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McCarty (1999) in his analysis emphasize that Non-Tariff Measures (NTM) are defined by what they are not and usually the term Non-Tariff Measures (NTM) and Non-Tariff Barriers (NTB) are used wrongly. NTM and NTB are not synonyms but rather NTB is a sub-set of NTMs. A definition of NTB is given by OECD (1997, pp 69) for one of their studies as ‘ the border measures other than tariffs that may be used by countries, usually on a selective basis, to restricts imports.’ The UNCTAD Trade Analysis and Information system (TRAINS) includes mainly border measures under NTB. For NTM, McCarty writes:‘ NTMs can include measures that promote exports, which are not ‘’barriers’’ at all. This more neutral sound term is also preferred by governments to describe measures used to monitor imports for legitimate purposes (e. g internationally recognised plant quarantine procedures). Further, for example, if quotas are not binding (above what a non-quota market would import, or export anyway), then it is difficult to characterise them as barriers.’A comprehensive definition for NTM has been given by the UNCTAD as the ‘’policy measures, other than ordinary customs tariffs, that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both" The term non-tariff measures is defined to include export restraints and production and export subsidies, or measures with similar effect, not just import restraints. This is the term most widely used in GATT and UNCTAD. The term ‘ distortion’ is also widely used. The definition provided by Baldwin (1970a) is notewrothy, who defines nontariff 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’.

## 2. 0 Purpose of NTM

The United Nations Conference on Trade and Development (UNCTAD) has been actively involved in research and programmatic activities on issues related to non-tariff measures since the early 1980s. Non tariff measures are often applied as alternative trade policy instruments, as multilateral trade agreements impose limits on the use of traditional trade policy instruments, such as tariff s. So, the result is that NTMs are rapidly gaining importance in regulating trade, and have almost replaced tariff barriers in manufacturing sectors. At the UNCTAD XI conference, the São Paulo Consensus (2004), Member States requested the Secretariat to seek a better understanding and assess the impact of non-tariff measures to facilitate the extension of market access liberalization for non-agricultural products under the Doha Work Programme, and eventually reduce non-tariff barriers (NTBs), in particular on products of export interest to developing countries. It was recognized at São Paulo that in spite of their importance in regulating trade, there is little understanding of the exact implications of NTMs on trade flows, exported growth and social welfare in general. To carry out the technical work of the Group of Eminent Persons on Non-Tariff Barriers (GNTB), a Multi-Agency Support Team (MAST) was also set up by the GNTB. In addition to UNCTAD, the MAST is composed of the following organizations: Food and Agriculture Organization of the United Nations (FAO), International Monetary Fund (IMF)International Trade Centre UNCTADOrganization for Economic Co-operation and Development (OECD), United Nations Industrial Development Organization (UNIDO), World BankWorld Trade Organization (WTO). The team is composed of experts drawn from the above international organizations dealing with substantive analysis of NTMs. After a series of MAST meetings and consultations, this technical group proposed the following definition of NTMs:" Non-tariff measures (NTMs) are policy measures, other than ordinary customs tariffs, that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both."

## 2. 1 Non-tariff measures classification

## Technical measures ((Import)

Sanitary and Phytosanitary measuresTechnical barriers to tradePre-shipment inspection and other formalities

## Non Technical Measures

Contingent trade protective measuresNon-automatic licensing & quantity control measuresPrice control measures, additional taxes and chargesFinance measuresMeasures affecting competitionTrade related investment barriersDistribution restrictionsRestriction on post sales servicesSubsidiesGovernment procurement restrictionsIntellectual propertyRules of origin

## Exports

Export measures

## 2. 1. 1 Technical Measures

## Sanitary and Phytosanitary measures (sps)

It gathers measures such as restriction for substances, ensuring food safety, and those for preventing dissemination of disease or pests. Human life, animal life and wild fauna and flora will be protected from different risks such as contaminants, diseases and toxin. It also includes all conformity assessment measures related to food safety, such as certification, testing and inspection, and quarantine. There will be certain restrictions on imports of specified products which lack sufficient safety conditions and also due to infectious diseases[1]. There is a requirement for the importers to receive authorization and they should be registered before importing the products. Concerning substances[2], there will be a maximum residue limit. Additionally, the food imported must be hygienic, well labeled ad well packed.

## Technical barriers to trade(TBT)

It refers to measures as labeling, standards on technical specifications, and quality requirements, and other measures protecting the environment. It also includes all conformity assessment measures related technical requirements, such as certification, testing and inspection, labeling, marking and packaging requirements.

## Pre-shipment inspection and other formalities

It related to the pre-shipment inspections and other customs formalities. Normally, a pre-shipments inspection by an independent inspecting agency is required for verification of the quality and quantity of the materials and the goods must be shipped directly from country of origin.

## 2. 1. 2 Non-Technical Measures

## Contingent trade protective measures

These measures are implemented to reduce the amount of imports including measures to avoid " unfair" foreign trade practices. They include Antidumping, Countervailing, and Safeguard measures.

## Anti-dumping measure

Dumping takes place when a product is introduced into the commerce of an importing country at less than its normal value and these imports are dumped into domestic country and are causing injury to the domestic industry producing the similar product. Anti-dumping measures may take the form of anti-dumping duties, or of price undertakings by the exporting firms.

## Countervailing measure

A border measure applied to imports of a product to offset any direct or indirect subsidy granted by authorities in an exporting country because the subsidized imports of that product from that country are causing injury to the domestic industry producing the similar product in the importing country.

## General (multilateral) safeguard

A temporary border measure imposed on imports of a product to prevent serious injury caused by increased imports of that product and to facilitate adjustment.

## Non-automatic licensing & quantity control measures

They are usually used in trade policy include licensing, quotas, other quantity control measures and tariff rate quota. Control measures used to restrain the quantity of goods that can be imported. These measures can take the form of non-automatic licensing or through prohibitions[3]. Export restraint arrangementIt is an arrangement by which an exporter agrees to limit exports in order to avoid imposition of restrictions by the importing country, such as quotas, raised tariffs or any other import controls[4]. QuotasIt is a measure to restrict import of specified products through the setting of a maximum for goods to be imported. Voluntary export restraint arrangements (VERs)It is an arrangement made by government of an exporting country to " voluntarily" limit exports in order to avoid imposition of mandatory restrictions by the importing country. VER are made usually on the request Typically, VERs are a result of by the importing country to provide a measure of protection for its domestic industry. Tariff Rate Quotas (TRQ)A system of multiple tariff rates applicable to a same product: the lower rates apply up to a certain value or volume of imports, and the higher rates are charged on imports which exceed this amount.

## Price control measures, additional taxes and charges

Price control measures are implemented to control the prices of imported goods and to protect the domestic price of certain products. Among the examples, are those to support the domestic price of certain products when the because of price fluctuation in domestic markets, price instability in a foreign market or preserve tax revenue.

## Finance measures

These are measures to restrict payments of imports. They are intended to regulate the access to and cost of foreign exchange for imports and define the terms of payment. They tend to increase import costs in the same manner as tariff measures. For e. g. there will be the requirement of advance import deposit.

## Measures affecting competition

They are measures that grant special preferences to one or more limited group of economic operators. They are mainly monopolistic measures such as state trading and sole importing agencies.

## Trade related investment barriers

It deals with the measures that restrict investment as investment should be related to export in order to balance imports. It also consists of distribution to restrict measures to the internal distribution of imported products.

## Restriction on post sales services

These are measures to restrict producers of exported goods and to provide post-sales service in the importing country. Example: After-sales servicing on exported, TV sets must be provided by local service company of the importing country.

## Subsidies

It is financial contribution (grant, loan, equity infusion, guarantee; government revenue foregone) by a government or public body which confers a benefit and is specific to an enterprise.

## Government procurement restrictions

They are measures to control purchase of goods by government agencies.

## Intellectual property

The measures related to intellectual property rights in trade: intellectual property legislation covers patents, trademarks, industrial designs, lay-out designs of integrated circuits, copyright, geographical indications and trade secrets.

## Rules of origin

It covers laws, regulations and administrative determinations of general application applied by government of importing countries to determine the country of origin of goods. Rules of origin are important in implementing such trade policy instruments as antidumping and countervailing duties, origin marking, and safeguard measures. Example: Machinery products produced in a country is difficult to fulfill the rules of origin to qualify for the reduced tariff rate of the importing country, as the parts and materials originate in different countries.

## Export measures

It groups the measures that a country applies to its exports. It includes export taxes, export quotas or export prohibitions, etc. Export license, quota, prohibition and other quantitative restriction[5]They are restrictions imposed on the quantity of goods exported to countries by the government of the exporting country for reasons such as: shortage of goods in the domestic market, regulating domestic prices and prevent antidumping measures.[6]Export price control measuresMeasures implemented to control the prices of exported productsExport subsidiesIt is a financial contribution (grant, loan, equity infusion, guarantee, and government revenue foregone, payments to a funding mechanism ) by a government which confers a benefit and is contingent in law or in fact upon export performance (whether solely or as one of several conditions), including measures illustrated in Annex I of the Agreement on Subsidies and Countervailing Measures and measures described in the Agreement on Agriculture.

## 3. 0 Costs and Benefits of NTM

According to the latest edition of the WTO’s flagship publication published on 16 July 2012, non-tariff measures, such as regulatory standards for manufactured and agricultural goods, can have a significant impact on trade — possibly even more than tariffs . Director-General Pascal Lamy said " a clear trend has emerged in which NTMs are less about shielding producers from import competition and more about the attainment of a broad range of public policy objectives."[7]The new NTMs, typically SPS and TBT measures and also domestic regulations in services address concerns over health, safety, environmental quality and other social imperatives. The challenge is to manage a wider set of policy preferences without undermining those preferences or allowing them to become competitiveness concerns that unnecessarily frustrate trade." While regulatory standards restrict trade in agricultural products, the Report finds, the existence of standards often has a positive effect on trade in manufactured products, especially in high-technology sectors. Moreover, the harmonization and mutual recognition of standards is likely to increase trade. In the report, several challenges have been identified for international cooperation, more specifically for the WTO. First, the transparency of non-tariff measures needs to be improved. The newly created WTO database I-TIP (Integrated Trade Intelligence Portal) will help in improving transparency. Secondly, more effective criteria are needed to identify why a measure is used. Thirdly, the increase in global production chains calls for deeper integration and regulatory convergence. Lastly, capacity-building is a vital element in improving international cooperation. TBT/SPS measures are often the first-best instruments to achieve public policy objectives which include correcting market failures arising from information asymmetries or imperfect competition and also pursuing non-economic objectives, such as the protection of public health. While many NTMs are concerned with consumer protection, NTMs can also be utilized by political incumbents to protect domestic producers. NTMs may have a positive impact on trade. Public policy measures such as TBT/SPS measures and domestic regulation in services, in particular, do not unambiguously increase or decrease trade. TBT/SPS measures and domestic regulation in services affect not only how much two countries trade but also the number of countries with whom they trade. There is also some evidence that conformity assessment is particularly burdensome. Negative effects on trade are mitigated by a reduction in policy divergence, whether through convergence to international standards, harmonization or mutual recognition. If harmonization and mutual recognition of standards occur at the regional level, there may be significant trade-diverting effects on outsiders and regulatory " lock-in". This appears to be the case especially for developing countries. A survey was carried out by the United Nations among some selected developing countries. As per its cost and benefit analysis, it was concluded that regulatory policies applied to trade are often intended to provide benefits to consumers and producers, and no to be merely trade-restrictive. In many cases, they provide benefits such as protecting food from contamination, crops from disease, or electronic devices from electromagnetic interference, etc. The design of regulatory policies to achieve a set of stated objectives, while at the same time minimizing distortion of trade patterns is a matter of on-going interest for both policymakers and researchers.[8]Chilean companies reported a total of 807 NTMs, only 18 related to imports. The average number of NTMs per company was 2. 67. Most (43 per cent) NTMs are in food related exports (including wine), followed by forestry products. A total of 835 cases of procedural obstacles were reported. The bulk of them (42 per cent) were related to certification, analysis or labelling requirement; the second most important category (14 per cent) had to do with the application of procedures, followed by demands for too many required documents and forms (11 per cent) and delays in obtaining authorizations and approvals. The perception of NTMs varies between companies and government agencies. The State considers NTMs as tools for consumer protection and regulation of domestic markets, while companies see them as obstacles to trade. The NTMs applied by Tunisia does not seem to be excessive or more stringent than international standards as the main NTM identified, namely standards and technical regulations, are notified to the WTO and have never been questioned. The problem lies in implementing these measures by various administration officials. In Thailand, NTMs are not considered to be a serious obstacle to business, especially by SMEs. Some respondents thought that the questionnaire was too long and required the interviewee to have specific knowledge about the products and was therefore very time consuming. Also, most SMEs in Thailand rely on the services of trading companies to deal with NTM issues, and were therefore unable to answer some questions. The survey staff found that it was difficult to locate the right person to interview. Several government agencies are responsible for different NTM-related issues and are not working in a harmonized manner. It was important to keep updating data to ensure that the database is accurate and useful. There is a continuing lack of understanding about NTMs and why they are applied. It was important that NTMs should not be seen as trade protection instruments but rather as tools to improve product standard and product quality. In the world trade report 2012, the trade impact of non-tariff measures was examined. The underlying principle for focussing on these measures is that, independent of their policy objectives; economic theory offers a mixed picture. It shows both the positive and negative impact of these measures on the volume and direction of trade. Standards and technical regulations can raise producer costs – because compliance is more expensive – but reduce consumer costs – because product quality information is more readily available. Trade will increase or fall depending on whether the positive effect on demand is greater than the negative effect on supply. Several studies carried out in an attempt to quantify the effect of NTMs on international trade prove that NTMs are almost twice as trade restrictive as tariffs. They also find that, in several countries, NTMs actually contribute much more than tariffs to the overall level of trade restrictiveness. The trade literature also finds that NTMs in agriculture appear to be more restrictive and widespread than those in the manufacturing sector. Another report applies a cost-benefit analysis to quantify the economic effects of non-tariff measures in the agri-food sector. Three case studies are presented to demonstrate how such analysis can help identify least-cost solutions of Non-Trade Measures (NTMs) designed to ensure that imported products meet domestic requirements.[9]The Islamabad Women’s Chamber of Commerce and Industry (IWCCI) on Monday urged India to remove all non-tariff barriers to aid boost trade. President Farida Rashid said India should also mitigate all non-tariff barriers to ensure equal opportunities for Pakistan to support in the promotion of trade and mutual confidence. She also added that Indian goods will help alleviate inflation pressure while Pakistan’s industry would gain access to the large Indian market with a larger circle of customers. A new survey launched in Nairobi shows those non-tariff barriers required by regulatory authorities in East Africa region led to an increase in cost of doing business along the region's trade corridors. Richard Sindiga, the Director of Economic Affairs in Kenya's EAC Ministry stated that governments in partner states can improve the movement of people and goods across borders by reducing or eliminating trade barriers. However he also said that a joint effort is required for the above to be accomplished. Existing empirical evidence suggests that non-tariff measures and services measures can significantly restrict trade. In particular, NTMs can be as trade-restrictive as tariffs, and even more so in the case of certain high- and middle-income countries. In the case of services measures, while restrictions to trade are generally higher in developing countries than in developed countries, they do not appear to be systematically associated with a country’s level of development. However, it is clear that the impact on trade is not necessarily restrictive for all measures. TBT/SPS measures do not unambiguously increase or decrease trade. In general, TBT/SPS measures have positive effects for more technologically advanced sectors, but negative effects on trade in fresh and processed goods. The effects of TBT/SPS can be mitigated through harmonization.

## 4. 0 How to measure NTM

Measuring NTM and their impacts is a quite difficult task as there is no homogeneity in the policies and there a lack of systematic data. There is not a unified way to measure NTM. There are different methodologies for measuring the effects of NTM.

## 1. The Inventory-Based Frequency Measures

These measures calculate the amount or frequency of barriers and regulations there is in a market. Both quantitative and qualitative evaluations of the impact of NTMs make use of them. Common measures are the number of regulations and policies. Also frequency of trade retention at borders is also utilized and survey on frequency and amount of complaints done by exporters for supposedly discriminatory regulatory practices. Quantitative evaluations usually rely upon catalogues of technical barriers using database such as the UNCTAD’s TRAINS database. In this database, data is collected by tariff item on application of a range of NTMs against imports. Information also includes the economy or economies affected and the dates of implementation and termination of the measures.‘ Measures include simple frequency of occurrence of NTBs, frequency ratios for product categories subject to an NTB; and a coverage ratio based on the value of imports of products within a category subject to an NTB, expressed as a share of import value of the corresponding category. Relative measures can also be developed comparing the latter frequency measures in a given country with respect to accepted international norms or best practices, for example, for SPS or food safety regulations. Alternatively, frequency measures can be compared across commodities or across countries to identify large deviations from average frequencies, flagging potential protectionist issues.’[10]The importance of NTMs differs among sectors and products. Even for a specific NTM the impact varies from product to product. A problem with frequency measurement is that correlation between number of NTMs and their impact on welfare and trade might be low in absolute value. International databases on NTM inventories also suffer from asymmetrical reporting by economies and different coverage of measures between countries and products. Survey- based measures concentrate on efficient barriers rather than on just an NTM count. However there is the problem of reporting biases. Frequency measures could of use in gravity equations to spot the results of NTMs on commercial flows. A technique to be considered to quantify NTMs is the missed out trade that is not explainable by known trading charges and tariffs. NTM frequency measures or even the level of regulations themselves can aid in identifying the commercial impacts of NTMs. Gravity-equations measure the commercial effect of NTMs, not their welfare effect. Therefore pay no attention to the beneficial impact of the standards that rectify negative externalities but limit trade. NTMs are appropriate if it is to control negative externalities such as unsafe food imports or pest-infested imports. Also, the direction of the impact of the NTMs on trade flows in the regression is not restricted. NTM may facilitate trade and encourage consumers to purchase more though price is higher because of the NTM. This has been observed in OECD (Organisation for Economic Co-operation and Development) food trade (Disdier, Fontagné, and Minouni, 2006).

## 2. Modeling approaches

Another approach to quantifying the impacts of trade measures might lead to empirical measurement; on a single-industry partial equilibrium basis, looking at one country or the world. Recent studies done can be used to infer the price wedge, using information on observed changes in volumes together with relevant demand and supply elasticities. Studies focusing on the effects of trade intervention in one industry, such as the textiles and clothing industry (de Melo and Tarr, 1992) have been done.‘ Models designed to capture the quantity effects of trade measures, and derive a price effect, may use cross-country or cross commodity regression techniques within a model designed to explain trade (Leamer and Stern, 1970). Thus, such models typically include some variation on the Hecksher-Ohlin comparative advantage framework. For example, Baldwin (1970b) ran cross-commodity regressions for the United States, while Leamer (1974) used cross-country analysis for each commodity. Tinbergen (1962) included trade resistance variables in a gravity model. Clearly, it is more useful to include NTMs explicitly in such models, even if only as dummy variables, rather than leaving NTMs as the reason for unexplained errors in the estimation, as is sometimes done in gravity models. Moreover, it is necessary to be mindful of the endogenous nature of NTMs: they may restrict imports, but they are also sometimes imposed as a response to political pressures which arise, in part, because of import competition.’[11]Two particularly surveys of United States import restraints, which comprise of surveys of modelling work along with estimates by employees of the United States International Trade Commission (USITC), are USITC (1989), covering manufacturing, and USITC (1990), covering agricultural products and natural resources. These trade models supply substantial insights into the operation of the area or areas being studied. Nevertheless, they are also a worthwhile mine of information on price wedges to be used as inputs in general equilibrium simulation and partial models. The models use price wedge data to try to explain the consequences of the disparities in trade barriers. For examples Deardorff and Stern (1986) and Whalley (1985). Extensive use of such modelling techniques has been made in the regards of the North American Free Trade Agreement (NAFTA) and the Uruguay Round. Modelling needs information about different price elasticities, but also has to make certain assumptions about the governmental behaviour. Besides from modelling trade measures in precise areas, less comprehensive methods shed light on various the key impacts of NTMs and what to expect were they removed.

## 3. The price-wedge method

Price-wedge method measures the effect of NTM on the domestic price of a product in contrast to a reference price, usually the border price of a similar product. The purpose is to develop a tariff/tax equivalent to the NTM. It is also to use this equivalent for further analysis measuring the implications of NTM on allocation of resource in specific markets affected by the NTM. Price-wedge equivalent formulas have been developed by Deardorff and Stern (1998) for extended study of NTMs. Theoretically, the measure evaluates the domestic price that might prevail without NTM versus the domestic price existing due to NTM given the cost paid to suppliers is unchanged. Nevertheless, these prices are in reality unobservable. Applications of the price-wedge method of NTM evaluate the domestic and foreign prices of similar products given the presence of NTM accounting for known and observed trading costs. Adjustments are be made to obtain a price estimate that prevails in the absence of NTM making use of observed levels of prices and quantities, price elasticities of supply , demand, and imported goods. Price-wedge approach has several shortcomings: If numerous NTMs are in application together, the price-wedge will evaluates the price effect of the policies without considering their respective effects or nature. Quality differences are difficult to decipher with precision. Even if they are important elements of price-wedge calculation. The estimate of NTM is often sensitive to assumptions made on the substitution of the domestic and imported goods. In large empirical researches data are aggregated. This causes loss of data on quality differences of similar domestic and import goods. Despite the presence of trading costs, they might not be accounted. The price-wedge method will incorrectly credit these trading charges to an NTM.

## 4. Subsidy equivalents

In recent years, the producer subsidy equivalent (PSE) has be used extensively (Bora, Gilbert and Scollay 2001). It measures the transfers, as a consequence of governmental policies with regards to producers. It can be calculated by: tracking the direct and indirect governmental expenses to producersattributing the impacts of the policies by computing the difference between actual domestic prices and theoretical domestic prices without trade interventions. An advantage is that it captures both transfers from governmental expenses and price distortions. PSEs can be calculated in various ways. The total PSE is simply the value of transfers to producers: Where: Q – quantity producedPd- producer price in domestic currency unitsPw- world price in world currencyX- exchange conversion factorD- direct government payments net of any levies on productionI- indirect transfers through policies such as inputs subsidies, market assistance or exchange rate distortionsChanges in exchange rates, domestic production or world prices can cause changes in the PSE even if governmental policies are unchanged. Moreover, given indirect transfers is used only in the numerator, the PSE can be changed by reallocating transfers from indirect programmes to price support programmes or direct payments (Webb, Lopez and Penn, 1990). A negative PSE means that the producer is being taxed by a combination of policies applicable in the sector. Whereas a positive PSE means that the producer is being supported through the intervention. The United States Department of Agriculture’s Economic Research Service calculates and regularly publishes PSEs and also consumer subsidy equivalents (CSEs) for many agricultural commodities in a wide range of developed and developing countries(for example, Webb, Lopez and Penn (1990)). These numbers vary significantly from year to year for the various reasons. In addition, these estimates account only for exchange rate adjustments in the case of the developing countries, where they generally dominate the calculations and causing the PSE to fluctuate wildly over time. The presence of quality differences also diminishes the comparability of the data.‘ CSE is the value of transfers, caused from governmental intervention, from domestic consumers to producers and to taxpayers (e. g. through tariff revenue paid on competing imports). It measures the net implicit tax imposed on consumers by agricultural support measures and any consumer subsidies. A negative CSE implies that consumers are being taxed by the policies operating in the sector.’ 2

## 5. The trade restrictiveness index

The Trade Restrictiveness Index (TRI) was developed by Anderson and Neary (1991). It is defined as the standardized tariff equivalent of production and consumption distortions. It is a combination of the consistent PSE and consistent CSE. These are defined as standardized subsidy rates equivalent in welfare loss to the actual differentiated subsidy or tax structure. It is generally used to measure differences in the restrictiveness of trade policy over the years for an economy or a specific sector of that economy. It compares two distorted situations rather than comparing against the free trade benchmark. In Anderson and Neary (1994b), it is used mostly as a weighting technique for aggregating licence prices of textile exports calculated using the approach developed by Hamilton (1986). The studies show significant differences from import-weighted averages, which are prone to downward biases. Anderson and Neary (1994a) gives a more recent and comprehensive description. Usually TRI is more pertinent to small changes. Anderson and Neary (1994a) discovered that their hybrid index, (which takes into account products that are quota-constrained and tariff-constrained), is difficult to infer if comparisons is being made across time periods or countries given that tariffs and quotas varies. By using the tariff equivalents of quota-constrained goods this can be avoided. Thus will result in an index which is a uniform tariff and a tariff-equivalent surcharge factor. The selection among these two types of the TRI depends mostly on the availability of information. In Anderson (1993) there is a manual for calculating TRI in an Excel spreadsheet.

## 6. Effective protection

The concept of ERP was developed by Balassa (1965) and Corden (1966). They tried to measure the growth in value of an industry under protectionism relative to free trade. Effective rates measure the growth an industry under protectionism. Mathematically, it can be calculated in different ways. Below is one of them: Where: g- effective rate of protectiondf - nominal rate on finished good( output of a production process)dm - nominal rate on inputs into a production processx- free trade materials/ output ratio‘ Given the formula it can be seen that the correct level of effective protection or assistance depends on the rate of protection on output of a process (whether for final consumption or intermediate goods), the average rate of protection on the inputs of materials and parts, and the extent of value added in the industry at unassisted prices (the free trade material/output ratio or the technical coefficient).’ 2 Protection can be defined as encompassing all types of governmental interventions, such as tariffs, protection against imports and domestic subsidies, even if occasionally only tariffs are integrated. Protection can be defined as encompassing all types of governmental interventions, such as tariffs, protection against imports and domestic subsidies, even if occasionally only tariffs are integrated. If measures on finished good are equal to the aggregate measures on inputs, the effective rate will be the equal as to the level of protection. On the other hand, if barriers are superior on finished good than on inputs, the effective rate will be superior than the barriers on finished good, and value added will also be more elevated than when the rates were alike. Alternatively, if trade measures are inferior on finished good than on inputs, the effective rate will be lesser than that on the finished goods. Correspondingly, value added will also be lesser. Effective rates can also be negative. The level of the effective rate is greatly sensitive to the ratio of materials/output. The effective rate has several deficiencies like most statistical tools. However, it has become a customary technique of analysis since late 1960s. The World Bank in most studies associated with trade or structural adjustment lending makes use of it. It is a partial equilibrium rather than a general equilibrium measure. The following assumptions are made: There is no change in technology which will cause changes among actual and world prices. There is homogeneity between domestic and foreign goods. However, most modern trade models apply imperfect substitutability (" Armington assumption"). There are also dilemmas regarding how to measure NTMs. As this is a summary measure which uses price wedges as an input. Eventually, effective rate does not answer the issue of measuring NTMs nevertheless they do include more aspects into account in evaluating their impacts.‘ The difference between the percentage PSE and the ERP/ERA relates to the forms of intervention and the value base or denominator in the computations. First, since PSE estimation has been focused on agriculture, PSEs do not comprehensively include the taxation or subsidy effect of intervention in relation to intermediate inputs produced in other sectors of the economy, whereas effective rates of assistance can be computed to take all forms of intervention into account. Second, PSEs relate assistance to the gross value of output (i. e. under existing intervention), whereas effective rates are based on free trade levels of value added (or the free trade input. output ratio as shown in the formula).’2

## 5. 0 What are Countries doing to remove NTM?

Removing restrictions unilaterally or multilaterallyA country can remove trade restrictions either unilaterally or multilaterally. Unilaterally means a country removes the restrictions on its own without compensating restriction removal from other countries whereas multilaterally means it bargains with trading partners to reduce trade restrictions while other countries do the same. Great Britain took the unilateral approach in the 19th century: Chile and South Korea have unilaterally removed restrictions in recent years. The advantage of unilateral free trade is that a country can reap the benefits of free trade immediately. Countries that lower trade barriers by themselves do not have to postpone reform while they try to persuade other nations to lower their trade barriers. Example of the multilateral approach: North American Free Trade Agreement (NAFTA). In 1993 NAFTA lowered barriers between Canada, USA and Mexico. Mechanism for Reporting, Monitoring & Eliminating Non-Tariff Barriershttp (www. tradebarriers. org/about)The other measure taken up by countries to remove Non tariff measures is the Mechanism for Reporting, Monitoring & Eliminating Non-Tariff Barriers. Developed as a joint initiative of the East African Business Council (EABC) and the East African Community Secretariats, this Non-Tariff Barriers (NTBs) Monitoring Mechanism aims at facilitating the process of identifying, reporting and monitoring the elimination of current and future NTBs within the EAC Partner States, so as to consolidate the economic integration process under the EAC Customs Union. The Regional Economic Communities (RECs) which forms the Common Market for Eastern and Southern Africa (COMESA), East African Community (EAC) and Southern African Development Community (SADC) are integrating the economies of their member states into a single enlarged market through the grand Tripartite Free Trade Area (FTA). The process of identifying, removing and monitoring of Non-Tariff Barriers to trade by the Member States in the Tripartite Community has been one of the main concern areas for policy harmonization and coordination under the tripartite framework. With tariff liberalization that has been greatly achieved, the challenge remains to get rid of non- tariff and other barriers to trade that adds on to the high cost of doing business across the region thereby slowing intra/inter -regional trade. All three RECs have established NTB monitoring mechanisms to address NTBs. COMESA, EAC and SADC are implementing a Non-Tariff Barriers (NTBs) reporting, monitoring and eliminating mechanism which incorporates concrete timelines for the removal of NTBs. The mechanism enables stakeholders to report and monitor the resolution of barriers encountered as they conduct their business in the COMESA, EAC and SADC regions. It improves transparency and easy follow-up of reported and identified NTBs and NTMs. This web-based NTBs reporting, monitoring and eliminating mechanism is accessible to economic operators, government functionaries, academic researchers and other interested parties. An example is in Eastern and Southern Africa where the process of eliminating Non-Tariff Barriers (NTBs) to trade is being implemented. According to Vonesai Hove of TMSA, this mechanism has enjoyed great success since its upgrade in 2010. To date, 60. 7% of NTBs reported have been resolved. Use of the online reporting system, furthermore, has grown with 3. 3 percent since October 2010. The system is supported by NTBs structures whose main function is to process and facilitate resolution of reported barriers. Moreover, another example of the use of online NTB monitoring mechanism is being implemented in Mauritius. Mauritian operators exporting to the region are strongly encouraged to use the online system to report any NTB encountered. The website lists the different types of NTBs which can be reported on the system. Once the complaint is registered in the database, it is logged with a reference number. This reference number can be used to monitor who is responsible for dealing with the reported NTB and any specific outcomes. In addition, the online system publishes notifications of procedural, legislative or regulatory changes announced by Member States in the three RECs, enabling all traders to constantly keep up to date with trading requirements. Doha Round Development Agenda (Alan Deardorff, Professor of Economics and Public Policy, University of Michigan, October 01, 2012)In addition, the Doha Round Development Agenda has been a boost to reduce tariff and non-tariff barriers. Under the WTO's Doha Development Agenda, the non-agricultural market access (NAMA) negotiating group’s mandate is " to reduce, or as appropriate, eliminate tariffs, including the reduction or elimination of tariff peaks, high tariffs, and tariff escalation, as well as non-tariff barriers, in particular on products of export interest to developing countries." The mandate of the NAMA negotiating group includes further efforts to reduce or remove non-tariff barriers (NTBs) that act to unduly restrict trade. In this regard, Canada’s position is that governments must keep the right to apply measures in support of legitimate objectives, while regulating in the public interest in the least trade-restrictive manner possible. The Doha Development Agenda of trade negotiations began in 2001 under the auspices of the World Trade Organization (WTO). This Agenda was designed to reduce or remove many forms of barriers to trade as well as cut back subsidies that are often just as disruptive, even though they may expand trade. The Doha Round has entered its eleventh year of negotiations and there are no signs that it will accomplish very much, if indeed it ever concludes. CEPT AgreementBy year 2015, ASEAN countries would start to make various efforts to establish the ASEAN Economic Community (AEC. According to the AEC blueprint, ASEAN seems to seriously recognize the importance of reducing/eliminating NTBs and strengthening trade and investment facilitation, given the fact that ASEAN has achieved significant progress in tariff liberalization. There has already been an agreement on the general features of the process for eliminating NTBs in ASEAN. The process involves (a) verification of information on NTBs, (b) prioritisation of products/NTBs, (c) developing specific work programmes, and (d) obtaining a mandate from the ASEAN Economic Ministers to implement the work programme. Similar as tariffs on on intra-ASEAN trade, non-tariff barriers are also being eliminated under the CEPT Scheme for AFTA. The CEPT Agreement itself calls for elimination of NTBs within a period of five years after the enjoyment of concessions applicable to CEPT products. Member Countries are working to develop detained work programmes on eliminating NTBs for endorsement by the ASEAN Economic Ministers Meeting scheduled in September 1995. Currently, the Preparatory work for NTB elimination is being undertaken by the Interim Technical Working Group (ITWG) on CEPT for AFTA, which reports directly to the ASEAN Senior Economic Officials. It is to be noted that the private sector acts as an important source of information on barriers to trade. Hence the Ninth AFTA Council that met in Singapore in April 1996 agreed that AFTA Units can establish relationships with the private sector to facilitate identification of NTBs. Preventing New barriersAlso, instead of only trying to remove existing non- tariff measures, steps should also be taken to prevent new ones such as import bans, quotas, licensing and permits, from cropping up and this could be done by various agreements between countries in favour of opening their market to each other. Reduction in streamlining border management proceduresFurthermore, there should be a reduction in various streamlining border management procedures while at the same time applying trade facilitation measures and taking into consideration revenue concerns for governments.

## 6. 0 Conclusion

In the recent years, an increase in non-tariff measures have been observed, which have resulted in a negative impact on trade. Member countries of the WTO are working on the wyas to remove those non-tariff measures or barriers. In this study, we have defined NTM, while constrasting it with NTB, discuss the purpose of NTM, the cost associated with it and how to measure it and also what are countries doing to remove those NTMs. Each type of NTM affect the economy differently and each issue need to be addressed differently. Recently, the industrialised world have been successful in reducing the non-tariff measures, the footsteps of which must be followed by non-industrialised countries to curb the negative effects of NTMs.