Non-tariff measures of international trade: literature review

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Abstract

This paper delivers the literature review showing different position about the impact of non-tariff measures on foreign trade. We analyzed the views on government regulation of foreign trade of different economic schools. We did the overview of recent theories of state regulation of foreign trade. We reviewed different assessment methods of non – tariff measures influence on foreign trade and divided these methods on groups.

The outcomes point to some open questions in this field of research. Research in this area of the impact of non-tariff measures on foreign trade is carried out to find the relationship between the level of a country's trade and non-tariff barriers. All come to the conclusion that they certainly exist. However, there is no definite answer on the negative or positive impact of non-tariff measures on trade. Such lack of an unambiguous answer is associated with a number of factors beyond the control of the researcher. The first is the difficulty of collecting statistics on non-tariff barriers. The second problem is the lack of separation of barriers according to the degree of influence on trade and their accounting in the methods. The third problem is the time factor, the real effect of one or another barrier can be seen only after a few. In the framework of the study of non-tariff measures, this is quite difficult.

Introduction

The non-tariff measures (NTMs), regulating the international trade is the topic which has generated growing interest in recent years. As tariff rates reach historic lows, policy debates about non-tariff foreign trade regulations become more pressing.

Regarding the "organization" of the foreign trade the World Trade Organization (WTO) has been formulating the basic rules of trade for the participating countries for many years. By summer 2021 WTO included 164 countries, which account for 98% of all world trade. All of these countries must comply with WTO rules, the main purpose of which is consolidated trade.

However, despite to the pressure from WTO and other international organizations, many, especially national trade regulations exist worldwide. According to existing estimates some 96% of world trade is affected by at least one regulation, often in the form of "non-tariff measure - NTM".

Early non-tariff measures (e.g. quotas, anti-dumping duties) were intended to replace tariff protections (Anderson & Schmitt, 2003; Baldwin, 1984). New types of NTMs have proliferated in response to public policy objectives such as consumer health and safety and environmental protection. However, the same NTMs can be used to achieve both legitimate and protectionist goals and to establish boundaries between different motives. The trade effects can be very different depending on the reasons underlying the implementation and development of NTMs. For instance, if NTMs seek to correct a market failure such as information asymmetry, trade may be enhanced as consumer confidence in the foreign product will increase demand for it. When countries employ NTMs to protect domestic producers, they are likely to induce negative trade effects on partners (Herghelegiu, 2018).

The use of NTMs is extensive and varies. The comprehensive data about its scale and size are published by the United Nations Conference on Trade and Development (UNCTAD), which reflects new scientific and technological developments in a special report. The UNCTAD materials maps all different form of NTMs, like administrative procedures, technical regulations, sanitary and phytosanitary measures, customs and border procedures, financial rules, domestic subsidies and quantitative restrictions.

Over the past decades, UNCTAD and WTO have been trying to quantify NTM by keeping statistics of countries using these measures. If it is more or less possible to track the use of measures, then the degree of their influence is less studied. Only in the last 5-7 years the amount of research on this topic has increased (for example, 49 papers have been published in peer-reviewed journals during the period 2012-2019)

Most of existing studies assess the degree of influence of scientific and technological revolution directly on the export / import of the country, the costs of producers, and the price of goods. Empirical evidence for their effects is patchy. The most used are: frequency-type measures; price gap, that is, price or tariff equivalents of NTBs; econometric methods that analyze the effect on volume or price (price-based econometric methods, quantity-based econometric methods); simulation methods.

The goal of this article is to analyze the main theoretical and practical studies in the field of the impact of non-tariff measures on international trade with focus on questions like:

Do non-tariff regulation measures affect foreign trade?
What methods of assessing this impact exist?

For the purpose of preparing this study, we analyzed the views on government regulation of foreign trade of different economic schools. We did the overview of recent theories of state regulation of foreign trade. We reviewed different assessment methods of non – tariff measures influence on foreign trade and divided these methods on groups.

1. Views on state regulation of foreign trade

For centuries the debate has been about the role of state on economy, about its positive and negative effects. Starting from the 16th century, it was creating the various economic doctrines, like mercantilism, liberal school, neoclassical school, Keynesianism, institutionalism. These doctrines formed opinion about the level of the public regulation. These theories in different ways deal also with the issue of foreign trade regulation methods.

There are various forms of state protection of national interests in the struggle on world markets, which determine the trade policy of individual countries. Protectionism is a policy of protecting the domestic market from foreign competition through a system of certain restrictions: import and export duties, subsidies and other measures. This policy is expected to contribute to the development of national production (Oleynov, 2020). In economic theory, protectionist doctrine is the opposite of free trade doctrine - free trade, and a controversy between these two doctrines has continued since the time of Adam Smith.

1.1. State regulation of foreign trade in different economic schools

In their modern form, the concepts of free trade and protectionism began to take shape in the 16th century. At the end of the 16th - beginning of the 17th centuries a very important, however, rarely mentioned in the literature, *developmentalist economic doctrine was* born. According to this tradition (it cannot be called a school), the government should be the main agent of economic development. That is, the role of the administrative apparatus expanded. "In difficult economic conditions in difficult economic conditions, if the government does not intervene by imposing duties, subsidies [...], free markets will constantly pull countries back to low-productivity activities based on natural resources and cheap labor."(Maltsev, Yuzva, 2016).

At the same time in the XVI century the term "freedom of trade" appeared. The first modern debate over free trade was the controversy over the English East India Company (1600) against the backdrop of the growing import of calico fabrics into England and the threat of the collapse of the cotton industry in the country. The situation was ambiguous, because the ship alone brought the British treasury 10 thousand pounds of tax deductions a year, and on the other hand, it still threatened the main branch of the economy (Carson, 2007). As a result, severe protectionist measures designed to protect the domestic market were the result.

The developmentalist tradition was further developed in *mercantilist literature* (from Latin mercanti - to trade), which was most actively developed in the 17th- 18th centuries. The author of this term is the French economist Vatteville (1576-1621), who in his work "A Treatise on Political Economy for the King and Queen" (Maltsev, Yuzva, 2016) substantiated the reasons for its appearance and formulated the main mercantilist principles (Schumpeter, 2007)

The opinion about the main goal of the mercantilists that it was to ensure a positive trade balance. It is not true. Most of the representatives of mercantilism considered the main task of the state not to exceed exports over imports, but to stimulate the development, in modern parlance, of manufacturing industries. The positive foreign trade balance in this case acted as an indicator of economic growth, and not an end in itself. Mercantilist economic thought increasingly concentrated on the implementation of the ideas of protectionism (Maltsev, 2014)

To replace the mercantilism of the world at the end of the 18th century came the classical school of political economy. Its formation is usually associated with the names of Adam Smith, David Ricardo, Jean-Baptiste Say. Smith created the term "the invisible hand". It is spontaneous objective action of the economic laws. These laws act against the will of the people, and often against. Smith argued that the public regulation should be minimal. The market self-regulation is realized with the help of free prices, which are formed depending on supply and demand under the influence of the competition. The classic school proved that the economy should be regulate the market and its laws (Smith, 1993). With the advent of this theory, many believed that trade wars between countries would end.

Beginning with Smith, protectionism began to be called mercantilism. Although today there are two different concepts - protectionism and mercantilism, but economic historians in relation to the era of the XVII-XVIII centuries put an equal sign between them. The historian Bayrokh specifies that mercantilism came to be called protectionism since the 1840s.

The Neo - liberalism (Friedman, Hayek) does not reject state intervention. They directly or indirectly considered the problem of the relationship between freedom of trade and protectionism. For example, it legislation is which is control the ownership (Schumpeter, 2007).

Friedman in the book "Capitalism and Freedom" listed the areas, which should be removed from the participation of the state. He proposed to abandon the maintenance of prices for agricultural products. He offered to abolish export-import quotas and tariffs, government control over production and rental rates, the establishment of a minimum wage and maximum limits for price increases, compulsory insurance for the old-age pensions, licensing of any types of labor activity, stop public housing, etc. (Friedman, 1994)

Until the 1920s and 1930s the idea of a self-regulating market prevailed among economists. With the advent of market failure theory by Pigou in the book "The Economics of Welfare", sentiments began to gradually change. The idea of the need for a dosed state intervention in the game of the market element has become more and more popular (Pigou,1920).

Keynes was the founder of the macroeconomic regulation mechanism. He created a revolutionary theory of a state regulation of the national economy. He developed a theory of effective demand. It was the basis of the state regulation concept. Keynes believed that the function of consumption is sustainable, so you need to focus on investment. The total expenses of the society consisted of four components: a personal consumption; an investment consumption; a government spending; a net export. Keynes considered that the most important task of the state is to ensure a high volume of effective public demand for consumer goods, entrepreneurs for investment goods, and governments for economic and social purposes. Thus, Keynes justified the decisive role of the state in preventing economic crises. The role of the market state regulation was to stimulate demand with the help of monetary and budgetary instruments. The special emphasis was issuing a large government loan to cover the budget deficit (Keynes, 1978).

North, Coase and Williams represent a new institutional school in the 1980s. Opinions about the best trade policy varied from the views of ardent adherents of protectionism, since the market analyzed by the neoclassicists is also an institution where agents act according to certain rules. Some echoed free trade, while others supported moderate protectionism (Nord,1990).

The concept of a natural state permeates the entire institutional theory, the "order of limited access" - the most widespread form of social relations in world history - is based on restrictions on economic and political resources, primarily from the state (Maltsev and Yuzva, 2016)

Thus, the main basic schools of economics dealt with issues of state regulation. The question of the level and balance of government intervention remains open. Stiglitz proved that the extreme right and left doctrines of intervention are wrong. Stiglitz developed a theoretical concept of the economic role of the state, identified the fundamental differences between the state and other economic ones and the resulting advantages and disadvantages in the region. It is present in various forms of government intervention. Market failures need government intervention. For each country, the level of intervention will be different (Stiglitz,1989).

1.2. The overview of recent theories of state regulation of foreign trade

The question regarding the need for state regulation of foreign trade remains to be un-answered today both by the economic theory and the economic policy. At the present stage of development of international economic relations, states strive to pursue a flexible foreign economic policy. This is a combination of protectionism and liberalization of economic relations. The balance and the degree of their use is determined based on the conjuncture developing in various sectors of the world economy and on world markets. (Oleinov, 2020.)

The main basic theories of state regulation of foreign trade are presented in the table 1.

Table 1: The main theories of state regulation of foreign trade

Name of theory	Name of researchers	Idea
Young industries theory or defense theory emerging industries	Alexander Hamilton, Daniel Friedrich Hamilton, Robert Edward Baldwin, Pranab Bardhan	Protection from foreign competitors allows nascent industries to achieve economies of scale faster, making their products competitive in foreign markets. Cost of production in new industries are potentially higher than those of more mature foreign competitors. State intervention is required by means of subsidies and other measures of state regulation of foreign
Metzler's paradox	Lloyd Appleton Metzler	Barriers to imports lead to an increase in domestic prices for imported goods, which contributes to the development of domestic production, and on the other hand, are the reason for a decrease the world prices for imported goods of the country, which may offset the initial increase in domestic prices for imported goods
Optimum welfare-maximizing tariff theory	Harry Gordon Johnson	It consists in finding the optimal tariff for imported goods and services. The optimal tariff that maximizes the welfare of the country is equal to the product elasticity of mutual demand in the domestic market for imported goods and elasticity of mutual demand in the external market for export goods, reduced per unit. The lower the price elasticity of imports the higher the rate of

		the optimal tariff and vice versa
Theory of distortions	Max Corden	Inconsistency of private and public economic interests within the country (divergences) must be corrected by internal measures. Correction of internal problems by methods of foreign economic policy is ineffective and leads to distortions. The actions of governments in the field of foreign trade are always indirectly affect other spheres of national economies.
Theory of customs unions	Jacob Viner, James Meade	The elimination of tariffs within a customs union can lead to two different effects: trade creation (positive effect), trade diversion (negative effect). The first effect allows consumers to switch from the national market to the markets of the countries of the union, the second - the consumer can switch from suppliers outside the union to suppliers inside the union.
Theory of the second best	Richard George Lipsey, Kelvin John Lancaster	In addition to free trade policy, there is no other trade policy whose impact over all welfare would be unequivocally positive. If one of the conditions of the Pareto optimum cannot be fulfilled (optimal distribution of benefits between consumers, optimal distribution of resources between producers, optimal output), situation the second-best optimum is achieved only through deviation from all other conditions Pareto optimum.

Source: compiled by author

The above theories prove that foreign trade affects the development of a country's economy. But the question of positive or negative remains open. Protectionism makes it possible to balance the trade balance, support domestic industries, in particular new production, protects the domestic market from unfair competition, and stimulates production growth. On the other hand, protectionism weakens competition and motivation to improve it, stimulates the rise in prices for domestic goods, and reduces the choice of goods for consumers. The conditionality of the country in connection with strict protectionism does not allow to take advantage of the international division of labor; in the future, the country's export opportunities may be limited due to the response to the imposed restrictions on imports.

Free trading increases competition in the domestic market, expands the range of products, and stimulates the economic activity of enterprises. A serious disadvantage of free trading is considered complete insecurity from foreign competitors, unfair competition and any other external shocks associated with trade.

2.The current state of research in the field of assessing the impact of non-tariff measures on trade and the economy of the state.

Understanding of the effect that non-tariff measures (NTMs) have on international trade has become an area of the increasing interest in recent years. These measures are expansive, including policies such as administrative procedures, technical regulations, sanitary and phytosanitary measures, customs and border procedures, financial regulations, domestic subsidies, and quantity restrictions.

Forms of state regulation of foreign trade represent a large set of different instruments. There exist several recognized classifications of these forms in the world. Among the proposed are the classification of the WTO, of the European Commission in conjunction with the International Trade Center, classifications by individual experts (Baldwin,1970; Deardorff, Stern, 1998; Dumoulin, 2015; Troshkina, 2017), as well as systematization on the basis of the UNCTAD (https://unctad.org/).

That these types of measures affect trade is well documented, but the extent to which they do is less well understood. Tariffs by the comparison, are concretely defined (typically by a specific rate) and lend themselves well to quantitative economic analysis. NTMs, on the other hand, are typically not so cleanly defined in terms of ad valorem impacts on trade costs, making quantitative assessment much less straight forward.

There is much discussion in the literature about the role of NTMs as a part of a country's regulatory environment. Unlike tariffs, which are unambiguously intended to reduce the imports of a targeted good in most cases, NTMs may exist for a variety of reasons. In many cases, the measures perform a socially desirable function such as preventing the spread of disease or upholding an environmental standard. In these cases, the trade reducing aspects of the measure must be balanced against the social good that it is fulfilling. In the other cases, however, the measure may exist for the purpose of restricting trade or may restrict trade more than it is necessary for the fulfilment of the desired social function.

It should be noted that studies of the impact of non-tariff regulation measures on trade and the economy have only begun in the last 5-9 years. The researchers associate this with a number of reasons. One of the main ones is to reduce the ability to influence trade flows through tariffs. 164 countries are members of the WTO. All these countries must comply with the rules of the trade organization, which, among other things, are related to bringing customs tariffs to a certain framework. So, according to the data of the Eurasian Commission of the EAEU for a number of goods, customs duties have been reduced by more than 10-15% in 7-9 years, and some have been canceled altogether. In this regard, in recent years, more and more governments have been using non-tariff barriers to regulate export - import flows. According to WTO statistics, the United States has increased the use of non-tariff barriers by 40% over 10 years, the European Union by 30%, and Russia by 6 times.

The most widely used methods for assessing the impact of NTM are frequency-type measure, price gap (price or tariff equivalents of NTBs) price-based econometric methods, quantity-based econometric methods, simulation methods.

For example, many scientists use the AVE method. The method mainly compares the price of a product before and after the application of NTMs (Bradford, 2003, 2006; Zaki, 2010; UNCTAD, 2013; Beghin et al, 2015). Thus, AVE is reported as the percentage change in the price of an item due to the presence of NTMs. According to Sudeshna Chattopadhyay, this technique raises a number of problems related to the influence of other serious factors on the price of the product. So, applications of the price- wedge approach should try to account for all factors other than NTMs like border taxes, the cost of moving goods, other trade costs which might contribute to the price gap, net them out and derive the residual effect of the NTM on the price difference.

Studies that calculate the price gap arithmetically find it difficult to control for these factors other than NTMs, which contribute to the price gap. Hence, econometric methods are preferred to isolate the price impacts of NTMs from other factors affecting the price differential (Beghin et al., 2015; Dean et al., 2009; Kee et al, 2008, 2009).

Li and Behgin (2013) propose an aggregate NTM index methodology for quantifying the level of protectionism using the Maximum Residue Limit (MRL).

Hardly any studies provide an overall assessment of the trade effects of NTMs, but Ing, Cadot, Walz ranked countries in terms of NTM transparency, which affects the level of development of countries. The rating is headed by industrialized countries.

Edeme recearch questions about the growing impact of trade restrictions on globalization and finding a compromise between them in developed and developing countries. International trade is the result of growing globalization and in this regard, we can talk about the impact of trade barriers on it.

The number of studies in the field of non-tariff regulation of foreign trade is growing. In the period from 2012 to 2019 in total 49 papers were published in peer-reviewed journals on this topic. (Santeramo, Lamonaca 2019). Views on the impact of non-tariff measures are mixed.

A first group of researchers writes about the negative impact of NTMs on the economy. For example, Felbermayr, Kinzius, Yalcin, based on the analysis, is concluded that the global trade may slow down by 16% due to the introduction of non-tariff barriers. Studies of Peterson et al. (2013), Beckman et al. (2015), Dal Bianco et al. (2016), Cadot, Gourdon (2016) show that NTMs discourage trade. Also studies examining the impact of NTMs implemented by developed countries against developing countries often show negative effects on the trade performance of developing countries (Anders, Caswell, 2009; Disdier, Marette, 2010). According to other authors, NTMs can have both negative (Yue, Beghin, 2009) and positive (Henry de Frahan, Vancauteren, 2006) impacts on trade between developed countries, although NTMs restrict trade between developing countries (Melo et al., 2014).

On the other hand, Cardamone have found that NTMs facilitate trade. The group of researchers talk about the controversial impact of NTMs on trade (Beghin, Xiong, 2011,2016; Beghin et al., 2015; Beckman, Arita, 2016; Webb et al. 2018, 2019). So Herghelegiu investigates the replacement of tariffs and NTMs and concludes that only restrictive measures replace tariffs, including under the influence of lobbying by transnational companies. (Tudela - Marco et al 2014)

Such a difference in the results obtained can be associated with the study of different types of NTMs and their different justifications (Schlueter et al., 2009; Webb et al. 2017,2019; Herghelegiu, 2018). So Webb, Gibson, Strutt analyzes the relationship between the use of SPS, TBT and the number of exporters using a gravity model (Beghin, Disdier, Marette, 2015; Theie, 2015; Carrère, De Melo, 2011; Kee et al, 2009).In these studies technical barriers to tradeING (TBT) tend to catalyze trade (Henry de Frahan, Vancauteren, 2006; Webb et al 2017), while SPS show mixed data (Schlueter et al. , 2009; Jayasinghe et al. , 2010; Crivelli, Gröschl, 2016; Webb et al. 2017).

Second reason of differences of results of research is connected with an assessment of the impact only on certain production sectors or countries (Jordaan, 2017; Kumar and Bharti, 2020). For example, NTMs appear to inhibit trade in seafood (Marette, 2014; Shepotylo, 2016), meat (Wilson, Otsuki, 2003), wine (Dal Bianco et al, 2015). Agriculture is particularly affected by protectionist non-tariff measures (Beckman, Arita, Mitchell, and Burfisher, 2015)

Other sources of heterogeneity may be associated with a variety of methodological and empirical approaches that we find in the literature. Various proxies are used to measure NTM: inventory indicators (e.g., dummy or counting variables, often a performance index, coverage rate, prevalence estimates); transparency coefficient, calculation of price gaps.

Conclusion

Today, state regulation of foreign trade acquires special significance due to its importance for the country's economic growth. It is especially worth highlighting non-tariff barriers, which are actively used by states in exchange for tariffs. Non-tariff barriers may allow the development of the country's domestic production; however, they also carry many dangers such as higher prices in the consumer market, lower quality of goods for consumers, etc.

Our analysis of studies on assessing the impact of non-tariff measures has led us to several conclusions. Research in this area carried out to find the relationship between the level of a country's trade and non-tariff barriers came to the conclusion that they certainly exist. However, there is no definite answer on the negative or positive impact of non-tariff measures on trade.

The lack of an unambiguous answer is associated with a number of factors beyond the control of the researcher. The first is the difficulty of collecting statistics on non-tariff barriers. Today, the most reliable source for the number of NTBs introduced is the WTO website. Data collection is carried out according to official statements by a member of the organization, therefore, an incomplete database is possible. The second problem is the lack of separation of barriers according to the degree of influence on trade and their accounting in the methods. A direct ban and phytosanitary requirements for fruits, in our opinion, have a different effect on the level of trade in a country. Therefore, studies that study a separate group of non-tariff measures or a separate group of goods are becoming more effective. The third problem is the time factor, the real effect of one or another barrier can be seen only after a few. In the framework of the study of non-tariff measures, this is quite difficult.

Based on the analysis of existing studies on state regulation of foreign trade, with focus on the impact of non-tariff barriers, we came to the conclusion that this issue requires additional comprehensive analysis, both from the point of the (optimum) level of government intervention in foreign trade and from the point if economic impacts of NTMs.

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