Research on Current Challenges and Countermeasures of Digital Transformation of Tax Collection and Administration

———— Take City M, Province F as an Example

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Abstract. The outline of the 14th Five-Year Plan proposes to "deepen the reform of tax collection and administration system, build smart taxation, and promote the modernization of tax collection and administration," which is supported by the 20th CPC National Congress, indicating that tax digitalization will have a profound impact. Taking M City of F Province as a typical case, this paper initially understands the current situation of the digitalization of tax collection and administration, and then further analyzes the current situation, existing difficulties and improvement paths of grassroots tax in the digital transformation from the perspective of "full life cycle" of data through literature research, case analysis, questionnaire survey and interview. This paper explores the problems of tax collection and administration in the process of digitalization, such as system construction, tax talent team construction, data sharing and information security. Combined with the theory of information asymmetry and tax compliance, this paper proposes countermeasures from the aspects of "number" and "governance". It will help grassroots tax authorities better cope with the challenges of economic diversification and complexity of tax collection and administration, and realize service transformation and upgrading.

Keywords: Tax by numbers, Digital transformation, Tax collection and administration, The digital economy, Tax Bureau.

1 Introduction

In the context of global digitalization, digital economy is subverting the original production and life, which has caused impact and challenge to China's tax collection and administration, and also provides ideas for the practice process of China's tax collection and administration digital transformation. Tax revenue is the main source of fiscal revenue. As of November 2024, the revenue of the national general public budget in 2024 was 19.901 trillion yuan, down 0.6% year on year. Of this amount, national tax revenue amounted to RMB1,6192.2 billion, representing a year-on-year decrease of 3.9%; Non-tax revenue reached 3.708.8 trillion yuan, up 17% year on year. Revenue in the central

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and local governments' general public budgets totaled 8.938.2 trillion yuan, down 2.5% year on year; Revenue in local general public budgets at the same level is 10.9628 trillion yuan, up 1.1% year on year [1].

The outline of the 14th Five-Year Plan proposes to "deepen the reform of tax collection and administration system, build smart taxation, and promote the modernization of tax collection and administration", emphasizing that promoting the modernization of tax collection and administration is the overall goal of improving the efficiency of tax governance as a whole [2]. In 2022, the 20th National Congress of the Communist Party of China will be held, further emphasizing the requirements for building a cyber power and a digital China. It can be seen that it is of practical significance to study how tax authorities take measures to improve their own level of tax collection and administration under the guidance of the concept of "managing tax by numbers", and then summarize relevant experience and enlightenment.

This paper takes the tax collection and administration path of M Municipal Tax Bureau as the research object, adopts literature research method, case analysis method, questionnaire survey method, information asymmetry theory and tax compliance theory to analyze the challenges faced by the current digital transformation of tax collection and administration, and puts forward feasible countermeasures.

2 Analysis of the Current Situation of Tax Collection and Administration in M City of F Province

Taking the staff of tax collection and administration in M City as the research object, this paper investigated the staff of different tax departments, issued a total of 126 questionnaires, and recovered 108 valid questionnaires, with an effective rate of 85.7%. We integrate the collected data according to the relevant statistical methods, and analyze the essential reasons behind the current situation of the data to discuss and analyze the existence of the tax collection and administration problems in M city. The survey data statistics are shown in Table 1.

Table 1. Statistics of survey data.

Questionnaire questions	Name of project	Proportion of total	Questionnaire questions	Name of project	Proportion of total
1.Gender	male	36.84%	3.Age	20 to 30 years old	22.81%
	female	63.16%		30-40 years old	36.84%
2.What is your major	Accounting and accounting	50.88%			
	Computer related	8.77%		40-50 years old	35.09%
	Law of law	24.56%		Over 50 years old	5.26%
	Other	15.79%			

4.What are the current tax collection and management information systems?	Electronic Tax Bureau	100.00%	12366 Tax service platform		91.23%
	Natural Person electronic Tax Bureau	100.00%	Export tax rebate audit system		91.23%
	Gold three system	100.00%	Export tax rebate correspondence system		91.23%
	VAT invoice service platform	91.23%	System of audit		91.23%
	Other			100.00%	
5.At present, what is the proportion of taxpayers using tax information platform in our jurisdiction	Less than 50%	0.00%	6.What is the approximate proportion of all taxpayers in their jurisdiction who have used all-electric invoices	Less than 50%	0.00%
	50% - 70%	0.00%		50% - 70%	0.00%
	70% - 90%	8.77%		70% - 90%	1.75%
	90% and above	91.23%		90% and above	98.25%
7. How often does your department go to the enterprise for field investigation	Once a year	43.86%	8. What is the quality of tax return data	good	8.77%
	Once a season	56.14%		Be better	19.30%
	Once a month	0.00%		In general	42.11%
	Once every two weeks	0.00%		Be inferior	29.82%
	Other		0.00%		
9.What is your level of data analysis	good	7.02%	Be better		10.52%
	In general	54.39%	Be inferior		28.07%

According to the statistical survey data of M City Tax Bureau, M city has basically realized the promotion of all-electric invoice. However, in terms of data acquisition, tax data come from multiple platforms, and 42.11% of the staff think that the quality of tax declaration data is average. In terms of data sharing, the frequency of data directly obtained from the field by the tax department is mainly once a year or once a quarter, and more rely on the internal data transmission of the tax department; In terms of data utilization, 54.39% of the staff said that their data analysis level was still average.

3 Problems in the Process of Tax Collection and Administration in City M, Province F

Based on the statistical data of M City in F Province, that is, on the basis of tax data, this paper further enlarges the research level from the perspective of data acquisition, data sharing, data utilization, data protection and the whole life cycle, and reasonably discusses the current situation of tax collection and administration and the dilemma behind it under the background of "tax administration by numbers" of M City Tax Bureau.

3.1 System Dilemma: the Management Integration of Tax Reform in Response to the "New Business Examination" is Still Insufficient

According to the survey, there are many tax platforms in M city, covering a wide range of businesses, but the quality of tax data is mediocre. Nowadays, the development of the new economic form has changed the traditional economic form, which brings some influence and challenge to the current tax system of our country. New business forms often have the characteristics of cross-regional operation, transaction virtualization, diversified income sources and huge data quantification [3]. At the same time, with the rapid economic growth, the entry threshold of commercial operators has been greatly reduced, taxpayers are scattered, income sources are wide, and the channels for tax departments to use and supply are scattered, which makes it impossible for taxpayers to achieve "single signon, one network", and often have to log in multiple tax collection and administration service platforms to do a tax item, thus having a negative impact on the compliance of tax law. Therefore, it is urgent to strengthen the integration of digital platforms and systems of tax collection and administration, and transform the digital platforms of tax collection and administration into "integrated".

3.2 Information Transmission Dilemma: Inefficient Collection and Management in the Case of Asymmetric Information Between Multiple Parties

The tax data verified on the spot by the tax Bureau of M City is less, and most of the data comes from the internal tax bureau, which inevitably leads to the inefficient phenomenon of multiple data involved but asymmetric information. At present, problems such as information security, information technology and conflict of interest lead to the continuous existence of "information island" between government departments and tax departments. Government information is scattered in their independent business systems and limited to sharing within departments, thus forming invisible "information barriers". In addition to this, there is also the phenomenon of information asymmetry between the tax department and its staff, which is mainly due to the fact that tax data usually involves sensitive information and personal privacy. In order to ensure the security of data, tax authorities must adopt strict protection measures. Due to the fear that data leakage or abuse may occur in the process of data sharing, many departments are

cautious about data sharing, which inevitably leads to the slow progress of data sharing process.

3.3 Talent Dilemma: There is a Lack of Compound Tax Talent who can Make Full Use of Data

According to the current situation of data use by the tax bureau of M City, 54.39% of the investigators have average data analysis ability, and the professional knowledge structure of tax talents is relatively single, which is not conducive to the value and benefit of tax data. Looking at Xiamen Huojin High-tech Zone, more than 40% of the city's state-level high-tech enterprises are gathered here, with a number of more than 1500. This is because in technology-intensive high-tech zones, it is inevitable that related party transactions for the purpose of paying less taxes will occur, so the relevant tax-related arrangements may not have reasonable commercial purposes, which forces tax personnel to improve their working ability and requires them to have information and big data thinking to avoid tax risks.

3.4 Information Security Dilemma: the Moral Hazard of Personnel Under Data Sharing is Worrying

Under the background of current digital transformation, data sharing is mostly emphasized. But there is a key factor behind this, that is, the tax personnel moral hazard. In the current tax work, the ID card information, home address, property income and work unit of taxpayers should all be private information protected by law. However, in the process of using big data, the staff should not only protect the privacy of taxpayers, but also use their data to conduct necessary tax work analysis. This poses a challenge to the power boundary of tax department personnel to use big data. It is inevitable that there will be behaviors such as using taxpayer identity information to apply for individual tax withholding declaration and misleading tax refund through targeted false publicity.

4 Problems in the Process of Tax Collection and Administration in City M, Province F

The digital transformation of tax collection and administration should adhere to the value guidance of "people's tax concept," fully apply fiscal and tax digital technology in the whole process of tax collection and administration, continuously tap potential, iterate and upgrade, continuously optimize tax service, promote "taxpayer autonomy" and "tax co-governance," and promote the dual reform of tax collection and administration system and tax governance capacity [4]. In order to better alleviate the difficulties encountered in the digitalization of tax collection and administration, and efficiently realize the tax administration by numbers, this paper puts forward countermeasures from the two perspectives of "numbers" and "governance".

4.1 Grasp the Generation of "Number" -- Optimize the Construction of Information System

In order to solve the problem of ununified system integration in tax reform in response to the "big examination of new forms of business", the application of the fourth phase of golden tax has basically realized the timeliness and comprehensiveness of data collection, but a unified big data integration platform still needs to be further established. On the one hand, it is necessary to attach importance to and strengthen the coordination and standardization of the work of tax authorities at all levels in tax declaration, build an "integrated" management mode, optimize and build a comprehensive system and unified standard taxpayer service platform [5]. On the other hand, it is necessary to improve the working platform of tax personnel, simplify the operation process of tax staff, realize data compatibility between different systems, accelerate the interconnection and sharing of data between different system platforms, and avoid switching back and forth between different platform systems, which will consume time and energy and reduce work efficiency.

4.2 Grasp the Use of "Number" -- Strengthen the Construction of Smart Tax Talent Team

Under the "Golden Tax Phase IV" project, due to the lack of compound tax talents, the massive internal information and data cannot be fully utilized, so the tax personnel learn new knowledge, exercise the operation ability of new computer technology, and use relevant software for simulation training, master the skills of software use, constantly improve the efficiency of software use, and solve the problems in work through scientific "use of data". The Tax Bureau of Shenzhen Qianhai Shenzhen-Hong Kong Modern Service Industry Cooperation Zone, through the talent training brand of "Qingsui Qihang", has equipped new employees with three levels of guidance teachers, including strong bureau leaders, department-level cadres and outstanding young backbone. It has issued the "Five One" guidance for the use of mentors and the manual for new employees, and built teacher-student dialogue platforms such as tutor lecture hall and "Pre-tax Youth Road" to lead the growth of young cadres.

4.3 Grasp the "Number" Sharing -- Multiple Methods to Reduce the Degree of Information Asymmetry

Taking the work experience of the "four-in-one" tax collaborative co-governance model in Shenzhen as an example, it has realized the information exchange and sharing between the tax department and the public security, customs, industry and commerce departments, and also established the "data sharing, joint inspection, risk analysis, intelligent early warning" four-in-one tax collaborative co-governance model. A total of 2,852 invoicings in different places, 3,054 tax-related live broadcasts, 4,170 tax-related speeches, and 451 illegal tax cases were investigated and punished to prevent losses of fiscal and tax revenue [6]. Therefore, grass-roots tax departments should give full play to grass-roots co-governance to strengthen information collection, break the

"information island" through "bottom-up" and "top-down" joint efforts, and deepen the pattern of multi-subject participation, multi-carrier support and multi-way promotion of tax co-governance.

4.4 Grasp the security of "number" -- strengthen the construction of tax-related information security in the system

The digital transformation of tax collection and administration not only has requirements for data sharing management[7], but also has higher requirements for technical security [8]. Shanghai Taxation Bureau has built an intelligent risk control platform and established an integrated prevention and control system of "service-type reminder + embedded differentiated management + resident comprehensive verification" to achieve deep integration of law enforcement, service and supervision. At present, the platform has integrated 48 internal system data and 315 external data, warehousing 10,632 original forms and cleaning 2831 standard data tables [9]. The "whole life cycle" tax supervision has been carried out on all links and events with high risks of taxpayers from establishment, operation to cancellation, and dynamic risk control has been established in the whole process of "reminding and correcting errors in the ten events of pre-service + risk response after the event". Therefore, the active introduction of artificial intelligence, cloud computing and other advanced analysis technologies, so as to strengthen daily maintenance and security supporting measures, reduce the information harm caused by internal personnel moral hazard, system resource risk, has great reference significance for the protection of the whole life cycle of data.

4.5 Grasp the Extensive "Governance" — Create a Coordinated and Co-Governance Situation Among Multiple Parties

The theory of new public service puts forward that only through collective cooperation and efforts can policies and plans in line with public interests be carried out responsibly and effectively. The effective implementation of tax collection and administration cannot be separated from the integration of information resources, which requires tax departments to establish a good cooperative relationship with other departments, build a unified platform, and promote information sharing. Moreover, efforts should be made to build a new tax co-governance system with "party and government leadership, tax main responsibility, departmental coordination, social coordination, public participation and international cooperation". For example, tax and financial regulatory authorities deepened the "bank-tax interaction" and carried out a special action of "Spring rain Nourish Seedlings" with the All-China Federation of Industry and Commerce to better serve small and medium-sized enterprises. Constantly improve the "Belt and Road" tax collection and management cooperation mechanism, promote the "Belt and Road" construction, etc. [10], with the goal of better serving enterprises and the masses, plan and implement more new and practical measures for coordinated tax management.

5 Conclusion

Taking the Tax Bureau of M City as a case, this paper has a preliminary understanding of the current situation of the digital transformation of tax collection and administration, and deeply discusses the current situation, problems and improvement paths of grass-roots tax in the transformation and upgrading. Through case analysis, questionnaire survey and interview, it is found that in the process of digitalization, the tax bureau of the city is faced with problems such as the lack of smooth system data collection, the need to improve the data analysis ability of tax personnel, the lack of cross-department cooperation and the urgent need to strengthen talent training. Combined with literature research, it is further understood that tax collection and administration still faces problems such as system construction, tax talent team construction, data sharing and information security in the process of digitalization. Therefore, based on the theory of information asymmetry and tax compliance, this paper puts forward five improvement directions: optimizing the construction of information system, strengthening the construction of intelligent tax talent team, reducing the degree of information asymmetry through multiple methods, strengthening the construction of tax-related information security, and creating a multi-party coordination and co-governance situation.

To sum up, this paper aims to start with the characteristics of digital economy, analyze the status quo of the whole cycle from data acquisition to data protection, deeply discuss the challenges of digital economy to tax collection and administration in China, and provide countermeasures and suggestions for guiding the stable development of digital economy, promoting the modernization of tax governance and deepening the reform of tax collection and administration. It provides direction guidance for the key links of realizing the modernization of tax collection and administration.

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