

# A Summary of the Evaluation Indicator System for the Construction of China's Social Credit System

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**Abstract**—This paper reviews the different social credit evaluation indicator systems and evaluation methods established by Chinese scholars, and briefly show how to establish an indicator system and what kind of evaluation method is more reasonable for those who are still exploring social credit construction and formulating evaluation index system, so as to correctly identify the status quo of social credit.

**Keywords**—social credit system; credit system construction; credit level; evaluation indicator system

## I. INTRODUCTION

Social credit is an important foundation for social and economic development. The construction of a social credit system is of key importance to the national economy and service levels, especially for developing countries. Only when the status quo of social credit is correctly evaluated can we understand the inadequacies of relevant policies, thereby improving them and promoting economic development. Nevertheless, at present, few Chinese scholars have reviewed the evaluation Indicator System for the Construction of China's Social Credit System.

This paper reviews the different social credit evaluation indicator systems and evaluation methods established by Chinese scholars, and briefly show how to establish an indicator system and what kind of evaluation method is more reasonable for those who are still exploring social credit construction and formulating evaluation index system, so as to correctly identify the status quo of social credit.

This paper is organized as follows: Section II introduces the background of China's social credit system. Section III reviews the social credit evaluation indicator system and evaluation methods established by China's domestic scholars. Section IV presents the conclusion.

## II. BACKGROUND OF CHINA'S SOCIAL CREDIT SYSTEM

### A. The Importance of the Construction of Social Credit System

In 1999, China's first credit issue "Building a National Credit Management System Project" created the 2000 national report "National Credit Management System" [1], which defined the concept and construction path of the social credit system. In 2017, the National Development and

Reform Commission and the People's Bank of China issued the "Guiding Opinions on Strengthening and Regulating the Joint Incentives and Trustworthy Joint Disciplinary Objects Management" [2]. It can be seen that the construction of China's social credit system has been unremittingly promoted since the official launch of the country for 20 years. In recent years, it has become more important, indicating that the construction of a social credit system is very important.

### B. The Concept and Content of the Social Credit System

The Outline of Social Credit System Construction (2014-2020) [3] defines the social credit system as an important part of the socialist market economic system and social governance system. It is based on laws, regulations, standards and contracts. It is based on a sound network of credit members and credit infrastructure that covers society members. It is supported by credit information compliance application and credit service system to establish a culture of integrity and promote the tradition of integrity. Virtue is an internal requirement, and the reward and punishment mechanism is based on trustworthiness and distrust. The purpose is to improve the integrity and credit level of the whole society.

The "National Credit Management System" (2000) pointed out that the content of the social credit system can be classified according to the objects of credit construction and the content of credit construction.

According to the objects of credit construction, the social credit system includes the construction of three credit systems, specifically the enterprise credit system, the personal credit system and the government trustworthy system. According to the content of credit construction, the social credit system is mainly composed of credit legislation, credit transactions, credit supervision, credit services, credit culture and education, and is constrained by the mechanism of discretion and punishment.

The two classification methods proposed in the report have been given guidance to Chinese domestic scholars. It can be seen from "Table I" that most of the domestic researches set the evaluation indicator system for the construction of social credit system based on these two classifications.

C. Establishment of Social Credit Evaluation Indicator System

The standard for the evaluation indicator system of the social credit system is to identify the different aspects of the construction of the social credit system, that is, the components of the construction of the social credit system; the principles are fair, scientific and effective; the purpose is correct Identify the status of social credit, enhance the level of social credit and the sense of responsibility of citizens to prevent corruption and abuse of power.

III. OVERVIEW OF DOMESTIC SOCIAL CREDIT EVALUATION INDICATOR SYSTEM AND EVALUATION METHODS

A. Evaluation Indicator System Established by Domestic Scholars

It can be seen from the “Table I” that in the evaluation indicator system established according to the objects of credit construction, scholars do not completely construct indicators around the three major entities of government, enterprises and individuals, but join the evaluation of civil organizations, media and other subjects according to actual conditions. This shows that with the government’s continuous promotion of the construction of the social credit system, in addition to the government, enterprises, and individuals, the credit construction in other social fields has gradually received attention and achieved corresponding results. This is closely related to the country’s policy of actively promoting social credit construction.

TABLE I. SOCIAL CREDIT EVALUATION INDICATOR SYSTEM ESTABLISHED BY DOMESTIC SCHOLARS

Indicator basis	Indicators		
	Primary indicators	Secondary indicators	Scholars
According to the objects of credit construction	Government credit, Corporate credit, Civil organization credit, Personal credit	Institutional indicators, behavioral indicators, and performance indicators of each of the four entities	Yan Qinghua, Gao Xuan (2010) [4]
	Government credit, Market credit, Media Credit, Public Service Department Credit, Social atmosphere	Government system credit, government function credit, government credit capacity, government credibility Market credit management, corporate credit, transaction credit Media credit management, media credit image Public service department credit capacity, public service department character, public service department reputation Social ethos construction investment, social ethos management, social ethos	Guo Qingxiang, Lin Yang (2007) [5]
	Government credit, Business credit, Social credit, Judicial trust	Government quality, government’s own credit capacity, economic compliance ability Enterprise quality, business credit, circulation credit Social security, finance, environment, science, education, culture, health, transportation Judicial activities, judicial personnel	Meng Xiangyan (2017) [6]
Divided by credit construction content	Credit management, Credit service, Credit education	Credit construction investment Credit environment construction Corruption monitoring mechanism	Yang Liu (2014) [7]
	Basic economic order principle, Credit environment, Credit service agency, Internal credit management agency	Maintenance of the basic legal system, law enforcement agencies, and basic economic order Credit regulations, information disclosure system, social needs, implementation mechanisms of various systems Personal credit, corporate credit, credit investigation, credit evaluation, credit insurance, factoring, account collection Bank credit evaluation, corporate credit sales, risk management of investment institutions, credit management products	Zhou Wei, Liu Xiangdong (2004) [8]
	Credit legislation, Credit transactions and services, Credit supervision and punishment, Credit culture and education	Number and frequency of laws, regulations, and standards promulgated by the government Number of filing credit service agencies, number of employees in credit information services, number of people in the credit information system/database, inquiries and use of credit reports, overall measurement of business conditions in the credit reporting industry Credit environment evaluation, credit website dynamic update status, and untrustworthy publicity Credit culture creation activities, credit education	Wu Qiuwan (2015) [9]

Indicator basis	Indicators		
	Primary indicators	Secondary indicators	Scholars
Divided by credit construction content	Credit regulations and policy systems, Credit Intermediary Service and Supervision System, Credit technical support system, Trustworthy reward and dishonesty punishment system, Credit culture system	Government regulations and policy documents, credit regulations Industry self-regulation, group conventions, institutional types of intermediaries, number of intermediaries, and size of intermediaries Credit products and business, social recognition, government supervision, the amount of credit data, standardization of credit data indicators, update speed of credit data Selection of evaluation indicators, credit evaluation model, communication mechanism, reward and punishment Ideological identity, social propaganda, credit education and training	Kang Ying (2012) [10]
	Credit system, Trustworthy incentive, Trustworthy disciplinary mechanism, Credit performance, Credit environment and credit services and applications	The establishment and improvement of the social credit system, the publicity of dual public information, and the sharing of credit information Trustworthy encouragement, untrustworthy governance, joint punishment Credit level in the social credit field, innovation demonstration, and revision of credit standards Credit service, credit application, financial ecological environment, business environment, credit market cultivation, market credit commitment, credit culture construction	Sun Liangquan, Sun Ying, Zhang Ya (2018) [11]

**B. Classification of Evaluation Indicator System**

At present, the evaluation indicator system established by domestic scholars can be divided into two categories. The first category is mainly composed of government, enterprises and personal credit and other credit construction entities. The second category is a comprehensive system of credit construction content related to credit legislation, credit transactions, credit supervision, credit services, credit culture and education, and disciplinary mechanisms.

The application of the first evaluation indicator system consisting of credit construction entities is as follows.

Yan Qinghua and Gao Xuan (2010) demonstrated the importance of the credit evaluation indicator system by constructing a public credit evaluation indicator system in view of the lack of social credit in China in 2010, and pointed out that the evaluation indicator system has evaluation, prediction, warning and guiding functions. When establishing a credit evaluation indicator system, we must focus on improving the incentive and restraint mechanism of public credit supply, and strengthen the management physique, operation mode and long-term mechanism of credit construction.

Guo Qingxiang and Lin Yang (2007) established a comprehensive multi-level multi-indicator comprehensive credit evaluation system, which requires the data collected by the social credit evaluation to be at least one year. By giving the “public trust” indicator a greater weight, the reliability of other data is confirmed, and the impact of the country's own work evaluation on the comprehensive evaluation results is reduced, making the evaluation results more objective.

Meng Xiangyan (2017) considers that the urban credit system is the basic unit of the social credit system. Taking the urban credit level of Beijing as the research object, the

credit evaluation indicator system is established. The author divides the urban credit development of Beijing into three stages: 2000-2003 beginning, 2003-2013 initial development, and 2013-2017 high-speed development. The horizontal comparison is made with the constructed TOPSIS model. The results show that business credit has been promoting and driving the whole city credit. The author also pointed out that the key to the establishment of government integrity and judicial public trust is to play a model role. Trustworthy incentives and disciplinary punishment are the fundamental measures to maintain the order of the credit economy market.

The second type of evaluation indicator system consisting of credit construction content includes the following research.

Yangliu (2014) established a social credit evaluation indicator system and assigned weights to the indicators through empirical analysis, and obtained representative cities in Beijing, Shanghai, Hangzhou, Harbin, Changsha, Chengdu, Fuzhou, Qingdao, Zhengzhou and Yinchuan. The comprehensive score of credit level analyzes the status quo of the construction of social credit system in these ten cities. The research results show that the six dimensions of social credit system construction have different degrees of influence on credit level. The most influential factor is credit regulation and corruption monitoring. The author believes that credit construction should cover all levels of society, and the credit system should be complete and comprehensive, composed of many institutions, laws, practices and ethics.

Zhou Wei and Liu Xiangdong (2004) considered that as part of the economic system, the social credit system is “an auxiliary social system of credit transactions”. The author has established a hierarchical structure to make the social credit system clearer. It is recommended that problems at different levels should be dealt with through the corresponding level. The author also suggests focusing on building a credit environment that improves the credit

environment from the perspective of credit legislation, credit disclosure, and services that meet credit needs.

Wu Qiuwan (2015) established the weight evaluation indicator system of the social credit system after establishing the evaluation indicator system of the social credit system. In the empirical part, it was applied to five typical provinces and cities of Shanghai, Zhejiang, Liaoning, Jiangsu and Hunan, and obtained five provinces. The indicator system is more suitable for comparing the construction of credit systems with different provinces and cities.

Kang Ying (2012) regards the social credit system as system engineering. Through the AHP method, the most important factors are credit regulations and policy systems, and credit technology support systems. It is recommended that the government promote the organization, manpower, funds and systems as a whole, and increase administrative transparency, and update all credit data in a timely manner as well as ensure the security of credit information.

Sun Liangquan (2018) established a social credit indicator system based on big data to evaluate the status quo of social credit in Jinan. The key points of the establishment of the indicator system were trustworthy incentives, disciplinary punishment and credit system construction. The author also pointed out that big data can integrate data on commercial credit, public utilities, etc. to find out what needs to be improved in the credit system.

*C. Social Credit Evaluation Methods*

Xie Hengxin (2016) [12] reviewed the models of personal credit evaluation and corporate credit evaluation established by different scholars, and pointed out that the algorithms commonly used to evaluate credit in two fields are neural network method and decision tree method. Yan Qinghua (2010) reviewed the evaluation methods of government credit, corporate credit and personal credit, and pointed out that the research on personal credit evaluation has reached a high level, but most of the evaluation is limited to the technical level, and the more used method is 5C Credit Evaluation Method, credit evaluation method based on data mining technology. In addition, logistic regression model, decision tree technology and neural network technology are used to construct credit classification model.

In the comprehensive evaluation of social credit, the methods used by scholars are shown in “Table II”.

TABLE II. SOCIAL CREDIT EVALUATION METHOD

Method list	Scholars
Questionnaire Method, Interview Method, Analytic Hierarchy Process, Factor Analysis Method, Cluster Analysis Method, Comprehensive Scoring Method	Yang Liu (2014)
Entropy Method, TOPSIS Analysis	Meng Xiangyan (2017)
Analytic Hierarchy Process, Grey Target Decision	Wang Jun (2013) [13]
Indicator Transformation Method, Expert Scoring Method, Linear Weighting Method	Yan Qinghua (2010)
Analytic Hierarchy Process , Entropy Method	Wu Qiuwan (2015)
Analytic Hierarchy Process , Factor Analysis	Xie Hengxin (2016)

It can be seen from the table that AHP method is used more. The reason is that AHP method can solve the multi-objective complex problem by combining qualitative and quantitative decision analysis methods, and can give the right of each standard. The number is effectively applied to problems that are difficult to solve by quantitative methods. The comprehensive evaluation indicator system includes both qualitative and quantitative indicators, and the evaluation of different subjects makes AHP method very applicable. Entropy Method and Factor Analysis are used to eliminate indicators that contribute little to the evaluation results in the indicator system. Both of the two methods have strong objectivity, and they will work better when combined with other methods.

IV. CONCLUSION

The city is an important carrier for promoting the construction of a social credit system. At the end of 2017, there were 661 Chinese cities. [14] In the context of the National Development and Reform Commission's announcement of the list [15] of the first 12 social credit system construction demonstration cities in January 2018, this paper provides a reference for those who are still exploring the construction of a social credit system and the development of a credit rating indicator system. In order to assess the construction of the social credit system as comprehensively as possible under the constraints of a limited number of indicators, it is necessary to select the most representative indicators to establish a comprehensive evaluation system. For the evaluation indicator system, the more complete the aspect of the evaluation, the more effective the evaluation results.

It is recommended that the evaluation indicator system be established in the following two ways. First, according to the objects of credit construction; secondly, based on credit construction content. At the same time, it is recommended to use the Entropy Method, Factor Analysis Method and Analytic Hierarchy Process to selectively establish an indicator system, so that the evaluation results can more fully reflect the status quo of social credit. Based on the status quo, the urban policy and management system can be improved, thereby improving the city's credit level and promoting the construction of the national social credit system.

**REFERENCES**

- [1] Yu Jingming, Lin Junyue, Sun Jie, National Credit Management System, Beijing: Social Sciences Academic Press, 2000.
- [2] National Development and Reform Commission of People's Republic of China, "Guiding Opinions on Strengthening and Regulating the Joint Incentives and Trustworthy Joint Disciplinary Objects Management", [www.gov.cn/xinwen/2017-11/03/content\\_5237087.htm](http://www.gov.cn/xinwen/2017-11/03/content_5237087.htm), Nov. 3, 2017.
- [3] Central government of People's Republic of China, "Outline of Social Credit System Construction (2014-2020)", [www.gov.cn/zhengce/content/2014-06/27/content\\_8913.htm](http://www.gov.cn/zhengce/content/2014-06/27/content_8913.htm), June 27, 2014.
- [4] Yan Qinghua, Gao Xuan, "Preliminary study on the construction of public credit evaluation indicator system", *Luoja Management Review*, Feb. 2010.
- [5] Guo Qingxiang, Lin Yang, Research on the basic problems of social credit evaluation indicator system, *Research on Socialism with Chinese Characteristics*, Apr. 2007.
- [6] Meng Xiangyan, "Research on the construction of urban credit system in Beijing", Beijing Jiaotong University: Beijing, 2017.
- [7] Yang Liu, "Research on the evaluation indicator system of social credit system construction effectiveness", Zhejiang University: Hangzhou, 2014.
- [8] Zhou Wei, Liu Xiangdong, "Social Credit System — Stratification of Government Functions in Hierarchical Structure and System Construction", *China Soft Science*, June 2004.
- [9] Wu Qiuwan, "Comparative study on the effectiveness of social credit system construction in typical regions of China", Hunan University: Changsha, 2015.
- [10] Kang Ying, "Research on Evaluation of Social Credit System Based on AHP Method", *Value Engineering*, June 2012.
- [11] Sun Liangquan, Sun Ying, Zhang Ya, "Research on the Construction of Social Credit Indicator System in Jinan City under the Background of Big Data", *Shandong Economic Strategy Research*, Oct. 2018.
- [12] Xie Hengxin, "Evaluation of social credit environment and big data in Shandong Province", Shandong University of Finance and Economics: Jinan, 2016.
- [13] Wang Jun, Zhu Jianjun, Yang Ping, Long Junlin, "Comprehensive Evaluation of Social Credit System Construction Performance — Taking Shanghai as an Example during the Eleventh Five-Year Plan Period", *Credit Information*, July 2013.
- [14] National Bureau of Statistics of People's Republic of China, "The level of urbanization has increased significantly. The city has taken on a new look", [www.stats.gov.cn/zjtj/zftx/ggkf40n/201809/t20180910\\_1621837.htm](http://www.stats.gov.cn/zjtj/zftx/ggkf40n/201809/t20180910_1621837.htm), Sept. 10, 2018.
- [15] National Development and Reform Commission of People's Republic of China, "The list of the first batch of demonstration cities for social credit system construction was announced", [zys.ndrc.gov.cn/xwfb/201801/t20180109\\_873408.html](http://zys.ndrc.gov.cn/xwfb/201801/t20180109_873408.html), Jan. 9, 2018.