Chapter – 1: Introduction

Robert Baldwin points out as early as in 1970, **"The lowering of tariffs has, in effect, been like draining a swamp. The lower water levelhas revealed all the snags and stumps of non-tariff barriers that still have to be clearedaway."** With tariff barriers becoming increasingly less important, differences innational regulatory regimes are becoming ever more visible. These regulatory regimesinclude areas as varied as government procurement rules, inward foreign investment,competition policy, labor standards and environmental norms as well as productstandards and technical regulations .The ability to gain market access depends increasingly on compliance with trade regulatory measures that are beyond the realm of traditional trade policies. Although traditional trade policiessuch as tariffs and quotas no longer have a significant impact on restricting market access as they have been progressively liberalized, first under the auspices of the GeneralAgreement on Tariffs and Trade (GATT)/World Trade Organization (WTO) and subsequently in the context ofregional and bilateral preferential trade agreements but the fact that tariff liberalization alonehas generally proven unsuccessful in providing genuine market access has drawn further attention to non-tariffmeasures (NTMs) as major determinants in restricting market access.Non-tariff measures include a very diverse array of policies that countries apply to imported and exportedgoods. Some NTMs are manifestly employed as instruments of commercial policy (e.g. quotas, subsidies, tradedefense measures and export restrictions), while others stem from non-trade policy objectives (e.g. Sanitary and Phitosanitary (SPS) measures and Technical Barriers to Trade (TBT)measures). The latter often serve a legitimate purpose as they are put in place for valid concerns such asfood safety and environmental protection.A growing number of public

standards are being introduced globally, in a broadrange and rich variety of areas, includingnutrition (e.g. low fat), health (e.g. lowlead or pesticide residue), safety (e.g. no small toy parts, equipment safety measures),environment (e.g. organic, no genetically modified organisms, low carbondioxide emission) and social concerns (e.g. no child labor).[1] The bulk of these regulations are grouped in two major categories, namely SPS measures and TBTs. The former includes regulations and restrictions to protect human, animal or plant life or health, while the latter addresses all other technical regulations, standards and procedures. Independently from their objective and legal framework, SPS measures and TBTs can have important effects on international trade. Richard Baldwin (2000) points out those TBTs have been the main concern of the EU as far as trade barriers are concerned ever since the abolishment of all internal tariffs in 1973. In the context of trade talks betweenthe EU and ASEAN, Pascal Lamy expressed the belief that harmonizing standards and rules in areas such as safety, health or consumer protection rather than abolishing tariffs and quotas, were **"the real 21st century trade issues"**.[2]In terms of incidence, TBTs are by far the most used regulatory measures, with the average country imposing them on about 30 per cent of products and trade. Countries also impose SPS measures on an average of approximately 15 per cent of trade.[3]These measures may however, discriminate against imports and therefore restrict trade and cause market distortions. This situation can occur when technical regulations are not well targeted, not scientifically underpinned, comprise unclear certification and assessment procedures, or is arbitrarily applied. Technical barriers at times entail **high compliance costs**, especially for companies that operate in different markets. Producers in developing countries face considerable challenges in overcoming TBT as they often do not have the capital, technical and institutional capacity to

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[1]Swinmen&Vandemoortele(2010)
[2]quoted in Chen and Mattoo (2004), Baller (2007)
[3] UNCTAD(2008)

comply with emerging regulations and conformity assessments. The WTO TBT Agreement aims to ensure that technical regulations, standards and conformity assessment procedures do not constitute unnecessary barriers to trade, by setting disciplines for the elaboration, application, notification and review of such measures by WTO members. Its key principles and provisions are presented in Box 1.

Box 1. Key principles and provisions of the WTO Agreement on TBT

Non discrimination and national treatment: Article 2.1 of the Agreement states that "in respect of their technical regulations, products imported from the territory of any Member be accorded treatment no less favorable than that accorded to like products of national origin and to like products originating in any other country". The same principle applies to conformity assessment procedures and related fees and information requirements, which must not discriminate against imported products.

Avoidance of unnecessary obstacles to trade:When a government is preparing a technical regulation to achieve a certain policy objective, the regulation should not be more trade-restrictive than necessary to fulfill the legitimate objective. According to the Agreement, specifying, whenever appropriate, product regulations in terms of performance rather than design or descriptive characteristics, helps in avoiding unnecessary obstacles to international trade (Art. 2.8). The obligation to avoid unnecessary obstacles to trade applies also to conformity assessment procedures (Art 5.1). Thus such procedures should not be stricter or more time-consuming than what is necessary to assess the compliance of a product with domestic laws and regulations.

Harmonization of technical regulations, standards and conformity assessment procedures: The Agreement calls governments to use existing international standards, or the relevant parts of them, as a basis for setting national technical regulations and to follow international recommendations and guides, or relevant parts thereof, when setting conformity assessment procedures. The Agreement however allows for exceptions when international standards, guides and recommendations are ineffective or inappropriate to fulfil a country's "legitimate objectives". In addition, governments should participate, "within the limits of their resources" in the preparation by international standardization bodies, of international standards for products for which they either have adopted, or expect to adopt, technical regulation, and in the elaboration of international guides and recommendations for conformity assessment procedures.

Acceptance of technical regulations as equivalent: Alongside harmonization, the Agreement encourages Members to accept "equivalent" technical regulations of other Members if these regulations adequately fulfill the objectives of their own domestic regulations (Art. 2.7).

Mutual recognition of conformity assessment: Furthermore, the Agreement encourages Members to recognize "whenever possible" the results of each other's procedures for assessing whether a product conforms to mandatory technical regulations. Without such recognition, products might have to be tested twice, first by the exporting country and then by the importing country. The agreement also encourages Members to enter into negotiations for the conclusion of agreements for the mutual recognition of conformity assessment results. Yet MRAs requires confidence in the competence of other Member's conformity assessment bodies and procedures. The WTO agreement therefore recognizes that prior consultations may be necessary to arrive at a mutually satisfactory understanding regarding the competences of conformity assessment bodies (Art 6.1).

Transparency: To help ensure transparency, all WTO Members are required to establish national enquiry points and to notify to the WTO Secretariat, discuss and publish technical regulations and conformity assessment procedures which do not exist, which differ from existing international standards, recommendations or guides, or which may have a significant effect on trade of other Members, before they are adopted (Art 2.9 and 5.6). Members must publish a notice in a publication at an early stage and notify other Members through the WTO Secretariat, giving a brief indication of the purpose of the new technical regulation or conformity assessment procedures. Finally, they should allow reasonable time for other Members to comment on proposed technical regulations before their entry into force, which the TBT Committee has recommended to be at least 60 days. The Code of Good Practice applicable to (voluntary) standards states explicitly that a standardizing body must give interested Parties at least 60 days for the submission of comments on a draft standard.

Technical assistance The Agreement calls on Members to provide technical assistance to other Members (Art 11). Technical assistance can be targeted to, e.g., the preparation of technical regulations, the establishment of national standardizing bodies, the participation in international standardization bodies and the provision or strengthening of adequate equipment and capacities for testing and certification.

Special and differential treatment: Members shall, in the preparation and application of technical regulations, standards and conformity assessment procedures, take account of the special development, financial and trade needs of developing countries. In addition, developing countries are not expected to use international standards which are not appropriate to their development, financial and trade needs. Finally, the Committee on TBT can grant developing countries specified, time-limited exceptions in whole or in part from the obligations of the Agreement (Art 12).

Enforcement and dispute settlement: The WTO Technical Barriers to Trade Committee is the major forum to consult on matters pertaining to the operation of the agreement and discuss concerns about the regulations and their implementation (Art 13). In order to resolve concerns between countries on TBT matters, the TBT Agreement explicitly refers to the WTO Dispute Settlement Body for consultations and solutions of disputes (Art 14).

Source: WTO TBT Agreement

In the past two decades, applied tariffs have been halved on average globally. During the same period, policymakers have started grasping the "front-stage" importance of non-tariff barriers among which **standards and technical regulations are major items**. The SPS and TBT Standards increased from just 576 notifications in 1995 to 1,305 notifications in 2004, and subsequently doubled to 3,257 notifications by 2010.
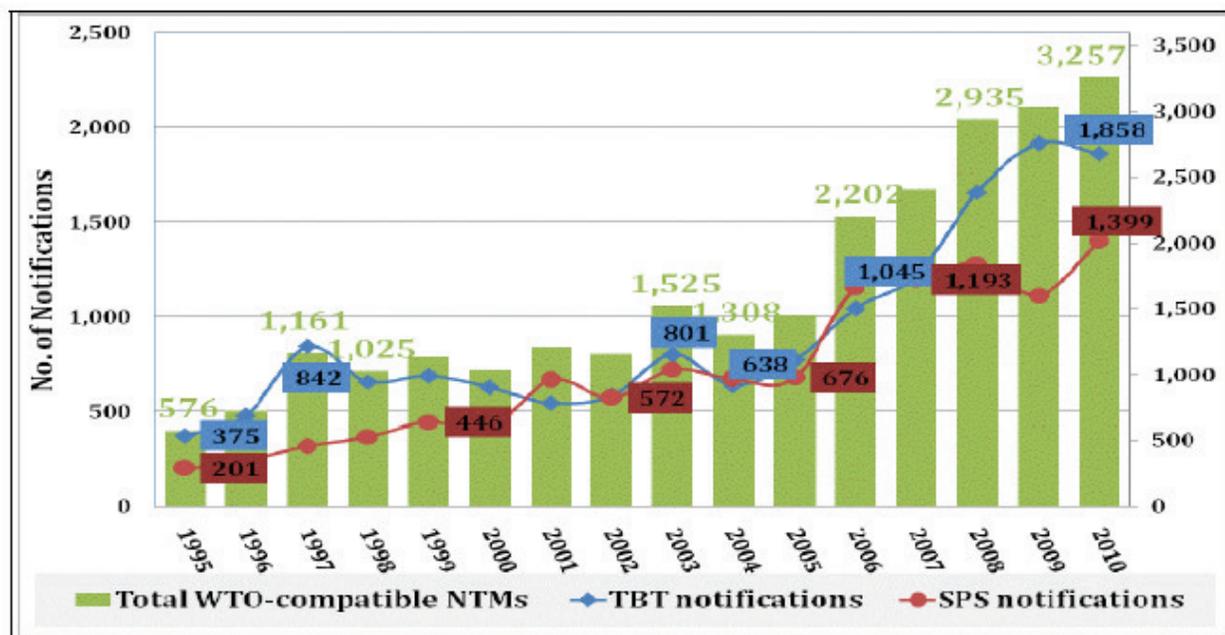

Figure 4.1: Non tariff measures: Notifications by WTO
Source:-Kallummal.M (2012)

Exponential growth rates in NTMs

NTMs	Pre-Doha deadline	Post-Doha deadline	Exp. growth, 1995-2010
TBT notifications	4.6	21.6	9.2
SPS notifications	16.7	12.5	13.2
Yearly NTMs	9.4	17.4	10.7
Cumulative NTMs	37.8	16.1	23.8

Source:-Kallummal.M (2012)

Therefore, NTM standard notifications have seen an upward trend since 1995, contrary to the trend of falling average tariffs of WTO Members (see table: Exponential growth rates in NTMs). Total WTO-compatible NTMs have increased at a rate of nearly 11 per cent per year.

Though the SPS and TBT measures ensure consumer safety, increase the transparency of product information and compatibility of products and serve other goals yet, business surveys and discussions in the WTO and other trade policy forums also indicate that, in both developed and developing countries, these requirements often increase transaction costs and are of greater concern to exporters and governments than any other type of non-tariff measure. Technical regulations are on the rise and can be used as instruments of commercial policy in unilateral, regional, and global trade contexts. Their operation as potential non-tariff barriers (NTBs) is of particular concern to developing countries. Barriers to trade are measures in markets which make it difficult, or even impossible, for actual or potential foreign companies to enter or sell. Such measures areconsidered undesirable in the context of world trade, because they restrict the flow of goods and services, drive prices up and are harmful to consumers. Exporters frequently face difficulties in gaining access to markets due to requirements that products be tested and assessed in the importing country to ensure that local regulatory requirements are met. The multilateral agreement on Technical Barriers to Trade (TBT) seeks to ensure that technical regulations,

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standards and procedures for assessing conformity do not create unnecessary obstacles to trade. It requires inter aliathat applicable regulations are transparent, justifiable, non-discriminatory and based on international standards whenever possible.

India is actively pursuing bilateral/regional Free Trade Agreements. While Free Trade Agreements would certainly imply a reduction in tariffs, the gains from such trade would be limited in the presence of non-tariff barriers.

Table 1.1: Coverage Index of NTM in 1997-98 and 2002-03

	Total value of exports subject to NTMs in 1997-98 as a proportion of total value of exports in 1997-98	Total value of exports subject to NTMs in 2002-038 as a proportion of total value of exports in 2002-03
Singapore	0	8.7
Indonesia	0	28.8
Philippines	0	36.5
Malaysia	6.6	31.9
Thailand	0	24.5
Vietnam	3*	3.9
Sri Lanka	0	0.5

Source: Saquib and Taneja(2005)

Note: * For Vietnam NTM frequency was available for 1999 hence export data for 1999-2000 was used.

According to the Organization for Economic Co-operation and Development (OECD), there is a growing consensus, supported by a growing body of theoretical, empirical and policy analysis, including by the World Trade Organization (WTO), that technical regulations, standards and procedures for determining conformity can have both positive and detrimental effects on competition and international trade (OECD, 2005). In 2004, UNCTAD's TRAINS database sensed on average 5,620 tariff lines being subject to one type of NTB in each country. Technical measures account for 58.5 per cent of that total.[4] **Though the idea ofphasing out of tariff, quota is to promote free trade as it is welfare improving yet the new form of protectionism like "export standard" called "Non-Tariff measures" are often working as "Non –Tariff barriers" not only distorting the free flow of trade but also making the welfare situation worse.**

Before spelling out the scope of the present dissertation, in the following section we review the particular issues that have been analyzed in the existing literature, and the context in which these have been done. There is substantial literature on individual types of NTMs, and in some instances sophisticated empirical analysis of their effect. However, this information is likely to be instrument, industry or country specific. There are good reasons why this is the case and these reasons are likely to stay. Unlike tariffs, NTMs like export standards are not straightforwardly quantifiable, not necessarily easy to model, and information about them is hard to collect.

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[4] UNCTAD(2008)

1.1 Standard[5] and Export performance: some issues

1.1.1 "Protection"(to public health, environment)vs"Protectionism"(for domestic industry)

On the one hand, all World Trade Organization (WTO) members accept the right of national governments to use such measures to protect public health and safety. This right is enshrined in Article 2.1 of the Agreement on Sanitary and Phytosanitary Standards (SPS Agreement), which states that "Members have the right to take SPS measures necessary for the protection of human, animal or plant life or health." On the other hand, many WTO members fear that governments will use such measures for purely protectionist ends. The Agreement thus requires governments to employ SPS measures "only to the extent necessary" and only when they can be scientifically justified (Article 2.2), and prohibits governments from using such measures in an arbitrary or discriminatory fashion (Articles 2.3, 5.5).As such, the Agreement does not prevent countries from taking measures necessary to ensure that these levels of "protection" are met. Least developed and developing countries enjoy special and differential treatment but have to bear in mind that producing to standards lower than those of the rest of the world makes it harder for them to export. Often the SPS standards and TBT laid down by developed countries **are incompatible with the normal methods of production** in developing countries and costs of compliance act as an absolute barrier to trade. The large incidence of TBTs and SPS measures raises concerns for developing countries' exports. These measures impose quality and safety standards which often exceed multilaterally accepted norms. SPS and TBT measures, by their very nature, may result in restrictions on trade. All governments accept the fact that some trade restrictions may be necessary to ensure food safety and animal and plant health protection. However, governments are sometimes pressured to go beyond what is needed for health, plant or

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[5] By "standard" we will mean mandatory standards like technical measures.

animal life or environmental protection and to use those restrictions to shield domestic producers from economic competition. Such pressure is likely to increase as other trade barriers are reduced as a result of the Uruguay Round agreements. A SPS or TBT regulation which is not actually required for health/safety or environmental reasons can be a very effective protectionist device, and because of its technical complexity, a particularly deceptive and difficult barrier to challenge. Moreover exporters are normally at a disadvantage vis-à-vis domestic firms, in terms of adjustments costs, if confronted with new regulations.Another area requiring attention relates to the proliferation of NTMs specifically the export standards andthe use of them to regulate trade both in terms of countries adopting these measures and in their variety. A major concern is that the proliferation of increasingly complex trade rules could hide protectionist intents. In this regard, an area of interest is the identification of the possible, even unintentional, discriminatory and trade distorting effects of export standards.

There is both anecdotal and statistical evidence that SPS measures have been abused. For example, the US avocado ban survived for decades after the US Department of Agriculture concluded that Mexican avocados posed no risk of fruit-fly infestation, largely because efforts to relax the ban were strenuously opposed by US avocado growers (Lamb 2006). Likewise, European officials have tended to cite political (in this case, public) pressures rather than scientific evidence to support the EU's ban on hormone-treated beef (Davis 2003, ch.9). More generally, Kono (2006) finds that TBTs are unrelated to proxies for consumer concerns, such as stringent domestic regulations, but are significantly related to traditional interest-group determinants of protection. And while Otsuki, Wilson and Sewadeh's (2001) finding on the impact of the EU's aflatoxin standard does not in itself prove that the measure has protectionist motives, the fact that the standards expected to save only 0.7 lives per year out of a population of

500 million does raise questions about exactly whom EU officials are trying to protect. Kono (2009) in this respect suggested that political economists can ensure the legitimate use of SPS measures by two ways, firstly by institutional reforms which would improve WTO's dispute settlement system and secondly by identifying which SPS measure reflect concern about public welfare and which serve purely protectionist end. Swinmen & Vandemoortele (2011) analyze the relationship between trade and the political equilibria and compare the political outcome with the social optimum to identify under which cases political considerations lead to standards being set 'too low' or 'too high', and which standards could be labeled as protectionist measures.

1.1.2Standards and Market Access

The most important aspect of the analysis of NTMs is not related to their use but to their impact. In an analysis of the implications of export standards for international trade, there are several areas that require particular attention. One important area is the quantification of the costs that they impose on international trade. Given their heterogeneity in intent, scope and implementation mechanisms, standards impose diverse costs (and benefits) on different actors. A better understanding of those costs and benefits would greatly contribute to both domestic and international policy making processes. A key area of research is related to the effect of those costs on market access of exporting countries. More specifically, there are two main issues of concern. One is that, although nominally nondiscriminatory, the effect of export standards can be discriminatory against a country's trading partners. This de facto discrimination is generally disadvantageous to developing countries for various reasons. First, developing countries often have a more limited capability (or incur higher costs) for meeting the requirements dictated by the standard. This is due to a less advanced production process technology, weak trade-related

infrastructure and inadequate export services. Discrimination also results from an information problem. Many developing countries do not have the resources to analyze and understand the nature and implications of the standards that their exports face. Discrimination can also result from the more rigorous administrative procedures that are often applied to imports originating from developing countries, especially least developed countries. Another reason why export standards are of particular relevance to developing countries is that they are frequently applied to product groups of particular export interest to these countries. Products that are subject to standards are often those where developing countries have a comparative advantage. All things considered, the overall restrictions on trade imposed by export standards may be systematically biased, although sometimes unintentionally, against developing countries and more so against low-income and least developed countries.

Ultimately, trade analysts and policymakers are mainly interested in better understanding the effects that NTMs have, in particular on international trade and more generally on welfare. The quantification of the effect of NTMs is often complex. There can be various reasons behind the imposition of export standards which can be broadly classified into two categories: a) quality, (covered under TBT) b) negative-externality (Covered under both SPS and TBT).The common factor is that both will increase the cost of compliance. Regardless of whether export standards are imposed (or implemented) with protectionist intent or to address legitimate market failures, standards are thought to have important restrictive and distortionary effects on international trade and this is particularly true for firms in developing countries. Studies conducted by the United Nations Conference on Trade and Development (UNCTAD), for example, have shown that some developing countries have suffered considerable export losses due to their inability to respond to

restrictive and duplicative environmental standards and regulations imposed in developed countries.

The evidence from empirical research also indicates that SPSmeasures can be a potent barrier to trade. For example, in Henson and Loader's (2001: 91) survey, a sample of 65 developing-country governments identified SPS measures as the main obstacle to agricultural and food exports, significantly ahead of "other technical requirements," "transport and other direct export costs," tariffs, and quantitative restrictions. These perceptions are echoed in more objective indicators: for example, Otsuki, Wilson and Sewadeh (2001) find that the European Union (EU)'s proposed aflatoxin standard would, relative to existing international standards, reduce African food exports to the EU by 64 percent. The potential impact of such measures is also illustrated by the longstanding US ban on Mexican avocados: when this ban was finally relaxed in the late1990s, annual US imports of Mexican avocados jumped from less than $1 million to over $50 million in just a few years (Zahniser 2006). Hence, whatever their rationale, SPS measures clearly have the potential to impede trade. Firm level surveys have been conducted, attempting to gauge the direct impact of standards and technical regulations on firms' production costs and hence export performance. The World Bank TBT survey looks at 689 firms in over 20 industries in 17 developing countries (Wilson and Otsuki, 2004). 70% of these firms report that they face technical regulations in their export markets, whereby EU and US regulations are generally considered the most important by the firms surveyed. The study shows that in order to meet standards, firms invest in additional plant or equipment, one-time product redesign, product redesign for each export market, additional labor for production, additional labor for testing and certification, or lay off workers instead of making these types of investment in order to keep the costs from increasing. Chen, Wilson and Otsuki (2004) show that testing procedures and lengthy

inspection reduce exports of developing countries by 9% and 3% respectively and standards reduce the likelihood of exporting to more than three markets by 7%.

Quantitative analysis deriving the trade effect of diverging standards directly from costs of standards has generally proven challenging due to the large number of standards in existence. Additionally, the wealth and idiosyncrasy of legal documents recording them makes it difficult to match standards across countries. Studies conducted in this vein are those by Moenius, 1999; Swann, Temple and Shurmer, 1996; Vancauteren and Weiserbs, 2003; Mantovani&Vancauteren, 2003.Disdier et al (2008) analyses the trade effects of SPS measures on tropical and diversification products and examine the extent at which SPS and TBT work as a barrier for exporters for ACP,Latin America and Asian countries.Crivelli and Groschel(2012)attempts to estimate the impact of SPS measures on trade patterns ,using a Heckman selection model on the HS4 disaggregated level of trade and find that SPS concerns reduce the probability of trade in agriculture and food product consistently. However the amount of trade is positively affected by SPS measures conditional on market entry which suggests that SPS measures constitute an effective market entry barrier. Das (2008) brings to the fore some of the key SPS issues and concerns for developing countries, by taking India as a case in point. A general weakness of these attempts to estimate the impact of standards on trade is that they are generally not based on a sound theoretical framework.

A number of studies have focused on firms in developing Countries, and examine empirically factors affecting decision-making such as entry costs that influence a firm's export behavior. Roberts and Tybout (1997) test for the presence and magnitude of sunk costs using a sample of Colombian plants, while Bernard and Jensen (2004) test for the possible existence of entry costs by looking at the effects of exporting yesterday on exporting today. Both papers find entry cost

significant in explaining firms' export decisions. The attempts of modeling standards barriers and their remedies theoretically are also very limited in number and have been undertaken only very recently. All of them use Krugman's (1980) framework as the basis to model trade between countries, but are very different in the way they are being implemented. A series of articles like Bockstael 1984; Bredhal et al, 1987 have studied product quality standards as a trade barrier. There is a number of research works which deals with the externality linked standards some of which show that standards and regulations can increase the global welfare. Sanitary or technical requirements (barriers) may be socially desirable. Calvin and Krissoff (1998) support this idea by affirming that unlike a tariff, this kind of requirement may increase national social welfare if it corrects a market failure by incorporating important product externalities in the product price. Roberts et al. (1999) propose an analytical framework to analyze NTBs that distinguishes three economic effects: i) the "regulatory protection effect", i.e., the fact that a regulation provides some rents to the domestic sector; ii) the "supply shift" effect, that focuses on the effects of imports on the domestic supply and the costs of enforcing compliance, and iii) the "demand-shift" effect, that takes into account the fact that a regulation may bring information and increase consumer demand for the product. Using comparative-statics in a partial equilibrium framework, they illustrate the different effects of these three components of NTBs, in particular in terms of welfare. Fischer and Serra (2000) examine the behavior of a country that imposes a Minimum standard on a good produced by a domestic firm and shows that when there is consumption externality the Minimum Standard chosen by the domestic social planner is a non –increasing function of size of the foreign market and is always "protectionist". Economists like Barret(1994) and Kennedy (1994) has concentrated on environmental production standards and shown that countries have an incentive to lower their environmental standards so as to reduce

production cost and become more competitive. Brander and Spencer (1985) show the simultaneous use of standards as a strategic trade instrument has negative consequences for both the countries. Boom (1995) develops a duopoly model and shows the quality standard imposed by any one country alters the decisions of both firms and shows the increase in Minimum Quality Standard (MQS) will benefit the consumers by increase in quality and reduction in price provided both firms continue supplying both markets. Though she suggests that MQS can be used as a technical barrier to trade, but does not develop the possibility. Further. Ganslandt&Markusen (2001) shows technical regulations which govern the admissibility of goods into an economy raise costs of exporters erring new markets and may have a particularly high impact on firm from developing countries, though standard may also have a positive side by certifying product quality and safety to the consumer.Roberts and Unnevehr (2005) state that the additional costs of reduced trade caused by sanitary and technical requirements must be balanced against the public health benefits of safer food. The need for balance between costs and benefits among countries is what makes these measures so controversial in international trade.Chen &Novy (2012) review the literature on the measurement of trade costs in international trade with a special emphasis on non-tariff measures and in particular on standards and regulations.

1.1.3Harmonization of Standards and Mutual Recognition Agreements (MRAs)

The Agreement on Sanitary and Phytosanitary Measures (SPS) builds on previous GATT rules to restrict the use of unjustified sanitary and phytosanitary measures for the purpose of trade protection. The basic aim of the SPS Agreement is to maintain the sovereign right of any government to provide the level of health protection it deems appropriate, but to ensure that these sovereign rights are not misused for protectionist purposes and do not result in unnecessary

barriers to international trade. [6]**Though the SPS and TBT Agreement encourages governments to establish national measures consistent with** international standards which is often referred to as "harmonization", the WTO itself does not and will not develop such standards. However, most of the WTO's member governments (132 at the date of drafting) participate in the development of these standards in other international bodies. The standards are developed by leading scientists in the field and governmental experts on health protection and are subject to international scrutiny and review. International standards are often higher than the national requirements of many countries, including developed countries, but the SPS Agreement explicitly permits governments to choose not to use the international standards.

Among the various SPS measures prevalent among developed and developing countries, there are also differences in terms of the usage of national, international and regional standards. This suggests that the use of these measures is not actually as visualized under the SPS Agreement. Some studies did find that the effect of national standards on trade exceeded the effects of international standards and specifically by developed countries. For these countries, the SPS Agreement provided leeway in the application of national standards even if they were not found to be scientifically consistent.

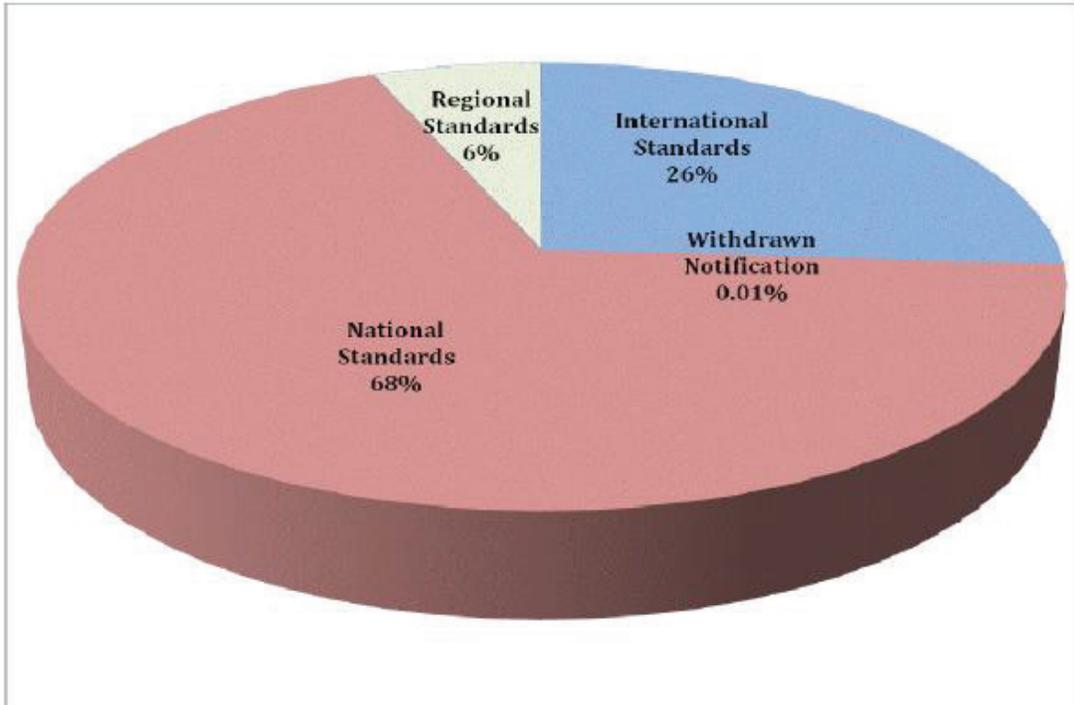[6] SPS and TBT agreement of WTO

Figure 1.5: National VS International Standards-developed members
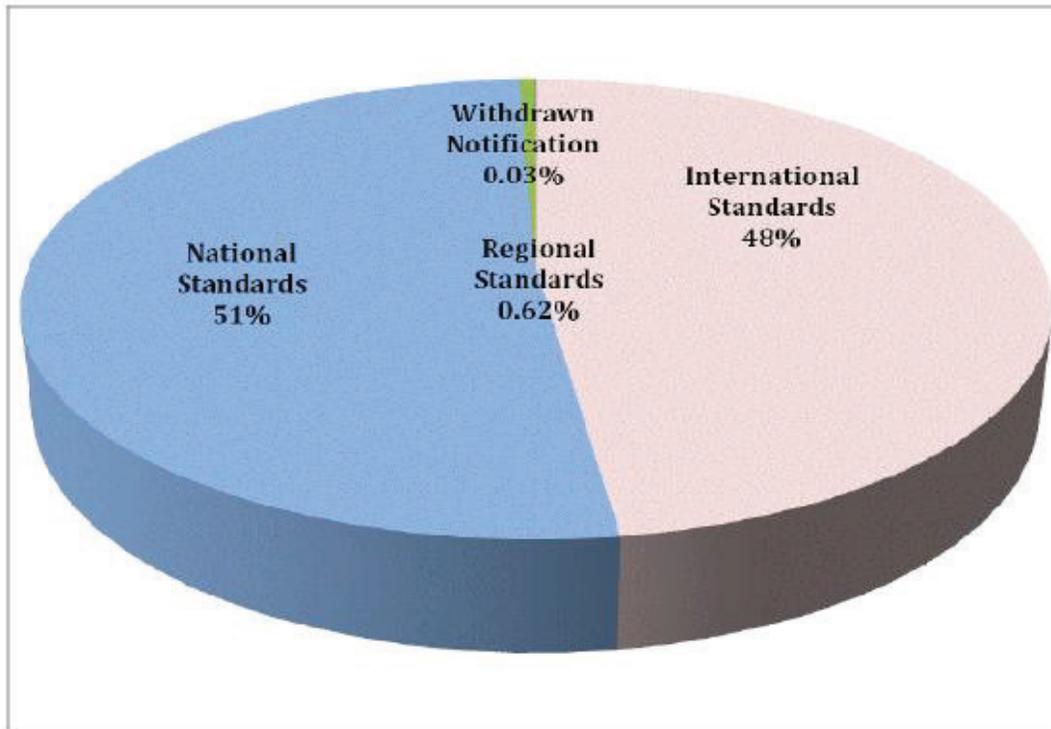
Source:-Kallummal.M (2012)

Figure 1.6: National VS International Standards-developing members

Source:-Kallummal.M (2012)

Though developing Members have also applied their national standards to 51 per cent of their notifications, however the share of notifications following international standards (48 per cent) was not significantly lower. Specifically, in case of SPS Notifications the use of national standards was very low for India with an 18 per cent share of the total. India has thus been a strong proponent of international standards, with 82 per cent share of the country's total SPS notifications being international standards.
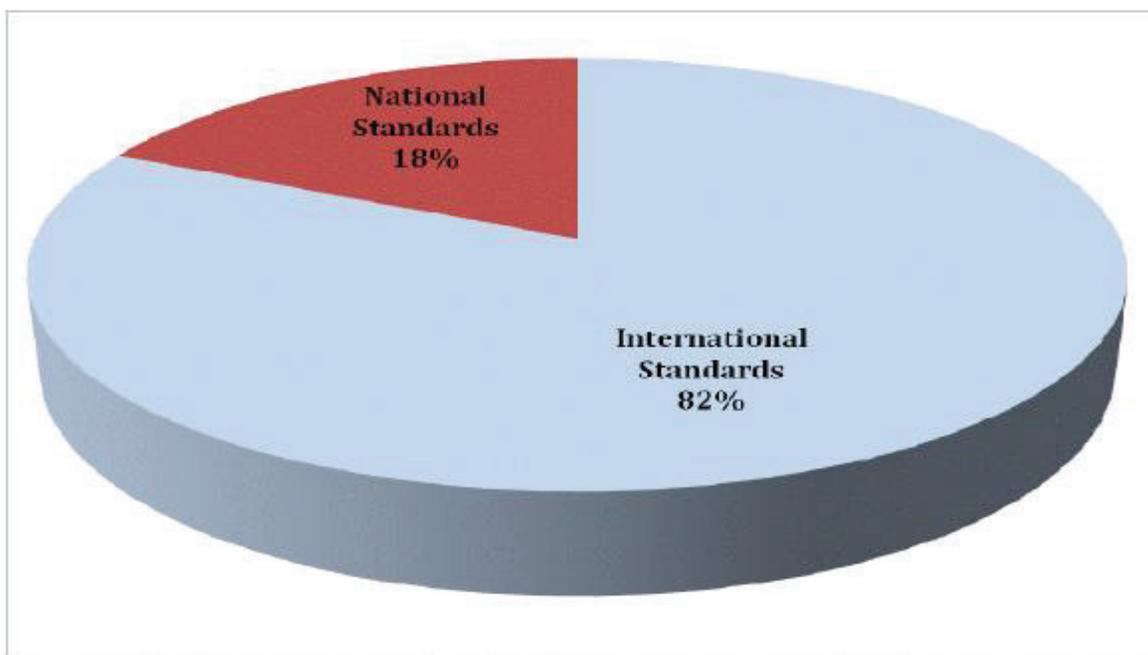
Figure1.4:-Indian SPS measures and its National VS International Standards

Source:-Kallummal.M (2012)

Divergent regulations cost for exporters by loss of economies of scale. If a firm must adjust its production facilities to comply with diverse technical requirements in individual markets, production costs per unit are likely to increase. This imposes handicap particularly on small and medium enterprises. Compliance with technical regulations generally needs to be confirmed. This may be done through testing, certification or inspection by laboratories or certification bodies, usually at the company's expense. Information costs include the costs of evaluating the technical impact of foreign regulations, translating and disseminating product information, training of experts, etc Agreements on standards raise issues that are both politically and analytically challenging. Unlike tariffs, standards cannot be simply negotiated away because the original reason for their existence is not trade protection but the enhancement of welfare by

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remedying market failure - arising, for example, from invisible safety attributes of products, negative environmental externalities, or product incompatibility due to the producers failure to coordinate. Agreements on standards must therefore secure the gains from integrated markets without unduly compromising the role of standards as remedies for market failure. Not only are the motives for standards ostensibly honorable, so in principle is their implementation: unlike tariffs, the same standards may not be applicable for both foreign and domestic firms. However, even after supposed symmetry of treatment, the impact on trade may turn out highly asymmetric because the costs of compliance are likely to differ across countries.Baldwin (2000) shows the TBT liberalization will involve hegemonic harmonization or mutual recognition of rules and test; such liberalization will almost surely entail preferential arrangements among rich nations, creating in essence a two-tier system of market access with developing nations in the second tier.Mattoo and Chen (2004) find that harmonization in the EU raises both intra-regional trade as well as trade with excluded developed countries; at the same time their results indicate that it diverts trade away from developing countries. The paper also shows that MRAs have a more powerful impact on both types of trade, but if they contain rules of origin, then intra-regional trade increases at the expense of imports from the rest of the world, especially developing countries Baller (2007) looks at trade effects from TBT liberalization for members of the liberalizing region as well as two separate groups of excluded countries, industrialized and developing respectively. The study finds compelling evidence that Mutual Recognition Agreements for testing procedures have a strong impact on both export probabilities and bilateral trade volumes. Costinot (2008) compares the performance of the WTO's national treatment principle and the EU's mutual recognition principle with respect to product standards.

1.1.4.AScope of Harmonization and MRAs of Standards

There often exists a great difference in standards across markets each of which   requires an individual compliance cost such as the redesign cost. Hence, the difference in regulations across markets can severely limit a firm's scale production capacity and affect a firm's decision to export.Regional trade agreements (RTAs) present opportunities for harmonization and mutual recognitions as the same region shares the similar geo-climatic and cultural practices the precondition for harmonization might be already present. But export standards are most often not an important issue in some RTAs including South Asian Free Trade Agreement(SAFTA). Meyer, N.et al (2010) examines whether and how eight major regional integration agreements within African Region address TBT issues and finds that TBTS are not an important issue in Sub –Saharan African RTAs.Existing provisions for eliminating TBT related barriers or harmonizing legitimate technical regulations and formulated mostly in broad and "non-perspective terms".Non-tariff barriers have been a highly contentious issue though most of the quantitative restrictions (of the NTBs) have already been phased out in most of the SAARC countries. The only major form NTBs that need to be tackled now are the ones relating to standards on health and consumer safety grounds. Mutual recognition of standards and/or their harmonization at the regional level could help to reduce the problem. Unfortunately, the treaty SAFTA has hardly any provisions relating to antidumping, subsidies and countervailing measures, technical barrier to trade, and sanitary and phytosanitary measures out of which the last two deals with export standards. These issues are pertinent when a region moves into a free trade arrangement. Of Late (2011) the Governments of SAARC Member Statesappreciating the importance of Standardization with reference to trade within and outside the Member States**;**recognizing the need to improve cooperation and coordination amongst member states in implementation of SAARC Standards in respect of products and/or processes; aspiring to facilitate intra-Regional

trade within member States; anddesiring to enhance their access to the Global markets have agreed **on** the Establishment of **South Asian Regional Standards Organization (SARSO).** The following is the current status of harmonization(as on 22 January 2015) of identified products by the respective Sectoral Technical Committees under SARSO.

Table 1.2:-Products on which standards are being harmonized

SARSO Sectoral Technical Committees (STCs)	Identified Products on which standards are being harmonized	Meetings held/to be held
STC on Food and Agricultural Products	1. Refined Sugar 2. Biscuits 3. Standards of on Microbiological requirements for cream portion of filled biscuits 4. Instant Noodles 5. Black tea 6. Vanaspati/Banaspati (veg. ghee) 7. Skimmed Milk Powder 8. National/CODEX Standard for Hygienic condition	First Meeting at SAARC Secretariat on 24 August 2011 Second Meeting at Dhaka, Bangladesh on 12-13 December 2011. Third Meeting at Karachi, Pakistan on 2-3 April 2012. Fourth Meeting was held in India on 21-22 Sept 2014. Fifth Meeting is to be held in Sri Lanka.
STC on Jute, Textile and Leather	1. Identified Hessian products 2. Jute Tarpaulin Fabric 2. Jute Bags for packing of various commodities 3. Jute twine 4. Jute Carpet backing Fabric 5. Jute yarn 6. Cotton Drill Fabric 7. Cotton Twill Fabric 8. Towels and Toweling Fabric	First Meeting at the SAARC Secretariat, Kathmandu on 23-24 November 2011 Second Meeting in Dhaka on 17-18 April 2013. Third Meeting was held in Colombo on 18-19 Dec 2013. Fourth Meeting is to be held in India.

STC on Building Materials	1. Steel Tube for Structural purposes 2. Ordinary Portland Cement 3. Steel Bars for Concrete Reinforcement 4. Structural Steel 5. High strength deformed steel bars and wires for concrete reinforcement 6. Steel wires used in pre-stressed concrete 7. Method of testing of steel and steel tubes (such as tensile testing, flattening, bend test etc 8. Ceramic Tiles	Three Meetings have been held at the SAARC Secretariat on 21-22 November 2011; 10-11 July 2012; 4-5 June 2013. Fourth Meeting is to be hosted by Nepal.
STC on Chemicals and Chemical Products	1. Toilet soap 2. Liquid Toilet Soap 3. Baby Toilet Soap 4. Soft Soap 5. Laundry Soap 6. Detergent Powder 7. Tooth Paste 8. Shampoo (Hair Shampoo) 9. Shampoo for Babies	First Meeting was held in India on 23-24 Sept 2014. Second Meeting is to be hosted by Sri Lanka
STC on Electrical, Electronics, Telecom and IT	1. Electric cable (PVC insulated/sheathed) 2. Double capped fluorescent Lamp (Safety Requirements and Performance Requirements) 3. New Products Identified: Switches, Sockets, MCBs, Solar photovoltaic systems, transformers	First Meeting was held in India on 25-26 Sept 2014 Second Meeting is to be hosted by Afghanistan.
STC on Conformity Assessment	Established by the First Meeting of the SARSO Technical Management Board (Dhaka, 31 March – 1 April 2014)	First Meeting is to be held in India.

Source: - *www.saarc-sec.org*

Dr. Syed HumayunKabir, Director-General of SARSO made a presentation on the activities of SARSO during the Forty-first Session of Standing Committee held in Kathmandu on 23-24 November 2014. The Standing Committee also took note of the critical importance of SARSO in eliminating all forms of barriers to regional trade and urged for all possible support from all member States for effective functioning of the Organization. This shows the member states have

realized the need for harmonization and mutual recognition of conformity assessment to boost interregional as well as intraregional trade though still there is provision in SARSO agreement (like WTO'S provision in TBT agreement) that to fulfill legitimate objectives which may include *inter alia* national security requirements, prevention of deceptive practices, protection of human health and safety, animal or plant life or health, or the environment, the National Standards can differ from the relevant SAARC Standards, but in such an eventuality, the concerned Member State shall provide to the other Member States the details of such differences along with the reasons thereof.

Mutual recognition of existing standards (whereby a country grants unrestricted access of its markets to products that meet any participating countries standard) is one of the simplest and most powerful agreements to deal with export standards. This was the approach taken in principle by the EU but probably was not a good option as there was significant difference in initial standards of the countries.[7]The central problem in the EU mutual recognition approach is the overarching exemption contained in Article 36 of the EC treaty. This provision preserves the member countries rights to restrict or prohibitimports on grounds of health and safety and other policy objectives, as long as this is not a means of arbitrary discrimination or a disguised restriction on trade. This provision substantially dilutes the effects of implementing mutual recognition because it allows a country with stringent regulations not to recognize orequivalent the regulations of other countries with lower stringency.Crivelli P, Grechi, J (2012) split SPS measures into requirements related to (i) conformity assessment, and (ii) product characteristics. Both types of measures are implemented by policy makers to achieve a desired level of healthsafety, yet, entail diverse trade costs. They find that conformity assessmentmeasures hamper not only the likelihood to trade but also the amount oftrade, while measures related to

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[7] Chen &Mattoo (2004)

product characteristics do not affect themarket entry decision, but have a strong positive impact on the trade volume.

1.1.4:"Tariff" and "Standards"

The steady decline of tariff rates as the result of eight GATT rounds of multilateral trade negotiations (MTNs) raised the relative importance of NTBs as both protection and regulatory trade instruments. As levels fell in tariffs, non-tariff barriers increasingly took centre-stage in market-access concerns. Available evidence indicates that NTMs are often applied as alternative trade policy instruments, as multilateral trade agreements impose limits on the use of traditional trade policy instruments, such as tariffs. So, the result is that NTMs are rapidly gaining importance in regulating trade, and have almost replaced tariff barriers in manufacturing sector.Inorder to facilitate a comparison between the trade effects of these different NTMs,studies analyse the impact of NTMs on international trade by estimating a "tariff equivalent", i.e. the level of tariff that would have an equally trade-restricting effect as theNTM in question. This enables a comparison to be made with tariffs, and is important for any analysis of the welfare implications of various tradepolicy measures. In the trade literature, "equivalent tariff"of NTMs is computed using one oftwoapproaches—the"price-gap"orthe "econometrics-based approach". The basic principle of "price-gap" method involves a comparison of prices before and after the NTM mark up where this difference is expressed as tariff equivalent.An Econometrics based method is an alternative to "price gap" method to estimate the impact of non –tariff measures on either price or quantity (trading) using econometric model like gravity equations. Estimating the "quantity impact" is particularly useful because data on trade flows are more easily available at disaggregate level. Moreover when the NTM is absolutely prohibitive, no prices are observed, or when the product is highlydifferentiated, prices are not particularly

informative. By gravity model we get "tariff equivalent" is a tariff that has the same effect on the value of trade (imports).In this context. Bora et al (2002) reviews various approaches including the above mentioned methods to measure and quantify NTMs within the context of the existing data collections.Beghin (2006) describes some common measures of NTBs including tariff-equivalents of the NTB policy or policies and count frequency measures of NTBs. But the basic limitation is that all of them have considered NTB as a whole instead of taking separately SPS and TBTs. But the comparison between volume of trade as well as welfare effect of "equivalent tariff" and the corresponding NTB will definitely depend on the nature of NTB. Beghin&Bureau (2001) present promising methodologies including the method to calculate "equivalent –tariff" to model and quantify non-tariff barriers (NTB) to trade in agricultural and food sector.

1.2   Motivation and Outline of the Thesis:

Though the existing literature have examined a handful of issues at length, there are quite a few issues that have been either left unexplored or have been examined only in a very narrow context. The present dissertation aims at filling this gap in the theoretic literature especially with reference to effects of product standard and its compliance cost. One of the misconceptions about standards and technical regulation is that it is always linked to some negative externality and another is that standards are always imposed with protectionist intention. Though standards can be intrinsically "protectionist" whenever they do not address market failures such as externalities and information asymmetries between consumers and producers of goods being traded or they don't change the demand for the product,some standards may restrict trade but improve welfare in the presence of negative externalities or informational asymmetries. Moreover standards can expand trade as they enhance demand and trade of a good through better information about the good or by enhancing the good's characteristics. What emerges from the above survey of the

literature is that quite a few relevant issues have been either left unexplored or narrowly defined and analyzed. There are good reasons why global analysis of NTBs across sectors and countries are lacking. Under a common denomination NTBsgroup together a vast array of potentially tradedistortingpolicy instruments. Moreover Unlike tariffs, NTBs are not straightforwardlyquantifiable and not necessarily easy to model,and information about them is hard to collect and there is little understanding of the exact implications of NTMs on trade flows, export led growth and social welfare in general.[8]

The common and standard classification of "Export Standards" is widely discussed SPS and TBT standards. According to Roberts et al. (1999), standards can be classified into two broadcategories: risk-reducing measures (such as food safety standards, plant healthprotection standards); non-risk-reducing measures (e.g. food quality standards,environmental conservation standards). Brom (2000) classifies standards into threecategories: (i) standards that matter to all consumers, e.g. food safety standards;(ii) standards that matter to special groups of consumers because they are linkedto personal life style choices, e.g. quality standards; and (iii) standards that regulatesocial and environmental issues based on the ethical values of a society. Many contributionsin the literature on standards and trade (e.g. Thilmany and Barrett, 1997;Marette and Beghin, 2010) make no distinction between different types of standards(such as safety and quality standards). Some studies in the literature on minimum quality standards (e.g. Leland, 1979; Ronnen, 1991; Boom, 1995) illustratetheir analyses with examples of safety standards.Baldwin (2000) classifies standard on the basis of implementation as: horizontali.e. quality related and vertical i.e. externality related. Swinnen&Vandemortele (2010) introduce consumer preference heterogeneity which leads to classification of "standards" as non-risk

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[8]Fugazza&Maur (2008)

reducing standards (quality preferences) and risk reducing standards(preference towards risk aversion).

The present thesis looks into the rationale behind the imposition of the standard from the importing country's point of view and classifies accordingly. There is hardly any theoretical work which has dealt with different kinds of standards, taking into account the reason(s) behind imposition of standard. This dissertation intervenes the literature around **three** among those issues.Standard and regulations may take different forms which should be discussed separately.**Firstly** standard can **be purely related to product design or product quality** which is already prevailing in the foreign market and not to prevent any "true" or "imposed" negative externality. In that case it will be absolutely cost rising for the exporters unless it affects the demand for the product.

Secondly export standard can be related to some "imposed"(by importing country) negative externality where the actual externality generated by consumption/production is zero. In this case the standard is truly "protectionist" and (under certain conditions) leads to the improvement in the welfare of importing country at the cost of welfare of the exporting country.

Thirdly"standard" can be linked to "true" (actual) externality but its imposition and implementation drastically differs if it is related consumption[9] or production externality[10]. The existing literature though talks about "true" externality related standard but almost silent about the difference in the dynamics of consumption and production linked standard.

Though not assumed explicitly, **the thesis resembles trade between developed (importing) and developing (exporting) country** where the former is technically more advanced and plays

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[9]Category (i) according to Brom (2000)
[10] Category (iii) according to Brom (2000)

the role of **"standard setter"** (so compliance cost for that country is lower) and the latter is technically less advanced and plays the role of **"standard taker"** resulting in higher cost to comply with the given standard.

Chapter 2 of the thesis deals with **"quality" related standard** and shows its effect on welfare for both exporting as well as importing country. It develops a simple model where the importing country imposes a "standard" on exporting country (s) which increases the cost of compliance for the latter. The result shows in bilateral trade the importing country will always benefit by the imposition of quality related standard as long as exporting country has positive compliance cost, whereas in the multilateral trade (more than one exporting country), the importing country may or may not benefit from that situation. Even if quality related standard changes the willingness to pay, in a bilateral trade importing country will surely be more benefitted from that which might not be the true for exporting country. It also shows under this situation **"Harmonization" of standard and "Mutual Recognition Agreements"** can improve the trade volume as it helps the exporting firm to accrue the economies of scale as well as reduced compliance cost (undercertain conditions).

Chapter3of the thesis deals with **"purely protectionist standard"** which can be raised by importing country to prevent **"imposed"**(by importing country)negative externality;though applicable for both the trading partners but actually cost rising for the exporting country. These standards can be designed in such a way that the exporting country's compliance cost becomes much higher than its trading partner and works as a tool of protection for the latter. Its comparison with "equivalent tariff" shows tariff could have led to better situation for both the countries and could have been the "first best tool of protection". The difference between the said

standard and quality standard is the latter may change the consumer's willingness to pay but the former will only increase the producers' cost.

Lastly the standard can be raised to prevent "true" negative externality like many environmental and safety standard. In that case the consequence on welfare depends on the size of the initial negative externality and the cost of compliance of the two trading partners which generally happens to be lesser for developed countries. **Chapter 4** deals with these type of standards and specifically differentiates between the consequences of **consumption and production externality related standard** which is absent in the exiting literature. It shows the rationale as well as effect of standard differs depending on whether standard is production or consumption linked. Finally, **chapter-5** provides the summary of the results obtained in chapters 2 to 4, policy implications and sets out the agenda for future research. Bibliographical references are presented thereafter.