Research on Application of Reptilian Technology in Tax Management Achievements

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Abstract. In the era of big data and internet, huge network data increases the information asymmetry of tax collection and management, such as the aggravation of information asymmetry caused by new tax sources, single access to information, imperfect tax information sharing platform, and tax risk deficiencies, which brings about the problem of tax collection and management. But web crawler technology can automatically crawl on the Internet and search tax-related data, which greatly improves the ability of tax inspectors, the efficiency of tax management and the quality of tax service. There are some shortcomings in reptilian technology to improve.

1. Introduction

Internet technology has promoted the development of big data and cloud information with the number of web pages in the world having now exceeded 2 billion and being increasing by 7.3 million per day, in which context, "computers+brain" can carry out business activities. With the rapid growth of new tax sources such as mobile finance and e-commerce platforms, many tax sources are hidden in the Internet, which increases the information asymmetry of tax collection and management. Web crawler technology can automatically search the new tax sources, reduce the information asymmetry of tax collection and management, and improve the performance of tax collection and management[1,2].

2. Information asymmetry in tax collection and administration

In tax collection and management, taxpayers have the advantage of information because they have all the information of tax management. According to the assumption of "self-interest person", the taxpayer may hide the tax information or falsely report the amount of tax deduction in order to pay less tax. Tax collectors have an information disadvantage, which weakens the ability to detect taxpayers' tax evasion and makes taxpayers succeed in tax evasion. This not only results in the loss of national financial revenue, but also reduces the market competitiveness of tax payers according to law and forms "Bad money drives out good" phenomenon, thus making tax revenue compliance and honest trustworthy taxpayers less. In the Internet era, the business behavior is more dispersed and hidden, and the information asymmetry is more serious in tax collection.

2.1. New sources of taxes exacerbate information asymmetries

With the prosperity of network economy and knowledge economy, new tax transaction forms are more various and hidden, which makes it more difficult for tax collectors to check the tax revenue[3]. Under the call of "Mass Entrepreneurship, all kinds of Innovation", new tax payers are constantly emerging,

such as network development, online novel writing, game program development. They do not need a large business place, because "brain+computers" can complete production. Taxpayers are distributed among families, enterprises, schools and administrative units, including farmers, workers, teachers, civil servants and so on, which makes it difficult for tax collectors to master. Internet e-commerce, Internet finance and other Internet operations involve almost all traditional industries. They operate across regions, across industries, day and night, online and offline. Logistics, capital flow and information flow are distributed across regions. Some single transactions are very small but the number of transactions is numerous, which will lead to a huge amount of transactions after gathering. These are blind spots of tax source monitoring.

2.2. single access to information

The traditional tax audit is to check the tax returns submitted by the taxpayer with the accounting statements, accounting books, accounting vouchers, accounting certificate reports, bank statements, etc. Since those accounting statements, accounting books, and accounting documents are all made by taxpayers, tax evasion is likely to occur. It is difficult to judge the authenticity of transactions from the original vouchers, and the transactions hidden by taxpayers cannot be found in the accounting statements, accounting books, and accounting vouchers. In the related items of tax returns, tax personnel can find part of the tax evasion behavior through the articulation of the project, but with the tax returns form from complex to simple, constantly thin and optimized, the tax evasion information tax auditors obtained will be further reduced.

2.3. imperfect tax information sharing platform

With the advent of the Internet era, the construction of tax information platform is very necessary. Through the information processing of the first, second and third phases of the Golden tax project, the network tax information platform was initially formed, which gathered a large amount of relevant information data of taxpayers and realized the information management. But this is not enough to meet the needs of risk management in the era of big data. Although the tax collection and management system collects a large number of taxpayer tax declaration data, their authenticity and correlation are not strong, which greatly reduces the available value of the data. The information platform is not yet fully inclusive of public security, social security, banking, third-party payments, networks, e-commerce, and so on. The information concerning tax is divided and independent within the State Administration of Taxation, departments, application systems, taxes, and local taxes, forming an isolated island of information, which cannot share resources and communicate with each other. In practice, different data standards affect the standardization of information processing. Tax-related information mining is not enough to become the basis for decision-making.

2.4. tax risk deficiencies

At present, the tax legal system has not clearly defined the rights and obligations of both parties, and the tax authorities are in a strong position in tax collection and management. The traditional tax management is prior approval and prior supervision. However, the trend of tax administration is to simplify the administration and delegate power. Taxpayers pay in accordance with the tax law on the Internet, and tax authorities manage it afterwards through the network tax platform. The imperfection of the tax law leads to the unclear rights and responsibilities of both parties and affects the tax collectors to carry out tax risk analysis and risk management. In the Internet era, taxpayers' tax payment is carried out on the Internet. The tax administration of tax collectors, such as interview, evaluation and punishment of taxpayers, is recorded on the tax network platform, and the accuracy of enforcing the law by tax collectors is even higher. Otherwise, the tax collectors will be subject to judicial proceedings. The biggest flaw of Internet is network security. Tax risk management relies on taxpayers' massive tax-related transaction data, but the security and privacy of these data inhibit the development of tax-related information platform[4].

3. Advantages of crawler technology in tax management

Searching for information has become an indispensable way of life in people's daily life. The traditional information search engine can meet the needs of people's daily information search, but tax inspection of tax authorities is faced with massive data. A large number of taxpayers and tax business are hidden in the home and the Internet. How to find tax evasion information from the vast Internet big data, the traditional information engine has been unable to meet the requirements. In addition, server functions of the traditional search engine is limited and the search engine cannot carry out data filtering, including a large number of useless data and web pages. However, crawler technology can automatically crawl, search data, parse, save and discard, which can discover new links, download, and filter web ads, animation, pictures, besides saving csv. files. The technology allows accurate search on the web. Its main advantages are: First, deep tap data and information. The software is used to construct the articulation of all kinds of information resources to identify, analyze and store the origin of the cause and effect, so as to carry out the risk checking and presumption. Second, expand information channels. It can connect search engine nodes, collect useful tax-related information of external websites, and expand the clue of case sources. Third, integration of multiple information. This technology introduces enterprise financial information, tax information, government information, financial institution information, etc. and establishes a tax-related information sharing platform. Fourth, the reconstruction of tax risk information. Crawler technology can be used to map the network structure of the holding relationship, draw the flow chart of the transaction according to the flow of the investor's cross capital operation, and locate the tax risk in the transaction[5-7].

4. Application of reptile technology in tax management

4.1. Application of reptile technology in tax audit

Qingdao State Taxation Bureau develops crawler software by itself to search for information on tax evasion crimes hidden on the Internet. In 2017, Qingdao municipal tax bureau used crawler software and found that company A and company B registered in Hong Kong had no operating income from 2011 to 2013, but the net profit was extremely high and the capital stock was low. They had the characteristics of a conduit company, did not meet the conditions of benefiting the owner, and were suspected of tax evasion. According to the evidence obtained through interviews and web crawler technology, accounting personnel of A and B company recovered more than 3 million yuan of tax from refusing to provide information query to being forced to admit tax evasion. Then the Qingdao municipal tax bureau used the crawler software to seize 6 cases of conduit companies, which resulted in the successful recovery of more than 80 million yuan of tax evasion. In 2015, the Fuzhou State Taxation Bureau also used web crawler technology to find out tax evasion cases involving related companies reducing their equity holdings, and successfully recovered more than 10 million yuan of tax evasion funds. Cangzhou Local Taxation Bureau seized 3 cases of land transaction tax evasion and successfully recovered more than 20 million yuan of tax evasion funds with network crawler technology. It can be seen from the above cases that web crawler technology can capture tax cases such as conduit companies, equity transactions, land transactions, which can save huge economic losses for the country and help to maintain a good environment for fair competition.

4.2. Application of reptile technology in performance management

In October, 2015, Wuhan Chemical Industrial Zone Local Taxation Bureau developed a web crawler system based on Hubei Provincial Local Taxation Bureau's collection and management system for performance management. Because of the difficulties in collecting and analyzing tax collection and management caused by the huge amount of information and tax-related data on the Internet, the Bureau used crawler technology to query the performance management index of tax collection and management, and reduced the query time that used to take five minutes to 5 seconds now. The working efficiency is multiplied. The crawler technical performance management system had been operated for 7 months, with reminding each other 206 times, excluding 118 risk points, saving 4914

hours of work time according to a 8-hour working day. If a tax administrator uses the crawler performance management system to query 13 indicators, 22 times a month (once a day), excluding Sundays and other holidays, he will only spend 23 minutes in total, which is 23.4 hours faster than traditional manual work, saving 98.31%. Wuhan Chemical Industrial Zone Local Taxation Bureau constructed a flat performance management model and looked at the results of the crawler technical performance management query at 8 a.m. every day. If the early warning points are abnormal, the crawler technology will be used to search the detailed tax-related information, locate accurately, find the problem, and finally solve the problem. The whole process is stylized, fast, the program node is clear, and the flat performance management process is realized. For example, for the "financial statement collection rate" index, taxpayers once reported centrally at the beginning of the month, resulting in network congestion and system problems, which affected the "financial statement collection rate". So now the tax supervisors can use the web crawler performance management system effectively to remind the taxpayers to submit their reports in time, and arrange the collecting time of the tax personnel's financial statement, in order to enhance the service quality and management level[3].In addition, the agency also uses the crawler technology performance management system to improve the level of tax services. Through online crawler technology, we can find the commonness of taxing personnel's tax-related information risk points, so we can define the focus and direction of tax-collector's work, can give tax guidance and propaganda, and reduce the blindness of tax-paying service to improve the efficiency, quality and level of tax services[8].

4.3. Application of reptile technology in tax services

The quality of tax service is directly related to whether the tax department enforces the law in a civilized manner and is the image window of the tax department. The main purpose of tax collection and administration is not to crack down on crime, but to provide taxpayers with better tax service, to create a good tax environment and to build a harmonious society. In the era of self-media, network public opinion is an important reference for obtaining the service level and efficiency of tax collectors. By using the technology of topic web crawler, we can quickly obtain the evaluation of tax collection and management services and the focus issues of tax collection and management, and get timely the needs of taxpayers and the services that need to be improved in tax collection and management through network public opinion, in order to improve tax collection and management services and guide the development of network public opinion to the good. Internet has the characteristics of fast transmission, great influence and strong supervision, so "Internet + crawler technology" can provide network public opinion support for improving the service quality of tax collection and management.

5. Summary

Crawler technology can carry out accurate search on the Internet showing great advantages in tax collection and management, which greatly improves the ability of tax inspectors, the efficiency of tax collection and management and the quality of tax service, but there are some shortcomings in reptilian technology, such as tax authorities software development, crawler technology legitimacy, and lack of complex talent. It is urgent to develop advanced crawler software, strengthen top-level design, improve laws and regulations, and cultivate interdisciplinary talents[9-15].

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