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**When bad trade policy costs human lives:
tariffs on mosquito nets**

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When bad trade policy costs human lives: tariffs on mosquito nets

Abstract

Many developing countries still levy tariffs on mosquito nets, thereby discouraging their use and contributing to the spread of diseases such as malaria and dengue. Focusing on sub-Saharan Africa, the paper shows to which extent such tariffs are in place and, based on existing elasticity figures, calculates the cost of this policy. It is estimated that tariffs on insecticide-treated bed nets have reduced demand by some US\$ 7 million between 2011 and 2015, equivalent to around 3.1 million bed nets. This has contributed to some 2.9 million malaria cases and over 5,000 fatalities during this period. The paper discusses various policy implications of this finding, including whether tariff concessions (e.g. for local relief organizations) are more effective than a general zero-tariff policy. It is argued that concessions give rise to a process that is bureaucratic and only partially compensatory for the cost incurred. The introduction of a new six-digit tariff line specifically for mosquito nets with HS 2017 will facilitate a zero-tariff policy on bed nets. By the same token, policy makers should address remaining non-tariff barriers that affect the importation of anti-malarial products.

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1. Introduction

Over the course of human history malaria has been one of the deadliest tropical diseases. In spite of several efforts to wipe it out, malaria is still common in many parts of the developing world. According to estimates by the World Health Organization (WHO), there were 212 million cases of malaria and 422,000 deaths in 2015.¹ The WHO also estimates that in 2015 approximately 1.4 billion people were at risk of malaria and that 91 countries and territories had ongoing malaria transmission. The focus of this paper is on sub-Saharan Africa which in 2015 was home to 90% of malaria cases and 92% of malaria deaths (Table 1). However, Asia, Latin America, South Asia, and, to a lesser extent, the Middle East, are also at risk.

The recent academic and policy discussion on trade and public health has very much focused on TRIPS-related issues such as innovation and patentability.² However, it has attributed less importance to the role of classical trade policy instruments such as tariffs and their impact on communicable diseases. This is surprising as many developing countries still levy tariffs on insecticide-treated bed nets (ITNs) and other anti-malarial commodities, thereby discouraging their use and contributing to the spread of communicable diseases such as malaria and dengue.

Although malaria is a life-threatening tropical disease caused by bites of infected mosquitoes, it is completely preventable. While no successful vaccine has been found to date, the most efficient and cost-effective prevention means remains mechanical through devices such as ITNs. ITNs repel and disable or kill mosquitos that come into contact with insecticide on the netting material. Traditional ITNs require regular re-treatment every six to twelve months with insecticide, which costs about US\$ 0.50 per treatment. Since the mid-2000s, most ITNs are "long-lasting insecticidal nets" (LLIN). Their durability is between two and three years, without the need for retreatment. They cost around US \$2 per piece when purchased internationally at wholesale.³

Malaria prevention and control involves the importation of large volumes of health commodities, such as medicines, bed nets, diagnostic instruments, insecticides, mosquito traps, and insecticide pumps. Since many malaria-endemic countries, especially in Africa, lack sufficient capacity to manufacture essential commodities themselves, they import most goods used in the treatment and control of malaria. In particular, the use of ITNs is a key measure in any package to prevent the disease.⁴ The nets have been proven to provide protection against mosquito bites, especially at night while people are sleeping, since that is the period when mosquitoes are most likely to bite.⁵ ITNs not only protect against malaria, but also against other communicable diseases transmitted by insects such as dengue fever, leishmaniosis, chikungunya, yellow fever, zika, and various forms of encephalitis. When reasonable levels of community-wide coverage are achieved, ITNs not only confer personal protection against infectious bites but can also reduce the survival and density of vector mosquito populations. Thus, ITNs not only prevent malaria in protected persons, but also decrease the exposure of unprotected persons by suppressing transmission across entire communities.

The present paper describes to which extent tariffs are still imposed on various anti-malaria devices and tries to estimate the impact of these policies. Section 2 briefly recalls the social and economic costs of malaria. Section 3 describes to which extent various protective devices to combat malaria, most notably bed nets, are subject to tariffs. Section 4 calculates how tariffs reduce demand for these protective devices and translate into higher disease and mortality numbers. Section 5 presents a number of policy recommendations that emanate from these findings.

¹ World Health Organization (2016).

² For example, WHO, WIPO and WTO (2013).

³ Price data have been collected and published by UNICEF (2016).

⁴ World Health Organization (2005).

⁵ Bed nets treated with insecticides can also kill the mosquitoes, thereby protecting a perimeter of approximately 300 meters around the net.

Table 1: Prevalence of malaria in sub-Saharan Africa

| Country | Population at risk | Estimated cases | Estimated deaths (p.a.) |
|--------------------------|--------------------|-------------------------|-------------------------|
| Angola | 25,022,000 | 1,800,000 – 4,700,000 | 9,200 – 21,000 |
| Benin | 10,880,000 | 2,300,000 – 4,100,000 | 4,200 – 8,200 |
| Botswana | 1,500,000 | 370 – 1,500 | <10 |
| Burkina Faso | 18,106,000 | 4,500,000 – 10,000,000 | 10,000 – 29,000 |
| Burundi | 11,179,000 | 890,000 – 2,000,000 | 1,500 – 5,600 |
| Cameroon | 23,344,000 | 3,500,000 – 7,700,000 | 4,900 – 13,000 |
| Central African Republic | 4,900,000 | 770,000 – 2,300,000 | 2,500 – 4,600 |
| Chad | 13,884,000 | 720,000 – 3,400,000 | 3,200 – 11,000 |
| Congo | 4,620,000 | 490,000 – 1,200,000 | 260 – 2,400 |
| Congo, DR | 77,267,000 | 14,000,000 – 24,000,000 | 33,000 – 72,000 |
| Côte d'Ivoire | 22,702,000 | 5,900,000 – 10,000,000 | 9,800 – 17,000 |
| Equatorial Guinea | 845,000 | 75,000 – 310,000 | 160 – 450 |
| Eritrea | 5,228,000 | 38,000 – 100,000 | 7 – 290 |
| Ethiopia | 67,586,000 | 820,000 – 5,500,000 | 240 – 13,000 |
| Gabon | 1,725,000 | 140,000 – 710,000 | 100 – 530 |
| The Gambia | 1,991,000 | 320,000 – 520,000 | 110 – 960 |
| Ghana | 27,410,000 | 4,800,000 – 10,000,000 | 4,600 – 17,000 |
| Guinea | 12,609,000 | 3,600,000 – 5,700,000 | 6,700 – 12,000 |
| Guinea-Bissau | 1,844,000 | 55,000 – 330,000 | 150 – 1,000 |
| Kenya | 46,050,000 | 3,800,000 – 11,000,000 | 2,500 – 12,000 |
| Lesotho | .. | .. | .. |
| Liberia | 4,503,000 | 670,000 – 1,600,000 | 970 – 2,600 |
| Madagascar | 24,235,000 | 1,500,000 – 4,000,000 | 180 – 13,000 |
| Malawi | 16,700,000 | 2,400,000 – 4,200,000 | 1,800 – 10,000 |
| Mali | 17,215,000 | 6,100,000 – 9,100,000 | 16,000 – 25,000 |
| Mauritania | 4,068,000 | 50,000 – 260,000 | 250 – 1,600 |
| Mozambique | 27,978,000 | 6,300,000 – 11,000,000 | 8,100 – 20,000 |
| Namibia | 2,459,000 | 17,000 – 27,000 | <100 |
| Niger | 19,899,000 | 2,800,000 – 8,400,000 | 6,600 – 16,000 |
| Nigeria | 182,202,000 | 42,000,000 – 82,000,000 | 78,000 – 150,000 |
| Rwanda | 11,610,000 | 2,800,000 – 4,600,000 | 320 – 4,600 |
| Senegal | 15,129,000 | 950,000 – 2,100,000 | 640 – 6,500 |
| Sierra Leone | 6,453,000 | 1,200,000 – 2,800,000 | 4,000 – 8,900 |
| South Africa | 54,490,000 | 9,000 – 15,000 | 160 |
| Sudan | 34,200,000 | 940,000 – 1,800,000 | 120 – 6,600 |
| Tanzania | 53,470,000 | 3,900,000 – 6,900,000 | 3,100 – 24,000 |
| Togo | 7,305,000 | 2,000,000 – 3,000,000 | 2,700 – 5,300 |
| Uganda | 39,032,000 | 4,500,000 – 13,000,000 | 4,300 – 17,000 |
| Zambia | 16,212,000 | 2,200,000 – 3,600,000 | 1,900 – 9,900 |
| Zimbabwe | 15,603,000 | 610,000 – 960,000 | 69 – 5,200 |

.. not available

Source: WHO World Malaria Report (2016). Data for Sudan are from World Malaria Report (2015). Information refers to the last year available, mostly 2015.

2. The economic costs of malaria

While each life lost due to malaria is a tragedy in itself, the economic toll of malaria is significant too. Studies that have attempted to quantify the economic burden of malaria have focused on private and non-private medical cost and on income that is forgone as a result of malaria morbidity and mortality.⁶ To these traditional short-term costs, other long-term components have to be added, such as costs resulting from household behavior and macroeconomic costs resulting from the impact of malaria on trade, tourism, and foreign direct investment.

Private medical costs include personal expenditures on prevention, diagnosis, treatment and care of the disease. This refers to expenditure on bed nets, doctor's fees, the cost of anti-malarial drugs, and the cost of transportation to medical facilities and the necessary support provided there. Non-private medical costs are essentially expenditures by the government on both prevention and treatment of the disease, including expenses on vector control, health facilities, education and research. Foregone income is generally estimated by calculating the value of lost workdays as a result of malaria and malaria-related illness, based on estimated wages. In the case of mortality, foregone income is estimated by calculating the capitalized value of future lifetime

⁶ Sachs, Malaney (2002).

earnings that would have been earned by those who died prematurely as a result of the disease. The overall economic impact of malaria is considerable; it has been estimated that countries with intensive malaria grow 1.3% less per year, while a 10% reduction in malaria was associated with a 0.3% higher growth.⁷ When compounded over the years, this growth penalty leads to substantial differences in GDP between countries with and without malaria and severely restrains economic growth of the entire region. While no recent estimates are available, the World Health Organization estimated that the total cost of malaria to Africa was US\$ 1.8 billion in 1995 and US\$ 12 billion in 2000 or 0.8% of the continent's GDP.⁸

3. Mapping the landscape: tariffs on and trade in anti-malarial commodities

3.1 Tariffs on mosquito nets

3.1.1 The figures

Bed nets are the most important anti-malaria commodity that may face tariffs and taxes. Other material includes: anti-malarial medicines, rapid diagnostic tests, insecticides for indoor residual spraying (IRS), and the pumps used to apply IRS. The following analysis focuses on tariffs on ITNs.

Measuring the extent to which tariffs are imposed on ITNs and other anti-malarial commodities is fraught with a number of difficulties. The main problem in this context is classification. Classifying bed nets in the international trade context is fraught with some problems. In the Harmonized Commodity Description and Coding System (HS) ITNs have not been explicitly specified until the 2017 version of the System.

ITNs have traditionally been grouped under HS 630491. This product code is part of Section XI (Textiles and textile articles), Chapter 63 (Other made up textile articles; sets; worn clothing and worn textile articles; rags), Heading 63.04 (Other furnishing articles, excluding those of heading 94.04), Code 630491 (Other than bedspreads, knitted or crocheted). In particular, this residual nature of their classification lumps ITNs together with other goods such as knitted or crocheted table cloths, cushion and bed covers, belts or decorative objects. Data on the percentage of non-ITN imports under this tariff line is generally not published although some customs authorities collect the information.

The 2017 version of the HS nomenclature brings an important change in this regard. A new tariff line at the six-digit level, HS630420, has been created to comprise only malaria nets. Under the current HS 2012 classification, countries may choose to use a finer product definition, which would be specific to ITNs, but this would be done individually at the eight-digit or ten-digit level.⁹

Table 2 shows the tariffs on bed nets applied by sub-Saharan African countries and the respective bound rates under the countries' WTO commitments. It also shows whether the country uses tariff concessions or exemptions for the importation of bed nets by NGOs or humanitarian organizations. In 2015, tariffs on mosquito nets were levied by at least 16 African countries. Of the 40 African countries in the sample¹⁰, not one single country had a tariff of zero for the entire tariff line. 20 countries had split the tariff line, applying a low (DR Congo, Malawi) or zero percent tariff to ITNs, but a higher percentage to non-ITNs comprised in the tariff line. Zimbabwe had the highest applied tariff, with over 40%. It is also the only country to have a compound tariff, with an ad valorem and a specific component. Numerous countries have harmonized their tariffs as part of regional agreements. South African Customs Union (SACU) and Economic Community of Central African States (ECCAS) members have set external tariffs at 30%. Members of the East African Community (EAC) and the Economic Community of West African States (ECOWAS) have split their tariffs, with a zero tariff specifically for ITNs and 25% or 20% on non-ITNs of the tariff line.

⁷ Gallup, Sachs (2001).

⁸ WHO (2001).

⁹ Under the Convention on the Harmonized Commodity Description and Coding System, parties may subdivide the HS nomenclature beyond the six digits and set their customs duties at the eight-digit level. Statistical suffixes are sometimes added to the eight-digit tariff code for a total of ten digits.

¹⁰ North African countries are not included in the analysis as they are only marginally affected by malaria.

Table 2: Tariffs on insect-treated bed-nets in sub-Saharan Africa

| Country | Year | Applied MFN rate (%) | Bound rate (%) | Membership in regional agreements and WTO | Tariff concessions |
|--------------------------|------|----------------------|----------------|---|--|
| Angola | 2015 | 10 | 60 | SADC | For humanitarian purposes |
| Benin | 2015 | 20 / 0* | 15 | ECOWAS | None |
| Botswana | 2015 | 30 | 30 | SADC | Possibility of rebates for donations |
| Burkina Faso | 2015 | 20 / 0* | 15 | ECOWAS | None |
| Burundi | 2015 | 25 / 0* | Unbound | EAC and COMESA | For international NGOs and humanitarian purposes |
| Cameroon | 2014 | 30 | Unbound | ECCAS | For organizations providing assistance and relief |
| Central African Republic | 2013 | 30 | Unbound | ECCAS | For organizations providing assistance and relief |
| Chad | 2013 | 30 | Unbound | ECCAS | For organizations providing assistance and relief |
| Congo | 2014 | 30 | Unbound | ECCAS and COMESA | For organizations providing assistance and relief |
| Congo, DR | 2010 | 20 / 5* | 100 | SADC | Imports for aid purposes by NGOs |
| Côte d'Ivoire | 2015 | 20 / 0* | Unbound | ECOWAS | None |
| Equatorial Guinea | 2015 | 30 | None | ECCAS, not yet WTO Member | .. |
| Eritrea | 2015 | 25 | None | Not yet WTO Member | None |
| Ethiopia | 2015 | 25 | None | COMESA, not yet WTO Member | Registered NGOs carrying out humanitarian activities |
| Gabon | 2013 | 30 | 15 | ECCAS | For organizations providing assistance and relief |
| The Gambia | 2013 | 20 | Unbound | ECOWAS | For registered and approved NGOs if imports are in the public interest |
| Ghana | 2015 | 20 / 0* | Unbound | ECOWAS | For technical assistance schemes and religious bodies |
| Guinea | 2012 | 20 / 0* | 15 | ECOWAS | None |
| Guinea-Bissau | 2014 | 20 / 0* | 50 | ECOWAS | For NGOs |
| Kenya | 2015 | 25 / 0* | Unbound | EAC and COMESA | None |
| Lesotho | 2015 | 30 | 60 | SADC | Possibility of rebates for donations |
| Liberia | 2013 | 20 | None | ECOWAS | No information available |
| Madagascar | 2015 | 20 / 0* | Unbound | COMESA and SADC | None |
| Malawi | 2012 | 25 / 10* | Unbound | COMESA and SADC | None |
| Mali | 2015 | 20 / 0* | 15 | ECOWAS | None |
| Mauritania | 2014 | 20 | 15 | | None |
| Mozambique | 2014 | 20 / 0* | Unbound | SADC | For charitable organizations |
| Namibia | 2015 | 30 | 30 | SADC | Possibility of rebates for donations |
| Niger | 2015 | 20 / 0* | 15 | ECOWAS | For charitable organizations |
| Nigeria | 2015 | 20 / 0* | Unbound | ECOWAS | None |
| Rwanda | 2015 | 25 / 0* | 100 | EAC and COMESA | None |
| Senegal | 2015 | 20 / 0* | 30 | ECOWAS | For charitable organizations |
| Sierra Leone | 2012 | 20 | 50 | ECOWAS | For goods imported under foreign aid or a technical assistance program |
| South Africa | 2015 | 30 | 30 | SADC | Possibility of rebates for donations |
| Sudan | 2015 | 25 | None | COMESA, not yet WTO Member | For registered NGOs |
| Tanzania | 2015 | 25 / 0* | Unbound | EAC and SADC | None |
| Togo | 2015 | 20 / 0* | Unbound | ECOWAS | For NGOs |
| Uganda | 2015 | 25 / 0* | Unbound | EAC and COMESA | None |
| Zambia | 2015 | 25 | Unbound | COMESA and SADC | For NGOs approved by the Government |
| Zimbabwe | 2013 | 40 + 3 US\$ per kg | Unbound | COMESA and SADC | International relief organizations |

Note: Tariffs are for HS Code 630491 based on HS 2012. Sierra Leone classifies malaria nets under HS Code 58041020.

.. not available

* Tariff line split, with the lower rate applicable to ITNs.

Source: WTO integrated database for tariffs, WTO Trade Policy Reviews (latest Report available) for concessions. For countries in WTO accession, national or relevant regional tariff schedules were used.

It is important to underline that tariffs displayed in the table are MFN tariffs. Actual tariff protection may be lower when preferential tariffs (usually set at zero) are applicable under regional agreements and an ITN producer is present in at least one member of the agreement.¹¹ Furthermore, economic partnership agreements with the EU may provide for phasing out tariffs between the partners.¹² At the same time, however, limited implementation and long phase-out periods may reduce the actual importance of preferential tariffs for the importation of ITNs.

As Table 2 demonstrates, bound rates show more diversity than applied tariffs. 18 countries do not have a tariff binding on ITNs. For countries with bindings, bound rates range between 15% and 100%, with 15% and 30% being the most frequent rates. Countries that are not WTO members do not have a tariff binding. In most countries, applied rates are well below bound rates. Bringing down applied rates is thus not an issue of WTO-compliance. In some countries with split tariff lines, the non-ITN part of the tariff line exceeds the binding (Benin, Burkina Faso, Guinea, Mali, Niger). In two countries, applied rates exceed bound rates (Gabon, Mauritania). In some other countries, applied rates equal bound rates (Botswana, Namibia, South Africa).

Table 2 also shows the countries that are likely to grant tariff concessions on imports of malaria nets. Under such an arrangement, certain humanitarian institutions or NGOs are allowed to import ITNs either without the payment of import duties or with a reimbursement of duties paid. The institutional design of such concessions differs from country to country. In some countries (e.g. Gambia) NGOs need to be registered or approved, in others (e.g. Kenya), NGOs need to enter into a co-operation agreement with relevant ministries, whereby these may agree to take over the payment of customs duties.

3.1.2 The rationale for tariffs on mosquito nets

Governments apply tariffs to protect specific industries, or to generate fiscal revenue. With regard to the income generation argument, it has been found that the contribution by anti-malarial commodities to total customs revenue is relatively small in the case of most countries.¹³ As a share of total fiscal income, it is even negligible.

The protection argument can apply only to those countries that have a domestic production base for ITNs. Information about the production landscape for ITNs is sketchy (see 3.2 below). Although tariffs on ITNs arguably have a limited protection effect and generate very little revenue, they have shown remarkable persistence in many African countries. This has mostly political economy reasons. They imply that duties on goods of which the benefits are dispersed over a large number of consumers usually draw less resistance than duties on goods that are destined for small user groups which may prove easier to organize and mobilize.¹⁴ Furthermore, given the authoritarian political structures in many of the countries concerned, measures affecting predominantly the rural poor tend to draw less political resistance than measures hitting the urban population, especially the elites that are close to the decision-making center. Thus, in the absence of powerful pressure groups that could lobby for tariff reductions, abolishing tariffs on anti-malarial devices will not be rewarding from the point of view of political decision makers. As a result, they tend to be "forgotten" in trade and tariff reforms even though the existence of duties may be known as a problem.

One additional reason why many African countries still maintain high tariffs on bed nets may be historic: Bed nets (HS 630491) are a textile product (as all goods in Section XI, from HS Chapter 50 to 63) and as such have been part of an industry for which many countries sought to protect domestic production. Also, as a result of the broad heading still used in many countries the duty

¹¹ For example, Botswana can import ITNs tariff-free from South Africa as both countries are member of SACU.

¹² As at January 2017, no EPAs with African countries had yet entered into force. However, in some cases interim-EPAs have become effective. Both EPAs and interim EPAs provide for very long implementation periods for the phase-out of tariffs, usually 25 years.

¹³ ITC (2011^a). Exact calculations of the share of customs duties on ITNs are not possible, inter alia because of classification problems. The study finds, however, that in only three African countries with high malaria prevalence (Ethiopia, Ghana, Nigeria) combined tariff income from all anti-malarial commodities has the potential to exceed 1% of customs revenue which itself is only a fraction of total fiscal income.

¹⁴ This is basically the argument developed in Mancur Olson's "The Logic of Collective Action" applied to imports.

that applies to this particular sub-heading will take into account the considerations of manufacturers of all the articles listed in the definition.

3.2 Production and international trade of ITNs

Little research has been done to landscape the international production and trade patterns of bed-nets.¹⁵ Nevertheless, a broad picture can be painted. Production of ITNs is undertaken by a few large and numerous small companies. To be acceptable for purchase by help organisations and most NGOs, ITN manufacturers must comply with the WHO Pesticide Evaluation Scheme (WHOPES) requirements. Global production of ITNs is largely concentrated in Europe, China, India, and some other Asian countries, while production in sub-Saharan Africa is limited. A number of producers are based in Tanzania, Nigeria, and South Africa. However, none of these production establishments process the synthetic materials to produce yarn. The yarn is either imported, or the polyester chips are imported and then warped to produce the yarn.

With regard to exports and imports of ITNs, figures are available from UN Comtrade's database. In 2015, by far the biggest exporter was China (US\$ 646 million), followed by Spain (US\$ 103 million), Turkey (US\$ 44 million), and India (US\$ 40 million). The only major African exporter of ITNs, Tanzania, comes fifth with an export value of US\$ 29 million.¹⁶ Except for Tunisia (US\$ 7 million), no other African country has reported exports exceeding US\$ 1 million.

Table 3 shows commercial imports of ITNs in sub-Saharan Africa from 2011-2015. A five-year period was selected due to the strong year-to-year variations of import data, possibly caused by bulk orders of major purchasers.¹⁷ For those countries that had not reported 2015 figures, data for a former five-year period was taken. A few countries had not reported import figures at all. In this case, mirror data of exporting countries was used.

Although in the end figures were available for all countries, caution should be exercised in their interpretation. It seems, for example, inconceivable that a country such as Congo, with a population exceeding 22 million, would only commercially import ITNs worth US\$ 3,500 in a given year.¹⁸ It is possible that the existence of tariffs on ITNs leads to intentional misclassification or undervaluation of imports. Also some countries, notably those with major seaports, appear to be important for transshipments where imported goods are not imputed to the final destination. This probably explains the very high import figures for countries such as Benin or Cote d'Ivoire.

Overall commercial imports of HS630491 in sub-Saharan Africa between 2011 and 2015 totalled just over US\$ 1 billion. Of this, more than US\$ 917 million were imported under MFN conditions and thus, unless exempted, subject to tariffs. Preferential imports amounted to about US\$ 91 million.¹⁹ In sum, only in a few countries are preferential imports of major importance (Kenya, Uganda, Malawi, DR Congo), mainly due to the strong position of Asian suppliers. Also, there is substantial trade of ITNs in both ways. Tanzania, for example, is a major producer and exporter, but also imported ITNs worth over US\$ 3 million in 2015, mostly from China.

Table 3 also contains complementary information on delivery of ITNs by major relief organizations.²⁰ The figures are presented here to obtain a full picture of a country's provisioning in ITNs.²¹ These imports are normally not subjected to tariff payments. As these ITNs are valued

¹⁵ For example, USAID 2010. Furthermore, the Alliance for Malaria Prevention has a Net Mapping Project which quantifies the number of nets that have been delivered to each country on a worldwide basis.

¹⁶ It is an interesting fact that Tanzania's ITN producer emerged as a competitive company without benefiting from any infant industries tariff protection as Tanzania had implemented a zero-tariff policy on mosquito nets.

¹⁷ Cote d'Ivoire's commercial imports, for example, amounted to US\$ 220 million in 2014, but to only US\$ 5.2 million in 2015.

¹⁸ Other countries with very low ITN imports per capita include Congo, Ghana, Mozambique, Zambia, and Zimbabwe.

¹⁹ In the following, it will be assumed that preferential imports are subject to zero tariffs.

²⁰ These include the Global Fund, UNICEF, the US President's Malaria Initiative (PMI), the Department for International Development (DFID), the World Bank, and other major donors.

²¹ Delivery data is only available by pieces and not by value. To ensure comparability with commercial imports, an average wholesale price of US\$ 2.25 per ITN can be assumed. This is the unweighted average wholesale price based on UNICEF's survey of ten major ITN suppliers (min US\$ 1.79; max US\$ 4.41).

at zero, they are normally not gauged by commercial import statistics.²² It becomes evident that free ITN delivery by relief organizations is of major importance for many countries in sub-Saharan Africa.

Table 3: Imports of ITNs in sub-Saharan Africa 2011-15 (US\$)

| Country | Total imports of HS630491 | Preferential imports | Imports under MFN conditions | Deliveries by major relief organizations (pieces) |
|--------------------------|---------------------------|----------------------|------------------------------|---|
| Angola | 1,704,822 | 454,635 | 1,250,187 | 11,152,112 |
| Benin | 50,336,511 | 70,994 | 50,265,517 | 11,591,698 |
| Botswana | 542,956 | 396,790 | 146,166 | 52,400 |
| Burkina Faso | 52,215,181 | 371,483 | 51,843,698 | 21,209,683 |
| Burundi | 37,470,410 | 7,754,493 | 29,715,917 | 3,513,700 |
| Cameroon | 5,940,464 | 294 | 5,940,170 | 22,293,051 |
| Central African Republic | 756,346 | 37,712 | 718,634 | 3,717,612 |
| Chad | 4,736,565 ^c | 0 | 4,736,565 | 10,354,839 |
| Congo | 126,816 ^a | 21,689 | 105,127 | 907,260 |
| Congo, DR | 20,777,618 ^c | 9,379,994 | 11,397,624 | 79,657,021 |
| Côte d'Ivoire | 254,364,895 | 29,874 | 254,335,021 | 18,944,489 |
| Equatorial Guinea | 774,588 ^c | 0 | 774,588 | 362,000 |
| Eritrea | 48,261 ^c | 3,736 | 44,525 | 1,518,000 |
| Ethiopia | 1,365,982 | 0 | 1,365,982 | 51,297,408 |
| Gabon | 870,732 ^c | 26,459 | 844,273 | 97,818 |
| The Gambia | 33,805 ^b | 32,976 | 829 | 1,632,201 |
| Ghana | 1,307,720 ^b | 1,000 | 1,306,720 | 28,174,132 |
| Guinea | 61,350,903 ^b | 42,045 | 61,308,858 | 7,047,511 |
| Guinea-Bissau | 513,895 ^c | 0 | 513,895 | 2,326,944 |
| Kenya | 45,987,720 ^b | 30,221,665 | 15,766,055 | 34,159,175 |
| Lesotho | 76,138 ^b | 16,318 | 59,820 | .. |
| Liberia | 7,500,464 ^c | 7,590 | 7,492,874 | 5,331,875 |
| Madagascar | 7,656,399 | 5,958 | 7,650,441 | 23,221,177 |
| Malawi | 29,727,190 | 11,950,291 | 17,776,899 | 21,220,267 |
| Mali | 35,443,178 ^b | 3,000,545 | 32,442,633 | 15,167,169 |
| Mauritania | 2,472,434 ^a | 81 | 2,472,353 | 314,449 |
| Mozambique | 250,856 | 233,882 | 16,974 | 20,646,613 |
| Namibia | 7,037,790 ^a | 258,552 | 6,779,238 | 473,959 |
| Niger | 34,927,187 | 638,623 | 34,288,564 | 9,950,947 |
| Nigeria | 35,790,402 ^a | 40,980 | 35,749,422 | 101,130,449 |
| Rwanda | 54,494,691 | 2,993,745 | 51,500,946 | 10,686,005 |
| Senegal | 44,252,400 | 94,542 | 44,157,858 | 17,961,445 |
| Sierra Leone | 67,855 | 0 | 67,855 | 5,380,937 |
| South Africa | 9,047,527 | 15,468 | 9,032,059 | 39,000 |
| Sudan | 17,317,435 ^b | 343,885 | 16,973,550 | 16,521,112 |
| Tanzania | 34,261,889 | 2,488,244 | 31,773,645 | 28,877,060 |
| Togo | 26,855,445 | 203,391 | 26,652,054 | 7,243,829 |
| Uganda | 117,991,554 | 19,628,695 | 98,362,859 | 32,339,713 |
| Zambia | 925,035 | 240,614 | 684,421 | 16,885,627 |
| Zimbabwe | 1,400,075 | 110,771 | 1,289,304 | 4,610,875 |
| Total | 1,008,722,134 | 91,118,014 | 917,604,120 | 613,886,546 |

.. not available

a Figures from 2010-2014

b Data for individual years was not available, the five-year set was completed through intra- or extrapolation.

c Mirror data were used due to the absence of import data

Note: Figures are for 2011-2015 unless otherwise indicated. Trade figures are cif values, except for mirror data which are fob values. Figures were downloaded in March 2017.

Source: UN Comtrade database, Alliance for Malaria Prevention.

4. The impact of tariffs on demand for ITNs and infection rates

4.1. Tariffs and demand for ITNs

The main effects of a tariff on an imported good are to increase the product's price in the domestic market and, thus, to reduce import quantities. If a domestic supplier exists, she may be able to

²² It cannot be excluded that free ITN deliveries by relief organizations are also imputed a price and included in commercial imports. Some countries (Benin for example) count Denmark, where UNOPS headquarters and UNICEF's procurement division are located, as a major source country for commercial ITN imports although these imports should be valued at zero.

increase output at the expense of the imported good, but not to the same extent as imports drop. The exact effects will depend on demand and supply elasticities and the size of the tariff. Recent research using randomized control trials suggests that demand for malaria prevention is highly price-sensitive – any price increase will translate into substantially reduced demand and use.²³ Additional findings from experimental studies have shown that factors such as education level or affection of decision-making by framing are of limited influence on the demand for ITNs.²⁴

Assuming that global supply of ITNs is infinitely elastic²⁵, the elasticities calculated by Cohen and Dupas can be used to calculate to which extent tariffs lead to reduced demand. However, a number of factors have to be taken into account. First, not all imports under HS630491 are ITNs. Thus, imports of tariff line HS630491 which are not ITNs have to be eliminated from the calculation. Second, only imports under MFN conditions are normally subject to tariffs, while preferential imports are usually tariff-free. Tariff-free imports have thus to be deducted from the total import value. Third, import concessions and exemptions allow, under certain circumstances, tariff-free importation of goods (e.g. by local non-governmental relief organizations) even if these were commercially imported. These have also to be deducted from dutiable imports.

With regard to non-ITN items comprised in HS630491, these can be calculated on the basis of information from countries that have a split tariff line for HS630491 and collect data at the eight or ten digit level. Information from 14 African countries indicates that the share of ITNs in total imports of HS630491 ranges between 58% and 100%²⁶; the weighted arithmetic average is 97.8%.

Preferential imports are listed in column 3 of Table 3. These are deducted from total imports (column 2) to arrive at ITN imports under MFN condition (column 4).

Estimating the size of tariff concessions is the most difficult challenge. These are tariff exemptions or reimbursements for local non-governmental and relief organizations that distribute commercially imported ITNs. As information on concessions by tariff line is not available in any country in sub-Saharan Africa, two scenarios are presented, one assuming the absence of concessions, and one assuming that 30% of commercial imports are subjected to concessions, i.e. exemption from or the reimbursement of tariffs.

Table 4 demonstrates the impact of import tariffs on ITN demand. Column 2 shows the value of ITN imports subject to MFN tariffs²⁷, column 3 the applicable tariff rate, and column 4 the tariffs paid. In order to calculate the demand loss or value of trade forgone, we use the results yielded by the Cohen/Dupas (2010) study. In a field experiment in Kenya, Cohen and Dupas found that the price elasticity of demand for ITNs was about -0.37, i.e. demand is relatively price-elastic. Columns 5 and 6 present the estimated demand losses if concession rates of 0% or 30% are assumed respectively. As demand loss is zero in those countries that apply a zero tariff on HS630491 or, through a split tariff line, on ITNs only, these countries are not mentioned in the table and dropped in the analysis.

Overall dutiable ITN imports between 2011 and 2015 amounted to nearly US\$ 88 million. The demand loss caused by tariffs, assuming a concession rate of zero, is over US\$ 7 million, and nearly US\$ 5 million assuming a concession rate of 30%.²⁸ The total amount of tariffs on ITN imports paid was over US\$ 18 million. Assuming the average ITN wholesale price of US\$ 2.25, tariffs have suppressed demand for some 3,144,000 ITNs between 2011 and 2015 (2,200,000 ITNs if a concession rate of 30% applies).

²³ Cohen, Dupas (2010).

²⁴ Dupas (2009).

²⁵ Given the dominant role of China in global exports, this assumption appears realistic.

²⁶ This information, normally not published in trade statistics, was made available by the WTO Statistics Division. The countries with a split tariff line for which information was available are: Benin, Burkina Faso, Ghana, Guinea, Madagascar, Malawi, Mali, Niger, Nigeria, Rwanda, Senegal, Tanzania, Togo, and Uganda.

²⁷ This is the value of dutiable imports of HS 630419 multiplied by 0.978.

²⁸ We assume that demand loss is identical to the value of trade forgone. The only country in which tariff-induced import decreases could be compensated by sizable domestic production, Tanzania, has implemented a zero-tariff policy.

Table 4: Tariff-induced demand reduction for ITNs 2011-15

| Country | Commercial ITN imports under MFN conditions (US\$) | Applicable tariff rate (%) | Tariffs paid (US\$) | Scenario 1: no concessions (US\$) | Scenario 2: 30% of imports subject to concessions (US\$) |
|--------------------------|--|----------------------------|---------------------|-----------------------------------|--|
| Angola | 1,222,683 | 10 | 1,223 | 46,977 | 32,884 |
| Botswana | 142,950 | 30 | 42,885 | 16,060 | 11,242 |
| Cameroon | 5,809,406 | 30 | 1,742,822 | 652,670 | 456,869 |
| Central African Republic | 702,824 | 30 | 210,847 | 78,960 | 55,272 |
| Chad | 4,632,361 | 30 | 1,389,708 | 520,432 | 364,302 |
| Congo | 102,814 | 30 | 30,844 | 11,551 | 8,086 |
| Congo, DR | 11,146,876 | 5 | 557,344 | 187,009 | 130,906 |
| Equatorial Guinea | 757,547 | 30 | 227,264 | 85,108 | 59,576 |
| Eritrea | 43,545 | 25 | 10,886 | 4,438 | 3,107 |
| Ethiopia | 1,335,930 | 25 | 333,983 | 136,169 | 95,318 |
| Gabon | 825,699 | 30 | 247,710 | 92,765 | 64,936 |
| The Gambia | 811 | 20 | 162 | 75 | 53 |
| Lesotho | 58,504 | 30 | 17,551 | 6,573 | 4,601 |
| Liberia | 7,328,031 | 20 | 1,465,606 | 585,609 | 409,926 |
| Malawi | 17,385,807 | 10 | 1,738,581 | 667,991 | 467,594 |
| Mauritania | 2,417,961 | 20 | 483,592 | 193,228 | 135,260 |
| Namibia | 6,630,095 | 30 | 1,989,029 | 744,872 | 521,410 |
| Sierra Leone | 66,362 | 20 | 1,332 | 5,303 | 3,712 |
| South Africa | 8,833,354 | 30 | 2,650,006 | 992,401 | 694,681 |
| Sudan | 16,600,132 | 25 | 4,150,033 | 1,692,024 | 1,184,417 |
| Zambia | 669,364 | 25 | 167,341 | 68,227 | 47,759 |
| Zimbabwe | 1,260,939 | 50 ^a | 630,475 | 286,225 | 200,358 |
| Total | 87,973,955 | | 18,089,224 | 7,074,667 | 4,952,267 |

a Zimbabwe has a compound tariff (40% plus 3 US\$ per kg). A tariff of 50% is assumed as being the ad valorem equivalent.

For a number of reasons, the results should be interpreted with caution. Trade data can be fraught with mistakes due to errors in reporting, classification, and valuation. Moreover, elasticities are not cast in stone. They may change when underlying conditions change. This means that demand for ITNs can become more responsive to price changes when malaria prevalence increases, and vice versa.

4.2. Tariff-induced infection and death rates

Using the information on ITN demand suppressed by import tariffs, it is possible to extend the analysis to estimate resulting infection and death rates. It should be noted, however, that these calculations are just rough estimates, fraught with a high degree of uncertainty. Less importance should be paid to actual numbers than to their magnitude. For this reason, no country-specific information is provided.

First, the nexus between acquisition of an ITN and its actual usage is important. Dupas (2009) reports an observed usage share of 57.7% of households that bought an ITN, and a share of 64.7% when self-reporting is used.

Second, the relationship between usage and transmission or infection matters. This relation, which has been subject to a large number of country studies, is complex and depends on local prevalence levels, human behavior (e.g. handling of the net), intra-household allocation of nets, and the dynamics of local vector species.²⁹ A meta-study reviewing 22 randomized control trials of ITNs found that they can reduce malaria cases by 50% and deaths in children by one-fifth in a given year.³⁰ It also found that for every 1,000 children protected by ITNs about 5.5 lives can be saved each year (95% confidence interval 3.39 to 7.67).

We assume that imports of 3,144,000 ITNs (2,200,000 ITNs under a concession rate of 30%) were suppressed by tariffs. We assume a usage rate of 61.2%, i.e. the average of both values found by Cohen and Dupas, resulting in a suppressed effective use of 1,924,000 (1,353,000) ITNs. We also

²⁹ Gu, Novak (2009).

³⁰ Lengeler (2004).

assume that usage is independent of the price paid³¹ and an average ITN life span of three years. This results in an estimated number of 2,886,000 (2,020,200) malaria cases that can be attributed to the continued use of import tariffs.

For the calculation of death rates, we further assume that intra-household allocation of beds reflects population patterns³² and that only children under five die from malaria. This results in close to 5,200 (3,635) avoidable death cases for the period 2011-15 in sub-Saharan Africa, or over 1,000 children dying per year.³³

5. Policy implications: bringing down the extra cost

There are several ways of reducing tariffs on ITNs and other anti-malarial commodities, ideally to zero. The main options include the unilateral reduction of tariffs on anti-malarial commodities, the granting of tariff concessions on these goods, and a multilateral or plurilateral initiative to address this problem. Technical issues like changes in the national tariff code may be of help in this context. In addition, various non-tariff barriers affecting anti-malarial commodities need to be addressed with donors and the international community being invited to provide guidance. These initiatives are not mutually exclusive and can actually complement each other – what ultimately matters is a reduction of any unnecessary extra-burden on ITNs and other goods that makes the fight against malaria more expensive than it should be.

Unilateral tariff reductions

Setting tariffs on ITNs and related anti-malaria goods unilaterally to zero appears the most obvious and feasible approach to the existing problem. However, policy makers are usually not sufficiently informed, and given the political economy of tariffs on anti-malarial commodities, unlikely to take the initiative to reduce these tariffs. To remedy such a situation, health authorities, NGOs or consumer protection groups could act on behalf of consumers, but these usually lack clout in public debate and may not be very experienced in trade policy lobbying. In the absence of domestic lobbying activities, the international donor community may wish to condition their support for the fight against communicable diseases upon an elimination of such tariffs.

Bringing ITN tariffs to zero has been facilitated by a recent change to the nomenclature of the Harmonized System (HS). The 2017 version of the Harmonized System introduces a new subheading HS630420 which covers articles made from fabrics, impregnated or coated with anti-malarial chemicals, while HS630491 remains reserved for crocheted or woven table cloth and other decorative items.³⁴ This allows for the introduction of a zero-tariff specifically for ITNs, while processing of these nets through customs can also be facilitated. The HS Contracting Parties are encouraged to apply these amendments from 1 January 2017. However, the move to an amended classification system often takes a couple of years, particularly for LDCs. Thus, countries affected by malaria should, in their own interest, seek to implement HS 2017 without any delay.

In the absence of a six-digit tariff line specific for ITNs, split tariff lines at the national level have generally been a useful second-best approach for countries that have decided to maintain tariffs on the non-ITN component of HS630491. As a matter of fact, countries with split tariff lines also rely less on concessions for NGOs (Table 2). However, it is unclear whether all actual and potential traders are fully informed about this policy; and some might be deterred by its relative complexity.

Unilateral tariff reductions can also be instrumental in encouraging domestic production of ITNs. The production of a mosquito net, like most manufactured products in today's globalised world, involves multiple stages. At the first stage, either synthetic or natural fibres in the form of yarn

³¹ Cohen and Dupas (2010) find that usage is not higher among those who paid a higher price for a bed net, while Ashraf, Berry and Shapiro (2008) report that households that paid more for a water-treatment product are more likely to put it to use within two weeks than those who paid a lower price.

³² According to UN estimates, the percentage of population under five in sub-Saharan Africa was 16.36% in 2015. United Nations (2015).

³³ $1,924,000 * 0.1636 * 3 * 5.5 / 1,000$. Assuming that the rest of the world follows a tariff policy similar to Africa's, the global death toll for the period 2011 to 2015 would be 5,707.

³⁴ The suggestion to introduce a 6-digit tariff line that is specific to ITNs already has some kind of history, cf. Bora (2006).

are required.³⁵ Next, the yarn is warped, knitted and dyed. The third stage involves the cutting and sewing of the net and the final packaging. At the fourth stage, the mosquito net is impregnated with an insecticide to better protect against mosquitoes. Setting tariffs on major inputs (yarn, chemicals, and machinery) at zero would reduce production costs and encourage investment, domestic and foreign, in ITN production and related operations. But whether African countries will adopt such a "global supply chain" approach is rather uncertain.

Developed countries can also provide incentives to eliminate ITN tariffs. In particular, they may temporarily compensate for losses in tariff income or condition general or health-related financial assistance on the implementation of a zero-tariff policy.

The role of regional agreements

In some cases, countries may be constrained to changing their import duties unilaterally by their membership in regional agreements where tariffs are set jointly. For example, the South African Customs Union (SACU), the East African Community (EAC), or the West African Economic and Monetary Union (UEMOA) are either customs unions or have a highly harmonized tariff regime which provides for a joint decision-making process. Their negotiation requires prospective members to harmonize tariffs with other participating countries and territories, resulting in a common external tariff (CET). In this case, the issue should be addressed at the regional level, at the initiative of one or more members of the regional agreement. In case regional agreements are negotiated with developed countries, such as the Economic Partnership Agreements with the European Union, tariffs on ITNs should be set at zero right from the beginning of the implementation period.

Regional agreements may also be critical in another context. The tariff structure of the CET in most of these agreements, however, reveals positive escalation: finished goods are, on average, subject to higher tariffs than semi-finished goods and raw materials.³⁶ Since most anti-malarial goods are actually finished goods, such a tariff structure bears the risk of introducing or consolidating substantial tariffs on these goods. Furthermore, most African countries have traditionally maintained relatively high tariff rates on textile and clothing products (implicitly including ITNs) with a view to protecting domestic production. These tariff structures have shown a strong resilience and have certainly contributed to the longevity of ITN tariffs in many countries.

On the positive side, Africa's customs unions and free-trade areas have contributed to bringing down or eliminating tariffs at the regional level. As a result of East African integration, for example, many countries in the region now import ITNs tariff-free from Tanzania (Table 3).

Tariff concessions and exemptions

Under tariff concessions or exemptions, humanitarian institutions or other NGOs are allowed to import ITNs without the payment of import duties, or can be entitled to a drawback. This may indeed contribute to lower prices for end-consumers and a greater demand for and use of nets.

Yet, this approach has some important limitations. First, NGOs may only cover certain regions of a country or limit their services to specific target groups, e.g. members of a religious community. As a result, the whole market may be distorted and undersupply of ITNs may persist in large parts of society. Second, ITNs may be distributed in a manner that does not reflect needs. Free distribution in particular, the argument goes, would lead to misuse and ultimately result in under-usage of mosquito nets.³⁷ Third, in contrast to a zero-tariff, normally published on the internet and fraught with little insecurity, concessions can be granted in a discretionary manner and upon request, with regulations and procedures often laid down in the small-print of legislation. This adds an element of uncertainty to the activity of traders, notably first-time exporters and smaller companies, and may discourage them from exporting. Fourth, concessions and exemptions for specific target groups usually reduce their lobbying activities for lowering duties. In the long run, this may create

³⁵ The most commonly used fibre is polyester. Some cotton nets are manufactured, but these are produced for local markets with limited market penetration.

³⁶ Members of the Common Market for Eastern and Southern Africa (COMESA), for example, have agreed on a three-tier common external tariff, with a zero tariff on raw materials, a 10% tariffs on semi-finished goods, and a 25% tariff on finished goods. COMESA members are expected to progressively align their tariffs along this three-band structure.

³⁷ Whether or not the free distribution of malaria nets results in under-usage, has been subject to ample discussion. Evidence against free distribution has mostly been anecdotal, e.g. Easterley (2006). The study of Cohen and Dupas (2010) suggests that free distribution does not have negative effects.

an impediment to the reduction of duties and may even contribute to the longevity of tariffs on ITNs.³⁸ Fourth, the work of NGOs may be submitted to conditions, including costly registration procedures, which may ultimately render their work difficult or inefficient. Fifth, traders may not be fully sure to obtain a concession as these may be granted in the form of a drawback, where a commission usually composed of government representatives decides on whether criteria for the drawback are met. Finally, even if a repayment of tariffs and other duties is granted, this may be subject to considerable time-lags and additional cost.

In some cases ITNs are imported and put at disposal by government agencies or public health authorities. In this case, any gain in tariff revenue is directly offset by the added expense of these. As a result, the tariff does not necessarily lead to reduced demand³⁹, but there is no benefit either.

Tariff reduction through a multilateral agreement

With a view to eliminating tariffs on anti-malarial commodities on a global level it has been suggested that this would be accomplished best through a multilateral initiative that provides for a joint elimination of tariffs.⁴⁰ In particular, the negotiations on non-agricultural market access (NAMA) in the context of the WTO's Doha Development Round provide such an opportunity, and could thereby make a contribution to fulfilling the development dimension of the Round.

The main problem associated with this approach is that progress in the Doha Round negotiations has been stalled for a number of years already. Furthermore, even if the Doha negotiations should regain momentum, it is doubtful whether this would lead to a speedy and global elimination of tariffs on anti-malarial commodities. First, negotiations may reduce bound rates, but are unlikely to lead to a bound tariff of zero, regardless of the tariff reduction formula applied. In former multilateral negotiations, average tariff cuts amounted to a maximum of 35%, in the Kennedy Round. Thus, even a successful conclusion of the Doha Round would leave bound rates at considerable levels. Second, developing countries as a group are eligible for "Less than full reciprocity" in the negotiations. While this concept can be interpreted in many different ways, it generally means that developing countries do not have to take on the same level of obligations as those taken on by developed countries. As a result, developing countries could either be exempted from tariff cuts in general, or exempt specific tariff lines.⁴¹

Against the background of the limited scope of the Doha Round, various sectoral initiatives have been proposed in the WTO.⁴² One of these initiatives covers "Enhanced Healthcare".⁴³ The initiative, sponsored by four major exporters of healthcare and medical products, covers 156 health products at the HS six digit level mostly medicines and medical technology products. Although ITNs are not part of its original product coverage, the initiative indicates that additional products of interest to participating members could be included. The problem with this initiative is that it has not materialized not only due to the stalled Doha negotiations, but also because many developing countries have been stridently opposed to the concept of any type of sectoral initiative in the negotiations, including African countries such as Kenya and Nigeria.

Although a speedy conclusion of the Doha Round appears unlikely in the short run, the elimination of tariffs on anti-malarial commodities through multilateral agreement could meaningfully complement unilateral and regional action in the long run.

³⁸ The argument of declining lobbying for tariff reduction in the wake of selective liberalization was first brought forward by Olarreaga et al (2001) in the context of duty drawbacks and export processing zones.

³⁹ However, the effect may very well be negative if public health institutions have to operate with a fixed budget and are independent from the customs authority.

⁴⁰ Bora (2006).

⁴¹ According to the July 2004 Framework, developing countries would enjoy longer implementation periods for their tariff reductions on non-agricultural goods; and choose between : 1) less than formula cuts for up to [10%] of their tariff lines representing up to [10%] of their import value; or 2) not apply formula cuts, or leave unbound tariff lines, for up to [5%] of their tariff lines representing up to [5%] of their import value (square brackets in original text). Least-developed countries are not required to apply any tariff reduction formula or participate in the sectorial approach, their contribution being to substantially increase their binding coverage at levels in accordance with their needs and development. (WTO document WT/L/579, 2 August 2004).

⁴² Laborde (2011) provides a description of 14 sectoral NAMA initiatives and calculates their potential impact on trade flows.

⁴³ WTO document JOB06/35, 24 February 2006.

A Plurilateral Agreement on Essential Health Goods

Against the background of the stalemate of the Doha Round, plurilateral agreements could provide the impetus needed for the elimination of tariffs on anti-malarial commodities and serve as an alternative negotiating form. In the past, such agreements have been able to pave the way for addressing specific issues, such as demonstrated by the Information Technology Agreement⁴⁴ and the revised Agreement on Government Procurement. In contrast to sectoral initiatives, which are usually sponsored by major exporters of the relevant goods, a plurilateral initiative could place the interest of importing countries at the centre of negotiations. Along the lines of the WTO's Trade Facilitation Agreement, a technical assistance facility could be included which could compensate for losses in developing countries' tariff revenue.⁴⁵

Non-tariff barriers

Policy makers should also address non-tariff barriers that affect the importation of anti-malarial products. This includes time-consuming customs procedures and clearance, unclear waiver or exemption procedures, unnecessary inspections and quality assessments, and various other behind-the-border measures.⁴⁶ The price effect of these measures is normally difficult to measure, but can be substantial. While some of these issues are addressed by the WTO's recently concluded Trade Facilitation Agreement, incomplete implementation at the national level may still pose problems.

In addition to tariffs, many countries also apply specific or indirect taxes to anti-malarial commodities.⁴⁷ These behind-the-border measures have a similar price-increasing effect. Given the high price sensitivity of demand, bed nets should not be subjected to specific taxes and exempt from VAT or sales tax, as is the case with medical products in many countries. The final price of ITNs may also be unnecessarily increased by uncompetitive wholesale or retailing structures, whereas ITN distribution may be hampered by insufficient infrastructure and lack of accessibility. These factors should be addressed by domestic competition policy and infrastructure programs respectively.

Countries in WTO accession

As indicated in Table 2, a number of African countries are not yet WTO member. These include Comoros, Equatorial Guinea, Ethiopia, Liberia, Sao Tomé and Príncipe, Sudan, and South Sudan.⁴⁸ For these countries, the WTO accession process should be used to ensure that ITNs and all other relevant anti-malarial commodities carry a tariff of zero.

6. Conclusion

More than twenty countries in sub-Saharan Africa still maintain tariffs on the importation of malaria nets. Between 2011 and 2015, this policy has resulted in suppressing demand in these countries by some US\$ 7 million, equivalent to about 3.1 million bed nets. The results in some 2.9 million malaria cases and 5,200 avoidable death cases for the period 2011-15.

The call to abolish such "killer tariffs" already has some kind of history.⁴⁹ For example, in the Abuja Declaration on Roll Back Malaria in Africa of April 2000 Africans Heads of State and Government pledge 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" Unfortunately, progress has been limited. According to the Malaria Taxes and Tariffs Advocacy Project, ten years after the adoption of the Declaration 29 African countries still maintained tariffs on bed nets including six countries that had reapplied them.⁵⁰

⁴⁴ Initially agreed among 29 WTO members in 1996, the ITA now includes 70 WTO members which represent about 97% of world trade in information technology (IT) products. ITA signatory countries grant duty-free access to all IT products covered by the Agreement with small exceptions for developing countries.

⁴⁵ Czapnik (2015)

⁴⁶ International Trade Centre (2011^b).

⁴⁷ For example International Trade Centre (2011^a) finds that in Ethiopia these taxes can add up to 38% of a product's after-import value of anti-malarial commodities. Together with applicable tariffs, this may also result in a considerable cascading effect, as domestic taxes are usually applied on the import value plus tariffs.

⁴⁸ With the exception of South Sudan, however, all of these countries are in the process of WTO accession.

⁴⁹ Alilio (2007).

⁵⁰ Mwenesi (2010).

Current levels of ITN access and use remain still below international targets⁵¹, and tariffs have undoubtedly contributed to this, despite impressive gains since the beginning of the millennium.

In the end, bringing down tariffs on ITNs is a matter of policy coherence between trade, health and overall development policies.⁵² Malaria infections and death cases have declined over the past ten years. Trade policy can contribute to bringing the end of this deadly disease closer.

⁵¹ Bhatt, Gething (2014).

⁵² Cernat (2011).

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