

Can Data-Driven Tax Governance Improve Corporate Tax Compliance? Evidence from China's Golden Tax Phase IV Reform

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Abstract: Based on the reform of the golden tax in China's Phase IV, this paper studies the relationship between data-driven tax governance and corporate tax compliance. These days, most tax authorities have begun to establish information systems for reduced information asymmetry and stronger enforcement. Theories supporting the research on tax compliance have explored the impact of the deterrent effect of the deterrent model and technology on the development of the system in depth. How the paper analyzes changes in the compliance system for large enterprises due to combined electronic invoicing and data sharing platforms. Evidence from China shows that all-encompassing digitalising has achieved reduced tax evasion; at the same time, it has altered corporate governance and internal reporting. The following are deficiencies in the analysis: the cost of compliance and possible capital misallocation. To advance tax administration reform under the conditions of economic opening-up, reduce enforcement pressure and boost economic vitality simultaneously.

Keywords: Tax Compliance, Data-Driven Governance, Golden Tax Project, Information Asymmetry, Electronic Invoicing, Corporate Taxation, Deterrence Theory.

1. Introduction

Governments use corporate tax revenue to fund public expenditure, but a relatively large "tax gap" persists in many countries around the world because the amount of taxes collected in practice is lower than what is stipulated by law. For most of the 20th century, tax authorities have used manual selection of audit objects, third-party information provision and other punitive measures against evasion. Although these ways were simple and suitable for a small, paper-based economy, they were no longer practical as trade scaled up in scope, complexity and scale.

Digitalisation of the economy has created new avenues for corporate tax evasion and simultaneously offered new instruments of tax administration. Electronic transactions generate structured and machine-readable data at all times during the course of business, and now the tax authorities can monitor economic activities with high precision in a way that was previously impossible. Therefore, the idea of data-driven tax governance has emerged; that is, a system that uses algorithms to analyze a large amount of data in tax administration and reduces the need for traditional human-led audits.

China's golden tax project is a typical case of the above-mentioned administrative reform. Although the first reason for the development of this system was to tackle problems of widespread VAT invoice fraud, many other functions have been added over time. The present transition to Phase IV has achieved a significant improvement over previous editions; that is to say, in addition to verifying the authenticity of invoices, Phase IV will connect these with tax data and information from financial institutions, customs, the social insurance bureau, and market regulators to build an all-encompassing digital profile of the corporate taxpayer. This unification provides a foundation for an all-around change in the behaviour of compliance, and now, the discrepancies between financial statements and operating data cannot be

easily overlooked by enterprises.

Using the path of the golden tax reform as a case study, this paper will explore how data-driven tax governance can improve the tax compliance of enterprise-level taxpayers through theory and literature review. Section 2 presents the theoretical basis for information asymmetry, deterrence and compliance behaviour. Section 3 investigates the particular operating modes of an advanced digital tax system. Section 4 is the assessment of the effect on corporate compliance and governance. Section 5 shows a larger scope of the economic consequences and raises the issue of reconciling enforcement with development. Section 6 is the conclusion of policy implications.

2. Theoretical Framework: Information Asymmetry and Compliance Behavior

Economic analysis of tax compliance begins with the deterrence model and considers the taxpayer's rational decision to report under uncertainty. Audit probability, the magnitude of the penalty after discovery, and the marginal benefit of non-reporting jointly determine whether non-compliance is individually rational. The state needs to increase both the perceived and actual costs of evasion sufficiently in this system to reduce the expected benefits of dishonest reporting.

The information dimension of the above framework is also a typical feature. Kleven and the others [3] were the first to show that a relatively large proportion of third-party information is positively correlated with the rate of compliance. In their study of Danish taxpayers, the proportion of income from employer or financial institution reporting showed near-perfect compliance, and self-reported income was significantly underreported. Based on the above analysis, the environment of information has directly influenced compliance results and was unrelated to either audit

frequency or punishment severity. Therefore, it can be determined that administrative reform focused on information infrastructure may be more cost-effective than the same level of investment in audit staffing and penalty escalation.

Therefore, the design of the tax system will change. If there is an inherent problem of information asymmetry in the administration process, then deterrence will be ineffective. The application range of manual audit is limited, and it is not feasible for any department to verify all the company's reports by hand. Slemrod [1] proposed the constraint by presenting tax administration as a production function in which administrative inputs, such as technology, staff and data infrastructure, determine the authority's capacity to detect and rectify non-compliance. Therefore, with the development of information technology, the scope of enforcement has been expanded, and a larger proportion of the taxpayer population can be covered by the same administrative budget.

The structure of the value-added tax is a typical case. Pomeranz [2] has shown that the VAT's invoice chain is a kind of self-enforcement mechanism because, by default, each company needs a legitimate invoice from its upstream suppliers to obtain an input tax deduction. Systematic electronic invoicing enhances the self-enforcing effect by creating a digital, automatically cross-referenced paper trail. Misreporting at any stage in the chain will be revealed by the usual algorithm for matching reported inputs and outputs of the whole commercial network, rather than through focused individual audits.

Interaction among the deterrent-theory and normatively-based theories of compliance is also relevant here. A deterrent-only model believes that taxpayers are purely self-interested individuals who will behave according to their calculations of expected utility. However, empirical studies have consistently shown that compliance rates are higher than those expected by deterrence theory at the current level of audit risk and penalty frequency. Scholars have proposed that social norms, perceived fairness of the tax system and trust in government institutions independently contribute to voluntary compliance. Data-driven tax governance also connects to the normative dimension in the following way: if enterprises believe that all enterprises will be subject to the same algorithmic inspection, their fear of a competitive disadvantage due to unilateral compliance will decrease, and thus the support for honest reporting among all enterprises in the business community will be strengthened. Therefore, the design of tax technology has given rise to issues of deterrence efficacy and social acceptance of the tax system as a whole.

3. Mechanisms of the Golden Tax Digital Architecture

China's golden tax system has developed in stages, and with each stage, both the amount of collected data and the depth of analysis have been increasing. The basic results of the earlier periods have been the construction of an all-country electronic platform for VAT invoice management. Standardisation reduced the amount of fraud by linking all issued invoices to a central registry for real-time verification of invoice authenticity. Lu [4] reported that after this modification and the requirement for electronic submission, the amount of fraudulent invoice claims dropped considerably, and a basis for precise transaction data has been created for the following research.

Phase IV will extend the above-mentioned facilities in two

directions. First, it connects the tax database with data that other departments of the government, such as the banking regulator, customs office and social insurance fund, have collected. Compare the company's reported income and payroll expenses with financial flow data from bank records and social insurance contributions to determine whether there have been any significant fluctuations in an unusual manner, as a result of income suppression or cost inflation. Second, Phase IV will introduce machine learning models to discover risk patterns in the entire population of corporate taxpayers and avoid using traditional audit selection logic. Su [6] analyzed the compliance effect of enhanced monitoring in Phase III and found that, following the regional rollout of the system, tax avoidance had dropped significantly; thus, this paper presents empirical evidence of the measurable compliance impact attributable to architectural upgrades of the national tax information system.

The behaviour-modification mechanisms for the above effects are not solely deterrents. Alm [5] believed that tax technology has altered both the target detection probability and the subjective mental model of compliance risk perception for taxpayers. The company's finance manager was informed that the regulatory authorities would be granted access to a single data centre containing aggregated and analysed data of the entire enterprise, including bank and wage information and industry norms; thus, the risk of undetected fraud would be reduced significantly. The scope and duration of the authority's presence will be extended, rather than being intermittent, and thus, compliance will transition from a matter of high risk to a daily characteristic of open governance.

4. Impact on Corporate Compliance and Internal Governance

With the new system of all-encompassing digital tax administration, there have been some changes in enterprise behaviour that are not directly related to tax filing. Directly speaking, the enhanced risk profiling capability of the integrated data system will boost the actual probability of detection for all kinds of tax-minimisation schemes. Li, Wang and Wu [8] have investigated the impact of changes in the digital tax regulations in China on the compliant behaviour of enterprises and found that those under reinforced algorithmic oversight had reported higher actual tax rates and used fewer structures typical of aggressive tax planning. Privately held companies with poor financial transparency have seen a greater reduction in their historical non-compliance rates; therefore, limited visibility has likely been the main cause of the prior offences.

There is also a problem with internal control at the company. When the algorithm of the tax office compares the reported financial data with operating data, all the reported content should be consistent across all paths. This requirement will induce all-encompassing accounting and strong self-management at the company. Liu and Zhao [10] have shown that with the expansion of the digital tax system, the increase in fiscal capacity has led to reduced capital misallocation and thus a more rational structure of corporate financing, as well as a demand for better coordination among many regulatory databases.

The environment of external audit is also changing accordingly. Wu and others [9] have investigated audit pricing in light of big data-driven tax enforcement in China and found

that, due to new algorithmic tax monitoring, both the risk faced by corporate clients and the assessment of the reliability of financial statements by auditors have changed. A new database for financial statements comparison will be built by the tax office to improve the efficiency of external audits and provide a new regulatory compliance benchmark. The company has maintained two sets of records that are inconsistent with each other. This mechanism has included tax compliance in a wider system of responsibility for truthfulness in all relationships between the company and external parties, and now also produces governance spillover effects that go far beyond the original goal of tax collection.

Audit fees have risen as a result of an informalisation of the accounting system at the top of the company. In order to prevent the algorithm from classifying the data as dirty or inconsistent, high-quality, regular digital information on the economic performance of all divisions needs to be obtained by the company. Increase the efficiency of capital allocation and prompt management to take measures for the underperformance of some assets that were previously overlooked due to poor record-keeping. The governance literature has proposed that a first-level constraint on the efficiency of investment is poor information in the firm; therefore, it is expected that the external constraint of data-driven tax enforcement will also improve internal productivity and provide some additional benefits beyond the aim of tax collection.

5. Economic Consequences and Policy Considerations

Although the compliance benefits of data-driven tax governance are well-supported, the full-scope economic consequences of all-encompassing enforcement need to be explored. A typical problem is how to reduce the tax burden on some older, non-compliant companies. For enterprises that had previously kept a part of their economic activities outside the tax authorities' view, the introduction of all-encompassing digital monitoring functions serves as a type of tax increase. The policy implication is that the welfare benefits of compliance enforcement are not equally distributed and may harm the investment capacity of areas with widespread informal practices.

A typical case is insufficient adherence. Connection to the multi-agency data platform will need to strengthen the company's accounting system, train staff in digital compliance operations, and constantly monitor the quality of internal data. This investment may be too costly for small and medium-sized enterprises at present. Bellon and others [7] have shown that the VAT e-invoicing reform can increase the amount of reported sales, purchases and VAT liability, but at the same time, enterprises must change their reporting and management systems. Support measures can be provided by the regulatory system for small and medium-sized enterprises (SMEs) in the transition period to prevent the structural disadvantages of these enterprises from offsetting the efficiency gains of digital enforcement.

The risk of algorithmic inflexibility is also due. High-end detection systems are not perfect and cannot distinguish between legal tax avoidance and tax evasion. When the statistical flags indicate anomalies and thus trigger investigations, even if the transactions are complex but legal, the firm will bear additional compliance costs. Therefore, in the future development of data-driven governance systems, a

mechanism for transparent algorithmic review and an accessible administrative appeal channel need to be built. The purpose of tax administration by the government is to provide a stable tax revenue foundation in a good-development environment for the economy and production, rather than to increase the amount of tax collection.

6. Conclusion

China's golden tax phase IV reform is a typical case study of data-driven governance for corporate tax compliance. Connect electronic invoices to cross-departmental data sharing and algorithmic risk analysis, and thus reduce the prior information asymmetry that enabled tax evasion. Deterrence economics is the idea that something is more likely to be obeyed if it is more noticeable, and the empirical results of this study support the above theory. The three ways are: direct algorithmic identification of discrepancies, self-enforcement characteristics of digitised transaction chains, and psychological adjustment in corporate compliance calculus.

The scope of the government-organising effects is also broad. The company has established all-weather digital monitoring, must strengthen its internal control system, ensure the uniformity of data across all channels, and cooperate more willingly with external auditors. Therefore, the functions of advanced tax technology are also to serve as a second-tier corporate governance mechanism and regulate the entire system of financial reports, not only for tax liability issues.

Based on the above analysis, the policies are likely to be less comprehensive. Increase effective tax rates, expand the compliance investment scope for small and medium-sized enterprises (SMEs), and reduce the risk of algorithmic misclassification. The ideal Design for data-driven tax governance should be both efficient in enforcement and administratively fair, and the digital infrastructure aimed at reducing the tax gap must not introduce new regulatory friction that restricts legitimate economic activities. As tax authorities in other places have been learning from the Chinese experience, they will need to pay close attention to the issues of distribution and operation in order to achieve both revenue and high growth.

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