Non-tariff measures affecting agro-food trade between the EU and Africa

Summary of a workshop

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The mission of the JRC-IPTS is to provide customer-driven support to the EU policy-making process by developing science-based responses to policy challenges that have both a socio-economic as well as a scientific/technological dimension.
Acknowledgements

The present report summarises the workshop on “Non-tariff measures affecting agro-food trade between the EU and Africa” organised by the Institute for Prospective Technological Studies (IPTS), one of the seven institutes of the European Commission's Joint Research Centre (JRC), on 9-10 September 2010.

This report has been prepared through the collaboration of Aída Gonzalez Mellado¹ (chapter 4), Sophie Hélaine¹ (chapter 1 and 6), Marie-Luise Rau² (chapter 2 and 3) and Monika Tothova³ (chapter 5).

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Acronyms

ACP  African, Caribbean and Pacific countries
BRC  British Retailer Consortium
CIF  Cost, insurance and freight
Codex Codex Alimentarius guidelines and codes of practice recommended under the Joint FAO/WHO Food Standards Programme
DG AGRI Directorate-General “Agriculture and Rural Development”
DG TRADE Directorate-General “Trade”
EBA  Everything but Arms
EU  European Union
EU-27 27 EU Member States after the 2007 enlargement
EPAs Economic Partnership Agreements between the EU and developing countries
Eurostat European Statistical Office located in Luxembourg
FAO  Food and Agriculture Organization of the United Nations
FOB  Free on board
GE  General equilibrium
GMOs Genetically Modified Organisms
HACCP Hazard Analysis Critical Control Point
HS  Harmonised system of trade data
IPFSAPH International Portal on Food Safety, Animal and Plant Health
IPTS Institute for Prospective Technological Studies
ISO  International Standardisation Organisation
INRA Institut Scientifique de Recherche Agronomique, France
FP7  7th Framework Programme of the European Commission
JRC  Joint Research Centre of the European Commission
LDCs  Least developed countries
LEI  Agricultural Economics Research Institute, part of Wageningen University
MAST Multi-Agency Support Team
MED Mediterranean countries
MRLs  Maximum residue levels
NTMs  Non-tariff measures
NTBs  Non-tariff barriers
OECD Organisation for Economic Co-operation and Development
PE  Partial equilibrium
UNCTAD United Nations Conference on Trade and Development
UNIDO United Nations Industrial Development Organisation
US  United States of America
SPI Sociedade Portuguesa de Inovação
SPS  Sanitary and phytosanitary
TDCA Trade, Development and Cooperation Agreement
TE  Tariff equivalent
TRAINS Trade Analysis and Information System (database)
TBT  Technical barriers to trade
TRQ  Tariff rate quota
WHO  World Health Organisation
WTO  World Trade Organisation
1 Background of the workshop and African trade with the EU

Background and objectives

This report contains a summary and the presentations of the workshop on "Non Tariff Measures affecting agro-food trade between the EU and Africa", organised by the Institute for Prospective Technological Studies (IPTS) of the European Commission's Joint Research Centre (JRC). The workshop took place at IPTS in Seville on 9 and 10 September 2010.

The major objectives of the workshop were to:

- shed light on African-European trade relations in agro-food products,
- analyse NTMs affecting certain African products,
- identify ways of including NTMs in the models used in IPTS to analyse agricultural trade and identify future research needs,
- promote discussion between experts with different backgrounds: academics, consultants, policy makers and exporters.

This workshop is also a continuation of the work IPTS started on non-tariff measures (NTMs) and the EU - Africa/MED trade relationship. IPTS commissioned a study on "African Agricultural and Food Exports to the EU: the Importance of Non-Tariffs Measures" from the Sociedade Portuguesa de Inovação (SPI), who carried out a survey. IPTS staff members have used the results of the NTM survey conducted in this study in further work (Gonzalez Mellado, 2010a and 2010b) which was also presented in two paper contributions at the workshop.

African trade with the EU

In the conference "EU Trade Policy Towards Developing Countries", held in Brussels on 16 March 2010, the European Trade Commissioner, Karel de Gucht, declared: "It is a sad but undeniable fact that ACP countries’ share of EU imports has steadily shrunk over the past decades – despite the EU giving them more open access than many other developing countries - and still concentrates on only a handful of commodities. We have to reverse this trend."

The access to the EU is indeed widely open for the least developed countries (LDCs). Within the program "Everything But Arms" (EBA) the main exports of LDCs have been able to enter the EU market without any duties since 2001. The ACP countries’ trade agreements,
favouring ACP access to the EU market, started in 1964 with the Yaoundé Convention, followed by four Lomé Conventions. In 2002 the EU started negotiating Economic Partnership Agreements (EPAs). There is a specific agreement between the EU and South Africa, the Trade, Development and Cooperation Agreement (TDCA), which provisionally entered into force in 2000 and was fully implemented in 2004. This agreement foresees a progressive tariff reduction both in the EU and in South Africa. With the Mediterranean (MED) countries the EU has been establishing association agreements entering progressively into force (for example the EU Association Agreement with Tunisia in 1998 or with Morocco in 2000).

Despite all these agreements, Africa represented only 2 per cent of the world trade value in 2008. Over the period 2000-2008 the total value of African exports more than doubled in real 2000 US$; however this increase was mainly due to the augmentation of crude oil price, the oil and mineral fuels representing 56 per cent of total African exports in 2008. Agricultural products represented no more than 7 per cent of the African exports value in 2008. Agricultural products made up for a higher share of African and Mediterranean exports to the EU - according to the Eurostat - Comext trade data, this share was 10 per cent in 2009, and 20 per cent of EU agricultural imports came from this area. In real terms African exports to the EU-27 stagnated between 2000 and 2006. Between 2007 and 2009 the increase in export value observed is probably mainly linked to the increase of the cocoa price. This illustrates another issue highlighted by the Trade Commissioner in the conference mentioned above: African trade "...concentrates on only a handful of traditional commodities". This is particularly true for the Ivory Coast and Cameroon where cocoa and banana represent around 90 per cent of the agricultural exports.

The trade data analysis showed that trade between Africa and the EU did not expand much, despite the various trade agreements. It highlighted that even though tariffs are still important, there may be other factors limiting trade: NTMs, production capacities, supply constraints, etc.

**Workshop Agenda**

The workshop looked in detail at NTMs that potentially affect exports from African countries. The first day of the workshop started with a session on the definition of such measures, followed by sessions focusing on methods to detect NTMs, as well as on data collection.

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4 Source: Comtrade  
5 The agricultural products were aggregated based on the WTO definition.
Quantification issues, i.e. the costs and benefits of NTMs and their modelling in order to determine the NTM impact were covered on the second day of the workshop. Alongside more general paper contributions, case study work related to Africa and/or MED countries were presented and here the workshop provided the unique possibility of looking at NTMs from an African perspective. The full agenda of the workshop is included in Annex 1.

The present report gives an overview of the topic of NTMs based on the contributions and summarises the main points that were made in the presentations and discussed during the workshop.

2 Definition of NTMs

The term “NTMs” covers a large number of measures that are not tariffs, and the definition of NTMs is thus rather comprehensive, with the list of NTMs being indeed long. The workshop aimed to be broad and open to include any of them. The discussion at the workshop showed that the definition of NTMs is not really operational and practical for analyses. It seems useful to narrow down the definition since NTMs comprise different measures with distinct characteristics and possibly diverging effects. The workshop brought together people from different disciplines and backgrounds, who have been working on NTMs with different perspectives, such as the administration, business, policy and research perspective. While the presentations at the beginning of the workshop brought forward the commonly accepted definition of NTMs (see presentations von Lampe, OECD; Nicita, UNCTAD and Rau, LEI), the discussion revealed that the understanding of what NTMs actually are, differed considerably amongst some of the participants. As argued in the discussion, the term “NTMs” refers to measures and does not refer to the conditions prevailing in countries, such as infrastructure, qualification and governance for example. It should be noted, however, that the effects of NTMs tend to be triggered by them, such that the lack of efficient means of transportation and roads for example contributes to a possible trade-restricting effect of NTMs.

Using the classification of the United Nations Conference on Trade and Development (UNCTAD), it is differentiated between core NTMs, such as tariff rate quotas and export taxes for example, and other less traditional measures. Table 1 summarises the main categories of the current NTM classification by UNCTAD that concentrate on trade policy
measures imposed by governments\textsuperscript{6}. As shown, sanitary and phytosanitary (SPS) measures and technical barriers to trade (TBT) measures are respectively defined as specific categories in the NTM classification. In the more detailed description of both SPS and TBT measures, it is explicitly distinguished between i) requirements, which need to be fulfilled to gain market access, and ii) conformity assessment, which verifies that respective requirements are actually met. This difference between requirements and conformity assessment makes sense since the latter is more concerned with creating trust between buyers and sellers by providing reliable information than prescribing product characteristics and/or production methods.

Requirements can be further classified according to what is regulated. These classifications commonly define product requirements on the one hand and process requirements on the other. Product requirements target the physical characteristics of products, often in terms of threshold values of ingredients that are not to be exceeded (for example maximum residue levels of pesticides, veterinary drugs or additives) or product composition related to the identification and naming of products or product categories. In contrast, process standards prescribe requirements for production processes, handling and storage. With regard to food safety, the requirement to implement Hazard Analysis Critical Control Points (HACCP) is a good example of process standards in the agro-food sector. Compliance with process standards can usually not be detected in the final product, and some kind of certification system is necessary to prove compliance. Process standards demanded by the importing country are considered as behind border measures because the production processes take place in the country of the exporter.

Following the UNCTAD classification, the framework of regulatory elements developed within the EU’s FP7 project “NTM impact” (http://www.ntm-impact.eu/) is worth mentioning. In order to compare regulations and standards across countries and products, the “NTM impact” project identifies the following three main groups of requirements: i) firm-level requirements, ii) conformity assessment and iii) requirements for countries or national authorities; see Rau et al. (2010).

\textsuperscript{6} Focusing on trade policy instruments, the classification by UNCTAD does not mention any measures by the private sector, and the databases using this classification hence do not cover the private sector. For more details about the classification see http://ntb.unctad.org/docs/Classification%20of%20NTMs.pdf
### Table 1: UNCTAD classification of NTMs

<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Sanitary and phyto-sanitary measures (SPS)</td>
<td>Sanitary and phytosanitary measures include laws, decrees, regulations, requirements, standards and procedures to protect human, animal or plant life or health.</td>
</tr>
<tr>
<td>(B) Technical barriers to trade (TBT)</td>
<td>Technical barriers to trade are regulations/standards referring to technical specifications of products and conformity assessment systems thereof.</td>
</tr>
<tr>
<td>(C) Other technical measures</td>
<td>Pre-shipment inspection, special customs formalities not related to SPS/TBT and other special customs formalities not related to SPS/TBT.</td>
</tr>
<tr>
<td>(D) Price control measures</td>
<td>Price control measures are implemented to control the prices of imported articles in order to: support the domestic price of certain products when the import price of these goods is lower; establish the domestic price of certain products because of price fluctuation in domestic markets, or price instability in a foreign market; and counteract the damage resulting from the occurrence of &quot;unfair&quot; foreign trade practices.</td>
</tr>
<tr>
<td>(E) Quantity control measures</td>
<td>Quantity control measures are aimed at limiting the quantity of goods that can be imported, regardless of whether they come from different sources or one specific supplier. These measures can take the form of restrictive licensing, fixing of a predetermined quota, or through prohibitions.</td>
</tr>
<tr>
<td>(F) Para-tariff measures</td>
<td>Other measures that increase the cost of imports in a manner similar to tariff measures are known as para-tariff measures. Four groups are distinguished: customs surcharges; additional taxes and charges; internal taxes and charges levied on imports; and decreed custom valuation.</td>
</tr>
<tr>
<td>(G) Finance measures</td>
<td>Financial measures are intended to regulate the access to and cost of foreign exchange for imports and define the terms of payment. They may increase import costs in the same manner as tariff measures.</td>
</tr>
<tr>
<td>(H) Anti-competitive measures</td>
<td>Measures to grant exclusive or special preferences or privileges to one or more limited groups of economic operators, for social, fiscal, economic or political reasons.</td>
</tr>
<tr>
<td>(I) Export related measures</td>
<td>Export related measures are measures applied by the government of the exporting country on exported goods.</td>
</tr>
<tr>
<td>(J) Trade related investment measures</td>
<td>Local content measures, which restrict the level of imported components and trade balancing measures.</td>
</tr>
<tr>
<td>(K) Distribution restrictions</td>
<td>Restriction to limit and rule the way the products are distributed. It may be controlled through additional licensing or certification requirements.</td>
</tr>
<tr>
<td>(L) Restriction on post-sales services</td>
<td>Measures restricting producers of exported goods in exporting countries providing post-sales service in the importing country.</td>
</tr>
<tr>
<td>(M) Subsidies</td>
<td>Financial contribution by a government or government body to a production structure, be it a particular industry or company, such as the direct transfer of funds or potential transfer of funds (for example grants, loans, equity infusions), payments to a funding mechanism and income or price support.</td>
</tr>
<tr>
<td>(N) Government procurement restrictions</td>
<td>Measures controlling the purchase of goods by government agencies, generally by giving preference to national providers.</td>
</tr>
<tr>
<td>(O) Intellectual property</td>
<td>Intellectual property legislation covers patents, trademarks, industrial designs, layout designs of integrated circuits, copyrights, geographical indications and trade secrets.</td>
</tr>
<tr>
<td>(P) Rules of origin</td>
<td>Rules of origin cover laws, regulations and administrative determinations of general application applied by government of importing countries to determine the country of origin of goods.</td>
</tr>
</tbody>
</table>

Source: Presentation von Lampe (OECD).
Initially the workshop considered any type of NTMs, but most presentations dealt specifically with SPS and TBT measures given their increased importance in international agro-food trade and their relevance for the private as well as public sector. That is, one important focus of the workshop was on SPS and TBT measures that prescribe the requirements for foreign products to be sold on the domestic market of importing countries. The case study work presented at the workshop took the perspective of African firms and thus concentrated on the import requirements that African exporters face when exporting to the markets of the EU Member States. If the governmental requirements of the importing country are fulfilled, exporters are in principle allowed to sell on the respective markets. However, the requirements by the private sector, which actually buys foreign products to be used as inputs or to be sold to consumers, also need to be fulfilled in the business. For African agro-food exports, public and private requirements are important and the workshop therefore captured both types of requirements. The difference between public and private requirements is further elaborated below.

**SPS and TBT measures**

As described in Table 1, SPS and TBT measures comprise regulations and standards that stipulate the conditions under which international trade takes place. SPS measures aim to provide a certain level of food safety for consumers, as well as protecting human, animal and plant health. Other quality aspects such as organic production or fair trade, for example, go beyond safety aspects and are thus not considered SPS measures. In contrast to SPS measures, TBT measures refer to labelling and marketing standards, as well as norms for sizes, quality classes and other physical attributes of products or groups of products, amongst others. The distinct characteristics of SPS and TBT measures are hence given by the objectives the measures attempt to achieve. Focusing on SPS measures, the aim is to guarantee safe food as well as plant and animal health, as already mentioned. In order to attain these goals, governments typically set minimum requirements for which no price premium is obtained. Firms can obtain higher prices for specific quality characteristics beyond food safety, given that the quality level is communicated to consumers (via labels) and that consumers are

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7 The EU requirements are by large harmonized across the Member States, but there are some exceptions and the resulting differences of requirements were included in some of the case studies presented (for example presentation Nimenya, Université Catholique de Louvain la Neuve). In general, EU requirements are formulated in regulations and directives, and the latter give the EU Member States flexibility for defining their own requirements. EU regulations on the other hand provide minimum requirements that apply to all EU Member States but the EU Member States are allowed to impose tighter requirements in certain cases of national interest.
willing to pay for quality. The price premium would represent additional costs for providing a differentiated and potentially better quality product, no matter where the product originally comes from such that both foreign and domestic firms can reap the profits.

While the potential barrier due to SPS and TBT measures is often emphasised the benefits have gradually been acknowledged in the conceptual thinking about such measures. They play a crucial role in international agro-food trade, where trade is a vector of externalities (see presentation von Lampe, OECD). Next to health and safety benefits, the benefits of requirements being in place for example range from reduced information costs, which occur due to buyers and sellers being situated in different countries and the characteristics of agro-food products, to increased efficiency in the production process, thereby lowering firms’ production costs.

In general, the requirements for foreign products usually reflect the domestic requirements in the importing country, and according to the international trade rules, the SPS Agreement and the TBT Agreement of the World Trade Organisation (WTO) respectively attempt to ensure that standards are not misused as disguised protectionist measures in favour of domestic producers. While maintaining the sovereign right and obligation of countries to set their own regulations and standards, countries are encouraged to base their import requirements on internationally agreed benchmarks, in the case of food safety for example the Codex Alimentarius standards and guidelines. The two agreements contain detailed provisions on how the WTO Member States deal with possible SPS and TBT issues at multi-lateral level.

**Public versus private requirements**

While private standards refer to the requirements of the private sector, public standards are requirements demanded by governments. Public standards imply that requirements are referred to in national food law or international rules, which aim to regulate the import conditions in international agro-food trade. Unlike private standards, they can thus become legally mandatory. Due to their formulation in legal documents, governmental requirements have often been regarded as mandatory while the requirements by the private sector are voluntary per definition. However, governments may also choose to endorse voluntary standards that typically go beyond the minimum requirements for food safety and other

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8 The Codex Alimentarius refers to food standards, guidelines and codes of practice recommended under the Joint FAO/WHO Food Standards Programme. The International Plant Protection Convention (IPPC) and the World Organization for Animal Health (OIE) respectively promote international standards and guidelines for animal and plant health issues.
quality aspects, for example organic governmental standards. Similarly, private standards can become quasi-mandatory if a large share of suppliers or retailers requires compliance with them. In the discussions at the workshop, the GlobalGAP standards\textsuperscript{9} were often mentioned as being particularly relevant for African exporters that wish to supply the EU market. Other relevant private standards are those of the British Retailer Consortium (BRC) and the International Organisation of Standardisation (ISO) (for example the ISO 22000 series on food safety management systems), both of which are business-to-business standards in the agro-food sector.

In order to distinguish between governmental and private standards, the criterion of mandatory and voluntary requirements seems to be limited. Hence other characteristics should be considered and would need to be taken into account in the analysis of private standards. The main differences between public and private requirements arise in the development and setting of requirements as well as in their implementation and enforcement, which seem to reflect the underlying motivation behind public and private standards. In general, both governments and the private sector set standards in order to tackle information problems and externalities occurring in the production and exchange of products. Private standards can be considered consumer-driven in the sense that the private sector pursues the commercial interest of providing food products of high safety and quality levels as demanded by buyers and consumers, thereby maintaining and/or increasing market shares. Another important motivation of private standards stems from the need to exert better control over food safety and quality issues as well as to coordinate increasingly international supply chains. That is because private standards can provide firms in general and retailers of supermarket chains in particular with a level of protection against food safety and quality failures which otherwise could cause reputational brand damage and lead to a possible loss of customer confidence and consequently business. At the workshop, the case study work on tomatoes (presentation El-Otmani, University Hassan II, and Aloui, Agro Concept) and olives (presentation van Doorslaer, IPTS) looked into the GlobalGAP requirements for these products from North Africa, as demanded by European retailers. Here, a supply chain approach was chosen for the analysis of the trade but also firm-level effects (in terms of costs and benefits).

\textsuperscript{9} Starting as a private standards initiative of European retailers and supermarket chains, GlobalGAP has formerly been known as EurepGAP. The change of name indicates that EurepGAP is now established in the global marketplace, serving as a key reference for retailers/supermarket chains worldwide. For detailed information about GlobalGAP see http://www.globalgap.org.
NTMs versus NTBs

NTMs can hamper trade between countries, and emphasising this potentially negative trade effect NTMs are often considered to be trade barriers. As such the term “NTMs” has often been used interchangeably with the term “NTBs”, non-tariff barriers to trade. It is important to understand the difference between the two terms. Using the term “NTMs” simply relates to the measures whereas the term “NTBs” indicates that the measure is trade-restricting, thereby also giving information about the impact of the measure. However, NTMs do not necessarily present barriers to trade, which reduce or even block trade entirely as in the case of an import ban for example. For example, the existence of SPS and TBT measures is critical for international trade between countries because they allow risks and information problems between sellers and buyers to be tackled and the resulting benefits can potentially lead to global welfare gains, in addition to heath and safety benefits. In fact, it can be argued that without such measures trade would not take place. For research, it seems appropriate to use the term “NTMs” as the impact should not be anticipated or pre-determined before the analysis. Most importantly, the costs and benefits of the measures need to be considered in order to ensure a balanced and scientifically sound analysis.

3 Analysing NTMs

Analysing NTMs is a challenging task and different analytical approaches and methods have been applied. The aim of such analysis is on the one hand to identify incidences of NTMs and on the other to quantify the effect of NTMs on trade but also further reaching economic and welfare effects. The main challenges are related to data issues, including lack of data, data collection and measurement. In particular, the analysis of NTMs often requires some kind of matching up of data. For example, SPS and TBT requirements are usually defined by industry classifications and trade flows are given according to the classification of trade data. Hence, the data of different classification and sources need to be matched in order to analyse the NTM impact at hand. In this chapter, the data sources mentioned in the presentation on analysing NTMs will first be introduced. This is followed by an overview of the approaches used to detect and quantify NTMs, summarising the main points presented and discussed at the workshop.
Data sources

There have been considerable attempts to collect data on NTMs and to make this information available for public use. The Trade Analysis and Information System (TRAINS) database provided by UNCTAD can be considered the most comprehensive source of information on NTMs implemented by governments and has been frequently used in research. The TRAINS database records incidences of NTMs that are reported to the WTO as well as changes and new regulations with regards to the measures that apply to imports. The respective WTO notifications are documented by the type of measures according to products (HS codes) and countries. Thus, the TRAINS database relies on self-reporting, thereby in effect "punishing" diligent reporting. Currently, the TRAINS database is in the process of being updated. Following the expertise and input of a Multi-Agency Support Team (MAST), new up-to-date information about NTMs is being collected. For more information see MAST (2008).

Another recent attempt to collect data on NTMs was undertaken within the EU’s FP7 project “NTM impact”. Within this project, regulations and standards that prescribe the import requirements for a selection of agro-food products, which are relevant to trade between the EU and ten main trade partner countries, are compared across countries. Looking only from EU exporters’ perspective, the project uses the EU import requirements as the benchmark for comparison. Detailed information on the data and the subsequent analysis can be found on the webpage of the “NTM impact” project at http://www.ntm-impact.eu. In addition, the European Commission provides a comprehensive and up-to-date list of the EU import requirements according to product and Member State (destination country) in order to support exporters from developing countries (see http://exporthelp.europa.eu).

Other sources of information on NTMs are complaint registers. At the international multilateral level, the WTO Secretariat documents the member countries’ trade concerns regarding NTMs (notified and not notified) in regular summary reports. For the reports on SPS trade concerns see, for example, the International Portal on Food Safety, Animal and Plant Health (IPFSAPH) at http://ipfsaph.org. Trade concerns about SPS and TBT measures are typically raised in the meetings of the SPS and TBT Committee of the WTO. More severe disagreements can be brought to the WTO dispute settlement body. As noted during the workshop, developing countries seldom use the opportunity to put NTM issues in front of the

10 The TRAINS database is publically accessible through the World Integrated Trade Solution (WITS) software developed by the World Bank: http://wits.worldbank.org/wits/.
WTO, mainly due to resource and human capital constraints as well as to the usually lengthy duration of dispute settlements. In this sense, reports on trade concerns and WTO disputes only give limited information about NTMs, in particular from the perspective of developing countries, and no reporting does not imply that NTMs are not prevalent and do not cause issues for exporters.

**Methods to detecting NTMs**

For detecting the occurrence of NTMs, surveys are often used and some of the case studies presented at the workshop involved interviews with African exporters that sell on the EU market (presentations Gay, IPTS, Gonzalez Mellado, IPTS, El-Otmani, University Hassan II, and Aloui, Agro Concept). Surveys give useful first hand information, but several challenges deserve special attention. Besides the issue of ensuring representative results, surveys of NTMs are particularly prone to biases. For example, firms generally seem to have difficulties in identifying NTM issues and attributing the consequences in terms of costs and benefits to different measures. Furthermore, firm-level information about NTMs is often confidential and it is likely that firms strategically answer respective questions, particularly in the hope of possible compensation and support to facilitate market access to foreign markets. Surveys on NTMs contain the perceptions of the firms or exporters interviewed and their results need to be interpreted with care.

Another standard approach uses frequency measures, which count the number of NTMs and/or changes in NTMs to calculate coverage measures for the volume/value of imports subject to different types of NTMs, usually expressed as a percentage of total imports. Such coverage measures may give some information on the potential trade impact, but they do not explicitly quantify the NTM impact. While calculating coverage measures is rather straightforward, one of the main issues relates to endogeneity as observed trade data is used. Furthermore, a high NTM count does not automatically lead to more trade frictions and thus a more pronounced trade effect (see presentation Rau, LEI).

In the discussion, the possibility of comparing observed and potential trade was mentioned as an indication of those NTM incidences that hamper trade between countries. Such a comparison would look at exports, the domestic production and consumption, whereby the data should refer to quantities rather than values. Using trade data, the endogeneity issue already mentioned above obviously occurs as a main challenge. Other challenges relate to
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matching the different data classification, i.e. HS codes for trade data and the codes of production data, the detailed information required and resulting aggregation issues.

Using the TRAINS database, the calculations by the OECD show that the governments of OECD countries impose NTMs on almost all agro-food products, except for a couple of unprocessed fibres (silk, cotton, flax, hemp). While animal products are expected to be particularly affected by NTMs, it can be argued that NTMs are equally important for plant products, given upcoming issues related to GMOs, environmental damage and sustainability. Overall, about 45 per cent of all NTMs focus on human health issues, followed by plant health measures (20 per cent) and animal health measures (18 per cent). For further details see van Tongeren and Disdier (2010). Table 2 shows the number of NTMs reported in the TRAINS database according to type of measure. Amongst the approximately 14,000 NTMs notified, labelling requirements are most frequently reported, followed by requirements for product characteristics.

Table 2: Number of NTMs according to type of measure

<table>
<thead>
<tr>
<th>TRAINS Code</th>
<th>TRAINS Definition</th>
<th>Number of NTMs notified</th>
<th>Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8130</td>
<td>Labelling requirements</td>
<td>4,375</td>
<td>30.54</td>
</tr>
<tr>
<td>8110</td>
<td>Product characteristics requirements</td>
<td>3,441</td>
<td>24.02</td>
</tr>
<tr>
<td>6170</td>
<td>Prior authorization for sensitive product categories</td>
<td>2,664</td>
<td>18.60</td>
</tr>
<tr>
<td>8150</td>
<td>Testing, inspection and quarantine requirements</td>
<td>2,463</td>
<td>17.19</td>
</tr>
<tr>
<td>6370</td>
<td>Prohibition for sensitive product categories</td>
<td>587</td>
<td>4.10</td>
</tr>
<tr>
<td>8140</td>
<td>Packaging requirements</td>
<td>378</td>
<td>2.64</td>
</tr>
<tr>
<td>8160</td>
<td>Information requirements</td>
<td>193</td>
<td>1.35</td>
</tr>
<tr>
<td>8120</td>
<td>Marking requirements</td>
<td>115</td>
<td>0.80</td>
</tr>
<tr>
<td>6270</td>
<td>Quotas for sensitive product categories</td>
<td>78</td>
<td>0.54</td>
</tr>
<tr>
<td>4170</td>
<td>Refundable deposits for sensitive product categories</td>
<td>20</td>
<td>0.14</td>
</tr>
<tr>
<td>8190</td>
<td>Technical regulations n.e.s.</td>
<td>10</td>
<td>0.07</td>
</tr>
<tr>
<td>5270</td>
<td>Prior surveillance for sensitive product categories</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7170</td>
<td>Single channel for sensitive product categories</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>14,324</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Presentation von Lampe (OECD)

Methods to quantifying NTMs

The trade and welfare effects of NTMs are a priori unclear, and the NTM impact is thus first and foremost an empirical question. Many factors explain trade patterns between countries, and NTMs have become increasingly important as one influencing factor. At the same time, however, NTMs are used to regulate international trade and it can be argued that the relationship may also apply the other way round. That is, NTMs can also be considered as a
function of trade, and this questions the underlying assumption made in the quantification of NTMs.

Both simulation models and econometric estimation models are applied in the quantitative analysis of the effects of NTMs. Econometric studies usually apply a gravity-type model, which describes bilateral trade flows as a function of a set of explanatory variables, including NTMs. The quantity effect of NTMs on trade is estimated, and, via respective elasticities, the estimation result is subsequently used to calculate the price effect, typically expressed in terms of a tariff equivalent (TE). In contrast, simulation models simulate shocks of changes in regulatory measures, whereby scenarios often refer to the removal of NTMs as trade barriers. The costs and benefits for producers and/or consumers are introduced in the model equations, and the simulation exercises model the producers’ and/or consumers’ behaviour in response to the changes. As there may be counterbalancing effects, the empirical underpinning of the shocks reflecting NTMs seems to be particularly important and sensitivity analysis should generally be used to look into the robustness of results. For details about the current state of the art in the quantitative analysis of NTMs see, for example, Schlueter and Rau (2009).

The workshop included presentations of quantitative studies that aim to determine the trade effect of NTMs and also wider reaching economic and welfare effects. Table 3 gives an overview of the respective presentations, which are not limited to the effects for African exports to the EU. While Chapter 4 further elaborates on those studies with a focus on Africa and also presents results of the studies, the following paragraphs summarise some key points about the quantification methods.

As mentioned, the gravity approach estimates the quantity effect of NTMs reflected by the coefficient of the explanatory variable for NTMs in the model. The estimation results are used to calculate the price effect in terms of TEs for NTMs, and these TEs can then be used as inputs into simulation models. One main challenge in this estimation approach of course is the explanatory variable for NTMs because the NTMs under review need to be identified and somehow measured. In the papers presented at the workshop, the explanatory variables for NTMs comprise: survey data on the exporters’ perception of NTMs, TE estimates, actual requirements and dummy variables (see Table 3). Information on NTMs is not readily available and the measurement is not straightforward. Furthermore, information over time is usually not available, and thus the estimations usually rely on cross-section data. Using panel data, the panel estimation by Nimenya, de Frahan and Ndima (2009) is an exception in so far as not only the comparative static effects but the dynamic effects of NTMs over time are taken into account.
Table 3: Overview of the quantitative methods applied in the studies presented at the workshop

<table>
<thead>
<tr>
<th>Presentation</th>
<th>Reference to underlying paper</th>
<th>Quantification method</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marette (UMR Economie Publique INRA-AgroParisTech)</td>
<td>Disdier and Marette (2010)</td>
<td>PE simulation model with gravity estimates to calculate supply and demand side effect of change in MRLs</td>
<td>In gravity model: explanatory variable of MRLs</td>
</tr>
<tr>
<td>von Lampe (OECD)</td>
<td>van Tongeren et al. (2010)</td>
<td>PE simulation model, supply side: inspection costs and production changes, demand side: quality effect</td>
<td>Investigates the costs and benefits for different actors in the exporting and importing country</td>
</tr>
<tr>
<td>Nicita (UNCTAD)</td>
<td>Fugazza and Maur (2008)</td>
<td>Using trade restrictiveness index in GE model GTAP,</td>
<td>Methodological paper investigating different possibilities of reflecting NTMs in GTAP</td>
</tr>
<tr>
<td>Nimenya (Université Catholique de Louvain)</td>
<td>Nimenya, de Frahan and Ndimira (2009)</td>
<td>Panel estimation of elasticity of substituting African and EU products, estimates used to calculate TE</td>
<td>NTMs reflected by substitutability between African imports and EU domestic products</td>
</tr>
<tr>
<td>Nimenya (Université Catholique de Louvain)</td>
<td>Nimenya (2010)</td>
<td>Estimation of a gravity-type model with interaction terms to separate effect of NTMs imposed by individual EU Member States, panel data</td>
<td>In gravity model: explanatory variables for NTMs – TE estimated by Nimenya de Frahan and Ndimira (2008), dummy to reflect import ban</td>
</tr>
<tr>
<td>Gonzalez Mellado (IPTS)</td>
<td>Gonzalez Mellado et al. (2010)</td>
<td>Gravity-type model to estimate NTM effect</td>
<td>In gravity model: explanatory variable for NTMs is index reflecting exporters’ perception based on surveys</td>
</tr>
</tbody>
</table>

Source: own compilation based on the workshop presentations

In contrast to gravity estimations, simulation models give results not only concerning the trade impact of NTMs but also about further reaching economic and welfare effects. Partial equilibrium (PE) models allow for a more detailed representation of sectors (and policy measures) than general equilibrium (GE) simulation models and are thus best suited for case studies, which investigate specific NTMs and the issues arising. The papers presented at the workshop illustrate the advantages and challenges in the practical applications.

In simulation models, the TEs derived by gravity-type estimations reflect NTMs and are ultimately introduced as wedges between the price for the domestic and foreign product. In essence, the simulation analysis depicts NTMs just like tariffs and results can thus be expected to be similar to those of a usual analysis of tariffs. However, some corrections for the tariff revenues of the importing country need to be introduced. Being modelled as price wedges, NTMs are presented as border measures that cause costs when the respective
products cross the border. From the point of view of firms that wish to export to foreign markets, some types of NTMs, such as SPS measures however, lead to real trade costs that use resources and thus affect the firms’ export supply function. In simulation models, this is captured by supply shifts using so-called iceberg tariffs that melt away a fixed fraction of the export value on the way from the exporting to the importing country, leading to reduced trade and efficiency losses for exporters. In their methodological paper, Fugazza and Maur (2008) compare the results of modelling NTMs as tariffs/price wedges on the one hand and as iceberg tariffs/real trade costs on the other.

While many studies focus on the costs due to NTMs, the benefits need to be considered in a balanced analysis. Benefits accrue to both producers and consumers and may be observed in the exporting and importing country. Amongst the presentations of the workshop, the papers by Disdier and Marette (2010) and van Tongeren et al. (2010) account for the benefits of SPS measures and specifically look into the resulting welfare effects. Both studies use components of the OECD cost-benefit framework for analyzing NTMs developed by van Tongeren, Beghin and Marette (2009) and demonstrate how simulation models can reflect the benefits of NTMs for producers and consumers alike. In quantitative studies, the costs of NTMs are usually estimated in terms of compliance costs and the benefits of NTMs are given by the consumers’ willingness to pay. There are several challenges involved with the estimation of the costs and benefits of NTMs, and one prominent issue at hand arises as NTMs differently affect particular groups of producers (e.g. small holders) and consumers (e.g. consumers that face higher health risks than others, such as pregnant women and children).

4 Empirical evidence from African countries

In the workshop a selection of different studies focusing on African countries was presented. Some of the studies analysed common NTMs affecting the whole African continent while other studies concentrated on a specific country and/or product. This chapter first introduces those studies with a cross-country perspective and secondly the specific case studies.

Exporters' perceptions

To facilitate a stronger integration of African countries into the world economy, it is important not only to reduce market access barriers, but also to take into account and address a range of other factors, including those relating to individual competitiveness and the supply
side capacity of each country. Aiming to evaluate the importance of obstacles to EU-Africa agro-food trade and enhancing the EU’s knowledge of agricultural trade flows with African partners, the IPTS assessed agro-food trade between the EU and Africa in detail. Alongside the trade analysis, a survey of African agricultural exporters was commissioned in 2008 in five countries: Ivory Coast, Kenya, Morocco, South Africa and Uganda. The countries were selected based on their agricultural trade profile and their relatively high share of agricultural trade being imported into the EU. In total, 95 exporters answered the questionnaires, with 15 exporters participating in Ivory Coast and 20 exporters participating in each of the other countries. The distribution of exporters by country and product is presented in Figure 1.

In the questionnaire five categories of obstacles to trade were created, as described by Gay (IPTS). Each respondent was asked to grade the influence that a list of obstacles to trade had on his/her trade volume. The grading included a positive impact (graded as 1 or 2) and a negative impact (graded as -1 or -2).

Figure 1: Included countries and products

Source: Presentation Gay (IPTS).
Some major trends can be spotted regarding the different categories of obstacles to trade, highlighting differences in the exporters' perceptions in different countries. Concerning the 'taxes and subsidies' category, measures with notable impacts are EU procurement and EU surcharges, EU port taxes and other surcharges. Exporters from Morocco and South Africa have a stronger perception of facing restrictions than exporters from other countries. In these two countries two-thirds of the respondents paid EU port taxes and other surcharges.

In the 'customs and procedures' category, differences in exporters' perceptions across countries are rather low. Exporters perceived as negative the impact of rules of origin, especially in South Africa where a quarter of the exporters have experienced problems. However, South African exporters perceive pre-shipment inspections positively.

In the 'standards and regulations' category, no trends across countries can be tracked. In general, exporters from Ivory Coast have a more positive perception, whereas those from South Africa a more negative. For most of the exporters participating in the survey SPS measures were highlighted as having important impacts on trade flows. A clear negative perception was found among South African exporters regarding shipments barred from entering the EU given that 60 per cent of the respondents reported a barred shipment. In Morocco and South Africa more than 80 per cent of the exporters made specific investments in recent years to acquire certifications for food and agricultural products. A positive perception of compliance with EU standards enhancing exports to the EU was indicated by approximately 50 per cent of Kenyan, Moroccan and Ugandan exporters. Finally, transport and transportation costs are seen as a major obstacle by all exporters.

The exporter survey is currently being used to analyse the effects of the export structures, product characteristics and country profile linked to the exporters' perceptions (presentation Gonzalez-Mellado, IPTS). The ongoing results compare the impact of African export characteristics with exporter's perceptions. It shows that perceptions are closely linked to the exporting country given that policy implementation is a country-specific issue. In addition perceptions are linked to product characteristics and to the price used for the transactions: cost, insurance and freight (CIF) versus free on board (FOB) price as some countries support export insurances. The investigation into exporters' perceptions of obstacles to trade will continue to study other obstacles to trade included in the survey.
Non-tariff measures affecting agro-food trade between the EU and Africa

Impacts of NTMs on EU horticultural and fish EU imports from Africa

In the framework of another cross-country research project to measure the trade impact on EU horticultural and fish imports from African countries, tariff equivalents for diverse NTMs have been estimated and used to measure the possible effect of NTMs on the EU imports.

To estimate the tariff equivalents of NTMs, an extension of the price-wedge method has been used to take into account imperfect substitution and factor endowment in monopolistic competition. This study provides ad valorem tariff equivalents of several international food safety standards for imports of fruit, vegetables and fish from Kenya and Tanzania. The data have being analysed with panel data of European imports from Kenya, Uganda, Tanzania and Zambia. Empirical results show that the tariff equivalent is about 36 per cent for avocados, ranges from 40 to 92 per cent for fresh peas and green beans and goes from 12 to 190 per cent for frozen fish fillets. Regarding importing countries, the findings of this study show a strong preference of more than 99 per cent for domestic frozen fish fillets and an important variation of the tariff equivalent for all the products among the EU importing countries and over time.

The tariff equivalents obtained are used in a gravity econometric estimation to quantify the trade effect of these NTMs on imports. The approach takes into account the effects of NTMs as a component of trade costs using the gravity specification of Anderson and van Wincoop (2004). Results show that non-tariff measures do not have an impact on the trade in green beans while they impede the trade in frozen fish fillets. This study constitutes additional empirical evidence that unitary elasticities of output and expenditure on consumption are not appropriate (presentation Nimenya, Université Catholique de Louvain). Finally, using a probit bivariate estimation on survey data from Kenyan small-scale providers, Nimenya shows that the decision to supply certified products strongly depends on credit access.

Case of Seafood EU Imports

The workshop was focused on African imports into the EU. However in order to assess a new methodology, one paper on EU imports from African and non-African countries was included. The presentation by Marette (INRA) focused on EU seafood imports, including the impact of NTMs on welfare in the analysis. The empirical application focused on the effects of a standard capping of antibiotic residues in crustaceans in the US, the EU, Canada and Japan. In the seafood industry the antibiotic chloramphenicol is used to protect animals from diseases but is found to have toxic effects for human health. While the econometric estimation of the gravity equation reported a negative impact on imports, welfare evaluations showed that, in most cases, a stricter standard would lead to an increase in both domestic and
international welfare. Thus, negative developments of trade may be more than outweighed by
the positive impact on consumer welfare.

The main questions raised in the workshop concerned welfare calculation. One asked whether
consumers are willing to pay for safer food or if costs will be internalised by consumers so
that they are not aware of the increase in food safety due to the implementation of the NTM.
Additionally, changes in welfare across countries are also not considered.

**Case of Moroccan Agricultural Exports**

El-Otmani's (University Hassan II) presentation showed the specific NTMs faced by
Moroccan agricultural exporters to the EU. As several presenters remarked, most of the
problems faced are related to SPS measures. Some of the SPS faced are shipping sanitary
measures, including the control of diseases, agrochemicals and other additives. The SPS
measures set MRL of these additives to be used while exporting. The complexity of these
obstacles to trade becomes evident when acknowledging that MRL differ across countries and
change from year to year. Other technical problems such as detection methods of the
minimum level for these chemical substances are faced by exporters. Additionally, exporters
have to prove that the products fulfil the MRL specifications. Thus, MRL data should be
obtained from certified laboratories, which is costly.

It is not only SPS criteria that have to be met, products also have to meet quality standards
beyond countries' public standards related to shape, colour, surface characteristics, and
product texture such as firmness and freshness. In addition, the name of the packing house
should be mentioned on the pallets for immediate recognition of the origin of the product,
packages must carry information enabling importers to trace products from production sites to
export spots. Furthermore, packages must carry information on any post-harvest treatments
applied to products (such as fungicide, wax type, etc) and labelling of individual fruits may be
required by retailers.

**NTMs on EU tomato imports from Morocco**

One example of NTMs affecting a specific product was provided by Aloui (AgroConcept)
with the case study of Moroccan tomatoes. Morocco is the most important supplier of
tomatoes to the EU and benefits from a lower entry price.

Preferential access is granted only under a tariff rate quota (TRQ). This mechanism results in
an economic rent for Moroccan exporters because the marginal cost of supplying the imported
good is below the retail price on the EU market. In addition more and more tomatoes can be
exported outside the quota given that the most favoured nation entry price has been fixed in nominal terms and at certain periods of the year exporters may be able to pay the full (low) tariff and spare quota quantities for periods with higher market prices.

While there are NTMs negatively affecting trade, as detailed in the previous chapter, the compliance with certain private standards (GlobalGAP, British Retail Council (BRC), Nature Choice) can bring considerable benefits to producers, such as reduced agrochemical use and a framework that guides agricultural and management practices. An empirical comparison by the author between the compliance costs observed in 2004 and in 2010 shows that unit costs of compliance decrease over time, probably due to economies of scale.

The decomposition of production costs is presented in Table 4. According to producers and packing houses, fixed costs account for approximately 90 per cent of total costs. Most of this share is mainly related to personnel hired to execute internal audits which are required for traceability processes.

However, in this process only competitive exporters have managed to create the infrastructure necessary to comply with requirements. Conforming to high standards for one retailer opens up new markets. In this sense, standards may drive improvements in competitiveness and develop innovation.

**Table 4: Cost decomposition for tomato production in Morocco**

<table>
<thead>
<tr>
<th></th>
<th>Total Costs per year (1000 Euro)</th>
<th>Total Costs (Euro/ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunk costs</td>
<td>20</td>
<td>0.5</td>
</tr>
<tr>
<td>Overhead costs</td>
<td>200</td>
<td>5</td>
</tr>
<tr>
<td>Total fixed costs</td>
<td>220</td>
<td>5.5</td>
</tr>
<tr>
<td>Variable costs</td>
<td>28</td>
<td>0.7</td>
</tr>
<tr>
<td>Total cost of compliance</td>
<td>248</td>
<td>6.2</td>
</tr>
</tbody>
</table>

% border prices

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cherry tomatoes</td>
<td>0.8%</td>
</tr>
<tr>
<td>Round tomatoes</td>
<td>1.55%</td>
</tr>
</tbody>
</table>

Source: Presentation Aloui (AgroConcept)
Case of Tunisian Agricultural Exports

With the collaboration of Ms Myriam Khefifi Ben Mohamed, a Tunisian exporter of olives, a presentation on the point of view of Tunisian exporters was prepared (presentation van Doorslaer, IPTS)\(^1\). The main problems are the cost and complexity of complying with the certification and traceability requirements of public and private institutions. Some producers are not prepared or willing to change their production system to comply. Thus, the number of producers able to provide raw material to exporters is decreasing and prices increase. The lack of qualified laboratories to analyse SPS requirements, pH level, texture and colour limits the exporters' ability to guarantee their deliveries to the European market. The main effects of these NTMs are the rising price of direct and indirect costs in production and exports from Tunisia, and small size firms disappear to the benefit of larger enterprises. Due to NTMs set on the EU market, some olive companies re-orientate their exports to other African countries, where standards are not so restrictive and expensive.

5 Policy issues in the NTM context

The presentations and discussions at the workshop revealed numerous challenges facing the research agenda on NTMs. Policy challenges, however, are no less numerous, starting with the need to formulate regulations that address societal concerns (such as environment or food safety) and do not create unnecessary obstacles to trade or serve as a means of discrimination or disguised restriction on international trade. In addition, some measures can be welfare-enhancing, delivering information to producers, consumers, etc. as consumers are becoming more demanding and aware of conditions of production. This section focuses on the main policy themes emerging from the workshop.

Importance of tariff and non-tariff measures: Trade literature is ripe with statements on NTMs taking the place of tariffs in hampering the trans-border movement of goods. Although tariff protection is decreasing and NTMs appear to be gaining importance, both tariff and non-tariff measures are still important and deserve further negotiation. To prepare for bilateral agreement negotiations, it would be necessary to assess the importance of NTMs to measure

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\(^{1}\) As Ms Myriam Khefifi Ben Mohamed could not attend the workshop to share her experiences as a Tunisian exporter, she provided IPTS staff with a document describing her experience. Based on this document, Mr. van Doorslaer prepared his presentation.
whether potential gains of a further liberalisation could not be considerably undermined by NTMs. However conclusions that NTMs replaced tariff protection are premature.

Occurrence and sector specificity of NTMs: Not all NTMs in all sectors affect trade equally. Contrary to what one could expect, there are often less complaints from exporters about the sectors with the highest number of regulations. A typical example is the fish sector: although fish, as a highly perishable product, is subject to a number of hygienic regulations, relatively few complaints are heard compared to other, less regulated sectors.

Private standards remain a contentious issue: Although many developing countries regularly bring complaints regarding private standards for discussion by the WTO SPS Committee, precise coverage of private standards in international agreements remains to be finalised. Some argue that as a form of business-to-business standards private standards do not fall under the auspices of the WTO.

Strengthening dispute settlement procedures both on multilateral and bilateral levels: Although currently very few complaints relating to NTMs are presented in the WTO dispute settlement by developing countries, a lack of formal complaints in the WTO does not mean that there are no problems. Many developing countries view a dispute settlement process as costly and fear that trade would stop while the dispute is ongoing. EPAs, discussed later in the text, contain a simplified dispute settlement process. In addition, despite slow progress on the Doha Development Round, further trade liberalisation should take an active approach towards NTMs on both multilateral and bilateral levels.

The Economic Partnership Agreements (EPAs) between the EU and ACP countries aim to promote trade through trade development, sustainable growth and poverty reduction. NTMs, such as export taxes, SPS, and rules of origin are often raised in EPA negotiations. A full EPA in the framework of ACP has only been signed with Caribbean countries. To date (2010_ Interim EPAs have only been signed with the Pacific region and some African regions (– West Africa, Eastern and Southern Africa (ESA), East African Community (EAC), South African Development Community (SADC) and Central Africa).

Capacity building remains of utmost importance: Training and technical support is one of the EPA’s objectives. Food safety standards appear to be the main constraints in terms of market access for ACP countries. Rather than establishing regulations perceived by developing countries as trade barriers, a preferred option is to improve production processes and build up production and institutional capacity. Production segmentation, e.g. supplying more than one market with products satisfying different standards, might not always be a feasible alternative due to the risk of contamination. On the other hand, production to the strictest standard might
not be feasible due to a lack of capacity. In addition, capacity development is also necessary in the area of technical assistance, specialized consultancy, service to repair machinery, support to achieve certification, and training and education of personnel (presentation Doherty).

**Infrastructure support and development:** Infrastructure support is addressed via general development policies as transport and infrastructure impact competitiveness. Lack of suitable infrastructure contributes to a higher cost of compliance with importing country regulations and increases the cost of doing business. On the other hand, economies of scale play a role. For example, it is not necessary for each country to have access to its own testing and accreditation laboratory as these facilities can be efficiently shared regionally.

**Importance of domestic policies:** As scale economies reduce the cost of compliance, larger firms face lower average costs to satisfy some NTMs, which can result in the liquidation of small and medium enterprises. Policies easing transformation to other economic sectors, such as vocational training etc., should be in place.

**South – South trade:** there is some evidence of strengthening South – South trade flows, pointing to the need for more South – South analysis. Some countries complain that South – South trade with neighbours can be limited because of political problems and, at times, lack of suitable transportation and infrastructure links. For intra-regional trade, harmonised standards are also needed which, in the interest of keeping other export markets open, are best harmonised according to international reference levels.

**Information and experience sharing using various dialogues and other forums:** coherent forums designed to facilitate information and experience sharing to discuss various issues, including NTMs, trade facilitation, development aid and Aid for Trade in agriculture, should be put in place. These should incorporate enhanced cooperation among EU, African Union, World Bank, UNCTAD and UNIDO and make progress on as yet unsettled governance issues.

**Transparency** with regards to import conditions remains key. The introduction of the EU Export Helpdesk to facilitate trade from developing countries into the EU was welcomed as a useful tool for providing relevant information and contributing to transparency. The EU provides support and another helpdesk for exports through an Import (Export) Management Framework for Trade, which includes certain requirements (standards) that products should comply with in order to be imported into the EU or exported from the EU to particular destinations. These standards are based on product definition and quality standards that products should fulfil.
New areas of NTMs create and will continue to create additional policy challenges: environmental-related measures (green growth), and fish and forestry (so-called resources-trade) remain somewhat uncharted territory in trade policy.

6 Conclusions

The workshop brought together experts from different disciplines (research, policy and business) and their discussion, particularly on the definition of NTMs, highlighted the complexity and broadness of the topic. There is a commonly accepted NTM definition, but there is not always a consensus on whether certain measures should be classified as NTMs or not. For example certain quality requirements established by private companies are considered by some as belonging to the business-to-business relationship while others see them as clear NTMs.

Africa represents only a very small share of the world trade value. More than half of African exports are in oil and mineral fuels. The share of Africa in the world trade of agricultural products is slightly higher; however the exports are mainly concentrated to a limited number of commodities.

Even though tariff protection is progressively decreasing in LDCs and in the framework of bilateral agreements, tariffs remain important especially in Mediterranean countries. At the same time, NTMs appear to be gaining attention. NTMs have been detected for almost all agro-food products worldwide. The majority of these NTMs aim to protect health (human, plant and animal health). In addition to the positive effects on health, the compliance with certain measures may enhance trade given that they establish trust between trade partners. The term NTM covers many measures. However, most of the workshop concentrated on the major ones for agricultural products: SPS and TBT measures. Moroccan participants stressed in particular the importance of the cost of complying with these requirements, notably in terms of certification. It was underlined that in Africa the lack of infrastructure, e.g. the lack of certified laboratories, makes it more difficult and costly for exporters to comply with these measures and remain competitive at the same time. NTMs affect welfare in both exporting and importing countries. This change in welfare may be positive or negative depending on the NTM considered as well as on the time frame.

Concerning the analysis of NTMs, the workshop underlined the difficulty of collecting data. Surveys are commonly used to gather information. However the workshop commented on the
limitations of these surveys (and perception analyses) in particular in terms of their representativeness and comparability across countries. Participants of the workshop recognised the need for better communication and more systematic approaches to improve their design and make them of use to a maximum of researchers. UNCTAD is pursuing its efforts to build a public database including as many NTMs as possible and covering a maximum number of countries. Given the complexity and the cost of this exercise they concentrate only on public requirements. The data availability leads researchers to a difficult choice: either limiting their analysis to very specific products and NTMs so as to rely on good data or analysing broader NTM effects but therefore lacking some specific information.

Concerning the modelling of NTMs' impacts, the current econometric methods or equilibrium models used do not take into account the dynamic effects of NTMs. Furthermore, the potential benefits of some of these measures are often missing in the analyses due to the complexity of quantifying them. Therefore, the workshop concluded that there is currently a need to develop new methodologies to effectively assess the impact of NTMs. Further efforts are needed to better identify the actual positive and negative effects of NTMs. New methods are necessary to measure these effects so that results can be commonly accepted by the research community as well as by policy makers. The benefits and costs of NTMs would also allow for the identification of welfare gains or losses in the economy and society in the short and long term.
7 References


Annex 1: Workshop Agenda "Non Tariff Measures (NTM) affecting agro-food trade between the EU and Africa"

9-10 September 2010

**Venue:**
Institute for Prospective Technological Studies (IPTS),
Calle Inca Garcilaso 3, ES-41092 Seville, Spain

Organisers: Institute for Prospective Technological Studies
Aída Gonzalez Mellado, Sophie Hélaine, Robert M'barek

### AGENDA (9 SEPTEMBER 2010)

<table>
<thead>
<tr>
<th>Time</th>
<th>Session/Activities</th>
<th>Chair/Presenter</th>
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<tbody>
<tr>
<td>9:15 - 9:45</td>
<td>Welcome to the workshop and opening remarks.</td>
<td>John Bensted-Smith</td>
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<tr>
<td>9:45 - 11:00</td>
<td>Session 1: trade flows and NTMs</td>
<td>Chair: Jose Maria Garcia Alvarez Coque</td>
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<td></td>
<td>(25 min) Agricultural trade between Africa, MED and the EU</td>
<td>Robert M'barek and Sophie Hélaine</td>
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<td></td>
<td>(20 min) NTM definitions and generalities</td>
<td>Andreas Schmidt</td>
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<td>(30 min) Discussion</td>
<td>All participants</td>
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<td>11:00 - 11:30</td>
<td>Coffee break: EXPO Patio</td>
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<td>11:30 - 13:30</td>
<td>Session 2: Detection of NTMs in trade</td>
<td>Chair: Monika Tothova</td>
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<td>(30 min) OECD work on NTMs in Agriculture: Data and other issues</td>
<td>Martin von Lampe</td>
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<td>(20 min) National NTM data</td>
<td>Alessandro Nicita</td>
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<td>(30 min) Focus on EU SPS measures and the analysis of their impact</td>
<td>Marie Luise Rau</td>
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<td>(40 min) Discussion</td>
<td>All participants</td>
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<td>13:30 - 14:30</td>
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<td>14:30 - 16:00</td>
<td>Session 3: Exporters views and SPS measures</td>
<td>Chair: Martin von Lampe</td>
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<td>(20 min) African Agricultural and Food Exports to the EU: Obstacles to trade</td>
<td>Hubertus Gay</td>
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<td>(10 min) Introduction on Exporters' view</td>
<td>Leonard Mizzi</td>
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<td>(10 min) The exporters' point of view - Tunisia</td>
<td>Benjamin van Doorslaer</td>
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<td>(25 min) Improving market access to the EU: measures to overcome SPS and related Non-Tariff Barriers</td>
<td>Martin Doherty</td>
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<td>(25 min) Discussion</td>
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### AGENDA (10 SEPTEMBER 2010)

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<thead>
<tr>
<th>Time</th>
<th>Session 4: Measurement of the costs due to NTM</th>
<th>Chair</th>
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<tr>
<td>9:00-10:30</td>
<td>The Combination of Gravity and Welfare Approaches for Evaluating Non-Tariff Measures</td>
<td>Michel Petit</td>
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<td>The Cost of Compliance with SPS Standards for Moroccan Exports: A Case Study</td>
<td>Stephan Marette</td>
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<td>Discussion</td>
<td>All participants</td>
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<td>10:30–11:00</td>
<td>Coffee break: EXPO Patio</td>
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<td>11:00-13:00</td>
<td>Session 5: Modelling impacts of NTM</td>
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<td>Estimating Trade Restrictiveness Indices</td>
<td>Alessandro Nicita</td>
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<td>Non-Tariff Measures/Barriers in CGE Models</td>
<td>Alessandro Nicita</td>
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<td>Trade effect of non-tariff measures on European horticultural and fish imports from African countries</td>
<td>Nicodème Nimenya</td>
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<td>Obstacles to agricultural trade between Africa-EU which are the main determinants for the exporters?</td>
<td>Aída Gonzalez Mellado</td>
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<td>Discussion</td>
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<td>13:00-13:30</td>
<td>Concluding remarks</td>
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<td>Lunch: EXPO Patio</td>
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Annex 2: List of Participants

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<tr>
<th>Family name</th>
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<th>Institution</th>
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<td>1.</td>
<td>Aloui</td>
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<td>Mohamed</td>
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<td>Garcia-Alvarez-Coque</td>
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<td>Gonzalez Mellado</td>
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<td>Hélaine</td>
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<td>Petit</td>
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<td>Nicita</td>
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<td>Marie-Luise</td>
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<td>Schmidt</td>
<td>Andreas</td>
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<td>Tothova</td>
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<td>22.</td>
<td>Van Doorslaer</td>
<td>Benjamin</td>
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<td>23.</td>
<td>Von Lampe</td>
<td>Martin</td>
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Annex 3: Workshop Presentations
Welcome to the workshop and opening Remarks
John Bensted-Smith (JRC-IPTS)
Non-tariff measures affecting agro-food trade between the EU and Africa
Non-tariff measures affecting agro-food trade between the EU and Africa

Agricultural trade between Africa, MED and the EU
Robert M'barek and Sophie Hélaine (JRC-IPTS)
Non-tariff measures affecting agro-food trade between the EU and Africa

- EUROMED association agreements entry into force
  - Turkey Custom union since 1995
  - Lebanon, 2003
  - Israel, 2000
  - Egypt, 2004
  - Libya, ongoing negotiations
  - Morocco, 2000
  - Tunisia, 1963

- Main partners of Africa
  - Total exports 2008
    - EU27 43%
    - USA 21%
    - India 9%
    - China 8%
    - Japan 4%
    - Brazil 3%
    - South Korea 2%
    - Africa 2%

- African exports by Region
  - Total exports (2008)
  - Agricultural exports (2008)

- Regional exports to RoW
  - MED:
    - Oil 55%
    - AGRII 7%
    - EU27 44% of AGRII exports
    - Other partner = Turkey
  - EAST:
    - Oil 33%
    - AGRII 35%
    - Iron, steel, copper, alum 17%
    - Oil 2%
    - EU27 46% of AGRII exports
    - Other partner = Pakistan
  - CENTRAL:
    - Oil 77%
    - Wood 11%
    - AGRII 6%
    - EU27 70% of AGRII exports
    - Other partner = China
  - SOUTH:
    - Precious stones 59%
    - Oil 9%
    - AGRII 7%
    - EU27 43% of AGRII exports
    - Other partner = Japan

- Main partners of Africa
  - Development of African Exports
    - % change in real terms (2004)
    - Change in real terms
      - Exports to the world
      - Exports from the world
      - Change in real terms
        - Total exports to the world
        - Agricultural exports
        - In real terms (€ 2004)
Non-tariff measures affecting agro-food trade between the EU and Africa
Conclusions

- Tariffs are not the only obstacle to export to the EU for many African countries?
- What are other reasons?
  - Supply capacity, diversification
  - Low competition
  - Under-industrialisation
  - Lack of investments
  - Transport infrastructure & costs
  - Difficulties to meet EU requirements
  - …
Non-tariff measures affecting agro-food trade between the EU and Africa

NTM definitions and generalities
Andreas Schmidt (DG TRADE)
Non-tariff measures affecting agro-food trade between the EU and Africa

Trade

Regulatory Framework for Trade

1. International Bodies
- WTO
- International Coordinating Committee (CCC)
- Codex Alimentarius Commission (FAO, WHO)
- EU
- UNECE
- UNCTAD

2. Regional Integration
- Economic Community of West African States (ECOWAS)
- Southern African Development Community (SADC)

3. Domestic Regulations
- Import requirements
- Sanitary and Phytosanitary (SPS) requirements
- Import licensing procedures

The EU general approach to technical regulations, standards and conformity assessment procedures is based on a legislative method where product legislation is excluded to the adoption of "essential requirements" necessary to protect public interest such as human health, safety or environment.

The following five core principles of the TBT Agreement:
- Transparency
- Non-discrimination and national treatment
- Proportionality
- Use of international standards - whenever possible
- Equivalence

Trade

Thank you

Contact: Andreas.Schreft@ec.europa.eu
OECD work on NTMs in Agriculture: Data and other issues
Martin von Lampe (OECD)
Non-tariff measures affecting agro-food trade between the EU and Africa

- Currently available international data have some potential caveats to keep in mind:
  - **TRAINs and WTO data on NTM notifications:**
    - possible bias towards countries with good notification discipline
    - only changes or new measures get notified.
  - **WTO SPS IMS on Specific Trade Concerns:**
    - only tridionale moving to multilateral level get included
    - issues remaining at bilateral level missing
  - Similar data base on TBT trade concerns

**Data on NTMs: options and choices (2)**

- Currently available international data have some potential caveats to keep in mind:
  - Exporter surveys or complaints about perceived barriers
    - USTR National Trade Estimate Report on Foreign Trade Barriers
    - EU Market Access Data Base
    - Useful alternative or complement, but risks being biased
  - If survey is carefully designed, can be used to econometrics to yield
    AV tariff equivalent of NTM

**Data on NTMs: options and choices (3)**

- Documents on domestic regulation
  - Useful source for specific cases, but
    - very labour intensive if used to create large data base
    - requires sector knowledge

- International trade data
  - **COTRACE:**
    - possible endogeneity bias
  - Estimating ‘net barriers’ or tariff equivalents
    - Various methods based on e.g. gravity models
    - residuals vs fixed effects
    - cross-sectional vs panel data use

**Data on NTMs: options and choices (4)**

- Other data required for NTM analyses
  - Market data: potentially important problems related to NTMs affecting
    - subgroups of HS product lines
      - (e.g., raw-milk Camembert and Brie cheese stored for less than 60d at -2°C, imported by GAB)
    - subgroups of trade partners
      - (e.g., Russian meat imports from Poland)
    - subperiods of marketing years
      - (e.g., temporary import measures)
Non-tariff measures affecting agro-food trade between the EU and Africa

Summary of CB analysis

- Key points:
  - Distinguish actors that are concerned by given market imperfections from those that are not
  - Obtain assessment of welfare effects with and without NTM in place for those groups
  - PE model to capture market responses

- Some results
  - Trade restriction may sometimes be welfare optimal (both domestic and global) if proportion of concerned is "big enough" and value of externality is "big enough"

What have we learned?

- NTMs are at interface between domestic regulation and trade: accept regulator's autonomy, while keep trade restrictive
- Welfare effects a tariff welfare effects, but:
  - Systematic analysis of NTMs is possible using basic economics.
  - Empirical application restricts on obtaining realistic producer losses from (and consumer valuation for) externalities
- Classification/categorization of NTMs is a useful first step in its own right: who bears costs and benefits of measures? Rent sharing?
- Collect all measures on all products in all countries???
- Data collection and parameterisation of the framework remains a major issue in the evaluation process.

Some issues

- Obtain willingness to pay to avoid externality
  - Methods: Experimental economics, choice experiments...
  - If human life is at stake WTP may not be appropriate, use QALYs etc.
  - Fixed and variable costs of meeting standards → market structure effects
- Monitoring and enforcement costs
- Transparency in NTM design: cost of obtaining information

Further work

- Data on NTM incidences urgently needed
- More case studies?
- Going beyond the ‘casuistic’ approach — defining an impact matrix concern a measure?
- Need collaboration within the research community and across methods
- Data — both on NTMs and other related — remain an important issue
  - ‘Hones for courses? data collection should have analytical use in mind

Example: EU imports of cut flowers (roses) from Kenya and other producers

- Kenya: world’s fourth largest exporter of cut flowers (2006, after NED, COI, ECU)
- EU: most important destination (90%) of Kenyan cut flower exports
- Objective of EU protective measures: limiting the introduction and spread of invasive species on cut flower production and trade
- Trade concern raised in WTO SPS Committee
- What are the economic consequences of the NTMs?

Thank You

Trade and Agriculture Directorate

Visit our website:
www.oecd.org/TAD

Contact:
Martin.vonlampe@oecd.org

Illustrative flower scenario results
Non-tariff measures affecting agro-food trade between the EU and Africa

National NTM data
Alessandro Nicita (UNCTAD)

Data collection procedures

National NTM data

National Regulations affecting traded products

- What are we after?
  - We want to know whether the import of a particular product in a particular country is subject to national regulations, and if so, of what kind.

- Where to look for these information?
  - Primary sources
    - Ministry of Trade, Ministry of Agriculture, Ministry of Environment [Env. First Agencies], National Standard Body, Other Governmental Agencies that issue regulations.
  - Secondary Sources
    - Country specific databases, WTO notifications, Other existing databases on any NTMs.

What information are collected?

Optimally we would like to collect:

- The type of a measure
  - Whether a specific product is affected by NTMs and type of NTM category.
- The source of a measure
  - Publication, law, regulation, etc.
- Data of entry into force
  - if available, data on enforcement
- The countries affected by a measure
  - NTMs may be imposed on imports from specific countries.
- Whether the measure is temporary or permanent
  - NTMs may be imposed on a temporary or permanent basis.
- Purpose of a measure
  - The practical reason behind the adoption of a measure.
- The origin of a measure
  - Whether the origin of the measure is related to market, or even private.

In practice not all these information are always available.

Data collection procedures

- Developing countries
  - Local consultants
  - Regional Agencies

- Developed countries
  - UNCTAD and ITC
    - Documents and databases

What the data looks like

- Brazil: NTMs distribution 2001 vs 2008
What the data looks like

- Japan: NTMs distribution 2001 vs 2008

Uses of data

- Just to know what is applied by who is important. We don’t know much on how pervasive are NTMs.
- Time dimension (starting year)
- Econometrics
- Models
- Researchers no limit
Focus on EU SPS measures and the analysis of their impact
Marie-Luise Rau (LEI)

Introduction - SPS measures in agri-food trade
- Goal: food safety, plant and animal health
- SPS measures relevant in agri-food trade
  - Standards/regulation as import requirements
  - Vertical versus horizontal requirements
  - Public versus private requirements
- EU requirements that products have to satisfy to be sold on the EU common market:
  - More specific with regard to the IPTS project, African exporters' perspective

EU SPS measures - principles
- Requirements are crucial in the EU market
  - Establishing EU common market with efficient policy areas involved: common agricultural policy (CAP), health and consumer protection
  - Strategies: harmonisation and mutual recognition
  - Identity harmonisation for food safety
- Requirements for animal products are generally more rigorous than those for plant products
- Requirements are formulated in EU law
  - Directives versus Regulations
  - Food safety: increasingly Regulations
- Third countries face EU requirements to enter the markets in the member states, but there can also be lighter and/or additional requirements by individual member states.

Outline
- Framework of measures/regulatory elements in international agri-food trade
- EU SPS measures - principles
- Analysis of SPS measures
- Main challenges in the analysis
- Concluding remarks

EU SPS measures – principles (cont.)
- New EU food safety and hygiene package 2004
  - General food hygiene + more detailed requirements for animal products, feed, and animal contact
  - Consolidation of EU food law and transparency, but also more rigorous and underlying firms' responsibility/ability
  - Provision for third countries/foreigners specified in the documents + guidance documents by OIE Health and Consumer Protection
Non-tariff measures affecting agro-food trade between the EU and Africa

Main SPS import requirements for third countries:
- Product standards (e.g. MRAs and process standards)
  - HACCP standard not for primary producers
- Veterinary and phytosanitary certification
- Pre-labelling of items (animal products), farm registration in third country (plant products)
- List of countries eligible to export to EU (animal products)
- Controls of completeness at the EU border related to risk of product and country of origin (documentation and identity checks)
- Compliance with laws or equivalent in third country (animal products), accredited laboratories in third countries

Impact on trade is an empirical question:
- Tariff: decrease in trade, costly increase in trade, no change
- Trade may not take place at all without measures
- Caused by trade and requiring product standards
- Electrical equipment by large missing; for literature search see for example (2009)

Analysis of SPS measures:
- Trade effect (quantity effects)
- Economic effect (quality effects for producers, compliance costs)
- Trade effect (price effects)
- Economic effect (price effects)
- Trade effect (consumer surplus)
- Economic effect (consumer surplus)
- Trade effect (consumer surplus)
- Economic effect (consumer surplus)
- Trade effect (consumer surplus)
- Economic effect (consumer surplus)

Perspective of producers/exporters:
- Examples of opportunities:
  - Improved production efficiency
  - Advanced technology
  - Reduced costs
  - Government - increased costs, less rents, vitality, innovation benefits
- Difficulties due to changing markets
- Difficulties due to changing markets
- Increased quality (higher)
- Increased quality (higher)
- Market access: trade may not take place without standards

Concluding remarks:
- Systematic approach necessary for meaningful analysis
  - Different effects of different measures, production process, and country of origin
  - What are the costs and benefits of different measures, both economic and welfare.
- Benchmark analysis: without regulation there may be no trade
- Costs and benefits: benefits of SPS measures
- Aggregated analysis versus case study work

Thank you for your attention!
African Agricultural and Food Exports to the EU: Obstacles to trade

Hubertus Gay (JRC-IPTS)
Non-tariff measures affecting agro-food trade between the EU and Africa

- Discussion 1
- ‘Taxes and Subsidies’
  - Moroccan and South African exporters perceive of facing stronger restrictions
  - Especially the EU procurement and EU surcharges
  - EU port taxes and other surcharges: in these two countries two-thirds of the respondents paid these, in contrast to the other three countries
- ‘Customs and Procedures’
  - The rather negative perception of ‘Rules of origin’ in South Africa is supported by the fact that a quarter of the exporters have experienced problems
  - ‘Pre-shipment inspections’ positively seen in most of the countries with the exception of South Africa

- Discussion 2
- ‘Standards and Regulations’
  - The largest fluctuation between the answers from the different countries can be observed
  - Code of Irene generally more positive perception, whereas South Africa more negative
  - Highlighted regarding sanitary and phytosanitary (SPS) measures
  - In South Africa 60% of the respondents reported that they have faced more restrictions from entering the EU
  - In Morocco and South Africa more than 80% of the exporters made specific investments in recent years to acquire certifications for food and agricultural products compared to 50%
  - About 50% of Kenyan, Moroccan and Ugandan exporters indicated that the compliance with EU standards has assisted them to export to other destinations

- Discussion 3
- ‘Specific Limitations’
  - Most discussed in Morocco, as the other four countries have a rather indifferent perception
  - With less than a third of the exporters facing volume restrictions in entering the EU market (mainly tomatoes in the framework of a tariff rate quotient)
- ‘Distribution Chain and Infrastructure’
  - Fluctuates between questions and not so much between countries
  - Transport and transportation costs are seen as a major obstacle by all exporters

- Concluding remarks
- Only a flavour of the information available presented now
- Most information based on exporters perception
- Rich information base
- but not representative
- Major countries and commodities
- Source bias towards exporters who overcome obstacles to trade
- Limited number of observation per case
- Further elaboration of data needed
Thank you!
Introduction on Exporter view
Leonard Mizzi (DG AGRI)
Non-tariff measures affecting agro-food trade between the EU and Africa

Measuring NTM in Euro-Med and ACPs
- Sustainability Impact Assessment (2007)
  - Labelling, GI, Cumulation of rules of origin, organic equivalence, quality
- Impact in Agadir Agreement (non-tariff)
- ACPs: PTA, CO, EACP, PIP, SPS, VMS, and labelling, HACCP, TradeCom trainings (C&I, Risk)
- Database - notifications of sanitary and technical requirements, and data on past or present trade disputes between countries and countries outside. The private sector is not always aware of the international regulatory environment in their respective product areas.
- EU Market Access Database on non-NTMs third countries
- SPS Export database

Final Conclusion
- New areas of NTM: environmental-related measures in certain regions (e.g., fish and forestry) - so-called "sustainable trade" which remains underdeveloped territory in trade policy. But food safety standards are costly in terms of market access for ACPs
- What should be done at a bilateral level in context of lack of progress in DDA?
  - Calls for better monitoring of NTMs
  - NTMs should not be means of discrimination or disguised restriction on international trade
- Bilateral regional dialogue on NTMs, trade facilitation, development aid and Aid for Trade in agriculture

Conclusion - contd
- Need for strengthened cooperation: EU, African Union, World Bank, UNCTAD and UNCT
- Governance issues - WTO, etc.
- Future Trade Policy EU2020
- Future Communication on CAP post 2013
- EU Communication on quality policy (e.g., best practice guidelines for the operation of certification schemes relating to agricultural products and foodstuffs - with development considerations)
- Future enhanced role of ATFC - African Trade Policy Centre (Follow up to recent workshop in Kenya in April which focused on NAMA) - Trade and Environment Experts Network

Thank you for attention!

leonard.mizzi@ec.europa.eu
The exporters' point of view - Tunisia
Benjamin van Doorslaer (JRC-IPTS)

Certification and traceability

- EU quality standards: changing over time and getting higher
  - Physical analysis on pH, texture and color
    - Very restrictive microbiological analysis
- Needs:
  - Investment in expensive equipment...
  - More scientific research and development
  - But limitations... profitability of the company in danger!!!

OLIVA SA: a niche player

- Tunisian SME, started in 2004, olive sector
- Present capacity: 500 ton of table olives / year
- Traditional conservation and transformation methods
- Organic producer certified by European company since 2007
- Mainly exporting table olives to France and Italy

>>> niche player, concerned about sustainability

Exports to EU

- Main problem: certification and traceability requirements
- Getting too high!

- Tunisian farmers are not prepared or willing to change their production on system, don’t adopt new rules, also supplying
- Consequences:
  - Availability of many commodities decreases
  - Prices “exporter” drop increase
  - Impossible to ensure regular exports to EU clients
  - Difficult to keep export prices at agreed level

Reorientation towards Africa

- International crisis: decrease of EU demand
- Exports of Tunisia to EU: 17% down in 2009

BUT!

- Exports to Sub-Saharan Africa: +15%.
- 2010: trade agreement between Tunisia and the West African Economic and Monetary Union (72 mio inhab.)
Conclusions

- NTM give rise to extra direct and indirect costs
- Future of SME in olive sector is at stake
- Reorientation of exports to other African countries
Improving market access to the EU: measures to overcome SPS and related Non-Tariff Barriers
Martin Doherty (Cerrex Ltd)
ROLE OF THE SERVICE SECTOR
An SPS supportive service sector is vital
- Technical and educational support services
- Information/database access about SPS requirements
- Commercially viable finance for SPS system eg HACCP
- Targeted schemes to help small enterprises

OBJECTIVES AND ISSUES FOR EPA TEXT
- Clarification of partners’ approach to ambiguities in WTO/SPS Agreement.
- Identification of candidates for Equivalence Agreements with the EU and specific assistance to achieve this.

BENEFITS
- Sectors will move up value chain.
  - Food processing
- New product sectors will emerge.
  - Aquaculture
- New service sectors will develop.
  - Specialised consultancy
  - Certification
  - Servicing/repair
  - Training and education

FOR THE REGIONAL PREPARATORY TASK FORCE (RPTF)
- Regional information alert systems
- Regional monitoring and planning
- Harmonisation of standards in selected product areas
- Establishment of Centres of Excellence in specialised areas

THE IMPORTANCE OF SPS IN EU/ACP ECONOMIC PARTNERSHIP AGREEMENTS (EPA)
Represent an opportunity to:
- Resolve contentious issues.
- Obtain specific assistance for specific problems.
- Establish mechanisms to ensure commitments are fulfilled.
- Enhance regional integration.
- Tackle trans-boundary diseases on a regional basis.
- Contribute to development – poverty, health, employment.

CONTRIBUTING TO INTERNAL POLICY DEVELOPMENT IN A REGION AND MEMBER STATES
- Flanking measures to support SPS implementation
- Establish Hubs of Expertise
- Public/private sector partnerships

STRATEGIC APPROACH
SPS issues have differing characteristics and need to be addressed in different ways:
- Objectives and issues that are key principles and therefore text for the EPA.
- Those that should be fed into RPTF process.
- Those contributing to internal policy development in a region and in member states.

FINALLY
SPS encompasses much more than technical standards and has the potential to contribute significantly not only to the development of existing trade but also to the development of new trading markets within the African Continent.

Thank you
Mohamed El-Otmani (Institut Agronomique et Vétérinaire Hassan II)
Technical Non-Tariff Measures Applied by EU countries on Moroccan Agricultural Exports

- They can take various forms:
  - Limitation of quantities to be exported per year/month/week during the export season (examples: tomatoes, clementines).
  - Quality standards;
  - Sanitary and phytosanitary measures;
  - Required certifications (GlobalGAP, BRC, HACCP, Tesco Nature's Choice, Organic, Protected Geographic Indication, etc.).

Limitation of export volumes during export season: Quotas applied on specific crops during the production season: example for tomatoes

<table>
<thead>
<tr>
<th>Months</th>
<th>Maximum Quota 2021/2022</th>
<th>Maximum Quota 2021/2022</th>
<th>Maximum Quota 2021/2022</th>
<th>Maximum Quota 2021/2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>October</td>
<td>12,000</td>
<td>18,000</td>
<td>26,000</td>
<td>30,000</td>
</tr>
<tr>
<td>November</td>
<td>20,000</td>
<td>24,000</td>
<td>26,000</td>
<td>20,000</td>
</tr>
<tr>
<td>December</td>
<td>30,000</td>
<td>30,000</td>
<td>30,000</td>
<td>30,000</td>
</tr>
<tr>
<td>January</td>
<td>30,000</td>
<td>30,000</td>
<td>30,000</td>
<td>30,000</td>
</tr>
<tr>
<td>February</td>
<td>30,000</td>
<td>30,000</td>
<td>30,000</td>
<td>30,000</td>
</tr>
<tr>
<td>March</td>
<td>30,000</td>
<td>30,000</td>
<td>30,000</td>
<td>30,000</td>
</tr>
<tr>
<td>April</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
</tr>
<tr>
<td>May</td>
<td>4,000</td>
<td>4,000</td>
<td>4,000</td>
<td>4,000</td>
</tr>
</tbody>
</table>

Produce quality standards imposed by the importing country

These include criteria such as those related to product aesthetic appearance:

- Season: has to be specific to the variety; mishapen produce should be discarded;
- Color (skin and peel): has to be specific to the variety and the developmental stage reached; off color is discarded even if other criteria are satisfactory (tomatoes, citrus);
- Absence of surface scars and scratches as from beat or wind damage or harvest or post-harvest handling.

Produce quality standards imposed by the importing country

These include criteria such as those related to produce texture and turgidity:

- Rimlessness: produce has to be firm and presents no signs of wilting as from water loss;
- Freshness: produce should present signs of having been recently harvested (turgic, shiny, no wilting; green sepals such as for citrus and tomatoes).

Technical Measures Related to Packaging

Countries and supermarket chains differ in their requirements with regards to:

- Packaging material: wooden (prohibited in some countries as it may bring in diseases and insects), cellophane, plastic (resealable folding boxes) etc.;
- Package size and dimensions (length, width, height) according to the collective (family size box, bulk box...);
- Colors of the packaging boxes (specific to supply chain);
- Package composition and inclusions (with regard to environmental parsimony, and food safety issues for example).

Technical Measures Related to Labelling

Countries and supermarket chains may differ in their requirements with regards to labelling including:

- Name of packing house of origin for immediate recognition of origin of the product;
- Packaging must carry information (often in the form of bar-code) to enable inspectors to trace produce upstream all the way to the farm and production field (can be on pallets only or on individual boxes);
- Packaging must carry information on post-harvest treatments applied on produce (for example: fungicide, wax type);
- Labelling packaging indicating the composition of the produce for consumer information;
Certifications and implementation of specific food safety standards

- Those aspects had started with food safety and sanitation at the food processing units (meats, food preservatives, canned foods etc.) as a result of the several food poisoning that occurred in the past as from microorganisms and other contaminants of food;
- Those food processing implemented ISO 9000 series for management and food processors and HACCP standard for sanitary and food safety issues;
- As a result and to avoid any surpluses at the import and left the supply chain of agrofood, importers started requiring that packaginges implement food safety standards such as ISO 9000 and HACCP;
- To avoid food contamination from the farm as from pesticides, humans etc., other certifications appeared: (EuregGAP/GlobalGAP in early 2000).

Technical Regulations Related to Product Safety

These standards get complicated with time, several standards and certification schemes exist and they mostly concern:
- Maximizing profitability in a sustainable production system through:
  - Use and explanation and good use of agrochemicals (herbicides, pesticides, etc.);
  - Optimization of use of natural resources (land, water, energy);
- Health and safety of the workers;
- Social welfare and working conditions of labor;
- Recycling and reuse of waste materials;
- Implementing actions resulting in preservation of wildlife and of the landscape;

NB: Implementation of each one of these certifications/standards is costly to the producer, the packer and the exporter.

Technical Measures Related to Trade Documents

These include mainly documents that should be produced by the exporter such as:
- Certificate of origin;
- Certificate of authenticity, etc.

Technical Measures Related to Multiplicity of Check Points

- Multiple checks points that the merchandise has to go through before it arrives to the destination market;
- This causes delays and contributes to the deterioration of produce quality, particularly for the highly perishables.
A tariff equivalent of non-tariff measures on European horticultural and fish imports from African countries

Nicodeme Nimenya (Université Catholique de Louvain la Neuve)
Concluding remarks

- The NTMs analysed have a notification effect as they show agropolicy compliance costs between African and European exporters.
- Increasing foreign aid to help allocate compliance costs through capacity building in African countries should stimulate trade of high-value FVS in fish products.
- Complete trade liberalization between ACP and EU countries in the framework of the Economic Partnership Agreements (EPAs) has to account for also these phase-outs from NTMs.
- Starch differences in tariff escalation among EU countries despite the single EU market. Hence, bilateral negotiations are more appropriate to deal with these trade issues.
- Supply conditions are included in the model as it forms of instruments. Data on compliance costs should improve their tariff effect.
- Trade and welfare effects across countries, positive & negative effects (consumers, producers, in both importing & exporting countries.)

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The Combination of Gravity and Welfare Approaches for Evaluating Non-Tariff Measures
Stéphan Marette (INRA)

Motivations
- NTMs are playing an increasing role in international trade but their effects are ambiguous and politically sensitive.
  - Regulations are often necessary for thwarting market failures
  - But they also may be imposed for protectionist purposes.
- Evaluating the impacts of NTMs is not simple and requires theory estimations (Dee & Ferrantino, 2005).
  - To date, many assessments of NTMs have been normative focusing on forgone trade via gravity estimation.
  - Some papers aim at developing a welfare approach of NTMs but do not account for their trade effect.

What do we do
- We bridge the gap by combining both mercantilist & welfare approaches. Analytical approach.
- Empirical application based on seafood products.
  - Impact of standards on the quality of chloraminophylls, a toxic antibiotic for human health.
  - We evaluate past policies (period 2001-06) & a future policy with an ex ante analysis linked to a stringent standard eliminating all antibiotic residues in seafood.
- Results: both trade and welfare effects do not necessarily go in the same direction.
  - NTMs can be trade-restricting but welfare-enhancing.

The gravity approach
\[ \ln \tau_{ij} = \ln f_i + \ln f_j + \beta_0 D_{ij} + \beta_1 c_{ij} + \beta_2 c_{ij} + \beta_3 \text{color}_{ij} + \beta_4 \text{NTM}_{ij} - \ln f_i + \varepsilon_{ij} \]
- PPM model estimation
- \( \beta_4 \) measures the sensitivity of trade flows to NTMs.
- Relative variation of exports in value linked to NTMs can be defined as \( \Delta \text{exp} = \beta_4 \Delta \text{NTM} \) (everything else being constant).
- Value of exports is \( \Delta \text{exp} = \Delta p \Delta q \) and \( \beta_4 \) price & quantity of exports.
- Relative variation of exports linked to the NTM can be written as:
  \[ \frac{dP}{P} = \beta_4 \Delta \text{NTM} \]
- If \( \beta_4 \) is statistically significant, it can be used for the welfare analysis (effect of the NTM variation isolated from other effects).

The welfare approach: assumptions
- Market good is homogeneous except for a given characteristic that is dangerous for consumers and condemned by the standard.
- Only foreign producers are concerned by a standard reinforcement selected by the domestic regulator.
- The damage is not internalized by consumers.
- Supply side: perfectly competitive industry. Domestic & foreign firms.
- A stringent standard reduces the firm's probability of entering the domestic market (tougher inspections linked to stricter thresholds).

Welfare approach: market equilibrium under standard reinforcement

- International welfare (with standards) are \( \Delta \text{Welfare} = \Delta w_i + \Delta w_f \)
- Effect of a standard comparison between market welfare \( \Delta w_i \) & \( \Delta w_f \) of the new & original situation.
- Change in the probability of entering the domestic market for foreign producers would be derived from gravity.
- Forming an discrete variation, equation (5) can be rewritten as:
  \[ \frac{\Delta W}{\Delta} = \left( \frac{\Delta p}{P^2} + \frac{\Delta q}{Q^2} + \frac{\Delta \text{NTM}}{\Delta \text{NTM}} \right) \]
Non-tariff measures affecting agro-food trade between the EU and Africa

Application: the crustacean example

- Significant increase in production & trade of crustacean (shrimps)
- Main producers: developing countries. Main importer: OECD countries
- Sanitary problems: production uses a range of pesticides & antibiotics (e.g. chlorinated hydrocarbons) for animal health
- Importers adopted SPS measures. Focus on chlorination standards

Gravity data:
- Bilateral distance, common border & language, colonial - CEFPI

Welfare: results (1)

Annual international welfare change linked to reduction of MRL (in ppb) between 2001 and 2006 (ex post estimation)
(%; relative variation compared to the baseline scenario of 2001)

<table>
<thead>
<tr>
<th>Country</th>
<th>ΔMRL (ppb, 2001 → 2006)</th>
<th>γ = 0.75</th>
<th>γ = 0.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>ΔMRL = 4.7 (5 → 0.3)</td>
<td>-12.5%</td>
<td>-12.5%</td>
</tr>
<tr>
<td>Canada</td>
<td>ΔMRL = 2.2 (2.5 → 0.3)</td>
<td>7.2%</td>
<td>13.1%</td>
</tr>
<tr>
<td>Japan</td>
<td>ΔMRL = 0 (50 → 50)</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>EU</td>
<td>ΔMRL = 1.2 (1.5 → 0.3)</td>
<td>23.4%</td>
<td>48.3%</td>
</tr>
</tbody>
</table>

Welfare: results (2)

Relative international welfare change for the year 2006 with a potential MRL equal to zero (ex ante estimation)

<table>
<thead>
<tr>
<th>Country</th>
<th>ΔMRL</th>
<th>γ = 0.5</th>
<th>γ = 0.25</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>-0.3</td>
<td>15.3%</td>
<td>32.7%</td>
</tr>
<tr>
<td>Canada</td>
<td>-0.3</td>
<td>8.1%</td>
<td>16.8%</td>
</tr>
<tr>
<td>Japan</td>
<td>-0.5</td>
<td>-52.0%</td>
<td>-52.0%</td>
</tr>
<tr>
<td>EU</td>
<td>-0.3</td>
<td>15%</td>
<td>34.9%</td>
</tr>
</tbody>
</table>

Foreign producers

- They lose for both configurations
  - See tables in the paper
- The effort is not valued by consumers who are unaware of the damage

Welfare analysis: parameters

- Quantities and prices: UN, FAO
- Own-price elasticities of demand & supply: existing literature
- Value of the per-unit damage: \( r = 0.767^2 \times 0.767 \times \text{Lusk et al. (2006): consumers' WTP for avoiding antibiotic} \)
- Probability of contamination (\( \gamma \)): Baseline scenario: \( \gamma = 1 \).
  After standard's implementation, various values: 0.75, 0.5, 0.25
- \( b = 0.15 \) (cf. gravity results)
Conclusion

• We studied how gravity models can be used for welfare analysis.

• Application impact of a standard capping chloramphenicol residues as constraints.

• Both trade & welfare effects do not necessarily go in the same direction.

• This approach:
  – helps assess the impacts of ex ante regulatory measures;
  – may be systematically modeled for CBA weighting the decision-makers on the effects of the various public choices.
The Cost of Compliance with SPS Standards for Moroccan Exports: A Case Study
Omar Aloui (Agro Concept)
Non-tariff measures affecting agro-food trade between the EU and Africa

Relevant NTMs in tomatoes trade
- TRQs: preferential minimum price, calendar
- SPS: LMRs, positive and negative list
- TBT: labels, packaging, traceability
- Standards: Globalgap, BRC, Nature Choice
- IPRs: seeds, IPM

Buyers dominant role
- In the value chain literature, agro-food is typically a buyer driven sector. These chains are typical for labour-intensive industries.
- In the buyer-driven value chains, large buyers with core competencies in branding and marketing are the driving actors in setting up these value chains. They increasingly organize, coordinate and control the production, designing and marketing activities.
- A prime example is the EUREP-GAP protocols, designed by a group of European food retailers, primarily with food safety in mind but with some reference to social and environmental issues.
- Competitive advantage relies upon costs efficiency (self service, favorable terms from suppliers, etc) and established brand information networks that foster new markets.

In the tomatoes sector, this dominant role is the basic reason for the expansion of private standards sur as BRC or Globalgap that are more stringent than mandatory SPS or TBT measures.

This role appears also through their share in Moroccan exports share with the direct links of some suppliers with Tesco, Lidl or Carrefour (référence).
Non-tariff measures affecting agro-food trade between the EU and Africa

Costs of compliance: comments

- Probably due to scale economies unit costs have been reduced from 2004 to 2010.
- The bulk of CC are fixed costs, circa 90% of total CC.
- This explains partially the integration curve in the industry.
- It drives also the innovation appetite of Moroccan exporters.

Concluding remarks on social costs

- The high requirements for entering buyer-driven chains mean that the higher land and labour efficiency of smallholder production is no longer a comparative advantage. The connection between agriculture and poverty alleviation is thereby weakened.
- An associated risk is a polarisation between agribusiness and small-scale farming systems. Agriculture will not deliver the expected development benefits when agrifood markets do not function competitively.

Selection effect: General argument

- The ability of buyers to impose product and process standards exclude certain classes of producers from supply chains.
- Poorly resourced producers face diseconomies of scale and market exclusion, as new forms of private sector governance, including certification, become prerequisites for inclusion in supply chains.
- Private standards can bring producers considerable benefits, such as reduced agrochemical use and a framework that guides agricultural and management practice. Conforming to high standards for one retailer opens up new markets for growers, other high-end supermarkets without their own standards will look favorably on suppliers that comply with other retailers' standards. In this sense, standards may drive improvements in competitiveness.

Selection effect in our case

- According to the most recent studies (C. Chemnitz in 2005), there are more or less 12 exporters groups of which the largest three around 70% of total exports.
- Two of these three have been created as joint ventures between EU producers (Duran and Azura) and Moroccan businessmen with no links to the sector.
- Once in Morocco, both EU investors have more or less rapidly abandoned their EU facilities.

Globalization effect

- The general argument of outsourcing can be transposed to the sector (standards, technologies, etc)
- The number of sources is increasing to all Mediterranean countries.
- Moroccan exporters are looking for opportunities in West Africa.
Non-tariff measures affecting agro-food trade between the EU and Africa
Estimating Trade Restrictiveness Indices
Alessandro Nicita (UNCTAD)

## Overall Trade Restrictiveness Index (OTRI)

1. **Index to economic theory:**
   - Anand and N'Gou for Intersectoral and Interregional Gains
   - Impact-volume equivalent index
   - McNamara: THI
     - What is the equivalent uniform tariff that would keep aggregate imports at their observed levels?

## Comprehensive of different trade policies:
- Tariffs
- Quotas
- Subsidies
- Other NTMs

## Useful to assess own trade policies and trade partners trade policies:
- OTRI (also bilateral)
- Market Access OTRI (MA-OTRI) (also bilateral)

## Motivation:

**Motivation:** to provide the basis for a trade policy indicator that is:
- Based on economic theory
- Comprehensive
- Meaningful and useful

Need of an indicator that is useful for:
- Summarizing the overall effect of trade policy (country component)
- Analyzing overall impact of trade policies (country comparison)
- Exploring historical restrictions (OECD: Middle income - LDC)
- Sector analysis (trade protection, AG, MF, textiles - apparel)

But there are many indicators already! Is there the need for another one?

## Definitions: OTRI and MA-OTRI

**OTRI measures OWN trade policy:**
- Own trade policy that keeps aggregate imports at their observed level given by the existing tariff and NTM structure.

**MA-OTRI measures PARTNERS trade policy:**
- Own trade policy that keeps aggregate imports at their observed level given by the existing tariff and NTM structure of all trading partners.

## Indicators of Trade Policies

**a) Simple measures:**
- Focus on only one measure (Tariff or NTM) and assume that all other measures are overlooked.
  - Average Tariff
  - Frequency and Coverage Ratio of NTM

**b) More elaborated measures:**
- Focus on outcomes, difficult to disentangle the effect of trade policies.
  - Trade GDP
  - Price Gap

**c) Comprehensive measure:**
- Standardize the effects of various policies to a common system, index - weighted sum.
  - OTRI: THI, inventory approach (policies), arbitrary weights
  - OTRI: current measure to a common series (AWE), arbitrary weights.
Ad-Valorem Equivalent of NTM

Two groups of NTM:
- Core NTM (quantity, price, monopolistic) + Technical Regulations
- Domestic subsides

AVE Estimation: two step:
1) Measure the quantity impact of NTM's on imports (Camerer 1991, Flanagan 1989, Tirole 2009)
2) Convert the import quantity impact into price or tariff equivalents using import demand elasticities (Van, Nitsa and Grootema, ESTAT forthcoming)

Key component of OTRI is the AVE of Non Tariff Measures

Non Tariff Measures Data
- CORE NTB + TECHNICAL REGULATIONS
  Price control measures, monopoly restrictions, monopolistic measures, technical regulations.
- DOMESTIC SUPPORT
  From WTO members notifications

Elasticities as weights

C = Tariff good 1. D = Tariff good 2. G = Import weighted Tariff

R = OTRI: uniform tariff that keeps value of import constant (relative) good 1 more elastic this to keep imports constant weights more.

Estimating the AVEs of NTMs

Predict imports using factor endowments and observe its deviations when NTM are present.
- Setup: Import values depend on tariffs, NTM and factor endowments (land, capital labor, GDP).
- Estimation: Tariff line level, IV to control for endogeneity of NTM to imports, FE estimation, to instrument beta = 0

\[
\log(m_{it}) = \beta_0 + \sum \beta_i C_i + \beta_i Core_{it} - \beta_i^2 \log DS_{it} + \epsilon_{it}
\]

To capture differences in AVE across various interaction terms between NTM and factor endowments:

\[
\beta_{ave} = \beta_{ave}^2 + \sum \beta_{ave}^2 C_i
\]

AVE of NTM: From quantity impacts to price impacts

High income OECD OTRs for Agriculture (Ag) and Manufacturing (MF): All trade, on LIC and SSA
Non-tariff measures affecting agro-food trade between the EU and Africa

**Summary**
- Indices based on economic theory
- Comprehensive of NTM (or not)
- Transparent, not arbitrary
- NTM are as important as Tariffs
- Countries with higher tariffs face higher protection (important for reciprocity).

**Tariffs and NTM complement or substitutes?**

<table>
<thead>
<tr>
<th>Product dimension</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country dimension</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

- Products with higher tariffs tend to have more restrictive NTM.
- Countries with higher tariffs tend to have more restrictive NTM.
- But negative correlation within country and product in effect within country they are substitutes.

**Import Demand Elasticities**
- The production based GDP function approach (Kohli (1991) and Harrigan (1997)).
- Imports and exports are inputs and outputs of the domestic production, given exogenous world prices, productivity and endowments.
- Close links to trade theories -- general equilibrium effects of the reallocation of resources as prices or endowments change.
- Kohli -- aggregate level, Harrigan -- industry level. We estimate at the tariff line level (HS 5 digit).

**Results**

**Import Demand Elasticities: 117 Countries**
- Import demand increases with GDP per capita.
- Small increases in domestic demand from small increases in GDP per capita.
- Small increases in domestic demand from large increases in GDP per capita.
- Large increases in domestic demand from small increases in GDP per capita.
- Large increases in domestic demand from large increases in GDP per capita.

**AVVs of NTMs: 94 Countries**
- Average increases with GDP per capita.
- Contribution to overall level of protection increases with GDP per capita.
- When present they are more restrictive than tariffs.
- In 77 percent of tariff lines in which NTMs are present, 75.5 percent of tariff lines in which agricultural domestic support is present.
Non-tariff measures affecting agro-food trade between the EU and Africa

Endogeneity of NTB

NTB may be imposed on highly imported goods

- For the binary NTB (Core NTB) – treatment effects of Heckman
- For the continuous NTBs (Agricultural Domestic Support) – Instrumental variables approach
- Instruments used – exports, the past change in imports, GDP-weighted share of the coverage rate of the same type of NTB of the 5 closest countries

Rich countries impose lower barriers on their imports and face lower barriers on their exports.

How OTRI compares?

<table>
<thead>
<tr>
<th>Measure</th>
<th>OTRI</th>
<th>Arduino</th>
<th>Food PRAG</th>
<th>Incentive</th>
<th>RMSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMT THI</td>
<td>1.32</td>
<td>0.94</td>
<td>1.83</td>
<td>1.82</td>
<td>0.41</td>
</tr>
<tr>
<td>VAD THI</td>
<td>0.38</td>
<td>0.75</td>
<td>1.82</td>
<td>1.82</td>
<td>0.45</td>
</tr>
</tbody>
</table>

OTRI and IMF’s TRI

References

Non-Tariff Measures/Barriers in CGE Models
Alessandro Nicita (UNCTAD)

1. Motivations
- “Next” on the liberalisation agenda: NTMs
- However policy is proceeding with little economic analysis: estimates of the economic effects of trade agreements are dominated by estimates of the effects of tariff reduction
- The paper contributes to fill up this “analysis gap” (Ferrantino 2003) -global assessment-

WARNING
- Results must be interpreted with caution
- Any policy conclusion would be hazardous
- The main scope of the paper is methodological

2. Existing Results
- Existing estimates of the effects of the removal of NTMs indicate that potential welfare gains are quite substantial (USITC staff papers 2003, 2004) and quite above those obtained from tariff reductions (Hertel, Walmsley and Itakura (2001), Bradford (2003))
- The size of the gains are likely to depend on the way ad valorem equivalents are introduced
- Issues related to the use of AVE instead of explicit model representation (Whalley, 2005)

3. Methodological Issues
- Economic effects of NTMs (Roberts and al., 1999)
  - Protection/regulation effects: Core and Non-Core
    - Supply Shift: Non-Core (SPS)
    - Demand Shift: Non-Core (Technical Regulations)
  - The protection effect of NTBs is the “easy” candidate for assessment in CGE models provided that the right impact estimates are available
  - The other two effects could also be dealt with but may be cumbersome (Ganslandt and Markusen, 2001)

- Shift in Demand for Imports
  - Total Equivalent (e.g. CV, AD, Quotas, Prohibitions)
- Shift in Supply of Exports
  - Export Tax Equivalent (e.g. VER, VEP, CVD)
  - Import Enhancing Technological Shock (e.g. Technical Measures, Non-Automatic Licensing)
- Although straightforward at first sight, the analysis may become problematic in the presence of multiple NTMs with different distorting effects (likely to occur in CGE frameworks)
3. Methodological Issues

4. Experiments and Results

- Illustration using AVEs of NTMs (quotas - technical regulations) computed at HS6 level (more than 4000 products) by Kee, Nicita and Ollarreaga (2005) for 104 countries
- Fairly disaggregated version of GTAP 6 database: 26-country*27-sector
- Choice of shock variable based on frequency + sensitivity analysis (all_tms versus all_ams)
- Scenario: complete "removal" of NTMs (i.e. welfare cost of imposition of NTMs)

5. Discussion

- Further modeling efforts are needed
- Further work on data collection and quantification is necessary and will certainly contribute to increase the accuracy of "mass-production" estimates
- Data work and CGE modeling should be jointly undertaken
- Investigate ways to include demand-shift effects: immediate possibility would be to shock elasticities, but then again we need estimates!...
Trade effect of non-tariff measures on European horticultural and fish imports from African countries
Nicodeme Nimenya (Université Catholique de Louvain la Neuve)
Non-tariff measures affecting agro-food trade between the EU and Africa

The gravity model: (b) the econometric model

- (1) use of consumer prices in the trading countries (Stan and Bergstrand, 2001; Fontagné et al., 2005)
- (2) use of country-specific effects (Rosse and van Wincoop, 2004; Henniges, 2004; Fontagné, 2004; Fontagné and Driesch, 2008)
- (3) use of consumer prices (van Wincoop, 2004; Driesch, 2008)

Data description

- Panel data on imports of green beans in Belgium and Luxembourg, France, Germany, Netherlands and the UK.
- Panel data on imports of brown rice in Belgium, France, Germany, Italy, Netherlands, Portugal and Spain from EAC countries (Kenya, Tanzania and Uganda) from 1996-2006.
- Exports to US, Japan and South Korea (data from FAO/STAT for EU countries and FAOSTAT for African countries).

Table 1: Gravity estimates from panel data estimation of European impacts of green beans (1996-2006)

<table>
<thead>
<tr>
<th>Country</th>
<th>Intercept</th>
<th>Coefficient of Imports</th>
<th>Coefficient of Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>0.23</td>
<td>0.15</td>
<td>0.12</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>0.24</td>
<td>0.16</td>
<td>0.13</td>
</tr>
<tr>
<td>France</td>
<td>0.25</td>
<td>0.17</td>
<td>0.14</td>
</tr>
<tr>
<td>Germany</td>
<td>0.26</td>
<td>0.18</td>
<td>0.15</td>
</tr>
<tr>
<td>Netherlands</td>
<td>0.27</td>
<td>0.19</td>
<td>0.16</td>
</tr>
</tbody>
</table>

Concluding remarks

- This study concludes an additional empirical evidence that gravity models are appropriate for estimating non-tariff measures (NTMs) affecting agro-food trade between the EU and Africa.
- NTMs have to be taken into account along with tariffs, as the bilateral trade negotiations between the EU and ACP countries are in progress. The results confirm the importance of NTMs in explaining the trade effects.
- Stringent control on EU importing countries suggests that bilateral trade negotiations are necessary to address these issues.
- The study also provides strong evidence for the need for evidence-based policies to address NTMs in global trade agreements.
Non-tariff measures affecting agro-food trade between the EU and Africa

Obstacles to agricultural trade between Africa-EU: which are the main determinants for the exporters?
Aida Gonzalez Mellado (JRC-IPTS)
Non-tariff measures affecting agro-food trade between the EU and Africa

Statistics of Answers

<table>
<thead>
<tr>
<th>Attitude of Answers by Country</th>
<th>Every Country</th>
<th>Europe</th>
<th>USA</th>
<th>South Africa</th>
<th>Agro</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very positive</td>
<td>4</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td>Positive</td>
<td>2</td>
<td>1</td>
<td>8</td>
<td>1</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Neutral</td>
<td>5</td>
<td>4</td>
<td>14</td>
<td>0</td>
<td>14</td>
<td>34</td>
</tr>
<tr>
<td>Negative</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>Very negative</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>11</td>
</tr>
</tbody>
</table>

Another econometric approach

Ordered probit model

$\text{Pr}(y = 1) = \Phi(\alpha + \beta_1 x_1 + \beta_2 x_2 + \epsilon)$

Where:

- $\Phi$ is the standard normal cumulative distribution function
- $\alpha$ is a constant
- $\beta_1$ and $\beta_2$ are coefficients of the explanatory variables
- $x_1$ and $x_2$ are the explanatory variables

Gravity estimation

- Explain trade flows based on tariff and non-tariff obstacles
- Explain exporters' revenues based on commodity characteristics, export country characteristics, tariff and non-tariff obstacles

Obtain tariff equivalents for the obstacles to trade

Ordered probit model

<table>
<thead>
<tr>
<th>Export and country characteristics</th>
<th>Probit model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exploratory variables</td>
</tr>
<tr>
<td>Transport 1</td>
<td>$-0.89$</td>
</tr>
<tr>
<td>Transport 2</td>
<td>$-0.23$</td>
</tr>
<tr>
<td>Value added (in 1000s of dollars)</td>
<td>$0.82$</td>
</tr>
<tr>
<td>Final output (in 1000s of dollars)</td>
<td>$-0.74$</td>
</tr>
<tr>
<td>Foreign direct investment (in 1000s of dollars)</td>
<td>$-0.72$</td>
</tr>
<tr>
<td>Shares of exports to EU market (in 1000s of dollars)</td>
<td>$-0.36$</td>
</tr>
<tr>
<td>South Africa</td>
<td>$-0.62$</td>
</tr>
<tr>
<td>Degree of diversification</td>
<td>$0.43$</td>
</tr>
</tbody>
</table>

Results

Probit models:

- Establish association between obstacles to trade countries and exporters' characteristics
- Relate trends of perceptions with country- and product-characteristics
- Help to understand exporters' decisions toward market strategies based on their export characteristics

Not possible to calculate tariff equivalents for obstacles to trade

 gravity model

$\ln y = \alpha + \sum \beta_i x_i + \mu$

where:

- $y$ is the import-recorded value of commodity entering the EU market from country $i$
- $\alpha$ is a constant
- $\beta_i$ are the coefficients estimated through the econometric analysis for the country characteristics, product characteristics and for the OMs, respectively
- $\mu$ is the normally distributed error term

Exports

<table>
<thead>
<tr>
<th>Export and country characteristics</th>
<th>Gravity model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exploratory variables</td>
</tr>
<tr>
<td>Sanitary and phyto-sanitary regulations</td>
<td>$-0.90$</td>
</tr>
<tr>
<td>Trade restrictions</td>
<td>$-0.29$</td>
</tr>
<tr>
<td>Transport infrastructure</td>
<td>$0.58$</td>
</tr>
<tr>
<td>Distance to consumer</td>
<td>$0.44$</td>
</tr>
<tr>
<td>Language spoken by consumer</td>
<td>$0.59$</td>
</tr>
<tr>
<td>GDP of the importing country</td>
<td>$0.78$</td>
</tr>
<tr>
<td>GDP of the exporting country</td>
<td>$0.43$</td>
</tr>
<tr>
<td>EU market share (%)</td>
<td>$0.59$</td>
</tr>
<tr>
<td>EU market share (in 1000s of dollars)</td>
<td>$0.43$</td>
</tr>
<tr>
<td>Distance to producer</td>
<td>$0.59$</td>
</tr>
<tr>
<td>Language spoken by producer</td>
<td>$0.44$</td>
</tr>
<tr>
<td>GDP of the producer country</td>
<td>$0.44$</td>
</tr>
<tr>
<td>EU market share (in 1000s of dollars)</td>
<td>$0.59$</td>
</tr>
</tbody>
</table>

Do we interpret those results?
Non-tariff measures affecting agro-food trade between the EU and Africa

Results

Gravity models:

- Require information related to the trade volumes associated to certain obstacles to trade
- Useful to estimate coefficients which can be used to calculate tariff equivalents
- To grasp commodity characteristics is necessary more observations

Conclusions

- Are there some obstacles to trade restrict trade between Africa and the EU?
  - According to this exercise, African assistance can be perceived as an obstacle to trade by some of the exporters interviewed. Not a general trend across the sample
- How do African exporters perceive African assistance as obstacle to trade when entering the EU?
  - Effects vary and depend on export's characteristics, countries and commodities

Open questions

- How can the costs of those obstacles to trade be evaluated for the economy?
- Is it possible to estimate tariff equivalents out of perceptions' trends?
Non-tariff measures affecting agro-food trade between the EU and Africa
Abstract

This report contains the presentations and the summary of the IPTS workshop "Non Tariff Measures (NTMs) affecting agro-food trade between the EU and Africa" held in September 2010 in Seville. The workshop brought together experts from research, policy making and business in order to exchange knowledge and discuss about NTMs and the issues associated with them. The workshop first gave an overview of NTM classifications as well as the methods in the analysis of NTMs. With this background case studies were presented, focusing on NTMs from the perspective of African exporters of agro-food products.
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