Research on the Application of Customs Supervision on Cross-border Import E-commerce Retail Business from the Perspective of Blockchain

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Abstract: Although relevant regulatory policies for cross-border import e-commerce retail business are constantly updated and improved, there are still problems such as inadequate management, low efficiency and high cost in customs supervision. In particular, the tax rate policy, list system and document supervision of the new policy all put forward higher requirements for the supervision ability and supervision efficiency of the customs. We try to build a new customs supervision model based on the characteristics of blockchain technology to solve this contradiction. The new customs supervision model takes the goods orders, payment documents and logistics documents of cross-border import e-commerce retail business as the entry point. The regulatory model is closely integrated with the content of the new policy to promote the implementation of the new policy. We will improve the quality and efficiency of customs supervision, close loopholes in tax supervision, and promote the healthy development of cross-border e-commerce retail business.

Introduction

Against the background of overall slowing growth of import and export trade, China's cross-border import e-commerce industry has maintained a growth rate of over 30% in recent years. In particular, cross-border import retail e-commerce industry has developed rapidly and become a new growth point of China's foreign trade economy. During this period, the customs only levied the tax on baggage and articles accompanying incoming passengers and personal postal articles on the goods under the direct mail import mode according to the attributes of personal goods, and stipulated the scope, tax, purchase amount and quantity of the goods under the bonded import mode.

Lax regulatory policies and the rapid development of cross-border e-commerce retail business have led to a series of traditional disadvantages such as low clearance efficiency, high cost and inadequate supervision. In order to regulate the development of cross-border e-commerce, the Chinese government issued a new regulatory policy on cross-border e-commerce retail business in March 2016, marking the departure of China's cross-border e-commerce from the "era of tax exemption" and the entry of regulatory policy into a period of policy adjustment and transition [1]. 2019 is the first year for the full implementation of the new policy, which puts forward higher requirements for the originally imperfect customs supervision model. How to improve the ability of customs supervision has become an urgent problem.

The big data and Internet of things technologies provide a technical basis for the application of blockchain technology in customs supervision. Key technologies of blockchain include distributed ledger, asymmetric encryption, consensus mechanism and intelligent contract. These key technologies guarantee the realization of their value [2]. Scholars have studied the application of blockchain technology in cross-border e-commerce and taxation. Li Haibo [3] proposed to build a whole-process monitoring system and physical value platform for cross-border logistics based on the block chain technology. It aims to solve the logistics difficulties, cross-border payment problems and product quality control problems existing in the current cross-border e-commerce business in China. Pu Dongping, Fan Zhongjun and Liang Hejun [4] put forward the construction of the circulation system, payment system and credit system

in the core module of e-commerce by applying the relevant technical characteristics and mode concepts of blockchain. Ren Chaoran [5] constructed a tax collection and management model based on the block chain technology to realize the flexible application of block chain and tax. At present, there is no literature combining the key words of blockchain technology, cross-border import e-commerce retail business and customs supervision from the perspective of customs supervision. This paper will attempt to conduct exploratory research.

Analysis of the Current Situation and Problems of Cross-border Import E-commerce Retail Business under Customs Supervision

The Inherent Disadvantages of the Current Customs Clearance Mode

Currently, there are two main customs clearance modes for cross-border import e-commerce retail business, including direct mail mode and bonded mode. These two modes have great differences in the specific operation process and supervision in the process of customs clearance.

Under the bonded mode, foreign goods enter the bonded supervision zone in the way of general trade declaration. At this time, the goods have not been taxed and stored in the warehouse in the bonded area. Transacted through cross-border import e-commerce platforms. According to the information of goods, value and buyers and sellers on the trading order, the third-party logistics will entrust the customs declaration to go out of the zone. In the bonded mode, the customs supervision procedure is arranged when the goods leave the bonded area, while the goods are not supervised during the storage in the bonded warehouse. The quality inspection and license of the goods in the bonded area are managed by the Ministry of Commerce and the Commodity Inspection Department, while the supervision policies of the customs are not involved. The tedious process of cross-department negotiation in customs clearance reduces the efficiency of customs clearance. The unclear transfer of real rights of commodities when applying to the customs has also become a loophole exploited by cross-border e-commerce importers [6].

Direct mail mode is the preferred mode of customs clearance for many cross-border e-commerce C2C modes. After consumers place orders, e-commerce companies purchase goods abroad and deliver them to consumers by mail. Customs clearance is handled by the express company. Direct mail mode of customs clearance speed and the use of postal tax calculation method to pay related taxes and fees to make the tax calculation is relatively simple. It is inevitable that the customs will only carry out sampling inspection instead of comprehensive inspection on the imported goods under the direct mail mode. Non-standard information such as product attribute and price on the parcel of goods delivered to China increases the difficulty of customs supervision.

Defects in Customs - related Tax Policies

In recent years, the customs supervision policy closely follows the development pace of cross-border import e-commerce. However, from the perspective of the current customs supervision status, there are still some imperfections and inadequacies. In this paper, the problem analysis of customs policy is still carried out from the perspective of two customs clearance modes.

Cross-border e-commerce retail business mainly involves the trade activities of individual and small merchants (namely C2C), which makes it have the inherent characteristics of scattered, multiple and miscellaneous. Due to the consideration of profit and sales volume, individual merchants will choose the direct mail mode. Thus the use of preferential tax provisions for tax evasion violations. Individual merchants will also take advantage of the incomplete orders, payment documents and logistics documents of cross-border e-commerce retail industry. To falsify document information so as to modify the type and price of articles into the scope of preferential tax policies to achieve the purpose of tax evasion.

Difficulties in Implementing the New Policy

After the promulgation of the new policy in 2016, cross-border import retail market trading platforms all showed a decline in cross-border trade volume to varying degrees. Cross-border e-commerce companies are holding a conservative attitude towards the new policy. In response to the reflection of the

cross-border e-commerce market, the government adopts the strategy of suspending implementation to ensure the smooth development trend of cross-border e-commerce [1].

The new policy has affected many things. After the new tax reform, cross-border bonded imports were regulated as goods and taxed at 70% of the value added tax and consumption tax in general trade. There are two problems with increasing import duties on goods. The first problem is commodity classification. According to the import and export tariff of the People's Republic of China, if the import tariff is levied according to the goods, the goods shall be corresponding to the specific HS code. Corresponding to the applicable tax rate and customs clearance documents. The second problem is that there are differences between goods and articles in terms of declaration method, tax exemption amount, quantity and amount limit, etc. There are differences between goods and articles in terms of tax categories, tax rates, customs clearance documents and customs clearance procedures. The difficulty in distinguishing commodity attributes may lead to differences in the identification of similar commodities' attributes in different customs surveillance zones, thus affecting the efficiency of customs clearance [1][7].

New Exploration of Customs Supervision Mode from the Perspective of Blockchain

Blockchain technology encrypts information based on the cryptography principle of hash algorithm. The biggest feature is decentralization. The data of each node can be updated synchronously, safely and efficiently. Distributed billing also provides us with clear and traceable data sources. The consensus mechanism enables the completion of each transaction to be confirmed and reached by all accounting nodes. Intelligent contract technology is a kind of agreement based on computer operation, which aims to promote, verify or execute the negotiation or execution of the contract in a digital way [2].

This paper will explore the application of blockchain technology to build a new customs supervision model, to make up for the loopholes of the original supervision model. In particular, the new policy on the types of goods, tax rates, commodity lists, documents and other higher requirements. This will lead to significant changes in customs supervision. The application of blockchain technology can well solve problems and promote the development of cross-border e-commerce.

Building a Customs Supervision Model Based on Blockchain Technology

One of the difficulties in the implementation of the new policy is to achieve the new rule of uniform documents, namely customs clearance goods must have orders, payment documents and logistics documents. It is difficult for the cross-border e-commerce retail industry to meet the requirements. Paper documents of many commodities are not complete before customs clearance. Therefore, we construct the model from the point of document generation.

According to the characteristics of documents, cross-border e-commerce behaviors are divided into three levels: order generation level, online payment and settlement level, and physical distribution level. Each layer contains the operation process involved in a document. We set up the nodes of the blockchain at the key process joints and make each node update information synchronously with the information node of the customs. Besides synchronous update of information, each node also introduces smart contract technology and secure encryption technology of block chain. Through this model, we incorporated the main operation contents of cross-border import e-commerce retail business into the block chain module for the convenience of customs supervision.

Establishing an Intelligent Contract Signing Mechanism

The concept of intelligent contract was first proposed by Nick Szabo, a cryptographer. It is a kind of contract that combines contract and computer operation and is automatically executed by computer. The technical features of smart contracts are closely linked to the blockchain, which is triggered by bitcoin transactions on the blockchain. A contract is a set of encodings stored on a blockchain that can read and write data in the blockchain. And automatically executes the contract content that has been written into the computer language. On the one hand, all stakeholders can understand the supervision policies of the customs and abide by them under the constraints of smart contracts. On the other hand, for the violation of the contract, the terms of the contract will be automatically executed under the intelligent contract mechanism.

Under the intelligent contract mechanism, the supervision and execution of third-party intermediaries are exempted, which relieves the burden of customs' supervision activities. At the same time, the nodes in the customs supervision module are distributed at each key process so as to ensure that the customs supervision contract can be observed and executed in the whole transaction process.

Build a New Type of Customs Supervision Database

The information of each node in the model is recorded in the accounting mode of distributed ledger and encrypted by hash algorithm to ensure the security of the information. The new type of database guarantees the authenticity of the supervision information needed by the customs. Eliminate the phenomenon that the customs can only passively obtain data and cannot confirm the reliability of customs clearance commodity information under the original mode.

In addition to providing timely and authentic data for customs, the new database can also retroactively monitor the information. The main transaction information of cross-border e-commerce is recorded in the distributed accounting mode at each node, so the customs can check all the information of goods at the three orders level for each suspicious customs clearance item by checking the account book. Based on the data tracing function, the customs can completely restore the information of goods from ordering to payment to logistics distribution, so as to implement effective supervision on suspicious goods for customs clearance.

Based on the Block Chain Technology to Solve the Problem of Customs Clearance

The most controversial part of the new policy is the import licensing approval, registration or filing requirements in the cross-border e-commerce retail import list. For the national bonded areas, the possibility of adjustment in a short time is almost zero.

The introduction of the new policy is based on the considerations of the development stage of cross-border e-commerce in China, but it is difficult for the customs supervision mode to change quickly to meet the needs of the new policy. The customs supervision mode under the block chain technology can well solve the problem. The key to the transformation of the new regulatory model is the unification of the three orders. Our regulatory model is based on the processes that generate orders, payment documents and logistics documents. In the three levels of the model, the nodes will record and store the relevant document information at the initial stage of transaction, and then synchronize with the customs information supervision node. During customs clearance, the information of the three orders of each commodity is easily obtained through the information node, and the electronic document is easier to save and transmit than the original paper document.

Different bonded areas in China have different detailed rules for the implementation of the policy, which is not conducive to the implementation of the new policy or the formation of unified supervision. We can distribute the information nodes of the customs in all bonded areas across the country, so that the supervision of cross-border e-commerce in all bonded areas will be included in the overall supervision of the customs.

Conclusion

Customs is an important institution of the state, which is related to the national economy and people's livelihood. Applying blockchain technology to customs supervision is a bold attempt. At present, big data, Internet of things and other technologies have provided feasibility for the development and application of blockchain. However, blockchain technology is not a universal technology, and its delay, high computing cost, limited storage space and other characteristics determine the limitations of its application. Therefore, there is still a long way to explore the application of optimizing customs supervision based on blockchain technology. I hope this paper can provide references for relevant researches.

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