it difficult to make accurate predictions of criminal activities. The "crime prediction" under the vision of big data has been described by western scholars as "old trick, new technology". In recent years, scholars in China have also published a large amount of literature for different types of crime, using emerging data types, constructing highly efficient analytical models, and making scientific conclusions about crime prediction under the auspices of the traditional theory of crime prediction and the practice patterns. Although the change of crime prediction data can optimize the investigation mode to a certain extent, promote the updating and upgrading of the law enforcement methods of public security organs, and effectively improve the efficiency and accuracy of the conclusions of crime prediction, there are still many possible risks and challenges, the most basic of which is the problem of information defects in the process of data collection. The problem of "black number of crimes" is a judicial knot that still can't be completely solved in the era of big data, for this kind of data, China's official institutions have not been able to carry out authoritative and comprehensive surveys, but from the conclusions of earlier surveys on the problem of inaccurate filing of cases, it can be seen that the number of black number of crimes in our country is extremely huge, with obvious differences in space and time, and uneven distribution of the types of crimes, of which property cases have the highest number. Among them, property cases have the highest black numbers. At the same time, China's crime statistics, in addition to reasonable crime black numbers caused by objective factors, there are also due to the public security organs did not truthfully register the crime, the victim did not report the crime and so on resulting in a large number of irrational crime black numbers, crime prediction based on the lack of real data will inevitably greatly reduce the quality of prediction conclusions.

### ***3.2. Limitations of the value of crime forecasting***

#### ***3.2.1. Lower reference value of conclusions on crime projections***

Crime forecasting summarizes future criminal activities in terms of their probability of occurrence, which requires a selective application of the conclusions of crime forecasts when applying them to the formulation of response measures. If one fully trusts certain scenarios that are more probable in the prediction results, one has to bear a greater risk of decision-making errors, and thus the crime prediction activity not only fails to provide worthwhile reference value for the judicial work, but instead becomes an obstacle that prevents the judicial authorities from choosing reasonable response; however, if one comprehensively considers the various scenarios in the prediction results and formulates the response measures individually, then it will greatly increase the cost of the response to the crime and is consistent with the value of crime prediction to reduce the response cost. However, if the various scenarios in the prediction result are considered comprehensively and response measures are formulated separately, it will greatly increase the cost of crime response, which is contrary to the value goal of crime prediction to reduce response cost. It is for this reason that the uncertainty of the conclusions of crime forecasts leads to a significant reduction in their reference value.

#### ***3.2.2. Insufficient scientific validity of response measures based on forecast conclusions***

Crime prediction activities are bound to make every effort to pursue the science and precision of each link and prediction result, but crime prediction, because of its greater technical limitations, is certainly difficult to achieve the same degree of precision as natural prediction disciplines, and the scientific and applied value of the measures taken in response thereto is therefore not comparable to that of natural prediction. Therefore, when people use the conclusions of crime prediction to respond to the needs of society, there is bound to be a process of repeated games and trial and error with the object of prediction, so as to continuously improve the accuracy of the conclusions of crime prediction and thus achieve the purpose of crime prevention and control.

#### ***3.2.3. Forecasted findings of crime may not be used as a basis for advance punishment***

The film *Minority Report* presupposes a scenario in which the prediction of a crime meets the standard of infallible accuracy,<sup>[2]</sup> it can be foreseen that a specific perpetrator will inevitably commit a crime at a specific point in time, so that the perpetrator can be apprehended in a "pre-emptive" manner. As advocated by the empirical school of thought, the responsibility borne by the offender should be the need to defend society, and accordingly, the criteria for determining responsibility and imposing penalties should also be based on the offender's personal dangerousness, rather than the objective harmfulness of the act. Admittedly, both the viewpoint of the empirical school and the approach in the movie are feasible from the perspective of theoretical logic. However, in human society, penalizing people solely on the basis of predictions that have not yet occurred is very likely to reduce penal power to a tool for authoritarians to consolidate their dominance, leading to the tragedy of abuse of power and wanton trampling of human rights. In the wake of the awakening of the awareness of human rights protection after the Second World War, the principle of the rule of law and the concept of the legal doctrine of crime and punishment have been highly valued, and in the context of the pursuit of the rule of law in today's human society, even if the conclusions of the crime prediction have a very high degree of accuracy, they can only be used as a tool for preventing crime and for taking preventive measures such as educating and controlling potential criminals, and must not be used as a basis for the preemptive penalization of crime by the public authorities.

## **4. Clarifying the value of crime prediction for application in our country**

Crime is a social phenomenon, and it is true that crime prediction cannot be as "accurate" as the prediction of natural activities, but we must not therefore deny the necessity of establishing a mechanism for crime prediction, and crime prediction has its practical significance and great value of application in human societies, where criminal activities cannot be eliminated completely. Only by clarifying the importance of crime prediction research in our country can we unswervingly help crime prediction research out of its current predicament.

### ***4.1. Crime prediction as a prerequisite for crime prevention***

Whether it is China's four successive nationwide "Strike Hard" campaign or the three-year "Special Struggle Against Blackness and Evil", we have achieved remarkable results, which means that in the

case of rampant criminal offenses, it is the inevitable tendency of the criminal law to crack down on criminals. The inevitable tendency of the criminal law. However, focusing on crime fighting, the "reactive policing" mode of work is difficult to maintain social stability in the long term. Since the reform and opening up, China's social security has gradually improved steadily, and the overall focus of criminal justice work has changed from fighting crime to preventing crime and reforming criminals, so the comprehensive management mode of prevention, combating, and reforming can only make progress amidst stability and achieve long-term social peace and security.<sup>[3]</sup> However, there is no prediction of crime prevention is blind, the effective realization of crime prevention is inevitably inseparable from the scientific activities of crime prediction, only to strengthen the crime prediction, respectively, from the overall level of the society and the individual level of the perpetrator of a comprehensive analysis of the whole society in a timely manner to grasp the trend of changes in the community crime and individual crime trends, in order to provide a scientific basis for the work of crime prevention, so as to prevent crime. Targeted crime prevention. For example, by analyzing various types of juvenile crime, we have reason to believe that most juvenile offenders' families of origin are not complete, and that strained family relations will have an impact on juvenile offenders physically and psychologically that cannot be ignored, making it easier for them to embark on the path of crime. China attaches greater importance to the prediction of juvenile crime, and the administrative and judicial authorities have adopted different means to pay close attention to the behaviour of juveniles who may commit crimes, and have formulated targeted crime prevention guidelines to maximize the effectiveness of crime prevention.

#### ***4.2. Crime forecasting as a driver of justice transformation***

Judicial organs have accumulated a lot of valuable experience in their work in the past, which can provide reference and assistance for subsequent similar criminal justice activities and help to deal with criminal activities efficiently. However, with the continuous development of society, all kinds of new problems emerge one after another, the past work experience is difficult to cope with the emerging criminal phenomenon, which requires judicial staff must adjust the response measures in a timely manner, to explore new means and methods to solve new problems. Crime prediction can promote the judicial work from experience to scientific transformation, through the prediction of future criminal activities, the staff beforehand rational allocation of judicial resources, and then develop appropriate treatment programs. Specifically, public security authorities can foresee in advance that the risk of crime is higher at a certain time and space, and that more property-type or even personal-type crimes may occur, so that police forces can be deployed in advance to strengthen inspection and evacuation work. Depending on changes in political and economic policies, which may lead to a rise in the number of certain crimes, the courts are able to anticipate them in advance and impose heavier penalties on the criminals concerned, in order to deter similar behavior. In addition, when the court makes a decision on sentence reduction or parole, the efficacy of crime prediction is also indispensable. Prediction of parole "re-offense" can not only stay in the parole decision at the moment, should be from the judgment before, after entering the prison, after leaving the prison, the whole process, multi-faceted comprehensive prediction. For example, the prediction of "reoffending" on parole should include the physical danger of the perpetrator before sentencing, the objective performance of the rehabilitation process after imprisonment, as well as the composition of the family, the economic situation, the re-employment situation, etc. Only by taking into account the full range of individual factors of the convicted person on parole and the relevant social factors can parole "recidivism" be reduced effectively. The phenomenon of "recidivism" can be effectively reduced only by comprehensively considering the individual factors of the paroled offender and the relevant social factors.

#### ***4.3. Crime forecasting as a basis for improving criminal law***

Since its promulgation and implementation in 1997, China's current Criminal Law has been constantly adapted to changes in social development and responded in a timely manner to the demands of the times, and has been amended a total of eleven times. Such legislative amendments are an inevitable product of social updating and progress, for with economic development and policy changes, new types of crime and criminal means emerge, and loopholes in the existing laws inevitably exist. However, it is also undeniable that some of these amendments, as if there is the problem of poor consideration of the legislation, that is, the legislator ignored the importance of crime prediction, the lack of a reasonable range of predictions of the future of the community may occur within the scope of criminal activities. For example, it was only in recent years that the amendments to the Criminal Law were able to reasonably regulate such criminal activities as the gathering of a crowd to disrupt social

order, making it impossible for medical activities to be carried out, and the sexual assault of men. The law should have a certain degree of predictability in order to regulate criminal activities more effectively and give full play to the deterrent effect of the law. Crime forecasting is the basis for improving criminal law; in the process of criminal legislation, crime forecasting research is used to combine relevant factors and statistical data to make a general prediction of crime trends over the next few years or even a dozen years, and to formulate countermeasures in advance, so as to realize the stability and authority of criminal law.

#### ***4.4. Crime forecasting activities are conducive to the mobilization of society as a whole in the prevention of crime***

The use of scientific means of crime forecasting, the disclosure of future crime trends to the public and the making of the public as the supervisors and checkers of criminal activities are extremely effective in preventing and punishing criminal acts, and there is mature theoretical experience in this regard both at home and abroad. Since 1960, the Ministry of Justice of Japan has annually compiled and published the White Paper on Crime, in which a large amount of statistical data is used to elaborate on the current state of criminal justice in the country and the treatment of criminals, and to make general predictions on the crime situation for the following year. In Hungary, as early as 1964, electronic computers were also used to collect and analyze crime data, with special attention paid to the comparative analysis of similar criminal activities, and the results of the forecasts were formed into visual reports for the public, so as to enable the public to have an understanding of the future trends of crime changes.<sup>[4]</sup> Professor Jin Gaofeng's "Analysis and Forecast of China's Crime Situation" is also released annually to provide all the members of the society with a clear and definite criminological report, using the most intuitive statistical data to show the various types of crimes in the previous year and to make scientific predictions on the crime situation in the next year and to put forward feasible strategies for the management of the crime situation. Based on this, all sectors of society spontaneously form a sense of supervision of criminal activities that may occur in the future, and report and accuse illegal and criminal acts in a timely manner; at the same time, it also creates a certain degree of deterrence for potential offenders with such criminal motives, so that some of them are forced to give up committing criminal acts due to the pressure, thus providing a crime prevention situation with significant effects at the level of the whole society.

### **5. Contingency approach to crime forecasting**

Although there are all kinds of limitations in crime prediction, and it is difficult to make the prediction conclusions accurate, a certain degree of crime prediction is a necessary prerequisite for crime prevention and crime control, and it has a high application value in the practice of criminal justice in our country, which requires us to correctly treat and reasonably apply the conclusions of crime prediction.

First of all, the research on crime prediction in China started late and the system has not yet matured, so it is possible to draw critically on advanced foreign experience in the light of China's national conditions. The direction of crime prediction should be adjusted in a timely manner in accordance with the changes in China's political, economic, social and cultural policies; at the same time, taking into account the vastness of China and its large population, research on crime prediction should comprehensively take into account the commonalities and differences between different periods, regions and groups of people, and formulate corresponding crime prediction programs.

Secondly, the content of crime forecasting research should be comprehensive and specific. Crime forecasting is aimed at providing predictive conclusions for reference in China's criminal justice activities, so that the content of the forecast not only needs to make a prediction of the trend of changes in crime on a national scale, but should also predict the trend of changes in the subject of the crime, the means of committing the crime, the victim and other elements, in order to provide judicial workers with the most comprehensive data on crime forecasting.

Once again, crime forecasting is a comprehensive and extremely complex task that requires the mobilization of social forces to complete it, requiring both theoretical research institutions and practical forecasting institutions; it requires both a central body to make forecasts of crime throughout the country in order to improve criminal law policies and optimize the allocation of judicial resources, and local judicial and administrative authorities at all levels to make forecasts of changes in crime trends in their respective jurisdictions, so as to strengthen the positive interaction between the various parties and

to ensure that the results of theoretical research are more efficiently used in guiding practice.

Lastly, in the specific application of the conclusions of crime forecasting, caution must always be exercised and reservations should be made when formulating response plans. When formulating a response plan based on the results of crime forecasting, it is important to take into account other possibilities of the opposite situation at the same time, and to make contingency plans in advance for forecasting errors, so as to avoid further expansion of losses. For example, when the results of crime prediction show that the overall situation of social security in a certain area is good and the probable incidence of crime is low, the relevant departments can take this opportunity to rationally cut back on expenditure and reduce the deployment of law enforcement personnel, thereby saving social resources, improving the efficiency of justice and law enforcement, and thus promoting the vitality of spontaneous social adjustment. However, this must be done on the premise of formulating contingency plans in advance, so as to prevent timely remedies in the event of forecasting errors.

## 6. Conclusions

The scope of research in crime prediction is very broad. It is possible to study the development trend of a certain type of crime according to the classification of China's criminal law, and it is also possible to predict crime specifically for a certain period of time or a certain geographical area. From the age distinction of criminals, it can be divided into the prediction of juvenile crime, middle-aged and old-aged crime; from the gender distinction, it can be predicted that the development trend of male crime and female crime; from the intellectual structure distinction, it can be predicted that the development trend of intellectual crime and non-intellectual crime. In addition, it is possible to make comparative predictions of urban crime and rural crime, and so on. In a word, the purpose of studying crime prediction is to provide scientific basis for the continuous improvement of our criminal legislation, and to serve for the comprehensive management, crime prevention and eventual elimination of crime. It is in this sense that we believe that it is of great significance to create a crime prediction science that suits China's national conditions.

## References

- [1] Zhao Jun. (2011). *Current Situation, Problems and Development Trends of Crime Prediction and Research in China: A Content Analysis of China Knowledge Networks*. *Journal of Hunan University*, (03), 156.
- [2] Zhao Jun. (2010). *The "Prophet" Puzzle: A Study of the Limits of Crime Prediction*. *Journal of Henan Higher Public Security College*, (06), 16-20.
- [3] Kang Shuhua. (1990). *On the importance of crime prediction*. *Modern Jurisprudence*, (06), 23.
- [4] Zhang Jiatian. (1984). *Creation of a crime prognosticology adapted to our national conditions*. *Journal of Northwest College of Politics and Law*, (03), 85.