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Technical Barriers to Trade and Standardization Policy

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Technical Barriers to Trade and Standardization Policy

Ekaterina Khudina*

Abstract

During the last decades technical barriers have become one of the most important obstacles for international trade. This Master Thesis, seeks for a better understanding of the welfare and trade impacts of technical regulations and standards and to answer the question under which circumstances they would act as trade barriers. The corresponding analyses are based on inputs of economic theories (the international trade theory and the welfare theory), as well as on the practical results from technical barriers to trade (TBT)-related activities of the WTO and the EU.

The results show that depending on the correlation between caused social and private marginal values, technical standards can cause both positive and negative impacts on welfare and trade. The best method of distinguishing between trade-restrictive TBTs and justifiable regulatory measures is their comparison to the measure that would have been implemented if the standard had been designed for domestic purposes only.

The practical experience of the WTO and the EU, as well as results of economic modeling shows that large developed countries are practically always beneficiaries from imposing national TBTs, as well as from participating in international or regional standardization activities. At the same time, small and developing countries are hurt the most by diverging national or regional standards and as a rule gain from recognizing all standards of other countries and abstaining from their own technical trade restrictions. Thus, anti-TBT norms of international law and multilateral standardization activities do not reduce the existing technological and welfare gap between developed and developing countries and the existing bias in trade with high-tech goods and raw materials. At the same time, international trade is disrupted less if countries use internationally agreed standards as a basis for domestic regulations and standards.

key words: international trade, barriers to trade, WTO, trade policy, standardization

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List of Abbrevations

CEN - European Committee for Standardization

DSB – Dispute Settlement Body

EC – European Community

EU – European Union

GATT – General Agreement of Tariffs and Trade

ISO – International Standardization Organization

MR – Mutual Recognition

MRA – Mutual Recognition Agreeement

NAFTA – North America Free Trade Area

OEM – Original Equipment Manufacturer (car assembly enterprise)

PECA - Protocols on European Conformity Assessment

SPS – Sanitary and Phytosanitary Measures

STC – Specific Trade Concern

TBTs – Technical Barrries to Trade

WTO – World Trade Organization

Introduction

International trade is one of the main types of interaction between nation states, regional economic blocks, as well as enterprises and transnational corporations.
It has immense economic, political and social significance. Over the last century it has been a major source of global growth and economy. Participation in international trade may increase economic welfare of a country and reduce poverty, by allowing the countries to use their comparative advantages and to focus on the industries in which they are more efficient and productive. On the other hand, presence of imported goods on the market can harm domestic industries, reduce incomes and lead to greater inequality and increased power of transnational corporations. Therefore, trade policy and its instruments remains a subject of intense debate among policy makers and the public. These debates always appear in the form of trade-off between free trade and protectionist trade policy concepts.
Protectionist policy is marked by the use of quantitative and qualitative trade restricting measures, which aim at establishing favourable conditions in the domestic market for domestic producers compared with these of the foreign ones. Tariffs, quotas, voluntary export restraints, etc. can be numbered among the most popular protectionist measures, applied by a government of any country in order to avoid the growth of export, correct the price level in the domestic market and to create preferable conditions for domestic industry.
However, in last decades, as a result of GATT and WTO processes tariffs have been significantly lowered and diminished at both the regional and international levels. This has caused non-tariff barriers to become increasingly contentious issues in international trade. Among the most significant of those barriers are the diverse standards and regulations referred to as Technical Barriers to Trade (TBTs), which governs the sale of products in national markets.
This master thesis reviews the phenomenon of TBTs as an instrument of national trade policy, which appears in the form of setting technical norms and standards on traded product or its production process. The objective of this thesis is therefore to contribute to an understanding of economic and political ambiguity of the welfare and trade impacts of technical regulations and standards and to answer the question if and under which circumstances technical standards as such and standardization policy as a whole would appear as TBT- or counter-TBT activities. In pursuing this objective, we seek analytical insights into the following questions: 1) How to identify a standard setting measure as TBT? How to distinguish between solely trade restrictive measures and justified social regulatory means 2) Why are TBTs still existing? Who and at whose costs gains from imposing differential TBTs in form of regulations and standards? And who would gain from following mutual recognition and regional and international standardization policy? 3) How it is possible to neutralize the effect of national TBTs? And how to prevent countries from creating and applying new trade restrictive measures in the form of TBTs?
These analyses are made based on inputs of economic theories (international trade theory and welfare theory) about TBTs' effects, as well as on the practical results and impacts from TBT-related activities within the framework of the WTO and the EU.
In this thesis, the starting hypothesis is that national regulations and standards, which differ from country to country, generally hinder international trade, while international standards promote for deeper and wider trade development on international scale.
The first section of this master thesis examines and compares theoretical approaches to understanding technical barriers to trade. It points out the differences in legal and economic definitions of this phenomenon and examines the results of econometric models about effects of TBTs application and countermeasures aimed at neutralizing negative impact of TBTs. In the second and third parts, the attempt is made to find out if the effects predicted by theoretical economic models coincide with practical results. In the second section, the

practical experience of counter-TBTs policy under WTO framework is analysed. In this section, the essence and the enforcemet of the authority of legal constraints put by the WTO in the field of TBT liberalization are examined, as well as the current situation with national standards setting dynamics and TBT-related controversies raised in front of the WTO structures. The third section touches upon EU policy towards TBT liberalization, focusing on standardization activities of the Union. It concentrates on the concepts of mutual recognition and harmonization in their EU version and the practical effects of these policies on both intra-EU trade and external trade of EU with third-countries. The main part is followed by the conclusion, which summarizes major points of the research paper.

Section 1. Technical barriers to trade: legal definition and economic effect

1.1. TBT: definition and classification

1.1.1. Legal definition of TBTs

According to the common practices of trade and economic policy there are three types of measure, which are usually used as technical barriers to trade: 1) technical regulations, 2) standards and 3) conformity assessment procedures. Legal definitions of these measures can be taken from major international trade and economic agreements and standpoints of various international organizations (ISO, OECD, EU, etc.).

Technical regulations

The WTO Agreement on Technical Barriers to Trade of 1995 (WTO TBT Agreement) defines a technical regulation as a:

> "Document which lays down characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labeling requirements as they apply to a product, process or production method".[1]

In the framework of the EU standardization policy technical regulations are referred to as a:

> "regulation that provides technical requirements, either directly or by referring to or incorporating the content of a standard, technical specification or code of practice. It is issued in as a document providing binding legislative rules that is adopted by an authority."[2]

So from legal point of view main features of regulation are 1) relation to product or production process, 2) mandatory character and 3) emerging from government authority (or other authority able of issuing binding rules). Thus, the main effect of technical regulation is that products concerned are not allowed be sold on the market of a country without compliance to such regulations.[3]

Standards

The WTO TBT Agreement defines a standard as a:

> "Document approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristic for products or related processes and production methods, with which compliance is not mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labeling requirements as they apply to a product or production method".[4]

The European Committee for Standardization (CEN) gives a broader definition of standards as:

> "norms, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context".[5]

So from legal perspective, the crucial difference of standard in comparison with technical regulation lies in 1) its voluntary character and 2) possible imposition not only from a governmental authority, but also independent standardization body. So products that do not conform to a standard can still be sold without penalty in the market of the country concerned. Besides, standards can arise not only "from above" by being unconditionally set by an authorized body, but also emerge "from below" originating from business and production processes as a guarantee of effectiveness. Such standards can be established as either "de

[1] Agreement on Technical Barriers to Trade 1995, Annex I, Art. 1.
[2] EN 45020:1998, 3.6, GD - Standards and regulations
[3] *Stepjenson Sherry M.*, Standards and Conformity Assessment as Nontariff Barriers to Trade, Policy Research Working Paper No 1826, The World Bank, 1997, p. 7
[4] Agreement on Technical Barriers to Trade 1995, Annex I, Art. 2
[5] European Committee for Standardization. Guidance - Standards and regulations , available at http://www.cen.eu/boss/Pages/glossary.aspx Guidance - Standards and regulations

facto" (without formal commercial sponsorship) through widespread, common usage; or through "voluntary consensus;" or through a formal coordinated process led by industry in which key participants in a given market seek consensus on a standard, which remains voluntary in nature.

Conformity assessment

The WTO TBT Agreement defines conformity assessment procedures as:

> "Any procedure used, directly or indirectly, to determine that relevant requirements in technical regulations or standards are fulfilled". The Agreement goes on to say that conformity assessment include, inter alia, procedures for sampling, testing, evaluation, verification and assurance of conformity, registration, accreditation and approval, as well as their combinations.[6]

Within the CEN framework, conformity assessment is defined according to ISO-developed definition and is referred to as "examination of the extent to which a product, process or services fulfils specified requirements".[7]

Legally, the main feature of conformity assessment measures is its relation not to the product, but to the control procedure, which defines the product's acceptance and/or use in a given market. Conformity assessment requirements can be demanded and performed by 1) manufacturers and their customers, 2) regulatory authorities and 3) independent third parties.

Despite the legal distinction between mandatory regulations and voluntary standards in economic literature the term standard is often used to refer to both mandatory requirements and voluntary specifications, because they often have the same economic effect on trade flows and market situation. The functional boundary between voluntary and mandatory standards is not always distinct. On the one hand, government standards often refer to voluntary standards developed by private bodies. A lot of standards which are developed on a consensus basis in the private sector are later made mandatory by governments. On the other hand, it can occur that pure voluntary standards in their economic effect are no less severe than mandatory ones. For example, procurement specifications set by major manufacturers are (from the point of view of their suppliers) mandatory for doing business with these manufacturers in the same way as government procurement standards are mandatory for implementing governmental contracts.[8]

1.1.2. Economic definition and classification of TBTs

Official legal definitions of various measures, which potentially can be used as TBTs, are rather descriptive in their nature. However, it lacks the connection to the economic effects of technical barriers to trade.

In defining the connection between standardization measures and technical barriers to trade there is a clear distinction between a trade-oriented approach and a welfare-oriented approach.

A trade-oriented approach implies that all restrictions other than traditional tariffs and quantitative restrictions, which distort international trade (impedes the entry of imports into a country or discriminates against imports) can be accounted as TBTs.[9] So this approach evaluates standard-related measures only from the point of view of its utility for domestic and foreign producers.

A welfare-oriented approach suggests that a trade restricting regulation that has an overall positive welfare effect should not be considered as a TBT. It implies that measures, which distort trade incidentally, but address legitimate concerns and correct market failures, can

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[6] Agreement on Technical Barriers to Trade 1995, Annex I, Art. 3

[7] EN 45020:1998, 14.1 GD - Product standards and conformity assessment, available at http://www.cen.eu/boss/Pages/glossary.aspx

[8] *Stepjenson Sherry M.*, Standards and Conformity Assessment as Nontariff Barriers to Trade, Policy Research Working Paper No 1826, The World Bank, 1997, p. 7

[9] *Beghin John C., Bureau Jean-Christophe,* Quantitative Policy Analysis of Sanitary, Phytosantary and Technical Barriers to Trade, in: Economie Internationale, No 87, 2001, p. 108

increase overall welfare (by providing certain public goods) and therefore should not be qualified as TBT. Hence the definition of TBT is linked to the legitimacy of the measure.
However, distinguishing TBTs from a justifiable regulation can be difficult.[10] It can be made using a cost-benefit criterion. However, direct measurement of consumers' welfare increase or decrease in monetary terms can be problematic. Such an approach, suggested by *Fischer* and *Serra* (2001), seems to be the most appropriate. They relyon the idea that a standard should be compared to the measure that would have been implemented if it had been designed for domestic purposes only. So a standard can be classified as non-protectionist if a national authority would use it if all firms were domestic.[11]
So taking that into consideration we can define TBTs as technical regulation, standard or conformity assessment measure, which discriminate between sources of supply (domestic vs. foreign), distort competition, embody secondary trade costs and by that diminish overall welfare.
From the point of view of welfare economists, TBTs can be further divided into two types: horizontal and vertical. This represents the differentiation of TBTs due to its final effect.
Vertical TBTs involve stringent norms, usually imposed by national authorities or governments which set quality-related standards. As a result vertical TBTs split the market according to the quality of products, which results in an increase in consumer welfare. If a consumer faces a market in which he can distinguish between low and high quality products, he has the choice of paying a higher price for higher quality products and receiving higher consumer utility for it. So, vertical TBTs result in price differentiation, but also in consumer utility increase. Typical examples include ISO and food safety standards.[12]
Horizontal TBTs are specifications, which sets certain not quality related characteristics of a product or process, which aim only at protecting the production of local producers. Horizontal TBTs are usually worked out by local companies and adopted by the governmental authorities. As a rule, local companies create the norms in a way that gives advantages to their products and production processes or at least disfavors foreign ones.[13] As a result horizontal TBTs split the market for the same product into two or more segments, which has the effect of limiting economies of scale, increasing costs, and decreasing welfare.[14]

1.2. Economic effects of technical regulations and standards

Economically standards and regulations differ fundamentally from such protectionist instruments of trade policy such as taxes, quotas and other quantitative measures on trade. From the point of view of welfare analyses taxes, quotas and other quantitative measures contribute to diminishing of overall welfare and are in practically every case discriminating towards foreign companies and decrease consumers welfare in the home country. However, they can bring certain benefits for domestic industry and help the domestic government accumulate certain financial sources for social tasks. In any case, these measures negatively affect one party of international trade transactions namely the foreign country. Moreover economic analysis (from the point of view of trade economists) demonstrates that countries always mutually benefit from the removal or the reduction of tariffs, quotas and other traditional protectionist measures.

[10] *Beghin John C., Bureau Jean-Christophe,* Quantitative Policy Analysis of Sanitary, Phytosantary and Technical Barriers to Trade, in: Economie Internationale, No 87, 2001, p. 109
[11] *Fischer Ronald, Serra Pablo,* Standards and Protection, in: Journal of International Economics, No 52, 2000, p. 389
[12] *Baldwin Richard E.,* Regulatory Protectionism, Developing Nations and Two-Tier World Trade System, 2001, p. 61
[13] *Baldwin Richard E.,* Regulatory Protectionism, Developing Nations and Two-Tier World Trade System, 2001, p. 61
[14] *Martin Bertens,* Non-Tariff Barriers to Trade in Goods, Services and Investments, BBL Seminar on 9th of January 2009, available at http://www.rieti.go.jp/en/events/bbl/09012201.html

For their part, regulatory measures such as standards and technical regulation are a much more ambiguous phenomena. They can have ambivalent effects of international trade development and welfare allocation, providing either proactive impacts for mutual trade expansion or negatively diverting trade contacts between countries.

1.2.1. Positive impacts of regulations and standards

Regulations and standards, which have not been exclusively introduced with only trade protective purposes, can have positive impacts on various aspects of an economy. The economic science distinguishes the following positive effects of standards' application.

1) Standards facilitate provision of public goods and the improvement of market-failures

Ideally regulation and standards should aim at achieving important objectives that would go under-served in the private markets, such as public-health maintenance or environmental protection. For example, emissions standards and fuel-economy requirements can contribute to cleaner air; health and sanitation requirements can raise the average health status in an economy, the indirect spillover of which is higher productivity providing for comparative advantages of an economy. So regulatory measures are able to play the role of social regulator and therefore its elimination could produce social losses, which would reduce (or cancel out) any gains in economic efficiency.[15]

Serving the purpose of economic and social regulation, standards, however, significantly differ from tariff and quotas introduced with the same purpose. The main disadvantage of tariffs and quotas as a social regulation measure is that they erect additional costs on foreign counterparts that would not arise from non-discriminatory standards of the same purpose. So standards can constitute a less severe measure of social regulatory policy.[16]

2) Standards simplify large-scale production processes

For producers, unified standards can help to enhance productive efficiency especially in the manufacturing industries. The manufacturing process itself is organized according to standards, which can be firm or industry related. The standardization of parts and processes allows for repetitive production, reduced inventories and flexibility in substituting components on the assembly line.[17]

In this way standardization helps to promote production defragmentation process in international markets and wide globalization process by supporting international division of labour. There are firms, which assemble completed products from different parts and components, which are produced in different countries. In connection with it, the existence of standards is crucial for ensuring the compatibility of components and parts from different suppliers and allows companies the use of final assembly parts produced in different locations. As a result, internationally accepted standards promote vertical trade flows within intra-industry trade.[18] ISO TS 16949 standard for quality management systems of automotive suppliers can be used as an example of this effect. This standard has been developed and is recognized by major OEMs all other the world. The evidence of conformity to this standard gives therefore any automotive supplier a right to supply OEMs with its parts (to participate in quotation competitions) without additional checks of its production processes.

3) Standards increase demand for complementary goods and raising elasticity of substitution in demand between versions of similar products

[15] *Maskus, Keith E., Otsuki Tsuneheri, Wilson John S.,* An Empirical Framework for Analyzing Technical Regulations and Trade, 2001, p. 34
[16] Ibid
[17] *Stepjenson Sherry M.*, Standards and Conformity Assessment as Nontariff Barriers to Trade, Policy Research Working Paper No 1826, The World Bank, 1997, p. 13
[18] *Pham Tai Hung*, Economic Aspect of Standardization, 2010 p. 103

Due to the compliance of widely recognized technical standards essential characteristics of many products become more standardized and their quality and performance are guaranteed. This causes the fact that products, produced in different companies and countries to become closer substitutes. As a result, under standardization a more elastic increase in demand for imported goods is generated. [19] Thus, technical standards serve as benchmarks for technological capability and guarantees compatibility with other components or with networks, which simplify the choice and efforts of the consumers and gives incentives for the increase in demand for supplementary products. As a result, implementation of certain technical standards may lead to trade creation and market widening.[20]

4) Standards may result in promoting economies of scale

Adherence to widely recognized international or inter-company standards can help the sectors, which earlier had been segmented by variable standards, to enjoy economies of scale by reducing conformity assessment costs and increasing output due to the emergence of new potential customers.

Network industries provide the best example of such effect because the use of unified standards helps to promote the growth of attached users within such an industry. Network industries are characterized by the fact that the value to any user of connection depends positively on the number of other users. It causes the danger that networks, especially private ones, may be under-provided in some markets. In this situation, national or international technical standards for interoperability with the network can overcome this difficulty and lead to the expansion in the number of users and as a result, the increase in network utility and demand on network products.[21]

Besides, existence of standards allows firms or affiliates within a large corporation to specialize in a certain segment of the production and distribution chains, which is essential for obtaining economies of scale in production and distribution.[22]

5) Standards promote technology diffusion and give incentives for technological change

Open international or even national and company standards can act as a good vehicle for technology transfer. Special technical standards contain certain technological know-how of their developer. By allowing suppliers to use it, they foster the process of technology diffusion. On the one hand, this process raises productivity and industrial competitiveness as long as firms do not have to reinvent a similar technology.[23] On the other hand, usage of recognized standards creates incentives for companies to upgrade the quality and reliability of their products and thus promotes prompt technological change in the respected industry.[24]

This process has a continuous character. The updated standards are being conveyed to all related firms in the manufacturing supply chain, thus providing for the spread of new know-how and coordinating the pace and the adoption of technologies among producers of parts and components. In that way, standards act as instrument of reinforcing technological diffusion either within or across industries and borders.[25]

The effect of standards as a mean of international technology diffusion can potentially have great importance for the technological catch-up process of developing countries with modern technologies.

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[19] *Maskus, Keith E., Otsuki Tsuneheri, Wilson John S.,* An Empirical Framework for Analyzing Technical Regulations and Trade, 2001, p. 46

[20] Ibid, p.47

[21] *Maskus, Keith E., Otsuki Tsuneheri, Wilson John S.,* An Empirical Framework for Analyzing Technical Regulations and Trade, 2001, p. 47

[22] *Pham Tai Hung,* Economic Aspect of Standardization, 2010 p. 103

[23] *Stepjenson Sherry M.,* Standards and Conformity Assessment as Nontariff Barriers to Trade, Policy Research Working Paper No 1826, The World Bank, 1997, p.. 13

[24] *Maskus, Keith E., Otsuki Tsuneheri, Wilson John S.,* An Empirical Framework for Analyzing Technical Regulations and Trade, 2001, p. 47

[25] Joining in. Participation in International Standardization, ISO Central Secretariat, 2007, p. 3

6) Standards enhance product reputation and provide for lesser market risks for companies introducing products to the market

In the presence of currently valid formal standards, product and processes, which satisfy these standards face a lesser market risk. This is because the loyality and trust of consumers increases if a product conforms with certain minimum quality or safety standards, which defines it as being safe, healthy, etc. Consequently, the demand for such a product and imports of it can substantially rise, after the compliance with the standard. This effect can lead to increased profits to foreign firms in spite of higher costs.[26]

According to all of the above-mentioned, it is clear that technical regulations and standards may bring certain economic benefits, not just to domestic industries and governments, but also to domestic consumers and foreign suppliers. Under certain circumstances standards could expand trade, promote overall welfare and economic development. Thus, in a wide variety of circumstances it is likely that the social marginal values of standards exceed their private marginal values. But often the scale of positive impacts of standards depends largely on the nature of a standard itself (discriminatory standard, minimum quality standard, safety standards, etc.) and on the level of its recognition (company, national, international). However, the question always remains if in every concrete case, setting a regulation or a standard is the most efficient and less trade-restricting mechanism available for achieving the purpose set.

1.2.2. Negative impacts of regulations and standards

Despite the positive effects that standards and regulations may have on welfare distribution and social and economic development, they also can impose significant costs that could restrain competition and cause negative economic effects for an economy and market actors. This statement holds true for both domestic and international markets.

1) Standards cause additional production costs for foreign suppliers (fixed, marginal and variable costs increase)

The most straightforward problem, deals with national standards that may create costs in which, complying with them may be higher for foreign firms than for domestic firms. National standards, as a rule, do not imply additional compliance costs for domestic firms, because these standards are in their essence based on the production system and product requirements applied by domestic firms. Foreign firms, on the contrary, have to prove that their processes and methods are of equivalent value to the norms of the domestic country.

Depending on the nature and the content of the regulations and standards, they can cause an increase in both fixed and variable costs.

As far as fixed costs are concerned, compliance with certain technical requirements involves one-time costs of redesigning a product and building an administrative system.[27] For example, the requirement on using the environmental management system according to ISO 14001 can cause the necessity of reorganization of working areas and establishment of respective monitoring processes. These efforts are one-time efforts, which costs are then spread over the whole production volume as fixed costs.

But there are also standards, which require permanent activities to be done over the whole process of production. An example, can be permanent costs of maintaining quality control, testing and certification. The number of these activities rises with the volume of production; therefore they constitute a part of variable costs of a company and lead as well to the increase of marginal costs.

[26] *Gandslandt Mattias, Markusen James R.,* National Standards and International Trade, Working paper No 547 of the Research Institute if Industrial Economics, Stockholm, 2001, p. 1

[27] *Maskus Keith E., Wilson John S.,* A Review of Past Attempts and the New Policy Context, in *Quantifying the Impact of Technical Barriers to Trade,* The University of Michigan Press, 2001, p. 19

Thus, application of technical standards and regulations can raise entry barriers (higher fixed costs) or diminish the ability to compete (higher marginal costs).[28]

2) Standards can lead to the duplication of certification costs for foreign companies

Existence of mandatory regulations also implies the necessity for firms to verify that these regulations are met. Such testing and certification requirements are often established with the purpose to restrict imports and protect domestic companies from competition rather than to legitimately protect national consumers.[29]
In this case public authorities in the domestic country require the conformity procedure to be performed by certain bodies of the domestic country and do not recognize tests done by exporting firms in their own country or by an independent certification body.
So, foreign firms have to perform additional conformity assessment measures even if they have already gone through a similar procedure in their own country. In that way, foreign firms bear a double certification load (once in their home country and for the second time in the country, where they export their products to) and double costs. Thus conformity assessment procedures constitute a significant additional cost to firms selling in multiple markets (then conformity assessment costs for the same product can triple and etc. depending on the number of "protected" markets, where this product is being placed).

3) Standards can have negative effect on market competition and be used as an instrument to support monopolies

Anti-competitive impacts of technical regulations are usually connected with standards worked out by local companies and adopted by the governmental authorities (horizontal standards). The main feature of such standards is that their content is directly aimed at favoring certain companies or a company (which mainly contributed to the development of this very standard).
First of all, this effect can be caused by the activities of the firms, which are able to control or influence the standardization process. Some large firms may possess more superior resources, which allow them to influence the standardization process and manipulate its outcome at the expense of the other smaller firms. The presence of economies of scale allows these firms to impose a market-access barrier on potential entrants because of their low costs and hence the process obtained from the distribution of mass production can be considered as entry barriers.[30]
Second, negative impact on competition can be generated by the standardization policy of governmental bodies. This happens in the case when governments pursue the "pick-the-champion" strategy in order to set standards in favour of a dominant domestic producer, at the expense of foreign competitors.[31] In that way, standards and regulations can be used in order to protect the existence of traditional national monopolies in certain markets and industries. In that case, standards act against both domestic and foreign entrants into a market.[32]

4) Technical regulations and standards can contribute to segmentation of markets

Differences in national and international standards can segment markets and erect entry barriers, thus not allowing goods to circulate across markets of different countries and anchor them to certain markets. For example, a requirement that packaging or instructions should be written only in importer's language prevents arbitragers to ship goods to higher-priced

[28] *Maskus, Keith E., Otsuki Tsuneheri, Wilson John S.,* An Empirical Framework for Analyzing Technical Regulations and Trade, 2001, p. 48
[29] *Stepjenson Sherry M.*, Standards and Conformity Assessment as Nontariff Barriers to Trade, Policy Research Working Paper No 1826, The World Bank, 1997, p. 19
[30] *Pham Tai Hung*, Economic Aspect of Standardization, 2010 p. 99
[31] Ibid, p. 101
[32] *Maskus, Keith E., Otsuki Tsuneheri, Wilson John S.,* An Empirical Framework for Analyzing Technical Regulations and Trade, 2001, p. 34

markets with different languages. In this case markets would be better integrated if a regulation allows companies to use different languages.[33] Thus, application of regulations and standards may neutralize the benefits from globalization and the international division of labour by not allowing direct competition and counteraction between the same industries from different countries.

5) Standards promote advantages of large firms over small ones, as well as of developed countries over developing countries

The existence of different national and company-related standards and regulations influence the behavior and market strategy of companies. Depending on where the firm is willing to place its products, there are two main possible market strategies. The first is to sell the product solely for the home market. For pursuing this strategy product design is usually made in a way, which makes all potential modification required for export rather costly. The second strategy is being applied by firms, intending to sell on multiple markets. It implies establishing a costly platform design that may be modified slightly to accommodate particular markets. The second strategy is more common among large enterprises (they can bear higher fixed costs on product development and adaptation due to larger volumes of production), while the first is applied mainly by smaller firms. Thus, the existence of different national standards provides an advantage to large firms in global competition.[34]

Furthermore , the existence of certain standards and regulation can lead to the disadvantage of developing countries and their manufacturing products in trade relations with developed countries. The majority of internationally recognized technical and system standards have been worked out by actors (specialists, authorities or companies) from developed countries. This is simply due to the fact that standardization efforts and policies began to evolve earlier and had already led to certain results embodied in accepted standards and established certification institutions.

Developing countries possess weaker capacities for performing effective standardization and certification activities than developed countries. First, due to the lower level of technical development, developing countries find it difficult to develop their own adequate national standards and reach mutual recognition agreements with other nations. Second, they also are not willing to accept standards and conformity evidences in foreign developed countries, because it is seen by the governments as weakening the national producers through direct competition with much more developed importers. At the same time, authorities in developed countries do not have much trust in the inspection procedures in developing countries, and developed countries are inclined collaborate with each other on standards and mutual recognition norms, but exclude developing countries from this process.[35] All this leads to the situation when the non-tariff trade barriers (such as duplication of certification costs, costs for product and process adaptation, etc,) for companies from developing countries are much higher and harder to overcome (due to overall level of technical and economic development in the country) than those for companies from developed countries. Therefore the use of mandatory standards in developed countries has long been criticized by the developing world as a considerable technical barrier to market penetration.

6) Lock-in of the technological status-quo and variety reduction

Standards can perform a variety-reduction function. Sometimes the effect of a too-detailed standardization is likely to cause the phenomenon known as cementing the state of technology. If standards define the exact composition of a product regarding quality, form, interface or

[33] Ibid, p. 48
[34] *Maskus, Keith E., Otsuki Tsuneheri, Wilson John S.,* An Empirical Framework for Analyzing Technical Regulations and Trade, 2001, p. 48
[35] *Maskus, Keith E., Otsuki Tsuneheri, Wilson John S.,* An Empirical Framework for Analyzing Technical Regulations and Trade, 2001, p. 48

other technical characteristics, the alternative product design can only be produced with considerable additional costs of time and money.[36] Thus, standards hinder possible product variations, which could provide a basis for the development of new products, and as a result, reduce the variety of products, which could exist on the market. Moreover, in the presence of variety-reducing standards, a limited number of firms who can afford the cost of obtaining economies of scale can develop their market power through expansion of their market shares. Consequently, small and innovative firms aimed at developing new products will be driven out from market.[37]

Mostly, the problem of variety reduction arises through the usage of company-specific standards. In the presence of such standards, the company would offer a system with internally compatible components and thus limit the exchange of single components to the component in that system. This is known as a lock-in effect of a technical standard. As consumers are locked to certain company-specific standards, the switching cost to another system would be substantial and are not likely to be met. So, company-specific standards negatively influence the variety of products and technologies on the market.[38]

The problems of variety reduction can be neutralized by using the standards that do not determinate the exact content, design and technical specifications of the product or processes under consideration. In this regard, the problem can be resolved by performance-based standards that only define fundamental features of the products.[39]

As it can be seen from above-mentioned, application of technical regulation and standards can lead to trade distortion and market segmentation through creating additional costs to foreign producers in several ways. Thus, it causes economic losses, which may be stronger than necessary to achieve a particular level of social protection, imposing excess costs on consumers and using industries.

However, it is important to notice that both positive and negative effects of standards can be generated simultaneously by the same standardization activity and its output. In such circumstances, there is no single answer to the question whether standards facilitates or hampers market competition.[40]

1.2.3. Impact of national standards: outcomes of economic models

On the basis on common logic, it can be assumed that national standards are pure trade-restricting barriers, while international or at least multilateral standards contribute to removal of cost differences and facilitate trade. However, in order to understand the real possible impact of national standards and regulations it could be useful to look at economic models used to study influence of standards on trade and welfare.

First, a significant explanation of a standards-related economic impact is given by the partial equilibrium model, measuring the effects of a pure cost-increasing industrial standard that is imposed on imports coming into a country. This model is presented by *K.E. Maskus* (2000).

The model describes a standard trading situation between two countries, where ED stands for the domestic country's excess-demand, ES for the foreign country's excess-supply and the standard is assumed to add an additional unit cost per unit imported (shift of ES up to ES + c).[41]

In this model, the difference in effects, which are caused by discriminatory and non-discriminatory standards and regulations, can be followed. If ED does not include an identical cost standard of the foreign country on imports from the domestic country, the regulation would discriminate against imports. As a result, the price for exporters would decrease to a

[36] *Pham Tai Hung*, Economic Aspect of Standardization, 2010 p. 95
[37] Ibid, p. 94
[38] *Pham Tai Hung*, Economic Aspect of Standardization, 2010 p. 95
[39] Ibid, p. 94
[40] Ibid, p. 101
[41] See Annex I of the Thesis

lower price, p_1^f while domestic price would rise to p_1^d. In the presence of identical cost standard for domestic imports, the ED curve would rise by the same amount, resulting in no change in amount of imports or exporter price but a domestic price that would be higher by *c*. Thus, a higher domestic price for the imported good does not necessarily indicate a discriminatory nature of a standardization measure, as far as costs for domestic producers can increase as well.[42]

This model can also illustrate the effect of consumer confidence change, which influences the position of the ED curve. The standard reduces consumers' uncertainty by pointing out the product as safe. This changes the consumers' willingness to buy it and graphically results in a shift of the ED curve to the right. This tendency is opposite to the import decline effect, caused by the increase in the importers' costs.[43] It shows that introduction of a technical standard may result not only in increase of prices, but at the same time in a higher import volume of that product. In such a situation, the original price level could not be considered a relevant indicator of impact anymore and instead it would be important to track market responses over time.[44]

The other model, explaining economic effects of national standards and regulations are worked out by *M. Ganslandt* and *J.R. Markusen* (2001). The significant difference in this approach, in comparison to the model described above, is that standards are being considered not only as cost-increasing instruments, but also their functions of market-segmentation and public goods provision are taken into consideration.

In this model, it is assumed that there are two trading countries, home and foreign (*h* and *f*), two goods, *X* and *Y*, and two factors, labor and Capital (*L* and *K*). Country *h* is assumed to be a large/rich developed country, and country *f* – a small/poorer developing country. The standards imposed by these two countries are assumed to be simply different. Any exports to a country must meet the importing country's standard to be permitted to enter. [45]

Under these assumptions *Gandslandt* and *Markusen* analyze various cases differentiating between standards according to their economic function and each time taking only one function into consideration.

a) Standards as real trade costs

Gandslandt and *Markusen* analyze cost-raising effects of standards in the following three situations: 1) a unilaterally imposed standard in the large country, 2) a unilaterally imposed standard in the small country and 3) both countries symmetrically impose national standards.[46]

In the first case, standard results in profit increase for firms in the large country and profit fall for the small-country firms. This happens because standards, imposed by the large country, raise marginal costs for the small-country exporter, which are trading with the large country, and reduce their output. Due to this, large-country firms receive an advantage and chance to increase their own output and get additional market shares. As far as the overall effect is concerned, total output from both countries is lower than before imposition of standards and the price becomes higher. Consequently consumers' welfare in both countries decreases, but large-country companies are getting higher profits than in no-standard cases. Thus, the standard serves the interest of the large-country firms at the expense of all other market actors.[47]

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[42] *Maskus, Keith E., Otsuki Tsuneheri, Wilson John S.,* An Empirical Framework for Analyzing Technical Regulations and Trade, 2001, p. 58

[43] *Maskus, Keith E., Otsuki Tsuneheri, Wilson John S.,* An Empirical Framework for Analyzing Technical Regulations and Trade, 2001, p. 60

[44] Ibid

[45] *Gandslandt Mattias, Markusen James R.,* National Standards and International Trade, Working paper No 547, Research Institute of Industrial Economics, Stockholm, 2001, p. 5

[46] Ibid, p. 7

[47] Ibid.

In case the standard is imposed by the small country, it cannot have significant influence on the large country market. Large-country firms do not suffer big changes in their profit levels as far as they get the majority of revenues from sales in the large-country market. Thus, the standard just reduces the incentives of large-country firms to export to the small-country market and results in withdrawing imports from the small country. A lower output from large-country firms intended for the small market results in a fall of factor prices for the *X* industry in country *h*. Thus, marginal revenue exceeds marginal cost for sales to the *h* firms own market, and supply will increase. As a result, the optimal supply from small-country firms in the large market is reduced and revenues from this market fall. Thus, the small-country standard has a much more negative effect on its own firms, because the loss of profits from sale on large-country markets is larger than the increase in profits from protection at home market. So it is in the political interest of all groups (producers and consumers) to eliminate cost-raising standards in the small country.[48]

In the case when both countries impose the restrictive standard of the "same value", both countries face negative consequences, but effects are more severe for small country than for large country. So the main conclusion, which can be made from the model is that the small/poor country cannot win a "standards war".[49]

b) Standards as market-segmenting instrument

Unilaterally imposed national standards often leads to an increase in fixed costs of importing firms, which are indicated as cost of market entry. In order to comply with imposed standards importers have to develop new design or make some changes in their product. This constitutes as one-time costs, after which the good can be produced and traded at the old marginal cost.[50]

In this situation, *Gandslandt* and *Markusen* see two possible equilibrium outcomes: one with positive export and one with no-exports. In the export equilibrium, each firm will face the increased fixed costs as long as it expects all other exporting firms to do the same. In the no-export equilibrium, each firm will refuse from raising costs and exporting as long as it expects no other firm to do the opposite.[51]

In the export equilibrium, firms in the small country are definitely worse off, because their profits diminish due to an increase of costs and there are no positive effects of standards imposition. As long as the fixed cost is sufficiently small to induce entry by all exporting firms in the small country it would not serve to protect the interests of the large-country firms either. Thus, overall welfare decreases, because there is no positive effect for all market actors, while the majority of them face losses.[52]

In the no-export equilibrium, large country firms gain additional profits (due to increase in market share), while consumers of both countries as well as small-country producers face welfare losses. Large-country consumers are mainly hurt by the increase of prices and variety reduction on domestic market, which happened due to the absence of imports. Small-country consumers are affected by falling factor prices when the exporting sector shrinks, which has a negative effect on consumer welfare. Small-country firms face revenues reduction because of the breakdown of exports. So, total welfare in both countries decreases compared with the no-standard situation. Large-country firms are the main winners in the deterrence equilibrium.[53]

c) Standards affecting the provision of public goods

[48] *Gandslandt Mattias, Markusen James R.,* National Standards and International Trade, Working paper No 547, Research Institute of Industrial Economics, Stockholm, 2001, p. 8
[49] Ibid, p. 8
[50] Ibid, p. 13
[51] Ibid, p. 15
[52] Ibid.
[53] *Gandslandt Mattias, Markusen James R.,* National Standards and International Trade, Working paper No 547, Research Institute of Industrial Economics, Stockholm, 2001, p. 16

As discussed earlier, one of positive effects of standards may be the guarantee of provision of public goods to a country's population. Certain kinds of public goods can be provided to the population by private firms, as long as they find it profitable to provide a public good together with a private good. This only can be the case if there is no spill-over of the private good from the small/poor country to the large/rich country.[54]
Gandslandt and *Markusen* show that a removal of the standard eliminates the differences of prices between large and small countries and by that reduces the provision of the public good in both large and small countries. First, in the large country many consumers are used to buy public goods in the small country because of a lower price, but at the same time prefer private goods of a large country. As a result, profitability to provide the public good in the large country becomes lower and a lower equilibrium of the public good is provided. Second, in the small country, a lower level of the public good reduces the size of this market. The monopolist incentive to consider this market in its pricing decision is, therefore, reduced and a higher price in the more profitable large country can be maintained.[55]
So when a market segmenting standard affects sectors involved in the provision of certain public goods, it can bring benefits to consumers of both countries, because the price of that public good is lower and the quantity provided is higher under standard application.

To sum it up, imposition of national standards practically in every case (unilaterally or bilaterally imposed standards, discriminatory or non-discriminatory) leads to the increase in the price of the affected products on domestic markets, which always makes the consumers worse off thus reducing the overall welfare.
Besides the models show that large-country firms are the main winners in almost all situations with diverging (vertical or horizontal) national standards. This result provides an explanation of the widely observed phenomena of lobbying by large-country firms to introduce and maintain standards in developed countries. Small developing countries are hurt more by diverging standards than large countries, because their firms are more likely to face significant increase in fixed costs of entering the market of developed countries and to be deterred from exporting to the developed world due to increased costs burden. So, the analyses show that small countries cannot win "standard wars" in the situation with different national standards applicable.
However, standards can have additional effects, which affect welfare positively. In particular, standards that enhance the provision of public goods benefit consumers and firms by expanding the market for private goods in both the developed and developing countries.

1.3. Reasons and effects of standardization efforts

As discussed in the previous chapter, large developed countries are practically always the winners and developing countries are the losers of the application of national standards. However, it refers as a rule to the situation when both countries impose their own standards. Due to its bureaucratic and economic disadvantages, the existence of diverging technical standards gives certain incentives to the process of establishing converging standards or mutual recognition of existing ones. This trend becomes apparent in international and regional standardization efforts.
The aim of standardization policy is the establishment of shared standards among a possibly larger number of countries or even on a global level.
Pursuing the standardization policy, certain countries in different regions of the worlds reach agreements with each other about creating the common space of shared technical standards. Establishment of such alliances exerts certain economic impact on its member as well as for third countries, which are not participated. The basic question concerning regional and

[54] Ibid.
[55] Ibid, p. 18

international standardization policy is whether or not it facilitates world trade or hampers market competition.[56]

In the majority of economic literature, dealing with standardization policy, the three-country model is used in order to examine the effects of standardization initiatives.

The standard model contains three countries – home, partner and the rest of the world country, which are assumed to be identical in economic terms. Each country produces one product and trades it to other two countries. All three markets are supposed to be segmented. All three countries establish its own national standards with equal compliance costs of F in each. Domestic product always meets domestic standards, while other countries may recognize it or not.[57] As long as the initial standards of all three countries are symmetric, the trade bias (difference between home's imports from all partner-based firms and home's imports from the rest-of-the-world country) equals zero. [58]

However, different economists focus in their studies on various factors (types of standards, industry's specifics, etc.), which may determine the final effect of standardization actions.

Thus, *R.E. Baldwin*[59] concentrates on estimating the impact of a cost raising standard in cases of "open" and "exclusionary" standardization. "Open" refers to the situation when mutual recognition of standards extends to rest-of-the-world firms as well. So that rest-of-the-world firms can sell to both home and partner markets as soon as their product is certified in one of them. "Exclusionary" stands for mutual recognition, which applies only to products made in the home and partner countries.[60]

Before standardization, fixed-costs are the same for home, partner and rest-of –the-world countries and all firms have to pay a total of 2F in order to sell in both the home and partner markets. After standardization, which occurred under the mutual recognition principle, home- and partner-firms have to pay a total of F to access both home and partner markets.[61]

Then, in the case of "open" standardization action, firms from all three countries would benefit from it, because the total fixed costs of selling to the three markets would be reduced from 3 F to 2F. It gives incentives to new firms to enter the markets, because costs-benefit correlation has improved. So, open standardization initiatives can be non-discriminatory, even when it is regional.[62]

Besides, open standardization can actually favour the rest-of-the-world firms. Due to fixed market entry cots, firms are not willing to sell to all possible markets. An open TBT liberalization reduces the fixed cost from F for each market to F for both home and partner markets and thus gives incentives for new rest-of-the-world firms to export to both home and partner markets. The trade bias shift towards home and partner firms would be reduced. But this type of standardization activity has no impact towards the partner-firms' sales to home (since it only affects entry costs and all partner firms were already selling to home).[63]

When the standardization action has an "exclusive" character, it benefits only home- and partner firms, which pay only F to access the combined home-partner market, but rest-of-the-world firms must continue to pay 2F. This improves terms of trade and profitability for home and partner firms, which lead to the increase in number of these firms on the market and decrease in number of rest-of-world firms. This creates a shift in trade bias. So, regional

[56] *Song Mingshun, Jiang Hui, Wu Hongkuan,* International Standardization, 2010 p. 608
[57] *Gandal Neil, Shy Oz,* Standardization Policy and International Trade, in: Journal of International Economics, No 53, 2000, p. 368
[58] *Baldwin Richard E.,* Regulatory Protectionism, Developing Nations and Two-Tier World Trade System, 2001, p. 63
[59] Ibid
[60] Ibid, p. 64
[61] Ibid
[62] Ibid
[63] *Baldwin Richard E.,* Regulatory Protectionism, Developing Nations and Two-Tier World Trade System, 2001, p. 65

standardization of cost raising norms is discriminatory when it applies only to products made in the home and partner countries.[64]

Another approach to estimating international standardization effects is presented by *Gandal* and *Shy* (2000), who study the influence of two major consequences of standards' application (network effects and conversion costs) to the final effect of standardization policies.

Standards have direct network effects, when the value of a product concerned is increasing in the number of consumers that use compatible products. For example, the value of access to a telephone or e-mail network depends directly on the total number of consumers with similar access. So network effects provide consumption benefits. On the other hand, standards can cause conversion costs, which are additional costs for foreign companies compared with domestic ones.[65]

Gandal and *Shy* (2000) analyze two opposite hypothetical cases. In the first case, it is assumed that the network effects are small relative to conversion costs. In the second case, it is assumed that the network effects are larger than the conversion costs.[66]

In both cases, governments can choose between options of 1) recognizing all foreign standards, 2) not recognizing any foreign standards or 3) forming a standardization union with selected partners, where member countries mutually recognize their standards and set common standardization policy towards non-member countries.[67]

In the case of conversion costs, non-recognition increases the market share and profits of a domestic firm and reduces the market share and profits of the foreign firms compared to the option of recognition of foreign standards. In the conversion costs case, the standardization policy of a government does not affect the profit of domestic firms from foreign sales; it only enhances the domestic sales of a domestic firm by raising the costs of foreign products. This effect increases domestic welfare. However, prices under non-recognition scenario are higher when in the case of recognition, so that the total consumer expenditure is higher. If the welfare-reducing effect is more significant than the welfare-increasing one, the total surplus is higher under recognition.[68]

The benefits from forming a standardization union depends a lot on the volume of conversion costs in each concrete case. In case of small conversion costs, mutual recognition policy provides for a higher total surplus in each country than the surplus under a two-country standardization union case. On the contrary, when conversion costs are rather large, the total surplus of the standardization union members is bigger than under the multilateral mutual recognition policy. This surplus is gained through the increase of profits of domestic firms in the market of the other member country, which is caused by the supply switch from the third country's products to the products produced by a standardization union´s member country. So if a union is formed, trade between member countries will increase, whereas trade between member and non-members will decrease.[69] So here the results of *Gandal* and *Shy* are identical with the results of *Baldwin* regarding the case of exclusionary standardization.

Whenever a standardization union is formed, the non-member country's total surplus is the highest when it recognizes all standards of other countries. This confirms the well known result in trade theory that small countries generally gain from not imposing any trade restrictions.[70]

The profit-increasing effect of a standardization union towards domestic companies is the gain in its scale depending on the population size of the other members of the union.

[64] Ibid, p. 64
[65] *Gandal Neil, Shy Oz,* Standardization Policy and International Trade, in: Journal of International Economics, No 53, 2000, 364
[66] Ibid, p. 365
[67] Ibid.
[68] *Gandal Neil, Shy Oz,* Standardization Policy and International Trade, in: Journal of International Economics, No 53, 2000, p. 373
[69] Ibid, p. 375
[70] Ibid, p. 376

Therefore, the largest country gains more by forming a standardization union with the second largest country than it does by forming a standardization union with smaller country. In the same way, the second largest country gains more by joining a standardization union with the largest country rather than with the smaller country. Thus the union of two largest countries leads to the biggest increase in members' surplus relative to the case of no union. This explains the fact that the majority of existing standardization unions is formed between quite large developed countries with significant market size (EU, NAFTA, agreements between EU and Switzerland etc.).[71]

In the case of relative large network effects and negligible conversion costs, recognition of foreign standards has no effect on prices, market shares or profits of the firms. So the only difference between recognition and non-recognition of foreign standards is the effect on consumer surplus. In presence of network effects, consumer welfare is increased by recognition, because recognition provides for compatibility between different products. Contrary to the conversion costs case, domestic firms do not enjoy any positive effect from non-recognition policy. Moreover, the presence of network effects means that non-recognition of the products from the non-member country results in a direct loss of consumption benefits and consequently in a decrease of total welfare compared with mutual recognition option. Therefore, there is no incentive to form an exclusionary standardization union when there are network effects.[72]

In the more realistic situations, in which there are both conversion costs and network effects, the probability of a standardization union will depend on the comparative value of these two effects.

However, standardization unions do not necessarily reduce total welfare. When standardization conversion costs are extremely large, so that non-recognition leads to exclusion of all third-country products from the market; union formation will at least create trade between the union countries. Compared with the initial absence of trade as such, that would be a step in the right direction despite the fact that it is discriminatory.[73]

So on the basis of economic analyzes of international standardization policy, several conclusions can be made. *First*, from the producers' welfare perspective, standardization initiatives practically always (except the case of large network effects) serve certain interests on participating countries (home and partner) through fostering trade between them and enhancing sales, turnover and profits of home- and partner-based firms. But at the same time standardization can also have negative influences on third countries, which are not participating in the common efforts of the home and partner countries. It causes an increase in costs for third countries' firms (disproportionate compared with partner firms) and their exclusion from the integrated home and partner market. The impact on overall welfare can be ambiguous, depending on which effect – trade creation (toward home and partner) or trade diversion (towards rest of the world) – is greater in value for welfare.

Second, from the consumer welfare perspective, standardization between limited numbers of countries, leads to diminishing consumer welfare both in all counteracting countries compared with the situation of recognition of all foreign standards. As long as the situation of recognition of all foreign standards are rather unusual in real trade relations, standardization can still increase overall consumers' welfare compared with the situation of mutual non-recognition of standards.

Third, due to scale effects, large developed countries have more incentives to apply standardization policies between each other and form closed standardization unions than to stick to recognition of all foreign standards or get involved in standardization initiatives with

[71] *Gandal Neil, Shy Oz,* Standardization Policy and International Trade, in: Journal of International Economics, No 53, 2000, p. 377

[72] Ibid, p .379

[73] Ibid, p. 380

small or developing countries. On the contrary, small and developing countries as a rule gain from recognizing all standards of other countries and not imposing their own technical trade restrictions.

Finally, there are certain types of regional standardization initiatives, which in theory can be beneficial for all three side of trade counteraction. This is open standardization based on the mutual recognition principle. Apart from trade creation between countries, participating in standardization union, gives the rest-of-the-world countries strong incentives to enhance trade with countries of the union, because the integration of home and partner markets makes the correlation between market size and market entry costs more lucrative for third countries' exporters.

Section 2. TBT liberalization in WTO framework

Standards and conformity assessment rules as technical barriers to trade are far less clear and transparent instruments of trade policy than quantitative measures as tariff and quotas are. Due to this difference it is clear that international liberalization in the field of TBT-related measures should differ in its model from liberalization of tariffs. The problem of dealing with TBTs is mainly a problem of economic regulation and compatibility of various national economic policies and their legal basis.

The international trade negotiations within GATT/WTO framework has gradually led to the establishment of certain economic regulations set, meant to be used for resolving TBT-related conflicts between trading parties and to contribute to international TBT liberalization.

2.1. The Emergence of TBTs in GATT/WTO Process

In the period after the Second World War, a general trend towards liberalization in international trade appeared. This process was deeply connected with the establishment of the General Agreement on Tariffs and Trade (GATT) in 1948 and the formation of the international trade regime, which led finally to the creation of the World Trade Organization in 1995.

Initially, the GATT agreement as such did not directly refer to technical barriers to trade, but TBTs still could indirectly fall into its scope of application. So according to article III: 4 of GATT

> "the products … imported… shall be accorded treatment no less favorable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use"[74].

Thus, all national mandatory technical regulations directly discriminating against foreign goods can fall into this criteria and be therefore subject to a violation of GATT provisions. But in articles XX and XXI, GATT allows its contracting parties to set up certain measures, including regulations, standards and etc., in order to protect public security and morality, lives of humans, plants and animals, conserve exhaustible natural resources and protect national treasures of artistic and historic value.[75] In addition, the articles implicitly require that such standards would not constitute a matter of arbitrary or unjustifiable discrimination against foreign products or create unnecessary obstacles to foreign products.[76]

Thus, GATT recognized a need for regulation and standardization in certain areas and made a first attempt to involve this process in the framework of international trade rules. Besides, already GATT for the first time introduced the basic principle of WTO law in regard to TBTs: the distinction between a protectionist measure – condemned for imposing discriminatory or unjustifiable costs, and a non-protectionist measure, aimed at increasing of public good while incidentally restricting trade.

However, in the first decades after its creation GATT dealt in its implementation practice solely with regulating international trade in products and concentrated on reducing tariffs.

From the end of 1960s - beginning of 1970s the issues of national standards as technical barriers to trade began to draw increased attention in multilateral negotiations around economic and trade-related issues. This growth of importance can be explained with the following factors:

- By the end of 1960s GATT enjoyed certain success in reducing tariffs between its contracting parties, which made them more actively use other instruments of protectionist policy and TBTs among them to achieve the same effect as tariff did;

[74] General Agreement on Tariffs and Trade 1994, Art. III:4
[75] General Agreement on Tariffs and Trade 1994, Art. XX, Art. XXI
[76] *Adolf Huala, Gautama Rudy*, Standardization and International Law, 2010, p. 652

- Tariff liberalization led to increased competition on markets, which increased the importance and effectiveness of TBTs as one of the few remaining competition constraints and market-segmenting instruments;
- The growing importance of the international division of labour and globalization process, provided for the emergence of new production and trading centers in the world (Japan, China, South-East Asia, etc.) and shifting international trade balance towards them. As long as the "old" centers (Europe, USA, etc.) were the remaining main global "consumers", they began to use TBTs towards emerging economies in order to slow down the unwelcome changes.

First, technical barriers to trade appeared as separate issue of international trade negotiations at the Kennedy Round in 1971. Here, contracting parties made their first general notification about different national standards, which confirmed the broad popularity of such measures and their enormous variety. This increasing multiplicity of standards was defined at the Kennedy Round as a potential barrier to trade. Disciplines were needed to ensure that standards are not applied "so as to afford protection to the domestic production".[77] In conclusion to this round of negotiations it was agreed that a special code on national regulations and standards should be negotiated in the nearest future. At the same time, it was stated that this future code should

"in no way interfere with the responsibility of governments for safety, health and welfare of their people or for the protection of the environment in which they live, but merely seek to minimize the effect of such actions on international trade".[78]

That Code (known as Agreement on Technical Barriers to Trade or the Standards Code) was finally signed during the Tokyo Round of multilateral trade negotiations in 1979. In its scope it covered mandatory and voluntary technical specifications, regulations and standards for both industrial and agricultural goods. Its main provisions prohibited discrimination and the protection of domestic production through technical regulations and standards; also it prohibited regulatory measures, which are designed to be more restrictive than necessary in order to achieve certain public goods. Besides the Code encouraged its parties to base their national measures on international standards and to collaborate and cooperate towards harmonization of such national norms.[79]

However, the Standards Code of 1979 had many shortcomings, the main of which was its lack of membership. Adherence to the Standards Code was voluntary. Originally, it was signed by 32 parties and at the end of 1993 there were only 46 signatories to this Code, most of them developed countries. It followed the usual practice of GATT of these years to conclude plurilateral agreements, binding only on the signatories. This trend had negative influence on implementation of the Standards Code as well, because low number of signatories prevented the agreement from being widely accepted within international trade contacts and contributed to the widening confrontation between developed and developing countries. [80]

Besides enforcement of the original Standards Code was weakened by the existence of a general requirement of consensus to establish a Panel and to adopt a Panel report, which prevented signatory parties of the Code from using the dispute settlement procedure of GATT so that all conflicts remained discussed only on bilateral level.[81]

In the decades following the 1979 Tokyo Round, it was recognized that the Standards Code had failed to prevent the disruption of trade by proliferating technical measures. In fact, states

[77] General Agreement on Tariffs and Trade 1994, Art. III
[78] *Marceau Gabrielle, Trachtman Joel P.,* The Technical Barriers to Trade Agreement, the Sanitary and Phytosanitary Measures Agreement, and the General Agreement on Tariffs and Trade: a Map of the World Trade Organization Law of Domestic Regulation of Goods, in: Journal of World Trade, No 36, 2002, p. 404
[79] *Marceau Gabrielle, Trachtman Joel P.,* The Technical Barriers to Trade Agreement, the Sanitary and Phytosanitary Measures Agreement, and the General Agreement on Tariffs and Trade: a Map of the World Trade Organization Law of Domestic Regulation of Goods, in: Journal of World Trade, No 36, 2002, p. 404
[80] Ibid, p. 403
[81] Ibid, p. 404

had implemented more technical barriers than those of the 1970s when the Tokyo Round was concluded.The increased concern about TBTs placed them as an important agenda point of the Uruguay Round of Multilateral Trade Negotiations. The Uruguay round had the following goals in respect to strengthening of contra-TBTs measures of international trade regime:

1) to have them apply universally, not plurilaterally
2) to increase the number of signatories of multilateral agreements covering the TBTs' regulations
3) to distinguish between measures relating to standards and technical barriers to trade for goods and measures relating to standards on animal, plant and human health.

The third goal was caused by the necessity to add to the Standards Code permission on application of stronger disciplines on sanitary and phytosanitary (SPS) measures on one side and to prevent the misuse of allowed regulatory measure in other spheres. SPS measures deal with risks that vary by source and destination – the incident of spatial distribution of the hazard in the exporting country and the possibility for contagion on the importing country are relevant to the type of measure that is required. Thus, SPS measures may legitimately vary depending on the geographical source or destination, making them more likely to violate national treatment or MFN.[82] Therefore negotiators preferred not to incorporate provisions on SPS measures into agreement, regulating technical barriers to trade.

The Uruguay round resulted in the conclusion of the Marrakesh Agreement Establishing the WTO, which introduced the principle of the WTO as a "single undertaking", which is meant to avoid the fragmentation tendencies of GATT.[83] The "single undertaking" principle means that a party entered to WTO enters into all agreements, existing in the WTO framework, simultaneously. This relates also to the newly created at Uruguay Round Agreement on Technical Barriers to Trade and Agreement (TBT Agreement) on the Application of Sanitary and Phytosanitary Measures (SPS Agreement). Thus, they have the same basic legal status as the GATT Agreement and are co-equal sources of WTO law.

The concept of "single undertaking" has significantly widened the number of parties of TBT and SPS Agreements in comparison with the Standards Code of 1979. At present the membership of the WTO stands at 152 countries. This means that TBT Agreements now has three times as many members as before, of which nearly two-third are developing countries. This represents a considerable increase as well in the volume of trade covered by the new disciplines.[84]

Besides the new WTO TBT Agreement extends the original Standards Code of 1979 obligations in several important respects:

1) extension of the rules from solely governmental to non-governmental or private standards organizations (Article 3);
2) extension of the obligations of national treatment and non-discrimination from technical regulations and standards to all forms of conformity assessment (Articles 5 through 9);
3) Inclusion of a "Code of Good Practice for the Preparation, Adoption and Application of Standards", which outlines for the first time general principles for development and application of voluntary standards (Standards Code of 1979 dealt only with mandatory standards), worked out by non-governmental organizations (Article 4 and Annex 3).[85]

[82] *Marceau Gabrielle, Trachtman Joel P.*, The Technical Barriers to Trade Agreement, the Sanitary and Phytosanitary Measures Agreement, and the General Agreement on Tariffs and Trade: a Map of the World Trade Organization Law of Domestic Regulation of Goods, in: Journal of World Trade, No 36, 2002, p. 405
[83] Ibid, p. 403
[84] *Stepjenson Sherry M.*, Standards and Conformity Assessment as Nontariff Barriers to Trade, Policy Research Working Paper No 1826, The World Bank, 1997, p. 38
[85] *Stepjenson Sherry M.*, Standards and Conformity Assessment as Nontariff Barriers to Trade, Policy Research Working Paper No 1826, The World Bank, 1997, p. 40

2.2. WTO Legal Principles of TBT liberalization

With the TBT Agreement the WTO finally established an international binding legal order, which sets universal rules of dealing with technical regulations and standards and their impact on international trade.
In its scope, the TBT Agreement applies to technical regulations, standards and conformity assessment measures, related to all products (industrial and agricultural) by defining their characteristics, their related processes or production methods. So the TBT agreement does not apply to non-product related processes and production methods, which are processes and production methods that do not affect the characteristics of the final product put on the market.
The TBT Agreement sets out the following principles, which WTO members should follow in implementing their standardization policies and dealing with national standards of other members.

1. Principle of non-discrimination (national treatment and most-favoured nation)

Provisions of the TBT Agreement conform with the major principles of the WTO (GATT). First, it requires "treatment so less favourable than that accorded to like products of national origin and to like products originating in any other countries"[86], which coincide with the national treatment principle according to Art. III of GATT and the most-favoured nation principle (Art. I of GATT). This means that a government is not allowed to set up measures that would discriminate against any imported product. The imposed measures should apply equally to imports from all sources and do not differentiate between domestic and imported products. [87]

2. Principle of necessity and proportionality

According to the TBT Agreement, WTO members are not to implement technical regulations that create unnecessary obstacles to international trade. However, they are allowed to impose regulations whenever there is a legitimate reason.[88] At the same time WTO members should prove, that the undertaken measures are "not more trade-restrictive than necessary to fulfill a legitimate objective". [89] Legitimate objectives for technical regulations include: 1) national security requirements, 2) prevention of deceptive practices, 3) protection of human health or safety, 4) protection of animal life or health, 5) protection of the environment, etc.
WTO members also have to ensure that technical regulations are withdrawn as soon as the reason for their implementation ceases to exist.
However, TBT does not explicitly regulate risk assessments or require scientific bases for a regulation to be proven legitimate.

3. Principle of harmonization (conformity with international standards)

According to the TBT Agreement WTO members should aim at harmonizing their technical regulations on as wide a basis as possible. WTO members are generally required to base their technical regulations on international standards and therefore are also supposed to take part in the development of such standards by participating in the work of international standard setting organizations (like ISO).[90]
However, the harmonization provision of the TBT Agreement is rather unprecise and non-binding. Moreover, Article 2.4 contains a form of an "escape clause", which states that international standards are not required to be used as the basis of technical regulations when they would be

[86] Agreement on Technical Barriers to Trade 1995, Art. 2.1
[87] Role of Standards. A Guide for Small and Medium-sized Enterprises, Working Paper of United Nations Industrial Development Organization, Vienna 2006, p. 32
[88] Agreement on Technical Barriers to Trade 1995, Art. 2.2
[89] Agreement on Technical Barriers to Trade 1995, Art. 2.2
[90] Role of Standards. A Guide for Small and Medium-sized Enterprises, Working Paper of United Nations Industrial Development Organization, Vienna 2006, p. 33

"an effective or inappropriate means for the fulfillment of the legitimate objectives pursued for instance because of fundamental climatic or geographical factors or fundamental technological problems"[91].

But what is considered ineffective or inappropriate is not defined in the Agreement.

4. Principle of (mutual) recognition and equivalence

The TBT Agreement encourages its members to accept foreign technical regulations as "equivalent" to their own (even if they differ) provided that they fulfill the same objectives. Article 6.3 "encourages" Members to be "willing to enter into negotiations for the conclusion of agreements for the mutual recognition of results of each other's conformity assessment procedures".[92]

5. Principle of transparency

The TBT Agreement contains mandatory norms that all technical regulations have to be published in such a way that any interested party may become acquainted with them.[93] The transparency is achieved through the system of multi-level notifications to the WTO Secretariat. It includes obligations to notify the following:

1) all new technical regulations by central and local government bodies(Articles 2.9.1., 2.10.1 and 3.2);
2) all conformity assessment procedures by central and local government bodies (Articles 5.6, 5.7, and 7,2);
3) agreements with any other country of countries on standards, technical regulations or conformity assessment procedures (Article 10.7);
4) acceptance or withdrawal from the Code of Good Practices (Annex 3.C);
5) notification of the work programmes of the Standardization bodies who have accepted the Code of Good Practices, as well as information on the standards under preparation and those which have recently been adopted (Annex 3.J).[94]

Corresponding to the spirit of the whole WTO concept, the TBT Agreement contains provisions on differential treatment of developing country members (Article 12). However, unlike other agreements in the Uruguay Round, the TBT Agreement makes no general allowance for a longer transition period for developing countries in terms of their compliance with the disciplines on standards and technical regulations.[95]

They allow for differential treatment of developing countries in three important ways:

1) Developing members are not expected to use international standards as a basis for their standards and technical regulations which are "not appropriate to their development, financial and trade needs" (Article 12:4). The justification for this provision is to allow developing members to preserve indigenous technology and production methods in line with their level of development.[96]
2) Development countries have a right to request specified time-limited exceptions in whole part from their obligations on TBT Agreement in the case the country finds itself unable to fully comply with these obligations. The TBT Committee is authorized to provide such exceptions after consideration, according to the "special development and trade needs of the developing country member, as well as its stage of technological development".[97]

[91] Agreement on Technical Barriers to Trade 1995, Art. 2.4.
[92] *Stepjenson Sherry M.*, Standards and Conformity Assessment as Nontariff Barriers to Trade, Policy Research Working Paper No 1826, The World Bank, 1997, p. 41
[93] Role of Standards. A Guide for Small and Medium-sized Enterprises, Working Paper of United Nations Industrial Development Organization, Vienna 2006, p. 33
[94] *Stepjenson Sherry M.*, Standards and Conformity Assessment as Nontariff Barriers to Trade, Policy Research Working Paper No 1826, The World Bank, 1997, p.. 42
[95] Ibid, p. 41
[96] *Stepjenson Sherry M.*, Standards and Conformity Assessment as Nontariff Barriers to Trade, Policy Research Working Paper No 1826, The World Bank, 1997, p. 41
[97] Agreement on Technical Barriers to Trade 1995, Art. 12:8

3) TBT Agreement provides a possibility of technical assistance to be given to developing countries for the preparation and application of technical regulations, standards and conformity assessment procedures.[98]

However, the provisions of the TBT Agreement on developing countries contradict the economic explanation of impact of regulations and standards. Through different theoretic models economists proved that the best policy of a developing country towards foreign regulations and standards would be a full recognition of them or at least recognition and compliance with recognized international standards. So provisions about legitimate exceptions and delays in implementing international standards are clearly not in the interest of developing countries, neither is the adoption of their national standards, which are not internationally compatible. Both these measures make the eventual integration of products from developing countries into the global markets more difficult. Also, they reduce the economic efficiency of production processes in developing countries, which remain separated from those of the dominant and most technologically advanced countries.[99]

In connection with this the provision on technical assistance can be much more in line with the economic logic as long as this assistance will be used for fostering the compliance and application of international standards in developing countries.

From the analysis of the general principles of the TBT Agreement, the conclusion can be made that the WTO concept of dealing with TBTs and standardization is based on the view that 1) trade is disrupted less if Members use internationally agreed standards as a basis for domestic regulations and standards, and 2) producers and consumers benefit from a degree of harmonization (because of economies of scale and questions of technical compatibility respectively).[100] So the WTO recognizes only a standardization (harmonization) process on international level. The TBT Agreement does not contain any references to standards other than national and international or to the option of forming a standardization union. So basically the TBT Agreement treats regional standards similarly "negative" as national ones because they do not apply internationally and still can create entry barriers for non-regional firms. In this respect the WTO standardization concept coincides with general conclusions of economists about effects of standards and standardization efforts.

But still the instruments of standardization policy (mutual recognition and harmonization) due to their non-binding nature have a secondary status in the WTO framework. The main binding means of neutralizing the effects of TBTs are legal constraints, which should hold WTO members from using regulations, standards and conformity assessment as protectionist instruments. These measures have a preventive nature in comparison with the standardization policy instruments (mutual recognition and standardization). Legal instruments (except from legal remedy procedures) should be regarded before the imposition of regulations, while standardization measures come in play after the standards are already set and the inconveniencies of their applications are to be overcome.

So the WTO system aims at regulating the whole aggregation of existing regulations and standards in a way that should make it unable to hamper international trade counteractions. But the WTO does not aim at leading the process of establishing a harmonized system of universally recognized technical norms and standards, it only provides legal frameworks and also conceptual guidelines for its members, which should define and implement their own standardization policy.

[98] *Stepjenson Sherry M.*, Standards and Conformity Assessment as Nontariff Barriers to Trade, Policy Research Working Paper No 1826, The World Bank, 1997, p. 42

[99] Ibid, p. 41

[100] Dispute Settlement. World Trade Organization. 3.10 Technical Barriers to Trade, United Nations Conference on Trade and Development, 2003, p. 29

2.3. Practical Activities on TBT-related issues

The evidences of practical application of WTO TBT-related norms and their efficiency are mainly to be found in functioning of the TBT Committee and Dispute Settlement Procedure.

2.3.1. TBT Committee and Specific Trade Concerns

The TBT Agreement established a Committee on Technical Barriers to Trade, referred to as the 'TBT Committee'. This Committee is made up of representatives of all WTO Members and its function is to provide members with a forum for consultations about their concerns regarding the operation or objectives of the TBT Agreement. Besides, TBT Committee has an obligation to undertake an annual review of the implementation and operation of the TBT agreement and to issue an in-depth review of the operation of the Agreement every three years (triennial reviews). In the triennial reviews the TBT Committee may make amendment suggestions concerning the rights and obligations of the TBT Agreement if this is considered necessary to ensure mutual economic advantage and balance of rights and obligations. However, up to present times none of the triennial reviews has resulted in any recommendation for amendments.[101]

Besides, the TBT Committee deals with specific trade concerns (STCs). Specific trade concerns are raised by WTO members in front of the TBT Committee in case they have a concern that a draft regulation or a standard, which is being worked out by a member and has already notified it to the WTO Secretariat, could be not compatible with TBT provision and tangle more than necessary trade with this member. Specific trade concerns are discussed on the meeting of the TBT Committee and the countries concerned are supposed to give their explanations and to discuss these measures with countries affected by them.

Raising an issue as an STC in front of TBT Committee constitutes an important way of drawing attention to the problematic potential of TBT-measures and gathering support against the further emergence of similar regulations or procedures in world trade policy practice.

The number and content of the specific trade concerns give an overview of main problems, existing worldwide in the sphere of TBT, and the development of tendencies shows what impact the TBT Agreement implementation has had on them.

As to the end of May 2011, the WTO TBT Committee had considered a total of 286 specific trade concerns that referenced the TBT Agreements. There is a tendency of general increase in the number of STCs raised annually during the 15 years of application of this procedure[102].

The majority of STCs are concerns between developed and developing countries (217 cases from 286), while discrepancies between solely developed or developing countries are much rarer (53 and 14 cases respectively). Besides, it is important to note that the majority of STCs (169 cases, plus 67 brought together by a group of developed and developing countries) were brought to the TBT Committee by developed countries compared to 50 STCs raised by developing countries only. At the same time developing countries more often occurred to be respondents to the concerns raised: in 156 cases compared to 130, where developed countries are the accused party.[103]

The most part of STCs raised (172 cases) was focused on challenging technical regulations, notified by the imposing country, while only 37 dealt with conformity assessment procedures.[104]

The majority of intended technical regulations, which have been out under discussion using STCs, dealt in their content with the 1) protection of human health and safety (117 STC cases),

[101] Bossche Peter Van den, Prevost Denise, Mathee Marielle, WTO Rules on Technical Barriers to Trade, Maastricht Working Paper, University of Maastricht, June 2005, p. 24

[102] Annex II of the Thesis

[103] Annex II to the Thesis

[104] Here and afterwards data from WTO TBT Information Management System, available at http://tbtims.wto.org/

2) environmental protection (63 cases) and 3) prevention of deceptive practices and consumer protection (45 cases). So these are all measures, which imposing countries tried to justify under Art. 2.2 and Art. 5.4. of TBT agreement.
From the complainants' side the objectives for raising of the STCs are most frequently defined as 1) necessity for further information and clarification of the notified measures (185 cases), 2) suspicion of constituting an unnecessary barrier to trade and non-compliance with least-restrictive measure requirement (166 cases), 3) lack of transparency in notified measures and their application (136 cases) and 4) absence of legitimacy for the standardization measures, which are maintained by the accused state (100 cases). At the same time, concerns dealing with infringement of special treatment of developing countries are rather rear (10 STCs issued about special and differential treatment of developing states and 5 cases about technical assistance to them). The last facts fit into the general trend of dominating activity of developed countries in using the STC instrument.

2.3.2. Dispute Settlement Procedure and TBT-related Disputes

As stated in Article 14.1 of the TBT Agreement alleged violations of the TBT Agreement are handled pursuant to the provisions of Articles XXII and XXIII of GATT 1994, as elaborated and applied in the WTO Dispute Settlement Understanding. This is the normal manner in which WTO disputes are handled.[105]
According to article 14 of the TBT Agreement the dispute settlement provisions can be invoked when a Member considers that another Member has not achieved satisfactory results under its obligation under the TBT Agreement and its trade interests are significantly affected.[106]
As of the end of May 2011 the WTO Dispute Settlement Body had considered a total of 41 disputes that referenced the TBT Agreements.
There is a decreasing tendency in the number of TBT-related disputes raised during the 15 years of application of this procedure (see Table 3). Here, as well as by specific trade concerns, the majority of cases refer to the disputes between developed and developing countries. However, the bias is not that strongly marked: 20 disputes between developed and developing countries, 19 – between two developed countries (members) and 2 – between two developing countries.[107] However, developed countries lead in willingness to exercise their right for dispute settlement. They raised 27 cases, compared to 14 cases raised to developing countries. But unlike the situation with specific trade concerns the majority of disputes raised before DSB are aimed at developed countries as respondents (31 cases compared to 10 raised against a developing country).
The TBT-related disputes refer mainly to violating the TBT Agreement provisions, dealing with technical regulations (cited in 40 cases) rather than conformity assessment procedures (cited in 13 cases) or special and differential treatment of developing countries (cited in 8 cases).[108] At the same time, the defending parties are mainly accused of infringing the principle of national treatment and the least-restrictive measure requirement (cited in 38 cases) rather than its notification obligations (cited in 5 cases) or reasonable interval requirement between publication and entry into force of a regulation or standard (cited in 4 cases).[109]
Despite the fact that the TBT Agreement is often being cited in disputes raised in front of DSB, up to today there has only been one WTO dispute in which the outcome depended on the TBT Agreement. It was the EC – Sardines Case (raised in 2001), which decided on the basis of the TBT Agreement. In EC – Sardines (dealt with EC Regulation defining which

[105] Dispute Settlement. World Trade Organization. 3.10 Technical Barriers to Trade, United Nations Conference on Trade and Development, 2003, p. 41
[106] Ibid, p. 42
[107] Annex II
[108] Annex II
[109] Annex II

products can be marketed and labeled as sardines), the Panel and the Appellate Body found that the EC's regulation was inconsistent with Article 2.4 of the TBT Agreement, according to which WTO members should use the norms of imminent international standards in their regulations on the same issue.[110]

The other marking case was EC – Asbestos case (raised in 1998). Its decision examined the applicability of the TBT Agreement, in particular what constitutes a technical regulation, but it was not based on the TBT Agreement, but on GATT 1994. In EC – Asbestos, the Panel had ruled that the TBT Agreement was not applicable to an import ban, which was the measure at issue in the dispute, because import ban was not equivalent to technical regulation, which is subject to the regulation of the TBT Agreement. The Appellate Body reversed the Panel's finding on this point and found that the TBT Agreement was applicable, because regulation prohibiting import of asbestos-containing product is in its nature a technical regulation. However, the Appellate Body declined to complete the legal analysis and to apply the TBT Agreement to the import ban on asbestos and asbestos-containing products.[111]

As we see in the example of the EC – Asbestos Case, until recently panels avoided applying the TBT Agreement, preferring instead to resolve potential TBT cases based on GATT rules.[112] However, the Appellate Body decision on EC-Asbestos case gives legal implications for broader use of TBT agreement as basis for Disputes' outcomes.

After the analysis of TBT-related STCs and disputes raised within WTO framework, several conclusions can be made.

First, the WTO TBT-related procedures are more frequently used by developed countries, which show more persistence and willingness to exercise their rights under the WTO framework. This fact can be explained by the fact, that developed countries have already established national standardization systems, dominate in the processes of establishing international standards and have large financial and economic resources to maintain their interests through consultation and dispute proceedings within the WTO framework.

At the same time, developing countries, which are in the process of establishing national standardization policy, may find costs of initiating and maintaining burden of proofs of a dispute that is relatively high to their budgets. Besides, developing countries bear as well high costs of bringing its industries to the level of compliance with international standards. Lacking this infrastructure as well as traditions in standardization policy poses clear problems for developing countries in defending their practices in WTO cases.[113]

This difference in the positions of developed and developing countries explains the high number of STCs raised by developed countries against developing countries, which amounts to a follow-up reaction of developed countries to new standardization measures of developing countries, notified in front of WTO bodies. Thus, developed countries have a direct influence to the standardization processes of developing countries. So it can be assumed that the majority of contradictory issues between developed and developing countries emerge on the level of elaboration of a regulation and are being discussed on the level of STCs or then bilateral negotiations rather than to proceed to the level of dispute in front of DSB. This supposition is confirmed with the fact that when it comes to official TBT-related disputes in front of DSB, the fraction of disputes, where a developing country is a defendant, significantly decreased compared to its fraction in STC-cases.

The dispute settlement procedure, as well as the STC procedure, is an instrument mainly used by developed countries (they are main initiators of TBT-related disputes). However, this instrument is more frequently used against other developed countries, especially by leading

[110] Dispute Settlement. World Trade Organization. 3.10 Technical Barriers to Trade, United Nations Conference on Trade and Development, 2003, p. 38
[111] Ibid, p. 38
[112] Ibid, p. 38
[113] *Maskus, Keith E., Otsuki Tsuneheri, Wilson John S.,* An Empirical Framework for Analyzing Technical Regulations and Trade, 2001, p. 40

trade powers against each other. For example, within 41 disputes, where the TBT Agreements were referred to, there were 8 disputes raised either by the EU or the US against each other, while the EU on the whole was a figurant in 25 disputes and the US - in 21 disputes (more than a half of cases). This shift toward developed-developed conflicts (unlike the situation with STCs) can be explained by the fact that unlike developing countries developed states operate with already many established technical regulations and standards, which could not be challenged on the level of working out (with STC). At the same time, dispute settlement procedure and its results are far more binding, costly in the sense of processing the case and have more far-reaching effects. It means which dispute settlement procedure would be invoked only if it comes to TBT-issues related to really important market with high purchasing power and high potential profits from trading there. So only if potential profits of annulling the concerned TBT overweigh the costs and efforts of proceeding with the case in DSB. Apart from some large developing countries (Brazil, India, China, etc.) only developed countries fall under these criteria. Therefore, it is understandable that the majority of TBT-related disputes involve developed countries in both sides of the dispute.

However, it would not be right to say that these disputes do not have any effect on developing countries. On the contrary, disputes between developed members, such as the United States and the EU, bore obvious market access implications (through removal of certain TBTs) for developing country exporters although they do not concern them directly.[114]

Second, it should be mentioned that a rather limited number of developing countries were involved in TBT-related concerns and disputes. It was mainly the largest and "most advanced" developing countries like Brazil, Argentina, India, South Korea, China, Indonesia, etc. So the WTO TBT-related mechanisms do not prove to exert any important influence on changing the existing bias in international trade in general and in the sphere of standardization policy in particular. The majority of developing countries still has no influence and is not apparent in the discussions within the WTO. At the same time, the TBT Agreement provisions on technical assistance for developing countries on establishing national standardization systems are not being used in their full potential. So the WTO legal framework contains no effective mechanism for fostering the catching-up process of developing countries in the sphere of technical regulations and standards, what it leads to is the increased dominance of developed countries in international standardization processes.

Finally, TBT liberalization in the WTO can be characterized as rather passive, aimed primarily at avoiding the most obvious protectionist misuse of standards and regulations.[115] Thus, the WTO constitutes an example of a "negative" approach to regulating standardization policies of its members. It provides with rules of behavior prohibiting the improper and drastic use of regulations and standards but it does not prescribe any mandatory "positive" measures to be introduced or the procedure of doing it. However, the "negative" legal framework established by WTO in the sphere of TBT regulation does not avoid the new attempts of states to introduce new TBT measures. The number of STCs raised is not diminishing, but apart from the last year was increasing. So the established legal framework only forms the possibilities for WTO members, but it appears that not every country is capable and ready to use these advantages.

Therefore, it is rather hard to evaluate the liberalization effect of the TBT Agreement. As far as the compliance with it has been quite spotty, outside of the community of developed nations, it could hardly have had a major impact. But in any case, the TBT Agreement has contributed to raising the attention to TBT issues worldwide, which can be seen in increased

[114] *Maskus, Keith E., Otsuki Tsuneheri, Wilson John S.,* An Empirical Framework for Analyzing Technical Regulations and Trade, 2001, p. 36

[115] *Baldwin Richard E.,* Regulatory Protectionism, Developing Nations and Two-Tier World Trade System, 2001, p. 74

number of TBT-related measures and topics being discussed and introduced outside the WTO framework, in regional arrangements (EU, NAFTA, APEC, etc.) and on a sectoral basis.[116]

[116] *Baldwin Richard E.*, Regulatory Protectionism, Developing Nations and Two-Tier World Trade System, 2001, p. 75

Section 3. Standardization policy of the EU

3.1. Legal principles of EU Standardization policy

The EU as the most developed regional integration area has developed its own way of TBTs-counteraction and standardization policy.
Within the EU framework, TBTs have been considered in the context of liberalizing trade and economic contacts within the Union and establishing the famous four freedoms of the European Single market (TBTs are especially connected with the free movement of goods).
Like the WTO, the EC primarily focused its efforts on eliminating direct quantitative barriers to trade like tariffs and quotas. These were eliminated by 1968 with finalizing the full operation of the Customs Union. After that, neutralizing TBTs on the Common Market of the EC became the main aim of the trade liberalization effort of the EC and was proclaimed as an important component of the Single Market Programme of 1987.[117]
However, indirectly TBTs were recognized as barriers to trade much earlier, already in the EEC Treaty of 1957. In Article 28 (now Art. 34 of TFEU) it stated that "quantitative restrictions on imports and all measures having equivalent effect shall be prohibited between Member States"[118] From the results of theoretical economic models it is known, that certain technical regulations and standards can initiate discrimination of imported goods, thus having the effect identical to those of tariffs of quotas. So application of trade distorting technical standards falls under the Article 34.
Already the Treaty of Rome also contained the provision about the basic principles of EU standardization activities as a means of neutralizing TBTs and developing the Common (Single) Market. Thus, Article 100 (now Art. 115 of TFEU) required approximation (harmonization) of national regulations for the "proper functioning of the common market"[119], meaning that national regulations, which had a TBT effect, should be replaced by those common for the whole EU.
On this legal basis, the EU has created a set of instruments to combat the market segmenting effect of technical trade to barriers. Currently, EU policy related to TBT liberalization and standardization is based on two approaches: 1) the enforcement of the Mutual Recognition Principle (MRP) and 2) the harmonization of technical standards among EU Member States.[120]

3.1.1. Mutual recognition

The principle of mutual recognition, which constitutes a cornerstone of EU anti-TBT policy, was established in EU practice not by primary treaty EC law, but first of all through the jurisprudence of the ECJ. So this is the case when the fundamental principle of trade liberalization established itself from practical economic needs of development of the common market.
The mutual recognition principle in its EU interpretation was for the first time laid down in ECJ ruling on *Cassis de Dijon* case in 1979. The case was focused on the prohibition of importation of a French liqueur, because it did not comply with the German regulation on alcohol content in beverages of that type. The ECJ in its ruling firmly stated that different technical regulations, which vary from state to state, shall not hinder trade among Member States and any product lawfully manufactured and/or tested in any Member state can be marketed in any other Member state without additional conformity assessment procedures. Deviating national regulations are only allowed when they aim at accomplishing a

[117] Ibid, 67
[118] Treaty on the Functioning of the European Union 2009, Art. 34
[119] Treaty on the Functioning of the European Union 2009, Art. 115
[120] Brenton Paul, Sheehy John, Vancauteren Marc, Technical Barriers to Trade in the European Union: Importance for Accession Countries, CEPS Working Document No. 144, April 2000, p.4

"mandatory" requirement (national security, consumer protection, etc.) and constitute the least trade-restrictive mean for the intended purpose. The judiciary reserves the right to check upon the complaint of the concerned party if the imposed regulations comply with the criteria of necessity and proportionality and have the power to annul the restriction concerned.

Thus, the principle of mutual recognition plays a key role in operation of the Single Market. First, it allows free movement of goods without the need for harmonization of national legislation at the EU level.[121] It facilitates the process of TBT liberalization, because it can be directly applied and there is no need to wait for a common regulation to replace various national standards. So it helps to save time and resolve regulatory conflicts. Second, as far as the mutual recognition principle to not require any new standards to be established, it spares the companies costs, which they would have spent on the adaptation for new standards.

But the application of the mutual recognition principle has its limits. First, it does not apply to the regulations, which are lawfully justified through a mandatory requirement. Such regulations and standards are still able of creating discriminating and cost-creating conditions for importers from other Member States. Second, it applies only in case if there is a functional equivalence between concerned regulations of importing and home countries. If importing state's requirement is not functionally equivalent to those of the home state and do not sufficiently achieve the public interest purpose of the home state, the home state is entitled to apply its own law. Besides, there are as well functional limits as far as the scope of the possible regulated products is concerned. Mutual Recognition tends to apply effectively where products are new and specialized and it seems to be relatively effective for equipment goods and consumer durables, but it encounters difficulties where the product risk is high and consumers or users are directly exposed.[122]

However, the mutual recognition principle, as laid down in Cassis de Dijon, mainly affects intra-EU norm. It easily applies to the products originated in EU Member Countries, but products imported from third countries are mainly subject of conformity to common European standards rather than national standards of any EU Member state. These common European standards already constitute a measure under EU harmonization policy.

The main conceptual idea of mutual recognition as a contra-TBT measure lays in attempt to eliminate the very intention to create new national TBTs. As far as countries are obliged to mutually recognize the equivalence of their differentiating regulations and standards, the influence of such measures can no longer be trade-restricting, as long as they cannot practically be applied to imported products. In other words, national governments were still free to adopt different norms and testing procedures, but could not derive any significant protection of the domestic market from them.

The EU's mutual recognition principle differs from that of the WTO framework. First, it is mandatory for EU Member countries, while the WTO only encourages its members to conclude mutual recognition agreements (MRA). Second, it spreads on all products and sectors of industry, while MRAs in the WTO meaning can relate to limited types of products or only on elected industry branches. Finally, mutual recognition in the EU variant is a principle shared by limited group of participating countries and applied to the trade within the union. Such limitation makes mutual recognition to a club good for EU member states (excludable and non-rivalrous). Its value for the union is determined by its exclusive character (creating benefits for the EU by practically excluding other countries). The mutual recognition in the WTO meaning thought to be a sort of public good, which all willing countries may gain for themselves by concluding MRAs. The extreme case of such vision would then be a worldwide multilateral MRA.

[121] Mutual Recognition in the Context of the Follow-up to the Action Plan for the Single Market, COM(1999)299

[122] Brenton Paul, Sheehy John, Vancauteren Marc, Technical Barriers to Trade in the European Union: Importance for Accession Countries, CEPS Working Document No. 144, April 2000, p.4

3.1.2. Harmonization: Old Approach

Contrary to the mutual recognition principle, the harmonization approach means the substitution of differentiating national regulations by one common rule. Thus, the harmonization approach to combating TBT can be characterized as "driven from above" (initiated by legislative decision), while mutual recognition is a rather bottom-up approach inspired from business practice.

Harmonization appeared on the EU level as a practically applied policy at the end of the 1960s with the introduction of the EC "General Programme for the removal of technical obstacles to trade" (adopted by the Council in 1969). This Programme initiated the so called Old Approach to harmonization.

This approach is very centralistic and legislative in its nature. It was inspired with the idea that the EC Commo Market should function like a single national economy and be governed in the identical way. By the Old Approach the whole competence for steering the harmonization process was given to the EC institutions and mainly to the Councils of Ministers. Harmonization should be achieved by the means of extensive product-by-product or even component-by-component legislation carried out by detailed directives. These directives should be adopted by the Council unanimously and replace existing national legislation regulating the same issue.

First, the harmonization efforts under the Old Approach were focused on products and sectors explicitly mentioned in the Programme, which are mainly chemicals, pharmaceuticals, food processing, labeling and motor vehicles. In these sectors, existing different national regulations should be replaced with common EC ones. At the same time, in order to prevent the emergence of new TBTs in the designated areas, Member States were obliged for keeping standstill and notifying the Commission about the adoption new national standards and regulations.[123] So the Old Approach to harmonization practically excluded these areas from the scope of application of the mutual recognition principle, as far as it was assumed that there would be no differentiating national standards left.

However, the Old Approach soon proved to be rather inefficient. From the economic point of view it can cause rather high and unequal adjustment costs for companies. So in the sphere of vertical standards it caused higher adjustment costs for companies, using lower quality standards rather than for companies using higher quality standards. While the latter do not need to perform any improvement measures, the first should undergo significant production upgrade, which disadvantages them as far as price and terms of trade are concerned.

Therefore, such a harmonization approach caused opposition from the side of national governments as well as from certain business sectors unwilling to incur the costs involved in changing established regulations.[124]

As a result, member countries had significantly different interests concerning the content of the standard under consideration. Each country would like to have common standards as similar as possible to their own standards in order to minimize adjustment costs for their domestic firms. This caused the following shortcomings of the Old Approach of harmonization:

- Decision-making was so time consuming due to different positions of Member states and unanimity requirement (For example ten years were required to adopt a directive on gas containers made of unalloyed steel)[125]
- Standardization on the national level was still being carried on despite the agreed standstill and notification obligations were largely ignored (the Commission received an

[123] *Baldwin Richard E.*, Regulatory Protectionism, Developing Nations and Two-Tier World Trade System, 2001, p. 71

[124] *Stepjenson Sherry M.*, Standards and Conformity Assessment as Nontariff Barriers to Trade, Policy Research Working Paper No 1826, The World Bank, 1997, p. 45

[125] *Baldwin Richard E.*, Regulatory Protectionism, Developing Nations and Two-Tier World Trade System, 2001, p. 71

average of only 11 notifications annually between 1975 and 1982 while thousand of new regulations sprang up in Member States).[126]

- Member states suspended implementation of already agreed common standards
- Community organs were overloaded with tasks due the highly detailed character of harmonization activities
- EC organs were working on technical issues for which they eventually turned to be unqualified[127]
- The Old Approach appeared to be inflexible in the face of new technological developments, because long procedure of adoption of standards makes newly adopted standards already out of date due to new technological innovations.[128]

So in the 1980s it clearly turned out that the Old Approach to harmonization did not fulfill its task of reducing TBTs' influence within EC Common Market. On the contrary, new national regulations were proliferating at a much faster rate than the production of harmonized EU directives. [129] In practice, Member States had full discretion to adopt new national regulations – as long as they did not cross EU case law. So there appeared the need for reforming the existed harmonization approach both in its functional and institutional dimensions.

3.1.3. Harmonization: New Approach

The main guidelines of the new harmonization approach were stated in the Council Resolution of 7th of May 1985, as well as in the Commission White Paper on the Completion of the Internal Market.

The New Approach replaced previous, complicated, and highly detailed system of harmonization directives with a more flexible framework approach.

First, it introduces the "widening: of the subject of harmonization legislation by shifting the focus from concrete products to product's families (groups of products with similar characteristics). Thus, it essentially reduces the number of harmonization legislative acts needed to be adopted and makes the goal of finalizing European system of harmonized regulation standards manageable.

Second, according to the New Approach the EU legislative acts on harmonization should be limited to setting out "essential requirements" (primarily in the spheres of public interest like health, safety and environmental and consumer protection), which products' families should meet in order to be marketed in the EC Common Market. Essential requirements determine the content of the final result, but not the technical solution and method of achieving or complying with it, as the old approach directives did.[130] So they are binding up their goal and not up to the means which Member States and companies used for implementing this goal. Thus, Member States are obliged by the directives of this sort to introduce national legislation, complying with the basic parameters of the essential requirements, but the exact content of this national legislation is not predefined.

Here, the New Approach sets as well a clear distinction between the essential requirements embodied in the Council directive and European standards, providing technical solutions for compliance with it. The harmonized standards, worked out by European standardization bodies, are voluntary. The manufacturers do not have to obey the harmonized standards in order to comply with the directive and enjoys the discretion to choose any technical solution, which complies with the essential requirements' goal. But the conformity with the harmonized

[126] Ibid, p. 72
[127] *Hesser Wilfried, Czaya Axel*, The Standardization Policy of the European Union, 2010, p. 722
[128] Dzabirova Liubica, New Developments in the EU Internal Market – Harmonization vs. Mutual Recognition, in; Romanian Journal of European Affairs, Vol. 9, No 1, 2009, p. 65
[129] Vancauteren Mark, The Impact of Technical Barriers to Trade on Home Bias: An Application to EU Date, 2002, p. 5
[130] *Stepjenson Sherry M.*, Standards and Conformity Assessment as Nontariff Barriers to Trade, Policy Research Working Paper No 1826, The World Bank, 1997, p. 56

standards acts as a presupposition of compliance with the directive it applies. [131] In case a firm chooses not to apply the harmonized standards, market access right can be obtained by the presentation of a certificate of conformity (CE mark) with the essential requirements issued by a designated body.[132]

Third, the New Approach limits the activities of the Council in the harmonization field only to adoption of essential requirements, while the entire work's detailed technical standards and specifications are passed on to the European standardization bodies: CEN (The European Committee for Normalization), CENELEC (European Committee for Electrotechnical Standardization) and ETSI (European Telecommunications Standards Institute). Thus, the reform first, made the standardization process more rapid and effective by the "division of labour" between legislative and technical harmonization tasks and, second, improved the capacity of the EC organs (mainly the Council) by releasing them from a huge amount of specialized work on standards setting and, third, shifts away from the EC organs to standardization bodies the inevitable political friction that arises from competition among firms' competitive advantages. [133] As a result, the number of European standards published each year significantly increased towards the end of the 1990s.[134]

So the New Approach tries to combine the advantages of both the Old Approach and the mutual recognition principle. Following the Old Approach, the New Approach aims at reducing the trade-diversion effect of national regulatory measures by replacing them by common European standards. At the same time, it leaves significant degree of discretion to Member States and economic actors as far as the method of compliance are concerned. In fact, the New Approach rather complements the mutual recognition principle, because it applies mainly to the areas where the effect of the mutual recognition principle is limited due to mandatory requirements' justification.

Apart from these the New Approach provides also for a number of positive economic effects facilitating trade and industrial development inside the EU and abroad:

1) Compared to the Old Approach, the New Approach is supposed to invoke lower compliance costs from the producers. As long as European standards are declared voluntary, it leaves greater freedom to manufacturers on how to satisfy those requirements and allows to find out the least costly way.[135]
2) The transfer of standardization work to the EU standardization bodies has allowed for greater participation from industry standards elaboration. This gives the companies chances to influence the adoption of less adjustment-required standards and thus reduce their potential adjustment costs.
3) The New Approach has contributed to strengthening the links between European and international standardization systems. In all cases, where it is possible the CEN works in parallel with ISO and tries to accept international standards (IS) and transpose them into the European standards (EN). The number of such accepted international standards in CEN ranges around 32%.[136] Interweaving of European and international standards provides for facilitation of third-countries' imports to the E,U as well as for EU exports in third countries.[137]

[131] Horakova Bronislava, Current Principles and Importance of Technical Harmonization in the EU for Technical Standardization, in: GeoScience Engineering Volume LIII (2007), p. 40
[132] *Baldwin Richard E.*, Regulatory Protectionism, Developing Nations and Two-Tier World Trade System, 2001, p. 72
[133] *Baldwin Richard E.*, Regulatory Protectionism, Developing Nations and Two-Tier World Trade System, 2001, p. 89
[134] *Hesser Wilfried, Czaya Axel*, The Standardization Policy of the European Union, 2010, p. 729
[135] *Baldwin Richard E.*, Regulatory Protectionism, Developing Nations and Two-Tier World Trade System, 2001, p. 89
[136] Horakova Bronislava, Current Principles and Importance of Technical Harmonization in the EU for Technical Standardization, in: GeoScience Engineering Volume LIII (2007), p. 45
[137] Ibid, p. 42

4) The general nature of the directives contents avoids regularly revision of essential requirements with regard to technical progress. That brings a certain degree of stability in the economic and standardization systems and reduces companies' permanent "adjustment compliance costs", which can be required because of changes in mandatory regulations.

Besides, it is important to note that the New Approach has not been applied in sectors where EU's legislation was well advanced prior to 1985, including, for instance, food and veterinary sectors. In these sectors the Old Approach is still prevailing.[138]

3.2. Practical effect of EU standardization efforts

3.2.1. Standardization influence on intra-EU trade

Overall indicators

All EU initiatives in the field of technical standardization and harmonization policies together with the policies of finalizing the Single Market led to the boost of standardization activities on the Union level. While in 1975 there were 20 EU-wide (i.e. common for all states) regulations, in 2004 it was nearly 17 thousand.[139] These standardization measures apply to a huge amount of intra-EU trade in goods. According to the evaluation by Michalek (2004) in 2003 more than 50% of it was covered by harmonized regulations and over 30% is covered by some kind of mutual recognition. Only 13% of intra-EU trade is not covered by any type of anti-TBT regulation or mechanism.[140] However, the effect of these activities to the elimination of TBTs and trade liberalization should still be estimated.

It appeared to be rather hard to evaluate the impact of mutual recognition principle and old and new harmonization approaches to the changes in trade flows within the EU and in EU external trade, because these factors were not the only ones which influenced trade at that period of time, and it is practically impossible to distinguish their separate effect. However, there have been some attempts in the economic science literature to estimate or at least analyze the possible contribution of TBT-liberalizing actions to changing of trade trends.

Vancauteren (2002) analyzed the influence of EU anti-TBT policies on the home bias of intra-EU trade by comparing the data of years 1990 and 1998 in 118 manufacturing industries. He classified the industry sectors into those where TBTs are overcome by using mutual recognition (MR), and those where either the Old Approach or the New Approach is used. Besides, there are also sectors, where TBTs do not play any significant role and anti-TBT measures are therefore not applied. According to the study the Old Approach was dominating in 22 sectors. These are mainly chemistry industry, motor vehicles, other heavy industry sectors, as well as food industry). The same number of sectors was affected by the mutual recognition regulation (mainly consumer goods industry like textiles, apparel sectors, etc.). The New Approach applied to 19 sectors (machinery manufacturing, semi-finished goods, toys, etc,). In the remaining sectors the standards were rare or nonexistent.[141]

According to the evaluation of Vancauteren on average more than 70% of intra-EU imports are in sectors where differences in technical regulations are potentially important. The significance of these sectors differs from country to country ranging from 75% per cent of intra-EU imports of Germany or Portugal to 65% of intra- EU imports from Belgium.[142] Under these circumstances TBTs are potentially able to exert significant influence on

[138] Veggeland Frode, Trade Facilitation Through Equivalence and Mutual Recognition: The EU Model, Norwegian Agricultural Economics Research Institute, April 2006, p .11

[139] European Standardization. Current Issues and Expected Progress, DG Internal Policies of the Union, European Parliament, IP/A/IMCO/NT/2006-02, p. 2

[140] Hagemejer Jan, Michalek Jan, Standardization Union Effects: the Case of EU Enlargement, 2006, p. 6

[141] Vancauteren Mark, The Impact of Technical Barriers to Trade on Home Bias: An Application to EU Date, 2002, p. 12

[142] Ibid, p. 13

diverting trade flows; therefore, anti-TBT measures are also assumed to have reasonable impact on intra-EU trade.

However, the research of Vancauteren did not show any significant change in the level of home bias (the ratio of the share of domestic products to the share of imported products) of TBT-sectors over the period 1990-1998 in the markets of EU-15 countries, where due to the introduction of the New Approach, was supposed to observe visible impact. At the same time, for TBT-related sectors home bias remains higher than that of non-TBT sectors.[143]

Thus, there is no concrete evidence that the harmonization policy of the EU after the introduction of the New Approach has increased the intensity of intra-EU trade relative to domestic trade for products where differences in technical regulations are important.[144]

As far as various anti-TBT policies are concerned home bias is smaller for sectors, where the mutual recognition principle is applied, and is the largest for the sectors where the Old Approach is applied.[145] It can be explained by the fact, that the mutual recognition principle is the most "low-cost" anti-TBT measure from the point of view of the potential importer (as far as it does not imply additional adjustment costs). Therefore, companies get more incentives to export and by doing this increasing the share of imported goods on the intra-EU market in mutual recognition sectors. The Old and New Approaches to harmonization still require additional costs from the company, which initially does not conform to common European standards or essential requirements. Thus, it lowers the export incentives of such company compared to the "same level" company from mutual recognition sectors.

The mutual recognition principle impact

The mutual recognition principle can theoretically be applied to any industry sector and its trade patterns. Due to this and to its simplicity, it has been most widely compared with other anti-TBT approaches (except for industries with strong justifiable security, safety and quality concerns) and contributed to the elimination of TBTs for the vast majority of European products. However, there appears to be a problem of a lack of awareness about the products to which mutual recognition applies. Contrary to the old and new harmonization approaches there can be made no "list" with directive and goods to which they apply, as far as the mutual recognition principle is supposed to be applied in an unbureaucratic way. Therefore, it is hardly possible to estimate the impact of the mutual recognition principle on intra-EU trade in monetary or other quantitative terms.

However, there is an attempt to create a rather explanatory model, evaluating the qualitative effect of the mutual recognition principle for trade in the Common Market. The model is presented by *Alberto Anurgo Pacheco* (2006).

Pacheco's model considers a union of symmetric states, where the principle of mutual recognition is applied towards varying national norms and conformity assessment procedures, which regulate the market entry of products. This union also creates a special institution (court), where individuals, industries and Member States can complain about violations of the mutual recognition principle. This court therefore plays the role of enforcement and surveillance mechanism, making the states restrain from excessive protectionist regulatory measures and domestic companies restrain from lobbying towards establishing advantageous technical regulations. It is also assumed that the governments make trade policy decisions to a large extent as a response to industry lobbying pressure.[146] This model can clearly be referred to the EU and European Court of Justice.

[143] Vancauteren Mark, The Impact of Technical Barriers to Trade on Home Bias: An Application to EU Date, 2002, p. 18

[144] Vancauteren Mark, Weiserbs Daniel, The Impact of the Removal of Technical Barriers to Trade on Border Effects and Intra-Trade in the European Union, 2003, p. 24

[145] Vancauteren Mark, The Impact of Technical Barriers to Trade on Home Bias: An Application to EU Date, 2002, p. 18

[146] Pacheco Alberto Amurgo, Institutions and Deep Integration, Geneva Graduate Institute of International Studies, HEI Working Paper No: 07/2006, p. 3

Then, he compared the equilibrium situation in this union before and after the introduction of the mutual recognition principle, so before and after liberalizing TBTs within the union. The main indicator, describing the level of TBT-liberalization, is the number of valid TBTs in the market. This number is found at the interception of the Marginal Economic Cost curve (MEC), which describes costs of the government of allowing TBTs, and the Marginal Political Benefit curve (MPB), which describes benefits for the government from adopting TBTs. Both curves are upward sloped, though MEC curve begins from zero, because marginal economic loss from raising the NTB from zero is zero. The τ^* stands for the equilibrium wedge on the domestic price of the good concerned and defines the level of TBTs in the market.[147]

After the introduction of the mutual recognition principle and the court as enforcement force, the equilibrium situation changes. Protection via TBTs becomes less attractive to the firms and they become uneager to lobby for TBT introduction. It happens because importers can now challenge protective regulations and standards in front of the court, which can annul them. Lobbying efforts are being depreciated and lobbyist' lose their incentive to lobby.[148] In that way mutual recognition with the presence of the enforcing institution favours liberalization in the TBTs area.

At the graph it can be seen that the mutual recognition principle and the court introduce a constraint on the amount of favour that lobbyists can get from their national governments. At the point of this constraint marginal contribution from lobby's contribution drops to zero and stays there. So the TBT level before the constraint point can be defined as the level that is not likely to be challenged in the court. So now both government and domestic companies are limited in their protectionist initiatives and τ^{Θ} stands for maximum possible level of TBTs in this equilibrium case (the optima level of TBTs chosen by government). Comparing this graph with the situation before the introduction of the mutual recognition principle we can see that the level of TBTs in the presence of mutual recognition and the court is significantly lower than in the absence of the court ($\tau^{\Theta} < \tau^*$).[149]

As far as the welfare effect is concerned, with mutual recognition and the court government welfare is decreasing, while consumers' surplus becomes higher (due to the lower price of imported goods). Organized industries like governments are worse off after the liberalization of TBTs than before. However, the in quantitative terms "winners" win more than those who lose because the combined social welfare is higher. [150]

So if we compare this model of EU mutual recognition with the general mutual recognition model worked out by *Baldwin* (2004), the main and the most significant difference in them is the presence of the ECJ, which due to its enforcement powers makes the mutual recognition principle binding and therefore pushes for its real implementation and change in trade policy conditions.

Influence of harmonization activities

Harmonization measures towards TBTs have also had certain impact on within the EU. *Chen* and *Mattoo* (2008) analyze in their study the share and growth of harmonization coverage in relation to EU imports over the period from 1986 to 2001. They estimate that the volume of intra-European trade among the industrial sectors with harmonized standards grew more rapidly than those in non-harmonized sectors. Thus, before the New Approach started to be practically implemented (before 1990) harmonized sectors had a smaller volume of intra-EU trade compared with other sectors. But, afterwards when harmonization activities expanded, intra-European trade in these very industries increased faster and by 1996 exceeded the level

[147] Ibid, p. 7
[148] Ibid, p. 9
[149] Pacheco Alberto Amurgo, Institutions and Deep Integration, Geneva Graduate Institute of International Studies, HEI Working Paper No: 07/2006, p. 17
[150] Ibid, p. 15

of intra-EU trade in other industrial sectors. At the same time the share of intra-EU imports under the effect of harmonization rose from 7% to 53% over the considered period of time.[151]
When the impact of new and old harmonization approaches is combined, it is seen that intra-EU trade in the New Approach sectors have growth over 1986-2001, while in the Old Approach sectors it has fallen slightly. This tendency can, however, be explained by the process of gradual replacement of the Old Approach standards by the New Approach regulations for some products (due to response to technological progress).[152]
As far as harmonization approaches, from the very beginning they were primarily applied in the sectors where the mutual recognition principle had no significant impact on TBT liberalization, these statistics allows to conclude that harmonization activities have to a significant extent reached their goal of neutralizing TBTs in the designated sectors and promoting or at least facilitating barrier-free trade there.
At the same time, the standardization efforts induced the change in trade structure of the EU. The intra-EU trade, according to the estimations of *Hagemejer* and *Michalek* (2006) as well as *Chen* and *Mattoo* (2008), is mainly concentrated within the high TBT products (products, which due to safety, quality, etc. concerns often become subjects to TBT and have common European standards), while the imports from the third countries concentrates on low-TBT or no-TBT products (products for which standards are not necessary or nor relevant). [153]
So harmonization approaches have ambiguous trade effects: they facilitate intra-EU trade, but divert EU trade with third countries. Such results of harmonization activities of the EU correspond in general to the *Gandal* and *Shy* standardization union model, which implies that standardization union members gain trade and welfare effects, while the non-members loose.[154]

3.2.2. Standardization influence on external trade of the EU

Anti-TBT measures, which the EU has established to its Single Market, can as well have influence for the external trade of the Union. Mutual recognition and harmonization approaches are as well used towards third countries' imported goods. However, there are some differences in application and impact of these measures to non-EU imports.

Mutual Recognition Impact

The use of the mutual recognition principle towards non-EU imported goods represents the classical case of spill-over of inner-EU norms into its external policies.
The mutual recognition principle can not be used by counterparts of the external trade relations of the EU in the same manner as it is applied to the intra-EU trade connections. It is due to the fact that third-country and non-EU origin firms can not on their own claim the infringement of mutual recognition principle in front of the ECJ and therefore faces the lack of enforcement mechanism. This limits the effectiveness of the mutual recognition principle in the case of external trade.
However, even if applied the classical EU mutual recognition principle does not release the third country importers from the necessity to perform a dual burden conformity assessment: with its national regulations and with the EU-one. This a priori puts third country importers in a disadvantaged position on the EU market in comparison with EU-producers of the same goods, which face lesser compliance costs. Therefore classical EU mutual recognition regime constitutes rather a measure of facilitating intra-union trade and has a rather protectionist character towards countries excluded from the EU as a standardization union.

[151] Chen Maggie Yiaoyang, Mattoo Aaditya, Regionalism in Standards: good or bad for trade? In: Canadian Journal of Economics / Revue canadienne d'Economique, Vol. 41, No. 3, 2008, p. 843
[152] Vancauteren Mark, The Impact of Technical Barriers to Trade on Home Bias: An Application to EU Date, 2002, p. 18
[153] Hagemejer Jan, Michalek Jan, Standardization Union Effects: the Case of EU Enlargement, 2006, p. 9
[154] Ibid, p.9

But there is another form of mutual recognition, which is applicable to external trade of the EU and contributes to the establishment of more symmetrical trade conditions for EU- and non-EU counterparts. It refers to the so called Mutual Recognition Agreements (MRA), which aim to provide for the recognition between trading partners of their national test results and mandatory certificates for certain industrial products.

The EU has always been in the forefront in the negotiation of MRAs. Nowadays, it has seven MRAs concluded with the following countries:

- Australia (17/08/98)
- New Zealand (7/08/98)
- Canada (16/10/98)
- United States (4/02/99)
- Israel (9/10/99)
- Japan (29/10/2001)
- Switzerland (30/04/2002). [155]

These MRAs constitute a legal framework for mutual acceptance of technical regulations and conformity assessment procedures between the EU and the country concerned. However, these agreements do not cover the whole trade between parties. Normally the annexes to MRAs specify sectoral scope and coverage of their application as well as the list of designated conformity assessment bodies. So mutual recognition between the EU and third countries is generally applied on case-by-case basis and provides only for the limited removal of trade barriers and only sector-related improvement of market access.[156]

Besides MRAs with third countries, the EU has applied mutual recognition commitments as an instrument and important step of the accession process of new EU members. These agreements are known as "Protocols on European Conformity Assessment" (PECAs) and mainly deal with the implementation of the EU's technical regulations in candidate countries. The main difference between MRAs and PECAs is that candidate countries eventually will become EU members and thus that they be bound to implement all relevant EU legislation concerning conformity assessment as well as product regulations and standards.[157]

Thus, MRAs establish some sort of standardization union between EU and third participating countries, but without setting common standards. This form of anti-TBT cooperation certainly benefits the non-EU party of these agreements. They enjoy an effect of downward harmonization of technical requirements, since non-EU firms are now not explicitly obliged to meet EU regulations, but are free to meet the least costly of either the EU or their country' national standards.

However, MRAs can have negative implication for import flows from non-EU countries, which are not participating in MRAs. Here everything depends on the rule of origins, defined in every concrete MRA.[158]

The MRAs between the EU and the USA and the EU and Canada, for example, do not contain any restriction on the origin of the products, so that products can be tested in any participating country and sold in the entire region, regardless of whether they are manufactured in the region or imported from elsewhere. In contrast, the MRAs between the EU and Australia or New Zealand contain restrictive rules of origin, so that only products from the participating countries can enjoy mutual recognition preferences. Products imported from third countries, still should meet the conformity assessment requirements in each participating country.[159]

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[155] Veggeland Frode, Trade Facilitation Through Equivalence and Mutual Recognition: The EU Model, Norwegian Agricultural Economics Research Institute, April 2006, p. 18

[156] Veggeland Frode, Trade Facilitation Through Equivalence and Mutual Recognition: The EU Model, Norwegian Agricultural Economics Research Institute, April 2006, p.18

[157] Ibid, p. 19

[158] Chen Maggie Yiaoyang, Mattoo Aaditya, Regionalism in Standards: good or bad for trade? In: Canadian Journal of Economics / Revue canadienne d'Economique, Vol. 41, No. 3, 2008, p. 846

[159] Chen Maggie Yiaoyang, Mattoo Aaditya, Regionalism in Standards: good or bad for trade? In: Canadian Journal of Economics / Revue canadienne d'Economique, Vol. 41, No. 3, 2008, p.844

So MRAs with restrictive rules of origin act as certain trade barriers themselves. They increase the trade between participating parties at the expense of imports from third countries, which suffer from decline in relative competitiveness.[160]

Analyzing the EU experience in MRAs, several characteristic points about application of mutual recognition in external trade can be identified.

First, MRAs are usually concluded with the countries which are on a comparable level of technical development as the EU.[161] This can be seen in the EU's MRAs, which have only been concluded with advanced developed countries. It can be explained by the fact, that developed countries have comparable level of manufacturing processes and similar conceptions about acceptable safety and quality norms. This reduces the possible social public goods losses, which can follow from goods or services of inappropriate safety, quality or environmental standards. So it can be said that before negotiations can start, MRAs need some prior certain harmonization or similarity level between parties.

Second, MRAs are established between the leading trade partners. Thus, in 2009, USA ranked the first in EU exports and 2nd in EU imports. Switzerland was in the same years the EU's second largest importer and 4th larger exporter. Japan had places 7 and 6 respectively; Canada - 10 and 12.[162] As long as MRAs aim at facilitating and increasing trade between their parties, the effect would be more significant, when large amount of trade involved. For example, only the EU-US mutual recognition agreement is estimated to the same companies at $172 million a year.[163]

Third, MRAs manage to be concluded only in the areas where two trading parties have significant trading interests. Therefore, MRAs are usually limited only to designated sectors and do not enjoy general application throughout all economy fields. For example, there was much discussion between the EU and the U.S. on which sectors to include in an MRA. Initially, a large number of sectors were placed on the negotiation table, but only a few were included in the agreement (telecommunication equipment, electromagnetic compatibility, electrical safety, recreational craft, medicinal products and medical devices). As a result of political bargaining there were some sectors of special interest to the U.S. and some of special interest to the EU.

Based on what has been mentioned above, the conclusion can be made, that MRAs constitute an instrument of facilitating trade and eliminating trade barriers between developed countries and as well as countries with large trading potential. Thus, it seems to be difficult for developing countries to be allowed to enter into negotiations on such agreements.[164] So MRAs of the EU (especially those with restrictive rules of origin) indirectly creates additional trade barriers for developing countries by setting them in a disadvantaged position compared with parties of functioning MRAs. Nowadays, the EU is not engaged in negotiating more MRAs and does not even show interest in it. – Thus, it can be assumed that this situation will remain the status-quo for the years to come.

Influence of harmonization activities

Contrary to the mutual recognition principle, harmonization measures can directly apply and affect external trade of the EU, especially when imports from third countries are concerned.

Common European standards and essential requirements, adopted on the basis on the old and new harmonization approaches, establish concrete requirements for certain types of goods in

[160] Ibid, p. 840

[161] Veggeland Frode, Trade Facilitation Through Equivalence and Mutual Recognition: The EU Model, Norwegian Agricultural Economics Research Institute, April 2006, p. 18

[162] External and intra-EU trade – statistical yearbook. Date 1958-2009, Eurostat Statistical Books, Edition 2010, p. 33-34

[163] Gandal Neil, Quantifying the Trade Impact of Compatibility Standards and Barriers: an Industrial Organization Perspective, Tel-Aviv University, September 2000, p. 377

[164] Veggeland Frode, Trade Facilitation Through Equivalence and Mutual Recognition: The EU Model, Norwegian Agricultural Economics Research Institute, April 2006, p. 50

order to be lawfully marketed on the EU Single Market. Thus, they as well exert certain influence on the external trade of the EU, especially on imports to the EU from third countries. Over the period of 1986-2001 the share of total harmonized EU imports rose from 9% to 47%, which means that 47% goods, imported to the EU, have to comply with EU regulations for these types of goods. [165]

So the EU standards as such constitute a trade barrier for the entry of third country goods to the EU market, because they impose an additional conformity assessment procedure, which can cause duplication costs for foreign importers. However, harmonized standards are at the same time "lesser from two evils" compared with national standards and can bring certain benefits to third country importers.

In the case of harmonized standards, a third country product which is found by a certified national body of an EU-member to be in conformity with the EU minimum essential requirements would be allowed for sale throughout the entire EU. For example, while 15 years ago approximately 80% of all the standards in the EU area were elaborated on the national level, 90% of all standards are nowadays elaborated on the European or international levels.[166] Thus, now third country importers have to meet only one technical regulation, instead of conforming to 27 national regulations of all EU member states in case of no EU common standards (in order to get to the same volume market).[167] This improves the economies of scale effects for foreign countries' importers and gives them additional incentives to import their products to the EU.

On the other side, the introduction of new harmonized standards can as well cause trade diversion, if these standards are much more stringent than the initial national standards. This would impose additional adjustment costs for manufacturers of the goods concerned. Despite the fact that these new standards would not be discriminate (applies equally to domestic and foreign manufacturers), it could exert an asymmetrical effect on developing countries, importing to EU. As far as all EU countries are developed countries, their level of industrial organization and technical development is much higher than those of developing countries. Therefore, the latter would face much higher adjustment costs after the introduction of more stringent harmonized standards, which would hinder them from importing to the EU. At the same time import from developed non-EU countries as well as intra-EU trade would increase. Thus, common harmonized standards of the standardization union can be described as a tool of favouring trade among more of less equal (in terms of technical development) trade partners. [168]

The EU standardization policy, based upon mutual recognition and harmonization principles, has contributed a lot to the reducing TBTs in intra-EU trade, but still presents problems to third-country importers in obtaining a guaranteed access to the European market. Thus it has both trade-creating and trade-diverting effects.

For trade between EU Member states mutual recognition and harmonization exert only positive influence. Mutual recognition neutralizes TBTs because it changed the domestic political process in each member state in a way that TBT-measures become not able to fulfill their intended protectionist goal and therefore can not be considered an effective trade policy instrument anymore.

The mutual recognition principle also plays the role of "lex generalis" apart from the sectors where a "lex specialis" (a harmonization measure) organizes intercommunity trade for a

[165] Chen Maggie Yiaoyang, Mattoo Aaditya, Regionalism in Standards: good or bad for trade? In: Canadian Journal of Economics / Revue canadienne d'Economique, Vol. 41, No. 3, 2008, p. 843

[166] Horakova Bronislava, Current Principles and Importance of Technical Harmonization in the EU for Technical Standardization, in: GeoScience Engineering Volume LIII (2007), p. 45

[167] *Stepjenson Sherry M.*, Standards and Conformity Assessment as Nontariff Barriers to Trade, Policy Research Working Paper No 1826, The World Bank, 1997, p. 57

[168] Chen Maggie Yiaoyang, Mattoo Aaditya, Regionalism in Standards: good or bad for trade? In: Canadian Journal of Economics / Revue canadienne d'Economique, Vol. 41, No. 3, 2008, p. 840

product differently.[169] However, harmonization norms as well do not leave much discretion for a Member State in the field of establishing TBT-related measures, as far as they obliged all Member states to coform to common European standards or essential requirements.

At the same time, EU standardization efforts have ambiguous effects on EU trade with external partners. Mutual recognition applied via MRAs on case by case basis, as well as introduction of common technical standards for the whole Single Market area, bring certain benefits to the foreign importers, but only if these importers are in the position to use them (if they have sufficient production and export volumes and level of technical development). Smaller and less advanced firms and countries could on the contrary lose incentives to sell in the EU because of more stringent requirements and increased compliance costs. This leads to the conclusion that standardization efforts aimed at establishing a standardization union in a region foster trade within this region and between this region and third-countries of comparable level of development, while hindering trade with less developed countries.

Thus, the standardization policy of the EU (and potentially of any other regional preferential trade areas) promotes and facilitates the trade connections between developed countries, but maintains the productivity and technological gap between developed and developing countries and diminishes the possibilities of overcoming it.

[169] Dzabirova Liubica, New Developments in the EU Internal Market – Harmonization vs. Mutual Recognition, in; Romanian Journal of European Affairs, Vol. 9, No 1, 2009, p. 56

Conclusions

Thus, proceeding from the arguments and opinions outlined in this master thesis we come to the following conclusions:

First, as far as the definition and distinguishing of a TBT measure is concerned, technical barriers to trade can emerge in the form of various technical regulations, standards and conformity assessment procedures, imposed by states or regional preferential trade associations. However, these measures do not immediately constitute TBTs. They are, as a rule, introduced with the social regulatory purpose of improving market failures and can contribute to promoting overall welfare and economic and technological development. At the same time, technical standards assume to act as TBTs, because they often lead to trade distortion, market segmentation and discrimination through creating addition costs to foreign producers. Both positive and negative effects of standards can be generated simultaneously by the same standardization activity. The correlation between effects refers to the difference between social marginal values and private marginal values of a standard.

In practice the differentiation between trade-restrictive TBTs and justifiable regulatory measures is usually made by using so called "unnecessary obstacles to trade" formula, defined in WTO law. According to it, TBTs are only those regulatory measures, which "prepared, adopted or applied with the effect of creating unnecessary obstacles to international trade".[170]

So in order to indicate a regulation as a TBT the relation between a measure concerned and trade or competition distortion should be proved. However, direct measurement of trade distortion degree in quantitative terms (cost-benefit criteria) can be problematic. In that situation a qualitative purpose-related approach seems to be the most appropriate. According to it a regulatory measure should be compared to the measure that would have been implemented if it had been designed for domestic purposes only.

The **second** question addressed was about possible counter-TBT measures. After analyzing practical activities on TBT-liberalization, there can be distinguished two basic practical approaches to counter-TBT policy. The negative approaches focuses on establishing legal constraints, prohibiting the improper and drastic use of regulations and standards but not prescribing any "positive" mandatory measures to be introduced. The positive approach implies creation of binding rules about specific ways of recognition or application of standards, which makes them less trade-restrictive. The negative approach is more often applied on the international level, while the positive approach, as a more binding one, are mostly used on the regional level within economic unions or free trade areas.

The WTO anti-TBT activities provide an example of a "negative" approach to TBT-liberalization. Here the main binding means of neutralizing the effects of TBTs are legal constraints, which should hold WTO members from using regulations, standards and conformity assessment as protectionist instruments. The WTO legal framework established a direct ban on applying any trade-restrictive discriminatory technical regulations. At the same time, the WTO does not aim at leading the process of establishing a harmonized system of universally recognized technical norms and standards, it only provides legal frameworks and conceptual guidelines for its members, which should define and implement their own standardization policy in accordance with WTO norms. However, apart from the Dispute Settlement Procedure, which appears to be rather ineffective and bureaucratic, the WTO does not have any enforcement and controlling mechanism, which could constantly monitor the compliance of national standardization activities with WTO provisions. Therefore implementation of the WTO anti-TBT concept largely depends on the good will of every concrete WTO member.

Thus, TBT liberalization in the WTO can be characterized as rather passive and does not really avoid the renewed attempts of states to introduce new TBT measures.

[170] Agreement on Technical Barriers to Trade 1995, Art. 2.2

Contrary to the WTO, the EU tends mainly at applying positive anti-TBT measures in form of common standardization policy. It aims at eliminating TBTs in intra-EU trade through the mutual recognition principle (passive standardization) and common EU standards (active standardization).

So the EU implements a "positive" binding anti-TBT policy, which on the one hand, eliminates the very intention to create new national TBTs (through mutual recognition), and on the other hand, directly prohibits standards' imposition on the national level by establishing common EU standards and standards setting bodies. Both these political directions make technical standards within the Single Market no longer able of being trade-restricting. So Member States cannot apply them as TBTs anymore.

Thus, a positive approach to anti-TBT policy produces more effect than negative approach measures, but the benefits of this effect are used only by a limited number of participating countries, while negative approach refers to all actors of international trade.

In its effect, the EU standardization policy becomes a sort of club good for Member States. Thus, the EU mutual recognition norm is a principle shared by limited group of participating countries and applied to the trade within the union. Its value for the union is determined by its exclusive character (creating benefits for EU by excluding other countries). The change-over from national to common European standards as well facilitates first of all intra-EU trade. Thus, intra-EU trade in high TBT products (to which common European standards apply) is much more intensive than external trade of EU with the same products. Imports from the third countries concentrate on low-TBT or no-TBT products. Such results of standardization policy of the EU correspond in general to the *Gandal* and *Shy* standardization union model, which implies that standardization union members gain trade and welfare effects, while the non-members loose.

Third, as far as winner and losers of TBT and anti-TBT policies are concerned, large developed countries are practically always beneficiaries from imposing national TBTs, as well as, from participating in international or regional standardization activities. At the same time, small and developing countries are hurt the most by diverging national or regional standards and as a rule gain from recognizing all standards of other countries and not imposing their own trade-restricting technical regulations.

At the same time the most popular TBT liberalization instruments are as well oriented towards developed countries and bring them more benefits than to developing countries. Theoretical economic models predict that harmonization policy instruments are more likely to be applied by large developed countries. Due to scale effects, large developed countries receive more benefits from applying common standardization policy or mutual recognition rules between each other than from joint standardization initiatives with small or developing countries.

Evidences from the WTO and the EU political practices support these conclusions.

Thus, the WTO anti-TBT procedures are more frequently used by developed countries, which show more persistence and willingness to exercise their rights under the WTO framework, than developing countries. The majority of Specific Trade Concerns and Disputes, related to TBTs and misuse of technical standards, have been raised by or against developed countries. As well, these conflicts are as a rule driven by trade and economic controversies and linkages between larger economies. Developing countries are much less involved in anti-TBT discourse on WTO level.

At the same time, the TBT Agreement provisions on technical assistance for developing countries on establishing national standardization systems are not being used in their full potential. So the WTO legal framework contains no effective mechanism of fostering the catching-up process of developing countries in the sphere of technical standards, what leads to the increased dominance of developed countries in the international standardization processes.

The EU standardization policy also mainly provides benefits only to developed countries. The mutual recognition principle (applied through *Cassis de Dijon* formula within the Union and

via MRAs between the EU and third countries) as well as introduction of common European standards bring certain benefits to the foreign importers, but only if these importers are at the comparable level of economic and technical development as the EU itself. Smaller and less advanced firms and countries could on the contrary lose incentive to sell in the EU because of more stringent requirements and increased compliance costs. Thus, the standardization policy of the EU (and potentially of any other regional preferential trade areas) promotes and facilitates trade connections between developed countries, but maintains the productivity and technological gap between developed and developing countries and diminishes the possibilities of overcoming it.

Thus, anti-TBT norms of international law and multilateral standardization activities do not reduce the existing technological and welfare gap between developed and developing countries and the existing bias in trade with high-tech goods and raw materials. It appears rather prospectless for developing countries to invest and insist a lot for the development of industries and technologies, in which developed countries already have competitive advantages in and which are regulated by widely recognized technological standards. Under free trade conditions developing countries should rather concentrate at elaborating their comparative advantages in other sectors of economy or other production methods.

To sum it up, TBTs are obviously trade distorting and makes the majority of parties of any trade counteraction worse off. However, anti-TBT policy can as well have a rather ambiguous effect and bring not only release from distorting effect of TBTs, but also cause certain trade distortion. Economic theory and economic policy practice show that international trade is disrupted less if countries use internationally agreed standards as a basis for domestic regulations and standards. From a theoretical point of view, the least trade distorting and most mutually beneficial variant of standardization policy is open standardization, based on the mutual recognition principle. Apart from trade creation between countries, participating in the standardization union, it gives the rest-of-the-world countries strong incentives to enhance trade with countries of the union, because the integration of home and partner markets makes the correlation between market size and market entry costs more lucrative for third countries' exporters. As long as the situation of mutual recognition of all foreign standards are rather unusual in real trade relations, regional standardization seems to be more preferable than national imposition of regulations and standards, because it can still increase overall welfare compared with the situation of mutual non-recognition of standards.

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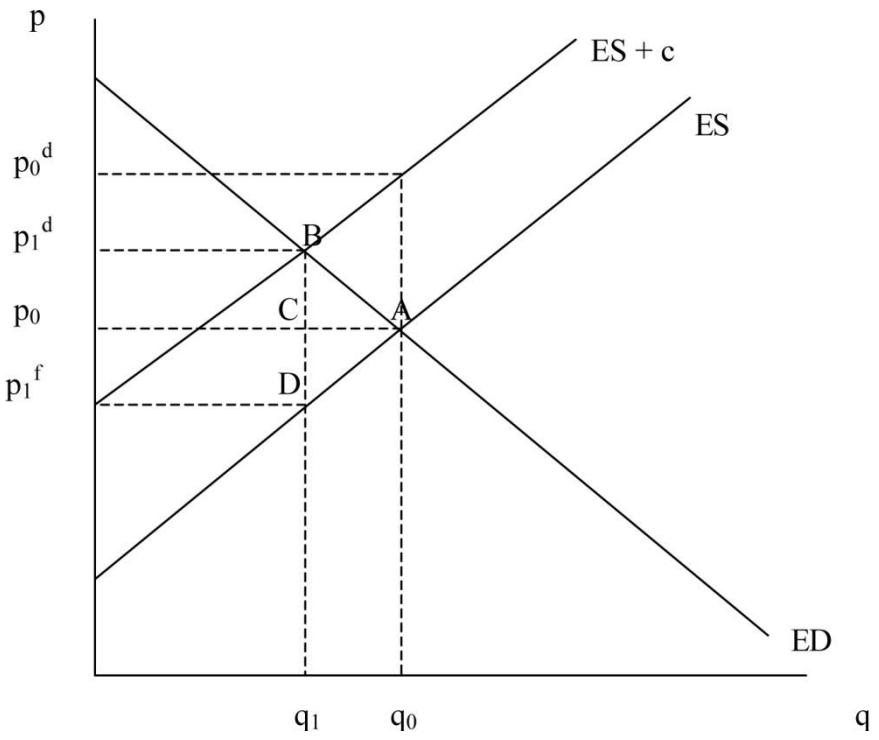
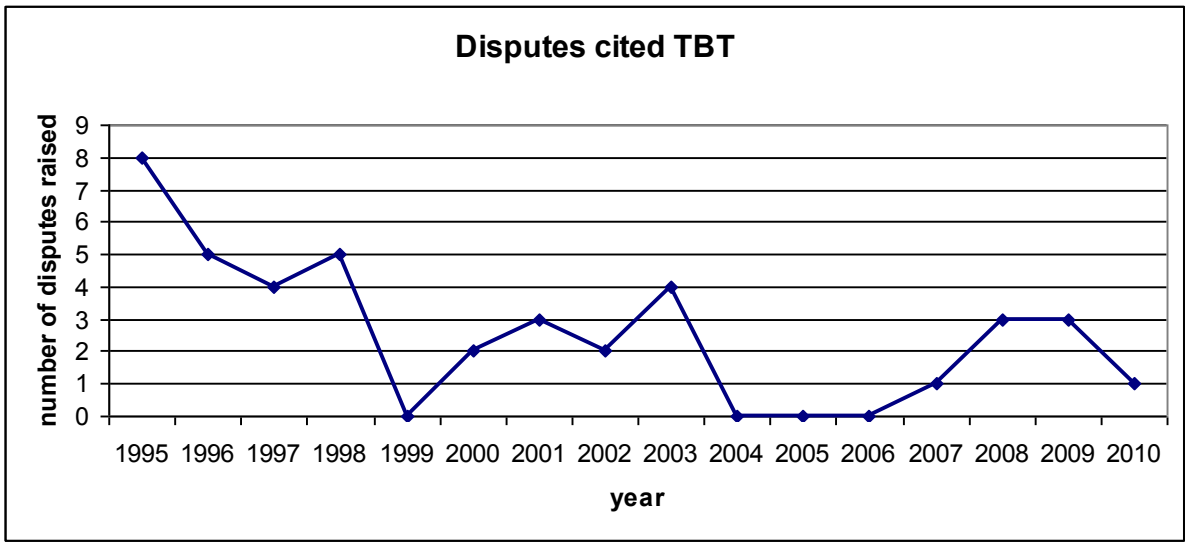
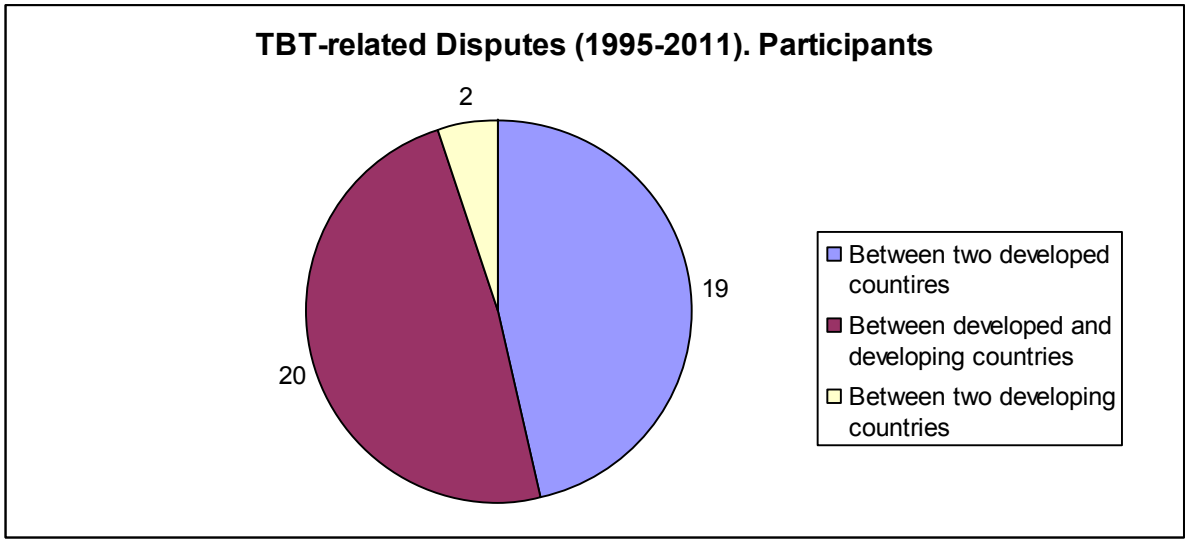
Annex I. Equilibrium Model of Price and Quantity Effect of a Technical Regulation [171]

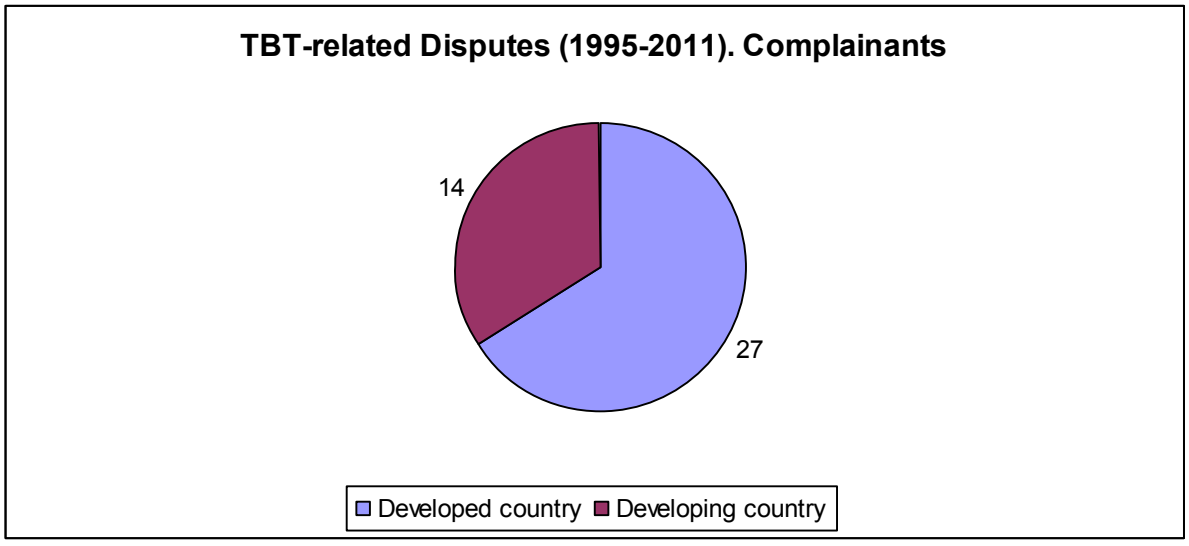


[171] Source: *Maskus, Keith E., Otsuki Tsuneheri, Wilson John S.,* An Empirical Framework for Analyzing Technical Regulations and Trade, in: *Maskus Keith E., Wilson John S. (eds.)* Quantifying the Impact of Technical Barriers to Trade: Can it Be Done? MI: University of Michigan Press, 2001, p. 51

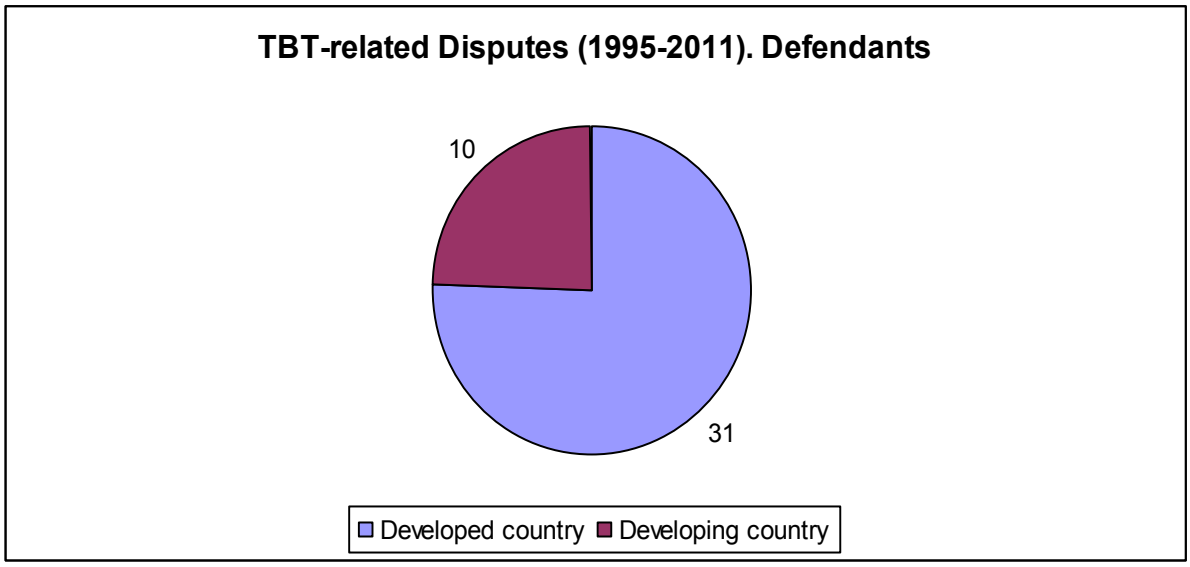
Annex II. WTO Statistics: Specific Trade Concerns and TBT-related Disputes [172]

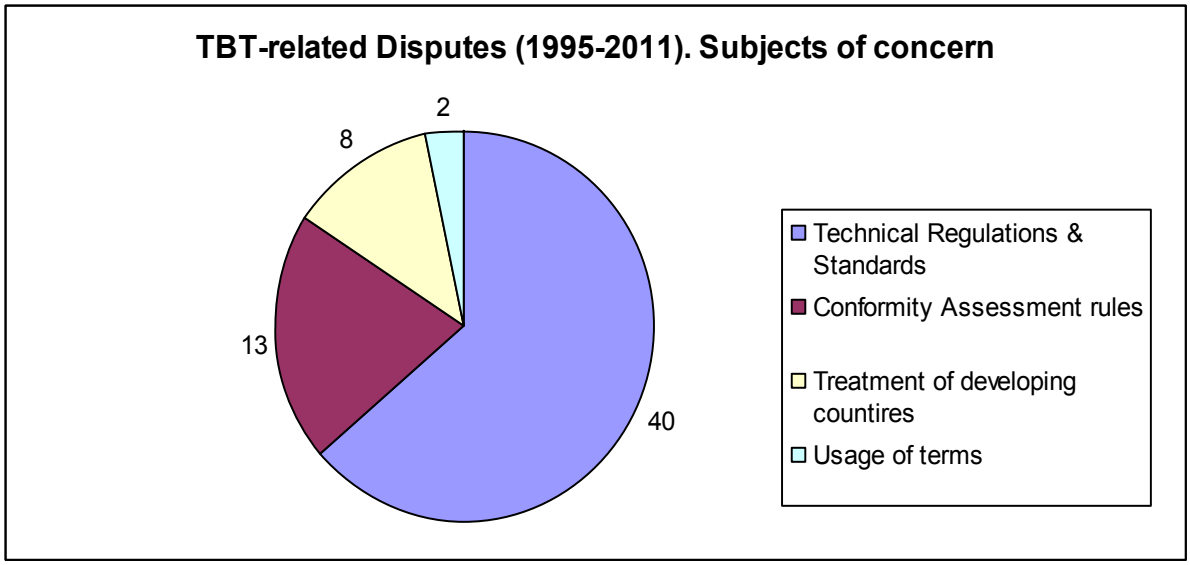


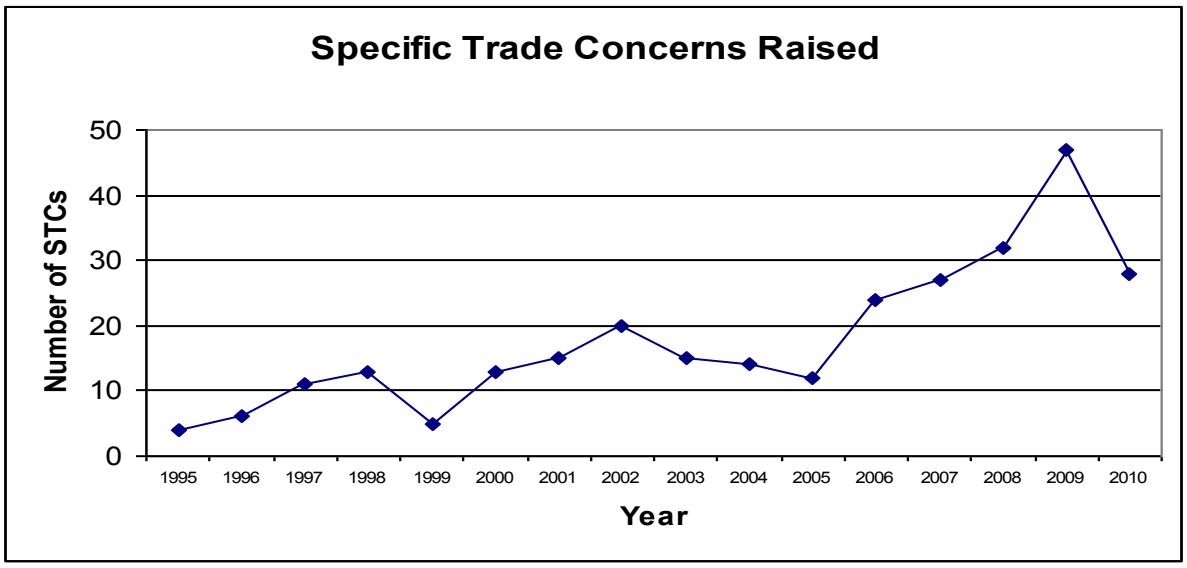


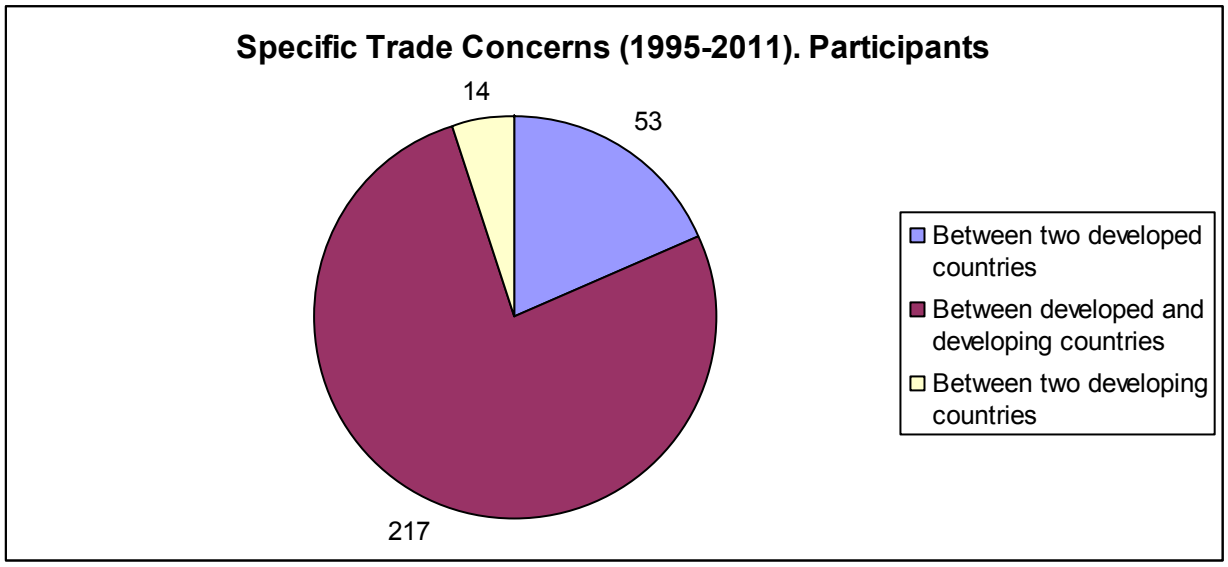


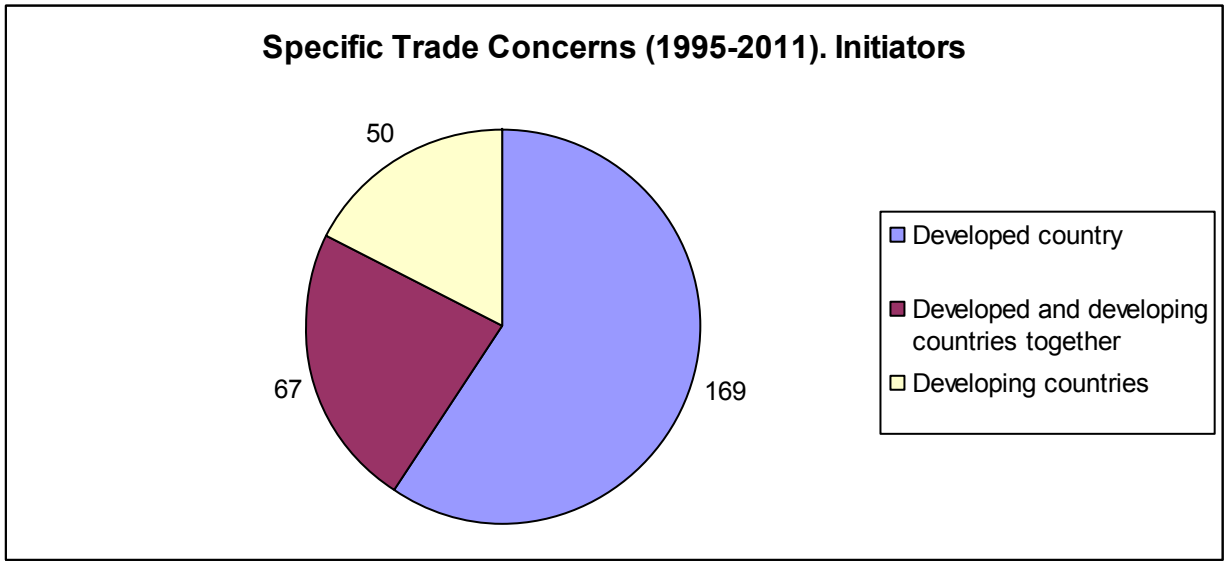
[172] Sources: WTO TBT Information Management System, available at http://tbtims.wto.org/, own calculations

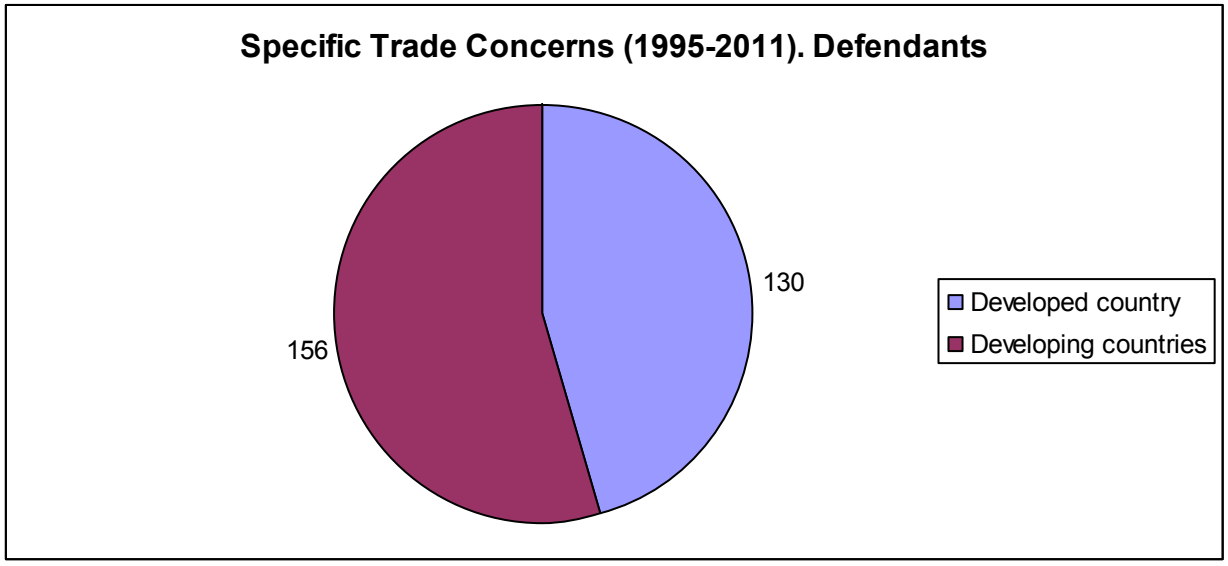

TBT-related Disputes (1995-2011). Defendants
10
31
Developed country
Developing country


TBT-related Disputes (1995-2011). Subjects of concern
2
8
13
40
Technical Regulations & Standards
Conformity Assessment rules
Treatment of developing countires
Usage of terms


Specific Trade Concerns Raised
Number of STCs
0
10
20
30
40
50
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Year


Specific Trade Concerns (1995-2011). Participants
14
53
217
Between two developed countries
Between developed and developing countries
Between two developing countries


Specific Trade Concerns (1995-2011). Initiators
50
67
169
Developed country
Developed and developing countries together
Developing countries

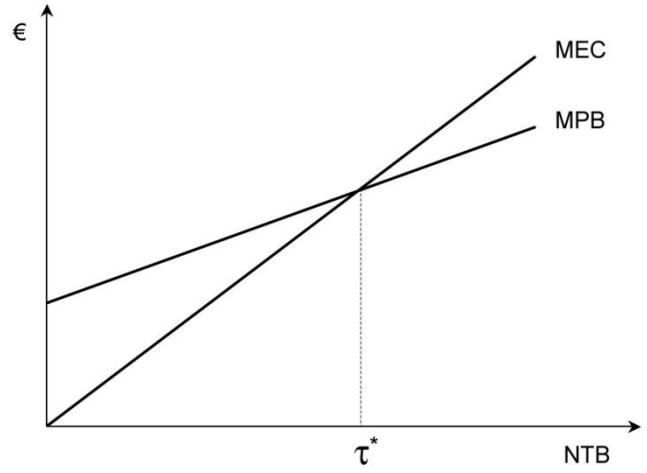

Specific Trade Concerns (1995-2011). Defendants
130
156
Developed country
Developing countries

TBT-related Disputes (1995-2011)

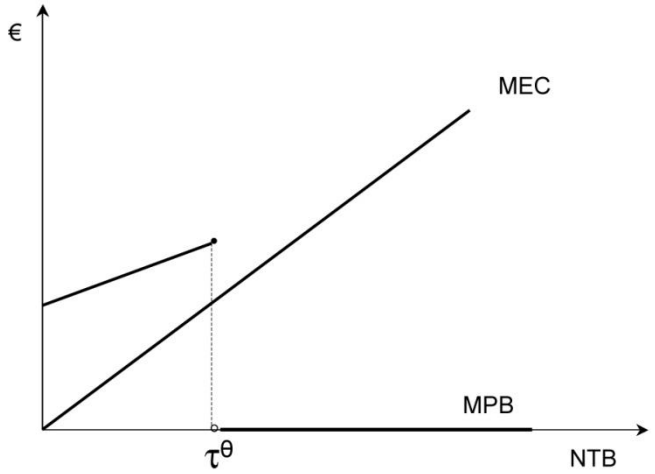
No	Description	Date of opening	Arciptes cited
DS406	United States of America — Measures Affecting the Production and Sale of Clove Cigarettes (Complainant: Indonesia)	7 April 2010	Technical Barriers to Trade (TBT): Art. 2, 12, 2.1, 2.2, 2.3, 2.5, 2.8, 2.9, 2.10, 2.12
DS401	European Communities — Measures Prohibiting the Importation and Marketing of Seal Products (Complainant: Norway)	5 November 2009	Technical Barriers to Trade (TBT): Art. 2.1, 2.2
DS400	European Communities — Measures Prohibiting the Importation and Marketing of Seal Products (Complainant: Canada)	2 November 2009	Technical Barriers to Trade (TBT): Art. 2.1
DS389	European Communities — Certain Measures Affecting Poultry Meat and Poultry Meat Products from the United States (Complainant: United States of America)	16 January 2009	Technical Barriers to Trade (TBT): Art. 2
DS386	United States of America — Certain Country of Origin Labelling Requirements (Complainant: Mexico)	17 December 2008	Technical Barriers to Trade (TBT): Art. 2, 12
DS384	United States of America — Certain Country of Origin Labelling (Cool) Requirements (Complainant: Canada)	1 December 2008	Technical Barriers to Trade (TBT): Art. 2 GATT 1994: Art. III:4, IX, X:3, XXIII:1(b)
DS381	United States of America — Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products (Complainant: Mexico)	24 October 2008	Technical Barriers to Trade (TBT): Art. 5, 6, 8, 2
DS369	European Communities — Certain Measures Prohibiting the Importation and Marketing of Seal Products (Complainant: Canada)	25 September 2007	Technical Barriers to Trade (TBT): Art. 2.1, 2.2
DS293	European Communities — Measures Affecting the Approval and Marketing of Biotech Products (Complainant: Argentina)	14 May 2003	Technical Barriers to Trade (TBT): Art. 5, 5.1, 5.2, 5.6, 5.8, 2, 12, 2.1, 2.2, 2.8, 2.9, 2.11
DS292	European Communities — Measures Affecting the Approval and Marketing of Biotech Products (Complainant: Canada)	13 May 2003	Technical Barriers to Trade (TBT): Art. 5, 5.1, 5.2, 5.6, 5.8, 2, 2.1, 2.2, 2.8, 2.9, 2.11, 2.12
DS291	European Communities — Measures Affecting the Approval and Marketing of Biotech Products (Complainant: United States of America)	13 May 2003	Technical Barriers to Trade (TBT): Art. 5, 5.1, 5.2, 5.6, 5.8, 2, 2.1, 2.2, 2.8, 2.9, 2.11, 2.12
DS290	European Communities — Protection of Trademarks and Geographical Indications for Agricultural Products and Foodstuffs (Complainant: Australia)	17 April 2003	Technical Barriers to Trade (TBT): Annex 1, Art. 2, 2.1, 2.2
DS279	India — Import Restrictions Maintained Under the Export and Import Policy 2002-2007 (Complainant: European Communities)	23 December 2002	Technical Barriers to Trade (TBT): Art. 2
DS263	European Communities — Measures Affecting Imports of Wine (Complainant: Argentina)	4 September 2002	Technical Barriers to Trade (TBT): Art. 2, 12
DS233	Argentina — Measures Affecting the Import of Pharmaceutical Products (Complainant: India)	25 May 2001	Technical Barriers to Trade (TBT): Art. 5, 2, 12
DS232	Mexico — Measures Affecting the Import of Matches (Complainant: Chile)	17 May 2001	Technical Barriers to Trade (TBT): Art. 1, 5, 2
DS231	European Communities — Trade Description of Sardines (Complainant: Peru)	20 March 2001	Technical Barriers to Trade (TBT): Art. 2, 12
DS210	Belgium — Administration of Measures Establishing Customs Duties for Rice (Complainant: United States of America)	12 October 2000	Technical Barriers to Trade (TBT): Art. 3, 5, 6, 7, 2, 9, 2.2, 2.4, 2.5
DS203	Mexico — Measures Affecting Trade in Live Swine (Complainant: United States of America)	10 July 2000	Technical Barriers to Trade (TBT): Art. 5, 2
DS151	United States of America — Measures Affecting Textiles and Apparel Products (II) (Complainant: European Communities)	19 November 1998	Technical Barriers to Trade (TBT): Annex 1, Art. 2
DS144	United States of America — Certain Measures Affecting the Import of Cattle, Swine and Grain from Canada (Complainant: Canada)	25 September 1998	Technical Barriers to Trade (TBT): Art. 3, 5, 7, 2
DS137	European Communities — Measures Affecting Imports of Wood of Conifers from Canada (Complainant: Canada)	17 June 1998	Technical Barriers to Trade (TBT): Art. 2
DS135	European Communities — Measures Affecting Asbestos and Products Containing Asbestos (Complainant: Canada)	28 May 1998	Technical Barriers to Trade (TBT): Art. 2
DS134	European Communities — Restrictions on Certain Import Duties on Rice (Complainant: India)	27 May 1998	Technical Barriers to Trade (TBT): Art. 2

Annex III. Effect of Mutual Recognition with and without ECJ [173]

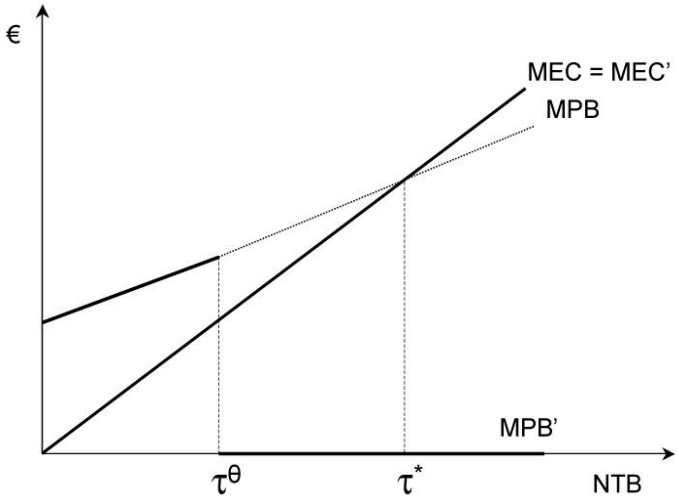
III.1 Level of TBTs in absence of ECJ



III.2 Level of TBTs in presence of ECJ

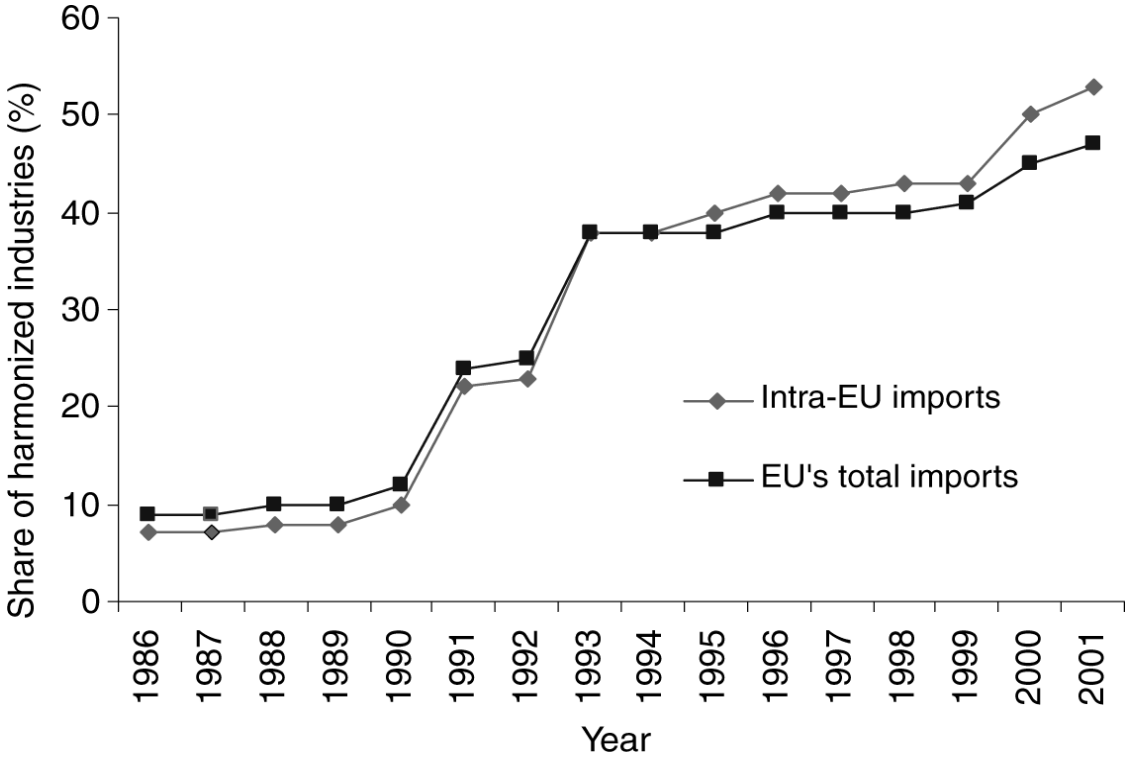


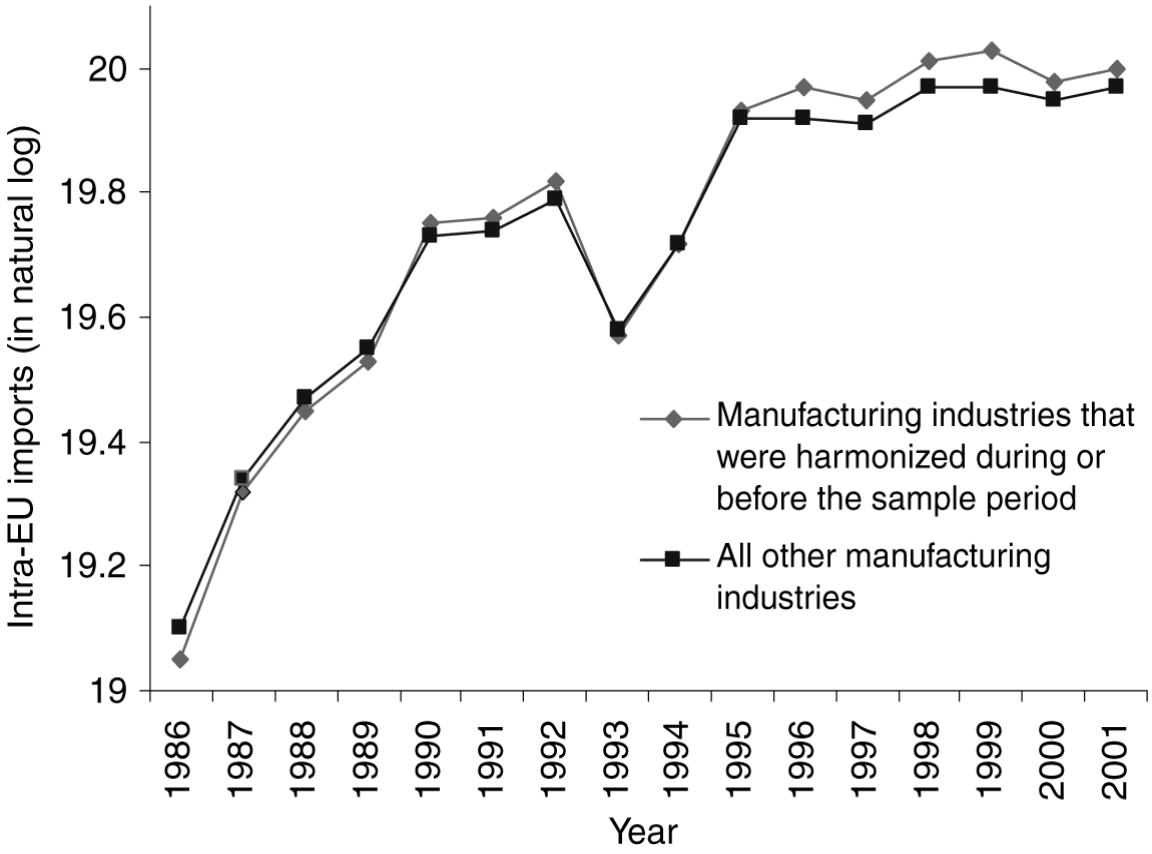
III. 3 Comparison



[173] Source: Pacheco Alberto Amurgo, Institutions and Deep Integration, Geneva Graduate Institute of International Studies, HEI Working Paper No: 07/2006, p. 10, p. 13

Annex IV. Influence of Harmonization on the EU-trade [174]





[174] Source: Chen Natalie, Novy Denis, International Trade Integration: a Disaggregated Approach, CEP Discussion Paper No. 908, January 2009, p. 842-843