


Prospects and Problems of Realization of the VAT Neutrality Principle in Russia and China

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ABSTRACT

The principle of neutrality lies at the core of the European VAT model. In other models, this principle is deemed less important. The most illustrative in this respect is the Chinese VAT system, in which the government has departed from the neutrality principle in order to be able to regulate export structure more efficiently. Since Russia with its resource-oriented export structure is now facing a similar challenge, it may benefit from adopting some of the relevant Chinese experience and thus improve the export potential of its non-resource industries, which is the question this paper seeks to explore. Our hypothesis is that differentiated export VAT refund rates, which signifies a deviation from the VAT neutrality principle, can be used for export regulation. The research relies on the comparative analysis method and the method of analogy. We conducted a detailed analysis of VAT neutrality by focusing on the constitutive elements of the VAT (object of taxation, subject of taxation, tax rates and tax period) and the corresponding types of neutrality. We also compared realization of different neutrality types in China and Russia and the resulting distortionary effects. Our analysis has shown that significant distortions of the VAT neutrality principle are observed in both systems. Some of the elements from the Chinese model can be adopted in Russia, for example, the system of incomplete VAT refunds to exporters. In order to evaluate exporters' credibility, two criteria may be applied. First, their credibility may be assessed with the help of the Automated System for Monitoring VAT Refunds. Second, companies participating in industrial charters and associations can be deemed more credible than those that don't. These two criteria could underpin the application of reducing coefficients. The algorithm for setting the values of these coefficients is described. For the second criterion, we calculated the effect that would be achieved if the export coefficients are introduced. Our study has shown that in the Russian context, differentiated export VAT refund rates could open new opportunities for regulation of the export structure and enhance tax compliance of exporting companies.

KEY WORDS

neutrality principle, tax elements, types of neutrality, distortions of neutrality, export coefficients, differentiation of VAT refund rates

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Оригинальная статья

Проблемы и перспективы реализации принципа нейтральности налога на добавленную стоимость в России и Китае

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АННОТАЦИЯ

Принцип нейтральности является базовым принципом построения европейской модели налога на добавленную стоимость. В иных моделях следование

принципу нейтральности не является столь строгим. Наиболее ярким примером отступления от принципа нейтральности является китайская модель НДС. Такой подход позволил усилить влияние государства на регулирование внешнеэкономических процессов. Данная задача актуальна для России, имеющей однообразную структуру экспорта с ярко выраженной сырьевой направленностью. Целью данной работы является исследование возможности адаптации некоторых элементов практики налогообложения добавленной стоимости в Китае к российским задачам существенного наращивания экспортного потенциала несырьевых отраслей экономики. Гипотеза исследования заключается в предположении, что определенные искажения принципа нейтральности в налоге на добавленную стоимость в части дифференциации возмещения налога при экспортных поставках для разных видов экономической деятельности будет иметь регулирующий потенциал воздействия на структуру экспорта. Методология исследования основана на применении методов анализа, сравнения и аналогии. Детализированный анализ нейтральности проводился на основе декомпозиции налога по основным элементам и видам нейтральности (объектной, субъектной, ставок и налогового периода). Был также проведен сравнительный анализ реализации разных видов нейтральности и формируемых искажений в налоге на добавленную стоимость в России и Китае. Сравнительный анализ показал, что значительные искажения принципа нейтральности налога присутствуют в обеих системах. В российских условиях представляется возможным заимствование некоторых элементов китайской модели, а именно применение системы неполного возмещения НДС компаниям-экспортерам. Авторами рассмотрено два критерия для введения понижающих экспортных коэффициентов: в рамках автоматизированной системы контроля за возмещением налога на добавленную стоимость и в рамках действия отраслевых хартий (ассоциаций). Оба критерия были подробно проанализированы в процессе исследования. Предложен алгоритм установления значений экспортных коэффициентов. Для второго критерия проведен расчет, демонстрирующий эффект от введения экспортных коэффициентов для компании. В исследовании показано, что при внедрении в действующую на территории России модель НДС элементов дифференциации объема возмещения налога при экспорте могут быть открыты новые возможности по регулированию видовой структуры экспорта и повышению уровня благонадежности экспортеров.

КЛЮЧЕВЫЕ СЛОВА

принцип нейтральности, элементы налога, видовая нейтральность, искажения нейтральности, экспортные коэффициенты, дифференциация возмещения НДС

1. Introduction

The classical European model of value-added taxation is based on two principles: the principle of generality (general consumption tax) and neutrality (neutral tax) [1]. The principle of generality is established in Article 2 of the First VAT Directive, which stipulates that the principle of the common system of value-added tax requires the application to goods and services of a general tax on consumption [2]. Although contemporary European legislation provides for certain exceptions regarding value-added taxation, it is, nevertheless, considered that the first principle is sufficiently observed [3].

The second basic principle – the principle of neutrality – has been much dis-

cussed in research literature. First, there is no universally accepted definition of neutrality, which could be further used to develop criteria and evaluate how this principle is observed in different countries. Moreover, the second principle is harder to observe due to exceptions from the first. Finally, the question remains open as to whether there is a fundamental need to adhere to the neutrality principle or not [4].

The most illustrative in this respect is the Chinese VAT system. It should be noted that originally, this system was based on the European model. As the system was adopted to the country's specific conditions and development challenges, many of the tax's structural features un-

derwent considerable transformations [5]. Nevertheless, VAT has remained one of the most significant taxes in China because it provided the government with new opportunities for controlling the commodity structure of exports. Since Russia with its resource-oriented export structure is now facing a similar challenge, it may benefit from adopting some of the Chinese experience and thus improve the export potential of its non-resource industries, which is the question this paper seeks to explore. To this end, we are going to address the following tasks:

- investigate the possible areas for the application of the VAT neutrality principle;
- develop a typology of types of neutrality;
- analyze to what extent the Russian VAT system adheres to the neutrality principle and consider the distortions of this principle peculiar to the Chinese system;
- study how the neutrality principle can be modified and how the elements of the Russian VAT model can be transformed.

Our hypothesis is that differentiated export VAT refund rates, which means a deviation from the VAT neutrality principle, can be used for export regulation.

Our study comprises three main stages.

First, we are going to consider the theoretical premises of the VAT neutrality principle. As we said above, there is currently no universally agreed definition of neutrality. In this section, we are going to describe our own vision of the neutrality principle and propose a universal model for assessment of adherence to this principle in different countries. This model is further applied to analyze the cases of Russia and China.

Second, we are going to describe the Chinese VAT model and compare it with the Russian model. Special attention will be given to the most peculiar distinctions of the former, such as the application of differentiated VAT refund rates for exporters.

Third, we are going to consider the possibility of adopting certain elements of

the Chinese VAT model which make it export-oriented in Russia. In particular, we are going to focus on the idea of applying reducing export VAT refund coefficients depending on various economic conditions and factors.

In the conclusion, we are going to the potential of applying differentiated export VAT refund rates in Russia in order to encourage companies in non-resource sectors to export their production.

2. Literature review

In this section, we are going to provide an overview of the European, American, Chinese and Russian research literature on different aspects of the VAT neutrality principle.

The concept of this new indirect tax emerged practically simultaneously in the first quarter of the twentieth century both in Europe and America. Thomas S. Adams was one of the first to articulate the concept that could be described as ‘proto-VAT’ and is thus often referred to as the ‘intellectual godfather of the VAT’ [6]. The European model of VAT is attributed to Wilhelm von Siemens [7]. Interestingly, in the US, the new indirect tax was considered as a system of business taxation while in European countries, on the contrary, it was seen as an ‘ennobled turnover tax’ [8]. In different countries, VAT neutrality is interpreted differently.

American researchers predominantly focus on the economic aspect of VAT neutrality. Paul Studenski wrote that VAT is neutral because it is uniform for all factors of production [9]. Studenski also created the general ethical philosophical foundation for the use of VAT. He developed the cost-of-service variant of the benefit principle of taxation justice and related it to VAT.

D. Smith posited that VAT neutrality is neutrality between costs and profits [10]. W. Missorten pointed out that VAT has ‘internal and external neutrality at the retail level’ [11]. Neumark Committee¹ and M. Moller [12] considered neutrality

¹ Neumark Committee. Report of the Fiscal and Financial Committee, in The EEC Reports on Tax Harmonization, Amsterdam: International Bureau of Fiscal Documentation, 1963.

on the international level and defined it as harmonization of national tax systems to prevent the making of economic decisions that are dictated by tax considerations. B. Herber argued that neutrality means primarily the avoidance of any change in relative well-being of economic entities caused by the collection or introduction of a tax [13].

R. Musgrave proposed a two-component concept of VAT neutrality, consisting of the capital import neutrality (CIN) and the capital export neutrality (CEN) [14]. In other words, the tax should not prevent taxpayers from capital import (inbound investment) and from capital export (outbound investment). In order to decide whether a tax system is neutral or not, it is necessary to compare the actual situation with the situation as if no tax was levied [15].

J. Reugebrink, renowned as the leading figure behind the introduction of VAT in the Netherlands, wrote that at the initial stage, VAT neutrality can be maintained, but secondary effects of its use can distort the neutrality principle [16]. According to Reugebrink, a connection should be established between the amount of tax and the amount of expenditures. In practice, however, it is quite difficult to compare the amount of tax collected on different objects of taxation. At this point a question arises as to what extent VAT should be neutral.

European studies tend to take a more general perspective on the neutrality principle: for example, the IBFD (The International Bureau of Fiscal Documentation) distinguishes between internal and external neutrality of VAT [17]. The OECD (Organisation for Economic Co-operation and Development) in its International VAT Neutrality Guidelines points out that external international neutrality is the most important². Depending on the specific topic this or that study seeks to address, they

may focus on such questions as economic neutrality [18] or legal neutrality [19].

A comprehensive study of the neutrality principle was conducted by C. Herbain. In her book, she considers the necessary conditions for the existence of VAT neutrality and provides an overview of the VAT mechanism. She points out that the concept of neutrality is built into VAT in such a way so as to ensure the natural functioning of the market [20].

Among Russian researchers, the problem of VAT neutrality inspired little interest. One of the few exceptions is the study of A. Shelkunov, who formulates his own definition of the neutrality principle, develops the theoretical foundation of this principle and its aspects and shows its significance in the mechanism of value-added taxation [21]. Shelkunov, however, focuses almost exclusively on the legal aspects, leaving other aspects underexplored.

More attention is given to VAT neutrality by Asian researchers. For example, S. Mukhopadhyay considers the VAT neutrality principle from the critical perspective, arguing that in practice, in developing countries it is impossible to adhere to this principle [4]. Mukhopadhyay discusses the classical concept of European VAT and concludes that the rigorous adherence to this principle may be detrimental to Asian countries.

According to Xu Yan, unlike European countries, in China, VAT is not neutral because exporters do not get complete refunds of the domestic VAT paid on their inputs [5]. Similar opinion is expressed by Jinyan Li [22] and Shenggen Fan, Ravi Kanbur, Shang-Jin Wei, Xiaobo Zhang [23]. China's experience is relevant to another field of studies connecting VAT neutrality and transformations of its key characteristics. If the neutrality principle is followed loosely, there is a possibility that there will be more rigorous state regulation targeting companies and entrepreneurs engaged in international trade.

M. Feldstein and P. Krugman [24] demonstrated the direct relationship between incomplete VAT rebates and international trade flows, making a conclusion

² OECD International VAT/GST guidelines on neutrality. CENTRE FOR TAX POLICY AND ADMINISTRATION. Available at: <https://www.oecd.org/tax/consumption/guidelinesneutrality2011.pdf>

that incomplete VAT rebates to exporters can be considered as equivalent to export taxes and lead to a decline in the export volume. The immediate effect of cuts in VAT rebates if not passed on to prices is the declining profits of exporters. This fact may lead manufacturers to change the structure of production and reorient their sales towards domestic consumers. In this case importers are likely to look for alternative sources of supply, which will be also cause a decline in export production. On the other hand, if the VAT rebate rates are increased, it is likely to boost exports.

There are studies dealing with the question of whether exporters' response to changes in VAT rebates will be the same in the long term or not, which is of particular relevance to our research. For example, Ch.-H. Chen et al. used the statistical data of China from 1985 to 2002 to show that its export tax rebate policy has a significant positive correlation with its exports, final domestic consumption, and foreign exchange reserve [25]. P. Chandra and Ch.-X. Long used firm-level panel data for 2000–2006 to demonstrate a positive relationship between the amount of exports and the average VAT refund rates [26].

Thus, different approaches and perspectives are adopted to study the VAT neutrality principle and its realization in various countries. At the same time the transition from the VAT neutrality model to what can be called 'partial VAT neutrality model' still remains a murkier area of research.

3. Methodology

Methodologically, our research is based upon the use of comparative analysis and the method of analogy. In the following section, we are going to analyze the EU VAT Directive and consider different types of VAT neutrality to formulate our own definition of this concept and draw a classification of neutrality types. For each of these types a detailed analysis can be conducted in the context of this or that country.

We use the method of comparative analysis to describe the compliance with

the neutrality principle in China and Russia. Our analysis comprises several stages. First, we compare how each type of neutrality is realized in Russia and China. Next, we identify those types of neutrality in which the Russian and Chinese VAT systems do not fully comply with the principle, that is, this principle is realized only partially. Then, we analyze the structural features of the Chinese VAT and in particular the system of export VAT refund rates, which accounts for most deviations from the neutrality principle.

We apply the method of analogy to consider the possibility of adopting the Chinese system of differentiated export VAT refund rates in the Russian context. We propose a system of reducing coefficients and a set of criteria for the differentiation of these coefficients. In our view, such criteria may include, first, credibility of an exporter assessed within the framework of the risk management system (Automated System for Monitoring VAT Refunds) and, secondly, credibility of an exporter determined by the membership in industrial charters and associations.

4. Research and Results

4.1. VAT neutrality and neutrality types

There is currently no universal theoretical understanding of what constitutes the VAT neutrality principle. The European model distinguishes between internal and external neutrality. Internal neutrality can be divided into legal neutrality, neutrality in competition and economic neutrality [17]. For each of these types there are compliance criteria, which are used to assess the neutrality of each country's VAT system.

In our view, neutral VAT is a tax that does not have a significant impact on business decisions of economic entities. The process of decision-making tends to be distorted by national modifications of specific VAT elements, such as the objects and subjects of taxation, tax rates and tax base. The combination of these elements determines the specificity of this or that national VAT model and the general level of neutrality in this model. For a more de-

tailed analysis of the neutrality principle, we need to look at the specific elements of VAT and the corresponding types of neutrality. We believe that such analysis will present a more nuanced picture since it reveals the reasons for distortions of the neutrality principle in specific VAT systems. At the same time it should be noted that the analysis of internal and external VAT neutrality can bring to light the consequences of distortions resulting from specific characteristics of national VAT models.

Neutrality for each specific element of VAT will be referred to as a type of neutrality. Our analysis will focus on four elements of VAT and four types of VAT neutrality (Fig. 1).

1. *Objective neutrality* means that a unified procedure for VAT calculation and payment is applied to all objects of taxation in the country. If some goods, works and services are VAT exempt or if different procedures and tax calculation algorithms are applied, then it can be said that the principle of objective neutrality is not fully met.

2. *Subjective neutrality* means that a unified procedure of meeting tax liabilities is set for all VAT payers and that they have equal rights regardless of their characteristics. If a special procedure of VAT payment is set for certain taxpayer categories, including differences in the periods for tax payment and refund, and/or if some VAT exempt categories of taxpayers are introduced, then it can be said that the principle of subjective neutrality is not fully met.

3. *Neutrality of tax rates* means that a uniform VAT rate is set for all types of

goods, works and services (the ‘classical’ VAT system has one VAT rate and zero-rated exports). If reduced VAT rates are applied to certain categories of goods and services, multiple VAT rates are introduced and/or a special procedure of VAT payment is set depending on the rates, then it can be said that the principle of neutrality of tax rates is not fully met.

4. *Neutrality of tax period* means that there is a tax period (reporting period) for all VAT payers and that taxpayers are not divided into groups or categories. If different tax periods are applied depending on a taxpayer’s revenue and category, then this principle is not fully met.

This breakdown of VAT into specific elements and the corresponding types of neutrality will be further used to compare how the neutrality principle is realized in Russia and China (Table 1).

The Russian and Chinese VAT systems demonstrate a similar picture of adherence to the neutrality principle: for almost all types of neutrality, certain distortions were detected. Moreover, we found that in both systems the deviations from the ‘ideal’ VAT (multiple tax rates, tax preferences, etc.) create loopholes that can be exploited by dishonest taxpayers.

4.2. Partial realization of the VAT neutrality principle in China

In China, the VAT was introduced in 1994 [28]. The main peculiarity of the Chinese model is that its VAT is not neutral [28]: for example, differentiated export VAT refund rates are applied [29]. Thus, it can be said that in the Chinese model, much attention is given to the tax’s regula-

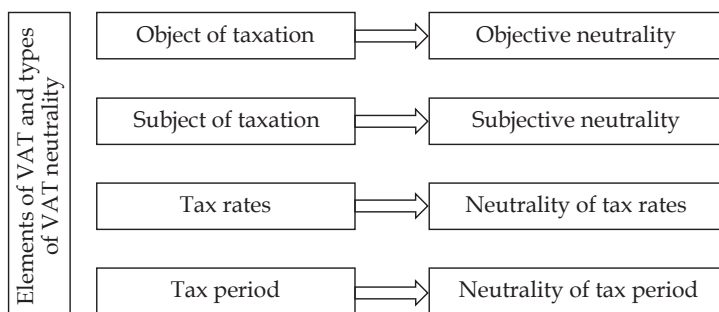


Fig. 1. Elements of VAT and types of VAT neutrality

tory function, which is no less important than the fiscal one. China's experience demonstrates that it is possible to use VAT as an effective tool to regulate the commodity structure of exports.

The VAT refund rates applied for exporters are called export VAT refund rates in China. Therefore, hereinafter we are going to use the term 'export VAT rebate rates'.

Export VAT refund rates were for the first time applied a year after the introduction of the VAT. The main reason behind this measure was the unscrupulous behaviour of taxpayers themselves. One of the typical schemes of fraud was VAT refund abuse, when VAT was paid at a reduced (preferential) rate, then invoices were forged and a refund for VAT paid at a standard rate was claimed. As a result, the total amount of refund claims was so

high that the central government struggled to meet them [25]. As a result, the government had to lower the export VAT refund rates in 1995 and 1996. There is no doubt that lower refund rates helped mitigate the pressure on the government but it also had a negative impact on Chinese exports, which in 1996 grew only by 1.5%.

To counteract the negative consequences of the 1997 Asian financial crisis and to stimulate exports, from the beginning of 1998 and till the end of 1999, the Chinese government raised significantly the export VAT refund rates for the key groups of commodities (light industrial products, heavy engineering products and so on) [30]. The State Taxation Administration (STA) in 1999 increased the budget quota for VAT refunds from 57.0 to 63.6 billion yuan. As a result, in 2000, Chinese exports grew by 27.8%.

Table 1

Realization of different types of neutrality and the corresponding distortions of the principle in Russian and Chinese VAT systems

Neutrality type	Russia	China
Objective neutrality	Distortions detected. Different VAT refund procedures may be applied to different objects of taxation, for instance, in the case of construction being conducted for the company's own use and by using its own resources. Significant number of goods, works and services are exempt from the object of taxation.	Considerable distortions. The distortion manifests itself when the export VAT rebates are calculated. For each type of goods (services) a specific rate is applied for calculating VAT payable (export VAT rate). If different export rates are applied to different goods, the company should maintain separate accounting. For domestically sold goods and exported goods, different algorithms of claiming VAT rebates are used.
Subjective neutrality	Distortions detected. Foreign companies providing e-services in Russia are obliged to register as VAT payers. Enterprises that use special tax regimes are not considered VAT payers. Small-scale businesses may be exempt from VAT.	Distortions detected. The VAT law distinguishes between two categories of taxpayers: general and small taxpayers [27]. The taxpayer category determines the tax rate and the procedure of tax payment.
Neutrality of tax rates	Distortion detected. Since the VAT was introduced, there has been three VAT rates, including a reduced rate for socially significant goods, works and services.	Considerable distortions. Since the tax was introduced, the number of VAT rates and their values have been changed many times. The 2019 reform introduced seven VAT rates*.
Neutrality of the tax period	No distortions detected. No groups or categories are distinguished; there is only one tax period for all VAT payers.	Distortion detected. For general taxpayers, the tax period is one month; for small taxpayers, it is one quarter.

Source: compiled by the authors.

* <https://www.avalara.com/vatlive/en/country-guides/asia/china/chinese-vat-rates.html>
Chinese VAT rates

The system of differentiated export VAT refund rates for different categories of goods is still relevant at the current stage. Between 2013 and 2019, there were several reductions in the export VAT refund rates, for example, they were lowered for such categories of goods as natural resources and polluting substances.

In China, an exporter has to obtain the value-added tax general taxpayer status in accordance with the Temporary Norms and Rules of the PRC on Value Added Tax. A taxpayer may claim a VAT refund within a specific timeframe – 90 days since the export declaration has been filed. If a taxpayer fails to do so, export is deemed as local supply and, therefore, the company will have to pay VAT [31].

China’s export refund policy is quite complicated and changes frequently [32] but the logic behind VAT calculations remains more or less the same [33]. To manufacture export products, a company may use imported materials as well as domestically produced materials or a combination thereof. According to Circular No. 7 (2002), the official formula used to calculate VAT payable for general trade and processing exports with purchased imported materials ($VAT_{payable}$) looks the following way:

$$\begin{aligned}
 VAT_{payable} = & \underbrace{(DS \cdot DR_{VAT})}_{\text{Output VAT}} - \underbrace{(DG \cdot DR_{VAT})}_{\text{Input VAT}} + \\
 & + \underbrace{(E - I) \cdot (DR_{VAT} - ER_{VAT})}_{\text{Export VAT}}, \tag{1}
 \end{aligned}$$

where DS stands for domestic sales; DR_{VAT} for the domestic VAT rate; DG , for goods and components purchased in the domestic market; E , export; I , import; and ER_{VAT} for the export VAT rate.

The amount of VAT recoverable (VAT_{rec}) is calculated according to the following formula:

$$VAT_{rec} = (E - I) \cdot ER_{VAT} \tag{2}$$

All export VAT rates are divided into groups according to the commodity codes specified in the Commodity Nomenclature of Foreign Economic Activity of the Customs Union (FEACN). It is easy to find the export VAT rate, VAT rate in the

domestic market and other relevant information for an export declaration about the goods being shipped by using the code for this type of goods.

Let us consider several examples of how VAT refunds are calculated in China.

Example 1. Company A manufactures patterned cotton fabric. For production only locally sourced materials are used. The company bought goods (components) worth 70 thousand yuan in the domestic market and the rate of VAT in the domestic market is 13%. The company exports 100% of its production and does not supply to the domestic market. The FEACN code for the company’s goods is 5212250000, which means that the export VAT rate is 9%. The export value is 100 thousand yuan.

The data are shown in Table 2.

Table 2
Calculation for company A

Indicator, ths yuan	Indicator value
Goods and components bought in the domestic market (DG)	70 thousand yuan
Domestic VAT rate (DR_{VAT})	13%
Import (I)	0 thousand yuan
Domestic sales (DS)	0 thousand yuan
Export (E)	100 thousand yuan
Export VAT rate (ER_{VAT})	9%

Let us first calculate the amount of export VAT (VAT_{exp}):

$$\begin{aligned}
 VAT_{EXP} &= (E - I) \cdot (DR_{VAT} - ER_{VAT}) = \\
 &= (100 - 0) \cdot (13\% - 9\%) = 4 \text{ ths. yuan.}
 \end{aligned}$$

The amount of VAT payable is calculated by using formula (1):

$$\begin{aligned}
 VAT_{payable} &= (0 \cdot 13\%) - (70 \cdot 13\%) + 4 = \\
 &= 0 - 9.1 + 4 = -5.1 \text{ ths. yuan.}
 \end{aligned}$$

The amount of VAT recoverable is calculated the following way:

$$\begin{aligned}
 VAT_{rec} &= (E - I) \cdot ER_{VAT} = (100 - 0) \cdot 9\% = \\
 &= 9 \text{ ths. yuan.}
 \end{aligned}$$

Since the amount of VAT payable is negative (-5.100 yuan), the amount of VAT refund will be limited to the smaller value of ‘VAT refundable’ and the sum of VAT payable. In this case, the maximum possible amount of VAT recoverable is 9 thousand yuan while the amount of VAT

payable is 5.1 thousand yuan. Thus, the amount of VAT recoverable exceeds that of VAT payable. In this case, the smaller value is chosen for the company's VAT refund, that is, 5.1 thousand yuan.

Example 2. Company B manufactures LCD panels. For production it uses both Chinese and imported components. The company bought goods (components) worth 40 thousand yuan in the domestic market and the rate of VAT paid in the domestic market is 13%. Components worth 10 thousand yuan were imported. To import components, the company also paid VAT at the rate of 13%. The company exports 100% of its production and does not supply to the domestic market. The FEACN code for the company's goods is 9013803010, which means that the export VAT rate is 13%. The export value was 100 thousand yuan. In this case we are not going to consider the domestic VAT refund.

The data are shown in Table 3.

Table 3
Calculation for company B

Indicator, ths yuan	Indicator value
Goods and components bought in the domestic market (DG)	40 thousand yuan
Domestic VAT rate (DR_{VAT})	13%
Import (I)	10 thousand yuan
Domestic sales (DS)	0 thousand yuan
Export (E)	100 thousand yuan
Export VAT rate (ER_{VAT})	13%

Let us calculate the amount of export VAT (VAT_{exp}):

$$VAT_{EXP} = (E - I) \cdot (DR_{VAT} - ER_{VAT}) = (100 - 10) \cdot (13\% - 13\%) = 0 \text{ ths. yuan.}$$

The amount of VAT payable is calculated by using formula (1):

$$VAT_{payable} = (0 \cdot 13\%) - (40 \cdot 13\%) + 0 = -5.2 \text{ ths. yuan.}$$

The amount of VAT recoverable:

$$VAT_{rec} = (E - I) \cdot ER_{VAT} = (100 - 10) \cdot 13\% = 11.7 \text{ ths. yuan.}$$

Similar to Example 1, the amount of VAT refund is the smaller of the sums of 'VAT payable'. Therefore, the amount of VAT refund will be 5.2 thousand yuan.

Example 3. Company C manufactures bags. To produce them, it uses only imported components and parts. The company has imported materials worth 70 thousand yuan. To import components, the company also pays VAT at the rate of 13%. The company exports 100% of its production and does not supply to the domestic market. The FEACN code for the company's goods is 4202910090, which means that the export VAT rate is 0%. The export value was 100 thousand yuan.

The data are shown in Table 4.

Table 4
Calculation for company C

Indicator, ths yuan	Indicator value
Goods and components bought in the domestic market (DG)	0 thousand yuan
Domestic VAT rate (DR_{VAT})	13%
Import (I)	70 thousand yuan
Domestic sales (DS)	0 thousand yuan
Export (E)	100 thousand yuan
Export VAT rate (ER_{VAT})	13%

Let us calculate the amount of export VAT (VAT_{exp}):

$$VAT_{EXP} = (E - I) \cdot (DR_{VAT} - ER_{VAT}) = (100 - 70) \cdot (13\% - 13\%) = 0 \text{ ths. yuan.}$$

The amount of VAT payable is calculated by using formula (1):

$$VAT_{payable} = (0 \cdot 13\%) - (0 \cdot 13\%) + 0 = 0 \text{ ths. yuan.}$$

The amount of VAT recoverable:

$$VAT_{rec} = (E - I) \cdot ER_{VAT} = (100 - 70) \cdot 13\% = 3.9 \text{ ths. yuan.}$$

In this case, the exporting company is unable to obtain a VAT refund because the sum of VAT payable is 0 thousand yuan.

The above situations show that the amount of VAT exporting companies can reclaim depends on many factors such as the company's volume of production, export and import volumes, origin of the raw materials used in production and so on. D. Gordon et al. describes the most typical situations [34]:

1. Domestic sales. The goods were manufactured by using imported components and parts. The company has to pay input VAT.

2. Domestic sales. The goods were manufactured by using domestically produced components and parts. The company has to pay input VAT.

3. The customs procedure of inward processing is applied, which means that certain goods can be brought into China Customs territory for manufacturing or processing with subsequent exportation. Exemption or partial exemption from VAT.

4. Export. The goods are manufactured by using only domestically produced components and parts. Export is VAT exempt, input VAT is fully or partially refunded.

Thus, though in China the neutrality principle is not always adhered to, an individual approach to taxation of companies is applied. Such approach helps the government increase the effectiveness of state support to exporters.

The list of reasons behind the Chinese government's decision to introduce differentiated export VAT refund rates is not limited to the need to relieve financial pressure on the government or to stimulate exports of specific commodities. In our view, there are other reasons that are still important for the country today:

1. Manipulation of the terms-of-trade. If a country is a leader in one of the world markets, then any restrictions placed on its exports will lead to a rise in global prices and improve the conditions of trade.

2. Food security. State authorities can reduce consumer prices for certain goods by redirecting the foodstuff supply towards the domestic market [34] In the 1980s, Chinese authorities set the rates of VAT refund quite low, mostly with the aim to curb raw commodity exports and exports of agricultural products.

3. Maintaining environmental sustainability. This factor has gained relevance in the recent decades when industrial discharges started to take a heavy toll on urban dwellers' health. In 2016, VAT rebates were cancelled for some natural resources and primary products and were reduced for those goods whose manufacturing is energy intensive and has a heavy environmental impact.

Yan Xu points out that China uses the VAT as a tool to manage export flows [28], which is why the mechanisms of differentiated rates of VAT refunds for exporters are actively used. In the global practice, this approach is unique, which makes it particularly interesting to consider the possibilities of adapting it to Russian conditions.

4.3. Description of export coefficients

In order to adapt the Chinese system of export VAT refund rates to Russian conditions, we should address two key questions: first, what should be the formula for calculating VAT refunds and, second, what should be the criteria for applying differentiated VAT refund rates. The choice of criteria is the most significant: on the one hand, they should be clearly defined and easily understandable for taxpayers, on the other, they should correspond to the priorities of the state policy.

We believe that export coefficients (C_{exp}) are the most suitable for this purpose. First and foremost, it is necessary to establish a formula to calculate the amount of VAT refund with the help of C_{exp} .

The amount of VAT payable is computed as a difference between the sum of VAT on goods sold in the domestic market $VAT_{domsales}$ and the sum of VAT refund VAT_{refund} with the addition of VAT recovered VAT_{rec}

$$VAT_{payable} = VAT_{domsales} - VAT_{refund} + VAT_{rec}. \quad (3)$$

In this formula we are most interested in indicator VAT_{refund} . An exporting company can sell some part or all of its products to overseas markets. Thus, the amount of goods sold can be taken as 1, then the amount of goods realized in the domestic market will be a , while b will stand for the share of exported goods. The export coefficient will be applied only to VAT refunds on exported goods.

$$VAT_{payable} = VAT_{sales} - (a \cdot VAT_{refund} + b \cdot VAT_{refund} \cdot C_{exp}) + VAT_{rec}. \quad (4)$$

The total amount of VAT refundable (VAT_{refund}) will be calculated by taking into account the reducing coefficient ap-

plied to VAT refunds on exported goods. This share will be calculated by using the shares of goods sold to overseas markets or domestically. For example, if 60% of goods are exported, then the coefficient will be applied only to 0.6 from the total amount of VAT refunds.

4.4. Differentiated export coefficients and criteria for their application

The application of reducing coefficients to VAT refunds claimed by companies can be used in the interests of the state as well as in the interests of companies themselves. Like other taxes, VAT is vulnerable to fraud. Dishonest taxpayers may use illegal schemes to claim VAT refunds through dummy companies and forged documents. To tackle such fraud schemes, the state increases its presence in the economic activities of taxpayers by introducing specialized software. In the most 'complicated' spheres, industrial charters are introduced to encourage responsible tax behavior. By signing them, taxpayers undertake certain responsibilities.

Let us now consider two possible criteria that may be applied for setting different export coefficients.

Criterion 1 is based on the assessment of a company's credibility with the help of the Automated System for Monitoring VAT Refunds (ASM-VAT-2) [35]. This software can automatically analyze the input data and assign export coefficients.

The ASM-VAT-2 incorporates a risk management system, which assesses and classifies companies in accordance with 84 criteria. Depending on their results, companies are assigned to one of the three risk areas (red, yellow, green). Unfortunately, the access to the information of what constitutes the assessment criteria is restricted. However, there are 12 criteria that taxpayers can use for self-assessment that is, a taxpayer can independently analyze their organization's activity and determine its non-compliance risk level. These criteria are also used by tax authorities when deciding whether it is necessary to conduct an on-site tax audit of this or that company or not.

Justification of computations. The criteria presented in the assessment table (see Table 5 below) are listed in the above-mentioned decree³. Some of them correspond to specific risk areas depending on the frequency of non-compliance incidents, that is, a company that has been caught abusing the tax system still has a chance to remain in the 'green' area but if it happens more often, such company will be considered as presenting a higher risk of non-compliance.

The level of tax risk for each company is determined as a sum of all scores. Taxpayers in the green area are eligible for the maximum level of C_{exp} ; in the yellow area, for the medium level; and for the red area, the minimal level.

Criterion justification. The application of this criterion can have a significant economic effect by making state support target the most credible and reliable companies.

Challenges and setbacks. The main difficulty lies in the fact that the application of this criterion will require more effort on the part of exporters to claim their VAT refunds. Exporting companies will have to constantly monitor their credibility level and work hard to enhance it. It also makes the whole process more painstaking and time-consuming for the tax authorities. Moreover, since there is a lack of available data for some of the risk assessment criteria, it is hard to predict how much potential this criterion actually holds.

Criterion 2 is based on companies' engagement in industrial projects. This criterion can be applied within specific economic sectors since it takes into account the degree of companies' engagement in projects aimed at enhancing accountability and transparency in VAT refund claims [36].

³ Approval of the Conceptual Framework for the On-Site Tax Audit Planning System: Decree of the Federal Tax Service of Russia № MM-3-06/333@ of 30 May 2007 (version of 10 May 2012). ConsultantPlus: legal reference guide. Available at: http://www.consultant.ru/document/cons_doc_LAW_55729/ (Accessed: 29.04.2020).

Criterion justification. This criterion allows us to assess an exporting company's credibility and reliability in the long term in relation to taxation and to other companies in this sector. However, since this criterion relies on an individual approach to taxpayers, the whole procedure of company assessment becomes quite complicated.

The values of export coefficients can vary depending on whether this or that company fits a certain set of criteria. Let us consider the possible applications of C_{exp} in relation to one of the industrial charters in

Russia, namely, the Charter of the Agro-Industrial Complex.

The Federal Tax Service takes active measures to stimulate the creation of industrial charters, considering them a key tool in the struggle against fraud schemes. The Charter of the Agro-Industrial Complex was established in 2017 and initially was intended only for grain manufacturers. At present, the Charter's participants are companies engaged in manufacture and sales of a wide range of agricultural products.

Table 5

Assessment of a company's credibility

Criterion	Risk areas		
	Green	Yellow	Red
The company's tax burden is lower than the average in the industry (type of economic activity)	no	Marginally lower	Considerably lower
The company's accounting and tax reports show losses in several consecutive tax periods	no	No more than two periods in succession	More than two periods in succession
The company's tax reports show large sums of VAT refunds in a specific period	no	Slight deviation	Considerable deviation
The growth in losses exceeds the growth in revenues from sales of goods (works, services)	no	Slightly exceeds	Considerably exceeds
The average monthly salary per employee is below the average level for this economic sector in this Russian region	no	no	yes
The figures reported by the company approached the threshold values set for the indicators used to determine eligibility for a special tax regime	no	Once	More than once
The amount of expenses specified by an independent entrepreneur in their accounting and tax reports is close to the amount of revenue received in the calendar year	no	Once	More than once
The company's financial and economic activities are based on contracts with subpurchasers or intermediaries ('chain of contractors') for no significant economic or other reasons (business purpose)	no	no	yes
The taxpayer has failed to provide explanations after receiving a notification from the tax authorities on non-conformity revealed and/or failed to provide documents requested by the tax authority and/or notify about the loss or destruction of such documents, etc.	no	no	yes
The taxpayer on multiple occasions applied for a registration and deregistration with a tax authority due to relocation ('migration' between tax offices)	no	Once	More than once
The company's level of profitability according to its accounting reports deviates considerably from the level of profitability for this sphere of economic activity determined by the official statistics	no	Slight deviation	Considerable deviation
The company engages in financial and economic activities deemed high tax risk	no	no	yes
Possible value of C_{exp}	1.00	0.75	0.50

Source: compiled by the authors.

The Charter requires its participants to be careful in the choice of their contractual partners, avoid using fraud schemes of VAT optimization and use commission agreements when dealing with suppliers. At present, 5,301 organizations from 76 regions participate in the Charter. The Charter also unites 20 industrial associations such as the Association of Responsible Participants of the Agricultural Market (hereinafter Association), which was founded in 2018 and is aimed at implementing the system of tax secrecy disclosure. In other words, this association strives to increase the level of tax transparency in the market. The Association enables companies to gain access to the information about their contractual partners, in particular the information concerning tax gaps detected by the ASM-VAT-2 system. So far, 17,425 companies have agreed to disclose their tax information and the information about 412 companies with high tax gaps was released. Thus, even if an exporting company is not a participant of the Charter, it can join the system of tax secrecy disclosure.

Justification of computations. All companies exporting agricultural production are required to register with Cerberus system, which had 6,586 registered companies at the beginning of 2020⁴. These include participants of the Charter, members of the Association and other industrial associations as well as companies that are not members of any such organizations. Table 6 illustrates the system of exporter ranking assessment.

A company's score may depend on the level of the association of which it is a member. If a company is a member of several associations, then its score is calculated as progressive total and thus determines which C_{exp} should be assigned. The more open this company is, the higher is the value of its export coefficient. The possible values of C_{exp} are shown in Table 7.

⁴ Register of Enterprises of the Customs Union. Cerberus. Register of Objects Under Surveillance. Available at: <https://cerberus.vetrf.ru/cerberus/certified/pub> (Accessed: 29.04.2020).

Table 6

Ranking assessment of exporters

Indicator	Score
The company is a member of an industrial association	1
The company is a participant of the Charter of the Agro-Industrial Complex	2
The company is a member of an industrial association and the Charter of the Agro-Industrial Complex	2 + 1
The company is not a member of the Association of Responsible Participants of the Agricultural Market (no tax gaps are detected)	3
The company is a member of the Association of Responsible Participants of the Agricultural Market (tax gaps are detected)	1
The company is a member of the Association of Responsible Participants of the Agricultural Market (no tax gaps are detected) and an industrial association	3 + 1
The company is a member of the Association of Responsible Participants of the Agricultural Market (tax gaps detected) and an industrial association	1 + 1
The company is a member of the Association of Responsible Participants of the Agricultural Market (no tax gaps are detected) and of the Charter of the Agro-Industrial Complex	3 + 2
The company is a member of the Association of Responsible Participants of the Agricultural Market (tax gaps detected) and of the Charter of the Agro-Industrial Complex	1 + 2
The company is a member of the Association of Responsible Participants of the Agricultural Market (no tax gaps are detected), an industrial association and the Charter of the Agro-Industrial Complex	3 + 1 + 2
The company is a member of the Association of Responsible Participants of the Agricultural Market (tax gaps detected), an industrial association and the Charter of the Agro-Industrial Complex	1 + 1 + 2
The company does not participate in any of the above-mentioned organizations	0

Source: compiled by the authors

Therefore, there can be seven export coefficients to choose from. $C_{exp} = 1$ is assigned to the most credible companies, that is, those that agree to disclose their tax information and are participants of the Charter, members of the Association or a similar organization. These companies will be entitled to full VAT refunds. Companies deemed least credible will be entitled only to a quarter of all the possible VAT refunds on exported goods. A recommended period when coefficients should be in force is 1 year, afterwards they should be revised.

To illustrate the possible effect of this system, let us consider the case of a hypothetical agricultural export company. Since Criterion 2 implies that a company can influence which C_{exp} will be applied to its VAT refunds by adjusting its development strategies, we can calculate its VAT refund for all coefficient values and estimate what benefits a company can get from its participation in industrial charters and associations. It would be reasonable to compare the data of export-oriented companies with companies that export a smaller share of their production (see Table 8).

Table 7

Possible values of export coefficients

Score	Condition	C_{exp}
0	The company does not participate in any of the above-mentioned organizations	0.4
1	The company is a member of the industrial association or The company is a member of the Association of Responsible Participants of the Agricultural Market (tax gaps are detected)	0.5
2	The company is a member of the Charter of the Agro-Industrial Complex or The company is a member of the Association of Responsible Participants of the Agricultural Market (tax gaps detected) and an industrial association	0.6
3	The company is a member of the industrial association and the Charter of the Agro-Industrial Complex or The company is not a member of the Association of Responsible Participants of the Agricultural Market (no tax gaps are detected) or The company is a member of the Association of Responsible Participants of the Agricultural Market (tax gaps detected) and of the Charter of the Agro-Industrial Complex	0.7
4	The company is a member of the Association of Responsible Participants of the Agricultural Market (no tax gaps are detected) and an industrial association or The company is a member of the Association of Responsible Participants of the Agricultural Market (tax gaps detected), an industrial association and the Charter of the Agro-Industrial Complex	0.8
5	The company is a member of the Association of Responsible Participants of the Agricultural Market (no tax gaps are detected) and of the Charter of the Agro-Industrial Complex	0.9
6	The company is a member of the Association of Responsible Participants of the Agricultural Market (no tax gaps are detected), an industrial association and the Charter of the Agro-Industrial Complex	1.0

Source: compiled by the authors

Table 8

Exporting companies' data and their VAT payable calculated by taking into account C_{exp}

Company	Share of export in total production output, %	Sum of VAT refunds, monetary units	Sum of VAT recovered, monetary units	VAT on sales and purchase transactions, monetary units
A	80	90	0	150
B	50	90	0	150
C	10	90	0	150

Table 9

C_{exp}	Company A (export share 80%)		Company B (export share 50%)		Company C (export share 10%)	
	VAT payable, monetary units	Increase, %	VAT payable, monetary units	Increase, %	VAT payable, monetary units	Increase, %
1	60.00	–	60.00	–	60.00	–
0.9	67.20	+12.0	64.50	+7.5	60.90	+1.5
0.8	74.40	+24.0	69.00	+15.0	61.80	+3.0
0.7	81.60	+36.0	73.50	+22.5	62.70	+4.5
0.6	88.80	+48.0	78.00	+30.0	63.60	+6.0
0.5	96.00	+60.0	82.50	+37.5	64.50	+7.5
0.4	103.20	+72.0	87.00	+45.0	65.40	+9.0

VAT payable will be calculated according to Formula (4). The results of our calculations are shown in Table 9.

All of the above leads us to the following preliminary conclusions.

1. Large- and medium-sized exporters benefit the most from membership in industrial associations.

2. C_{exp} can considerably increase VAT refunds paid to large and medium-sized exporters while for smaller companies the role of this coefficient is much less significant.

Such differentiation of export coefficients may incentivize exporters to join industrial charters and associations; it will encourage them to be more scrupulous in the choice of their contracting partners. In the future, these coefficients may be applied to participants of other charters and associations (for example, the charter of wood processing companies).

Challenges and setbacks. Criterion 2 is sector-specific and, therefore, requires a careful adjustment for each particular sector. There is a problem of how scores should be assigned depending on companies' membership in industrial associations because there is no universal agreement concerning which of these associations should be deemed more significant than others.

5. Conclusion

Our study has shown that in practice, it is not always possible to adhere to the VAT neutrality principle. What complicates the problem even further is that the

theoretical side of VAT neutrality also remains elusive. Therefore, approaches to the neutrality principle may vary across countries.

In this paper, we broke down VAT into separate elements and identified the corresponding neutrality types: objective, subjective, rates and tax period. We also compared realization of different neutrality types in China and Russia and the resulting distortionary effects. Our comparative analysis has shown that significant distortions of the VAT neutrality principle are observed in both systems. The scale of regulation can be increased by lowering the extent of VAT neutrality.

We considered the Chinese approach to VAT neutrality and showed that in this country, the VAT has a considerable impact on commercial decision-making. The Chinese system of differentiated export VAT refund rates was originally introduced to cover the state budget deficit. At present this system performs a variety of functions: the rates depend on the environmental impact of manufacturing companies, the country of origin for raw materials and so on. The three cases we considered demonstrate the effect of export VAT refund rates and show that even the minimum rates can have profound consequences for exporters.

Some of the elements from the Chinese model can be adopted in Russia, for example, the system of incomplete VAT rebates to exporters. We have also described two criteria for application of reduction coefficients: exporters' credi-

bility assessed through the Automated System for Monitoring VAT Refunds and exporters' credibility determined by companies' participation in industrial charters and associations. We have proposed an algorithm for setting the values of reduction coefficients. For the second criterion, we also describe the effect that can be

achieved if the export coefficients are introduced.

The system of differentiated export VAT refund rates in Russia will open new opportunities for regulating the commodity structure of exports and for encouraging responsible tax behavior among exporting companies.

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