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Small Trade Flows, Compliance Costs and Trade Preferences: The Case of EU Imports from African LDCs

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Abstract Previous work has shown that a significant number of preference eligible goods are imported into the EU from developing countries at relatively small values and that the rate of preference utilisation of these imports are low and in many cases zero. This fact is unobserved in the aggregate figures and thus rarely noticed. This paper examines this phenomenon further by using monthly data on EU imports from African LDCs at the lowest level of (publicly) available aggregation thereby coming close to transaction level data. It identifies the average values of preference eligible imports, utilising and not utilising preferences, by country and product category and test their empirical relevance for explaining the African LDCs' preference utilisation rates.

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1. Introduction

The EU grants preferential access to its market through various free trade agreements (FTAs) and special programmes for developing countries. The value and use of these arrangements have been debated off and on for a number of years in various contexts. For example, Brenton and Manchin (2003) argued that EU preferential trade schemes have been ineffective in delivering improved access to the EU market because of too strict rules of origin (RoO). Moreover, Manchin (2006) estimated a preferential margin threshold value of 4% under which traders have no incentives to ask for preferences since the costs of obtaining these exceeds their benefits.

On the other hand, Persson and Wilhelmsson (2007) found that certain EU preference arrangements have had large effects, in particular the schemes for the ACP countries as did Nilsson (2002). More recently, Nilsson and Matsson (2008) concluded that EU trade preferences matter and are important for the lion's share of exports from various developing country groupings, including for products for which the preferential margin is relatively low. The results of CARIS (2010) go in the same direction and show that the EU's standard GSP scheme, which provides for a preferential margin of 3.5 percentage points, is in most cases well used.

Nilsson (2011) showed that preference utilisation (defined as the ratio of the value of preferential imports to the value of preference eligible imports) for small trade flows is markedly lower than average utilisation rates. In 2008, more than 90% of the preferential import flows (at 8-digit level) represented together about 10% of the value of EU preferential imports from developing countries.² The preference utilization rates of these flows were found to be low. Preferential import flows of less than €10.000 were associated with a preference utilisation rate of 1%.

This rebuts arguments claiming that RoO are an obstacle to developing country exports as small trade flows – less than €6000 – *do not need* a certificate of origin to enter the EU market under preferences; submitting the invoice is enough. We should rather observe higher rates of preference utilisation for smaller trade flows if RoO are too strict. But the result does indicate that there is a certain fixed cost associated with utilising preferences. It seems profitable to utilise preferences only if the potential value of preference eligible imports is higher than the cost associated with obtaining the preferences. Using this cost argument, we attempt to explain the extent to which the potential value of preferences reflects the (foregone) benefits of (not) using preferences.

Though low utilisation of preferences of small trade flows features in all developing countries, this ought to be a more serious problem for exporters from small and poor developing countries compared to larger and more advanced developing countries. The former export less, have fewer exporters and may therefore also be less informed about the existence of preferences. We therefore examine this phenomenon further using detailed data on EU imports from the African least developed countries (LDCs).

² A preferential import flow is defined as the value of a product imported into the EU at the 8-digit level from a certain preference beneficiary in a specific year.

The paper is structured as follows. The next section examines the structure of EU preferential imports from African LDCs in terms of the preference utilisation rate and the number and share of import flows (at 8-digit level) not using preferences. It also and breaks down the findings by country and broad product categories and calculates average threshold values of what we denote the *potential value of preferences* which must exceed the cost of using preferences. Section 3 presents the model used to empirically test the relationship between preference utilisation and preferential import flow value. Section 4 summarizes and concludes.]

2. EU preferential imports from the African LDCs – an overview

Nilsson (2011) used yearly data and his sample did thus not reflect imports at transaction level. At transaction level, each individual import flow must have a preference utilisation rate of either 0% or 100% since preferences can not apply to a share of a product imported. A preference utilisation rate of between 0% and 100% thus tells us that the registered import flow necessarily must consist of more than one transaction where one of the transactions use preferences and the other one does not. However, one should note that the opposite does not hold true. A preference utilisation rate of either 0% or 100% could still imply that more than one transaction is recorded but that all transactions either utilise preferences or not.

Our sample consists of monthly data for 2010 on EU imports of dutiable products (products associated with a non-zero most favoured nation (MFN) tariff) from the 35 African LDCs at the 8-digit level of the Combined Nomenclature. These imports are eligible for duty-free entry on the EU market under either the Everything but Arms (EBA) initiative or the (initialled) Economic Partnership Agreements. All EU imports from the African LDCs are thus eligible for preferences.

The vast majority of the observations in our sample have utilisation rates of either 0% or 100%. Only 9% of the observations have utilisation rates in-between. We choose to ignore these 9% of the observations in an attempt to come as close as possible to transaction level data in our analysis thereby gaining a better understanding of why some import flows benefit from preferences and others do not.

Previous work has shown that import flows of higher value tend to utilise preferences to a greater extent than low value import flows, even though the preferential margin and rules of origin remain the same for both types of import flows. It thus appears as if there may be a fixed cost, rather than an ad-valorem cost, associated with utilising preferences. We therefore define the concept of the *potential value of preferences (PVOP)* as the value of preference eligible exports multiplied by the preference margin. Preferences are only expected to be used if the PVOP is higher than the cost associated with utilising the preferences.³

³ The PVOP could not be calculated for all countries and products because of lack of tariff data.

Analysis by country

Annex Table A1 provides some basic indicators associated with the utilisation rate of EU imports from the African LDCs. It shows that, overall, preferences are well utilised with a preference utilisation rate of close to 95% for all countries taken together. The figure hides a substantial variation between the countries. Eleven countries (Mozambique, Uganda, Malawi, Mauritania, Tanzania, Madagascar, Solomon Islands, The Gambia, Senegal, Zambia and Comoros) have a preference utilisation rate above 97%, while Chad, Somalia and Djibouti practically do not utilise preferences at all.

Column 2 shows the count of flows not using preferences and column 3 indicates how large this count is in proportion to the total number of flows. For example, the preference utilisation rate of Mozambique is 99.9%, but still, almost half of all import flows from Mozambique does not utilise preferences. Similarly, Angola with a preference utilisation rate of 76% is made up of a few flows only since 98% of EU import flows from the country does not utilise preferences. On the other hand, only 15% of the number of EU import flows from Guinea-Bissau does not utilise preferences, but the country's preference utilisation rate is still not higher than some 40%.

Column 4 shows that the average PVOP for preference eligible import flows not utilising preferences is €1.100 while the average PVOP for import flows utilising preferences is significantly higher at €16.600. These aggregate figures hide a significant difference between the African LDCs. The average PVOP figures for import flows not utilising preferences show that 30 countries have an average PVOP of €1.000 or less, four countries display figures between €1.000 and €5.000, while only Sudan sticks out with an average PVOP of close to €28.000 for preference eligible imports into the EU not using preferences.

The average PVOP of import flows utilising preferences range from €163.000 in the case of Mozambique to as little as €100 for Djibouti and Guinea-Bissau. For 18 of the countries, the average PVOP is less than €5.000, but 17 countries show PVOPs at least five times higher than the average PVOP for preference eligible import flows not using preferences. Hence, higher PVOPs are associated with preference utilisation.

Finally, the countries with the highest shares of preference eligible imports into the EU (Mozambique, Madagascar, Senegal and Tanzania) all show high rates of preference utilisation (as do some "low share" countries), while there seems to be no particular relationship between the average preferential margin and the preference utilisation rates of the countries. For example, Burundi's rather high preferential margin of 9.2% returns a preference utilisation rate of 55%, while Benin's preferential margin of 6% is associated with a preference utilisation rate of 93.4%.

Analysis by TDC section

Annex Table A2 contains the same information as Annex Table A1 applied to the sections of the *Tarif Douanier Commun* (TDC). The preference utilisation rate is above 95% in eight TDC sections and another two sections have preference utilisation rates above 80%. However, the preference utilisation rates in TDC sections XVI (Machinery and elect. equip), XVII (Transport equip, aircraft, ship) and XVIII (Optic photo cine precision instr.) are at about 5% or below.

The preference utilisation rates of the latter three sections are associated with high shares of flows not utilising preferences, see column 3. However, this is also the case for TDC XV (Iron and steel) which matches a preference utilisation rate of 99.6% with a share of import flows not using preferences of 76.7%. In case of the latter, this points to a great many small import flows not using preferences in this section with a few large import flows pushing up the overall preference utilisation rate.

This is confirmed in column 5, which shows that the average PVOP in TDC XV (Iron and steel) for import flows using preferences is highest among all TDC sections at approximately €181.000. One may note relatively high PVOPs for import flows utilising preferences also in TDC sections I (Live animal and animal products) III (Fats and oils) and IV (Prepared foodstuffs, beverages and tobacco) in parallel with high rates of preference utilisation in this sections.

In case of the latter TDC section, there is a relatively high PVOP also for import flows not using preferences. The same holds for TDC section IX (Wood and wood products), which together with TDC XIV (Pearls and precious stones) and TDC XVI (Machinery and elect. equip.) are the only TDC sections with a higher average PVOP for preference eligible import flows not utilising preferences compared to the average PVOP for preference eligible import flows utilising preference. This result could be caused by aggregation of the PVOP from 8-digit level to TDC section level. In order to examine this issue further, one would need to analyse which products are exported under preferences and which are not at the 8-digit level and relate this to the preferential margin.

Reflecting the result at country level, TDC sections representing a high share of preference eligible EU imports are associated with high preference utilisation rates (TDC sections I, IV and XV). Compared to the country level figures, a higher average preferential margin seems to be somewhat more closely linked to a higher preference utilisation rate. For example, the four TDC sections with highest preferential margins (I, II, IV and X) all display preference utilisation rates of 95% or more.

Analysis by Country and TDC section

Annex Table A3 merges the information about the preference utilisation rates from Annex Tables 1 and 2, and presents preference utilisation rates by country and TDC section (product groups). It can be seen that preference utilisation rates differ strongly across country-product groups. Many countries display full preference utilisation in some product groups and zero utilisation in others. Angola, for example, has a 100% preference

utilisation rate in TDC I and TDC V, while imports into the EU of all other TDC sections (except for TDC XV) have a preference utilisation rate of 0%.

Among the countries showing a 0% preference utilisation rate in many TDC sections, we find Sudan (16), Angola (14), and Liberia and Mauritania (13 each). Madagascar stands out as the only country having preference utilisation rates above 0% in all TDC section. Senegal and Mali have 0% preference utilisation rates only in one (TDC V) and two (TDC V and TDC XVII) TDC sections, respectively.

Five TDC sections XVII (Transport equip, aircraft, ship), XVI (Mach, elect. equip), VII (Plastics; rubber), V (Mineral Products) and XVIII (Optic photo cine precision instr.) are subject to 0% preference utilisation rate upon importation into the EU from more than 20 countries in the sample. Three of these sections (TDC XVI-XVIII) also show very low rates of preference utilisation overall. One may note that as far as the TDC sections XVII and XVI are concerned, no one country has a preference utilisation rate of 100% in these sections and only six and four countries, respectively show preference utilisation rates above 1%.

Similarly to Annex Table A3, Annex Table A4-A5 further merge the information on the average PVOP values that were presented in Annex Tables 1 (by country) and Annex Table A2 (by TDC section). While on average, the PVOPs of import flows using preferences are higher than the PVOPs of import flows not using preferences, it can be seen in Annex Tables A4 and A5 that in many TDC sections, the latter is of similar magnitude or higher than the former. Out of the 35 countries in the sample, in 10 TDC sections or more, 23 countries display higher average PVOP for import flows not utilising preferences compared to import flows utilising preferences (displayed in Annex Table A4).

A similar pattern can be seen from the product perspective. More than 11 TDC sections see higher average PVOP for import flows not utilising preferences compared to import flows utilising preferences by more than 20 countries. The sections least inclined to this trend are TDC I-IV for which the number of countries with higher average PVOP for import flows not utilising preferences compared to import flows utilising preferences is less than ten.

3. The model

As far as utilisation of preferences is concerned, we have two possible outcomes: utilisation or no utilisation of preferences. We therefore choose to make use of a Probit model to empirically assess the decision to utilise preferences. Skipping a few steps, the model we employ looks as follows:

$$P(util_rate=1) = \alpha + \beta_1 PVOP_{jk} + \sum \delta_m (COUNTRY_{mj}) + \sum \phi_n (PRODUCT_{nj}) + \varepsilon_{jk}$$

As dependent variable, we use the preference utilisation rate of either 0 or 1. The main hypothesis is related to the concept of the potential value of preferences (PVOP) developed above. We assume that preferences will be utilised if the PVOP (the value of

preference eligible exports multiplied by the preference margin (measured in €1000)) is greater than the cost of obtaining them. We further assume that product and country specific costs differ across countries and products. For example, customs procedures differ across countries and complexity and strictness of rules of origin differ across products. We introduce country and product dummies COUNTRY and PRODUCT (TDC Section dummies) to account for these differences and any other fixed unobservable country and product specific effects. Finally, α , β_1 , δ_m and φ_n are parameters to be estimated.

EU monthly import data is for 2010 and from COMEXT and preferential margins are derived from MacMap, complemented with figures from TRAINS. The import data is heavily skewed and so is the data on the potential value of preferences which has a mean of €10.000, with a min value of €0 and a max of €3.5 million. In fact, 99% and 95% of the observations have PVOPs lower than €180.000 and €24.000, respectively. We choose to exclude the top percentile of the PVOP observations (125 observations), which we consider as outliers.

Table 1 present the regression results. Column 1 shows that there is a positive and statistically significant impact of the potential value of preferences on the preference utilisation rate. Evaluated at the mean, the coefficient indicates that a marginal increase in the PVOP would increase the probability that preferences are utilised by 2.3 percentage points.

The impact of the PVOP on the decision to utilise preferences are likely to differ across countries and sectors. We therefore interact the PVOP with (i) the country dummies and (ii) the TDC section dummies. Column 2 presents the impact on the preference utilisation rate of the potential value of preferences interacted by the country dummies using Ethiopia as reference group. Increasing the PVOP for Ethiopia only marginally affects the probability that preference will be used as indicated by the small but statistically significant coefficient of 0.007. Hence the impact on Ethiopia is close quite close to the average impact across all countries, see column 1.

However, compared to Ethiopia (and the whole sample) we see large and statistically significant impacts on the probability to use preferences in the case of Eritrea and Comoros, but also Lesotho, Mauritania and Tanzania, see Table 6. The effects range from an estimated 17.4 percentage point increase in the probability that preferences be used when PVOP is marginally increased in the case of Tanzania to above 75 percentage points for Eritrea.

On the other hand, an increase in the PVOP actually decreases the probability that preferences will be used in the case of Guinea, Djibouti and Guinea-Bissau.⁴ This somewhat startling result is however in line with our findings above (see section 2) as

⁴ The marginal effect is the *approximate* change in the preference utilisation rate for a one-unit change in the PVOP and the effect is in fact larger than 1 in this case, which is possible depending on at point the derivative is evaluated.

exports from these countries utilising preferences have a lower PVOP than the countries not utilising preferences.

The last two columns of Table 6 show that the marginal effect of the PVOP also differs substantially across sections. The highest increase in the probability to utilise preferences is found in TDC IX (Wood) with a 58 percentage point increased probability followed by TDC VIII (Raw hides and skins) at 20 percentage points.

At the other end of the spectrum we find TDC XVIII (Transport equipment) for which an increase in the PVOP is expected to decrease the probability that preferences are utilised by 3.6 percentage point. This is again in line with the descriptive analysis, see Annex Table A2, where it was displayed that the average PVOP was higher for import flows not using preferences compared to import flows using preferences.

Table 5: Regression results of EU preference utilisation rates, marginal probit effects

Column/regression	(1)	(2)	(3)
Potential value of preferential imports (PVOP)	0.023***	0.007***	0.037***
PVOP interaction terms			
Country	-	Yes (see Table 6)	-
TDC	-	-	Yes (see Table 6)
Exporting country dummies	Yes	Yes	Yes
TDC section dummies	Yes	Yes	Yes
Pseudo R2	0.50	0.53	0.53
Log-Likelihood	-4171.6	-3925.3	-3935.7
Obs.	12182	12182	12182

Source: Own calculations. Note: ***p<0.01, based on robust standard errors. Full regression results are available from the authors.

Table 6: Regression results of interacting the potential value of preferences (PVOP) with country and TDC section dummies

Country	Marginal interaction effects, PVOP and country	TDC Section	Marginal interaction effects, PVOP and TDC
Angola	0.007	TDC1	-0.019**
Benin	0.059**	TDC2	0.135***
Burkina Faso	0.044**	TDC3	-0.018
Burundi	0.116*	TDC4	-0.012
Central A.R.	-0.017	TDC5	0.011
Comoros	0.563***	TDC6	0.033
Congo, RDC	0.052***	TDC7	0.104**
Djibouti	-0.241***	TDC8	0.204**
Eq. Guinea	0.028**	TDC9	0.584**
Eritrea	0.757***	TDC11	0.085***
Ethiopia	Control	TDC12	0.002
Gambia, The	0.016	TDC13	0.160***
Guinea	-0.083***	TDC14	-0.124
Guinea-Bissau	-1.263***	TDC15	0.003
Lesotho	0.248***	TDC16	Control
Liberia	0.065***	TDC17	-0.036***
Madagascar	0.051***	TDC18	-0.014
Malawi	0.053***	TDC20	0.063**
Mali	0.026		
Mauritania	0.179***	-	
Mozambique	0.063***	-	
Niger	0.074***	-	
Rwanda	0.189	-	
Samoa	0.019	-	
Sao T.&P.	-0.078		
Senegal	0.019	-	
Sierra Leone	0.001	-	
Sol. Islands	0.019*	-	
Tanzania	0.174***	-	
Togo	0.001	-	
Uganda	0.091***	-	
Zambia	0.004	-	

Source: Own calculations.

4. Summary and conclusions

This paper demonstrates that EU preference utilisation rates generally increase with higher potential values of preferential imports (PVOP). We find the effect of the PVOP on the exporter's decision to use preferences differs strongly across countries and products. The differences across countries cannot be explained by differences in the preferential margin or by rules of origin since they are the same across countries.

While differences across products may be explained by RoO, RoO can not explain why imports from country X in product Y utilise preferences while imports of product Y from country Z do not. However, exports from some countries may find it easier to meet RoO requirements than exports from other countries, reflecting varying quality of national institutions.

It seems reasonable to believe that explanations to this phenomenon should be looked at also on the side of the exporting countries. Exploring the empirical material further in terms of disaggregating TDC Sections to product level may shed enough light for qualitative research on institutional matters at country level to be carried out. Finally, an analysis of the duration and importance of trade may shed some further light on this issue. That is, could the low use of EU preferences of low value imports be related to that some products may be exported only for a short period of time, e.g. a couple of years?

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APPENDIX

**Table A1: Overview of EU preferential imports from the African LDCs, 2010
(€1000, % and count)**

Country	PUR (%)	Count of flows not using prefs.	Share of total # of flows (%)	Average PVOP of flows not using prefs. (€1000)	Average PVOP of flows using prefs. (€1000)	Share of pref. eligible exports to the EU	Average pref. margin (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Angola	76.1	729	98.1	0.6	77.0	3.0	3.8
Benin	93.4	141	75.8	0.1	1.2	0.3	6.0
Burkina F.	78.5	199	58.9	0.2	1.8	0.2	6.0
Burundi	55.1	42	27.1	0.2	0.3	0.0	9.2
Central A. R.	21.6	50	94.3	0.2	0.8	0.0	5.0
Chad	0.0	85	100.0	0.4	-	0.0	5.0
Comoros	97.4	22	59.5	0.2	12.9	0.2	6.0
Congo, RDC	9.9	260	53.9	4.5	1.7	2.0	7.5
Djibouti	0.4	72	98.6	0.4	0.1	0.0	7.7
Eq. Guinea	57.3	136	77.3	0.8	13.5	1.0	3.7
Eritrea	93.9	40	41.2	0.1	1.9	0.1	6.8
Ethiopia	84.2	357	50.8	0.9	4.6	1.4	7.7
Gambia	97.9	88	50.9	0.3	12.0	0.6	9.9
Guinea	11.7	212	81.2	1.3	0.5	0.2	6.9
Guinea-B.	43.2	19	15.3	0.3	0.1	0.0	8.1
Lesotho	82.7	88	52.4	0.2	2.5	0.1	12.6
Liberia	45.5	103	98.1	0.5	31.3	0.1	4.4
Madagascar	98.7	524	18.5	0.3	10.5	10.8	9.1
Malawi	99.2	77	47.5	0.5	82.0	2.3	13.1
Mali	64.8	144	44.7	0.2	0.3	0.1	6.9
Mauritania	99.0	133	29.4	0.2	17.9	2.9	9.7
Mozambique	99.9	189	49.2	0.4	162.6	48.4	8.4
Niger	59.5	144	86.7	0.2	1.7	0.1	4.1
Rwanda	64.6	59	51.3	0.1	0.3	0.0	8.4
Samoa	20.0	39	84.8	1.0	1.3	0.0	5.2
Sao T.& P.	49.3	38	43.7	0.4	0.4	0.0	7.7
Senegal	97.7	527	32.5	0.3	14.6	7.9	9.0
Sierra Leone	29.0	133	91.7	1.2	3.6	0.5	5.8
Solomon Isl.	98.3	19	57.6	1.4	56.9	1.1	5.8

Table A1 continued

Country	PUR (%)	Count of flows not using prefs.	Share of total # of flows (%)	Average PVOP of flows not using prefs. (€1000)	Average PVOP of flows using prefs. (€1000)	Share of pref. eligible exports to the EU	Average pref. margin (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Somalia	0.0	78	100.0	0.1	-	0.0	10.0
Sudan	40.9	110	99.1	27.7	0.0	1.0	5.2
Tanzania	98.9	320	43.3	0.2	26.1	6.9	7.4
Togo	69.3	169	39.4	0.2	0.8	0.1	8.1
Uganda	99.3	278	39.3	0.1	23.9	6.0	8.5
Zambia	97.5	193	57.8	0.5	14.8	2.3	8.0
Total	94.6	5817	45.7	1.1	16.6	100	8.0

Source: COMEXT and own calculations. *Note:* PUR denotes the preference utilisation rate. PVOP denotes value of preferences and is defined as the product of the preferential margin and preference eligible imports.

Table A2: Overview of EU preferential imports from the African LDCs by TDC section, 2010 (€1000, % and count)

TDC Section	PUR (%)	Count of flows not using prefs.	Share of total # of flows (%)	Average PVOP of flows not using prefs. (€1000)	Average PVOP of flows using prefs. (€1000)	Share of pref. eligible exports to the EU	Average pref. margin (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
I Live animals	99.4	82	5.8	3.1	30.9	21.2	12.3
II Vegetable products	99.4	221	12.4	0.2	6.8	6.9	10.0
III Fats, oils	97.4	58	33.7	1.6	20.9	2.4	7.6
IV Foodstfs; bev., tob.	95.9	213	22.7	16.3	39.7	14.6	15.9
V Mineral products	91.4	124	63.3	0.3	4.5	0.4	5.0
VI Chemical	47.8	232	79.7	0.2	0.8	0.1	5.9
VII Plastics; rubber	97.3	148	39.5	0.1	1.3	0.6	3.9
VIII Hides and skins	97.4	115	34.5	0.1	2.4	0.6	3.5
IX Wood	46.8	100	82.0	11.5	10.8	4.0	3.1
XI Textiles	96.7	854	32.0	0.3	4.9	4.7	10.7
XII Footwear	79.6	136	44.2	0.3	0.6	0.2	5.9
XIII Plaster cement	90.4	125	57.6	0.1	1.2	0.1	4.9
XIV Pearls; stones	27.3	165	66.0	0.2	0.1	0.1	3.6
XV Iron and steel	99.6	405	76.7	0.2	180.9	41.9	3.5
XVI Machin., elect. Eq.	5.4	1819	98.0	0.3	0.7	1.1	3.1
XVII Transp. equip	2.6	335	96.3	1.9	1.7	0.6	5.3
XVIII Optic photo	4.8	504	91.1	0.2	0.1	0.2	3.1
XX Misc. manufac.	85.9	181	48.7	0.2	0.8	0.3	3.4
Total	94.6	5817	45.7	1.1	16.6	100	8.0

Source: COMEXT and own calculations. *Note:* PUR denotes the preference utilisation rate. PVOP denotes value of preferences and is defined as the product of the preferential margin and preference eligible imports.

Table A3: Preference utilisation rate of African LDCs' by TDC section (%)

Partner	01	02	03	04	05	06	07	08	09	11	12	13	14	15	16	17	18	20	Grand Total
Angola	100.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	76.1
Benin	97.0	98.0	90.2	99.9	0.0	0.0	0.0	11.9	0.0	28.1	45.8	0.3	0.6	0.0	0.0	0.0	0.0	7.6	93.4
Burkina Faso		99.3	88.3	0.1	0.0	45.6	0.0	89.2	47.7	33.2	25.8	57.1	39.8	4.9	0.3	0.0	6.6	60.4	78.5
Burundi	0.0	100.0		100.0	0.0		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0	100.0	55.1
Central A. R.	0.0	0.0		0.0	0.0	22.2			100.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	21.6
Chad				0.0	0.0		0.0	0.0		0.0			0.0	0.0	0.0	0.0	0.0		0.0
Comoros		100.0				84.0	0.0	0.0		0.0	0.0				0.0	0.0	0.0	0.0	97.4
Congo, RDC	0.0	96.6	100.0	96.4	0.5	97.8	3.6	30.6	92.5	17.3	0.0	7.8	0.0	6.4	0.0	0.0	1.4	0.0	9.9
Djibouti		0.0		0.0	41.4	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0	0.0		0.4
Eq. Guinea					0.0	99.9	0.0		98.4	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	57.3
Eritrea	78.4	91.7		100.0	0.0	0.0	99.1	24.8	0.0	100.0	100.0		0.0	0.0	0.0	58.3	0.0	0.0	93.9
Ethiopia	100.0	99.7		98.9	0.0	12.1	0.0	98.0	56.1	96.7	86.3	57.0	0.9	0.1	0.0	0.0	0.1	57.6	84.2
Gambia	97.4	79.8	100.0	26.7		0.0	0.0	100.0	0.0	16.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.9
Guinea	0.0	83.7	39.4	15.1	0.0	0.0	100.0	94.6	93.2	1.6	0.2	0.0	0.0	0.0	0.1	0.0	3.3	0.0	11.7
Guinea-B.	100.0	98.9	13.8	100.0		0.0	0.0		0.5	100.0	100.0			0.2	5.2	0.1	0.5	100.0	43.2
Lesotho		100.0						0.0	0.0	90.8	0.0			0.0	0.0				82.7
Liberia		0.0	0.0	0.0	0.0	99.5	0.0		0.0	0.0	0.0		0.0	0.0	2.8	0.0	0.0	0.0	45.5
Madagascar	100.0	98.6	36.2	100.0	85.9	97.7	97.5	99.8	99.8	99.1	87.7	47.0	61.8	68.2	57.5	24.5	9.9	98.5	98.7
Malawi		95.4	100.0	99.8		99.3	0.0	0.0	89.6	87.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.2
Mali	97.8	81.1	100.0	98.9	0.0	4.1	65.0	77.6	93.0	73.5	11.0	99.6	46.1	63.9	31.7	0.0	66.7	99.3	64.8
Mauritania	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	82.3	99.0
Mozambique	100.0	100.0	0.0	100.0	0.0	14.5	0.0	0.0	89.8	95.4	0.0	0.0	38.4	100.0	0.0	0.0	5.8	0.0	99.9
Niger		100.0		0.0	0.0	0.0	73.5	6.0		75.4	0.0	0.0	2.5	0.0	0.0	0.0	0.0	78.2	59.5
Rwanda		73.1		65.9	0.0	99.9	0.5	20.4	61.7	62.7	100.0	0.0	26.6	1.1	53.7	0.0	93.7	55.0	64.6
Samoa			100.0	70.4		0.0	0.0			0.0				0.0	0.0	0.0		0.0	20.0
Sao T.& P.	0.0	97.4	100.0	100.0			0.0		0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	49.3
Senegal	100.0	99.9	100.0	94.1	0.0	3.2	17.2	74.4	94.6	69.1	94.8	43.7	94.6	10.5	0.1	18.3	34.0	21.6	97.7
Sierra Leone	0.0	62.8	0.0	99.9	0.0	0.0	82.5	0.0	0.0	14.4	0.0	0.0	34.0	0.2	0.0	0.0	0.0	95.6	29.0
Solomon Isls.	0.0		97.5	100.0			0.0			0.0		0.0	0.0		0.0	0.0	0.0		98.3
Somalia		0.0				0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0

Table A3 continued

Partner	01	02	03	04	05	06	07	08	09	11	12	13	14	15	16	17	18	20	Grand Total
Sudan	0.0	0.0		42.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.9
Tanzania	100.0	99.5	100.0	99.9	0.0	0.0	74.4	84.6	6.5	97.1	0.0	99.9	8.4	3.0	11.9	0.0	1.6	2.8	98.9
Togo	0.0	98.3	31.5	47.5	100.0		1.5	91.8	69.7	28.3	35.1	33.8	73.2	3.9	0.0	0.0	11.2	22.7	69.3
Uganda	100.0	100.0	100.0	99.7	0.0	88.7	0.0	11.6	0.0	46.7	16.7	14.1	8.2	0.0	0.0	0.0	0.0	55.9	99.3
Zambia	100.0	99.8	100.0	99.2	0.0	87.7	0.0	67.6	0.0	85.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	97.5
Grand Total	99.4	99.4	97.4	95.9	46.8	91.4	47.8	97.3	97.4	96.7	79.6	90.4	27.3	99.6	5.4	2.6	4.8	85.9	94.6

Source: Own calculations

Table A4: Average potential value of preferences (PVOP), utilised, by TDC section, (€1000)

Partner	01	02	03	04	05	06	07	08	09	11	12	13	14	15	16	17	18	20	Grand Total
Angola	93.9				57.5									2.7					77.0
Benin	1.1	4.9	0.7	0.0				0.0		0.1	0.1	0.0	0.0					0.0	1.2
Burkina Faso		4.6	3.7	0.0		0.0		0.5	0.0	0.2	0.0	0.0	0.0	0.0	0.0		0.0	0.0	1.8
Burundi		0.4		0.2														0.0	0.3
Central A. R.						0.0			1.3										0.8
Comoros		13.7				2.0													12.9
Congo, RDC		0.3	0.0	3.8	2.7	7.8	0.0	0.0	1.6	0.1		0.0		0.1			0.1		1.7
Djibouti					0.1														0.1
Eq. Guinea						47.2			10.8										13.5
Eritrea	0.1	0.7		0.0			3.8	0.1		2.2	0.4					1.6			1.9
Ethiopia	9.8	8.0		0.4		0.5		2.8	0.0	3.9	2.1	0.1	0.0	0.0	0.0		0.0	0.1	4.6
Gambia	7.9	0.3	122.7	0.1				0.0		0.1									12.0
Guinea		0.4	0.6	0.3			0.0	0.2	2.3	0.0	0.0				0.0		0.1		0.5
Guinea-B.	0.0	0.2	0.0	0.0					0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.1
Lesotho		7.5								1.8									2.5
Liberia						61.4									1.2				31.3
Madagascar	33.6	2.4	0.2	44.5	0.1	0.7	1.2	2.3	0.9	6.9	0.2	0.0	0.2	0.1	1.6	0.4	0.0	1.1	10.5
Malawi		2.4	0.4	190.7		0.8			1.1	1.5									82.0
Mali	1.6	0.5	1.3	0.4		0.0	0.1	0.0	0.1	0.3	0.0	0.3	0.0	0.1	0.6		0.4	0.0	0.3
Mauritania	18.2			9.9														0.7	17.9
Mozambique	74.8	4.7		107.3		1.4			0.1	3.4			0.0	1852.8			0.0		162.6
Niger		3.9					0.2	0.0		1.0			0.1					0.1	1.7
Rwanda		0.3		0.1		3.3	0.0	0.0	0.1	0.1	0.0		0.1	0.0	0.7		0.0	0.1	0.3
Sao T.& P.		0.7	0.6	0.1															0.4
Senegal	25.2	16.5	64.4	7.5		0.0	0.0	0.0	0.2	0.2	0.8	0.0	0.2	0.1	0.0	8.8	0.2	0.0	14.6
Sierra Leone		0.6		9.3			0.6			1.8			0.2	0.0				0.3	3.6
Tanzania	49.5	12.2	2.5	65.4			2.7	0.1	0.0	2.9		6.5	0.0	0.0	0.5		0.0	0.1	26.1
Togo		1.5	0.0	0.2	0.0		0.0	0.0	0.0	0.1	0.4	0.0	0.1	0.0			0.2	0.1	0.8
Uganda	55.8	12.7	0.1	34.6		0.0		0.0		0.4	0.0	0.1	0.1					0.5	23.9

Table A4 continued

Partner	01	02	03	04	05	06	07	08	09	11	12	13	14	15	16	17	18	20	Grand Total
Zambia	24.5	9.0	0.3	37.7		0.4		0.6		0.2							0.0		14.8
Grand Total	30.9	6.8	20.9	39.7	10.8	4.5	0.8	1.3	2.4	4.9	0.6	1.2	0.1	180.9	0.7	1.7	0.1	0.8	16.6

Source: Own calculations. *Note:* PVOP denotes value of preferences and is defined as the product of the preferential margin and preference eligible imports.

Table A5: Average potential value of preferences (PVOP), not utilised, by TDC section, (€1000)

Partner	01	02	03	04	05	06	07	08	09	11	12	13	14	15	16	17	18	20	Grand Total
Angola		0.0		1.4	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.1	0.2	0.3	0.7	2.0	0.6	0.6	0.6
Benin	0.0	0.4	0.1	0.5	0.0	0.0	0.1	0.1	0.0	0.2	0.1	0.2	0.2	0.1	0.0	0.4	0.2	0.0	0.1
Burkina Faso		0.1	0.8	0.5	0.1	0.1	0.0	0.1	0.0	0.5	0.0	0.0	0.0	0.1	0.1	0.5	0.1	0.0	0.2
Burundi	0.2	0.0			0.0		0.0		0.0	0.0		0.0		0.0	0.5	0.0	0.1		0.2
Central A. R.	4.7	0.2		0.0	0.0	0.0				0.2	0.0			0.2	0.1	0.3	0.0	0.1	0.2
Chad				0.0	0.0		1.0	0.4		2.0			0.1	0.1	0.1	0.5	0.3		0.4
Comoros						0.1	0.0	0.0		0.3	0.2				0.0	0.9	0.0	0.0	0.2
Congo, RDC	0.6	0.1		0.7	368.7	0.3	0.1	0.0	0.0	0.5	0.0	0.0	0.1	0.2	0.2	0.5	0.2	0.2	4.5
Djibouti		2.6		0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.0			0.2	0.3	1.7	0.2		0.4
Eq. Guinea					8.3	0.0	0.2		1.5	0.1	0.0	0.6		0.4	0.5	1.4	0.3	0.0	0.8
Eritrea	0.1	0.0			0.1	0.3	0.0	0.3	0.0	0.0			0.0	0.1	0.0	0.6	0.1	0.2	0.1
Ethiopia	0.0	0.1		0.0	0.0	1.3	0.1	0.2	0.1	0.1	0.3	0.1	0.2	0.4	0.1	27.2	0.1	0.0	0.9
Gambia	2.8	0.1		0.3		0.2	0.0		0.1	0.0	0.0	0.4	0.0	0.0	0.1	0.1	0.0	0.0	0.3
Guinea	5.3	0.1	1.1	2.3	0.0	0.3		0.0	0.1	0.1	0.2	0.0	0.1	0.4	0.1	2.5	0.1	3.7	1.3
Guinea-B.		0.1	0.5			0.5	0.0		0.1					0.2	0.1	0.5	0.1		0.3
Lesotho								0.0	0.0	0.2	0.0			0.0	0.5				0.2
Liberia		0.0	1.6	0.6	0.7	0.1	0.0		0.0	0.1	0.0		0.0	0.0	0.8	0.2	0.2	0.0	0.5
Madagascar	0.1	0.2	2.5	0.1	0.0	0.0	0.0	0.1	0.0	0.4	4.2	0.2	0.4	0.1	0.1	1.2	0.1	0.1	0.3
Malawi		0.8		1.3		0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.3	0.1	0.0	0.5
Mali	0.1	0.8		0.0	0.0	0.4	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	1.1	0.1	0.0	0.2
Mauritania	0.8	0.4	0.1	0.0	0.0	0.0	0.2	0.0		0.4		0.0	0.2	0.2	0.1	0.1	0.2	0.1	0.2
Mozambique			3.4	0.0	0.0	2.1	0.1	0.0	0.0	0.1	0.5	0.0	0.0	0.3	0.1	0.4	0.0	0.1	0.4
Niger					0.0	0.2	0.0	0.0		0.3	0.0	0.1	0.5	0.1	0.1	0.8	0.3	0.0	0.2
Rwanda		0.1		0.0	0.0	0.0	0.1	0.1	0.0	0.1		0.3	0.4	0.1	0.1	0.1	0.0	0.1	0.1
Samoa							1.9			0.0				0.0	0.2	0.7		0.1	1.0
Sao T.& P.	5.8	0.1					0.0		0.0	0.0			0.0	0.0	0.3	0.0	0.5	0.0	0.4
Senegal	0.2	0.1	0.3	1.2	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.0	0.0	0.3	0.2	0.8	0.1	0.1	0.3
Sierra Leone	0.0	0.4	0.3	0.1	0.0	0.2	0.1	0.1	0.1	1.2	0.0	0.0	0.2	0.1	1.1	9.5	0.2	0.0	1.2
Solomon IsIs	0.1		10.0				0.0			0.0		0.1	0.1		0.1				1.4

Table A5 continued

Partner	01	02	03	04	05	06	07	08	09	11	12	13	14	15	16	17	18	20	Grand Total
Somalia		0.9				0.0	0.0			0.1	0.0		0.0		0.0	0.0	0.1	0.0	0.1
Sudan	0.1	0.0		505.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.1	0.5	0.0	0.0	27.7
Tanzania	0.1	0.3		0.1	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0	0.0	0.4	0.1	0.4	0.1	0.3	0.2
Togo	0.0	0.1	0.3	0.3			0.1	0.0	0.0	0.5	0.8	0.1	0.0	0.0	0.1	0.3	0.2	0.2	0.2
Uganda		0.3		0.4	0.0	0.0	0.4	0.0	0.0	0.2	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1
Zambia		0.3		4.9	0.0	0.0	0.0	0.0	0.4	0.0	0.1	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.5
Grand Total	3.1	0.2	1.6	16.3	11.5	0.3	0.2	0.1	0.1	0.3	0.3	0.1	0.2	0.2	0.3	1.9	0.2	0.2	1.1

Source: Own calculations. *Note:* PVOP denotes value of preferences and is defined as the product of the preferential margin and preference eligible imports.

Table A6: List of African LDCs

Angola, Benin, Burkina Faso, Burundi, Central African Republic, Chad, Comoros, Democratic Republic of Congo (Kinshasa), Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Equatorial Guinea, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Somalia, Sudan, Tanzania, Togo, Uganda, Zambia.

Table A7: Correspondence between TDC Sections and HS Chapters

TDC Section	Description	HS Chapters
I	Live animals; animal products	01 – 05
II	Vegetable products	06 – 14
III	Animal or vegetable fats and oils	15
IV	Prep foodstuffs; beverages, tobacco	16 – 24
V	Mineral Products	25 – 27
VI	Products of the chemical	28 – 38
VII	Plastics; rubber	39 – 40
VIII	Raw hides and skins, leather	41 – 43
IX	Wood and articles of wood; cork	44 – 46
X	Paper or paperboard	47 – 49
XI	Textiles and textile articles	50 – 63
XII	Footwear	64 – 67
XIII	Art of stone plaster cement	68 – 70
XIV	Pearls; precious stones and metals	71
XV	Iron and steel, base metals and art	72 – 83
XVI	Mach, elect.equip	84 – 85
XVII	Transport equip, aircraft, ship	86 – 89
XVIII	Optic photo cine precision instr	90 – 92
XIX	Arms and ammunition	93
XX	Miscellaneous manufactured articles	94 – 96
XXI	Works of art, collectors' pieces	97

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