



# **G20 POLICIES AND EXPORT PERFORMANCE OF LEAST DEVELOPED COUNTRIES**

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**G20 POLICIES AND EXPORT PERFORMANCE  
OF LEAST DEVELOPED COUNTRIES**

by

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UNITED NATIONS

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## Abstract

The Sustainable Development Goal (SDG) on strengthening the means of implementation and revitalizing the global partnership for sustainable development has reiterated the commitment to significantly increase the exports of Least Developed Countries (LDCs). LDC exports potential depends on several factors, one of which is access to major markets. This study provides an overview and analysis of G20 trade policies, in particular tariffs and non-tariff measures, and provides suggestions on how they could be improved to increase the export competitiveness of LDCs. It finds that G20 tariffs remain restrictive in several sectors of importance for LDCs. More importantly, the results indicate that the G20 countries' regulatory frameworks and the corresponding non-tariff measures (NTMs) alter relative competitiveness to the advantage of exporters that are capable of efficient compliance with NTMs, therefore penalizing exports originating in LDCs. In terms of achieving SDG, the findings of this study indicate that tariff preferences should be seen as part of the approach to increase LDCs exports. However, tariff preferences alone are not sufficient, as they would produce meaningful effects only for a limited number of LDCs. Better market access through the facilitation of compliance with G20 regulatory frameworks would be essential to increase exports from LDCs. The impact of providing LDCs with truly tariff-free market access to the G20 is quantified in an increase of exports of almost 10 billion US\$, while eliminating the distortionary trade effects of NTMs would increase LDC exports to G20 countries by about 23 billion US\$. Taken together LDC total exports would increase by almost 15 per cent. While extending preferential schemes to cover 100 per cent of products and all G20 members would be straightforward, reducing the distortionary trade effects of NTMs requires a much more complex approach. In this regard, further progress in Aid for Trade initiatives and increases in technical assistance programmes, both on bilateral and multilateral levels, to help minimize LDCs' costs of compliance with NTMs would be essential to facilitate the integration of LDCs in the global economy.

**Keywords:** International trade; Tariffs; Non-Tariff Measures; Comparative Advantage; Least Developed countries.

**JEL Classification:** F13, O24

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# Contents

<b>1</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>2</b>	<b>LDCs TRADE PERFORMANCE.....</b>	<b>2</b>
<b>3</b>	<b>G20 TRADE POLICY AND LDCs .....</b>	<b>5</b>
	3.1 Tariffs .....	5
	3.2 Non-Tariff measures .....	8
<b>4</b>	<b>ASSESSING THE IMPORTANCE OF G20 POLICIES FOR LDC TRADE.....</b>	<b>12</b>
	4.1 Econometric estimation .....	12
	4.2 Economic assessment.....	14
<b>5</b>	<b>CONCLUSIONS.....</b>	<b>18</b>
	<b>REFERENCES .....</b>	<b>19</b>

### **List of figures**

Figure 1.	Value of LDC exports and exports as a share of global trade.....	2
Figure 2.	LDCs export over GDP ratios .....	3
Figure 3.	LDCs export, by destination .....	3
Figure 4.	LDCs export diversification in G20 markets, by product .....	4
Figure 5.	African and Asian LDC export shares, by product .....	4
Figure 6.	Average tariffs faced by LDCs in G20 markets, by product groups .....	6
Figure 7.	Tariff peaks for LDC exports in G20 markets, by product groups .....	6
Figure 8.	Tariffs escalation for LDC exports in G20 markets, by product groups.....	8
Figure 9.	Preferential margins of LDCs in G20 markets, by product groups .....	9
Figure 10.	Incidence and costs associated with NTMs in G20 markets, LDCs vs non-LDCs .....	11
Figure 11.	Impact of duty free access and addressing distortionary effect of NTMs on LDC exports to G20 countries, by product .....	15
Figure 12.	Impact of duty free access and addressing distortionary effect of NTMs on LDC exports to G20 countries, by LDCs.....	16
Figure 13.	Impact of duty free access and addressing distortionary effect of NTMs on LDCs total exports, by G20 country .....	17

### **List of tables**

Table 1.	Average applied rates on recorded trade items from LDCs.....	7
Table 2.	Share of LDC exports subject to NTMs in G20 markets .....	10
Table 3.	Econometric results.....	13

# 1. INTRODUCTION

The Sustainable Development Goal (SDG) on strengthening the means of implementation and revitalizing the global partnership for sustainable development has reiterated the commitment to significantly increase the exports of Least Developed Countries (LDCs). Target 17.11 aims to double LDCs' global export share by 2020 (Target 17.11). Cooperation in the area of trade for economic development dates back to the creation of UNCTAD in 1964 and was a major point of the WTO Doha Development Round in 2001. The Doha Round Declaration stated that a central goal of the negotiations was “to improve the trading prospects and to ensure that developing countries, and especially the least-developed among them, secure a share in the growth of world trade commensurate with the needs of their economic development”. More recently, the commitment to help LDCs with regard to market access was formally reinstated at the end of 2015 in the Tenth WTO Ministerial Conference Declaration, which stated that WTO members strongly commit to addressing the marginalization of LDCs in international trade and will contribute to improve their effective participation in the multilateral trading system. The argument behind helping LDCs to increase their exports is that a stronger integration of their economies with international markets would benefit LDCs by providing resources for facilitating the implementation of the other Sustainable Development Goals.

SDG Target 17.11 identifies a persistent problem of many of the weaker economies: the generally low level of integration with international markets. Although LDCs represent around 12 per cent of the world's population, their exports only amount to about one per cent of global exports. Moreover, LDCs' international integration as measured by trade over GDP is about 22 per cent, significantly below the average for developing countries of about 35 per cent. The causes behind the limited participation of LDCs in world trade are complex and related to productive capacity, trade costs, and market access. With regard to productive capacity and trade costs, LDCs' weaker economies, domestic constraints, geographic isolation and unfavourable endowments make it relatively more difficult for them to access and effectively compete in international markets. With regard to market access, the issues are complex as well. On one hand, the international community has developed a number of initiatives facilitating market access for LDCs, so as to better integrate them in the international trading system. On the other hand, market access is increasingly determined by regulatory and technical requirements including those stemming from non-trade objectives related to health and environmental protection (Sanitary and Phytosanitary (SPS) measures and Technical Barriers to Trade (TBT)) which may impose an additional burden on LDCs (UNCTAD, 2012; Henson and Jaffee, 2008).

This study provides an overview and analysis of G20 trade policies, in particular tariffs and non-tariff measures<sup>1</sup>, and provides suggestions on how they could be improved to increase the export competitiveness of LDCs.<sup>2</sup> It finds that G20 tariffs remain restrictive in several sectors of importance for LDCs, in particular textiles, apparel and agricultural products. More importantly, the results indicate that the G20 regulatory frameworks and the corresponding non-tariff measures (NTMs) alter relative competitiveness to the advantage of exporters that are capable of efficient compliance with NTMs, rather than exports originating in LDCs.

In terms of achieving SDG Target 17.11, the findings of this study indicate that LDCs would make further gains if preferential schemes were extended to truly cover 100 per cent of products and all G20 members. However, preferential schemes alone would produce meaningful effects only for a limited number of LDCs. Better market access from the facilitation of compliance with G20 regulatory frameworks would be essential to increase exports from LDCs. The analysis of this study quantifies that the exports from LDCs to the G20 would increase by about 10 billion US\$ if preferential tariff schemes were extended to cover 100 per cent of exports from LDCs. With regard to the regulatory framework, LDC exports to G20 countries would increase by about 23 billion US\$, equivalent to about a 10 per cent increase if LDC exporters were able to comply with NTMs as well as non-LDC exporters. Taken

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<sup>1</sup> Other aspects of G20 trade policy which may affect LDC exports include protectionist measures (Evenett and Fritz, 2015) and rules of origin (World Bank, 2015).

<sup>2</sup> While SDG target 17.11 refers to trade in both goods and services, this study covers only trade in goods.

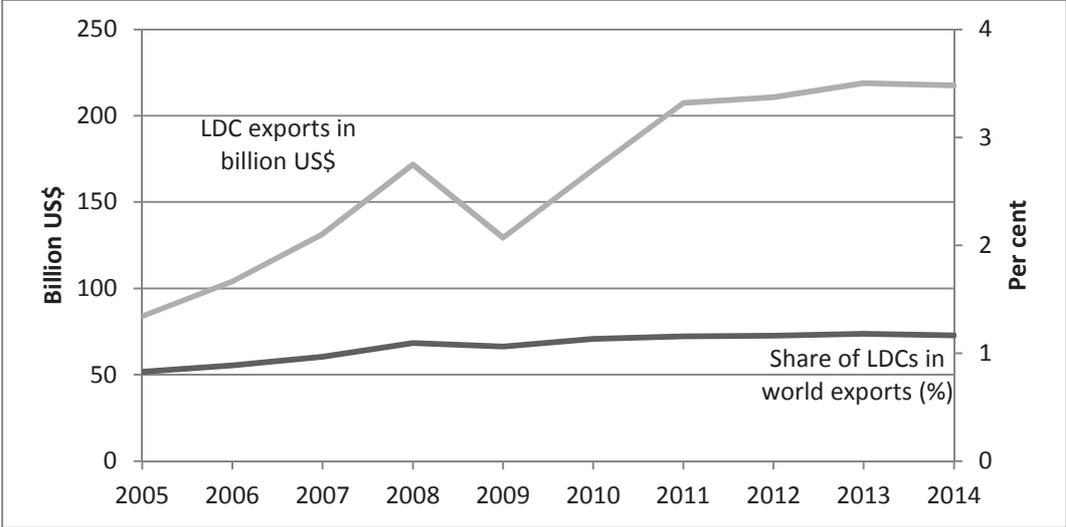
together, if G20 countries were to fully liberalize market access for LDCs and if the distortionary effect of NTMs was eliminated, LDC total exports would increase by almost 15 per cent.

The remainder of this paper is organized as follows. Section 2 describes the export performance of LDCs. Section 3 presents G20 policies in relation to LDCs. Section 4 presents the estimating framework to assess the impact of G20 policies on LDC exports and discusses the results. Section 5 concludes.

## 2. LDCs TRADE PERFORMANCE

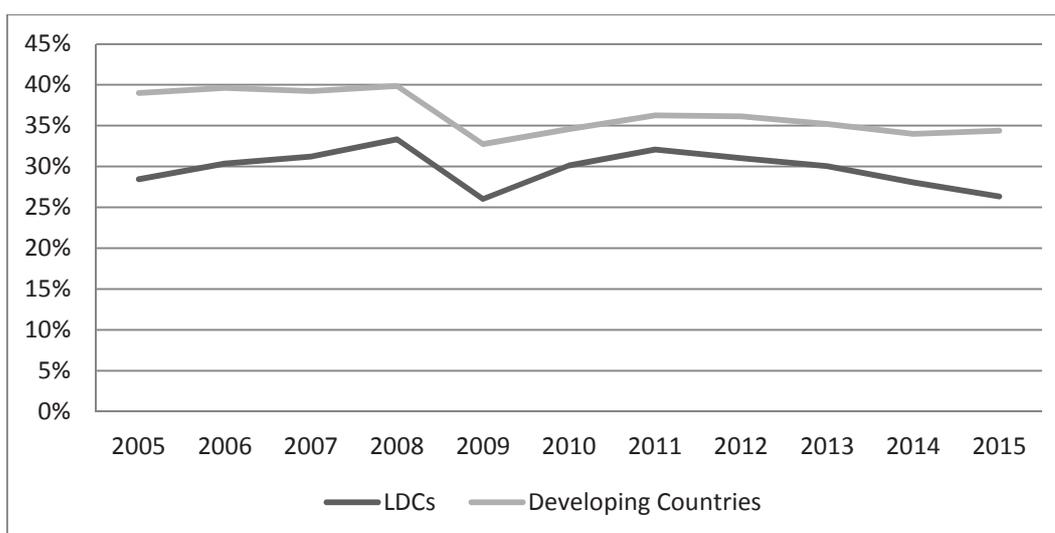
The goal of doubling LDCs' share of global exports by 2020 is ambitious. Although LDC exports have substantially increased from about 83 billion in 2005 to about 220 billion in 2015, their share in global exports increased only from about 0.8 per cent to about 1.2 per cent during the same period (Fig 1).

**Figure 1: Value of LDC exports and exports as a share of global trade**



Doubling this number in less than 5 years would require a strong commitment both with regard to addressing productive capacity constraints and facilitating market access for LDC exports. Abstracting from productive capacity, the importance of market access is emphasized by the statistics showing LDCs' relatively low level of export over GDP ratio. In contrast with other developing countries, LDCs generally trade much less than the size of their economy would suggest. Therefore, the doubling of the LDCs' share in world trade has to result not only from increasing productive capacity but also from exporting a higher share of their production. Increasing LDCs' export performance on a permanent basis has proven very difficult because of their fragile economies and their over-reliance on commodities. During the past 10 years LDCs' export over GDP ratios have been oscillating between 22 and 33 per cent. Since 2011 the ratio has declined and as 2015 it is about 22 per cent (Figure 2).

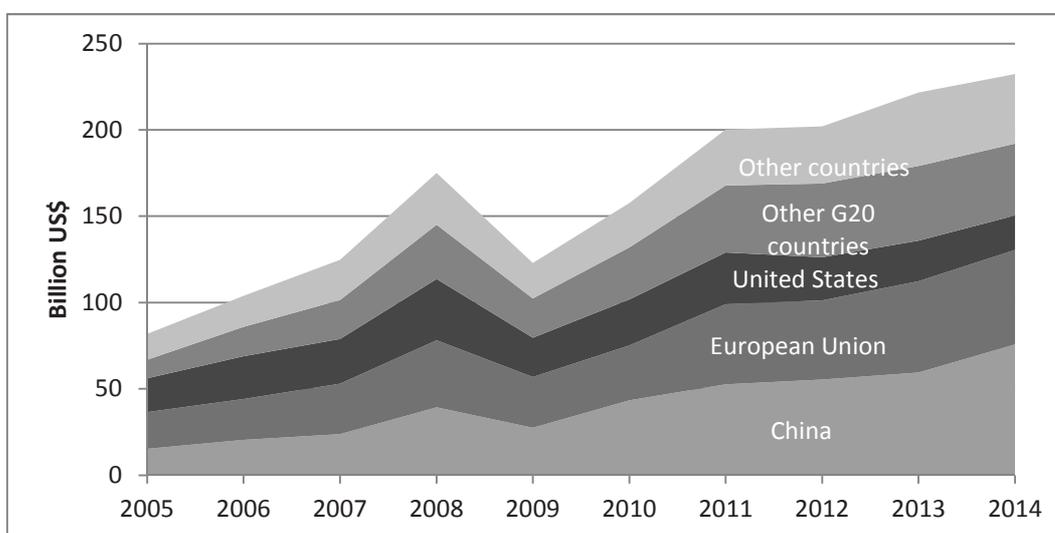
**Figure 2: LDCs export over GDP ratios**



The pattern of weak international integration in terms of exports is widespread across LDCs, although with some differences. Although some LDCs present an export over GDP ratio larger than that of developing countries as a group, the majority of LDCs have an export over GDP ratio which is less than 20 per cent. Moreover, for a substantial number of LDCs, their export over GDP ratio has actually declined since 2011.

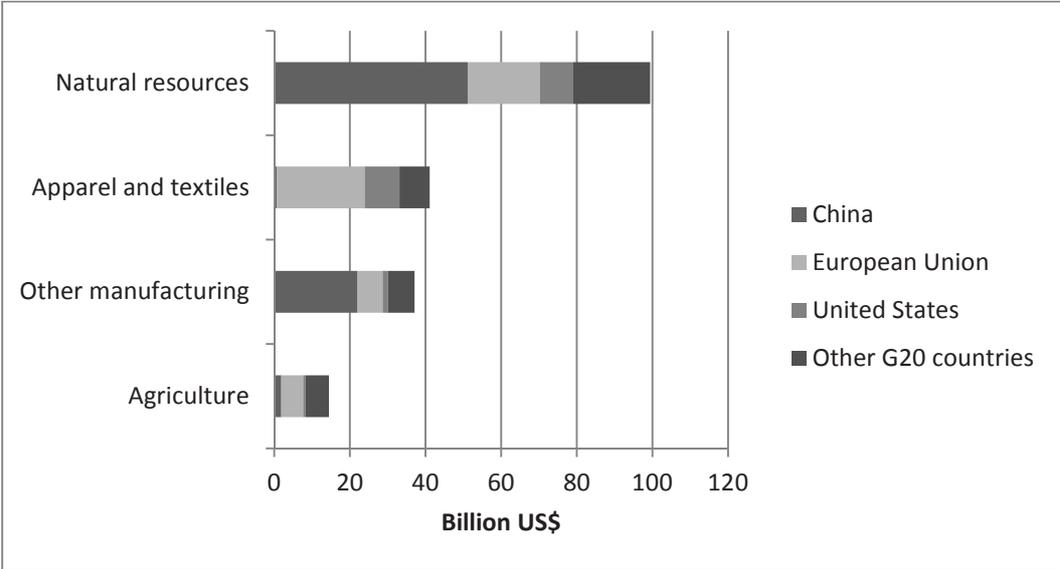
Improving the economic integration of LDCs with the rest of the world depends on enhancing and benefiting from market access opportunities, especially in relation to the major economies. Better market access improves countries' competitiveness and leads to export diversification both in new markets and new products (Nicita and Rollo, 2015). In this regard, policies regulating market access in G20 countries are of fundamental importance as these markets account for about 85 per cent of world GDP and represent more than 80 per cent of LDC exports. Among the G20 markets, China, the European Union and the United States are of major importance as they alone represent about 65 per cent of LDC exports. An increase in LDC exports both to these three major economies and to other G20 countries could make an important contribution to the target of doubling the share of LDCs in world exports by 2020.

**Figure 3: LDCs export, by destination**



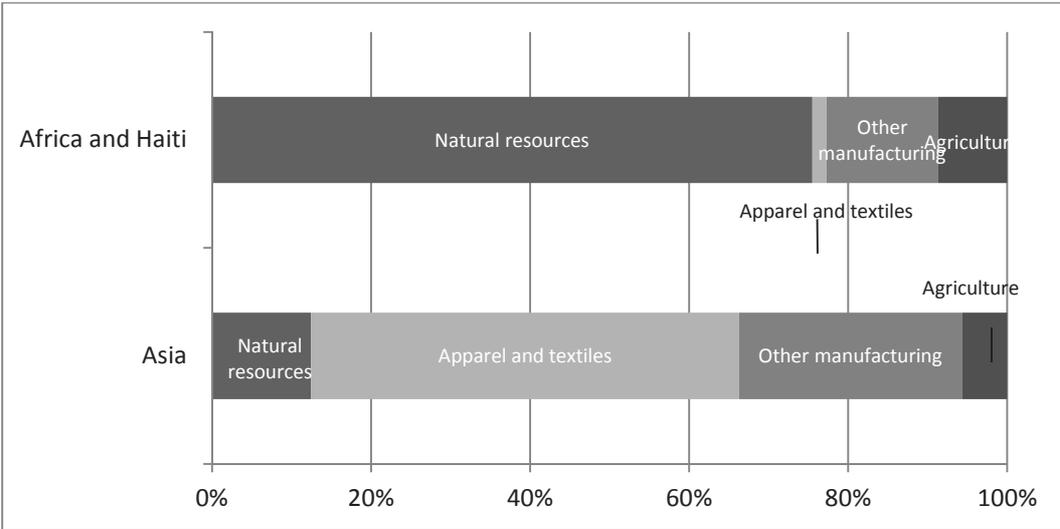
Sustainably improving LDCs' weak export performance requires going beyond export values and addressing export diversification. Although there is some heterogeneity, many LDC exports remain concentrated in a few sectors, largely commodities related to natural resources.

**Figure 4: LDCs export diversification in G20 markets, by product**



The remaining exports to G20 are largely concentrated in agriculture (about 15 billion US\$) and textile and apparel (for about 40 billion US\$). Moreover, LDCs tend to be specialized in their exports. This is evident when comparing the export composition of LDCs in different country groups. 75 per cent of exports of the group comprising African LDCs and Haiti are related to natural resources, with oil contributing to about 70 per cent. On the other hand Asian LDC exports are relatively more diversified but still very concentrated in textiles and apparel (about 54 per cent).

**Figure 5: African and Asian LDC export shares, by product<sup>3</sup>**



<sup>3</sup> Island LDCs are included in the respective region they belong to.

### **3. G20 TRADE POLICY AND LDCs**

Most of the G20 economies joined the long trend of progressive liberalization of international trade. Such liberalization has greatly improved market access to many of the G20 countries, especially in relation to tariffs. Moreover, the proliferation of trade agreements, many of which involve G20 countries, further liberalized market access, although in a more selective manner. Still, while G20 markets are now more open in the traditional sense, market access has become increasingly regulated by other types of more subtle regulatory measures. These trends had positive and negative implications of LDCs. While tariffs cuts further liberalized market access, they also resulted in preference erosion in markets which were already providing LDCs with forms of preferential access. The implications related to the wider use of regulatory measures are more complex, as these measures can produce substantial distortionary trade bias against LDCs.

The international community generally recognizes LDCs' trade constraints and therefore provides LDC exporters with mechanisms which facilitate trade, or at least do not impose additional burdens. Trade arrangements differentiating LDCs from the rest of developing countries exist both at the multilateral level, as well as at the bilateral level. With regard to the G20 countries, their policies try to facilitate LDCs market access both by providing tariff preferences and by facilitating LDCs trade with regard to forms of NTMs (e.g. quotas). The mechanisms through which more advanced economies aim to provide LDCs with a policy driven competitive advantage take the form duty-free quota-free access, broader lists of eligible products, softer rules of origins, Aid for Trade, and technical facilitation programs to reduce trade costs and boost productive capacity so as to ultimately increase LDCs' overall competitiveness.

#### **3.1 TARIFFS**

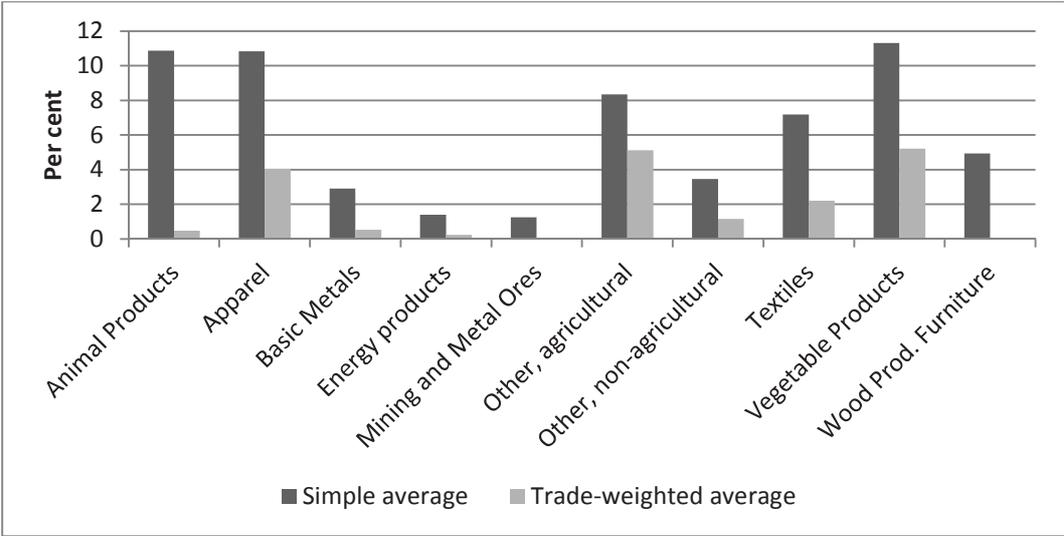
Many of the high income countries that are part of the G20 provide tariff preferences to LDCs on a non-reciprocal basis under the General System of Preferences and also under specific arrangements (e.g. the European Union's Everything But Arms). Non-reciprocal preferential access for LDCs is also provided by some of the G20 developing countries such as China and India which have recently started their own preferential schemes under the Global System of Trade Preferences among Developing Countries. Most of the preferential schemes, although generous, are not without strings attached. A general concern is that since they are unilaterally granted, they could be also unilaterally revoked, therefore leading to uncertainty. Most importantly many preferential programs do not cover the full range of products. Products of importance for LDCs especially with regards to agriculture, apparel and textiles often remain in the exclusion list, and are therefore still subject to relatively high tariffs. Moreover, administrative burden and stringent rules of origins may render some of the preferential schemes ineffective (Laird, 2012).<sup>4</sup>

On average, tariffs that the G20 countries apply to imports from LDCs are very low, about 1.3 per cent (trade weighted average). However, this low number is largely due to a composition of LDC exports tilted towards natural resource commodities which generally face zero or very low tariffs. The simple average tariff applied by G20 countries to LDC exports is 5.2 per cent. Moreover, there is a lot of variation in the tariffs faced by LDCs across product groups. In particular, tariffs remain particularly high in relation to textiles and apparel and many agricultural products (Figure 6).

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<sup>4</sup> While preference schemes available to LDCs are thus not always fully utilized, the analysis in this paper abstracts from the question of utilization due to data limitations.

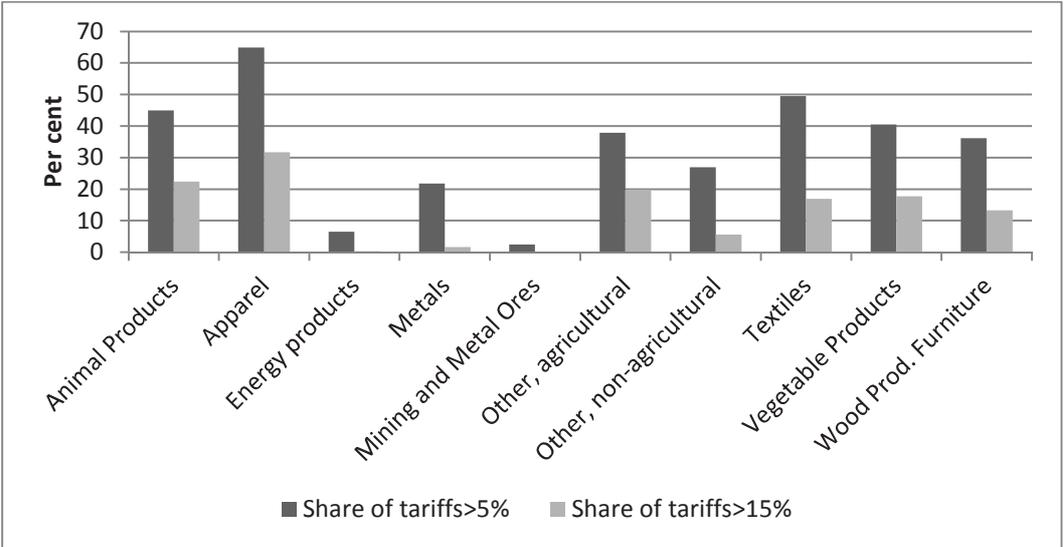
**Figure 6: Average tariffs faced by LDCs in G20 markets, by product groups**



Tariffs applied to LDC exports are also different across G20 countries. Table 1 reports the trade weighted average tariffs that G20 countries impose on each LDC. The average tariff applied to LDC exports is generally low. However, there are also some exceptions indicating that tariffs remain relevant. In particular, in a number of cases LDCs face average tariffs up to about 10 per cent in some of the G20 markets.

The overall low tariff applied to LDC exports is due both to the large share of products benefiting from duty free access and to the composition of exports tilted towards natural resource products which generally face zero or very low most-favoured-nation (MFN) tariffs. However, there is still ample room to improve LDCs market access by removing the remaining tariffs. In reality, tariffs still represent an impediment for many products that are exported by LDCs. Tariff peaks – tariffs that are substantially higher than the average - are present in many of the product groups of importance of LDCs (Figure 7).

**Figure 7: Tariff peaks for LDC exports in G20 markets, by product groups**



**Table 1: Average applied rates on recorded trade items from LDCs**

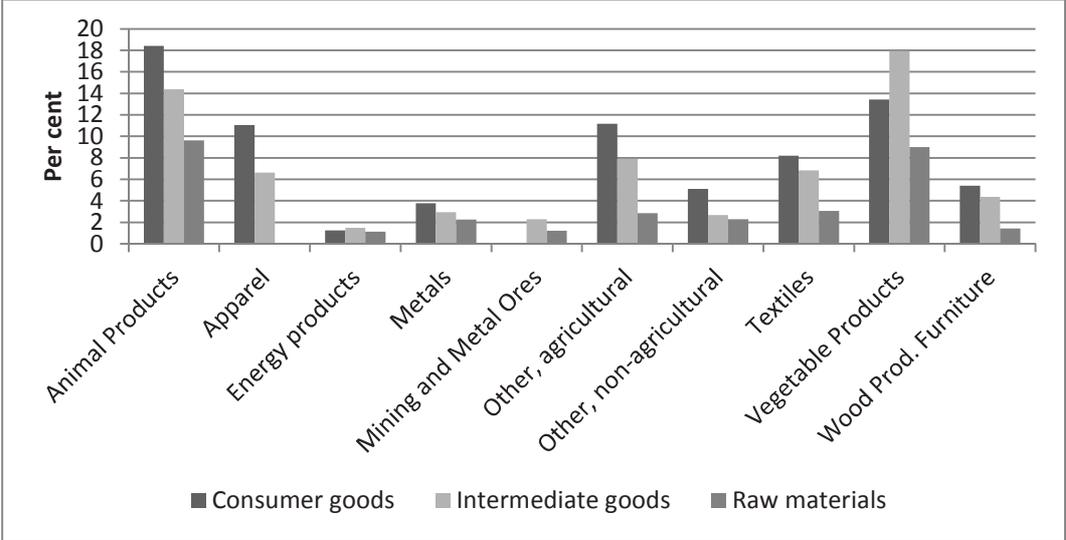
LDC	ISO3 code	China	European Union	United States	Other G20
Afghanistan	AFG	0.12	0.00	1.44	4.36
Angola	AGO	0.02	0.00	0.40	0.81
Bangladesh	BGD	2.79	0.00	6.77	7.79
Benin	BEN	1.79	0.00	0.00	10.53
Bhutan	BTN	8.67	0.00	4.25	5.72
Burkina Faso	BFA	6.84	0.00	0.93	9.47
Burundi	BDI	0.00	0.00	0.00	9.30
Cambodia	KHM	0.55	0.00	6.65	7.87
Central African Republic	CAF	0.00	0.05	0.39	3.91
Chad	TCD	1.67	0.00	0.00	2.66
Comoros	COM	0.00	0.00	5.98	3.86
Congo, Democratic Republic of	ZAR	4.77	0.01	0.44	0.70
Djibouti	DJI	0.10	0.02	1.14	1.78
Equatorial Guinea	GNQ	0.83	0.01	0.75	4.41
Eritrea	ERI	0.68	0.00	1.33	6.33
Ethiopia	ETH	0.41	0.02	0.55	8.55
Gambia	GMB	3.96	0.00	0.32	2.86
Guinea	GIN	0.74	0.00	1.27	2.77
Guinea-Bissau	GNB	0.00	0.08	0.00	3.95
Haiti	HTI	9.39	0.01	0.50	5.72
Kiribati	KIR	10.60	0.00	0.03	3.05
Laos	LAO	1.37	0.00	7.52	5.33
Lesotho	LSO	1.22	0.00	0.00	0.41
Liberia	LBR	3.86	0.00	1.11	6.23
Madagascar	MDG	0.09	0.01	0.75	8.45
Malawi	MWI	0.88	0.00	5.29	1.91
Mali	MLI	0.33	0.00	0.88	4.08
Mauritania	MRT	0.32	0.00	1.40	5.40
Mozambique	MOZ	0.33	0.00	2.05	1.16
Myanmar	MMR	0.78	0.00	7.73	6.95
Nepal	NPL	0.27	0.01	5.71	6.87
Niger	NER	0.02	0.01	0.43	4.10
Rwanda	RWA	0.00	0.00	1.60	3.77
Sao Tome and Principe	STP	3.54	0.00	0.30	2.80
Senegal	SEN	0.84	0.00	0.53	5.02
Sierra Leone	SLE	0.00	0.00	0.16	3.72
Solomon Islands	SLB	3.87	0.00	1.81	1.63
Somalia	SOM	0.89	0.00	0.00	3.88
South Sudan	SSD	1.34	0.00	0.00	3.16
Sudan	SDN	6.92	3.96	0.32	7.32
Tanzania	TZA	0.48	0.01	0.99	1.90
Timor Leste	TLS	0.00	0.00	3.96	1.81
Togo	TGO	0.55	0.01	1.39	7.32
Tuvalu	TUV	0.00	0.00	3.90	5.88
Uganda	UGA	0.09	0.00	0.53	4.88
Vanuatu	VUT	0.00	0.00	1.48	2.01
Yemen	YEM	0.17	0.00	2.11	3.35
Zambia	ZMB	0.72	0.00	2.86	0.34

Note: Figures reported are simple average tariffs for traded products.

In particular tariff peaks are still prominent in agricultural products with 20 per cent of tariffs above 15 per cent and about 40 per cent above 5 per cent. Tariffs peaks are also important in the apparel and textiles sectors, in these sectors about 21 per cent of tariff lines are above 15 per cent, and about 55 per cent above 5 per cent.

Tariffs not only affect exports but also have the potential to affect export diversification. For example, tariff structures are often designed to add taxes to processed products (tariff escalation) so as to retain high value added process to the domestic economy. For the LDCs facing such tariff structure it may hinder value addition and export diversification along the value chain. Even accounting for LDC preferences, the difference in tariff between their primary exports and finished products is often large, especially for the agricultural sectors (Figure 8). On average, the difference in the tariffs on primary vs finished agricultural products is about 4 per cent.

**Figure 8: Tariffs escalation for LDC exports in G20 markets, by product groups**

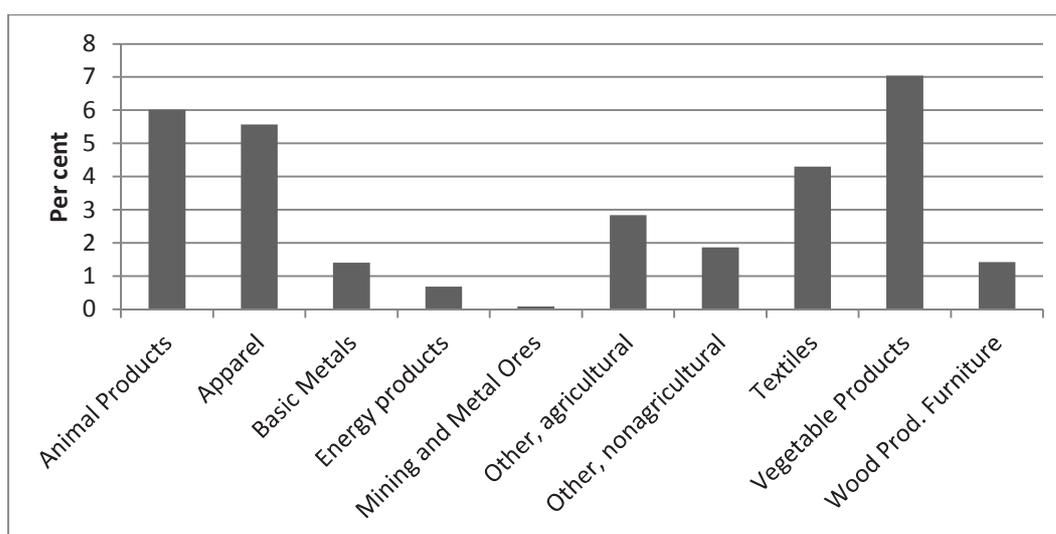


The tariff structure and the system of preferences are also important in relative terms. That is in relation to the tariff applied to LDCs' foreign competitors. Indeed, the tariff liberalization process of the last few decades has resulted in preference erosion for LDCs and the proliferation of trade agreements implies that there are many cases where LDCs face relatively higher tariffs than foreign competitors. Although LDCs' preferential margins in G20 markets remain valuable, the benefits of preferential schemes are often limited to sectors that have resisted MFN liberalization, or where the list of products exempted from general preferences for developing countries is broader. LDCs' preferential margins vary across typologies of products and remain valuable for vegetable products providing a tariff advantage of about 7 percentage points in entering G20 markets vis-à-vis foreign competitors. LDCs' preferential margins are also substantial in other agricultural products as well as in the textiles and apparel sectors (between 4 and 6 percentage points).

**3.2 NON-TARIFF MEASURES**

Import tariffs are just one of the instruments affecting market access. More importantly, market access depends on and is administered by a large and increasing set of regulations and requirements that traded goods need to comply with. These regulatory measures are generally referred to as non-tariff measures (NTMs) and include all sorts of policies which have direct or indirect effect on trade costs. While some NTMs aim to directly affect trade (e.g. quotas, export restrictions, trade defence measures), many NTMs do not have protectionist or trade restrictive intents. Most NTMs serve legitimate objectives such as consumer or environmental protection (e.g. SPS and TBTs) or are instruments of domestic and industrial policy which affect trade only indirectly (e.g. subsidies, administered price mechanisms, financial measures, government procurement).

**Figure 9: Preferential margins of LDCs in G20 markets, by product groups<sup>5</sup>**



Although NTMs are often applied in a non-discriminatory manner to all goods independent of their origin, NTMs pose a particular challenge for LDCs for two reasons. First, NTMs tend to be more prevalent in products that are typically exported by LDCs such as agriculture, textiles and apparel (UNCTAD, 2012).<sup>6</sup> Second, NTMs can have a potentially distortionary effect on trade. This effect often plays against low-income countries, and especially LDCs (Henson and Loader, 2001; Maskus et al., 2005; Essaji, 2015; Murina and Nicita, 2016). For example, standards such as SPS and TBTs are generally applied to imports in a non-discriminatory manner. However, the costs related to such measures are often asymmetrical because their compliance depends on technical know-how, production facilities, and an infrastructural base that, while usually available in developed and emerging markets, is lacking in many LDCs (Athukorala and Jayasuriya, 2003). For this reason it is often the case that regulatory trade framework have negative effects on the export competitiveness of LDCs (Disdier et al., 2008).

Virtually all countries apply some forms of NTMs. However, the regulatory framework, and thus the incidence of NTMs, is more pervasive in the advanced economies. Moreover, in these economies NTMs tend to be more complex, as they are intended to serve a large number of policy objectives.

To summarize the extent to which G20 countries' NTMs affect LDC exports, Table 2 presents the share of LDC exports that is affected by some forms of NTMs when entering G20 markets. In general, a substantial share of LDC exports needs to comply with NTMs, but there is a lot of heterogeneity both across LDCs and G20 economies. In general, LDCs which are more dependent on exports of natural resources products tend to be less exposed to NTMs (e.g. Angola or Guinea). On the other hand, NTMs are more relevant for countries whose exports are more concentrated in agricultural and manufacturing products (e.g. Cambodia or Lesotho). This pattern is largely due to the fact that NTMs are less pervasive in the natural resources sectors than in agriculture and manufacturing. Differences in the share of LDC exports subjected to NTMs are also evident across destinations. These differences are both due to diverse regulatory frameworks of G20 countries as well as to the composition of trade. For example, the relatively low share of LDCs exports facing NTMs when entering China is largely due to China being a large importer of natural resources from most LDCs.

<sup>5</sup> Preferential margins were computed with respect to the average tariffs faced by other countries, not with respect to MFN rates.

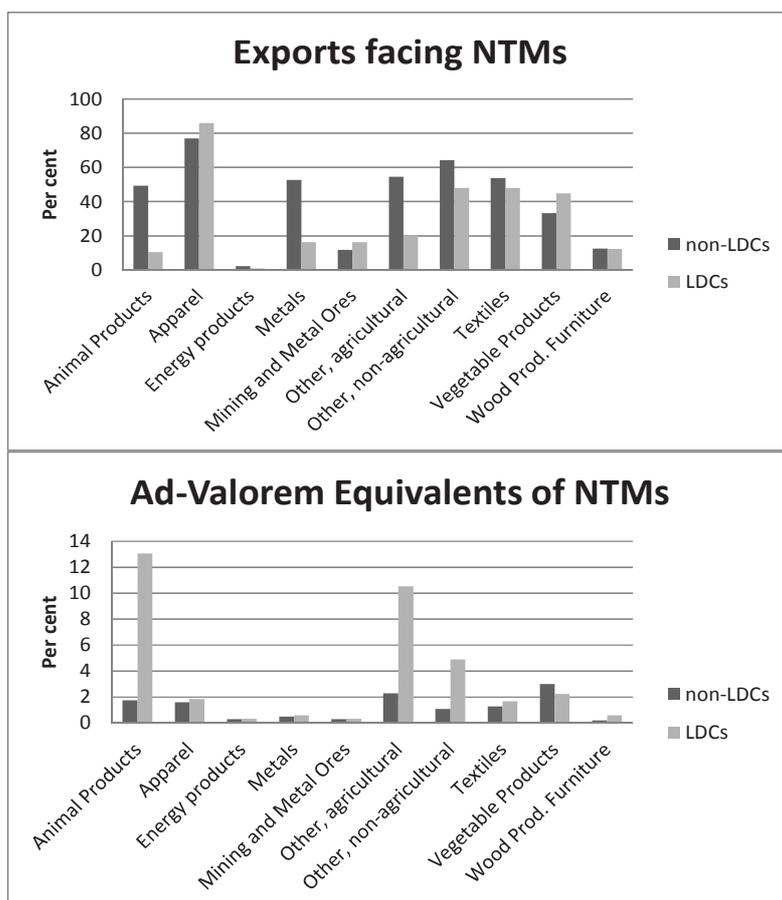
<sup>6</sup> The exception is natural resources which generally face few forms of NTMs.

**Table 2: Share of LDC exports subject to NTMs in G20 Markets**

	<b>China</b>	<b>European Union</b>	<b>United States</b>	<b>Other G20</b>
Afghanistan	6%	48%	20%	10%
Angola	0%	6%	0%	2%
Bangladesh	33%	74%	91%	50%
Benin	15%	24%	5%	31%
Bhutan	85%	97%	64%	1%
Burkina Faso	0%	43%	35%	50%
Burundi	0%	96%	4%	80%
Cambodia	37%	81%	92%	50%
Central African Republic	4%	78%	83%	86%
Chad	0%	26%	0%	6%
Comoros	100%	34%	3%	13%
Congo, Democratic Republic	0%	31%	74%	25%
Djibouti	25%	78%	3%	47%
Equatorial Guinea	0%	7%	13%	0%
Eritrea	0%	49%	45%	56%
Ethiopia	2%	66%	18%	86%
Gambia	0%	21%	76%	11%
Guinea	4%	6%	5%	4%
Guinea-Bissau	1%	45%	6%	4%
Haiti	90%	52%	54%	36%
Kiribati	0%	18%	3%	94%
Laos	19%	79%	68%	38%
Lesotho	98%	99%	95%	75%
Liberia	1%	17%	99%	68%
Madagascar	10%	71%	26%	13%
Malawi	56%	11%	12%	87%
Mali	0%	61%	31%	90%
Mauritania	0%	5%	0%	92%
Mozambique	10%	69%	27%	29%
Myanmar	2%	78%	33%	37%
Nepal	5%	84%	79%	26%
Niger	0%	3%	7%	7%
Rwanda	0%	49%	12%	20%
Sao Tome and Principe	43%	23%	68%	54%
Senegal	5%	22%	10%	15%
Sierra Leone	0%	53%	37%	28%
Solomon Islands	0%	53%	4%	89%
Somalia	1%	95%	17%	19%
South Sudan	0%	81%	17%	0%
Sudan	1%	61%	0%	14%
Tanzania	6%	30%	58%	31%
Togo	5%	36%	6%	28%
Tuvalu	21%	85%	55%	73%
Uganda	5%	62%	7%	59%
Vanuatu	11%	80%	24%	87%
Yemen	1%	7%	0%	1%
Zambia	3%	13%	97%	8%

As it measures NTMs affecting existing trade flows, Table 2 does not include products for which NTMs are prohibitive for LDC exporters (i.e., for which no trade exists). All considered, Table 2 shows that a substantial share of LDC exports complies with at least one form of NTMs when entering G20 markets. This could be interpreted as an indication that LDC exports are generally able to comply with the requirements related to NTMs. However, the relevant issue is whether the presence of NTMs reduces trade for LDCs. Comparing the percentage of LDC exports subject to NTMs in G20 markets to that of non-LDCs (Figure 10a) reveals, although there are some exceptions, that the share of LDC exports subject to NTMs is lower than that of non-LDCs in most product groups. One reason for this pattern could be that LDC exporters are less able to comply with NTMs, and therefore tend to export less products affected by NTMs than non-LDC exporters. The overall impact of NTMs on trade costs suggests that there is a distortionary trade effect of NTMs against LDC exporters. Indeed, a feature of many forms of NTMs is that they add administrative burden and affect overall costs for exporters. These costs are thought to be higher for LDC exporters (UNCTAD, 2012). To explore this possibility we use cost estimates of ad valorem equivalents of NTMs of Bown, Kee and Nicita (2016). According to these estimates the costs associated with compliance with NTMs appear to be in general higher for LDCs (Figure 10b).

**Figure 10: Incidence and costs associated with NTMs in G20 markets, LDCs vs non-LDCs**



All considered, these patterns suggest that LDCs products may become less competitive in G20 markets when NTMs are present. We will more formally elaborate on this in the next section.

## 4. ASSESSING THE IMPORTANCE OF G20 POLICIES FOR LDC TRADE

This section analyses the relationship between LDC exports and G20 trade policy. To capture the effect of G20 trade policies as opposed to other trade-related costs we use a traditional cross-section gravity model that includes time invariant trade impediments augmented with a set of trade policy variables. In particular we examine the effect of tariffs and NTMs that G20 countries apply on their imports. The empirics are constrained by the paucity of NTMs data and build on the methods of Murina and Nicita (2016). In summary, the quantitative analysis investigates whether a less favourable trade policy stance (lower preferential margins, and presence of NTMs) results in a larger reduction of exports for LDCs than for other countries.

The data utilized in the analysis originates from various sources. UNCTADStat database provides macroeconomic variables. Gravity type variables (distance, landlockedness, and common language) are from the Trade Production and Protection database (Nicita and Olarreaga, 2006). Trade statistics for the G20 countries originate from the UN COMTRADE database. Tariff data are from the UNCTAD TRAINS database and include the ad valorem equivalent of specific duties as calculated by UNCTAD. Data on NTMs is from the UNCTAD TRAINS NTM database.<sup>7</sup> Trade agreement data originates from the NSF-Kellogg Institute Database on Economic Integration Agreements, as well as the preferential trade agreement database maintained at the WTO. The data follows the HS (Harmonized System) nomenclature at the 6 digit level and consists of about 5000 products, 15 G20 importers, and about 150 exporting countries including 38 LDCs.<sup>8</sup> Data for the European Union member countries is aggregated to form a single entity. Products groups at the HS4 level that are not exported by any of the LDCs are excluded from the estimating sample.

### 4.1 ECONOMETRIC ESTIMATION

To form predictions about whether G20 policies affect LDC exports, we apply a cross-section gravity model framework. The identification strategy is as follows: If G20 trade policy measures are effectively diverting trade to the disadvantage of LDCs, such measures should translate into a relatively lower level of trade for LDCs in products where preferential margins are lower, or in products where NTMs are present. Given the cross-sectional nature of the data, the identification strategy relies on cross product (HS 6-digits) variation within product group (HS4-digits). To capture G20 trade policy stance we use the ad valorem tariffs and the presence of NTMs at product level. To investigate whether these policy measures differentially affect LDCs trade we rely on a measure of preferential margin for tariffs and on an interaction term for NTMs. In more formal terms the estimating equation is:

$$Tr_{g,k,i} = \exp(\alpha + \beta G'_{g,k} + PrM_i + \gamma_1 DA_{g,k} + \gamma_2 t_{g,k,i} + \gamma_3 pm_{g,k,i} + \gamma_4 NTM_{g,i} + \gamma_5 LDC_k + \gamma_6 (NTM_{g,i} * LDC_k) + z_g + \omega_{4d}) + \varphi_{g,k,i}$$

where  $Tr$  denotes imports of each G20 country (denoted as  $g$ ) from country  $k$ , and  $i$  denotes the product (at the HS 6 digit).  $G'_k$  is a vector of gravity type variables (distance, landlocked status, common language, population, and GDP).  $PrM_i$  (product market size) is the value of world trade for the product

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<sup>7</sup> We use the UNCTAD TRAINS non-tariff measures database, which follows an updated classification. To capture the distortionary effects of NTMs we use only measures that are actually enforced and that most likely impose asymmetric costs. In particular, we include SPS and TBT measures, but only those which require conformity assessment procedures. We also include pre-shipment inspection measures, finance measures and measures affecting competition. We do not include measures that are applied indiscriminately to all products such as custom surcharges.

<sup>8</sup> Due to NTMs data unavailability for Russia, South Korea, South Africa and Turkey, these countries are not part of the analysis. Due to macroeconomic data limitations 10 of the 48 LDCs are not included in the econometric estimation.

purged by the corresponding bilateral trade. This controls for differences in market size within product groups as well as the concern that NTMs may be imposed on products traded the most. DA is a dummy controlling for the presence of a deep trade agreement, LDC is a dummy for least developed countries,  $t$  is the effectively applied tariff,  $pm$  is the preferential margin enjoyed by LDCs, NTM is the presence of NTMs.  $z_g$  denotes importer fixed effects and  $\omega_{4d}$  denotes 4-digit product group fixed effects and  $\varphi_{g,k,i}$  is an error term. In this setup, the coefficients of interest are  $\gamma_3$  which captures the effect of the preferential margins, and  $\gamma_6$  which captures the specific effects of NTMs on LDC. A positive sign on  $\gamma_3$  indicates that LDC exports are higher in products where preferential margins are higher and a negative sign on  $\gamma_6$  implies that the presence of NTMs reduces LDC exports. The estimating model relies on Poisson pseudo maximum likelihood (PPML) which is robust to the presence of zero trade flows (Santos Silva and Tenreyro, 2006). Given the cross-sectional nature of the dataset, multilateral resistance is proxied by adding a multilateral resistance variable as in Baier and Bergstrand, 2009. With regard to the variable of interest the estimation is in log-linear form.

**Table 3: Econometric Results**

	(1)	(2)	(3)	(4)	(5)	(6)
Agreement	0.273*** (0.0563)	0.230*** (0.0546)	0.230*** (0.0544)	0.230*** (0.0545)	0.232*** (0.0651)	0.241*** (0.0442)
NTM		-0.0807 (0.0876)		-0.0700 (0.0865)	-0.0620 (0.0809)	-0.0369 (0.0460)
NTM * LDC				-0.655* (0.357)	-0.653* (0.381)	-0.648*** (0.245)
Tariff		-0.0200*** (0.00684)	-0.0201*** (0.00697)	-0.0198*** (0.00683)	-0.0188** (0.00803)	-0.0148*** (0.00280)
Pref. Margin			0.0215*** (0.00298)	0.0205*** (0.00285)	0.0210*** (0.00328)	0.0216*** (0.00130)
LDC	-0.0547 (0.195)	-0.0936 (0.191)	-0.155 (0.190)	0.297 (0.305)	0.300 (0.261)	0.306 (0.225)
log (distance)	-0.701*** (0.0412)	-0.698*** (0.0413)	-0.698*** (0.0413)	-0.697*** (0.0412)	-0.698*** (0.0608)	-0.699*** (0.0307)
log (GDP exporter)	0.757*** (0.0452)	0.763*** (0.0462)	0.763*** (0.0462)	0.763*** (0.0462)	0.764*** (0.0603)	0.763*** (0.0190)
log (Population exp)	0.171*** (0.0625)	0.172*** (0.0624)	0.172*** (0.0623)	0.172*** (0.0624)	0.172** (0.0829)	0.172*** (0.0247)
Landlocked	-0.330*** (0.0651)	-0.320*** (0.0663)	-0.320*** (0.0664)	-0.320*** (0.0663)	-0.321*** (0.0674)	-0.323*** (0.0488)
Log (product market size)	0.825*** (0.0118)	0.826*** (0.0119)	0.826*** (0.0118)	0.826*** (0.0119)	0.931*** (0.00971)	0.950*** (0.0143)
Shared Border	0.0783 (0.0930)	0.0620 (0.0901)	0.0611 (0.0899)	0.0600 (0.0900)	0.0616 (0.153)	0.0650 (0.0703)
Common Language	-0.240*** (0.0783)	-0.236*** (0.0777)	-0.234*** (0.0770)	-0.234*** (0.0777)	-0.234* (0.121)	-0.235*** (0.0628)
Observations	4,287,378	4,286,378	4,286,378	4,286,378	4,286,378	4,286,378
H4 digits groups	1,061	1,061	1,061	1,061	86	1

Robust standard errors in parentheses: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Note: Dependent variable: value of imports. Estimation: Poisson pseudo-maximum likelihood. All specifications include importer fixed effects and multilateral resistance terms. Specifications (1) to (4) include product group fixed effects.

Table 3 presents the PPML estimates for several specifications. Specification (1) consists of a traditional cross-section gravity model. Specification (2) adds the tariff and the NTMs, specification (3) adds the tariff and preferential margins and controls for LDCs. Specification (4) further adds the NTMs term and its interaction with the LDCs dummy. Specification (5) and (6) provide robustness checks to the choice of product groups fixed effects: (5) includes product group fixed effects at the HS 2-digit level and (6) does not include product group fixed effects.

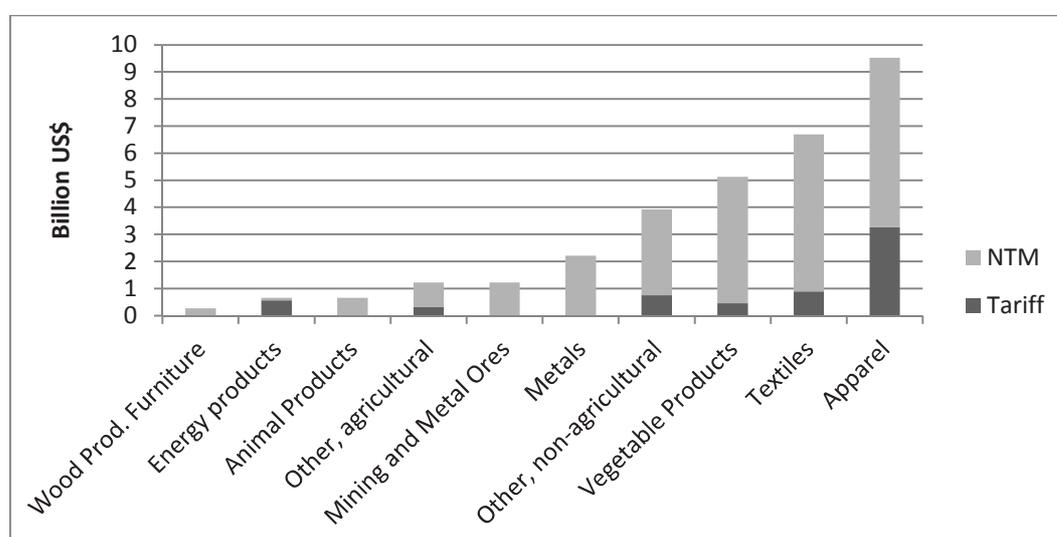
Most of the gravity variables are significant and have the expected sign. In particular, geographical distance and being landlocked reduce the value of trade while exporter GDP and population increase it. In contrast, the coefficient on shared borders is not significant and the coefficient on common language does not have the expected sign. These results are likely to be driven by the limited sample of importers. In general, LDCs are not found to export significantly less once controlling for their GDP and population. As expected, product market size is positively correlated with bilateral trade. With regard to trade policy variables, the results are consistent across all the specifications. In particular, they indicate that the presence of a trade agreement increases the value of trade by 25 per cent. Tariffs have a negative effect on trade, while preferential margins increase trade. A 1 percentage point reduction in tariffs and a 1 percentage point increase in the preferential margin both increase trade by around 2 per cent. The coefficient on the presence of NTMs is negative but insignificant. In contrast, the interaction term between NTMs and the LDC dummy takes a negative coefficient, which is significant at the 10 per cent level. This implies that NTMs have a trade impact disavouring imports originating from LDCs. LDC exports are on average about 90 per cent larger in the absence of NTMs. This result is consistent with the hypothesis that the cost of complying with NTMs makes LDC exports less competitive. These results remain consistent across different choices of product groups, using HS 2-digit product group fixed effects as well as considering all HS 6-digit products within a single group, i.e. without fixed effects. As a caveat, it should be borne in mind that these results originate from regressions based on cross sectional data. Therefore it does not allow unambiguous conclusions regarding the direction of causation, as endogeneity cannot be completely controlled for. However, the results clearly indicate that LDC exports tend to be relatively smaller when preferential margins are lower or when NTMs are present.

## **4.2 ECONOMIC ASSESSMENT**

This section provides the economic assessment of the econometric estimation. We use the coefficients from the regression to estimate the magnitude of the trade effects of tariffs and the distortionary trade effect of NTMs. This computation serves to quantify the trade gains that LDCs would experience if the G20 were to provide complete tariff-free market access for LDCs and if the distortionary trade effects of NTMs were eliminated. With regard to tariffs, the results include both the effects originating from the elimination of tariffs applied directly to LDCs and from the resulting increase in the preferential margin. With regard to NTMs, the results quantify the export gains obtained if the distortionary effects of such measures were removed. A limitation of the methodology used in this study is that the effects are calculated only on the intensive margins of trade (the increase of trade in products previously exported to the same destinations), and do not include extensive margins of trade (trade in new products or to new destinations). Therefore these numbers are to be interpreted as conservative, as they may very well underestimate the true effects. The effects of G20 trade policy on the extensive margin of LDC exports, while beyond the scope of this paper, may well be significant, which is why this question merits further research. At the aggregate level, allowing for tariff-free market access for LDCs is quantified to increase LDC exports to G20 by almost 10 billion US\$, equivalent to an increase in LDCs total export of almost 5 per cent. Eliminating the distortionary trade effects of NTMs would increase LDC exports to G20 countries by about 23 billion US\$, equivalent to about a 10 per cent increase. Taken together fully liberalizing market access for LDCs and eliminating the distortionary trade effect of NTMs on LDCs would increase their exports by about 15 per cent.

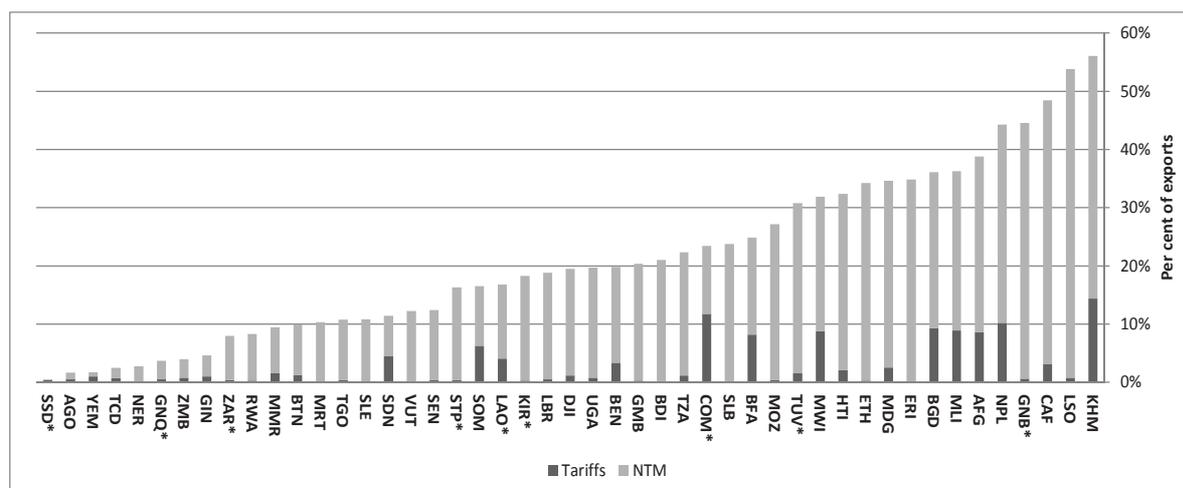
Although informative, the aggregate results mask the heterogeneity of effects across product categories, LDCs and G20 countries. To inform about these differences we first present the effects by product categories (Figure 11). Most of the effects of tariff liberalization and from addressing distortionary trade effects of NTMs are concentrated in the textile and apparel sectors, as well as in some of the agricultural categories, in particular vegetable products. Tariff-free market access in G20 markets would increase LDC textile and apparel exports by about 4 billion US\$. Addressing the distortionary effect of NTMs on LDC trade in these two sectors would add about 11 more billion US\$ to LDC exports. Substantial effects are also found for agricultural products, especially vegetable products. In this sector the benefits of addressing the distortionary effects of NTMs for LDCs are quantified at about 5 billion US\$. The effect of tariff liberalization would be substantially lower in these products. For the remaining product groups the absolute effects both related to tariffs and to NTMs are lower due to the already very low tariffs and a more limited incidence of NTMs.

**Figure 11: Impact of duty free access and addressing distortionary effect of NTMs on LDC exports to G20 countries, by product**



The effects are also found to be very different across LDCs. In general terms, LDCs whose exports are tilted towards natural resources will have little benefits from improved market access in G20 countries. The reason is that market access is generally free for products of extractive industries, and that the impact of NTMs is more muted as the export volume of such industries depends primarily on natural endowments and productive capacity. Among the LDCs that would benefit less from improved market access in G20 countries are those which export mainly oil (e.g. Angola, Yemen, Chad, Equatorial Guinea) or other extractive products (Zambia, Niger and Congo D.R). On the other hand, LDCs whose exports are more diversified into agriculture and manufacturing would benefit the most as these sectors face relatively higher tariffs and NTMs are more prevalent. Among the largest beneficiaries would be Asian LDCs such as Cambodia and Bangladesh, as well as African LDCs which are not highly dependent on the exports of natural resources (e.g. Gambia, Lesotho, and Central African Republic). For these countries tariff-free market access and addressing distortionary trade effects related to NTMs could increase exports by 50 per cent or more (Figure 12).

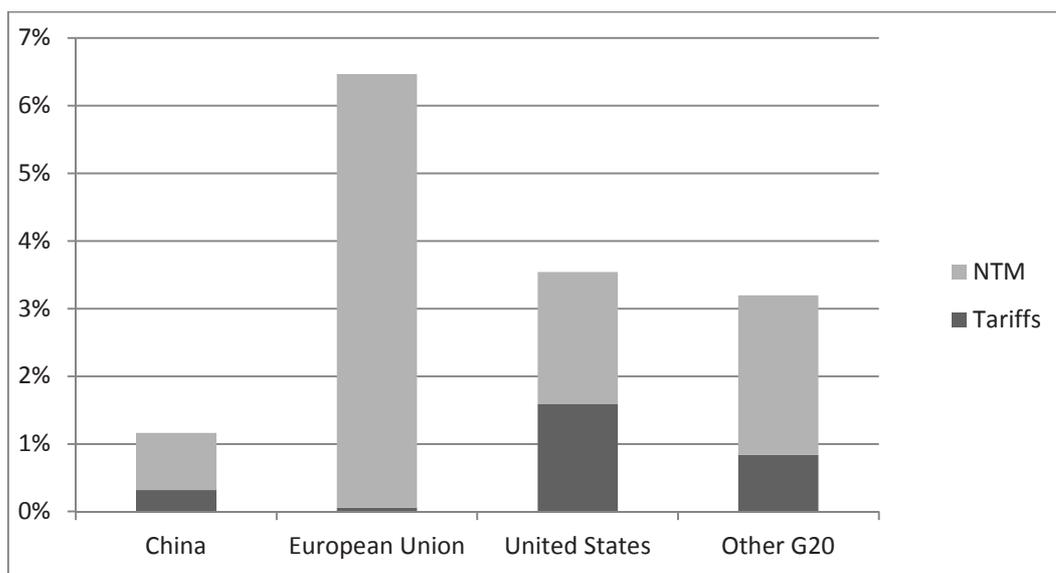
**Figure 12: Impact of duty free access and addressing distortionary effect of NTMs on LDC exports to G20 countries, by LDCs**



Note: For the LDCs denoted with \* the effects are resulting from out of sample predictions.

Finally, providing LDCs with tariffs-free market access would have different effects across G20 countries depending on the existing tariffs concessions. Similarly, the impact of eliminating the distortionary trade effects of NTMs would differ across G20 depending on the incidence of their regulatory framework (Figure 13). In addition, differences among G20 would originate also from differences in the composition of trade. With regard to G20 markets, the largest effect for LDCs would be obtained from the increase in exports to the European Union driven by addressing distortionary bias of NTMs. This would increase LDCs total exports by more than 6 per cent. As the European Union already sets most tariffs at zero for LDCs, the impact of any further tariff reduction would only be marginal. With regard to the United States, the results reaffirm the importance of addressing the distortionary effects of NTMs. Its elimination would increase LDCs total exports by about 2 per cent. However, the results also point out that for LDCs it remains important to enlarge the United States' preferential schemes. In numbers, allowing LDC exports to enter the United States' market duty free would result in an increase in their exports to the world of about 1.5 per cent. Effects of similar magnitude from enhancing the preferential schemes for LDCs and from addressing the distortionary trade effects of NTMs are found for the remaining G20 countries collectively. Finally, lower results are found in relation to improving LDCs access to the Chinese market. However, these relatively smaller results are driven by the fact that existing LDC exports to China are highly concentrated in natural resources.

**Figure 13: Impact of duty free access and addressing the distortionary effect of NTMs on LDCs total exports, by G20 country**



All considered, the results indicate that for LDCs, NTMs are the most important factor in limiting market access in G20 countries. Still, an important result of this paper is that tariffs remain relevant in limiting market access for LDCs, at least in some specific cases as that of apparel exports from Asian LDCs to the United States, and more in general for agricultural exports. In terms of destinations, tariffs remain relevant for accessing the United States' market as well as the markets of many other G20 countries.

## 5. CONCLUSIONS

This study has provided an overview of G20 trade policies and an assessment of their impact on LDC export performance. The general findings of this study indicate that tariff preferences should be seen as part of the approach to help improve market access conditions for LDCs. However, tariff preferences alone are not sufficient, as they would produce meaningful effects only for a limited number of LDCs. It is necessary to facilitate LDC compliance with G20 regulatory frameworks and eliminate the negative trade effect of NTMs on LDCs to improve market access and increase exports from LDCs.

In aggregate terms, the impact of providing LDCs with truly tariff-free market access to the G20 is quantified in an increase of exports of about 10 billion US\$, equivalent to about a 5 per cent increase of LDC total exports. Addressing the distortionary trade effects of NTMs would increase LDC exports to G20 countries by about 23 billion US\$, equivalent to more than 10 per cent increase of LDC total exports. Taken together, if G20 countries were to fully liberalize market access for LDCs and if the distortionary trade effect of G20 NTMs on LDCs were eliminated, LDC total exports would increase by almost 15 per cent.

An issue of fundamental importance is whether the policy options identified in this paper are feasible to implement. Providing truly duty free access for LDCs is definitively easier to implement than reducing the distortionary trade effects of NTMs on LDCs. Enlarging preferential schemes to cover all LDC exports is rather straightforward with the only difficulties originating from limiting possible transshipments. In practice, there is ample room for enlarging and strengthening G20 preferential schemes to LDCs. In particular, G20 countries should review their eligibility rules, product coverage and exemptions, rules of origins, and administrative costs, all of which often limit the effectiveness of their preferential schemes towards LDCs.

On the other hand, addressing the distortionary bias of NTMs on trade from LDCs requires a much more complex approach. Many NTMs serve public policy objectives and are instruments of domestic economic policy. Their effect on trade, although substantial, is indirect and therefore, these measures cannot be eliminated without disrupting the very purpose they serve. Reducing the negative trade effects of NTMs for LDCs has to originate not from the removal of NTMs but from helping LDCs to comply with them at a cost-efficient basis. In this regard, there are two policy recommendations. First, G20 policies should ensure that their regulatory framework does not unnecessarily create discrimination against LDC exporters. Second, the G20 should continue to assess and monitor the impact of new and existing NTMs on their trade, eliminate unnecessary measures, and provide exporters from LDCs with the necessary information and support to ensure that the LDCs are not negatively affected. In this regard, the G20 countries should provide LDCs with assistance specifically targeted to overcome their relatively higher cost of compliance with NTMs (Athukorala and Jayasuriya, 2003). Further progress in Aid for Trade initiatives and increases in technical assistance programmes both on bilateral and multilateral levels would help to minimize LDCs' costs of compliance with NTMs and therefore facilitate the integration of LDCs in the global economy (Hoekman, 2002).

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