TAXING HEALTH

THE RELEVANCE OF TARIFF REVENUE FROM ANTI-MALARIAL COMMODITIES

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Abstract for trade information services

Paper dealing with potential fiscal revenue losses in maleria endemic countries, resulting from elimination of import duties and tariffs on anti-malaria products (medicines for treating/preventing of malaria, diagnostic tests, mosquito nets, insecticides for indoor residual spraying, and pumps for spraying indoor insecticides); examines the size of possible fiscal revenue losses if tariff rates on such products were cut off in countries with high and medium malaria enedemic rates; includes bibliography (pp. 35).

Descriptors: **Trade Barriers, Tariffs, Taxes, Pharmaceuticals, Medicaments, Medical supplies, Insecticides, Nets, Pumps**.

English

Acknowledgements

Contents

Abbreviations

Unless otherwise specified, all references to dollars ($) are to United States dollars.

The following abbreviations are used:

ACs	anti-malarial commodities
ACT	artemisinin-based combination therapies
AED-ARTS	Academy for Educational Development - Applied Research and Technical Services, LLC
AVE	ad valorem equivalent
CET	common external tariff
COMESA	Common Market for Eastern and Southern Africa
EAC	East African Community
ECOWAS	Economic Community of West African States
HS	Harmonized Commodity Description and Coding System
ITC	International Trade Centre
ITN	insecticide treated mosquito nets
MDG	Millennium Development Goal
MFN	most favoured nation (tariff)
NTLC	national tariff line code
RBM	Roll Back Malaria
SADC	South African Development Community
WHO	World Health Organization
WTO	World Trade Organization

Executive summary

Malaria is one of the most critical and deadly diseases affecting the developing world, even though it can be prevented and treated. In the efforts to deliver on the various international commitments with respect to fighting malaria, ensuring access to anti-malarial commodities such as medicines and mosquito nets is a key concern. As many malaria endemic countries are net importers of anti-malarial commodities, the import process and its related costs are critical. Yet many countries are reluctant to reduce or eliminate tariffs because of anticipated revenue losses.

This paper aims to determine to what extent this concern is justified by examining the size of possible fiscal revenue losses if tariffs on anti-malarial commodities were eliminated. To this end, the nomenclatures of 32 malaria endemic countries are examined in order to identify the relevant tariff lines under which medicines, mosquito nets, diagnostic tests, insecticides and spray pumps are (most likely) imported. These are subsequently matched with ITC tariff and trade data in order to estimate the theoretical customs revenue generated by anti-malarial commodities and as such the potential revenue losses if import duties on these products were reduced to zero.

The results show that the contribution by the relevant tariff lines to total *customs* revenue is relatively small. As a share of total *fiscal* revenue, it is in most cases negligible. The highest customs revenue tends to come principally from two product groups: first, where tariff rates on these products are positive, medicines account for relatively important customs proceeds. This is due to significant import values – peak tariffs in this product group are relatively rare. Second, commodities falling into the category of mosquito nets and fabrics are associated with high tariff revenues, particularly where mosquito nets are not explicitly mentioned in the product description. These goods are subject to peak tariffs across all countries. This is linked to the fact that mosquito nets fall into chapters of the Harmonized System that are not only completely unrelated to health, but contain those products, namely textiles, that are among the most highly protected across the world. In contrast, tariff proceeds from insecticides, spray pumps and diagnostic tests are comparatively small.

The potential revenue losses from eliminating import duties on the identified tariff lines can nevertheless add up to a considerable amount - several million dollars - which renders political support for tariff elimination on these items all but straightforward. Advocacy for tariff elimination should therefore be combined with support in identifying alternative sources of revenue for the concerned countries. Particularly, improving customs procedures and the efficiency of customs revenue collection can significantly help to mitigate the possible adverse effects of tariff reductions on government revenue. Another possible measure is to introduce separate national tariff lines for anti-malarial commodities and eliminate import duties on these lines only. This can significantly reduce potential revenue losses, especially for countries where nomenclatures are not detailed and cluster relatively many products together.

The results of this technical paper therefore suggest that tariff eliminations on anti-malarial commodities are not only necessary and promised, but also feasible in regard to fiscal revenue losses.

1. Introduction

Malaria is one of the most critical and deadly diseases affecting the developing world, even though it can be prevented and treated. The World Health Organization (WHO) estimates that 3.3 billion people in 109 countries are at risk, with 98% of global malaria deaths concentrated in 35 of these countries. Most people at risk live in sub-Saharan Africa where malaria is a leading cause of death for children under five. Malaria does not only have public health implications but also puts a heavy economic burden on many endemic countries.[1] The Global Malaria Action Plan (2008) of the Roll Back Malaria Partnership for example notes that *'Africa alone is estimated to lose at least US$ 12 billion per year in direct losses (e.g. illness, treatment, premature death), and many times more than that in lost economic growth.'*[2]

As a consequence, the fight against malaria figures high on the international agenda and has found its way into the Millennium Development Goals (MDGs), which the international community committed to reach by 2015. MDG 6, Target C calls for having '*halted by 2015 and begun to reverse the incidence of malaria*…' while target E of MDG 8 underlines the importance of providing access to affordable essential drugs in developing countries. Previous to the Millennium Summit in September 2000, African leaders had gathered in Nigeria for the African Summit on Roll Back Malaria culminating in the commitment, made in the Abuja Declaration and Plan of Action, to '*an intensive effort to halve the malaria mortality for Africa's people by 2010.*' Last but not least, thanks to the Abuja Declaration, in 2001 the United Nations General Assembly proclaimed 2001-2010 the '*Decade to Roll Back Malaria in Developing Countries, Particularly in Africa.*'[3]

In the substantive efforts being made to eradicate the disease, ensuring access to anti-malarial commodities (ACs) such as medicines and mosquito nets is a key concern. Activities in this field range from facilitating importation, acquisition and distribution of such commodities, to ensuring affordable prices. As many malaria endemic countries[4] are net importers of anti-malarial commodities, the import process and its related costs are critical. As a consequence, a reduction of customs duties and taxes on ACs has frequently been called for.[5] The role that tariffs and taxes play on facilitating access to ACs has among others been recognized in the Abuja declaration where African countries explicitly agreed to '*reduce or waive taxes and tariffs for mosquito nets and materials, insecticides, anti-malarial drugs and other recommended goods and services that are needed for malaria control strategies.*'

Yet, there is still a long way to go. Tariff rates on these products are still positive in many malaria endemic countries, among others, due to concerns that tariff cuts could lead to significant revenue losses. To support the advocacy work undertaken by many national and international agencies, this paper aims to determine to what extent this concern is justified by examining the size of possible fiscal revenue losses if tariff rates on anti-malarial commodities were eliminated in countries with high and medium malaria burden.[6] To this end, the nomenclatures of 32 countries are examined to identify the relevant tariff lines under which ACs are (likely to be) imported. These are subsequently matched with ITC tariff and trade data in order to estimate the theoretical customs revenue generated by anti-malarial commodities and as such the potential revenue losses if tariffs were eliminated.

To the best of our knowledge, little information exists about the current tariffs applied to the different types of anti-malarial commodities and on their contribution to governments' revenues. This paper tries to close this gap and inform the ongoing discussions in reviewing progress for MDGs 6 and 8 and towards fulfilling the commitments of the Abuja Declaration.

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[1] This has been addressed in numerous studies, see for example Roll Back Malaria Partnership (2008), Alilio et al. (2004), Gallup and Sachs (2001).

[2] Roll Back Malaria Partnership (2008), page 13.

[3] Resolution 55/284.

[4] See www.rollbackmalaria.org for a list of these countries.

[5] Complementing measures for ensuring affordable prices include enhanced price transparency for medicines, policies on generic drugs and commercial profit margins, and agreements with private sector suppliers [see for example WHO (2003) and The Global Fund (2010)].

[6] The Roll Back Malaria programme defines countries with a 'high' malaria burden as countries where the contribution to global malaria deaths is high. Countries with 'medium' malaria burden are defined as countries where the contribution to global malaria deaths is low but the number of cases is still high (these countries are not yet in the process of malaria 'pre-elimination or elimination'). See the Roll Back malaria website for further information: www.rollbackmalaria.org/rbmroadmaps.html.

For the purpose of this paper, anti-malarial commodities are grouped into the five following product categories:

1) Medicines for treating or preventing of malaria

2) Diagnostic tests

3) Mosquito nets, including insecticide treated (ITNs)/long-lasting insecticidal nets (LLINs)

4) Insecticides, in particular those for indoor residual spraying

5) Appliances for applying insecticides, i.e. pumps for spraying indoor insecticides

The remainder of this paper is structured as follows: section 2 discusses the methodology while section 3 presents the data underlying the analysis. Results on tariff rates and revenues are summarized in section 4 while section 5 contains a more in-depth discussion of three country cases. Finally, section 6 concludes.

2. Methodology

Data on tariff revenue generated by importing anti-malarial commodities is not readily available in any country under consideration. As a consequence, any analysis must rely on estimating such revenue. This poses a series of methodological challenges, among these, most prominently, the identification of national tariff line codes[7] (and the corresponding tariff rates) under which anti-malarial commodities enter a country. This is relatively straightforward if the description of a product code explicitly specifies an anti-malarial commodity, as is the case e.g. for code 30.03.40.10 in Bangladesh for which the description refers to anti-malarial medicine. Where no such explicit reference is made (and it rarely is), and in absence of reliable information about which codes are used in practice for a specific product, *all* codes under which a product, e.g. an insecticide-treated mosquito net, could be imported need to be taken into consideration.

A second set of challenges is linked to the actual revenue generated by each imported product. In theory and for the purpose of this paper, the tariff revenue generated equals the import value multiplied by the tariff rate (in the following called 'theoretical' or 'estimated customs revenue') with preferential tariffs applied in the framework of trade arrangements being taken into account where available. While this may accurately reflect the actual revenue for many individual imports, the same is not necessarily true at a more aggregated level as customs revenues are subject to exemptions, rebates and duty drawback policies, fluctuating exchange rates, special customs calculations and valuation procedures; in some cases, tariff revenues may simply not be collected systematically, while in others, bribes may play an important role in the final customs revenue obtained.[8]

Given these methodological challenges, the analysis and results presented in this paper are inevitably indicative at best, and while qualitatively the results are likely to be telling, actual numbers should be treated with caution. Yet, it can be stated with relative confidence that the customs revenue which is *de facto* collected by the countries considered in this paper is not larger than the numbers presented here: on the one hand, evidence suggests that in general, the estimation of tariff revenue as being equal to import value multiplied by the applied tariff tends to overestimate (rather than underestimate) the actual revenue received by governments.[9] On the other hand, given the uncertainty concerning the actual commodity

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[7] The Harmonized Commodity Description and Coding System (HS) is an international nomenclature for the classification of products. It allows participating countries to classify traded goods on a common basis for customs purposes. At the international level, the HS for classifying goods is a six-digit code system. It comprises approximately 5,000 article/product descriptions that appear as headings and subheadings, arranged in 97 chapters, grouped in 21 sections. The six digits can be broken down into three parts. The first two digits (HS2) identify the chapter the goods are classified in, e.g. 09 = coffee, tea, maté and spices. The next two digits (HS4) identify groupings within that chapter, e.g. 09.02 = tea, whether or not flavoured. The next two digits (HS6) are even more specific, e.g. 09.02.10 green tea (not fermented) in immediate packings of a content not exceeding 3 kg. Up to the HS6 digit level, different countries' classification codes are identical. Beyond this, countries are free to introduce national distinctions for tariffs by adding more digits to make the HS classification of products even more specific. This greater level of specificity is referred to as the national tariff line level. The Harmonized System has been developed by and is periodically revised through the World Customs Organization and has been adopted by most trading nations.

[8] See e.g. Jean and Mitaritonna (2010) and Bate et al. (2006).

[9] See e.g. Pritchett and Sethi (1993), or, more recently, Mishra et al. (2007).

codes used for the importation of anti-malarial commodities, it is evident that too many (rather than too few) tariff lines are included in the analysis – with the associated high probability that revenue generated from products unrelated to the fight against malaria is also counted. This leads to an overestimation of the contribution of anti-malarial commodities in generating total customs (and fiscal) revenue.

Finally, while the assumption of full preference utilization[10] generally leads to understating real tariff revenue, this effect is much stronger for the total theoretical customs revenue than for the proceeds from tariff lines for anti-malarial commodities given the geographical scope of the existing preferential trade regimes of the countries under consideration: many of these goods tend to be imported from Europe and North America; however, only very few malaria-endemic countries have preferential trade agreements with these regions. At the same time, for the relevant tariff lines, few imports are recorded from preferential trading partners in trading blocs such as the Common Market for Eastern and Southern Africa (COMESA), the South African Development Community (SADC), the Economic Community of West African States (ECOWAS) and Association of Southeast Asian Nations (ASEAN). As a result, the share of anti-malaria commodity (AC) generated revenue in total theoretical customs income tends to be inflated by assuming full preference utilization.

Section 2.1 below gives more details on the identification of the tariff lines relevant for importing anti-malarial commodities. Some further methodological issues arising in the context of this paper are discussed in appendix II.

2.1. National tariff line code identification

In order to identify the national tariff line codes (NTLC) under which anti-malarial commodities (may) enter a country, the following steps were taken: first, documents that list and describe the products used in the fight against malaria were screened to obtain a (relatively) complete list of products in each of the five categories, namely (1) medicines, (2) diagnostic tests, (3) mosquito nets, (4) insecticides, and (5) appliances for applying insecticides. The documents underlying this screening process came principally from the World Health Organization (WHO), but were complemented by other sources, such as ACTwatch and the UNICEF list of anti-malarial supply, where necessary to improve the understanding of a certain product or group of products.

Second, for each product in the list, keywords from the product classification, product group and product description were identified, translated into French, Spanish and Portuguese, and subsequently tested one by one and in combination of two or three in each country's nomenclature, resulting in an indicative list of commodity codes by country. Where a keyword did not appear in the NTLC descriptions of a country, the HS6 codes from the other countries (where it did appear) were taken and the corresponding NTLCs falling under these HS6 codes were included in the indicative list. Appendix I lists the selected HS6 codes by product group.

Finally, for all countries, the description of each identified commodity code was examined to exclude products not falling under the category of anti-malarial commodities, and to include all NTLCs that are or could possibly be used for importing ACs.

For this paper, the countries' product nomenclatures of 2009 (or alternatively 2008 where 2009 was not available) served as the basis for the tariff line identification.

3. Data

Tariff and trade data originate from ITC's market analysis tools, Market Access Map and Trade Map respectively, which are the most comprehensive and updated databases currently available. These tools were developed by ITC to enhance the transparency of global trade and market access, and to assist those working on trade in their market analyses. A more detailed description of Market Access Map and Trade Map is provided below.

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[10] Full preference utilization means that all importers that may theoretically be entitled to preferences do/can actually use them. In practice, importers may not be granted those preferences, e.g. because they are not able to prove the origin of their product.

Where tax data is utilized, it comes from an internal ITC database that contains information on taxes levied on imported goods in addition to the customs duty (such as value-added tax or sales tax). These taxes usually have an internal equivalent, i.e. are applied to all (or most) products, whether or not imported. Tax data is obtained in the framework of the data collection for Market Access Map (see below for details) where it is sometimes provided together with tariff data by national authorities. As tax data is not collected systematically by ITC, this data is available for a limited number of countries only and not all types of taxes may be covered.

3.1. Trade Map

Trade Map[11] provides online access to one of the largest trade databases and presents indicators on export performance, international demand, alternative markets and the role of competitors from both the product and country perspective. It covers the trade flows (values, quantities, trends, market share, and unit values, both in graphic and tabular format) of over 220 countries and territories and 5,300 products defined at the 2, 4 or 6-digit level of the Harmonized System. Trade data is also available at tariff line level for more than 150 countries and on a monthly or quarterly basis for more than 80 countries.

The annual data in Trade Map used in this paper is based on Comtrade, a database of trade statistics managed by the United Nations Statistics Division, and national sources reporting directly to ITC (such as national statistical or customs offices). Appendix III lists the individual data sources for the countries covered in this report.

3.2. Market Access Map

Market Access Map[12] is an online database designed to support exporters, importers, trade promoters, policy analysts and trade negotiators. It covers customs tariffs (import duties) and other measures applied by 187 importing countries and territories to products from 239 countries and territories. Most favoured nation (MFN)[13] and preferential applied import tariff rates are shown for products at the most detailed national tariff line level. In particular, Market Access Map includes:

- MFN customs duties (including ad valorem equivalents of specific tariffs);
- Multilateral, regional and bilateral preferences;
- Bound tariffs;
- Tariff-rate quotas;
- Anti-dumping duties;
- Rules of origin and certificates of origin.

Applied tariff data is collected from national sources, including customs and revenue authorities, and ministries of trade, foreign affairs and finance. This is the case for all countries covered in this paper except Bolivia (Plurinational State of), Colombia, Ecuador and Peru, for which the data source is the (regional) *Asociación Latinoamericana de Integración* (ALADI).

Preferential tariff data is either reported by countries directly or derived from regional and bilateral trade agreements. Information on tariff quotas is obtained from national sources and also includes multilateral, regional and bilateral tariff quota agreements. Data for Market Access Map is collected and validated on a continuous basis throughout the year.

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[11] Trade Map, International Trade Centre, www.intracen.org/marketanalysis.

[12] Market Access Map, International Trade Centre, www.intracen.org/marketanalysis.

[13] A Most favoured nation (MFN) tariff is the tariff applied by WTO members to goods from other WTO members. In the case of WTO non-members, the application of these rates may be a requirement of a bilateral trade agreement. The MFN principle implies that every time a WTO member improves the benefits that it gives to one trading partner, it has to give the same 'best' treatment to all other WTO members. Exceptions are trade arrangements under which a party agrees, either unilaterally or as a result of negotiations, to accord one or more other parties preferential treatment in trade in goods or services. The scope for establishing such arrangements is subject to WTO rules.

3.3. The sample size

Data restrictions led to a sample of 32 (high- or medium malaria-burden) countries, on which the analysis in this paper is based:

Of the 109 malaria-affected countries, 84 are identified as high and medium-burden countries as defined by WHO. Market Access Map provides tariff data for the most recent years (not older than 2008) for 65 of these countries. This data was matched with trade data from Trade Map if the annual trade data was reported in the same HS revision, available at the national tariff line level and for the most recent years. Especially the national tariff line-criterion reduced the sample significantly as much of the annual trade data from Comtrade as well as mirror data calculated by ITC[14] is available at HS6 level only.

The resulting sample comprised the following 32 countries:

Bangladesh*	Côte d'Ivoire	Mauritius	South Africa
Bolivia (Plurinational State of)	Ecuador	Mozambique	Sudan
Botswana	Ethiopia	Nicaragua	Tanzania, United Republic of
Brazil	Ghana*	Niger	Thailand*
Burundi	Guatemala	Nigeria*	Togo
Cape Verde*	Kenya	Peru	Uganda
China	Madagascar	Philippines*	Zambia
Colombia	Mali	Senegal	Zimbabwe

* Preferential tariffs not available.

4. Presentation of results

This section presents the results of the NTLC identification (section 4.1) followed by an analysis of the tariffs levied on the identified products (4.2) and estimated tariff revenues generated by these products (4.3). Subsequently, section 5 discusses selected country cases more in-depth.

4.1. National tariff line codes

During the process of identifying national tariff line codes (see section 2.1), a total of 751 NTLCs from the 32 countries considered were identified as (potentially) relevant for importing anti-malarial commodities.

Anti-malarial medicine was found to fall principally under four HS6 codes: namely 30.03.40, 30.03.90, 30.04.40, and 30.04.90.[15] However, only five countries – namely Bangladesh, Ghana, Philippines, Sudan and Thailand – *explicitly* mention 'malaria' in one or more product description. In addition, China refers in its nomenclature to medicaments '*containing artemisinins and their derivatives*'. As a consequence, for all other countries these goods must be imported under commodity codes, which may also be used for medicine other than against malaria. For all countries, the aforementioned HS6 codes were carefully screened as to identify those tariff lines under which, in the absence of an explicit reference to malaria in the product description, anti-malarials are most likely being imported. The resulting tariff lines were classified as 'likely' NTLCs for the importation of anti-malarial medicine, as opposed to the 'certain' NTLCs of the six countries listed above.

A similar differentiation was made for tariff lines that were identified for the category of mosquito nets. These are in principle products classified in the Harmonized System as 'other furnishing articles' made of textile (under HS6 codes 63.04.91, 63.04.92, 63.04.93, and 63.04.99), 'knotted netting and made up nets [textile]' (56.08.19, 56.08.90), and, in some countries, as nets made from other material (39.26.90) and woven fabrics of filament yarn (54.07.42). In the case of Zambia, 'mosquito netting' was in addition

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[14] For countries that do not report trade data to the United Nations, ITC uses the partner country data ('mirror data').

[15] In addition, two national tariff line codes were identified for Bangladesh under 30.03.39 and 30.04.39.

specified under 58.03.00.10 (gauze), and, in 32 NTLC codes under HS4 54.07 (other than 54.07.42) and 54.08 (woven fabrics of synthetic or artificial filament yarn).[16]

Of the 32 countries considered, 20 explicitly specified 'mosquito nets' (or, as in the case of Botswana and South Africa, 'conical bed nets') in their product nomenclature. Except for the Philippines and Thailand, all of these countries are from Africa. Interestingly, the countries in our sample with no explicit reference to mosquito nets are all Latin American countries, including Brazil, which is particularly noteworthy considering its exceptionally detailed product nomenclature. Only 8 countries in the sample have a specific tariff line for 'impregnated' or 'treated' mosquito nets, i.e. insecticide treated nets (ITNs), a product group that is considered as highly important for malaria prevention and for which public health specialists have repeatedly called for tariff reductions. Product codes were thus classified either as codes that are 'explicitly or most likely *intended for*' the importation of ITNs and product codes which are '*likely used*' for the importation of ITNs and other mosquito nets.

As for insecticides (HS6 Codes 38.08.10, 38.08.50, and 38.08.91) and appliances for applying insecticides (essentially spray pumps, HS6 Codes 84.24.81 and 84.24.89), commodity codes were distinguished between those that are 'most likely' and those that are 'possibly' used for importing relevant products. No country explicitly referred to insecticides or appliances/pumps for indoor residual spraying (IRS).

Finally, relevant diagnostic tests were considered to most likely fall under HS6 code 38.22.00. No country explicitly referred to rapid diagnostic tests.

Concerning the two product categories of anti-malaria medicine and mosquito nets, the following should be kept in mind: the fact that the description of the less certain codes does not explicitly refer to ACs inevitably implies that tariff revenue stemming from these codes may come from both importing anti-malarial commodities and other products traded under these NTLCs.[17] In other words, the estimated number provides the *upper limit* of tariff revenue generated by the importation of ACs (i.e. the revenue for the case that all products traded under this code are in fact ACs) and thus of fiscal revenue losses in the event that tariffs on those products (and those products only) are eliminated.

To some extent, this also applies to the other product categories, yet – whereas for medicine and mosquito nets, the identified NTLCs can be used for a variety of different *products*, which can in principle be clearly distinguished between ACs and non-ACs – for insecticides and spray pumps the same product can be used for a variety of different *purposes*, and from the mere product description it is not possible to tell whether a product is intended to be used to fight against malaria or not. As a consequence, unless other distinguishing features exist such as packing size,[18] no separate tariff can be applied (and thus no separate tariff revenue can be collected for) those insecticides and spray pumps that are used to combat malaria. Hence, for these products, the fiscal revenue loss due to an elimination of tariffs is less likely to be overestimated by considering the full tariff revenue generated.

4.2. Import tariffs levied on the identified commodity codes

The tariff data of the 32 countries considered in this paper shows that on average, all anti-malarial commodities still faced non-zero tariffs in 2009 (see table 1).[19] Medicine and diagnostic tests are the least protected products among the ACs, with diagnostic tests being the group for which the highest number of countries, 20 of 32, has either no or only very limited market protection (i.e., a tariff below 1%, see appendix IV). In contrast, mosquito nets stand out as the product group with the highest tariff rates, which should be viewed in the light of the fact that they usually fall into the highly protected category of textiles. China has the highest maximum rates across most product groups (see notes to table 1), however, these

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[16] See appendix I for details.

[17] Occasionally, this is also the case for codes that are explicitly intended for 'anti-malarials'. E.g. product code 30.03.40.10 of Bangladesh refers to '*anti malaria, anti TB, anti cancer, anti leprosy, cardiovascular and anti hepatic encephal opathy drugs and kidney dialysis solution*', i.e. not exclusively to drugs against malaria. However, in practically all of these cases, the import duty (and consequently tariff revenue) equals zero.

[18] See the suggestions for insecticides in section 6.

[19] 2008 tariff data was used for Bangladesh, Madagascar, Philippines, Zimbabwe and Burundi. In the case of the former four no 2009 data was available. As for Burundi, the tariff rates changed substantially in mid 2009 making it impossible to match tariff and (yearly) trade data. Average tariff rates applied by each of the 32 countries to the different AC categories are summarized in appendix IV.

are applied to imports from some 30 countries and territories only, which are not members of the WTO and do not enjoy the much lower MFN rate. Zimbabwe reports the highest tariff rate overall, with the ad valorem equivalent of a specific tariff in the group of mosquito nets equalling 232%.

Arguably, some products can be directly linked to health, such as medicine and diagnostic tests, and it can be noted that these enjoy a better market access than those products that generally are not immediately associated with fighting malaria, such as appliances for applying insecticides (spray pumps). This also holds true within the mosquito nets product group, where ITNs (where specified) are less protected than other mosquito and bed nets (see also table 2 and appendix V and the discussion thereof).

Table 1: Tariffs applied by 32 countries to NTLCs relevant for anti-malarial commodities

AC Group	Tariff (%)[a]		
	Weighted average[b]	Max[c]	Min
Medicine	3.4	20	0
Diagnostic tests	2.8	20	0
Mosquito nets	17.1	232[d]	0
Insecticides	6.4	25	0
Appliances for applying insecticides	4.0	20	0

Source: ITC calculations based on ITC Market Access Map and Trade Map data.

Notes:

a/ Based on countries' 2009 tariff schedules, except for Bangladesh, Burundi, Madagascar, Philippines and Zimbabwe for which customs duties are those applied in 2008.

b/ Weighted average tariffs were calculated by country and group (see appendix II for details) – the figures presented in this table represent the simple averages across all countries of the resulting numbers.

c/ In the maximum tariffs, the 'non-MFN rate' applied by China to some 30 countries and territories is not considered, the highest of these rates for each category being: medicine: 40%, diagnostic tests: 35%, mosquito nets: 130%, insecticides: 80%, appliances for applying insecticides: 80%.

d/ This ad valorem equivalent (AVE) of a specific tariff is applied by Zimbabwe only (see appendix II for details on AVE-calculation). Excluding Zimbabwe and China, the highest rate in this category is 40% (Sudan).

The country-by-country breakdown of the weighted average tariff by product group (see appendix IV) shows that of all countries under consideration, Mauritius is the only one with no customs duty on any of the tariff lines relevant for the importation of ACs. However, it does apply a value-added tax (VAT) of 15% to insecticides, spray pumps and, with the exception of fabrics traded under NTLC 54.07.42.00, on mosquito nets. Apart from Mauritius, Cape Verde, Kenya, United Republic of Tanzania and Uganda also apply zero tariffs on most product groups, with the mosquito nets group being the notable exception.

At the other end of the spectrum are:

- Burundi with one of the highest weighted average rates for all product groups except insecticides;
- Nigeria with the highest weighted average applied tariff for medicines;
- Brazil with the highest average rate on appliances for applying insecticides and relatively high customs duties on mosquito nets and medicine;
- Bangladesh with the highest weighted average tariff on insecticides;
- Ghana with the highest import duties on tariff lines in the diagnostic tests category;
- Sudan with a relatively high weighted average tariff across all product groups except medicines and, behind outlier Zimbabwe, the country with the highest weighted average tariff on mosquito nets; and
- Zimbabwe with extreme tariff rates on products in the mosquito nets category and comparatively high rates on medicine.

It should be noted in this context that for Burundi only 2008 data was available, i.e. the tariffs (and the tariff revenues discussed later) reflect the situation *before* Burundi implemented the Common External Tariff (CET) of the East African Community (EAC), which led, in mid 2009, to a drastic change in the tariff

structure. When comparing the results for Burundi and the other EAC members in the sample, it is evident that this change may have had important implications for both tariff rates and revenues obtained from AC-relevant tariff lines.

Finally, a closer look at Kenya, United Republic of Tanzania, Uganda, Mozambique and Nigeria sheds some light on those countries in the sample with the highest number of reported cases of malaria and malaria deaths.[20] The first three, belonging to EAC,[21] apply zero tariffs on medicine, diagnostic tests, insecticides and appliances, while the average customs duty of above 20% on mosquito nets is amongst the higher tariffs for this product group in the sample. However, it is worth noting that the EAC countries are among those explicitly specifying one tariff line for mosquito nets (NTL code 63.04.91.10) and applying a zero tariff on it (see also the discussion on mosquito nets below), while the remaining products classified as bed nets face a tariff of 25%. These tariff lines were kept in the analysis as it cannot be entirely excluded that mosquito nets and fabrics are imported using codes such as 54.07.42.00 ('*woven fabrics of filament yarn…*') or 56.08.19.90 ('*knotted netting of twine,…*'). This being said, tariff revenue from these commodity codes is less likely to have been generated by importing mosquito nets than rather by imports of other 'woven fabrics' or 'knotted nettings'.

For Mozambique, the average weighted tariffs applied on AC-relevant tariff lines follow the general pattern as described in table 1: pharmaceutical products and diagnostic tests face no tariff protection and relatively low tariff rates are applied on insecticides and appliances, while products classified in the mosquito nets category face an average import duty of nearly 18%.

Nigeria, in contrast, applies relatively high rates on indoor insecticides (9.5%) and, as mentioned above, the highest weighted average tariffs on medicine (nearly 20%). This is principally due to the 20% tariff applied on the tariff line under HS6 30.04.90, for which significant import values are recorded.

As mentioned earlier, the in-depth examination of the different product nomenclatures revealed that only five countries explicitly indicated tariff line codes for *anti-malaria* drugs, and that 20 countries used specific product codes for mosquito nets. These two product groups are discussed more in detail below.

4.2.1. Medicine

Six countries in the sample specify medicine for treating malaria in their nomenclature, namely Bangladesh, Ghana, Philippines, Sudan, Thailand and China. Also Nigeria had a tariff line referring to '*other medicaments of mixed or unmixed products, for retail sale: artemisinin, lumefantirine for malaria*' (code 30.04.90.00.91) in 2008 (HS Revision 2). However, in its 2009 nomenclature (HS Revision 3), this specific code had disappeared, while (the less specific) code 30.04.90.00.00 ('*Other medicaments of mixed or unmixed products, for retail sale*') makes no explicit reference to malaria. Remarkably, the applicable tariff in 2009 was 20% compared with 5% in 2008, when a separate tariff line for anti-malaria medicine existed. From the other five countries, only the Philippines and China levy a tariff (of between 1% and 5%) on those tariff lines explicitly referring to 'anti-malarials', while the others allow such imports free of duty.

4.2.2. Mosquito nets

Where countries have a separate, explicit product code (or codes) for mosquito nets, tariff rates tend to be lower than in cases where no such specification is made. As the table in appendix V shows, all countries that have a separate tariff line for impregnated nets allow these to enter their territory free of duty (except the Philippines where a 3% tariff is charged). Illustrative examples are Madagascar and Nigeria, where impregnated nets face no customs duty, while other mosquito or bed nets are subject to a 20% tariff. As a contrasting example, Sudan does not refer to mosquito nets in any product description. Consequently, these are imported under tariff lines that are also relevant to other goods, such as code 63.04.93.00 referring to '*articles for interior furnishing, of synthetic fibres*'. The tariff rates applied by Sudan to these commodity codes vary between 30% and 40%.

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[20] See WHO, *World Malaria Report 2010*, Annex 7.

[21] The East African Community (EAC) comprises Burundi, Kenya, Rwanda, United Republic of Tanzania and Uganda. They use the same product nomenclature and apply a common external tariff (CET) – in the case of Burundi and Rwanda since July 2009. Please note that marginal differences in the weighted averages between the other EAC countries can arise due to exceptions in the CET and differences in preferences granted.

As an exception to the tendency described above, a few countries levy import duties on mosquito nets that are at the *upper* limit of their tariff spectrum. Among these are South Africa[22] and Thailand, which over the past years have been developing their own mosquito net production and were net exporters of such nets in 2009. It is therefore likely that the relatively high tariff applied by these two countries on of mosquito net imports is motivated by the desire to protect local industries. For Burundi (the other country with a 30% tariff on mosquito nets) it can be assumed – given that the product codes explicitly refer to mosquito nets – that the 2008 market protection was, for whichever reason, intended. In contrast, the protection for mosquito nets (including ITNs) in countries such as Bangladesh, Colombia or Sudan – where they are traded under tariff lines that are relevant for a range of other goods as well – may very well be unintended.

4.2.3. Peak tariffs: import tariff rates of 15% and above

To draw meaningful conclusions on the actual effect of tariffs on end prices and in particular the affordability of ACs for the affected population, one would have to take into consideration price elasticities related to demand and the income structure of affected households in the different countries. For some products and countries it may actually be the case that even a 1% tariff leads to a price increase that causes a significant drop in the number of households able to afford a product. Such an in-depth analysis is beyond the scope of this paper; nevertheless, it seems evident that the higher the applied tariffs, the more detrimental the possible effect on the end price and potentially on quantities imported, i.e. the availability of ACs (in the absence of local production and donations). Therefore, and with all the above-mentioned limitations in mind, peak tariffs of 15% and above are looked at separately in this paper.

Table 2:   Incidence of peak tariffs, by product group

	Total # of NTLCs	Share of tariff lines with MFN or general tariff rates ≥ 15%
Medicine	236	2.5%
– explicitly for anti-malarials	*22*	*0%*
Diagnostic tests	44	2.3%
Mosquito nets	297	64.6%
– explicitly/most likely for ITNs	*77*	*10.4%*
Insecticides	104	9.6%
Appliances	70	7.1%

Analyzing the tariff schedules of the 32 countries from this perspective, it is found that of the 751 NTLCs identified as (potentially) relevant for importing ACs, a total of 214 face a tariff rate of 15% or above. Table 2 shows that, in accordance with the weighted averages presented in table 1, tariff lines belonging to the mosquito nets product group are particularly affected by high import duties, predominantly those less specific in their product description. Similarly and as mentioned above, the few product codes explicitly for anti-malarial medicine all face tariffs below the 15% threshold.

4.3. Estimated tariff revenue from identified commodity codes

Relative to other taxes, import duties are collected fairly easily and as such are a very reliable and can be a very important source of government income. Government revenue data is rather scarce and often outdated; however, the few data and estimates available suggest that in Madagascar, customs and other import duties account for nearly half of government revenue (see table 3 below), but also in Bangladesh, Côte d'Ivoire, Ethiopia, Ghana and Niger, 25%-35% of revenue comes from duties levied on imports.

Every call for tariff reduction, including on anti-malarial commodities, must be evaluated against this background as the political willingness for and therefore the feasibility of implementing such a reduction

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[22] Along with South Africa, Botswana also levies the high tariff – both countries are part of the South African Customs Union with members applying the same product nomenclature and a common external tariff.

crucially hinges on the importance of the immediate (and readily quantifiable) losses in fiscal revenue more than on the medium- to long-term gains for public health (which are admittedly more difficult to quantify).

Table 3: Customs and other import duties as % of total government revenue (excl. grants)

Bangladesh*	28.0	Côte d'Ivoire	25.2	Mauritius	11.5	South Africa	3.1
Bolivia (Plurinational State of)	3.7	Ecuador	[11.8]	Mozambique	n.a.	Sudan	[35.5]
Botswana	[37.3)	Ethiopia	34.5	Nicaragua	7.6	Tanzania, United Republic of	n.a.
Brazil	[6.5]	Ghana*	24.4	Niger	29.1	Thailand*	5.3
Burundi	[15.1]	Guatemala	6.9	Nigeria*	n.a.	Togo	22.5
Cape Verde*	14.9	Kenya	8.2	Peru	2.6	Uganda	11.2
China	3.2	Madagascar	47.3	Philippines*	22.2	Zambia	10.2
Colombia	3.2	Mali	10.6	Senegal	n.a.	Zimbabwe	[19.0]

Data Source: World Development Indicators Database (World Bank) and ITC Market Access Map.

2008 data; Bangladesh, Bolivia (Plurinational State of), China, Madagascar, Niger and Zambia: 2007; Colombia: 2003; Ethiopia: 2002; Nicaragua: 2001; numbers in brackets are ITC estimates of customs revenue as a percentage of national tax revenue for the 1990s; n.a.: not available.

Figure 1 presents, as a share of total theoretical customs revenue, the estimated maximum tariff revenues from tariff lines under which ACs are (likely) traded. As expected, the contribution of those products to total tariff income is quite small – the share exceeds 1.5% in only eight countries. Among these are five of the Latin American countries in the sample, but also in Ethiopia (2.1%) and particularly in Burundi (7.9%), the importance of tariff revenue raised by the AC product categories is relatively high. This being said, in relation to total government revenue, even these numbers are rather small: taking the data in table 3 as reference, the theoretical tariff revenue from AC-relevant tariff lines translates into less than 1.2% of total government revenue for Burundi and less than 0.75% for all other countries, with most shares being even smaller than 0.1%. Comparing Burundi to Kenya, United Republic of Tanzania and Uganda illustrates to what extent the implementation of the EAC CET in 2009 may have altered the tariff and tariff revenue structure of Burundi. While for Burundi, the share of AC-generated theoretical customs revenue amounts to nearly 8%, mainly due to important proceeds generated by tariffs on medicaments, it does not exceed 0.2% in the other EAC countries.

Figure 2 assesses the contribution of each of the five anti-malaria product categories to the tariff revenue of the 32 countries examined (see also appendix VI). The data reveals that where the revenue from AC product codes is relatively important in total customs revenue, the former tends to be dominated by tariffs collected on medicine: in 8 of the top 11 countries in figure 2 (the notable exceptions being Bolivia (Plurinational State of), Botswana and Ghana) medicines account for more than half of the tariff revenue obtained from AC-relevant commodity codes. Put differently, where tariffs on medicine for the treatment of malaria are non-zero, these generate relatively important proceeds. This is less the result of exceptionally high import duties (with few exceptions, they range between 1% and 10%) but rather a consequence of the high import values recorded for these drugs.

It is worth noting that among the countries with positive tariffs (and tariff income) on anti-malaria medicine is Nigeria, a country with one of the highest numbers of reported cases of malaria and malaria deaths. The case of Nigeria will be discussed more in-depth in the following section. If all countries were to eliminate tariffs on anti-malaria drugs, figure 2 would look much more homogeneous, with the maximum tariff revenue stemming from ACs not exceeding 1.5% of total customs revenue in all but four cases. For the countries at the lower end of figure 2, revenue from the mosquito nets product group dominates the theoretical tariff income from anti-malarial commodities, while the remaining three AC categories contribute relatively little to overall customs income.

The following section examines in more detail the results of the five product groups, starting with medicine and mosquito nets, the two categories with the most important tariff proceeds.

Figure 1: **Maximum share of tariff revenue generated by anti-malarial commodities, as % of total theoretical customs revenue**
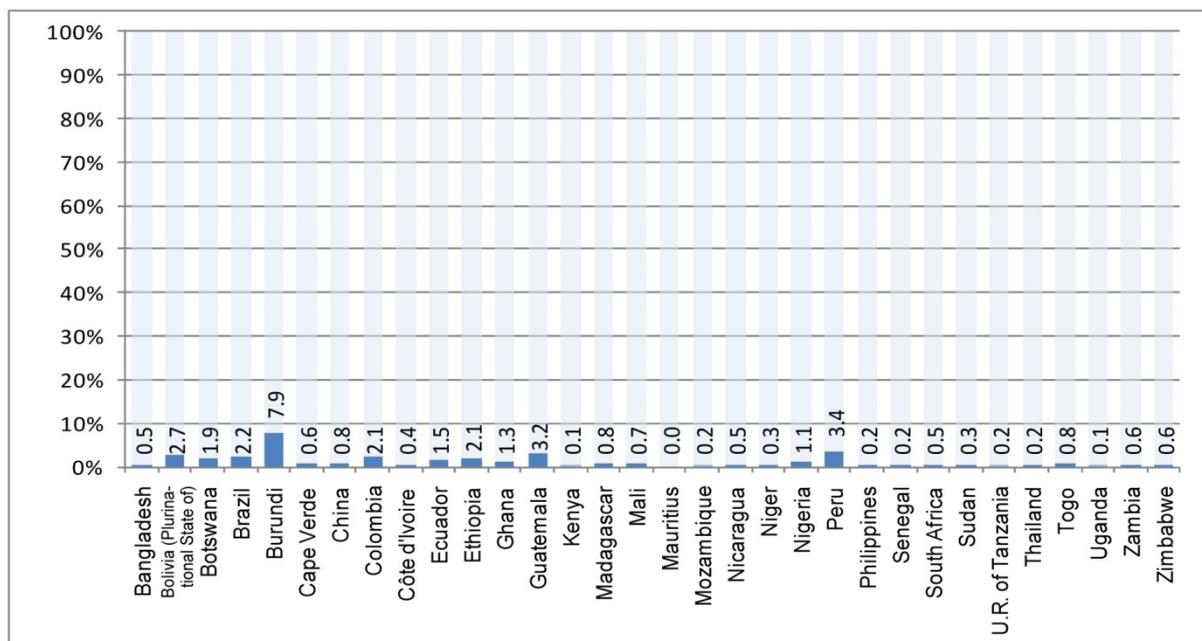
Source: Market Access Map and Trade Map data and ITC calculations.
Please note that the tariff revenue generated by ACs presented in this figure stems from tariff lines that may not be exclusively for ACs, i.e. they may encompass other products. Hence the numbers represent the maximum tariff revenue attributable to ACs rather than the exact amount of customs duties collected for these products.

Figure 2: **Maximum share of total theoretical tariff revenue generated by anti-malarial commodities, with breakdown by product group**
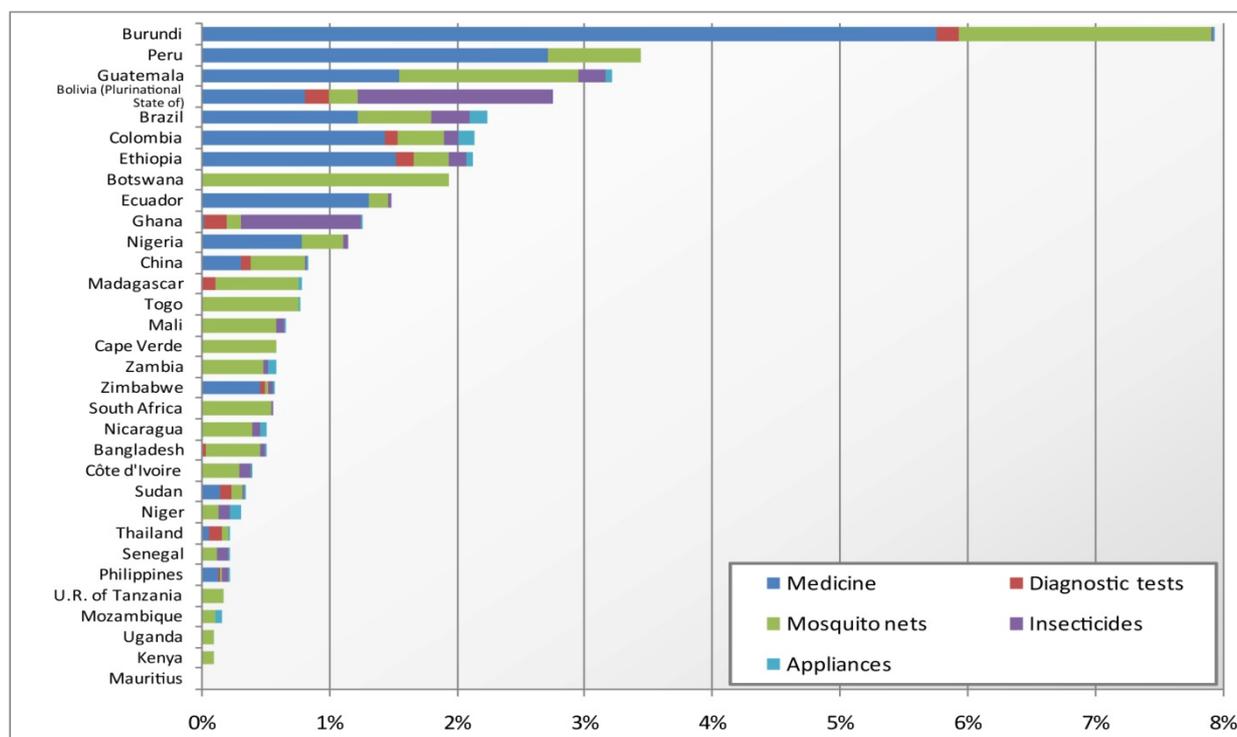
Source: Market Access Map and Trade Map data and ITC calculations.
Please note that the tariff revenue presented in this figure stems from tariff lines that may not be exclusively for ACs, i.e. they may encompass other products. Hence the numbers represent the maximum tariff revenue attributable to ACs rather than the exact amount of customs duties collected for these products.

4.3.1. Medicine

In most of the 32 countries reviewed, medicine is the product group with the highest import value among the five AC categories. A further disaggregation of the numbers reveals that more than 90% of the import values and tariff revenues of the tariff lines identified for anti-malaria medicine fall under HS6 code 30.04.90, a broad category of 'other' medicaments (i.e. medicaments not specified elsewhere under HS heading 30.04).[23]

The detailed country-specific results for the medicines product group are presented in table 4 below. Tariff revenue generated by NTLCs that are explicitly for anti-malarial drugs (column B) is listed separately from the one generated by tariff lines that are *likely* to be used for such medicine (column C). In addition, the share of revenue stemming from peak tariffs is indicated.

Column B highlights the six countries with explicit tariff lines for anti-malaria medicines. Given that no import duty is levied on these NTLCs in Bangladesh, Ghana, Sudan and Thailand, these countries collect no tariff revenue from these items. The Philippines, one of the two countries with (low) positive tariff rates on explicit anti-malarial tariff lines, has no recorded imports for these products in 2008. Put differently, none of the six product codes for medicaments treating malaria was to import goods in 2008. This does not necessarily imply that no such drugs enter the country; in this context it is worth noting that some countries may waive tariffs and taxes on imports by international organizations or from donations, and that those imports may or may not be included in a country's statistics. Also in Thailand, no imports were reported for three of the six explicit NTLCs, while for the other three countries, all commodity codes were used. Of the 214 NTLCs on which the revenue data in column C of table 4 is based, nearly one third (65) are not used for importation. Most of these (38) are national tariff lines of Brazil, where the product nomenclature is exceptionally detailed.

In total, 17 countries obtain no tariff revenue from the relevant product codes as the corresponding applied tariffs equal zero. In most of these countries, this is not only true for the few tariff lines relevant for anti-malarials but for import duties on medicines in general.

As mentioned before, countries that do impose import duties on medicines tend to record significant proceeds. While arguably any price increase on ACs caused by tariffs should be avoided, higher tariffs are likely to have a stronger effect on the affordability of a product for the final consumer than relatively low tariffs. From that perspective, the tariff revenue of Burundi and Nigeria (and to a lesser extent Zimbabwe) seems particularly problematic because more than 95% (50% for Zimbabwe) is raised by tariffs equal to or greater than 15% (table 4). It is thus much more likely to be raised at the expense of the affordability of anti-malarial medicine than the tariff revenue raised by countries like Ethiopia or Ecuador.

4.3.2. Mosquito nets

Table 5 lists the tariff revenue results for the mosquito nets product group, which for many countries dominates theoretical revenues obtained from the five AC categories combined. Column B presents the results for the 'certain' NTLCs, i.e. for the 20 countries that explicitly mention ITNs in their nomenclature or, in its absence, with at least one explicit tariff line for mosquito nets in general. Similar to medicine, as most import duties are zero on these items, no tariff revenue is collected. The most notable exception is Burundi where NTLC 63.04.91.10, specifying '*moustiquaire*' in its description, is subject to a 30% tariff and generated revenue of about US$ 1 million in 2008.

Again, the differences between columns B and C are telling. Where tariff lines are not specifically designated as ITNs or other mosquito nets, tariff rates are significant: 184 of the 220 NTLCs listed in column C are subject to an import duty of 15% or higher. As a consequence, nearly all tariff revenue generated by this product group stems from high tariffs and as such negatively impacts the affordability of mosquito nets.

Interestingly, imports are reported for most identified NLTCs, with most unused codes belonging to Madagascar and Zambia. In Madagascar, only three of the eight codes for impregnated nets are actually used. In Zambia, imports enter under only 6 of the 32 tariff lines under the additional country-specific HS6

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[23] In the case of HS4 30.04, these concern medicaments '*consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses (including those in the form of transdermal administration systems) or in forms or packings for retail sale.*'

codes with explicit reference to 'mosquito and fruit netting' (in HS chapters 54 and 58, see appendix I for more details), with import values recorded for these six codes being extremely low.

4.3.3. Diagnostic tests

Figure 2 shows that compared to the other product groups, diagnostic tests contribute relatively little to the overall estimated customs revenue. Only in Thailand do they account for a significant share of the tariff revenue obtained from all anti-malarial product groups, with the import values being higher for diagnostic tests than for the other four categories.

Many countries have no tariff revenue in this category as a consequence of zero tariffs on the products classified under HS6 38.22.00. From those with positive import duties and therefore tariff revenues on diagnostic tests (see table 6), Bolivia (Plurinational State of) (MFN tariff: 10%), Burundi (10%), Ghana (20%), Madagascar (10%) and Sudan (10%) again stand out as countries with relatively high MFN or general tariff rates. For all 44 relevant NTLCs across the 32 countries, import quantities are above zero.

4.3.4. Insecticides

Both insecticides and spray pumps are the product categories with the least tangible link to health, and without doubt, many of the products imported under the identified NTLC may be used for agriculture. This should be taken into consideration when interpreting the tariff revenue results presented in this and the next sub-section.

Table 7 reveals that 11 countries do not garner any tariff revenue from the selected insecticides – in the case of Togo and Mozambique this is a consequence of no imports rather than zero tariffs. But also Botswana and Burundi report relatively low import values. In contrast, in Côte d'Ivoire, insecticides account for more than 25% of total theoretical tariff revenue from anti-malarial commodities (see figure 2). This revenue is generated by a 5% tariff on NTLC 38.08.91.90.00. In Bolivia (Plurinational State of) and Ghana, the comparatively important proceeds from insecticides come from a tariff of 10% on the relevant tariff lines, while in Niger and Senegal, most revenue in this product category stems from peak tariffs.

4.3.5. Appliances for applying insecticides

Table 8 presents the results for spray pumps. Again, 11 countries report no tariff proceeds, all of them as a result of zero import duties. Import quantities for all identified tariff lines in this product group are positive.

Zambia and, to a lesser extent, China, Colombia and Ethiopia are among those countries where relatively high tariffs generate the tariff revenue obtained from spray pumps. For Zambia however, most imports in this product group belong to the NTLCs evaluated as 'most likely used' for relevant spray pumps, which is subject to a zero import tariff. Only few imports (but all tariff revenues) are recorded for the 'less certain' code 84.24.89.00, on which a 15% tariff is levied. The same is the case in Ghana, where only few imports are reported for the less relevant NTLC 84.24.89.00.00, which is subject to a 10% tariff and generates all tariff revenue. Mozambique and Niger are the only countries where appliances for applying insecticides account for a somewhat significant share of AC tariff revenue (see figure 2). In both countries, tariff rates on these products do not exceed 5%.

4.3.6. Concluding remarks

The results presented above have shown that the contribution to total *customs* revenue by tariff lines relevant for importing ACs is relatively small. As a share of total *fiscal* revenue, it is in most cases negligible. The highest customs revenue tends principally to come from two product groups: on the one hand, where tariff rates on these products are positive, medicines account for relatively important customs proceeds. This is due to significant import values – peak tariffs in this product group are relatively rare. On the other hand, commodity codes (likely) used for importing mosquito nets and fabrics are associated with high tariff revenues, particularly where mosquito nets are not explicitly mentioned in the product description. These tariff lines are subject to peak tariffs across all countries (except Mauritius). This is linked to the fact that mosquito nets fall into chapters of the Harmonized System that are not only completely unrelated to health, but – even worse – contain those products, namely textiles, that are among the most highly protected across the world.

While from the perspective of fighting malaria very high tariff rates are without doubt an issue to tackle with utmost priority, there is an important consideration concerning very low tariff rates, those of 5% or below. These tariff rates may actually do more harm than good because it may cost more to collect them than they generate in revenue ('nuisance tariffs'). MFN duties of below 5% are principally found in the Asian countries of the sample. When considering tariff preferences, 21 of the 32 countries studied in this paper apply (non-zero) rates below 5% to one or more AC-relevant tariff lines.

The next section examines three country cases: Ghana, Ethiopia and Nigeria.

Table 4: Theoretical tariff revenue for the medicine product group
(HS6 codes: 30.03.40, 30.03.90, 30.04.40, 30.04.90)

| | (A) | TARIFF REVENUE (in thousands US$) stemming from tariff lines | | | | | | % of (B) + (C) from tariff rates ≥ 15% | # of NTLCs with MFN or general tariff rates ≥ 15% |
		- explicitly for antimalarials (B)	[import value]	# of NTLCs	- likely used for antimalarials (C)	[import value]	# of NTLCs		
Bangladesh*	0%	0	[19 386]	6	--	--	--	--	0
Bolivia (Plurinational State of)	0.80%	--	--	--	1 354	[42 115]	4	0	0
Botswana	0%	--	--	--	0	[21 050]	4	--	0
Brazil	1.22%	--	--	--	120 947	[1 935 152]	72	0	0
Burundi	5.76%	--	--	--	2 922	[20 468]	4	99.9	4
Cape Verde	0%	--	--	--	0	[8 548]	4	--	0
China	0.31%	68	[1 709]	2	125 374	[3 089 843]	9	0.00002	0**
Colombia	1.43%	--	--	--	35 206	[446 584]	4	0	0
Côte d'Ivoire	0%	--	--	--	0	[176 962]	4	--	0
Ecuador	1.31%	--	--	--	8 058	[360 893]	4	0	0
Ethiopia	1.53%	--	--	--	12 280	[246 380]	4	0	0
Ghana	0.02%	0	[6 547]	1	175	[1 748]	3	0	0
Guatemala	1.55%	--	--	--	4 389	[293 228]	8	0	0
Kenya	0%	--	--	--	0	[39 294]	4	--	0
Madagascar	0%	--	--	--	0	[35 654]	4	--	0
Mali	0%	--	--	--	0	[69 504]	4	--	0
Mauritius	0%	--	--	--	0	[85 211]	4	--	0
Mozambique	0%	--	--	--	0	[33 994]	4	--	0
Nicaragua	0%	--	--	--	0	[226 791]	8	--	0
Niger	0%	--	--	--	0	[30 462]	4	--	0
Nigeria	0.78%	--	--	--	26 083	[149 171]	4	97.8	1
Peru	2.71%	--	--	--	24 033	[371 959]	4	0	0
Philippines	0.13%	0	[0]	6	3 094	[64 837]	10	0	0
Senegal	0%	--	--	--	0	[13 335]	4	--	0
South Africa	0%	--	--	--	0	[1 082 604]	4	--	0
Sudan	0.14%	0	[19 964]	1	1 582	[22 082]	3	0	0
Tanzania, U.R. of	0%	--	--	--	0	[69 985]	4	--	0
Thailand	0.05%	0	[507]	6	3 480	[34 796]	6	0	0
Togo	0%	--	--	--	0	[32 161]	4	--	0
Uganda	0%	--	--	--	0	[144 289]	4	--	0
Zambia	0%	--	--	--	0	[99 117]	4	--	0
Zimbabwe	0.46%	--	--	--	2 165	[31 164]	7	57.1	1

(A) Estimated tariff revenue from the 'medicine' product group as % of total theoretical customs revenue.

Notes:

* For Bangladesh, the import values include imports under NTLC 30.03.39.10 and 30.04.39.10.

** For China, the tariff rates exceeding 15% only apply to imports from around 30 countries and territories that do not enjoy the much lower WTO-MFN rate.

'*Tariff lines explicitly for anti-malarials*' refer to NTLCs for which the description explicitly refers to anti-malarial medicine.

'*Tariff lines likely used for anti-malarials*' refer to NTLCs under the four abovementioned HS6 codes, that are - although not explicitly designed for anti-malarials - likely or known to be used for importing relevant drugs. All considered tariff lines can include products other than anti-malarial commodities.

Table 5: Theoretical tariff revenue for the mosquito nets product group

(HS6 codes: 39.26.90, 54.07.42, 56.08.19, 56.08.90, 63.04.91, 63.04.92, 63.04.93, 63.04.99)

		TARIFF REVENUE (in thousands US$) stemming from tariff lines							
	(A)	- explicitly or most likely for ITNs (B)	[import value]	# of NTLCs	- possibly used for ITNs (C)	[import value]	# of NTLCs	% of (B)+(C) from tariff rates ≥ 15%	# of NTLCs with MFN or general tariff rates ≥ 15%
Bangladesh	0.43%	--	--	--	4 417	[19 018]	8	92.9	6
Bolivia (Plurinational State of)	0.22%	--	--	--	374	[5 382]	7	3.6	5
Botswana	1.93%	14	[48]	1	547	[2 849]	5	100	6
Brazil	0.57%	--	--	--	56 308	[309 178]	8	99.9	8
Burundi	1.98%	956	[3 187]	1	48	[210]	3	100	4
Cape Verde	0.59%	--	--	--	492	[2 506]	8	98.1	6
China	0.42%	--	--	--	170 594	[1 766 622]	9	2.0	1
Colombia	0.36%	--	--	--	8 952	[54 100]	8	100	8
Côte d'Ivoire	0.29%	0	[1 861]	1	1 399	[6 998]	7	100	7
Ecuador	0.16%	--	--	--	971	[21 357]	8	23.9	6
Ethiopia	0.27%	0	[8 105]	5	2 198	[7 294]	3	100	3
Ghana	0.12%	0	[11 502]	1	847	[4 237]	6	100	6
Guatemala	1.40%	--	--	--	3 955	[50 129]	9	71.2	7
Kenya	0.09%	0	[3 086]	1	692	[2 768]	7	100	7
Madagascar	0.66%	0	[4 912]	8	1 884	[10 338]	13	100	13
Mali	0.58%	0	[9 792]	1	1 381	[6 945]	6	100	6
Mauritius	0%	0	[70]	5	0	[7 255]	3	--	0
Mozambique	0.11%	7	[13 158]	2	159	[2 887]	6	79.3	4
Nicaragua	0.39%	--	--	--	323	[4 704]	8	91.3	7
Niger	0.14%	0	[14 450]	1	163	[819]	6	100	6
Nigeria	0.33%	0	[38 237]	4	10 991	[54 947]	4	100	4
Peru	0.73%	--	--	--	6 496	[79 730]	8	4.1	5
Philippines	0.01%	33	[939]	4	149	[1 385]	4	19.9	6
Senegal	0.12%	0	[3 265]	1	606	[3 052]	7	100	7
South Africa	0.55%	37	[154]	1	15 753	[85 861]	7	76.8	8
Sudan	0.09%	--	--	--	987	[3 537]	8	84.1	8
Tanzania, U.R. of	0.18%	0	[1 084]	1	1 074	[4 438]	7	99.3	7
Thailand	0.06%	132	[440]	1	3 517	[39 260]	9	11.7	4
Togo	0.76%	0	[412]	1	608	[3 147]	7	100	7
Uganda	0.10%	0	[8 069]	1	415	[3 220]	7	100	7
Zambia	0.48%	1	[8 953]	36	741	[3 217]	6	100	7
Zimbabwe	0.03%	--	--	--	136	[322]	8	100	6

(A) Estimated tariff revenue from the 'mosquito nets' product group as % of total theoretical customs revenue.

Notes:

For Zambia, tariff lines under additional HS6 codes are included – see appendix I for more details.

'*Tariff lines explicitly or most likely for ITNs*' refer to NTLCs for which the description explicitly refers to treated mosquito nets, or, in their absence, to mosquito nets.

'*Tariff lines possibly used for ITNs*' refer to NTLCs under the eight abovementioned HS6 codes, that are - although not explicitly designed for mosquito nets – possibly or known to be used for importing relevant nets. All considered tariff lines can include products other than anti-malarial commodities.

Table 6:   Theoretical tariff revenue for the diagnostic tests product group

(HS6 code: 38.22.00)

	(A)	Tariff revenue (in thousands US$) (B)	[import value] (in thousands US$)	# of NTLCs	% of (B) from tariff rates ≥ 15%	# of NTLCs with MFN or general tariff rates ≥ 15%
Bangladesh	0.04%	362	[5 167]	1	0	0
Bolivia (Plurinational State of)	0.19%	322	[3 887]	2	0	0
Botswana	0%	0	[1 775]	1	--	0
Brazil	0.00%	98	[229 554]	2	0	0
Burundi	0.17%	88	[880]	1	0	0
Cape Verde	0%	0	[835]	1	--	0
China	0.08%	31 631	[640 383]	2	5.8	0*
Colombia	0.10%	2 558	[52 789]	2	0	0
Côte d'Ivoire	0%	0	[9 671]	1	--	0
Ecuador	0%	0	[17 987]	2	--	0
Ethiopia	0.13%	1 030	[20 603]	1	0	0
Ghana	0.17%	1 240	[6 198]	1	100	1
Guatemala	0%	0	[10 322]	1	--	0
Kenya	0%	0	[12 820]	1	--	0
Madagascar	0.10%	299	[3 051]	1	0	0
Mali	0%	0	[4 359]	1	--	0
Mauritius	0%	0	[3 322]	2	--	0
Mozambique	0%	0	[14 297]	1	--	0
Nicaragua	0%	0	[5 785]	1	--	0
Niger	0%	0	[510]	1	--	0
Nigeria	0%	0	[15 909]	1	--	0
Peru	0%	0	[28 725]	2	--	0
Philippines	0.01%	330	[32 976]	3	0	0
Senegal	0%	0	[4 552]	1	--	0
South Africa	0%	0	[174 917]	1	--	0
Sudan	0.08%	900	[16 392]	1	0	0
Tanzania, U.R. of	0%	0	[17 971]	1	--	0
Thailand	0.10%	6 328	[126 566]	4	0	0
Togo	0%	0	[291]	1	--	0
Uganda	0%	0	[2 972]	1	--	0
Zambia	0%	0	[14 224]	1	--	0
Zimbabwe	0.03%	158	[4 287]	1	0	0

(A) Estimated tariff revenue from the 'diagnostic tests' product group as % of total theoretical customs revenue.

Notes:

*   For China, the tariff rates exceeding 15% only apply to imports from around 30 countries and territories that do not enjoy the much lower WTO-MFN rate.

All considered tariff lines can include diagnostic tests for diseases other than malaria.

Table 7: **Theoretical tariff revenue for the insecticide product group**

(HS6 codes: 38.08.10, 38.08.50, 38.08.91)

	(A)	Tariff revenue (in thousands US$) (B)	[import value] (in thousands US$)	# of NTLCs	% of (B) from tariff rates ≥ 15%	# of NTLCs with MFN or general tariff rates ≥ 15%
Bangladesh	0.03%	282	[1 607]	3	60.9	2
Bolivia (Plurinational State of)	1.53%	2 576	[50 447]	5	0	0
Botswana	0%	0	[7]	8	--	0
Brazil	0.31%	30 307	[387 249]	6	0	0
Burundi	0.02%	10	[216]	1	0	0
Cape Verde	0%	0	[1 086]	2	--	0
China	0.01%	4 356	[84 097]	5	0	0
Colombia	0.11%	2 676	[42 749]	4	0	0
Côte d'Ivoire	0.10%	461	[9 218]	1	0	0
Ecuador	0.01%	90	[19 887]	6	0	0
Ethiopia	0.15%	1 167	[11 765]	2	0	0
Ghana	0.94%	6 879	[68 790]	1	0	0
Guatemala	0.21%	607	[28 989]	2	0	0
Kenya	0%	0	[26 837]	2	0	0
Madagascar	0%	0	[2 639]	3	--	0
Mali	0.07%	162	[3 275]	2	0	0
Mauritius	0%	0	[3 826]	2	--	0
Mozambique	0%	0	[0]	2	--	0
Nicaragua	0.07%	55	[2 972]	3	0	0
Niger	0.09%	106	[837]	2	80.9	1
Nigeria	0.03%	1 000	[14 012]	2	39.9	1
Peru	0%	0	[66 871]	7	--	0
Philippines	0.05%	1 144	[38 125]	4	0	0
Senegal	0.1%	433	[2 890]	3	89.1	2
South Africa	0.001%	17	[90 221]	6	0	0
Sudan	0.01%	129	[2 956]	2	0	0
Tanzania, U.R. of	0%	0	[13 492]	2	--	0
Thailand	0%	0	[51 689]	5	--	0
Togo	0%	0	[0]	3	--	2
Uganda	0%	0	[7 212]	2	--	0
Zambia	0.04%	68	[2 673]	3	100	2
Zimbabwe	0.03%	152	[15 603]	3	--	1

(A) Estimated tariff revenue from the 'insecticides' product group as % of total theoretical customs revenue.

Note: All considered tariff lines can include insecticides used for purposes other than fighting malaria.

Table 8:   Theoretical tariff revenue for the appliances product group

(HS6 codes: 84.24.81, 84.24.89)

	(A)	Tariff revenue (in thousands US$) (B)	[import value] (in thousands US$)	# of NTLCs	% of (B) from tariff rates ≥ 15%	# of NTLCs with MFN or general tariff rates ≥ 15%
Bangladesh	0.002%	25	[838]	2	0	0
Bolivia (Plurinational State of)	0%	0	[6 987]	3	--	0
Botswana	0%	0	[79]	2	--	0
Brazil	0.14%	13 828	[101 986]	5	5.0	2
Burundi	0.01%	3	[28]	1	0	0
Cape Verde	0%	0	[63]	1	--	0
China	0.02%	7 415	[397 303]	3	44.8	0*
Colombia	0.13%	3 216	[29 460]	3	52.6	1
Côte d'Ivoire	0.01%	35	[691]	1	0	0
Ecuador	0%	0	[12 510]	3	--	0
Ethiopia	0.05%	391	[5 416]	2	41.2	1
Ghana	0.004%	30	[6 221]	3	0	0
Guatemala	0.05%	128	[12 119]	3	0	0
Kenya	0%	0	[11 756]	2	--	0
Madagascar	0.03%	74	[951]	1	0	0
Mali	0.01%	12	[239]	1	0	0
Mauritius	0%	0	[2 283]	2	--	0
Mozambique	0.05%	77	[4 127]	2	0	0
Nicaragua	0.05%	39	[3 055]	4	0	0
Niger	0.08%	99	[1 973]	1	0	0
Nigeria	0%	0	[10 397]	2	--	0
Peru	0%	0	[24 947]	3	--	0
Philippines	0.003%	74	[1 487]	5	0	0
Senegal	0.01%	54	[1 072]	1	0	0
South Africa	0%	0	[53 088]	2	--	0
Sudan	0.01%	65	[724]	2	0	0
Tanzania, U.R. of	0%	0	[11 325]	2	--	0
Thailand	0.01%	656	[13 113]	2	0	0
Togo	0.0003%	0	[4]	1	0	0
Uganda	0%	0	[1 587]	2	--	0
Zambia	0.06%	85	[7 549]	2	100	1
Zimbabwe	0.004%	18	[465]	1	0	0

(A) Estimated tariff revenue from product group 'appliances for applying insecticides' as % of total theoretical customs revenue.

Notes:

*   For China, the tariff rates exceeding 15% only apply to imports from around 30 countries and territories that do not enjoy the much lower WTO-MFN rate.

All considered tariff lines can include products used for purposes other than fighting malaria.

5. Country analysis

To elucidate the structure of tariff revenues collected from AC-relevant tariff lines, this section concentrates on countries whose share of AC-generated proceeds exceeds 1% of total theoretical customs revenue and where the number of probable and confirmed malaria cases is high. These are Ghana (1.9 million cases 2009), Ethiopia (3 million cases) and Nigeria (4.3 million cases).[24] In addition to reviewing tariff structure and tariff revenues, taxes other than import duties applied to ACs are included in the discussion where available.

5.1. Ghana

Figure 3 shows the MFN tariffs Ghana applies to the 16 tariff lines identified as certainly or likely relevant for importing ACs. In the medicine and mosquito nets group, two NTLCs have been specified beyond the 8-digit level to introduce separate codes for anti-malarial medicine (code 30.04.90.00.10 referring to '*medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes, put up in measured doses …: anti-malarials*'), and mosquito nets (code 56.08.19.00.10 referring to '*knotted netting of twine, cordage, ropes or cables…; made-up nets, of man-made textile materials…: nets for the protection against insects (mosquito nets), of man-made textile*'). No import duties are charged on these two tariff lines.

Figure 3: Ghana – Applied tariffs on tariff lines relevant for anti-malarial commodities
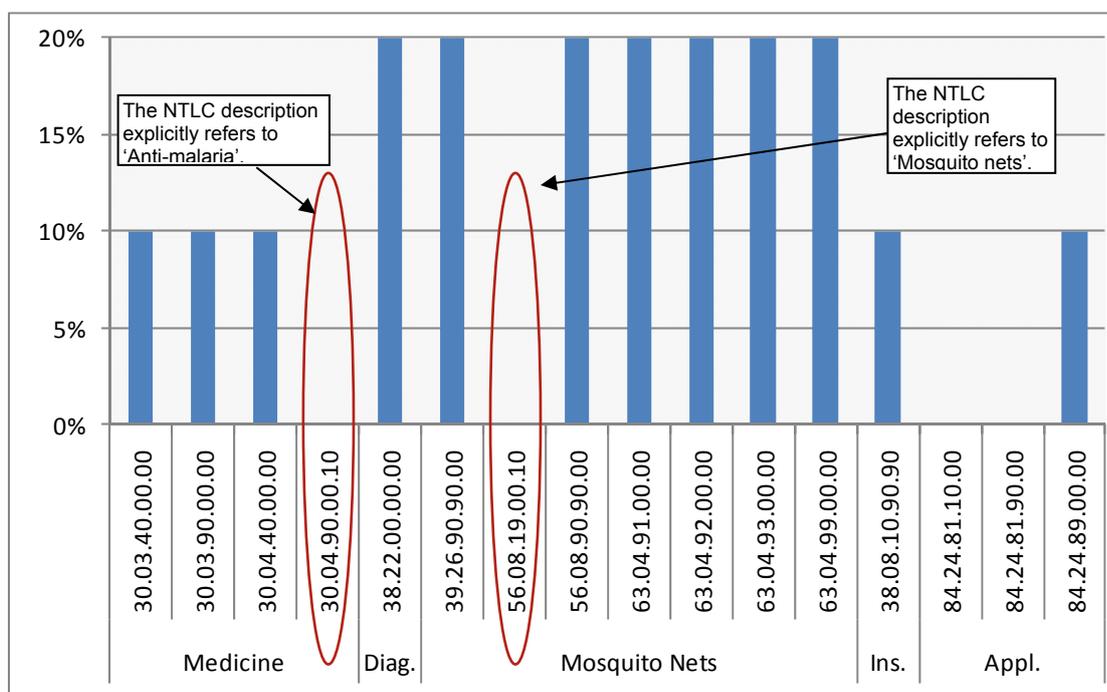
Source: ITC Market Access Map; tariff data for 2009.

Nevertheless other product codes are also deemed as possibly relevant anti-malaria medicine and mosquito nets imports – for mosquito nets, e.g. NTLC 56.08.90.90.00, with a description similar to the one cited above; however, it refers to '*vegetable textile materials*' instead of '*man-made textile materials*'. On these NTLCs, tariff rates are positive: 10% for medicines and 20% for the mosquito nets category.

Also on the insecticides product code, a tariff of 10% is levied, while two of the three NTLCs for appliances for spraying insecticides face no market protection. Finally, as mentioned in section 4.2, Ghana stands out as the country with the highest tariff rate (20%) on diagnostic tests, i.e. its NTLC under HS6 38.22.00.

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[24] Data source: WHO, *World Malaria Report 2010*.

These two tariff lines for insecticides and diagnostic tests account for the largest share, namely 88.5%, of estimated (maximum) tariff revenue from ACs. In particular for insecticides, import values (and quantities) are extremely high (see table 9). In addition, two tariff lines in the mosquito nets category generate (theoretical) tariff revenue of above US$ 50,000. Product descriptions are, however, not specific enough to determine whether and to what extent this revenue comes from ITNs. Similarly, it is impossible to say how much, if any, of the about US$ 150,000 revenue from NTLC 30.03.90.00.00 is derived from importing medicines for treating malaria.

Consequently, the total tariff revenue estimated for Ghana of about US$ 9 million equals the tariff revenue stemming from ACs only if all imported goods under these NTLCs are actually anti-malarial commodities, which is a very bold assumption. In addition, as outlined in section 2, the *theoretical* tariff revenue presented here is likely to overestimate *actual* tariff revenue. As such, US$ 9 million represents the upper limit rather than a precise estimate of tariff losses if all tariffs on these items were put to zero.[25]

Yet even the full amount of US$ 9 million, while not a negligible amount, only represents 2% of total theoretical customs revenue and less than 0.5% of total government revenue. At the same time, this revenue may come at the cost of higher prices of the concerned goods – and considering that more than half of Ghana's population lives on less than US$ 2 a day,[26] a price increase of 10% or 20% can impact the affordability of a product potentially very negatively.

Table 9: Ghana – Tariff lines with theoretical tariff revenue above US$ 50,000

(Values in thousands US$)

Group	Product	High relevance	MFN tariff	Import values	Tariff revenue
Medicine	Medicaments consisting of two or more constituents mixed together...(30.03.90.00.00)		10%	1 468	**147**
Diagnostic tests	Diagnostic or laboratory reagents...(38.22.00.00.00)	x	20%	6 198	**1 240**
Mosquito nets	Articles of plastics and articles of other materials...: other (39.26.90.90.00)		20%	3 463	**693**
	Knotted netting of twine, cordage, ropes or cables, ... of vegetable textile materials: other (56.08.90.90.00)	x	20%	425	**85**
Insecticides	Insecticides put up for retail sale or as preparations or articles: insecticides: other: other (38.08.10.90.90)	x	10%	68 790	**6 879**

Source: ITC Market Access Map, Trade Map and ITC calculations.

Notes:

The column 'High relevance' indicates those NTLCs that are explicitly for ACs (medicine and mosquito nets product groups) or (almost) certainly used for importing ACs (as opposed to those that are only 'likely' or 'possibly' used; other product groups).

'Tariff revenue' refers to theoretical tariff revenue as defined earlier in this paper.

5.2. Ethiopia

Ethiopia is one of the countries with several specific NTLCs for mosquito nets that fall into both chapter 56 and 63 of the Harmonized System. As in Ghana, no import duties are levied on these tariff lines (see figure 4). While it is probable that most if not all ITNs are traded under these product codes, the other three codes listed for mosquito nets may be relevant as well. Yet it should be noted that tariffs on these products are much less likely to negatively impact mosquito net prices, and actual tariff revenue from ITNs is likely to be only a small fraction of the theoretical revenue estimated for these tariff lines, if any.

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[25] It may, however, not even be necessary to eliminate all tariffs in order to enhance access to ACs. Possible measures to minimize tariff losses are presented in section 6.

[26] World Bank data for 2006.

From the tariff point of view, Ethiopia's problem area lies rather with other product groups, in particular pharmaceutical products. Product descriptions do not clearly indicate which tariff line(s) to use for importing malaria treatment medicines, and with one exception, NTLCs belonging to the groups of medicine and diagnostic tests are charged a 5% tariff. In particular for NTLC 30.04.90.90 this is noteworthy because HS6 code 30.04.90 is used in many other countries for trading anti-malaria drugs. Table 10 shows that the high import values for this code, combined with the 5% tariff, lead to a considerable amount of (theoretical) tariff revenue, which must be addressed when discussing tariff elimination. Similarly, the relevant insecticides and application appliances are subject to positive import duties, which especially for insecticides provide significant tariff proceeds (table 10).

Figure 4: Ethiopia – Applied tariffs on tariff lines relevant for anti-malarial commodities
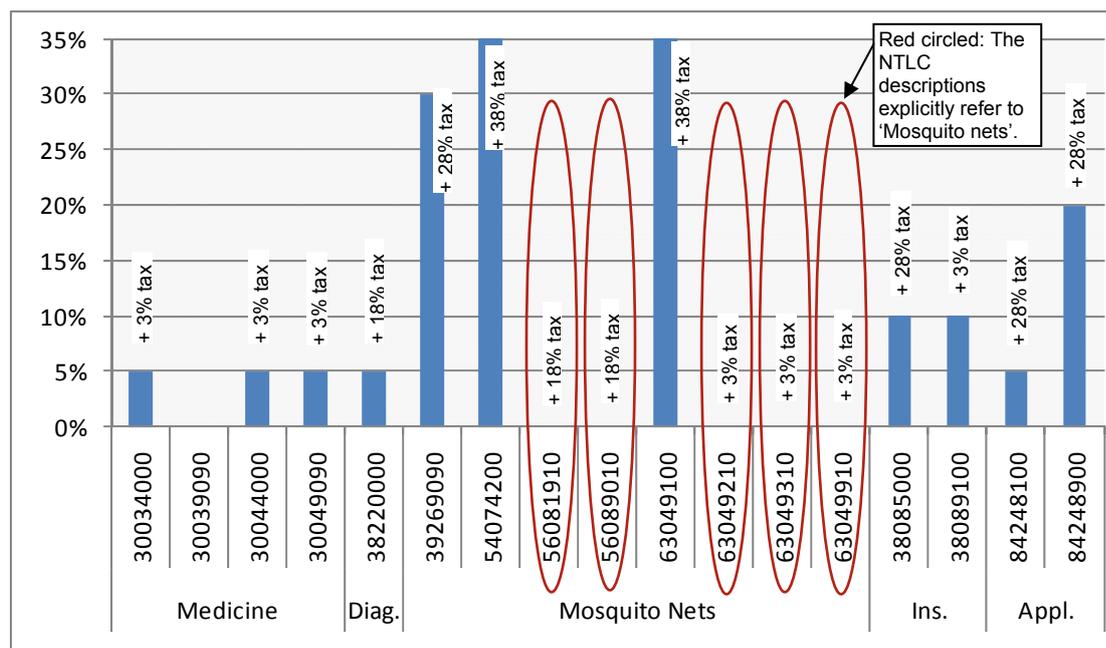
Source: ITC Market Access Map and ITC internal tax database; tariff and tax data for 2009.

In total, the tariff lines identified as relevant for importing ACs generate about US$ 17 million in theoretical customs revenue[27] – actual revenue collected from these products will be well below this threshold, but still positive. It is interesting to note that in the same year (2009), the government reported spending US$ 63 million on malaria control.[28] In other words, as in many countries, essential ACs are taxed at the same time that a significant amount of government expenditure is dedicated to fighting malaria.

However, figure 4 also shows that tariffs are only part of the story. Thanks to detailed data availability for Ethiopia, tax rates can be listed for each NTLC, revealing that all identified products, including medicines (except code 30.03.90.90, on which the MFN rate is zero), are subject to a 3% withholding tax. In addition, a 15% VAT is charged on diagnostic tests, the first five of the eight mosquito net codes listed in figure 4 as well as on appliances and NTLC 38.08.50.00 for insecticides. On the latter two a surtax of 10% is applied, and two NTLCs in the mosquito nets group also face an excise duty of 10%.

In sum, the four tax types can add up to 38% of a product's (after-import) value. As a result, even if at first sight the specific NTLCs for mosquito nets are treated in the 'ideal' way, i.e. no import duties are charged, the data reveals that they are taxed nevertheless – not *at* but *after* the border.

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[27] Less than 1.5% of import values and tariff revenue stem from goods imported from preferential trading partners (in the framework of COMESA). For medicines 0.8% of imports come from COMESA countries, for diagnostic tests 0.02%, for mosquito nets 1.8%, for insecticides 7.7% and for appliances for applying insecticides 2.3%.

[28] WHO, *World Malaria Report 2010.*

It should be kept in mind that Ethiopia is just an example presented here to highlight how anti-malarial commodity prices may be impacted by charges beyond tariffs. Such detailed tax data is not available systematically but the story may actually be similar for all countries. The implication is evident: taxes need to be addressed as well to fulfil commitments on ensuring the best access to essential anti-malarial commodities. This being said, the reduction or removal of taxes will also result in fiscal revenue losses that may need to be compensated with new sources of funding.

Table 10: Ethiopia – Tariff lines with theoretical tariff revenue above US$ 50,000

(Values in thousands US$)

Group	Product	High relevance	MFN tariff	Tax rates	Import values	Tariff revenue
Medicine	Medicaments consisting of mixed or unmixed products...: other… (30.04.90.90)		5%	3%	245 614	**12 271**
Diagnostic tests	Diagnostic or laboratory reagents...(38.22.00.00)	x	5%	18%	20 603	**1 030**
Mosquito nets	Articles of plastics and articles of other materials...: other... (39.26.90.90)		30%	28%	6 936	**2 073**
	Woven fabrics of filament yarn... (54.07.42.00)		35%	38%	338	**118**
Insecticides	Insecticides (38.08.91.00)		10%	3%	11 670	**1 158**
Appliances	Agricultural or horticultural mechanical appliances,...(84.24.81.00)	x	5%	28%	4 610	**230**
	Mechanical appliances, ...(84.24.89.00)		20%	28%	806	**161**

Source: ITC Market Access Map and Trade Map and ITC calculations.

Notes:

The column 'Tax Rate' refers to the total of the following taxes (other than tariffs) applied to an NTLC (with not all taxes applying to all products): withholding tax (3%), surtax (10%), value-added tax (15%) and excise duties (10%).

The column 'High relevance' indicates those NTLCs explicitly for ACs (medicine and mosquito nets product groups) or (almost) certainly used for the importation of ACs (as opposed to those that are only 'likely' or 'possibly' used; other product groups).

'Tariff revenue' refers to theoretical tariff revenue as defined earlier in this paper.

5.3. Nigeria

With nearly 4.3 million probable and confirmed malaria cases and 154.7 million people at risk, Nigeria is one of the most malaria-affected countries in the world. At the same time, Nigeria has a high incidence of poverty, with 64% of the population living on less than US$ 1 a day.[29] Depending on the unit price level, a small change in anti-malarial commodity prices can therefore have an important impact on their affordability.

Nigeria's tariff structure is presented in figure 5. Nigeria stands out as one of the few countries with separate national tariff lines for *treated* mosquito nets. These four tariff lines are subject to zero import duty. As in Ethiopia, the other four tariff lines in the mosquito nets group are included in case ITNs are classified under chapters 39, 54 and 56 as is true in some other countries. Though possible, this case is not very likely, hence the important tariff revenue stemming from these NTLCs (see table 11) does not allow much inference of actual proceeds from ACs and should therefore be treated cautiously.

Apart from mosquito nets, the diagnostic tests and spray pump product categories stand out as those to which zero tariffs are applied. In contrast, the relevant NTLCs for insecticides are at the origin of significant tariff income (see table 11). However, as for Ethiopia, the most problematic area in terms of tariff rates and revenue generated (or lost when tariffs are removed) is medicines. With its 20% import duty, Nigeria has the highest applied MFN tariff of all sampled countries on the NTLCs under HS6 30.04.90. This, in turn, is

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[29] 2004 data, Source: United Nations Statistics Division, MDG Indicators Database: http://mdgs.un.org/.

at the origin of an estimated tariff revenue of US$ 25 million. As a striking comparison, according to WHO, the Nigerian government spent some US$ 200,000 on malaria control in 2009.[30]

Figure 5:   Nigeria – Applied tariffs on tariff lines relevant for anti-malarial commodities
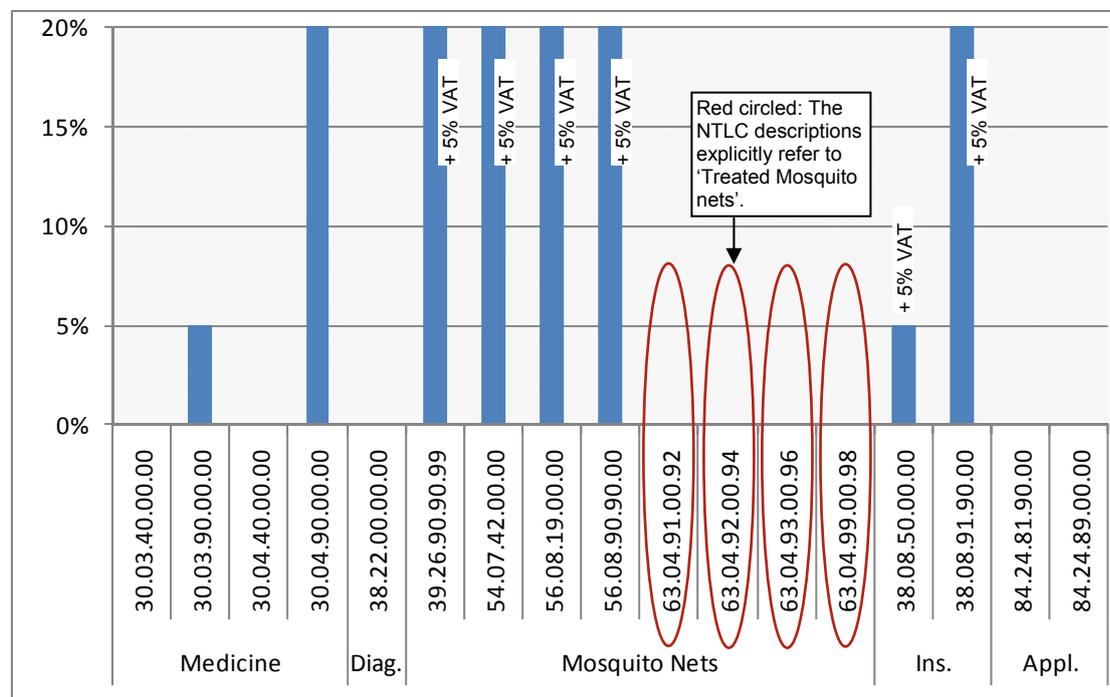
Source: ITC Market Access Map; tariff and tax data for 2009.

Table 11:   Nigeria – Tariff lines with theoretical tariff revenue above US$ 50,000

(Values in thousands US$)

Group	Product	High relevance	MFN tariff	Import values	Tariff revenue
Medicine	Medicaments consisting of two or more constituents mixed together…(30.03.90.00.00)		5%	11 489	**575**
	Medicaments consisting of mixed or unmixed products … (30.04.90.00.00)		20%	127 543	**25 509**
Mosquito nets	Articles of plastics and articles of other materials … (39.26.90.90.99)		20%	52 091	**10 418**
	Knotted netting of twine, cordage, ropes or cables, … (56.08.19.00.00)		20%	2 155	**431**
	Knotted netting of twine, cordage, ropes or cables, ...: other nets (56.08.90.90.00)		20%	711	**142**
Insecticides	Goods containing one or more of aldrin iso, binapacryl 'iso', ... (38.08.50.00.00)		5%	12 018	**601**
	Insecticides: other insecticides (38.08.91.90.00)	x	20%	1 994	**399**

Source: ITC Market Access Map, Trade Map and ITC calculations.

Notes:

The column 'High relevance' indicates those NTLCs explicitly for ACs (medicine and mosquito nets product groups) or (almost) certainly used for importing ACs (as opposed to those that are only 'likely' or 'possibly' used; other product groups).

'Tariff revenue' refers to theoretical tariff revenue as defined earlier in this paper.

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[30] WHO, *World Malaria Report 2010*, Annex 3.

The medicine product group is also special for another reason. As mentioned in section 2 Nigeria is the only country among those studied that has actually discontinued a specific tariff line for anti-malarials. While the 2008 nomenclature contained code 30.04.90.00.91 intended for artemisinin and lumefantirine for malaria, this NTLC had disappeared in the 2009 nomenclature and only the less specific code 30.04.90.00.00 remained. As debatable as this may be, this implies that Nigeria is the only country (among those with no explicit NTLC for anti-malaria drugs) for which a somewhat reliable estimate can be made on the share of tariff revenue under 30.04.90 stemming from anti-malarials. In 2008, about 10% of the combined import value on codes 30.04.90.00.00 and the 'anti-malarial' code 30.04.90.00.91 was due to the latter, suggesting that in 2009, the theoretical customs revenue of these commodities amounted to about US$ 2.55 million.

Also for Nigeria, tax data is available and figure 5 reveals that with the exception of insecticides, tariff lines most likely relevant for ACs are exempted from the 5% VAT.

6. Discussion and conclusion

The results presented in the previous two sections show that in terms of share of total theoretical customs revenue, the estimated tariff proceeds from tariff lines that are relevant for ACs are relatively small: in most countries, the share does not exceed 1% and represents at most 3.4% (when disregarding Burundi, whose product nomenclature and tariff structure has since undergone a substantive revision now that it implements the EAC CET). Given that the importance of customs income in total government proceeds does in general not exceed 50% (see table 3), these shares can be at least halved to obtain their relevance in total government revenue. As such, the high share of AC-generated revenue of 3.4% found for Peru represents at most 0.09% of total fiscal revenue.

The importance of the estimated numbers is further diminished when considering that these estimations represent the upper limit of actual tariff revenue generated by anti-malarial commodities, and that the actual revenue is likely to be well below this estimate. On the one hand and in contrast to what is assumed in the methodology underlying this paper, tariffs are generally not collected on all imports because of rebates and exemptions, for example. On the other hand, the theoretical customs revenue is estimated at the tariff line level, which implies that *all* goods entering a country under these tariff lines are considered. As demonstrated, these may very well include products not at all related to malaria, especially where nomenclatures are not detailed and tend to cluster relatively many products together.

Nevertheless, expressed in dollar terms, the potential revenue losses from eliminating tariffs on the identified NTLCs can add up to a considerable amount, which renders political support for tariff elimination on these items all but straightforward. It is therefore advisable to combine any advocacy for tariff elimination with support in identifying alternative sources of revenue for the concerned countries.[31] Particularly, improving customs procedures and the efficiency of customs revenue collection can significantly help to mitigate possible adverse affects on fiscal revenue if tariffs on the few products discussed in this paper were eliminated.

In addition, it may not be necessary to eliminate all tariffs to enhance access to anti-malarial commodities. A possible measure to minimize tariff revenue losses is to introduce separate tariff lines for ACs wherever possible and thereby give up tariff revenue only on relevant anti-malarial products. For NTLC 56.08.19.90 in Bangladesh for example, this would allow distinguishing between revenue coming from (treated) mosquito nets (if any) and other 'knotted netting' traded under this code, and thus the loss may not accrue to the full estimated amount of US$ 300,000. Similarly, in Ethiopia, establishing a separate tariff line for anti-malarial drugs for example under HS6 30.04.90 may contribute significantly to reducing potential tariff revenue losses. As a point of reference, import values recorded in Ghana for the specific NTLC on anti-malarials accounts for about one-third of total imports under HS6 30.04.90. If import patterns were comparable in Ethiopia, eliminating tariffs only on anti-malarials rather than on all pharmaceuticals traded under code 30.04.90 would imply a maximum tariff loss of about US$ 4 million instead of the full estimated amount of US$ 12 million (table 10).

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[31] See Baunsgaard and Keen (2005) on the difficulty of many low-income countries to compensate for revenue losses from trade liberalization.

Creating additional tariff lines for ACs is most straightforward for the medicine and mosquito nets product groups, but is also feasible for diagnostic tests and insecticides. For example, a separate product code for rapid diagnostic test kits (RDTs) to diagnose malaria could be introduced. Countries like Thailand, Sudan and Zimbabwe, all with positive tariffs and proceeds from diagnostic tests, may thereby minimize possible revenue losses. Concerning insecticides, it may be possible to separately classify those used for indoor residual spraying - as these tend to come in smaller sizes than insecticides used agriculture, the pack size can be the distinguishing element. As a result, introducing an NTLC for a certain maximum weight or volume may contribute to rendering the insecticides relevant for fighting malaria more affordable while at the same time minimizing fiscal revenue losses. This would be a recommended approach, in particular for Ghana and Bolivia (Plurinational State of) where proceeds from relevant insecticides are shown as relatively important.

Countries can introduce separate national tariff lines for anti-malarial commodities individually. Over a longer term horizon, clarifying nomenclatures at the international (HS6) level would be desirable. In fact, future revisions of the Harmonized System could include some specific references to anti-malarial commodities.

In addition to facilitating accessibility and affordability, separate tariff lines and/or a clearer HS revision could result in a reduced customs burden for importing ACs, particularly when NTLC descriptions are clear for non-health specialists and classifying relevant products becomes easier.[32] In this context it is worth mentioning that, also for this paper, it has been a major challenge to identify which tariff lines are or may be relevant for importing ACs, especially for mosquito nets, insecticides and appliances. Furthermore, where tariff lines are explicit and clear and tariff rates are zero, much less scope for corruption exists, such as bribes paid in exchange for waiving a high tariff.

This being said, especially with respect to medicine and diagnostic tests, a more basic question exists about taxing health-related products in general, whether or not used to fight malaria. As Olcay and Laing (2005) rightly point out, '*tariffs on medicines are essentially a regressive form of taxation since a smaller proportion of the payers' income is affected by the tariff as income rises. This regressive "tax" on medicines targets the poor and the sick.*'[33] Many medicines are potentially life-saving commodities, and where local production is small or non-existent, dependence on imports is high. As a consequence, any government faces the question whether an import tariff would not be counter-productive for the country from the total welfare point of view and whether an agreement such as the pharmaceutical tariff elimination agreement between a number of high-income countries, which came into force in 1995,[34] should not at least be envisioned. On the other hand, where tariffs are non-zero, it should be recognized that governments may have evaluated these considerations and concluded, for whatever reason, that taxing these products is in their interest. This has potentially important implications when advocating for tariff elimination.

Linked to the above, the second basic consideration for governments is policy coherence and the true prioritization of the fight against malaria. As demonstrated, at times significant tariff proceeds are generated by products that are essential for preventing or treating malaria at the same time as international commitments are made to enhance access to essential drugs and a part of government spending is dedicated to fighting the disease.[35] From that perspective, the optimal policy mix may have to be reconsidered in some countries.

Data limitations forced this analysis to focus on import duties, but as the Ethiopia and Nigeria case studies show, the importance of taxes in increasing anti-malarial commodity prices and generating fiscal revenue should not be underestimated. Taxes and tariffs should therefore be tackled in parallel. Thus the above suggestions and recommendations for tariffs are also applicable to taxes.

By design, this paper looks solely at potential losses, that is, the disadvantages of eliminating tariffs on anti-malarial commodities. Nevertheless potential benefits of lower tariffs also exist, beyond the direct

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[32] See also Bora (2005).

[33] Olcay and Laing (2005), p. 10.

[34] See the record of discussion on trade in pharmaceutical products of 25 March 1994, available online at:
http://www.wto.org/gatt_docs/English/SULPDF/91770009.pdf.

[35] See WHO, *World Malaria Report 2010*, Annex 3 for a detailed listing of government funding for malaria control.

impact on prices. Facilitating access to anti-malarial commodities helps to reduce the direct and indirect costs of the disease for endemic countries, which can be considerable. Indirect costs include negative effects on productivity and income associated with illness or death. Absenteeism for sickness is not only a problem for the labour market but can affect children's schooling. Further, malarious areas are less attractive for tourism and investment.[36] Finally, the well-established link between poverty and malaria implies that addressing malaria helps to address poverty.[37] As such, improving access to anti-malarial commodities contributes to the objective of reducing poverty (MDG 1) in addition to fulfilling the commitments made under the Abuja Declaration or MDGs 6 (combat malaria) and 8 (access to affordable essential drugs).

From the affected countries, relatively minor modifications to the product nomenclature are needed along with a reconsideration of tariff rates, in particular of mosquito nets where they fall into the highly protected textile category. From the international community, support to the affected countries is needed to help them find alternative sources for the remaining (small but existing) tariff revenue losses and to modernize and thus improve the efficiency of customs procedures. Embedded in this broader context, this analysis suggests that tariff eliminations on anti-malarial commodities are not only necessary and promised, but also feasible in regard to fiscal revenue losses.

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[36] Roll Back Malaria factsheet on the economic costs of malaria, available at: www.rollbackmalaria.org. See also Alilio et al (2004) on costs and benefits of removing tariffs and taxes on ITNs.

[37] See Gallup and Sachs (2001).

Appendix I   HS6 codes identified as relevant for trade in anti-malarial commodities

Medicine

30.03.40, 30.03.90, 30.04.40, 30.04.90

In addition for Bangladesh:

30.03.39, 30.04.39

Diagnostic tests

38.22.00

Mosquito nets

39.26.90, 54.07.42, 56.08.19, 56.08.90, 63.04.91, 63.04.92, 63.04.93, 63.04.99

In addition for Zambia:

54.07.10, 54.07.20, 54.07.30, 54.07.41, 54.07.43, 54.07.44, 54.07.51, 54.07.52, 54.07.53, 54.07.54, 54.07.71, 54.07.72, 54.07.73, 54.07.74, 54.07.81, 54.07.82, 54.07.83, 54.07.84, 54.07.91, 54.07.92, 54.07.93, 54.07.94, 54.08.10, 54.08.21, 54.08.22, 54.08.23, 54.08.24, 54.08.31, 54.08.32, 54.08.33, 54.08.34, 58.03.00

Insecticides

38.08.10, 38.08.50, 38.08.91

Appliances for applying insecticides

84.24.81, 84.24.89

Appendix II Calculating ad valorem equivalents and weighted average tariffs

A. Ad valorem equivalents

Custom duties are usually expressed as a percentage of the import value, i.e. as ad valorem tariffs. Yet countries may apply specific duties to products, that is, tariffs levied on the basis of volume or weight of the imported good regardless of its value, e.g. $18 per kg. This is true for only five tariff lines used in this paper: four from Zimbabwe and one from Thailand.

While the theoretical tariff revenue can still be determined on the basis of import quantities, an *ad valorem tariff equivalent* (AVE) of these specific duties needs to be calculated to compare import levies across product groups and countries such as in table 1 and the table in appendix IV. An AVE transforms the specific duty into a percentage.

For this paper, AVEs were calculated following the methodology used by ITC Market Access Map. The basic idea is that the AVE is obtained by dividing the specific tariff per unit by the value of the product per unit. The challenge arises when determining the unit value of a product.

In Market Access Map, unit values and AVEs are calculated (where possible) on a bilateral basis to capture the equivalent level of protection actually applied by one country to another when a specific tariff is concerned. This is important because a product's value can vary considerably depending on the supplying country. That is, even if two exporting countries face an identical specific tariff on the same product exported to the same market, the country exporting the less expensive product will face a higher equivalent level of protection. The example below illustrates how an AVE is calculated.

Calculating an AVE: Importing first-aid boxes and kits into Country B from Country A

Assume for this example that a Country A exports 'first-aid boxes and kits' to Country B, where a specific tariff of US$ 10 per box is levied. AVEs are calculated where possible at the most detailed level – the national tariff line. In the case of first-aid boxes, the HS6 digit code is 30.06.50 and B's national tariff line code is 30.06.50.00.

To obtain the ad valorem equivalent of the specific tariff applied by B to first-aid boxes and kits, the unit value is calculated by dividing the value of B's imports of this product from A (e.g.: US$ 80) by the quantity of first-aid boxes imported (e.g.: 2). The unit value would thus be $80 / 2 boxes = US$ 40 per box. This bilateral unit value is then compared with the range of unit values of Country B's imports of the same product from all countries. The bilateral value is kept if it fits within the normal range of the unit values from all countries. Where it is outside the normal range (between the 1st and 3rd quartiles) then it is adjusted to fit within the range.

The AVE is then calculated by dividing the specific tariff by the unit value. In this example, the specific tariff of US$ 10 per box would thus result in an ad valorem equivalent tariff of 25%: US$ 10 per box (specific tariff) / US$ 40 per box (unit value) = 25% ad valorem equivalent tariff. For the calculation of AVEs, mixed and combined tariffs are taken into consideration. Trade data of the most recent year available is used to calculate unit values.

B. Weighted average tariffs

Following the methodology used in ITC Market Access Map, in calculating the average tariffs as presented in table 1 and appendix IV, the trade pattern of the importing country's reference group is used as a weighting, that is, the reference group's imports of the specified product(s) from the world. A reference group is a group of countries similar to the importing country being considered. Using reference groups of countries makes it possible to take into account prohibitive tariffs and reduce the endogeneity bias.

In theory, tariffs should be aggregated on the basis of imports occurring under a hypothetical situation of free trade: obviously, tariffs of products traded in small numbers should be weighted less in the average protection level of a country than tariffs levied on products that are heavily traded. As the theoretical trade pattern under free trade is unknown, an endogeneity bias appears when, to measure the global level of

protection of a sector or an economy, one aggregates different tariffs using the national imports as weights – because these imports depend on the tariff. That is, a high tariff generates limited imports and as a consequence, in the aggregation, the tariff contributes less to the overall country's protection level. A low tariff produces the reverse effect. Thus, using national imports as weights undervalues a country's protection level.

Market Access Map manages this endogeneity bias by weighting the imports of a country by the trade pattern of a reference group to which the country belongs (see below for a calculation example). The reference groups used in Market Access Map are defined using a hierarchical clustering analysis based on GDP per capita (in terms of purchasing power parity – PPP), exports per capita and imports per capita. In the aggregation process the best tariff preference is considered. If no tariff preference is relevant, the MFN or general rate is used.

Calculating weighted average tariffs: the average protection level of Utopia

Assume a world in which only two products are traded: product A and product B. Country Utopia reports the following tariff and trade data:

	Product A	**Product B**
Tariff:	300%	0%
Import value:	$0	$1,000
Share of total imports:	0%	100%

The countries in Utopia's reference group report the following import pattern:

	Product A	**Product B**
Share of imports in reference group:	10%	90%

Now, consider the different ways to compute the average protection level of Utopia:

1) Simple average: **(0% + 300%) / 2 = 150%**

The simple average tariff of Utopia would amount to 150%. That is, on average, each product faces a tariff of 150%. When looking at the trade data, however, this seems to over-estimate the actual protection level, given that the highly taxed product A is traded much less than product B, and all actual imports enter the country without protection.

2) Weighted average using national imports as weights: **0 X 300% + 1 X 0% = 0%**

The weighted average tariff using Utopia's national imports as weights would result in an average tariff of 0%, i.e. Utopia's markets seems not to be protected at all. This however may under-estimate the actual protection level given that it could be the very high tariff on (rather than no demand or supply of) product A that causes its low share in total imports. That is, some trade protection may exist after all.

3) Weighted average using imports of the reference group as weights: 0.1 X 300% + 0.9 X 0% = 30%

To overcome the challenge mentioned above, the import pattern of countries similar to Utopia is used in the weighting (assuming that under free trade, Utopia's import pattern would be comparable to the current one of its reference group). In these countries, the imports of product A amount to 10% of total imports, thus a 10 % weight is put on Utopia's product A-tariff of 300%. This results in a weighted average tariff of 30%.

Appendix III Data sources Trade Map: annual data at tariff line level

Country	Data source
Bangladesh	COMTRADE
Bolivia (Plurinational State of)	Promueve Bolivia
Botswana	COMTRADE
Brazil	Ministério do Desenvolvimento, Indústria e Comércio Exterior
Burundi	Office Burundais des Recettes
Cape Verde	INECV - Instituto Nacional de Estatísticas do Cabo Verde
China	General Customs Administration of China
Colombia	Dirección de Impuestos y Aduanas Nacionales (DIAN)
Côte d'Ivoire	Institut National de la Statistique (INS) de Côte d'Ivoire
Ecuador	COMTRADE
Ethiopia	Confederation of Ethiopian Trade Unions (CETU)
Ghana	COMTRADE
Guatemala	COMTRADE
Kenya	COMTRADE
Madagascar	Direction Générale des Douanes de Madagascar
Mali	COMTRADE
Mauritius	Central Statistics Office of Mauritius
Mozambique	COMTRADE
Nicaragua	Dirección General de Servicios Aduaneros de Nicaragua
Niger	Direction Générale des Douanes
Nigeria	COMTRADE
Peru	Instituto Nacional de Estadística e Informática (INEI)
Philippines	COMTRADE
Senegal	COMTRADE
South Africa	South African revenue services (SARS)
Sudan	COMTRADE
Tanzania, United Republic of	COMTRADE
Thailand	The customs department of the kingdom of Thailand
Togo	COMTRADE
Uganda	Uganda Bureau of Statistics (UBOS)
Zambia	Export Board of Zambia, Central Statistics Office
Zimbabwe	COMTRADE

Appendix IV Weighted average applied tariff and maximum rate (MFN or general tariff), by country and product group

Country	Tariff measure	Medicine	Diagnostic tests	Mosquito nets	Insecticides	Appliances
Bangladesh	Weighted average	0%	7.0%	24.7%	20.7%	3.0%
	Max Tariff	0%	7%	25%	25%	3%
Bolivia (Plurinational State of)	Weighted average	9.3%	7.2%	9.8%	9.6%	0%
	Max Tariff	10%	10%	20%	10%	0%
Botswana	Weighted average	0%	0%	20.9%	5.1%	0%
	Max Tariff	0%	0%	30%	10%	0%
Brazil	Weighted average	8.2%	1.0%	17.7%	11.4%	14.1%
	Max Tariff	14%	2%	35%	14%	16.0%
Burundi	Weighted average	14.1%	9.4%	28.3%	4.7%	9.4%
	Max Tariff	15%	10%	30%	5%	10%
Cape Verde	Weighted average	0%	0%	18.1%	0%	0%
	Max Tariff	0%	0%	20%	0%	0%
China	Weighted average	6.8%	7.0%	14.3%	8.6%	6.5%
	Max Tariff	40%	35%	130%	80%	80%
Colombia	Weighted average	8.7%	4.8%	19.0%	8.5%	11.2%
	Max Tariff	10%	5%	20%	10%	15%
Côte d'Ivoire	Weighted average	0%	0%	16.0%	5.0%	5.0%
	Max Tariff	0%	0%	20%	5%	5%
Ecuador	Weighted average	4.6%	0%	5.5%	0.5%	0%
	Max Tariff	5%	0%	30%	5%	0%
Ethiopia	Weighted average	4.7%	5.0%	23.4%	9.9%	9.4%
	Max Tariff	5%	5%	35%	10%	20%
Ghana	Weighted average	4.3%	20.0%	16.5%	10.0%	2.0%
	Max Tariff	10%	20%	20%	10%	10%
Guatemala	Weighted average	4.6%	0%	9.8%	4.8%	3.1%
	Max Tariff	5%	0%	15%	5%	10%
Kenya	Weighted average	0%	0%	20.0%	0%	0%
	Max Tariff	0%	0%	25%	0%	0%
Madagascar	Weighted average	0%	9.0%	15.8%	0%	9.0%
	Max Tariff	0%	10%	20%	0%	10%
Mali	Weighted average	0%	0%	15.9%	5.0%	5.0%
	Max Tariff	0%	0%	20%	5%	5%
Mauritius	Weighted average	0%	0%	0%	0%	0%
	Max Tariff	0%	0%	0%	0%	0%
Mozambique	Weighted average	0%	0%	17.7%	5.4%	4.7%
	Max Tariff	0%	0%	20%	7.5%	5%
Nicaragua	Weighted average	0%	0%	9.8%	8.7%	1.1%
	Max Tariff	0%	0%	15%	10%	5%
Niger	Weighted average	0%	0%	15.9%	12.5%	5.0%
	Max Tariff	0%	0%	20%	20%	5%
Nigeria	Weighted average	19.3%	0%	15.1%	9.5%	0%
	Max Tariff	20%	0%	20%	20%	0%
Peru	Weighted average	8.7%	0%	9.0%	0%	0%
	Max Tariff	9%	0%	17%	0%	0%
Philippines	Weighted average	4.8%	1.0%	3.6%	3.0%	5.0%
	Max Tariff	5%	1%	20%	3%	5%
Senegal	Weighted average	0%	0%	16.0%	17.6%	5.0%
	Max Tariff	0%	0%	20%	20%	5%
South Africa	Weighted average	0%	0%	20.1%	2.7%	0%
	Max Tariff	0%	0%	30%	10%	0%
Sudan	Weighted average	0.6%	9.0%	35.2%	9.0%	8.9%
	Max Tariff	10%	10%	40%	10%	10%
Tanzania, United Republic of	Weighted average	0%	0%	21.3%	0%	0%
	Max Tariff	0%	0%	25%	0%	0%
Thailand	Weighted average	4.9%	5.0%	10.0%	0%	5.0%
	Max Tariff	10%	5%	30%	0%	5%
Togo	Weighted average	0%	0%	16.0%	17.6%	5.0%
	Max Tariff	0%	0%	20%	20%	5%

Country	Tariff measure	Medicine	Diagnostic tests	Mosquito nets	Insecticides	Appliances
Uganda	Weighted average	0%	0%	20.3%	0%	0%
	Max Tariff	*0%*	*0%*	*25%*	*0%*	*0%*
Zambia	Weighted average	0%	0%	14.4%	8.6%	4.0%
	Max Tariff	*0%*	*0%*	*25%*	*15%*	*15%*
Zimbabwe	Weighted average	8.2%	5.0%	46.9%	5.6%	5.0%
	Max Tariff	*15%*	*5%*	*232.4%*	*10%*	*5%*

Appendix V Tariffs on products in the product group 'mosquito nets': details

Country	Nomenclature explicitly specifies mosquito nets		Tariff rates[a/]	
	Any type of mosquito net	Impregnated / treated mosquito nets	On tariff lines explicitly referring to mosquito nets	On all other tariff lines in this product group
Bangladesh			n.a.	12%-25%
Bolivia (Plurinational State of)			n.a.	10%-20%
Botswana	x		30%	20%-30%
Brazil			n.a.	18%-35%
Burundi	x		30%	30%
Cape Verde			n.a.	10%-20%
China			n.a.	10%-16%
Colombia			n.a.	15%-20%
Côte d'Ivoire	x	x	0%	20%
Ecuador			n.a.	0%-30%
Ethiopia	x		0%	35%
Ghana	x		0%	20%
Guatemala			n.a.	5%-15%
Kenya	x		0%	25%
Madagascar	x	x	impregnated: 0% other: 20%	20%
Mali	x	x	0%	20%
Mauritius	x		0%	0%
Mozambique	x		0%-7.5%	7.5%-20%
Nicaragua			n.a.	5%-15%
Niger	x	x	0%	20%
Nigeria	x	x	treated nets: 0% other: 20%	20%
Peru			n.a.	0%-17%
Philippines	x	X[b/]	treated nets[b/]: 3% other: 20%	10%-20%
Senegal	x	x	0%	20%
South Africa	x		30%	20%-30%
Sudan			n.a.	30%-40%
Tanzania, United Republic of	x		0%	25%
Thailand	x		30%	5%-30%
Togo	x	x	0%	20%
Uganda	x		0%	25%
Zambia	x		all but one: 0% 1 NTLC: 25%	15%-25%
Zimbabwe			n.a.	0%-232%

Notes:

a/ General or MFN tariff rate; preferences disregarded

b/ The description of commodity code 39.26.90.33 refers to 'Poison mosquito nets'.

n.a.: not applicable.

Appendix VI Theoretical tariff revenue in 32 countries with high and medium malaria burden

(Values in thousands US$)

	All anti-malaria commodities		Max. share of revenue from ACs , as % of total theor. tariff rev.					
	Estimated max. tariff revenue	Import value	TOTAL	Medicine	Diagnostic tests	Mosquito nets	Insecti cides	Appli ances
Bangladesh	5 086	46 016	0.49	0	0.04	0.43	0.03	0.002
Bolivia (Plurinational State of)	4 626	108 818	2.75	0.80	0.19	0.22	1.53	0
Botswana	561	25 808	1.93	0	0	1.93	0	0
Brazil	221 488	2 963 119	2.24	1.22	0.001	0.57	0.31	0.14
Burundi	4 027	24 989	7.94	5.76	0.17	1.98	0.02	0.01
Cape Verde	492	13 038	0.59	0	0	0.59	0	0
China	339 438	5 964 436	0.84	0.31	0.08	0.42	0.01	0.02
Colombia	52 608	625 682	2.14	1.43	0.10	0.36	0.11	0.13
Côte d'Ivoire	1 895	205 401	0.40	0	0	0.29	0.10	0.01
Ecuador	9 119	432 634	1.48	1.31	0	0.16	0.01	0
Ethiopia	17 067	299 563	2.13	1.53	0.13	0.27	0.15	0.05
Ghana	9 171	105 243	1.26	0.02	0.17	0.12	0.94	0.004
Guatemala	9 079	394 787	3.21	1.55	0	1.40	0.21	0.05
Kenya	692	96 561	0.09	0	0	0.09	0	0
Madagascar	2 256	57 545	0.78	0	0.10	0.66	0	0.03
Mali	1 555	94 114	0.66	0	0	0.58	0.07	0.01
Mauritius	0	101 967	0.00	0	0	0	0	0
Mozambique	243	68 463	0.16	0	0	0.11	0	0.05
Nicaragua	417	243 307	0.51	0	0	0.39	0.07	0.05
Niger	368	49 051	0.31	0	0	0.14	0.09	0.08
Nigeria	38 074	282 683	1.14	0.78	0	0.33	0.03	0
Peru	30 529	572 232	3.44	2.71	0	0.73	0	0
Philippines	4 824	139 749	0.21	0.13	0.01	0.01	0.05	0.003
Senegal	1 093	28 142	0.22	0	0	0.12	0.09	0.01
South Africa	15 807	1 486 845	0.55	0	0	0.55	0.001	0
Sudan	3 663	65 655	0.33	0.14	0.08	0.09	0.01	0.01
Tanzania, United Republic of	1 074	118 295	0.18	0	0	0.18	0	0
Thailand	14 113	266 371	0.22	0.05	0.10	0.06	0	0.01
Togo	608	36 015	0.76	0	0	0.76	0	0.0003
Uganda	415	167 349	0.10	0	0	0.10	0	0
Zambia	894	135 733	0.58	0	0	0.48	0.04	0.06
Zimbabwe	2 630	51 841	0.56	0.46	0.03	0.03	0.03	0.004

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