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The Risks of Transformation of Companies' Standards to Non-Tariff Measures

The article deals with a fundamental shift to non-tariff measures in the world trade regulation, thus underlining the importance of standards developed by large companies. Several examples of companies' standards demonstrate that standardization helps to share new technologies as well as to shape the market in the future. Special attention is given to the risks of transformation of these standards to non-tariff measures, which can be categorized as exogenous and endogenous. It was concluded that multilateral cooperation and compliance with the requirements of international organizations are needed for successful implementation of companies' standards in the world trade system.

Key words: *non-tariff measures, trade barriers, ISO standards, companies' standards, standards wars, competitiveness factors, standardization risks.*

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At the current stage of economic development there is a heightened need for the world trade regulation. The modern international trade system is characterized by the strengthening trend towards the large-scale liberalization of trade flows. This process began in 1947 after signing the General Agreement on Tariffs and Trade (GATT) and culminated in the establishment of the World Trade Organization (WTO) in 1995. Nowadays the international trade law is based on the WTO principles, which promote trade liberalization, but equally guarantee protection of national markets.

Generally, government can employ two types of trade control instruments to protect domestic markets, namely tariff and non-tariff measures. Although these trade policy measures are quite diverse in nature, they are closely related and are mutually supportive and reinforcing. Therefore, it can be argued that many countries seek a compromise between tariff and non-tariff measures. However, being one of the main restrictions on international trade, tariffs continue to lose ground as a result of trade liberalization. While 20 years ago the average tariff rate comprised 30-40%, it has recently declined, being equal to 10-15% in developing countries and up to 5% in developed ones [1].

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On the contrary, the influence of non-tariff measures (NTMs) on trade flows is increasing. The current trend is explained by world trade liberalization and WTO regulations that require the decrease of tariff rates or total cancellation of tariffs. It should be noted that the impact of non-tariff trade barriers is hard to measure quantitatively because many of them are often hidden. What is more, these measures are flexible in terms of product groups, time period and localization. Accordingly, they can be applied several times regarding the same product. Besides, standards as one of NTMs are considered to be an objective trade regulation mechanism since they are directed towards product characteristics but not towards the product itself or the producing country.

Nowadays the development of non-tariff measures is no longer an exclusive competence of public authorities. Transnational corporations and other large companies aim at creating and establishing their own standards which are used as one of the main instruments of economic competition. In particular, standards include precisely defined product requirements that must be satisfied and met. However, the manufacturers which fail to comply with the requirements are withdrawn from the competition. It is necessary to mention that companies' standards can be transformed to non-tariff measures on the national, regional or even international level. Thus, the thesis of the paper argues that a fundamental shift to non-tariff measures underlines the importance of standards developed by large companies that could become a non-tariff barrier to international trade.

The economic literature devoted to different aspects of non-tariff measures investigates the impact of these measures on international trade. In their work Bora, Kuwahara and Laird (2002) identify the effects of non-tariff measures and examine the measurement question only in relation to these effects. They note that non-tariff measures have differential effects as between foreign trading partners [2, p.4]. This means that the effects of NTMs may vary considerably on different overseas suppliers. In some earlier work Deardorff and Stern (1998) assess currently available methods for quantifying NTMs. They distinguish a number of general features of NTMs, for instance, variability, uncertainty, and welfare and resource costs [3, p.9]. It is also noted that NTMs reduce the quantity of imports, increase the price of imports and change the elasticity of demand for imports. Additionally, Idrisova (2011) investigates the sensitivity of the physical volume of imports of foreign goods to NTMs. She also examines the effects of NTMs and underlines the impermanent effect of NTMs in time since they are often linked to product volumes and prices [4, p.9].

Theoretical aspect of implementation of technical regulation measures is also linked to the notion of externalities. Under externalities it is common to understand the impact that households or firms produce on the benefits or costs of third parties that is not reflected in market prices [5, p.267]. In other words, externalities eliminate market equilibrium, which cannot be restored by market forces and which requires government intervention. Technical regulation acts as one of the ways that the government can abide by in order to control the situation. It

is achieved by the establishment of product requirements and further issue of licenses that allow the products to be sold in free trade on the market. Consequently, the application of technical regulation measures allows minimizing the influence of externalities for the society by setting mandatory requirements in the field of product safety and control over business activity.

Besides, standards can solve the problem of information asymmetry. According to Akerlof (1970), this problem occurs where one party has more or better information than the other [6, p.489]. Both companies and consumers can face information asymmetry that limits trade efficiency and reduces profit of the companies producing a high quality product. One of the ways to overcome information asymmetry is the implementation of standards and further conformity assessment. Therefore, standards can be addressed through Signaling theory. According to Spence (1973), a signal would reveal some piece of relevant information to the other party in case of information asymmetry [7, p.356]. In this way, a «good» party with a desirable attribute can be identified. Similarly, consumers will choose certified products because certification to a standard implies high quality of a product.

Finally, effects and risks of standardization should be observed, taking into account Path Dependency theory. Path Dependency theory was introduced by Paul David in the article, which describes the appearance of keyboards standards. The author argues that a well-known QWERTY-keyboard was established as a result of not the most effective standard [8]. However, this standard has remained till nowadays. Firstly, large investments were made to establish this standard. Since the transition from the old to a new standard was complicated, the standard on QWERTY-keyboard remained and, subsequently, more significant investment was made in this standard. Secondly, economies of scale played a crucial role in upholding this standard. A common standard contributed to cost reduction, which was beneficial for all parties. What is more, QWERTY-effects can be observed in all industries. Thus, QWERTY-effects arise from standards that remain in force for a long time because switching costs are high [8, p.332]. As a result of this effect, the company, which standard was adopted, will control the market since the competitors will have either to withdraw from the market or to accept the standard of the leading company.

Historically, tariff measures emerged significantly earlier, and therefore non-tariff measures are often defined through tariffs. For instance, the UNCTAD defines non-tariff measures as policy measures other than ordinary customs tariffs that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both [9]. Within the WTO the definition of the term "non-tariff measures" is replaced with a classification scheme with several hundred types of NTMs. Today this descriptive approach is used by many countries instead of a generalized definition.

There is a need to distinguish two interrelated notions, namely "non-tariff measures" and "non-tariff barriers". Non-tariff measures include all policy measures other than

ordinary customs tariffs. In contrast, non-tariff barriers amount to discriminatory measures. Consequently, protectionism and restrictions on the use of non-tariff barriers in international or national law are seen as their distinctive features.

As has been noted, non-tariff measures play a central role in the international trade agenda. To illustrate this fact, the following graph provides UNCTAD statistics on the overall trade restrictiveness index for high-, middle- and low-income countries. The contribution of tariff and non- tariff measures is reported for all product groups and separately for the economic sectors of agriculture and manufacturing.

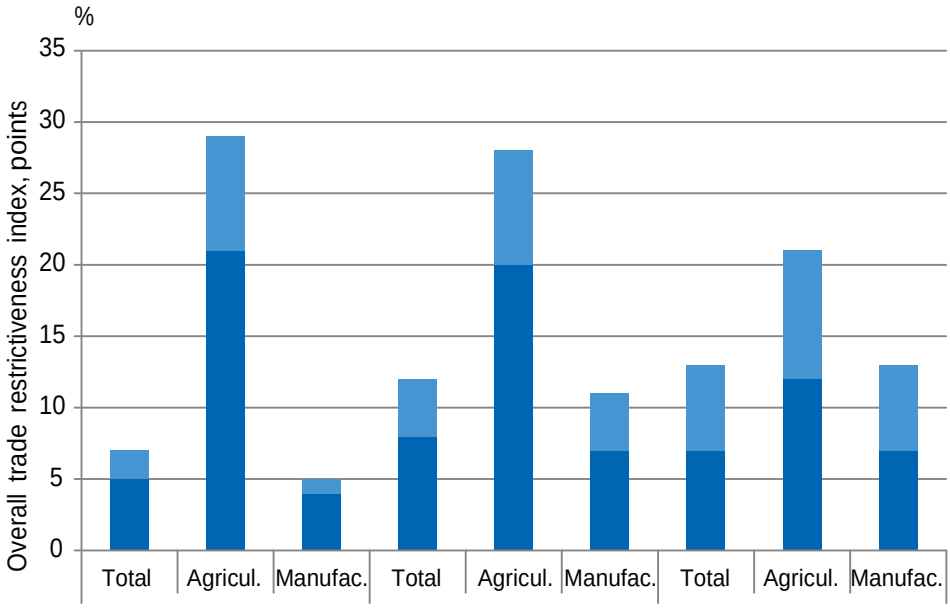

Fig. 1. Overall level of restrictiveness imposed on imports

Source: [10, p.14].

As Figure 1 indicates, non-tariff measures have more influence on import than tariffs. It is worth mentioning that this tendency is observed in all sectors of economy regardless of the income status of a country. However, in low-income countries tariffs continue to affect import since non-tariff regulation is more complex and costly than other trade policy instruments.

Recently, hidden non-tariff measures have begun to play a significant role in international trade. They are intended to protect the environment, human life and health and to ensure security. However, they often act as the instrument of protectionism and take the form of trade barriers. In fact, technical requirements become technical barriers to trade when they pose obstacles to the access of international goods to a national market.

Technical barriers to trade (TBT) have become widespread in all countries. Between 1995 and 2015, over 24,000 notifications of new or revised regulations have been submitted to the WTO [11, p.39]. Actually, the use of these measures has strengthened for the period from 2009 to 2014. To illustrate this fact, the following graph provides WTO statistics on TBT notifications from WTO members. As Figure 2 indicates, TBT notifications showed a steady increase, especially among developing countries.

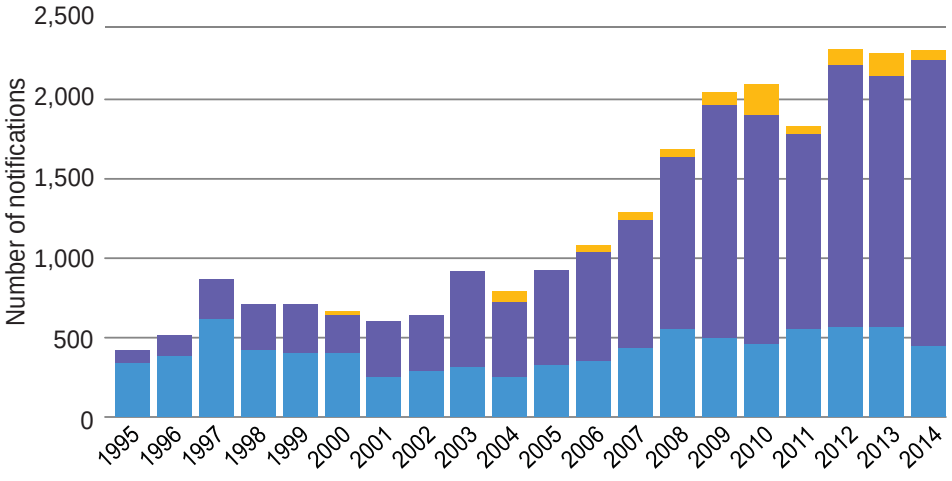

Fig. 2. TBT notifications in 1995–2014, in items:
developed countries; developing countries; least-developed countries

Source: [12, p.4].

Figure 3 shows that on a country level the members, which have notified the most significant number of measures, include the USA, followed by Brazil and the EU.

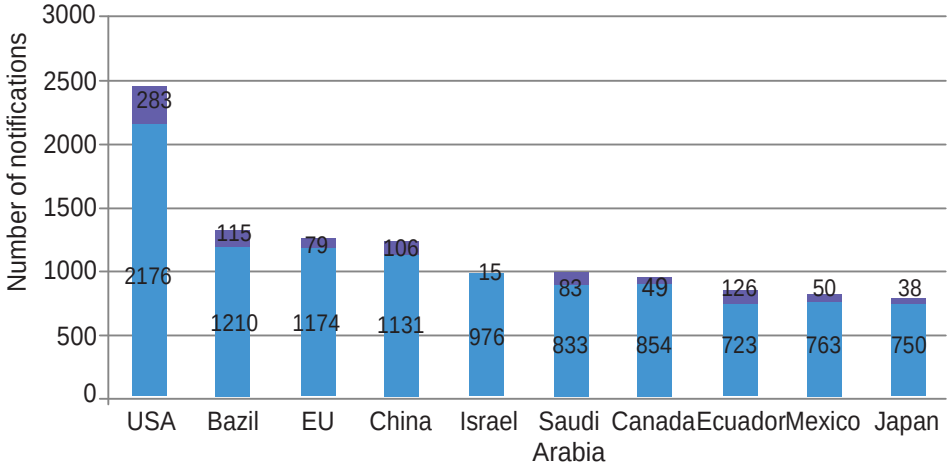

Fig. 3. Most active TBT notifying Members in 1995–2015:
1995–2014; 2015

Source: [13, p.6].

By implementing technical measures countries can pursue different objectives. Figure 4 demonstrates that the objective of protection of human health or safety was predominately cited by WTO members, followed by prevention of deceptive practices, protection of the environment, and quality requirements.

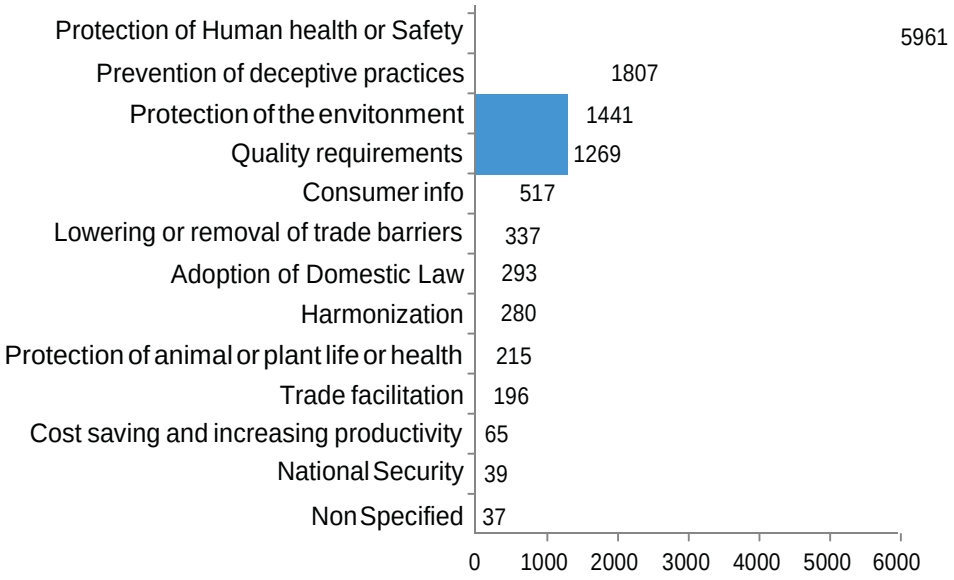

Fig. 4. TBT notifications by objective in 1995–2014

Source: [14, p.12]

It should be observed that product and process requirements are set out in technical regulations and standards. Technical regulation is defined as a document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory [15]. Indeed, technical regulations contain the minimum essential requirements for the product safety. Conversely, standard is a document approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for products, with which compliance is not mandatory [Ibid]. Thus, standards requirements are voluntary, yet they should not contradict the requirements set by technical regulations. Most notably, manufacturers can benefit from standards implementation since it helps to improve their efficiency and productivity and boost international competitiveness. International standards have been shown to cut costs, improve sales, customer satisfaction and market share, and to have a positive impact on environmental performance [16].

Nowadays international trade is based on the principles that were developed during the 1986-94 Uruguay Round of trade negotiations. It has been observed that international trade participants cannot interact effectively without protectionist instruments. The general rules applicable to these instruments are embodied

in dozens of WTO agreements. It appears that WTO aims to strike a balance between the world trade liberalization and moderate protectionism compared to that in the middle of the last century. In essence, there is no pure protectionist or liberal trade policy in the world practice. Any country uses the elements of both policies and combines them depending on the economic challenges and the global economic picture [17, p.14].

As was stated above, the progressive liberalization of international trade resulted in an increasing reliance upon non-tariff measures. The latest rounds of WTO negotiations and multilateral trade negotiations are focused to a large extent on development of a harmonized regulation regarding the use of NTMs. Although non-tariff measures are in the forefront of the WTO negotiations, a corresponding regulatory framework has not been fully developed yet. Generally NTMs are regulated by articles I and III of the GATT, according to which countries should apply most-favoured-nation treatment and national treatment [18]. However, non-tariff measures are not entirely governed by WTO agreements since their application falls within the competence of national public authorities and national law.

Technical barriers to trade, in turn, are internationally governed by the Agreement on Technical Barriers to Trade that sets the requirements to WTO member countries concerning the development, adoption and implementation of TBTs. The agreement seeks to ensure that technical regulations and standards, as well as testing and certification procedures, do not create unnecessary obstacles to trade [15]. Consequently, TBTs cannot be used for protectionist purposes as well as constrain the development of international trade. The Agreement on Technical Barriers to Trade recognizes only the TBTs that are intended to protect the environment, human life and health and to ensure security.

It should be noted that on the international level standards are set by the International Organization for Standardization (ISO). ISO is closely connected with international trade organizations since its activities have significantly contributed to reducing trade barriers. A major strength of ISO standards is that they are developed by those people who need them. A standard is created in response to a request from industries and other stakeholders. The following procedure is generally observed: industry representatives drive all aspects of the standard development process, starting from deciding whether a new standard is needed to defining all the technical content [19]. Nevertheless, transnational corporations and other large companies aim at creating and establishing their own standards because they can provide significant benefits. By setting its own standard a company can not only bring its experience and expertise, but also shape the market in the future. As a result, large companies with sufficient intellectual and financial potential lay down the foundations for strengthening their leading positions at the market since easily fulfill requirements in their own standards.

Competition in the post-industrial age usually turns out to be a war of standards. This notion describes a situation when incompatible technologies struggle to con-

quer the market. It should come as no surprise that market position of a company is closely linked to its ability to choose right strategies in such wars. However, a standard is not an invention of our century: the cases that will be scrutinized below will demonstrate that economic principles which give birth to such phenomenon remain constant and unchangeable.

The first historical example is dedicated to the standard of railroad gauges. In the early 19th century, when first railroads appeared in the United States, tracks had different gauges. For instance, in 1860 seven types of gauges were employed in the railway network of America. The most popular width of gauge was 4'8 1/2", whereas its main rival that gained huge popularity in the South was of 5' [20, p.2]. Despite all the advantages that standardization of gauge's width could bring to the country, it faced three main obstacles. First of all, modification of existing railroad infrastructure required significant expenses. In addition to this, each group did not want to take an active part, being sure that their opponents must undertake the first step. Finally, the well-being of some workers hinged on this standards' mismatch. Nonetheless, the gauge standardization was brought to life between 1860 and 1890.

The Westward expansion facilitated the search for a solution. Due to the necessity to ensure effective transportation of grains to the East, the lines to the West that were under construction were supposed to have a standard width. In addition to this, the Civil War also contributed to the success of standardization. The Union experienced huge military need to guarantee efficient East-West transportation, providing significant incentives to build new western lines of a standard gauge width. In 1862, when the Congress set the standard width for transcontinental railroads, Southern states had quitted the United States, leaving no opposition for 5' option. After the Civil War, the majority of American railroads employed 4'8 1/2" gauge [Ibid]. Next twenty years were marked by the intensive use of non-efficient connections between Southern and Western railroads. Southern railroad authorities finally gave up in 1886, when more than 11,000 miles of transcontinental railroad tracks were converted to satisfy north-based 4'8 1/2" standard [Ibid].

In fact, many of the issues that are considered in this case are still relevant today:

- Mismatch of standards can arise accidentally and last for long periods of time.
- Network markets usually favour leading player, if its opponents are not ready to coordinate and act collectively.
- Failure to participate in the process of standard setting weakens the market position significantly.
- A dominant consumer (in our case – the government) turns out to be more influential than suppliers in standard-setting procedures.
- Market players that lost in the standards competition can reduce switching costs either by hiring adapters or by abandoning assets that they possess and joining the generally accepted standard.

The next evidence describes quite recent events, namely the adoption of standards for colour television in the United States. RCA company invested significant efforts

and huge amounts of money in the development of black and white TV systems and planned to gain control over the production of personal TV sets. After the Second World War RCA became the dominant player on the black and white TV market of the United States. This company controlled over 80 % of the market [20, p.3]. In 1946 the representatives of CBS company invited a delegation from Federal Communications Commission (FCC) to the official demonstration of the colour television system designed by Goldmark. In addition to this, they expressed their hope to see this system adopted as a national standard. However, RCA representatives were doing their best to create obstacles for this initiative. Thus, RCA stated that the system of Goldmark was based on lower-level mechanic technology that had been no longer employed by RCA and other TV set producers [Ibid].

While the sales of black and white TV sets of the RCA company were growing significantly during post-war years, another argument against the adoption of CBS-developed colour system was brought to light. It turned out to be incompatible with existing TV sets. Everyone who bought black and white TV set could see nothing during coloured telecasts. CBS tried to overcome this argument by developing special converter that could be connected to black and white TV set in order to let it receive colour signals. CBS even issued special advertising materials, advising consumers to wait and buy a colour TV set [Ibid].

As a result, in 1947 FCC decided to postpone the adoption of a standard for colour TV sets. FCC stated that the adoption of an incompatible standard for colour TV sets would create unfair financial burden for the growing number of consumers that had already acquired black and white TV sets. If these buyers had wanted to watch colour TV broadcasts they would have had to pay for a convertor or for the modification of their TV sets. In addition to this, if TV networks had decided to broadcast colour-based telecasts they would have lost significant part of their audience, which would not modify their receivers. Finally, FCC admitted that RCA and its several rivals were working on a colour TV standard that would be compatible with the existing black and white standard. Eventually, this decision of FCC enabled RCA to enlarge the production of black and white TV sets limiting the market for colour TV sets produced by CBS.

Both competing companies (CBS and RCA) decided to freeze the development of the colour television during the last two years of the Korean War. In 1953, when the war came to its end, American consumers bought 23 million of black and white TV sets [20, p.3]. Thus, CBS abandoned its attempt to create a colour scheme. The president of CBS William S. Palley admitted that a significant number of black and white TV sets (incompatible with colour-based system of Goldmark) would not let CBS conquer the potential market of colour TV sets [Ibid]. Evantually, during the same year FCC cancelled its decision and set the colour-based system of RCA as a national standard.

The war of standards has a particular importance for the business success in such markets, where networks effects are strong enough to influence consumer behav-

ior. In other words, in such market conditions consumers attribute significant value to the issue of compatibility. To illustrate this phenomenon it is fruitful to study two simple examples. It should come as no surprise that there is a single universal standard for fax machines and modems, as incompatibility in this case will completely destroy the communication between users. On the contrary, there are various standards for mobile phones and digital television, as the standard compatibility exercises less influence on consumers.

The emergence of new technology does not always lead to the war of standards. For instance, Sony and Philips acted jointly in order to establish a single CD technology. While compact discs were incompatible with existing audio devices, these companies did not wage a standard war. Instead, they chose to convince consumers to switch to CD players and compact disks. It should be noticed that under standards war it is common to see companies or more often alliances of companies that struggle for dominance. In addition to this, the winner in such war is not always the most innovative participant. In some cases the champion controls the greatest number of consumers that use an older technology.

Nowadays the development of companies' standards is often a part of their technology and production strategy. The technology policy of a company consists of strategic measures aimed at improving product quality, resource efficiency, competitiveness and technological development of production. The technology policy is put into practice through conducting research and development work, producing renovated competitive goods, improving production processes and creating corporate standards that set technical characteristics of a product. Although standards are voluntary non-tariff measures, they can also impose trade barriers. These barriers are considered to be quite specific since they do not derive from state regulatory measures. They are connected with the companies' technology policy, which is aimed at securing and expanding their presence on the markets and creating market entry barriers for competitors.

Nowadays the ISO 14000 «Environmental management» family of standards is widely used, namely by more than 300,000 organizations in 171 countries [21, p.26]. The company's requirement regarding obligatory usage of this standard can serve as a non-tariff trade barrier since companies that have not implemented this standard will not be able to cooperate. Meanwhile, the Agreement on Technical Barriers to Trade states that no one is prevented from taking measures necessary for the protection of the environment [15]. For this reason, companies that include ISO 14000 as a requirement for cooperation can avoid being labeled as protectionist, and therefore escape the accusations of unfair competition.

As was stated above, the countries that have notified the most TBT measures include the USA, followed by Brazil, the EU and China. Similarly, companies in these countries develop the most significant number of standards that can be later adopted by national or international standardization bodies and become non-tariff measures. The widespread ISO/TS 16949 «Quality management systems» family of standards

was initially created as a result of cooperation of national associations of automobile manufacturers. In fact, the three largest automobile manufacturers in the USA, namely General Motors, Ford Motor Company, and Fiat Chrysler Automobiles US, which are often referred to as the "Big Three", made the greatest contribution to the development of ISO/TS 16949. In 1994 these companies were the first to require using the QS 9000 «Quality management systems» standard from their suppliers, which was later expanded all over the USA and the world [22].

The Brazilian company selected for study is Festo Brasil, a subsidiary of Festo AG, a German company and a leading worldwide supplier of automation technology and solutions. Standardization has been perceived as a key element in the company's profile. For this reason, a number of standards developed by this company were adopted on national and international levels. At national level, it has created and established ABNT CB 4, SC 04007 «Hydraulics, pneumatics, and automation»; and ABNT/CE 4718 «Hydraulic and pneumatic systems» [23, p.121]. At international level, it has contributed to the development of ISO/TC 131 «Fluid power systems» [Ibid]. Overall, the company has developed several standards to manage its business internally, and to meet the strictest requirements of its industrial suppliers and customers in domestic and foreign markets.

Standardization has always been one of the main strategic instruments of German companies because it secures Germany's position as a leading industrial nation. Being one of the world's largest producers of energy-efficient and resource-saving technologies, Siemens AG focuses on standards within the sector of information and communication technology (ICT). Siemens has a long and extensive experience of standardization since it is considered to be an important tool for ensuring a competitive, future-oriented product portfolio. For instance, the company has developed DIN EN 62271 «High-voltage switchgear and controlgear» standards series, which are essential for the switch technology sector [23, p.250].

Another German company Nanotron Technologies GmbH is a medium-sized engineering company, which also participates in the global ICT sector. Soon after the company's transition to a technology provider, the management decided to participate actively in the development of new standards. Nanotron has played an influential role in the development of the international standard ISO/IEC 24730-5:2010 «Information technology – Real-time locating systems (RTLS) – Part 5: Chirp spread spectrum (CSS) at 2,4 GHz air interface» published in 2010 [Ibid, p.266]. The company plans to engage in future standardization projects in parallel with the development of future products.

With the ever increasing trade volumes, Chinese manufacturers have also realized the importance of standards. The Dalian Shipbuilding Industry Co., Ltd. (DSIC) is one of the leading companies in China in the shipbuilding industry. The company established a standardization committee headed by the vice general manager, with members from all departments. Up to now, the company has developed 1,266 company standards, including 71 basic standards, 433 for design, 300 for process,

99 for testing, 157 for the defense industry, 122 standards for products, ship parts and auxiliary equipment, three for safety, health and environmental protection, and 81 on metering detection and information technology [24, p.176]. The active participation of DSIC in the standardization process has helped the company to push its standards to the national level. Thus, DSIC has developed more than 30 Chinese national standards and over 150 Chinese industry standards [Ibid, p.172].

Another Chinese company Xinxing Ductile Iron Pipes Co., Ltd focuses on pipes and piping systems. Xinxing attach great importance to standardization at all departmental levels. In addition to using external standards widely, Xinxing has formulated a number of internal standards for ductile iron pipe and pipe fitting products [24, p.215]. The company has also contributed to the development of Chinese national standards, including GB/T 6730.5 «Iron Ores – Determination of Total Iron Content – Titanium (III) Chloride Reduction Methods» for testing total iron content [Ibid, p.217]. In particular, the development of the own standards results in reduced moulding costs, increased machine operating uptime, less equipment downtime and fewer defective products [Ibid, p.236].

The rising importance of standards developed by large companies enhances the need to identify and address the emerging risks of transformation of these standards to non-tariff measures. Standardization risks are highly relevant since intellectual property has become a key market asset, which can be protected not only through the patent system, but also through the implementation of these patents in standards of all levels or through the creation of the own standard by the company. The risks of transformation of companies' standards to NTMs can be classified according to their origin, namely exogenous and endogenous.

Exogenous risks are associated with the external factors. With regard to companies' standards, these risks depend on the development of national and international standardization. It should be considered that the businesses in the global market can face the risk of disharmonization. In other words, it means a mismatch between a company's standard and the recognized international standard. This problem will involve the additional costs and complexity during production and selling. For this reason, some companies aim at promoting their standards to national or international level.

Moreover, a company can face the marketing risk that is connected with the attitude of consumers to a product depending on its compliance with standards. This risk is mainly observed in information asymmetry situations. As was stated, consumers tend to choose certified products because certification to a standard implies high quality of a product. In contrast, consumers have less confidence in products, when their quality is not assured by compliance to a standard in information asymmetry situations.

What is more, the transformation of companies' standards to NTMs can cause the technological risk. The appearance of new standards will lead to more expensive

and difficult production processes in the industry. Thus, the company that has developed the standard put its competitors in an awkward position. The competitors will have either to adopt the standard, which requires additional costs, or they will be withdrawn from the market. In fact, this risk can be supplemented by the information risk. This risk implies inaccurate or incomplete information about the standard received by competitors. In this case, the competitors may have to make changes to the product for its compliance with the standard after the development stage. As a result, it will delay the product launch or lead to an increase in its price, and the company that has developed the standard will get a competitive advantage.

Besides, large businesses develop their own standards because the government is unable to finance the development of all standards required by the industries. Conversely, small and medium enterprises (SMEs) are not fully involved in standardization neither financially nor through the delegation of experts. As a result, their interests are not considered when forming the technical regulation system and, more importantly, when forming the state technology and innovation policy. This risk can be eliminated through the establishment of industry associations that can accumulate the resources of SMEs to develop standardization in these organizations.

In comparison, endogenous risks are associated with the standardization activities of a company. Depending on its own potential and market situation, a company can consider various options for standardization engagement, each having its own benefits and risks. A company chooses the best option according to its own capacities and market situation.

On the one hand, a company can participate in the activities of organizations for standardization. The advantages of this approach include cost savings and the guaranteed widespread use of the developed standard. What is more, a company can lobby for including particular provisions in the standard that require the application of patents owned by the company in order to gain a long-term market advantage. However, a number of problems related to this way of participation in standardization should be pointed out. First of all, any company cannot have a fully decisive position in the activities of organizations for standardization. Moreover, participation in international standardization causes the risks of undermining intellectual property rights.

On the other hand, a company can develop standards on its own, which will support its competitive advantages. The standards of a company are based on its technological superiority and are open for use by the third-party manufacturers. The major advantage of this way of standardization engagement is a long-term market leadership based on the QWERTY-effect. QWERTY-effect means a lock-in to a particular standard because of the high switching costs [8, p.332]. As a result of this effect, the company that has issued the standard will control the market since the competitors will have either to withdraw from the market or to adopt the leader company's standard. However, this way of standard setting carries inherent risks since the standard can meet significant opposition from other market

players. In case of failure of the standard, the company will have to cancel the standard and sustain a loss of the initial investment in R&D.

Thus, the evolution and scope of the globalization processes as well as tariff liberalization have led to a completely new type of protectionism, where non-tariff measures play the main role. The scope of NTMs has expanded, while their mechanism is becoming more complex and flexible. There is a considerable number of regulations regarding NTMs within the WTO, which are constantly being updated. It should be noted that being a part of NTMs technical barriers to trade play a central role in the international trade agenda.

Nowadays the competitiveness of a company depends on the effective use of the legal instruments. Therefore, many successful companies use standardization in order to strengthen the leading position in the market. In fact, standardization helps to adopt new technologies quickly as well as to shape the market in the future. For this reason, large companies aim at creating and establishing their own standards because they can provide significant benefits. Nevertheless, there are several risks of transformation of these standards to non-tariff measures, which can be categorized as exogenous and endogenous.

In order to eliminate these risks special attention should be given to the development process of companies' standards. The standards should not only represent the best practice in the industry, but also be developed in an unbiased way. A company should decide, whether to develop the own standard, based on the market conditions, its competitive position and innovation capacity. The innovation capacity of a firm plays a crucial role during «standards wars» since it is a major factor in determining the opportunities of creating the own standard. In addition, it should be emphasized that standards are the main instrument of technology transfer. Therefore, multilateral cooperation and compliance with the requirements of international organizations are needed for successful implementation of companies' standards in the world trade system.

References

[1] World Bank Open Data. Tariff rate, applied, weighted mean, all products. URL: <http://data.worldbank.org/indicator/TM.TAX.MRCH.WM.AR.ZS>.

[2] *Bora B., Kuwahara A., Laird S.* Quantification of Non-Tariff Measures // United Nations Publications. 2002. No. 18.

[3] *Deardorff A. V., Stern R. M.* Measurement of Non-Tariff Barriers // University of Michigan Press. 1998. Vol. 179.

[4] *Idrisova V.* Application of Non-Tariff Barriers. M.: Gaydar Institute Press. 2011.

[5] *Begg D. K. H., Fischer S., Dornbusch R.* Economics. 8th ed. McGraw-Hill Education, 2005.

[6] *Akerlof G.* The Market for "Lemons": Quality Uncertainty and the Market Mechanism. // The Quarterly Journal of Economics. 1970. Vol. 84, No. 3.

[7] *Spence M.* Job Market Signaling // The Quarterly Journal of Economics. 1973.

[8] *David P. A.* Clio and the Economics of QWERTY // The American Economic Review. 1985. Vol. 75. No. 2.

[9] UNCTAD International Classification of Non-Tariff Measures. URL: <http://unctad.org/en/PublicationsLibrary/ditctab20122_en.pdf>.

[10] NTM to Trade Economic and Policy Issues for Developing Countries // UNCTAD, 2013. URL: <http://unctad.org/en/PublicationsLibrary/ditctab20121_en.pdf>.

[11] WTO Report on G-20 Trade Measures 2015. URL: <https://www.wto.org/english/news_e/news15_e/g20_wto_report_oct15_e.pdf>.

[12] WTO Technical Barriers to Trade 2015. URL: <https://www.wto.org/english/thewto_e/20y_e/tbt_brochure2015_e.pdf>.

[13] Twenty-First Annual Review of the Implementation and Operation of the WTO TBT Agreement, 2016. URL: <https://www.wto.org/english/tratop_e/tbt_e/tbt_e.htm>.

[14] Twentieth Annual Review of the Implementation and Operation of the WTO TBT Agreement, 2015. URL: <https://www.wto.org/english/tratop_e/tbt_e/tbt_e.htm>.

[15] Agreement on Technical Barriers to Trade. URL: <https://www.wto.org/english/docs_e/legal_e/17-tbt_e.htm>.

[16] Benefits of International Standards // ISO. URL: <http://www.iso.org/iso/home/standards/benefitsofstandards.htm>.

[17] *Obolenskiy V.P.* Protectionism and Free Trade in the Modern World // World Economy and International Relations. 2013. No. 12.

[18] General Agreement on Tariffs and Trade 1994. URL:<https://www.wto.org/english/res_e/booksp_e/analytic_index_e/gatt1994_01_e.htm>.

[19] Why Get Involved in Standards Development? // ISO. URL: <http://www.iso.org/iso/home/standards_development/standardsdevelopment_getting-involved.htm>.

[20] *Shapiro C., Varian H. R.* The Art of Standards Wars // California Management Review. 1999. Vol. 41. No. 2.

[21] ISO Focus #113. URL: <http://www.iso.org/iso/isofocus_113.pdf>.

[22] ISO/TS 16949:2009. URL: < http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=52844>.

[23] Economic Benefits of Standards. International Case Studies. Vol. 1 // ISO. URL: <http://www.iso.org/iso/PUB100288.pdf>.

[24] Economic Benefits of Standards. International Case Studies. Vol. 2 // ISO. URL: <http://www.iso.org/iso/PUB100311.pdf>.

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Риски трансформации стандартов компаний в нетарифные меры

Рассмотрен один из важнейших моментов в регулировании мировой торговли: переход к нетарифным мерам регулирования. В соответствии с данным трендом всю большую роль играют стандарты, разработанные крупными компаниями. На примере стандартов компаний показано, что стандартизация помогает обмениваться новыми технологиями и формирует рынок. Особое внимание уделено рискам трансформации стандартов компаний в нетарифные меры регулирования, которые можно подразделить на экзогенные и эндогенные риски. Сделан вывод о том, что многостороннее сотрудничество и соответствие требованиям международных организаций в данной области необходимы для успешного внедрения стандартов в систему мировой торговли.

Ключевые слова: *нетарифные меры регулирования, торговые барьеры, стандарты ISO, стандарты компаний, войны стандартов, факторы конкурентоспособности, риски стандартизации.*

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