Game Theory, Information and Police Governance Model

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Abstract: Starting with the game theory, citing the mathematics and humanism of the governance model, combined with the relationship complexity and information asymmetry of policing governance, This paper puts forward that big data policing with flexible law enforcement as the basic element, which will become the inevitable choice of contemporary policing intelligence.

Keywords: Game; Information; Flexible Law Enforcement; Big data Policing

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With the reform of Chinese economy from planning to market system, the political system is also marching to the deep water area. The 19th CPC National Congress proposed that the modernization of the national governance system and governance capacity will become a long-term and arduous task. The exploration of this long-term mechanism is not only a macro top-level design, but also a bottom-up model choice. Starting with the game theory, this paper quotes the mathematics and humanism of the governance model, and strives to reproduce the design rationality and mode building of police governance.

1. The Mathematics and Humanism of the Game Model

Game theory came into being under the background that the simple marginal equilibrium model can not explain the complexity of microeconomic operation. Feng Neumann, its founder, brought the interaction of market participants into the design of economic model for the first time. He believes that economic equilibrium is not the passive reflection of resources, property rights system and transaction costs, but the result of participants’ active choice. Through the theory of tenant

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farmers, Zhang Wuchang revealed that the endogenesis of agricultural economic growth in Asia comes from the choice of tenancy contract. In this way, the economic model starts from Adam Smith’s hypothesis of economic man— the concavity of man’s utility function— the interaction of man’s utility function and the hypothesis of social man— the choice of man’s active contract as the endogenesis of economic growth. During this period, it has experienced the complementary integration of the mathematical beauty of marginal analysis and the humanism of economic operation. Therefore, the establishment of the theoretical model requires mathematical thinking, and the model’s interpretation of reality requires humanistic thinking, and so the model have a common essence, which is, the interaction between mathematics and humanities.

2. The Governance Model Based on Game and Information

The structure of game theory includes human, utility, payment, environment, equilibrium solution, which can be divided into four sub-models in theory, namely, static perfect information type, static imperfect information type, dynamic perfect information type and dynamic imperfect information type. Among them, the static perfect information type is the ideal state that can explain the Pareto optimal, while the environment of human social game often has information asymmetry and humanistic addition. The basic logical starting point of the transformation from high planning-service management-governance mode is static information symmetry-static information asymmetry-dynamic information asymmetry. Therefore, information determines the model choice from planning to autonomy. With the rapid development of IT, the reduction of information cost weakens the asymmetry of information. By building a shared information platform, the information interaction between participants is sublimated, which makes co-governance ideal possible and feasible.

3. The Flexibility of Policing Governance Model and Intelligent Policing

Many scholars believe that the method of game theory is not suitable for the analysis of the rule of law, because police law enforcement only has rigid standards of laws and regulations, and the so-called game equilibrium is not allowed, but the author thinks that this is only a theoretical truth. In the specific micro process of law enforcement, based on limited rationality, it is impossible for the police to deeply grasp the rule of law before enforcing the law, coupled with the asymmetry of information. The police will empirically choose “flexible law enforce-
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ment”. Compared with the duality of police rule of law, the relationship of law enforcement environment considered by police governance is more diverse. Information philosophy holds that the origin of the world is a process relationship, not necessarily an object entity. In contrast to the police rule of law with this concept, the legitimacy and diversity of law enforcement procedures is its Noumenon, and the result rigidity of the legal text is its carrier. as mentioned earlier, the various criticisms of the rule of law in China are only one of the many choices of law enforcement methods in the network of complex police relations. The thinking of dual policing rule of law and the governance mode of pluralistic police relationship, the coexistence of rigidity and flexibility is a reflection of the complexity of contemporary policing rule of law.

To some extent, intelligent policing takes “flexible law enforcement” as the basic element, and the integration of this basic element will face a lot of algorithm choices. Data as the carrier of information will only be information itself if it is properly revealed by mining. Otherwise, a lot of noisy data will be generated. If the information is regarded as a relational law, then the data can be regarded as an “immature” or “simple” relational model, and the model of mining data is only different from the “maturity” of the data itself. the advantages and disadvantages, simplicity and complexity of relational models are relative. In the Intelligent Age, Wu Jun interpreted Chebyshev inequality as “when there are enough samples, the error between a random variable and its mathematical expectation can be arbitrarily small.” regarding the relational model (or data) and information as random variables and mathematical expectations respectively, “as far as the model is concerned, as long as there are enough data, several simple models can replace a complex model.” The model of machine intelligence based on process simulation is relatively complex, while big data intelligence replaces complexity with a simple data model. “A simple model with sufficient data is equivalent to a complex model with insufficient data.”

As far as police data and flexible law enforcement are concerned, as long as the police data is large enough, the effect of flexible law enforcement will be equal to that of the police rule of law design accompanied by a huge explanation, but greatly avoid the risk of law enforcement. Searching for complex top-level design models in diversified policing relations is often subject to limited rationality, and “local legislation first” and “grass-roots government documents” can effectively reflect the local and grass-roots policing relations, and because IT has the advantage of high data storage, therefore, the establishment of intelligent policing based on “flexible law enforcement” is guided by big data, which is based on a simple model, big data policing has become an inevitable trend.
Works Cited