



Research on the Application of Big Data Technology to Tracking Audit in the Implementation of Targeted Poverty Alleviation---Taking County C as an Example

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Abstract. Poverty has been a crucial factor in the process of comprehensively building a well-off society. In today's world with a significantly improved physical wealth, there is still a proportion of people on the edge of poverty. The tracking audit of governmental information in the poverty alleviation can be addressed effectively by big data according to the current status of poverty reduction and the complexity of the problems caused by poverty in regions. Using big-data auditing technology enables the government to make more reasonable and precise decisions, and provides more extensive and accurate data and more advanced technological support for tracking audit. These advantages can improve the auditing efficiency of implementing tracking audit and provide better assistance for poverty alleviation. This paper conducted research on the current status of County C's governmental tracking audit in the implementation of targeted poverty alleviation policy. It analyzed the case to delve into how well the policy has been carried out. Besides, this paper made an in-depth analysis of the problems in the tracking audit of targeted poverty reduction and proposed some suggestions such as strengthening the training of big-data auditing talents and optimizing the government's influence on tracking audit.

Keywords: Big Data Technology · Tracking Audit · Targeted Poverty Alleviation

1 Introduction

As the era of big data advances, the data and information of every industry are increasing. In face of a large amount of data, it is imperative to analyze, query and process them. The analysis of auditing data is conducive to encouraging the government to make scientific, rational and precise decisions, and improving the government's capability of prediction, early warning and emergency response. Moreover, it is of significance to the application of tracking audit to the implementation of targeted poverty alleviation policy [1].

Since the 18th National Congress of the Communist Party of China, the central government has attached great importance to poverty alleviation so the supervision of carrying out targeted poverty alleviation policy should be enhanced to ensure an effective result. As the policy of targeted poverty alleviation has long been implemented and the measures taken by regions are different, it is unavoidable that there exists some deviation of the expected effects, the capital using, policy implementation and operation efficiency are not satisfactory, and corruption can be generated by carrying out the policy. Thus, to better avoid the negative effects of policies is the important goal of the central government's supervision to the policy function. The policy implementation should integrate big data auditing and traditional auditing to reach a comprehensive result. Besides, it is necessary to implement work and use appropriate methods to build a moderately prosperous society.

2 Feasibility Analysis of the Application of Big Data Technology to Implementing the Tracking Audit in Targeted Poverty Alleviation

Big data technology can effectively manage different data in the auditing process and integrate the data to improve the auditing work. Meanwhile, in today's world with well-developed modern information technologies, the combination of online and offline auditing work has improved the working efficiency of the personnel to a large extent, reduced the cost of auditing work, and reached beyond the limitations of time and space. Moreover, it can realize intangible supervision of auditing to better track and audit different doubts.

2.1 Auditing by Big Data Technology Can Provide Tracking Audit More Extensive and Accurate Data

Auditing by big data technology features real and precise data, large storage, a wide scope and a fast processing speed. Connecting the data from relevant departments can obtain detailed auditing documents which used to be obtained from a large number of interviews and investigations. It is beneficial to strengthening the preciseness and reliability of auditing results and exerting the effect of big data auditing on the governmental policy of targeted poverty alleviation through relevant verification and comprehensive analysis of auditing data and information [2].

2.2 Auditing by Big Data Technology is a More Advanced Technology Which Can Provide Technological Support

The funds for poverty reduction involve a wide range of areas, a large amount of divisional management and a large number of projects, but the use of them is scattered. If we want to improve the efficiency and quality of the governmental audit, it is a must to apply big data technology to make auditing analysis [3]. The rational application of big data technology to auditing and the extended and targeted auditing analysis of questions and doubts can undertake an effective evaluation of the depth and breadth of the implementation of

governmental policies. Besides, a corresponding model can be built and the auditing environment of targeted poverty alleviation can be improved. In addition, every auditing function can be reflected in the formation of data information, the policy implementation can be effectively supervised, a reliable prediction of risks can be provided and the missing points can be checked out.

2.3 Auditing by Big Data Technology Can Improve the Auditing Efficiency of Tracking Audit in the Policy Implementation

Using big data to audit can effectively avoid the waste of time and resources and the low effects in the auditing process of “casting a net” [4]. Besides, it can figure out the weak links when it comes to the use of auditing capital management in the targeted poverty alleviation in a short time. Focusing on some aspects in the tracking audit can improve the efficiency and quality of the overall auditing operation and better combine scientific auditing methods. Besides, it can ensure the effective results of specific cases. Meanwhile, it can enhance the working intensity of auditing personnel, improve the auditing efficiency and precision, which can reduce unnecessary costs of time. In addition, it can arrange human resources to better combine the auditing projects, better address the auditing problems and trigger the innovation and development of the auditing management.

3 Analysis of County C’s Auditing Work in the Targeted Poverty Alleviation

3.1 Brief Introduction of County C

County C is adjacent to the main district of Jining (a municipal city) and covers a total area of nearly 840 square kilometers. It used to be the hometown of Zengzi, a famous philosopher in the late Spring and Autumn Period. It has 19 township offices and more than 900 administrative villages, with a population of 893,500. The rural population reaches 439,700. The gross regional product was 23.872 billion yuan in 2018, 27.855 billion yuan in 2019 and 28.804 billion yuan in 2020. County C is located in the dusty area of the Yellow River beach area. In the past 1950s, the Yellow River hit the irrigation system of the county many times, causing that the county has produced a sandy environment. The sand exerted negative effects of the agricultural production, presented by making the soil barren. Besides, the transportation and resources have been restricted. For these reasons, County C is haunted by poverty. Meanwhile, the farmers in the county have backward ideas and they lack channels of making money to get rich. Thus, County C has become one of the designated poor counties. The grain crops of County C are primarily wheat, corns, rice and soybean. In 2020, the total grain output reached 672,800 tons, the area of land circulation newly added was 69,300 mu, the number of large-scale crop seed companies was as high as 20, soybean seed transaction volume was 130 million jin which accounts for 70% of that in the south areas of the Great Wall.

Table 1. The changes of the gross regional product in different industries in 2019 compared with the previous year

Industry	Value added (100 million yuan)	Year Over Year (%)
The primary industry	34.58	1.7%
The secondary industry	80.13	0.7%
The tertiary industry	97.12	7.7%

3.2 The Current Status of County C's Targeted Poverty Alleviation

The poverty standard of County C is 3322 yuan, which means a family whose per capita income is less than 3322 yuan is listed as poor families. In this case, there are around 400 poor families in the county, with a population of more than 7,200 people. In recent years, County C has built a leading group and working group of poverty alleviation according to the requirements of targeted poverty alleviation, completing the all-rounded work of reducing poverty in different poor villages. Besides, the county signed the Poverty Elimination Pledges in 2018 to take responsibility for the personnel who take charge of the poverty-alleviation tasks, to effectively use the appropriations from the central government, and to build up poverty alleviation industry including agriculture, manufacturing and service industry. In 2019, the county strove for the “three tough battles”, namely preventing and defusing financial tasks, pollution control and targeted poverty alleviation. Moreover, it also endeavored to ensure stability in employment, financial operations, foreign trade, foreign investment, domestic investment, and expectations to keep its economy developing stably.

In terms of industry, the changes of the gross regional product in different industries in 2019 compared with the previous year are as follows (Note: the data in this table comes from the official government website of County C) (Table 1).

In terms of sectors, the changes of the gross regional product in different industries in 2019 compared with the previous year are as follows (Note: the data in this table comes from the official government website of County C) (Table 2).

In 2020, under the leadership of the county committee, County C has spared no pains to ensure security in job, basic living needs, operations of market entities, food and energy security, stable industrial and supply chains, and the normal functioning of primary-level governments and to ensure stability in employment, financial operations, foreign trade, foreign investment, domestic investment, and expectations. With these efforts, it has boosted its economy. It is estimated that the country will improve the management of the poverty-elimination appropriations and the auditing work of micro credit. Besides, the county will attach importance to the investigation and research at the local levels, build up poverty alleviation and development projects for poor villages, and create new ways to develop the economy according to local conditions. In addition, it will also formulate the plans for poverty alleviation plans, undertake feasible implementation, and strengthen real-time monitoring of poverty alleviation to accelerate the pace of poverty alleviation.

Table 2. The changes of the gross regional product in different businesses in 2019 compared with the previous year

Sectors	Value added (100 million yuan)	Year Over Year (%)
Heavy/ light industry	63.34	0.2
Wholesale and retail trade	25.85	8.0
Transportation, warehousing and postal industry	8.19	2.6
Accommodation and catering industry	1.86	9.5
Financial industry	8.84	7.6
Real estate industry	13.10	12.3
Other service sectors	36.57	7.4

3.3 The Auditing of Financial Budget Enforcement and the Funds of Targeted Poverty Alleviation Funds in County C

In 2018, the special funds for poverty alleviation are 12.418 million yuan at the provincial level and 12.57 million yuan at the municipal level, which include 11 poverty alleviation funds like industrial poverty alleviation, micro-poverty alleviation credit, poverty alleviation insurance, public welfare poverty alleviation fund, Yulu Program, and Jinhui Aid for the Elderly. Based on the diversified loan model of “government, bank, guarantee and insurance”, there are 9 small loans for poverty alleviation (farmer household loans) of 380,000 yuan and 67 production loans of 75.225 million yuan.

The county’s general public budget revenue was 752 million yuan and 92.7% of the budget was completed in 2019, showing a decrease of 4.9% from the previous year. Its general public budget expenditure was 3.76 billion yuan with an increase of 18.0% over the previous year. Various tax rebates, transfer payment subsidies, transferred funds, debt on-lending and carry-over income from the previous year totaled 3.838 billion yuan. The county-level general public budget expenditures totaled 4.591 billion yuan this year.

In 2020, the agriculture-related funds at the county level included in the scope of overall planning and integration was 508 million yuan, and that of poverty alleviation reached 36.4 million yuan. After the adjustment in the end of 2019, the county has added medical and commercial supplementary insurance, protection insurance for large medical expenses, and accidental injury insurance. Besides, it purchased special poverty alleviation insurance for at least 12,000 poor people with the claim rate for the poor reaching over 80%, and the coverage rate of the poor population as high as 100% (Table 3).

Table 3. Yulu Program of County C in 2021. (Note: the data in this table comes from the official government website of County C)

Programs	Types	Attribute	Implementation places	Deadline and progress	Tasks	Funding scale and financing method	Benefited objects	Performance and Goals	Participation of poor households and poverty reduction mechanism
Yulu Program in the autumn of 2020	Public welfare subsidy	Newly built	County C	Completion before the end of February in 2021	1500 yuan subsidy per student per semester	600,000-yuan special poverty alleviation funds	Personnel from middle school and higher vocational school among the county's registered population	1500 yuan subsidy per student per semester	1500 yuan subsidy per student per semester
Yulu Program in the spring of 2021	Public welfare subsidy	Newly built	County C	Completion before the end of July in 2021	1500 yuan subsidy per student per semester	1.632-million-yuan special poverty alleviation funds	Personnel from middle school and higher vocational school among the county's registered population	1500 yuan subsidy per student per semester	1500 yuan subsidy per student per semester

4 Problems in the Application of Big Data Technology to the Tracking Audit in the Implementation of Targeted Poverty Alleviation

4.1 A Lack of a Framework of Auditing Technology

At present, what County C has combined in the tracking audit in the targeted poverty alleviation policy is the traditional experience rather than the big data technologies to build the auditing framework supported by technology. Thus, the implementation effects of applying big data technologies to the auditing work of the county are generally poor, indicating that technology and theory cannot be connected well and there lacks an effective application of the technology to the auditing process.

4.2 A Low Utilization Rate of Auditing Data

In the auditing process, the overall utilization rate of auditing data is poor as the country did not accord with the actual condition of poor families to register and check the various data when undertaking the auditing work. Meanwhile, there is a lack of many necessary auditing data. For example, there lacks data tracking for the poor families' deposit in bank, the time spent outdoors and the accounts of relatives. Meanwhile, County C also lacks the necessary practice for data auditing, presented by the fact that the county mainly based on the data that has been registered. The lack of the accuracy of these data during the auditing process makes the overall situation in the use of data unsatisfactory.

4.3 An Imperfect Organizing Structure of Auditing Work

The overall organizing structure of auditing personnel is designed according to the practical requirements of County C's tracking audit work. However, this structure cannot ensure the rigor of the audit process in the specific working areas. Meanwhile, it cannot integrate different departments and positions because all the organizing personnel come from the auditing offices. This will let the county lack necessary organizing optimization in the auditing work, which cannot ensure effective results of the auditing work.

4.4 Insufficiently Professional Auditing Personnel

The auditing personnel are insufficiently professional, presented by the fact that their knowledge structure and professional level in the auditing work are not diversified. There are not sufficient inter-disciplinary talents. Meanwhile, the personnel do not have enough practice for applying different technologies to the auditing analysis. Their comprehensive qualities cannot meet the requirement of the current situation in the context of big data as their auditing ideas, methods and effects cannot reach the expectations.

4.5 Problems in the Implementation of Targeted Poverty Alleviation

Due to the limitations of ideas and methods of the poverty alleviation departments, County C cannot precisely target at the poor people to take accurate action. Its poverty alleviation plans of arranging poor people with jobs cannot implemented thoroughly, and its care about the left-behind children and the elderly cannot go deep into the mass. Besides, some financial institutions did not issue poverty alleviation loans timely and education funding policy has not been implemented well. For example, no assistance system has been built for the elderly and left-behind children, and relevant personnel have not been checked and verified timely. In addition, there are a large number of unpaid project funds, a few financial institutions have delayed the allocation of poverty alleviation funds, and poverty alleviation funds is insufficiently transparent.

5 Advice on How to Use Big Data to Promote the Tracking Audit in the Implementation of Targeted Poverty Alleviation

5.1 Perfect the Research and Development Mechanism of Audit Technology Based on Big Data

To put into practice using big data technology to promote the tracking audit in the implementation of targeted poverty alleviation, it is imperative to combine the actual conditions of auditing with the research and development of auditing by big data, and to utilize technologies to ensure the effective results of every auditing policy [5]. Therefore, it is necessary to cooperate with external institutions to build a technological system in the process of the research and development of the technology. Meanwhile, a cloud platform for auditing should be created to include different data in a unified system, which can effectively reduce the R&D costs and make the platform cover a large scope of tracking audit information of targeted poverty alleviation policy in different regions.

5.2 Improve the Utilization of Big Data Technology to Auditing Work

It is important to consider big data technology as the basis for all kinds of data entry to ensure its accuracy in the actual operation process. Meanwhile, it is necessary to broaden and deepen the data coverage and improve the application of various data in the audit process through the connection with other departments such as banks and transportation agencies. With these efforts, big data technology can be well combined to carry out cross-organization and cross-department collaborative office in the auditing process, and improve the value of the remote use of data [6].

5.3 Innovate the Organization of the Tracking Audit in the Implementation of the Targeted Poverty Alleviation Policy

It is essential to optimize and innovate the organizing structure and introduce external auditors to better complement the auditing structure. Meanwhile, effective cross-departmental and cross-post collaboration should be realized in the auditing structure,

which means that the specific arrangements for auditing work cannot be made according to traditional posts, but to arrange different posts on the basis of projects. In the process of organization and management, it is necessary to combine different auditing projects to effectively divide the auditing personnel so that the organizing structure can be improved and supplemented. Meanwhile, the auditing departments should convey all kinds of information in a timely and effective manner, so that they can share the information and collaborate with each other in office to discover problems and then solve them timely.

5.4 Intensify the Training of Auditing Talents Who Can Apply Big Data Technology

In the specific auditing work, it is necessary to continuously encourage auditing talents to become more professional, strengthen the essential training of talents, and recruit a group of talents with professional knowledge and rich experience to join the auditing team. Besides, regular training for auditors should be undertaken to constantly update their knowledge reserve [7]. Meanwhile, it is imperative to enhance the practical training of auditors and carry out effective operation of various working rules and equipment. Moreover, it is important to optimize the auditing concepts and continuously integrate the auditing concept system with big data technologies.

6 Conclusion

At present, there have existed such problems as a lack of auditing technology framework, poor utilization of auditing data, imperfect organization, insufficiently professional auditors and inadequate policy implementation. To deal with these problems, this paper proposed to improve the research and development mechanism of big data audit technology and improve the level of utilization of big data audit technology based on the actual situation of the county's auditing work. Besides, it also advised innovating the organization of the tracking audit of the implementation of the targeted poverty alleviation policy to better enable County C to obtain better results in the tracking audit process.

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