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## Introduction

DefinitionThe term ‘ non-tariff measures’ is described such that it consists of export limits and production and export subsidies, or measures with similar effect. This is the term most widely used in GATT and UNCTAD, although textbooks generally prefer the terms ‘ barriers’ or ‘ distortions’. Perhaps the most theoretically satisfying definition is that of Baldwin (1970). In his seminal work on NTMs, he defined " non-tariff distortion" as " any measure (public or private) that causes internationally traded goods and services, or resources devoted to the production of these goods and services, to be allocated in such a way as to reduce potential real world income" ClassificationBalwin was one of the first academic to attempt at developing an NTM taxonomy. They include: Quotas and restrictive state-trading policiesExport subsidies and taxesDiscriminatory government and private procurement policiesSelective indirect taxesSelective domestic subsidiesRestrictive customs proceduresAntidumping regulationsRestrictive administrative and technical regulationsRestrictive business practicesControls over foreign investmentSelective monetary controls and discriminatory exchange-rate policiesAnother approach to examining NTMs is provided by Laird and Vossenaar (1991). They classify NTMs according to intent or immediate impact of the measures. Five such categories are identified, of which (iv) has been adapted to cover restrictions as well as subsidies: Measures to control the volume of imports. For example, prohibitions and quantitative restrictions (QRs) on imports as well as export restraint agreements (ERAs). Licenses are often used to administer QRs. ERAs consist of voluntary export restraints (VERs) (covering, inter alia, measures employed for the administration of bilateral agreements under the Multi-Fibre Arrangement) and Orderly Marketing Agreements (OMAs). Measures to control the price of imported goods. These include the use of reference or trigger price mechanisms, variable levies, anti-dumping duties, countervailing measures, etc. Tariff-type measures such as tariff quotas and seasonal tariffs also are usually intended to increase import prices under given circumstances. Voluntary export price restraints fall under this broad category of intent. Monitoring measures include price and volume investigations and surveillance. Such practices are often associated with charges by domestic interests of unfair trading practices by exporters, eg, dumping and subsidisation. Licenses are sometimes used as a monitoring instrument. Monitoring measures may be a prelude to other actions, and, if seen as such, may lead to export restraints. They may have a harassment effect. Production and export measures. Subsidies may be directly applied to output or value added, or they may be indirectly applied, i. e, paid to material or other inputs to the production process. They may arise from payments or the non-collection of taxes that would otherwise be due. Restrictions by mean of taxes or prohibitions may be imposed on production or exports. Technical barriers imposed at the frontier are used to apply various standards for health and safety reasons to imported products to ensure that imported products conform to the same standards as those required by law for domestically produced goods. They may lead to the prohibition of non-complying imports or oblige cost-increasing production improvements. In 1994, UNCTAD combined the Laird and Vossenar taxonomy with one that they had developed internally in the early 1980s and created what is now known as the UNCTAD Trade Analysis and Information System (TRAINS) coding system. As for Deardorff and Stern (1997), they carried a study which covers various elements of NTMs including their measurement. An interesting aspect of their study is to approach the issue of defining an NTM by using stylized characteristics. The characteristics are: Reduction in quantity of imports. NTMs are most often imposed with the intent of reducing the quantity of imports. Increase in price of imports. NTMs succeed in reducing the quantity of imports only to the extent that they raise the actual or shadow prices of imports to demanders. Change in the elasticity of demand for imports. NTMs often alter the slope of the demand curve for imports, and thus they alter the responsiveness of imports in a particular sector to price changes. Finally, the elasticity effect of an NTM is also important in accessing, in a general equilibrium context, the role of NTMs in influencing the outcome of other events such as a change in tariffs. An increase in a tariff on a final good, for example, will have its protective effect reduced if there is an elasticity-reducing NTM in place on an important intermediate input. Variability of NTMs. Unlike tariffs, NTMs often are defined relative to a benchmark quantity or price independently of market conditions. If this benchmark is held fixed when underlying conditions of supply and demand, exchange rates, and other market conditions change, as they inevitably do, then the effectiveness of the NTM will vary. Such variability may constitute a neglected cost that the NTM imposes on society and thus is very important to measure along with its more obvious average price and/or quantity effects. Uncertainty of NTMs. All government policies are uncertain in their implementation, but this seems to be especially true of some NTMs. Indeed, some practices such as antidumping and countervailing duty investigations have been identified as NTMs almost entirely because of the uncertainties that they impose on international traders. Even those barriers that are clearly restrictive, however, can become more so if their implementation is uncertain. Welfare costs of NTMs. For this purpose the price and/or quantity measures of the NTM provide sufficient information. Welfare costs are separate because of their importance in the literature on NTMs. Resource Costs of NTMs. In addition to the traditional welfare costs just noted, there are also certain costs that are associated with the manner in which the NTM is administered. First are the direct administrative costs themselves, that is, the resources used directly in enforcing whatever rules an NTM imposes. It is essential that more careful measurements of them be attempted. Second, and perhaps of much greater importance, are the resources that are wasted by individuals and firms in their efforts to secure the profit opportunities and other benefits that are created by an NTM. These characteristics are helpful, but in themselves do not constitute a taxonomy. They are especially useful to distinguish those instruments that are measures that affect trade and those that constitute a barrier per se. Once that has been done, the number of such barriers is still potentially large; hence the need for a taxonomy remains. It is noteworthy that while Deardoff and Stern (1997) is predominantly theoretical in nature, the authors provide a number of practical suggestions on how to move towards a better understanding of NTMs. Their proposed classification system has, at its core, price (other than tariffs) and quantity border measures. To these they add the remaining (other) set of measures that may affect trade and then customs and technical barriers as a separate category. A comparison of the frameworks proposed by Deardoff and Stern (1997) and that of UNCTAD TRAINs is given in table 1 below:

## Table 1

## UNCTAD TRAINs

## Deardorff and Stern

Price control measuresAdministrative pricingVoluntary export price restraintVariable chargesAnti-dumping measuresCountervailing measuresFinance control measuresAdvance payment requirementsMultiple exchange ratesRestrictive official foreign exchange allocationRegulations concerning terms of payment for importsTransfer delaysAutomatic licensing measuresAutomatic licenceImport monitoringSurrender requirementQuantity control measuresNon-automatic licensingQuotasImport prohibitionsExport restraint arrangementsEnterprise specific restrictionsMonopolistic measuresSingle channel for importsCompulsory national servicesTechnical measuresTechnical regulationsPre-shipment formalitiesSpecial customs formalitiesObligation to return used productsMiscellaneous measures for sensitive product categoriesMarketable permitsPublic procurementVoluntary instrumentsProduct liabilitySubsidiesQuantitative restrictions and similar specific limitations on imports or exportsImport quotasExports limitationsLicensingVoluntary export restraintsExchange and other financial controlsProhibitionsDomestic content and mixing requirementsDiscriminatory bilateral agreementsCountertradeNon-tariff charges and related policies affecting importsVariable leviesAdvance deposit requirementAnti-dumping dutiesCountervailing dutiesBorder tax adjustmentsGovernment participation in trade; restrictive practices; general policySubsidies and other aidsGovernment procurement policiesState trading, government monopolies, and exclusive franchisesGovernment industrial policy and regional development measuresGovernment financed research and development; technology policiesNational systems of taxation and social insuranceMacroeconomic policiesCompetition policiesForeign investment policiesForeign corruption policiesImmigration policiesCustoms procedures and administrative practicesCustoms valuation proceduresCustoms classification proceduresCustoms clearance proceduresTechnical barriers to tradeHealth and sanitary regulations and quality standardsSafety and industrial standards and regulationsPackaging and labelling regulations, including trademarksAdvertising and media regulationsSource: Bora (2003)As seen above, some differences emerge between the two frameworks. The most significant difference is the inclusion of a range of measures that affect foreign investment and the environment for trade such as corruption. Another difference is the collapse of all the quantitative measures and what are essentially other duties and charges and trade defence measures into one category. The advantage of this categorisation is that many of the policies included in the two categories are easily identifiable. Another taxonomy that was in circulation is one that was being used as part of the Doha Development Agenda (DDA) negotiations. Paragraph 16 of the Doha Ministerial Declaration sets out the mandate for Members to agree on negotiations " which shall aim, to reduce or as appropriate eliminate tariffs, ... as well as non-tariff barriers". The WTO taxonomy, which is presented in Table 2, is used by WTO Members to make reverse notifications on NTMs faced by their exporters. It has its origins in the original taxonomy that was developed in 1968 by the GATT Contracting Parties to sort through different NTM proposals. It is interesting to note that the taxonomy from 1968 changed very little throughout the years and has been used in the DDA negotiations as the basis of the first notification exercise of the Non-Agricultural Market Access (NAMA) negotiations. It should however be noted that this taxonomy was modified to include two new sections: one relating to Sanitary and Phytosanitory (SPS) measures and a residual category that includes, amongst others, issues relating to intellectual property.

## Table 2: WTO/GATT Inventory of Non-Tariff Measures

Parts and SectionsDescriptionPart IGovernment participation in trade and restrictive practices tolerated by governmentsGovernment aids, including subsidies and tax benefitsCountervailing dutiesGovernment procurementRestrictive practices tolerated by governmentsState trading, government monopoly practices, etc. Part IICustoms and administrative entry proceduresAnti-dumping dutiesCustoms valuationCustoms classificationConsular formalities and documentationSamplesRules of originCustoms formalitiesImport licensingPre-shipment inspectionPart IIITechnical barriers to tradeGeneralTechnical regulations and standardsTesting and certification arrangementsPart IVSanitary and phytosanitary measuresGeneralSPS measures including chemical residue limits etcTesting, certification and other conformity assessmentPart VSpecific limitationsQuantitative restrictionsEmbargoes and other restrictions of similar effectScreen-time quotas and other mixing regulationsExchange controlsDiscrimination resulting from bilateral agreementsDiscriminatory sourcingExport restraintsMeasures to regulate domestic pricesTariff quotasExport taxesRequirements concerning marking, labelling and packagingOthersPart VICharges on importsPrior import depositsSurcharges, port taxes, statistical taxes, etc. Discriminatory film taxes, use taxes, etc. Discriminatory credit restrictionsBorder tax adjustmentsPart VIIOtherIntellectual property issuesSafeguard measures, emergency actionsDistribution constraintsBusiness practices or restrictions in the marketOtherSource: WTO document TN/MA/S/5/Rev. 1, 28 November 2003.

## The WTO classification system is very similar to the UNCTAD TRAINs classification system. Both appear to have a heavy focus on measures that are applied at the border, although some behind the border measures such as subsidies and restrictive business practices are also included.

## The differences across the three classifications are a testament to the complexities of measuring and classifying NTMs. Each classification tries to capture all measures that affect trade, regardless of their impact.

## Finally, following Staiger (2012), NTMs may include any policy measures other than tariffs that can impact trade flows. At a broad level, NTMs can usefully be divided into three categories. A first category of NTMs are those imposed on imports. This category includes import quotas, import prohibitions, import licensing and customs procedures and administration fees. A second category of NTMs are those imposed on exports. These include export taxes, export subsidies, export quotas, export prohibitions and voluntary restraints. These first two categories encompass NTMs that are applied at the border, either to imports or to exports. A third and final category of NTMs are those imposed internally in the domestic economy. Such behind-the-border measures include domestic legislation covering health/technical/product/labour/environmental standards, internal taxes of charges, and domestic subsidies.

Now, what is the importance of NTMs? Typically, the objectives for using NTMs range from the long-term desire to promote certain social and economic objectives, including broad economic, industrial or regional development, to shorter term purposes such as balance of payments (BOP) support or action to protect a specific sector from import surges or from dumped or subsidised imports. Price or volume control measures or subsidies have been used extensively in the past for industrial development reasons by developed and developing countries. What is more, governments’ usual motives for employing NTMs are to address market failures, to exploit market power or to respond to political economy pressures.

## How to measure NTM

Because tariffs on imports of manufactures has been reduced to considerably low levels in the major industrialized countries especially as a result of the periodic rounds of multilateral negotiations, there has been increasing interest in the extent to which existing non-tariff measures (NTM) may distort and restricts international trade. In order to address the issues involving the use and impacts of NTMs, it is self-evident that accurate and reliable measures are needed. In order to quantify the particular occurrence of an NTM, it is probably best to look at the specific details of the implementation of that NTM. For example, a quota usually permits an announced quantity of imports of a certain type, so that an analysis of the quota should begin with direct information pertaining to that quantity. Or to take another example, a variable levy is defined in terms of a specified price of an imported good, and that price provides the most direct information about what the levy entails. In these and other cases a good deal of additional work may be required, however, to translate this direct information into a useful form that can be understood and compared to other forms of trade intervention. Nonetheless this direct information still provides the most obvious starting point for an empirical analysis. There are serious disadvantages to this direct approach, however, especially when one is looking for a broad measure of NTMs in general and not just of a specific type. First, the direct approach only captures those NTMs that have been identified. If a country or industry makes use of a particular form of NTM that the investigator does not take into account or include in the analysis, then trade may appear much freer than it actually is. Second, even for those NTMs that are included, it is extremely difficult to process the diverse direct information that is available on each NTM in a way that will be comparable across NTMs and thus permit them to be added up to obtain a total measure of trade interference. Fortunately there exists a variety of more general approaches that can bypass some of these difficulties, though admittedly while introducing new ones. The various general methods that have been used or attempted for measuring NTMs are as follows: price-comparison measures, quantity-impact measures and equivalent nominal rates of assistance.

## General Methods for Measuring the Presence/Size of NTBs

## Price-comparison measures

The impact of non-tariff measure can be assessed in terms of the effects it has on domestic price when compared to some reference price. Since the price impact is a general feature of NTM, such a price comparison can identify the total impact of all NTMs that exists in a market without the help of an investigator. The purest measure of an NTM in the price dimension is one that compares the price, p0 that would prevail without the NTM with the price, p2 that would prevail domestically with the NTM if the price paid to suppliers were to remain unchanged. However, because both of these prices are usually impossible to observe, actual measures of NTMs have focused instead on a comparison of the domestic and foreign prices in the presence of the NTM, p′1 and p1. Letting upper case letters represent the prices themselves, as opposed to their logarithms, these price comparisons are normally reported either as price relatives,(1) R = 100 x P′1/P1or as a percentage difference between the prices, comparable to a tariff,(2) T = 100 x [P′1! P1]/P1In the latter form, depending on the particular prices used in the comparison, these measures are commonly referred to as tariff equivalents, implicit tariffs, or implicit protective rates.

## Choosing Appropriate Prices

In order to apply this methodology it is necessary to identify the appropriate prices in data that are available. This is complicated largely because, at least at manageable levels of aggregation, goods of a particular " industry" that are imported into a country are seldom identical to other goods in that industry that are produced domestically, and they may also differ from goods that are produced, sold, and perhaps traded elsewhere, abroad. Thus we may identify several different prices of the " good" in question, and these would not necessarily be equal to one another even if trade were perfectly free. It will be useful to give names to some of these prices: Pdd - The price of the domestic substitutes for the imported good. Pdm - The price on the domestic market of the imported good itself. Pd - The price of the good on the domestic market, independently of where it was produced; thus an index of Pdd and Pdm. Pcm -The (c. i. f.) invoice price of the imported good as paid by the domestic importer to the foreign exporter, inclusive of transport costs but excluding tariffs. Pxd -The invoice price received by an exporter of the good from the domestic country, excluding any transport costs and export tax. Now we would argue that the appropriate prices to use in measuring an NTM are the domestic and invoice prices of the imported good, Pdm and Pcm. We recognize of course that it may be difficult to find adequate measures of Pdm and Pcm depending on how general and more aggregated is the analysis being conducted. Thus domestic price measures typically do not distinguish domestically produced from imported goods. In this event, if Pdm is not available, it may be necessary to use Pd instead. The " implicit tariff rate" may accordingly by calculated from the formula above for T but using Pd and Pi as the relevant prices:(3) IT1= 100 x [Pd ! Pcm] / Pcm. This is a valid measure of an NTM to the extent that the domestic and imported goods that are combined in Pd are perfect substitutes, so that they sell for the same price in the domestic market. But in general, this measure has the serious disadvantage of incorporating information about the apparent substitutability of domestic and foreign goods. For example, a barrier that raises the domestic price of an import good by 10% may raise the price index in the domestic market by much less than that if imports are only a small part of the market and if imports are only a poor substitute for domestically produced goods in the same industry. Furthermore, if domestic varieties are of higher quality than imports, then this measure will find protection even if there is none. This method works best, then, for homogeneous products for which the invoice price of imports can either be observed directly, or constructed from the price on a unified world market. In case the invoice prices of imports are also unavailable, an alternative is to make do with domestic prices only, but taken from a variety of countries:(4) IT2 = 100 H[Pd ! Pd\*]/Pd\*Here Pd\* may be either the domestic price in a particular foreign exporting country, in which case the measure may be of a bilateral NTM, or it may be the minimum domestic price among all foreign exporters. Thus, suppose that exporting firms are perfectly competitive or otherwise unable to price discriminate, and that all goods in the industry are perfect substitutes everywhere. Then domestic prices abroad will equal foreign export prices of the same goods, and this will be a valid method of measurement. However, this method will be even more subject to error from imperfect substitutability than the one described in the preceding paragraph since both Pd and Pd\* will include prices of imperfect substitutes with which the traded good competes. In addition, if foreign suppliers can price discriminate between exports and their own domestic markets, Pd\* will overstate the prices of " dumped" imports and thus IT2 will understate protection in the importing country. Finally, a basic difference between these two measures is that IT2 includes transport costs while IT1 does not.

## Quota-Auction Price Measures

In addition to the foregoing, we should also mention quota-auction price measures that have been calculated in connection with the Multifiber Arrangement (MFA). The MFA can be characterized as a voluntary export restraint (VER) in which the import quotas are allocated to foreign suppliers. We have assumed thus far with respect to import quotas that the import licenses are allocated to competitive firms in the importing country, in which case measurement of the price effects of the NTM can be analyzed. Alternatively, if the licenses are allocated to foreign suppliers, the import price becomes effectively the domestic price in the importing country, assuming that the foreign supplier captures all the rents involved. To measure the size of the NTM associated with the VER, we therefore need information on the price of the good in the exporting country (P\*d) and the auction price of the quota (A). The tariff equivalent of the VER is given by:(5) IT VER3= 100 × A/Pd\*In interpreting equation (5), it should be noted that if the VER is not binding, the auction price of the quota should be zero. If the auction price is not zero, then the ostensibly nonbinding quota is still having an effect. Furthermore, if market conditions are imperfectly competitive, some of the rents may be captured by importers. The availability of appropriate data also poses serious problems of measurement, although as the name suggests, if the licenses are allocated by a formal and public auction, the auction prices may be public knowledge, making this one of the easiest NTMs to measure. More commonly, however, VERs are allocated directly to firms and measurement of A is problematic, requiring knowledge of the prices charged by these firms in both their domestic and foreign markets. In some cases, while no auction may be used to allocate the quota initially, a secondary market for the transfer of quota rights may be permitted, and the market prices of these transfers may be used in place of A. Care should be taken to obtain a representative sample of transfer prices, however, since they may vary over time and space.

## Measures of Equivalent Nominal Rates of Assistance

While our discussion thus far has focused mainly on border policies that restrict trade, those who have used these measurements for the purpose of estimating assistance to industry have had to take into account other domestic policies. A more comprehensive measure is therefore needed that can aggregate all of the different types of incentives or disincentives that may exist. Two such measures that may be calculated are the: (1) nominal rate of assistance on outputs (NRA); and (2) nominal rate of assistance on materials (NRM) (intermediate inputs). The NRA of an industry reflects those policies, such as tariffs and other border measures, that raise the price of the industry’s output. The NRM of an industry, in contrast, reflects those policies that raise the prices of inputs to the industry, thus taking account of policies in other industries and the input-output interactions among industries. The NRA and NRM, in turn, provide the basis for calculating the effective rate of assistance (ERA), which is analogous to the effective rate of protection (ERP) and is a measure of the structure of net incentives affecting particular sectors. Under certain specified assumptions measures of the ERA can be used to analyze how the structure of net incentives may affect the allocation of labor and capital among the sectors of an economy.

## Quantity-Impact Measures

It should be noted that a shift of an import demand curve due to an NTM can be defined in either the price or the quantity dimension implying that the shift can be measured by observing changes in the quantity of imports instead of changes in the price of imports. Indeed Jager and Lanjouw (1977) have argued that a quantity measure is preferable to a price measure in that it comes closer to telling us what we really want to know about the effects of an NTM: that is, by how much it reduces trade. They argue further that price measures such as tariff equivalents fail to provide this information, since the relationship between the price and quantity effects of an NTM is a complicated one involving all of the elasticities of demand, domestic supply, and foreign supply. Thus a direct measure of the quantity reduction due to an NTM would be desirable, if only as a supplement to the information provided by prices. Indeed Jager and Lanjouw (1977) have argued that a quantity measure is preferable to a price measure in that it comes closer to telling us what we really want to know about the effects of an NTM: that is, by how much it reduces trade. A general approach to measurement of the quantity effects of NTMs is possible, however, using either a cross-commodity or a cross-country regression model to explain trade. Thus the object again is to estimate what trade would have been in the absence of NTMs and to compare this to the trade that actually does occur. To do so requires a satisfactory model of the determinants of trade, as well as data covering a sufficient variety of trading situations.

## Costs and benefits of NTMs

There are different types of non-tariff measures and analyzing the costs and benefits of each type gives a better overview of the cost and benefit of NTMs as a whole.

## Quotas

Quotas are anticipated to foster domestic producers, hence saving domestic jobs and diminishing the outcome of trade on the environment.

## Job Protection:

Quotas foster domestic jobs by assuring that to meet the current demand, foreign products cannot be imported in sufficient number. This warrants that domestic companies withhold a percentage of the existing market shares. Retaining domestic companies competitive prevent them from closing plants and draining their work forces.

## Government Benefits:

Quotas avail the government because domestic enterprises keep the employment of people. This not only abridges the urge for government assistance but it assures that people are able to pay sales, assets and income taxes.

## Consumer Benefits:

Quotas appear to be harming consumers by nurturing higher prices. However, protecting domestic job strengthens the economy by repressing increases in unemployment. Manufacturers still must be prudent not to enlarge their prices so that demand is not exceeded by supply and quotas in a way help them to compensate for subordinate overhead costs incurred by manufacturers from abroad.

## Environmental Benefits:

Several environmental concerns are raised due to international trade, including transportation which result in pollution and the over shadiness of natural resources in developing countries. The environment is fostered by quotas by increasing export prices which lessen demand and therefore moderate the need for raw materials either to transport or manufacture goods. However, quotas require companies, organizations and individuals to accomplish a quantitative goal by a specific time the disadvantages of quotas are numerous.

## Production drawback:

Although quotas often help maintain companies profitable, they also affect production negatively. When companies set quotas, poor product quality is resulted in as employees endeavor to produce a large number of products as quickly as possible. If the government set the quotas, the number of products produced is often limited. This can decrease the supply, which can heighten consumers’ prices.

## Import drawback:

Import quotas are set by the government in an effort to restore domestic production. Although local economies are boosted, it can also have a negative impact. Companies will sometimes delve to hinder quotas by bribing officials. A widespread corruption is resulted as rapacious companies procure, and smaller companies cannot compete. A black market for products is created due to quotas, as consumers turn to illegal ways to acquire the desired goods.

## Hiring drawbacks:

When employees are hired in a new company, quotas are usually set. Many people argue that corporations and organizations should delegate a set of people from different population demographics. For example, there should be approximately an equivalent number of men and women in a company. Others dispute that this policy honors individuals who are not qualified for the job. Companies may dominate candidates if they do not fit into one of the demographic quotas. If this occurs, the company’s output will be poorer.

## Aid drawbacks:

When quotas are set for aid organizations, the quality of the service is neglected as there are a large number of people they must help. Since, these organizations pursue to help a large number of people; they often set quotas for these people. However, if an organization inquires the provision of shelter a large number of people, the quality of these shelters may be deterred.

## Bans

The bans are often used to prevent importation of country’s products is inferred to be capable of producing by oneself. Those secured by the bans argue that the countries’ lack of infrastructure, especially energy, means that they cannot be challenged adequately with imports without protection. The import bans enhance the situation of domestic producers since they contract the amount of goods that are available on the official market and hence restrict trial for local companies. Consequently, these products have a price which is greater in the domestic market than they are in the national market. However, this impacted negatively on consumers of these products who have lesser conglomerations to select from and have to pay more. The well-being of consumers is typically not well structured in scrutiny and decisions on trade policy measures. Moreover, import bans augment the input prices to producing industries, including those with the supreme growth and potential of employees. Building materials such as cement, steel and timber are an example of how trade policy can have a consequence throughout the value chain, as these materials are secured by tariffs which are elevated, while structural timber imports are banned. The growth of this industry is fastened by increases in construction costs which have considerable employment potential. However, bans have negative effects. Import bans strike poor people by raising the cost of living; there is an increasing number of people who live below the poverty line. Many of banned goods are basic products for which there is forceful requisition from the poor who cannot afford such heightened prices. Licences which are allocated are very opaque and has recently drawn criticism by giving potentially huge earnings to the particular individuals granted licences. However, both these approaches for importing products which are banned involve expenses and the demand cannot be met with the level of imports that would be present in the absence of the import bans. When bans are implemented they also entreat switching customs officials distant from routine duties of control at the border to halt smuggling. This has increasing hindrance at ports as endorsement times for regular imports increase, the prices of all imports has also increased. These further increments the charges for consumers and attenuate competitiveness of firms since critical inputs are more exorbitant and delivery times uncertain.

## Standards and Technical Regulations

The use of standards and technical regulations as instruments of commercial policy in unilateral, regional, and global trade contexts has increased as tariff and quota barriers continue to decline Standards and technical regulations are principally used to mitigate food, animal and plant safety risks, and to provide common norms for product characteristics. However, these technical requirements also can constitute barriers to trade by imposing unnecessary costly and time consuming tests or by laying out various requirements in different markets. These technical requirements are of particular concern to developing countries that are seeking to penetrate industrialized country markets.

## Pre-shipment Inspection

Pre-Shipment Inspection (PSI) amplifies duty collections. When duty assessments are undertook in the country of export, importers have no room to force customs to assign lower rates. Without PSI, a reduction in revenue collections is observed when Agreement is introduced in countries. PSI assures that the implementation of the Agreement is done as desired by the WTO, and in a way that nurtures duty revenue collections. Trade facilitation: there are two import procedures that can delay trade and they are: inefficient Customs administrations and the failure of importers. Rapid Customs clearance is guaranteed by a pre-shipment certificate, by embarking the necessary substantial and documentary investigations before the merchandise is executed. Capital flight in countries is deterred by PSI where inflated terriers are deliberately prevented by the existence of exchange controls. Foreign exchange reserves can be depleted, which can also diminish the taxable income declared by multinational companies. PSI significantly reduces the occurrence of prohibited imports by supervising shipments in the country of export before delivering.

## Market Imperfections

Abstracting from outright protectionism, regulations are designed to address market failures and imperfections. We consider three different types: 1) those affecting consumers; 2) those affecting producers; and 3) global commons issues, usually related to the conservation of valuable eco-systems. Many NTMs attempt to remedy external effects. Externalities occur when some agent’s utility or production depends on the choices made by other agents, who do not factor these external effects into their decision making. As a consequence, there are costs, or benefits, associated with the externality that fall on some agent but are not reflected in market valuations. It is useful to characterize an externality by its point of impact in order to organize the discussion. When the external cost or benefit arises in consumption it will be referred to as a consumption externality, and similarly for production externalities. As an example, consider harmful chemical residues that arise in production of some food products for which their possible health impact occurs on the consumption side; this type of externality will be referred to as a consumption externality.

## Removal of NTMS

## Africa

The Member States of the three Regional Economic Organisations of the COMESA, the East African Community (EAC) and the Southern African Development Community (SADC) started the COMESA-EAC-SADC Tripartite Free Trade Area on 12th June 2011.  The latter aims at reducing tariffs imposed on goods coming from and exchanged in the area. However, in addition to tariff barriers, the producers, exporters and importers of the region also face numerous Non-Tariff Measures (NTMs). The legal tools of the three Regional Economic Communities namely; Articles 49 and 50 of the COMESA Treaty, Articles 75(5) of the EAC Treaty and Article 6 of the SADC Protocol on Trade, therefore, provide for the removal of NTMs to trade and further forbid the introduction of new ones.  Article 10(1) of the Tripartite Agreement requests Tripartite member States to get rid of all existing NTMs to trade with other member States and not enforce any new ones. Also, an essential part of the Tripartite Free Trade Area is the design and execution of a programme whose aim is to reduce those barriers to trade. It is noteworthy that the above mentioned organisations have, in the past, put in place different mechanisms to identify report and supervise elimination of NTMs and settle disputes. These mechanisms have, to a large extent, identified all the common NTMs encountered in the region and the number of times at which they occur and has made attempts to facilitate motion at the Council of Ministers level and other consultative processes. With the support of Trademark Southern Africa (TMSA), COMESA, EAC and SADC have implemented and strived to improve awareness concerning an NTM reporting, monitoring and eliminating mechanism, which has enjoyed great success since its upgrade in 2010. For instance, during 2009/10, a round of awareness raising workshops was held in all the SADC Free Trade Area (FTA) member states. Furthermore, private and public sector awareness workshops were held in Kenya, Comoros and Rwanda between November 2010 and March 2011. The online system is accessible on www. tradebarriers. org. Operators can directly report and monitor the resolution of barriers that they encounter in the African region. This new system improves transparency and makes it simple to follow-up reported and identified NTBs. Another case that can be considered concerning steps being taken to eliminate NTMs is that of Rwanda and Uganda. In July 2012, they signed bilateral agreements to eliminate the NTMs to promote cross border trade and development of micro and medium small enterprises. Moreover, there are plans to coordinate all institutions working at the borders to avoid bureaucracies that trader's encounter while trying to clear their goods. Nonetheless, those statements are unlikely to ease movement of goods and people in the two countries as, in spite of verbal commitments, nothing concrete has been resolved to remove these barriers. Unless governments agree to a time frame to have the barriers removed, trade and movement will remain hard.

## America

The North American Free Trade Agreement (NAFTA) emerged on the 1st January 1994. The objective of this trade agreement is to remove barriers in terms of trade and investment in Mexico, Canada and the United States. Under this agreement, there was a complete removal of non-tariff measures between Mexico and the United States. Moreover, many tariffs were wiped out immediately while others were eliminated over a period of 5 to 15 years.  NAFTA also included an agricultural provision of the US and Canada free trade agreement which stated the removal of all tariff barriers having an impact on the United States and Canada by 1st January 1998. It should also be noted that Mexico and Canada reached an agreement on market access for agricultural products. As a consequence, most tariffs were removed either immediately or on a period of 5 to 10 years.

## Bangladesh

Developing countries need to urgently emphasize on the removal of non-tariff barriers if they want trade and growth to be promoted. India was demanded to remove para-tariff and non-tariff barriers and enhance Indian investment to Bangladesh to increase the trade between Bangladesh and India. Duty free and quota free market access were provided to Bangladesh. But these were not enough to pick up the benefits of such facility due to NTMs. This is why Bangladesh wants all the barriers to be removed to make import and export easier and also to reduce the trade gaps. Besides, the legalizing of cattle trade in borders was demanded by the former to prevent unexpected incidences by killing the Bangladeshi people.

## Thailand

For the last two decades, Thailand’s average tariff has been reduced to cope with its export-oriented trade policy. As a result, the rate of protection has been declined in general. Despite tariff rate reduction, a number of peak rate tariff is still applied in a wide range of products; automobile; dairy products (milk powder), etc. to provide protection for domestic (infant) industries. Besides, the tariff quotas are applied in several products such as dairy products. Increasing numbers of SPS and TBT measures along with an increase in varieties of traded products and the number of trading partners involve products imported to Thailand. Subsidies are also applied in several agricultural products under price intervention schemes. Anti-dumping applied on Iron steel and stainless steel in Thailand and in 13 other countries and more products are recently been added namely: grass block, citric acid and many others.

## Japan

India suggested Japan to eliminate all non-tariff barriers so that the domestic industry can be advantageous on the comprehensive free-trade agreement and augment its share in the Japanese market. According to the 44th ASEAN meeting, India came up with this suggestion so that the Cepa could shine. The Indian pharmaceutical industry will gain a major thrust with this deal. Apparently the exports from India for generic drugs have increased a great deal, but its share is still 1% of total Japanese pharmaceutical market. As the world’s second largest market, Japan has agreed to remove duties on imports of Indian generic drugs. The biggest problems that the Indian companies are facing currently are non-tariff obstructions such as tedious registration process and language communication. Japan imports from India petroleum, transport equipment and machinery and exports iron and steel, chemicals and metals. Besides, Europe demanded Japan to remove it’s notoriously though NTBs such as trade licensing, declarations, inspections, labeling, certification, port clearance and other red-tape. If not, they will put the plug on the negotiations after one year.

## NTMs in Mauritius

Mauritius, is a country forming part of the WTO, and as such, it should abide by the latter’s policy related to the non-tariff measures. In other words, Mauritius should not be restricting any kind of trade practices to occur which can affect the overall production capacity of the world. In case the latter is taking place, it should be justifiable, for example, for consumer protections purposes, for environment protection purposes or for the health and safety of the population as a whole, failing which, Mauritius would be deemed to be making use of non-tariff barriers. Mauritius imposes different kinds of NTMs to other foreign countries and, as explained by Mr V. AMOOMOOGUM, Trade Analyst at the Mauritius Chamber of Commerce and Industry (MCCI) following an interview, the above may be exemplified as follows. Firstly, Mauritius has listed commodities that are completely prohibited to import and these can be seen in the second schedule of the Consumer Protection (Control of Imports) Regulations 1999. Some examples would be White phosphorous matches, Ivory and Tortoise Shell, Underwater fishing guns, Toy pistols and guns with projectiles, White phosphorous matches, " petards rapes" and so on. Another non-tariff measure would be the quantitative restrictions, such as quotas or complete prohibition to import of certain goods as prescribed under the fourth schedule of the Consumer Protection (Control of Imports) Regulations 1999. Some examples would be the yearly quota of potato and sold that is allowed to be imported, gold that can be imported only by factories in the EPZ or by jewelers. In addition to the aforementioned, commodities such as second hand or reconditioned motorcycles/vans/trucks are banned from being imported. Moreover, in the Consumer Protection (Control of Imports) Regulations 1999, a list is also available for products that need to meet certain specific conditions to be in a position to be imported and they are shown in the latter’s fifth schedule. For example, the rice that are imported by traders other that the State Trading Corporation (STC) should contain less than 10% broken rice. Also, to be able to import second hand vehicles, the latter should be between 18 months and 48 months from the first date of registration at the shipment date and it also should be a ‘ right-hand drive’. Furthermore, Mauritius has a list of products requiring an import permit, without which, imports will not be able to take place. The latter is listed under the first schedule of the Consumer Protection (Control of Imports) Regulations 1999 and includes general goods such as chilled or frozen fish, milk, onions, potatoes, lemons, rice, maize, salt, Portland cement and so on. The permits for the different products are to be obtained at different institutions as shown in the table below.

## Products

## Certificate Required

## Application needs to be submitted to the

Live animals, meat and meat productsAn Agricultural Landing Permit (ALP)Ministry of Agro-Industry and Food Security, Agricultural Services, Veterinary Services DivisionFlowers, Fruits, Vegetables and WoodAn Agricultural Phytosanitary CertificateMinistry of Agro-Industry and Food SecurityAgricultural ServicesFood ItemsA Pre-Market Approval Certificate and, Food and Drugs PermitMinistry of Health & Quality of LifeFood Import UnitFood and Drugs PermitA Food and Drugs PermitMinistry of Health and Quality of LifeCanned meat products & animal by-productsAn Import Permit from the Veterinary Services DivisionMinistry of Agro-Industry and Food SecurityAgricultural Services, Veterinary Services DivisionFish and Fish ProductsAn Import permit from the Ministry for Fisheries and RodriguesMinistry for Fisheries and RodriguesFisheries DivisionAgricultural ProductsA Permit from AMBAgricultural Marketing Board (AMB)TeaA Permit from Tea BoardTea BoardMedicines and Pharmaceutical ProductsA Permit from Pharmacy BoardMinistry of Health & Quality of LifePharmacy BoardChemicals and PesticidesA License from the Dangerous Chemical Control BoardMinistry of Health & Quality of Life Dangerous Chemicals Control BoardTobaccoA Permit from Tobacco BoardThe Tobacco BoardIron BarsA Permit from MSBMauritius Standard Bureau (MSB)Toys, Helmets and Plastic FittingsA Certificate from the MSBMauritius Standard Bureau (MSB)Arms, Ammunition and ExplosivesA Police Permit from the Mauritius Police ForcePolice Head QuartersLine BarracksRadio-Communication and Telecommunication EquipmentA Dealer’s License from ICTAInformation Communication Technologies Authority of Mauritius (ICTA)Motorcycle Brakes (AFC)An Asbestos Free Certificate (AFC)Ministry of Health & Quality of LifeSource: mcci. org

## NTMs faced by Mauritius

Despite being a small island, with quite few natural resources, Mauritius has successfully managed to develop its economy into an export-oriented one. Today, even though textile remains a key element of the export sector, the country has also diversified into other sectors like fish & fish products, chemical goods, optical goods and jewellery. The European Union is the most important development partner for Mauritius, the sole development partner providing grants. The European Union represents also the most important market for Mauritius (around 70% of Mauritius' exports) and access to the EU market has always been a priority for the Government and private sector of Mauritius. Along with the other countries of the Eastern and Southern Africa (ESA) group Mauritius negotiated an interim Economic Partnership Agreement (EPA) with the EU and signed it in August 2009. This economic partnership agreement has contributed to the promotion of trade between the parties and the acceleration of export led growth to enable the integration of ESA countries into the global economy. In Title III of the framework, the non-tariffs measures are specified. Article 17 mentions about the prohibitions of quantitative restrictions and Article 18 concerns the national treatment on internal taxation and regulation. The African market has a huge untapped export potential for Mauritius. This is attributed to the physical and cultural proximity of Mauritius to Africa. As a member of the Southern African Development Community (SADC), COMESA and the Indian Ocean Commission (IOC), Mauritius benefits from preferential access to the region. Mauritius export to Africa include products such as textile and clothing products (textile yarn, fabrics, made-up articles), flour, instant & dried noodles, short cut macaroni, paint manufacturing & related products, toilet soaps, detergents, laundry soaps, printing & packaging, printed plastic bags, laminated bags, spirits and animal nutrition products. In order to be in line with phytosanitary and veterinary norms, certificates are required for the exportation of products such as animals and animal products, agricultural produce (e. g. Fruit and flowers). These Certificates of origin are the Indian Ocean Commission, the AGOA, the Mauritius-Pakistan PTA, the GSP, the COMESA, the EPA/EUR 1, and the SADC Certificates of Origin. These certificates are mostly required by the importing country. Exporters of these products have not complained about the problems for obtaining such certificates which are generally meant for the European market. The Custom Authority of an importing country ask for a certificate of origin before deciding whether the goods being imported should receive any benefits from a particular trade agreement or prior to anti-dumping charges. Furthermore, importers also require a document called the certificate of inspection. It is a proof of whether the imported goods correctly corresponds to the order and more importantly this certificate confirms the good quality of the cargo.

## Complaints made by Mauritius related to NTMs

Mauritius has imposed a lot of NTMs towards other foreign countries but it should be noted that Mauritius, itself has been the victim of many NTMs and NTBs imposed by other countries. Nevertheless, its government has not remained silent and decided to voice out for the rights and betterment of the economy. On the 6th September 2011, Mauritius, reported issues related to the rules of origin where Madagascar did not give originating status to Citron Plus soap which was produced in Mauritius and exported there. This was considered as a non-tariff barrier and in August 2011, the COMESA committee was directed to deal with Madagascar to officially remedy to that situation, despite the fact that at that time, Mopirove Ltd, a Mauritian private company was exporting without any difficulty. This was done to avoid risk of refusal of COMESA’sCertificate of Origin from Mauritius by the Madagascar’s customs. Also, there was another issue which was reported by Mauritius. It was on the 26th July 2009 and this time it was against Kenya on the grounds that the latter imposed restrictive import permit for the importation of bread flour, which on doing some research, was found to be existent for more than 10 years. Related to that, Kenya showed that the matter was a problem of rule of origin issue, as ‘ COMESA rules’ at that time from Mauritius to Kenya were not in effect, and not that of import restrictions. It should however be noted that in many cases it is really difficult to draw a clear line of demarcation between NTMs and NTBs. For instance, the European Union decided to implement a strict standard allowing only 4 parts per billion (ppb) of total aflatoxins in cereals, dried fruits and nuts for direct human consumption and this had the estimated effect of decreasing the African exports of the latter by 64%or US$ 670 million per year as compared to a less strict value of 15 ppb total aflatoxins established by the international norm.

## Complaints made against Mauritius in relation to NTMs

This is a two way traffic where, on one side, Mauritius has been reporting a lot of NTMs issues but there also has been some which were recorded against it. This arises mostly as the fruit of the fact that Mauritius wants to protect its local industry and as such, its economy. Many issues have been reported and dealt with by specially set up committees. One issue that was held was that of the quantitative restrictions made on sugar imports which were reported by Malawi on the 27th July 2009. Malawi stated that importing sugar is subject to licensing but not complete ban. To counter that, Mauritius put forward the fact that trading of sugar is done solely through the Mauritius Sugar Syndicate (MSS) due to strategic reasons for safety of supply but in March 2011, it had had to uplift the import restrictions as this was not justifiable enough at the NTB meeting. Another complaint would be that of the monopoly power exerted by the government of Mauritius relative to import and export and this was lodged by South Africa on the 26th July 2010. In its defence, Mauritius reported that it was a net food importer and as such, regulated agencies are imperative for the good coordination of food imports so as to enforce food security purposes.

## NTMs in the 21st Century

In today's world trade, the virtual substance of non-tariff measures vis-à-vis international trade for most countries' exports has grown significantly. The multilateral trading system has incessantly evolved to take into consideration the changing nature of NTMs. Approaches have evolved over time, and changes in the trading environment have affected governments’ use of non-tariff measures; especially in recent practical difficulties the world economy has been facing, this has allowed us to assess the concern when dealing with NTMs engaged in public policy and its related trade impact. The recent financial crisis, which has had an influence on the use of NTMs by governments worldwide, is a case in point. In retort to the crisis, subsidies, in the form of direct funding, special loans and guarantees, were provided to rescue a number of financial institutions in various advanced economies (Baldwin and Evenett, 2010). These emergency measures in the financial sector were associated with public policy objectives; they were deemed necessary to curtail the mushroom of systemic damage and assist restore the usual operation of financial markets, crucial for both consumers and producers across the world. Many countries, as a result, introduced subsidies to support consumers internationally. Yet, high levels of unemployment have a consequence near governments making to alternate to non-tariff measures that discriminate against import product with domestic ones. It becomes, thus, hard to distinguish practically between measure adopted for policy reasons and those that comprise of deliberate protectionism. Such vagueness in motivation is deeply stressed by increased incidence of intermediate goods traded in global supply chains. The magnitude of NTMs in restricting international trade has recently been quantified in a number of studies by the UNCTAD and other organizations. The results are striking as they show NTMs have a large impact on the cost of cross-border transactions and that many of the policies have a much higher restrictive effect than traditional tariffs. In many cases, NTMs are far more important than tariffs in restricting access to markets. For example, although existing systems of preferences grant low-income countries a relatively low tariff for their agricultural exports, about 5% on average, once the ad valorem equivalent effect of NTMs is taken into consideration the total restrictiveness becomes much larger, at about 27%. Isolating the purpose behind the usage of non-tariff measure becomes exceptionally important in situations of crises as it can clearly lead to beggar-thy-neighbour policies, that is, restricting trade activities by one specific country can trigger retaliate actions by other countries, causing a spiral of ever more hostile restrictions. Close monitoring and coordination becomes a crucial point in mitigating the unenthusiastic effects of NTMs; ensuring greater transparency in their use is imperative in safeguarding consumer interests and preventing a proliferation of protectionist measures. An outcome of the recent crisis was the revival of the WTO’s trade monitoring mechanism in October 2008. The resuscitation of this monitoring mechanism symbolizes an enhancement in addressing transparency in the use of NTMs. It can act as a communication device to solve a coordination problem that leads to excessive protectionism. By ameliorating transparency in the employment of NTMs, WTO’s monitoring mechanism can usher members to better economic welfare conclusion.

## Conclusion

The abovementioned literature reviews the relative taxonomy of NTMs, different approaches in examining NTMs and its relative impact on the world trade. The other sections of the paper sketch out the contours of a cost and benefit analysis in the regards of certain NTMs, investigate how NTMs are measured and what various countries in different regions of the world are doing to remove such barriers. Concluding with our economy, past studies has showed that compared to top economic performers like Hong Kong and Singapore, Mauritius is lagging behind on time necessary for dealing with exports and imports transactions. For instance, while Singapore takes 6 days to conduct trade transactions, Mauritius uses 12 days. Regarding imports in particular, lack of coordination among multiple agencies issuing permits/clearances reflect regulatory deficiencies in the business environment. A detailed analysis on the effects of NTMs is needed to shed light on what are the minimum measures required to regulate vital areas like health and the environment and what measures act as barriers to trade and competitiveness.