

Compliance Cost 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. The rate of preference utilisation for these imports are low and in many cases zero. This paper examines this phenomenon further by using monthly data on EU imports from African LDCs at the lowest level of available aggregation thereby coming close to transaction level data. This paper intends to put a “price-tag” on rules of origin. Earlier research tried to approximate compliance cost with the preference margin, only allowing for a variable component of compliance cost. In contrast to this, my approach acknowledges the existence of non-negligible fixed costs. I introduce the potential value of preferences (*pvp*) defined as the product of preference eligible exports and the preference margin as appropriate concept to reflect compliance costs. The results confirm the existence of non-negligible fixed costs associated with utilising preferences. Furthermore, I find compliance cost vary significantly across countries and products. The cost structure favours exports in unprocessed goods, as compliance costs for these are significantly lower than for other products.

Keywords: Trade preferences; preference utilisation; small trade flows; compliance costs; LDCs; EBA; rules of origin;

Journal of Economic Literature Classification: F13, F15

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1 Introduction

The EU grants preferential access to its market through various free trade agreements (FTAs) and non-reciprocal preference schemes for developing countries, including the Everything-But-Arms (EBA) initiative. These preferences allow exporters from specified countries to export their goods at lower tariff rates to the EU compared to countries without preferential access, whose exporters are covered by the most-favoured nation tariff. Non-reciprocal schemes are restricted to developing countries, as they were intended as mean to enable developing countries to benefit from trade. This forms an explicit exception to the principle of non-discriminatory or most-favoured-nation (MFN) treatment, which generally does not allow discrimination between trading partners.¹ Though trade preferences were designed as development tool, their achievements have been ambiguous. Costs to comply with preference regulation are sometimes too high for developing country exporters relative to their potential benefits.

Preference schemes were largely successful in transferring rents to developing countries, as preferential schemes as a whole are largely utilised and only a very small proportion of eligible imports is actually exported outside any scheme (cf. Bureau et al., 2007; OECD, 2005; Candau and Jean, 2005). Nevertheless, they have failed to generate new flows (Brenton and Ikezuki, 2005) and have been ineffective in delivering improved access to developed country markets because of too strict rules of origin (RoO) (Brenton, 2003; Brenton and Manchin, 2003; Inama, 2004; Collier and Venables, 2007). Thus, they have failed in generating a sufficient export supply response and have scarcely created new employment opportunities (Collier and Venables, 2007).

In this paper, the European Union's EBA preference scheme for African LDCs is analysed and the cost structure exporters from these countries face when utilising preferences is assessed. Though low preference utilisation rates feature in several developing countries, this is a more serious problem for exporters from small and poor 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 the phenomenon of low utilisation rates further by looking at an especially vulnerable set of countries: African LDCs solely covered by the EBA

¹ cf. GATT Part 1, Article 1 and the so-called 'Enabling Clause', WTO Decision of 28 November 1979 (L/4903).

scheme.²

Using detailed data on imports into EU member states, the exporter's decision to use preferences facing country- and product-specific costs of compliance is explained. The exporter's choice between using preferences and not using preferences is modeled; and I introduce the *potential value of preferences* defined as the product of preference eligible exports and the preference margin as more appropriate concept to capture compliance cost.

Earlier research tried to approximate compliance cost with the preference margin. This, however, only reflects the variable component of compliance costs. My approach allows for the existence of non-negligible fixed costs. Ignoring these fixed costs would potentially upward bias the variable cost estimator. The effect ought to be stronger for our sample of least developed countries as smaller trade flows are observed for these countries.

Finally, the estimation results are used to approximate average compliance cost for different country-product groups. Higher cost are observed for products with more stringent rules of origin and at higher levels of processing. Countries exhibiting already a lot of trade in one sector face lower cost. I thus argue, relatively high compliance cost for preferential exports in processed goods may prohibit export diversification for the analysed countries.

In section 2, we will survey the evidence on the use of trade preferences. Based on this, the model to analyse the exporter's choice to use preferences or not is developed (section 3) and estimation results are presented in section 4. In section 5 the compliance cost faced by the exporter when using preferences are approximated and analysed. Finally, the results are summarized and I conclude.

² Some African LDCs have preferential access to the EU through economic partnership agreements (EPAs) and the EBA scheme. I, however, focus on LDCs solely covered by the EBA scheme. Even though preference margins do not differ between EBA and EPA countries, EPAs are accompanied by liberalization efforts in the countries themselves and offer more generous rules of origin (as they allow for more cumulation).

2 Literature Review

The value and effectiveness of non-reciprocal trade preferences have been debated since the 1970s (cf. Hoekman and Özden, 2005 for an extensive survey of the literature). Although trade preferences were intended as a means to enable developing countries to benefit from trade³, their achievements have been ambiguous.

For developing country exporters the costs associated with using preferences often appear to be too high relative to the potential benefits of the schemes. Several authors have therefore tried to quantify the cost associated with using preferences. In a seminal paper on rules of origin, Herin (1986) was the first to quantify these. He found, rules of origin were equivalent to an import tariff between 3 and 5 percent.

Manchin (2006) applies Hansen's threshold estimation approach on a gravity equation with the natural logarithm of the utilisation rate as dependent variable on the sample of non-LDC ACP country exports to the EU. She finds a preference margin between 4 and 4.5 percent is necessary for these countries to utilise preferences under the Cotonou regime. Francois et al. (2006) follow Manchin's estimation strategy to analyse the effect preference erosion has on developing country trade. In their opinion, the erosion of the Cotonou agreement would have hardly any effect on trade as compliance cost are too large for developing countries to benefit from Cotonou preferences anyway. Similar thresholds have been found for trade in NAFTA by Carrère and de Melo (2004), and Anson et al. (2005).

Agostino et al. (2010) observe, the impact of the preferential margin depends on the level of costs faced by the exporter ("the lower the costs, the greater the impact of the [...] margin"). They estimate alternative Tobin models explaining preference utilisation rates and assume the difference between observed and predicted values of preference utilisation – the error term – is an approximation to unobserved compliance cost. In a second step they estimate potential effects of the preferential margin and estimated costs on the value of exports using a gravity equation. Their findings indicate that only looking at the margin as approximation to compliance cost may give biased results.

Nilsson (2011a) showed preference utilisation rates (defined as the ratio of preferential imports to preference eligible imports) for small trade flows are markedly lower than

³ "Any differential and more favourable treatment provided under this clause shall be designed to facilitate and promote the trade of developing countries[...]"(cf. GATT L/4903 Nr.3).

average utilisation rates. In 2008, more than 90% of preferential import flows (at 8-digit level) represented together about 10% of the value of EU preferential imports from developing countries.⁴ The preference utilisation rates for these flows were found to be low. Preferential import flows of less than 10 000 EUR were associated with a preference utilisation rate of 1%.

Nilsson (2011b) further examined the issue and demonstrated EU preference utilisation rates decrease with lower values of preferential imports. On average, evaluated at the mean, he found a 1% increase in the value of preferential imports is expected to increase the preference utilisation rate by 20% with varying impact between country- and product groups.

Summing up, several authors estimate tariff equivalents of compliance costs and argue the later are prohibitively high. Others find evidence that utilisation rates can also be explained by the value of the trade flow. Thus, utilisation rates may be determined by the preference margin *and* the value of shipment.

3 Modelling exporter's choice

Nilsson (2011b) and Agostino et al. (2010) showed the preference margin is not the sole determinant for using preferences, but the exporter's decision to use preferences may also depend on the value of the shipment. This suggests that exporters have to exceed a certain export value before it is profitable for them to use preferences. Using preferences may thus incur a certain fixed cost.

Assuming non-negligible fixed costs exist, the importance (marginal effect) of the preference margin for the decision to use preferences decreases in importance as the value of exports increases. Ignoring the fixed costs and approximating the compliance costs using only the preference margin may give a biased cost estimator.⁵ Therefore, I introduce the concept of the *potential value of preferences* to capture total costs of using preferences. This allows for the existence of non-negligible fixed costs and is thus a more appropriate approximation. The potential value of preferences (*pvo*) reflects the exporter's benefit

⁴ 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.

⁵ Earlier research also acknowledges the existence of fixed costs, but does not account for them when estimating compliance costs (cf. Manchin, 2006, p.1252; Carrère and de Melo, 2004, p.14).

of using preferences and is defined as the product of the value of preference eligible exports (X) multiplied with the preference margin (m).

$$pvop = X \times m \quad (1)$$

The exporter uses preferences, if the value of preferences, or the benefit through preferences exceeds the total costs (C) associated with using them. Thus the potential value of preferences must be larger than the unobservable cost. The exporters decision to either export under preferences or not can therefore be modeled using a discrete choice model. Preferential exports are only observed ($y = 1$), if the costs associated with using preferences do not exceed the associated benefits:

$$\begin{aligned} y &= 1 \text{ if } pvop - C \geq 0 \\ y &= 0 \text{ if } pvop - C < 0 \end{aligned} \quad (2)$$

The unobservable cost (C) the exporter faces are expected to differ across countries and products. For example, customs procedures differ across countries and complexity and strictness of rules of origin may differ across products. Therefore country and sector dummies $COUNTRY_c$ and $SECTOR_p$ are introduced to account for these differences and any other fixed unobservable country and product specific effects. Transaction-specific costs are captured by the error term and are expected to equal zero at the country–sector average.⁶

Substituting the difference between the potential value of preferences and the cost function with the latent variable y^* one can then estimate a discrete choice model of the form:

$$Pr(y = 1) = Pr(y^* > 0|X) = F(X\beta) \quad (3)$$

where the the explanatory variables X consist of the $pvop$ and the dummy variables for country and product ($COUNTRY_c, SECTOR_p$) determining the unobservable costs.

A change in the potential value of preferences is assumed to affect the decision to use preferences stronger for lower $pvop$ values compared to higher $pvop$ values. Thus the

⁶ However, within a country–product group exporters will face different costs depending on their effectiveness to deal with these procedures.

rate of change in the *pvp* affects the decision to use preferences, rather than the existing level of *pvp*. To capture this, the natural logarithm is applied to the potential value of preferences, which equals the value of the trade flow eligible for preferences (X) from country c in product p multiplied by the preferential margin (m), where the sub-index k refers to a specific exporting activity or shipment. We thus estimate the following latent variable model:

$$Pr(y_k = 1) = \alpha + \beta \times \ln(pvop_k) + \sum_{c=1}^C \gamma \times COUNTRY_j + \sum_{p=1}^P \delta \times SECTOR_p \quad (4)$$

Thus the probability to use preferences for a specific exporting activity depends on the potential value of preferences (*pvp*) this activity faces and a set of country and sector dummies.

4 Estimation Strategy

4.1 Dataset

Exporters from African LDCs into the EU may benefit from either the EBA scheme or from the Economic Partnership Agreements (EPA) negotiated with a set of ACP countries. This analysis focuses on countries solely covered by EBA. Even though, preference margins are identical for the two programs, one can argue these two sets of countries are significantly different as EPAs are accompanied by liberalisation efforts in the countries, allow for more cumulation in the production process, and are accompanied by additional Aid for Trade flows. Moreover, entering into EPA negotiations may reflect better governance. The set of African LDCs only covered by EBA is made up of 23 countries.

Data on monthly imports of dutiable products into EU member states at the 8-digit level of the Combined Nomenclature for the year 2010 is used. EU monthly import data is from Eurostat (COMEXT) and MFN tariff rates are from the UNCTAD–TRAINS database completed with figures from the ITC’s MacMap database.⁷ MacMap converts

⁷ COMEXT is the Eurostat reference database for external trade and the extraction of EU imports statistics was made in February 2012. UNCTAD–TRAINS is a comprehensive computerized information system at the HS-based tariff line level covering tariff, para-tariff and non-tariff measures as well as import flows

non ad-valorem tariff rates – which are ubiquitous in agricultural and unprocessed goods – to ad valorem equivalents using the unit value based method (UV).⁸

Bourdet and Persson (2012) argue costs of importing into the EU may differ across countries due to a varying effectiveness of custom procedures. For exporters from African LDCs costs could potentially be higher in countries which receive few EBA imports due to less familiarity with shipments from these origins and subsequently more time needed to process them. Therefore, EU member states which receive less than 100 import flows⁹ from the set of countries are dropped from the sample.¹⁰

At shipment level, each individual import flow must have a preference utilisation rate of either 0% or 100% since preferences cannot apply to a share of a product imported. A preference utilisation rate in-between thus tells us that the registered import flow must necessarily consist of more than one transaction where one of the transactions uses preferences and the other one does not.¹¹ The vast majority of the observations in the sample have utilisation rates of either 0% or 100%. Only 3% of observations have utilisation rates in-between. I choose to ignore these 3% of observations in an attempt to come as close as possible to transaction level data. To further substantiate the shipment-level assumption, the top percentile of export values (80 observations) is dropped. These observations are considered outliers, as very large flows are more likely to consist of several shipments. For 99% of the observations export values are less than 1.17 million EUR.

Finally, observation for countries with no preferential exports (Chad, Somalia, and Sudan) are ignored in the estimation of the model. These country parameters would perfectly predict failure, since exporters in these countries do not use preferences,

by origin for more than 140 countries (<http://unctad-trains.org/>). MacMap (Market Access Map) covers customs tariffs (import duties) and other measures applied by 191 importing countries to products from 239 countries and territories. MFN and preferential applied import tariff rates are shown for products at the most detailed national tariff line level (<http://www.macmap.org>).

⁸ $t_{AVE} = 100 \times \frac{I_{NAV}}{UV}$

⁹ I tested for a threshold between 50 and 500.

¹⁰ Luxembourg, Finland, Malta, Estonia, Latvia, Lithuania, Poland, Czech Republic, Slovakia, Hungary, Romania, Bulgaria, Cyprus.

¹¹ Note, however, that the opposite does not hold true, an export flow with a utilisation rate of either 0 or 1 could potentially consist of more than one shipment.

irrelevant of values for all other variables.¹²

4.2 Regression Results

The specified model (4) is estimated using a logit model and the coefficient effects are presented in table 1 as odds-ratios and changes in the predicted probability to use preferences¹³.

The model is successful in explaining the exporter's decision to use preferences or not as more than 86% of observations are predicted correctly. Moreover, the potential value of preferences is a relevant parameter to explain the exporter's use of preferences. A one percent increase in the potential value of preferences increases the odds of using preferences by 1.36 times (cf. table 1 column 1). Moreover, I find the effect of the *pvop* is equally made up of the preference margin (*m*) and the value of exports (*X*)¹⁴. Estimation results allowing for a differentiating impact of the two effects are reported in column 2.

Country and product dummies, the later being TDC sections¹⁵, appear to be the main determinant for the exporter's decision to use preferences. In comparison to exporters from the reference country Angola, Senegalese exporters have a 78 percentage point higher probability to use preferences. These strong differences are supported by the fact that only 1.8% of exporters from Angola use preferences, while 76.3% of senegalese exporters do so. Even stronger differences are observed across product groups. Exporters in TDC sections 1 (animal products), 2 (vegetable products), 4 (prepared foodstuffs), and 8 (raw hides, skins and leather) are most likely to use preferences. The odds for using preferences for exporters in TDC1 are 743 times larger than for exporters in the reference group TDC16 (machinery).

¹² I tested whether leaving out these observations biased my estimation results following a strategy proposed by Heinze and Schemper (2002), but found this is not the case. Regression results including these country dummies can be obtained from the author.

¹³ The change in the predicted probability to use preferences is for a discrete change of the variable for the dummy coefficient and a one standard deviation change centered at the mean for the potential value of preferences.

¹⁴ The assumption $\beta \ln(pvop) = \beta \ln(m \times X) = \beta \ln(m) + \beta \ln(X)$ holds applying an F-Test.

¹⁵ Estimating the model with less aggregated product dummies (i.e. dummies reflecting 2-digit chapter headings of the harmonized schedule) did not increase the explanatory power of the model. Estimation results for these may be obtained from the author.

Table 1: Logit– odds-ratios and predicted probabilities for a one standard deviation change in the continuous variable a discrete change in the dummy variable

	(1)		(2)		(3)	
utilisationrate	odds-Ratio	change in pr.	odds-Ratio	change in pr.	odds-Ratio	change in pr.
ln(pvop)	1.36***	0.2313			1.28***	0.7853
ln(m)			1.32***	0.0572		
ln(X)			1.36***	0.2123		
roo					0.57***	-0.1387
Benin	23.56***	0.5243	23.57***	0.5243	24.9***	0.527
Burkina Faso	44.87***	0.5687	44.83***	0.5686	46.59***	0.5697
Centr. African	3.15	0.2731	3.15	0.273	3.1	0.2692
Congo (Dem. Rep.)	43.68***	0.5796	43.77***	0.5797	44.81***	0.5803
Eq. Guinea	24.04***	0.5263	24.1***	0.5264	22.42***	0.5219
Eritrea	51.08***	0.5484	50.66***	0.5482	48.47***	0.5465
Ethiopia	37.16***	0.61	37.22***	0.61	37.91***	0.6109
Gambia	10.95***	0.4641	11.02***	0.4647	11.92***	0.472
Guinea	8.18***	0.4345	8.19***	0.4345	8.45***	0.4382
Guinea Bissau	2167.92***	0.59	2176.46***	0.59	2169.49***	0.5895
Liberia	2.92	0.2576	2.93	0.2577	2.7	0.2406
Mali	124.55***	0.599	124.71***	0.599	132.06***	0.5998
Mauritania	26.46***	0.56	26.45***	0.5599	26.83***	0.5605
Malawi	21.73***	0.5338	21.92***	0.5344	21.48***	0.5326
Niger	13.33***	0.4822	13.27***	0.4818	14.21***	0.4872
Sao Tome & P.	56.47***	0.5459	56.25***	0.5458	60.72***	0.5471
Senegal	115.81***	0.7821	116.12***	0.7823	122.19***	0.7854
Sierra Leone	4.97***	0.3586	4.96***	0.3581	4.81***	0.3529
Togo	67.98***	0.608	67.91***	0.6079	70.09***	0.6087
TDC1	743***	0.7885	788.8***	0.7904	811.51***	0.7909
TDC2	324.65***	0.7317	341.23***	0.7333	356.17***	0.7344
TDC3	76.96***	0.5608	80.86***	0.5618	83.4***	0.5619
TDC4	128.69***	0.6405	137.18***	0.6424	144.46***	0.6436
TDC5	8.69***	0.4359	8.8***	0.4373	9.15***	0.4413
TDC6	30.59***	0.531	31.66***	0.5324	32.88***	0.5335
TDC7	17***	0.5026	17.62***	0.5052	18.96***	0.5098
TDC8	110.49***	0.5896	113.12***	0.5901	119.8***	0.5909
TDC9	91.35***	0.5719	93.37***	0.5724	98.8***	0.573
TDC11	72.17***	0.6625	76.53***	0.6656	81.38***	0.6684
TDC12	60.92***	0.5755	62.7***	0.5764	61.76***	0.5755
TDC13	49.01***	0.55	50.47***	0.5509	52.98***	0.5518
TDC14	37.02***	0.5471	37.93***	0.548	38.71***	0.5484
TDC15	13.94***	0.4961	14.15***	0.4974	14.98***	0.5021
TDC17	0.61	-0.1144	0.64	-0.1057	0.59	-0.1226
TDC18	13.29***	0.4991	13.44***	0.5002	13.7***	0.5018
TDC20	50.83***	0.5503	51.61***	0.5507	52.85***	0.5509
Mc Fadden's Pseudo- R^2	0.54		0.54		0.54	
Log-Likelihood	-2424.5872		-2424.4811		-2415.2488	
coorectly classified	86.04%		86.12%		86.38%	
Area under ROC	0.9349		0.9349		0.9353	
Number of observations	7620	10	7620		7620	

As additional robustness check, I test the potential impact of the RoO waiver for exported goods not exceeding the threshold of 6000 EUR. Consignments up to a value of 6000 EUR may be exported under preferences without a formal certificate of origin. The sole requirement is to fill out a so-called invoice declaration stating that the exported product is of preferential origin according to the rules of origin of the preference scheme.¹⁶ However, a certain fixed cost is still associated with obtaining this certificate and exporters need to be able to present proof of origin on demand. Thus a similar documentation effort is required. If these fixed costs are too large, one would expect less utilisation since the potential value of preferences for small trade flows are lower compared to larger trade flows. In addition, variable costs are identical to the case where no RoO waiver applies.

To test the above, a dummy variable for EU import flows of less than 6000 EUR is added to the model. I find, exporters who could use this simplified procedure are actually less likely to use preferences (cf. table 1 column 3). Thus, the threshold value may be too low for exporters to make use of it considering non-negligible fixed compliance cost, and other trade costs, such as transport, exhibit economies of scale. The fit of the model also increases slightly (looking at the percentage of correctly classified observations) and therefore column (3) presents the preferred specification.

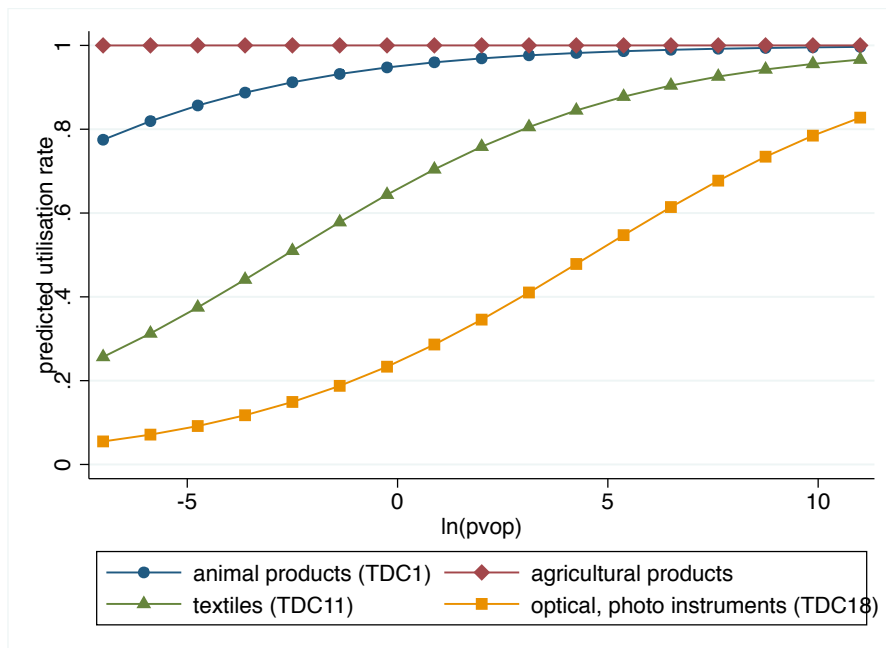
The effect exporter's country and sector have on the probability to use preferences may be illustrated by plotting the effect of the potential value of preferences given certain values for products and countries. Figure (1) depicts the effect the potential value of preferences has on the estimated probability to use preferences in different sectors for the example of Senegal. For easier interpretation I only plot effects for agricultural products¹⁷ against the three other most important sectors (by frequency of trade). This shows senegalese exporters in agricultural products and TDC1 (animal products) will always use preferences. But exporters in TDC11 (textiles) and TDC18 (optical, photo precision instruments) strongly depend on the potential value of preferences for their decision to utilise preferences or not. However, at identical values of the potential value of preferences, exporters in TDC11 are more likely to use preferences.

Moreover, the effect of exporting sectors also differs across countries. Figure (2) depicts

¹⁶ Cf. Art. 80(b) and 89(1) in Commission Regulation 2454/93.

¹⁷ Products are defined as being agricultural products following the WTO multilateral trade negotiation categorization. This covers mostly products in TDC2 (vegetable products), TDC3 (animal or vegetable fats and oils), and TDC4 (prepared foodstuffs, beverages, tobacco).

Figure 1: Effect of the pvp on the utilisation rate for the example Senegal



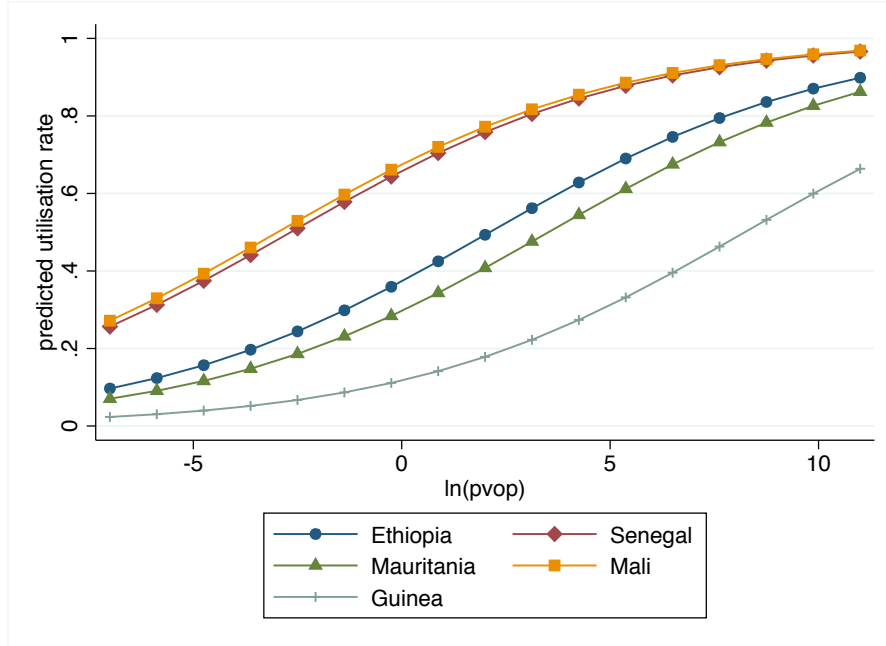
estimated utilisation rates in TDC11 (textiles) for exporters from five different countries. Comparing the effect exporting from Senegal has compared to exporting from Guinea, one can observe senegalese exporters are more likely to use preferences at *any* potential value of preferences.

One can therefore conclude the potential value of preferences significantly affects the decision to use preferences, but costs to comply with preference regulations also differ strongly across country- and product-groups. These differences may reflect more stringent rules of origin for certain products, a varying quality of national institutions, and the importance of preferential trade for certain countries and sectors. A detailed discussion of these factors is given in the following section.

5 Approximating compliance costs

The discrete choice model above was based on the argument that preferences will only be used, if the cost associated with using them are at least as large as their potential benefits.

Figure 2: Effect of the *pvop* on the utilisationrate for textiles (TDC11)



$$y = 1 \text{ if } PVOP - C \geq 0 \quad (5)$$

Thus, the estimated probability to use preferences is 0.5¹⁸, if the potential value of preferences equals the cost for utilising preferences.

$$Pr(y^*) = 0.5 = F(PVOP - C = 0) \quad (6)$$

With this approach average costs associated with using preferences can be determined by estimating the threshold potential value of preferences for using preferences in country-product groups with a sufficient number of observations. I can then analyze how strong these costs vary along country and product-specific characteristics.

I argue, cost estimates are not meaningful if no preferential exports are observed in the specific country-product group. Similarly, if only one preferential export in the country-product group is observed, this may be an outlier or error in the data. Thus, I

¹⁸ I tested whether a threshold of 0.5 is appropriate for our estimation (estimating a ROC curve) and found this to be the case. Results may be obtained from the author.

exclude cost estimates were either rule applies from the following analysis. This is the case for 22 country-product groups. Finally, cost estimates in TDC17, Liberia, and the Central African Republic are ignored as coefficient estimates for these groups were not significant.

Figure (4) provides a first idea about potential differences in average costs across

Figure 3: Compliance Cost across level of processing and countries

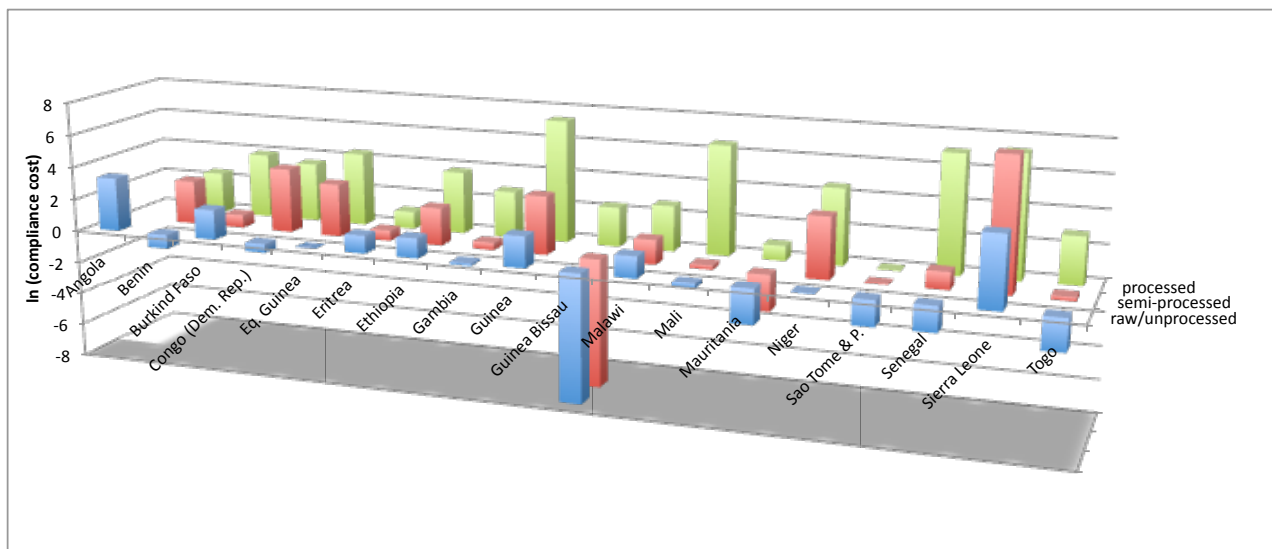


Figure 4: Source: Author's calculation, Appendix table D

countries and sectors. The graph displays average costs across countries and sectors, where the latter are grouped according to their level of processing¹⁹. This makes clear, costs vary significantly across countries, though raw and unprocessed goods *always* face lower compliance cost at the country level. Lowest costs are observed in TDC sections 1 (animal products) and 2 (vegetable products), which cover animal products (mostly fish) and vegetables(cf. Appendix table F).

A reason for the strong variance of costs may be a varying preference margin. Exporters in TDC sections 1 and 2 face higher preference margins than exporters in other categories. While the average preference margin excluding TDC sections 1 and 2 equals 6.9%, preference margins for TDC sections 1 and 2 equal 12.3% and 9.5% respectively. The higher prevalence of preferential trade in these sectors may also be caused by the

¹⁹ This grouping follows the the product classification of Broad Economic Categories (BEC).

relative ease to comply with rules of origin. According to the rules of origin restrictiveness index developed by Cadot et al. (2006) exporters in these two sectors face less restrictive rules of origins.²⁰ This may have two simultaneous effects: First, cost of compliance across countries will be lower as producers need few, if any, intermediate inputs to produce these unprocessed products. However, for most other products exported to the EU, fragmentation of the production process is the case. The more intermediate inputs exporters need to produce their final product, the more difficult it is for them to fulfill rules of origin which require a certain share of the production process to happen in the country. This may increase variable cost, if it is more expensive to source locally. It may also increase fixed cost, as it is more difficult to prove origin compared to the case where no intermediate inputs are needed.

Secondly, these costs may vary across countries for the same product as producers may have different possibilities to source locally. Furthermore, proving origin may also be easier for exporters from some origins than others because fixed costs could depend on the effectiveness of custom institutions.

Moreover, compliance cost may also be determined by industry clusters, if preferential trade is associated with sunk information cost or learning-by-exporting. I cannot account explicitly for these costs as panel data would be needed for this analysis. However, if sunk information cost exist, large industries with a track record of exporting under preferences would face lower costs of exporting. For producers in sectors where few exports are observed, exporting under preferences would be more expensive²¹. We find the vast majority of preference eligible trade happens in TDC sections 1 (46%) and 2 (16%) which are the sectors with the lowest average cost (cf. Appendix table D). Overall, less processed goods which face lower cost of compliance make up the vast majority of preference eligible trade flows (cf. Appendix table B and C). This indicates sunk cost play a role in the exporter's decision to use preferences.

Analysing the variance of average compliance cost across country-product groups one finds costs are lowest for preferential exports in primary products, specifically in agricultural goods. This may be caused by less stringent rules of origins in these sectors and high levels of already existing trade. Moreover, differences in costs across countries

²⁰ Cadot et al. (2006) constructed a synthetic index intending to capture the restrictiveness of rules of origin. This ordinal index codes products from 1 to 7 according to the restrictiveness of the applied rules at the 6-digit level of the product nomenclature.

²¹ Persson (2012) provides a detailed discussion of the effect of different kinds of costs.

may originate from differences in the effectiveness of customs and possibilities to source within the country.

6 Conclusion

This paper analyses cost of compliance faced by a set of least developed country exporters when exporting into the EU under preferences. In contrast to earlier research, I do not use the preference margin to approximate compliance costs, but introduce the *potential value of preferences* as appropriate concept to capture total cost. I find the potential value of preferences is significant in explaining the exporter's decision to use preferences and argue fixed compliance costs are non-negligible for exporters from LDCs.

Estimation results show, compliance cost differ strongly across countries and sectors. This reflects different rules of origin across products, a varying quality of national institutions, and levels of already existing trade. The cost structure appears to favour exports in unprocessed agricultural and animal products where least stringent rules of origin are observed and where the vast majority of preferential trade occurs. Since market entry cost for preferential exporting in other products are relatively high, trade preferences may reinforce already existing trade structures and may fail to diversify exports from least developed countries. In their current design trade preferences appear to increase the relative cost of exporting more processed goods.

However, the regulatory design of trade preferences is not the only driver as cost differ vastly for one product across countries. Institutions across countries appear to vary in the effectiveness they deal with these regulations. This has negative effects on the exporter's possibility to utilise preferences.

A joint effort of liberalising regulations governing the use of preferences and improving institutions within the country is therefore needed for developing country exporters to benefit from trade preferences. Regulations could be liberalised by reducing the paperwork associated with applying for preferences and relaxing cumulation rules. This would make it easier for developing country exporters to integrate into the global value chain. Moreover, aid should be focused on building institutions within the countries, this would make it easier for exporters to fulfill paperwork associated with preferences.

Finally, my results indicate the existence of sunk cost associated with exporting under preferences as exporters from countries with a lot of preferential trade in one sector face lower costs of exporting. Analysis looking into the duration and importance of trade at the exporter level may shed some further light on this issue. This is an important area for future research.

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Appendix

Table A: Correspondence between TDC Sections and HS Chapters

TDC Section	Description	HS Chapter
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

Table B: Average compliance cost across levels of processing

partner	raw/unprocessed	semi-processed	processed	average cost
Angola	1910			1910
Benin	0	453	316	232
Burkina Faso	65	6	8315	6124
Congo (Dem. Rep.)	0	7971	3761	3067
Eq. Guinea		1601	27989	2921
Eritrea	12	4	11	9
Ethiopia	16	182	5839	3167
Gambia	1	3	635	108
Guinea	78	3215	23167477	14650420
Guinea Bissau	0	0	230	153
Malawi	20	28	523	42
Mali	0	2	3779118	2964968
Mauritania	0	0	8	0
Niger	1	4464	35437	30348
Sao Tome & P.	0	1	1	1
Senegal	0	12	11030941	5088925
Sierra Leone	19546	70251957	19141229	20969174
Togo	0	2	725	467
average cost	29	254712	5110296	2425032

Table C: Preference eligible trade across countries and level of processing

partner	raw/unprocessed	semi-processed	processed	Total
Angola	1.77%	0.00%	0.00%	1.77%
Benin	0.48%	0.00%	0.04%	0.52%
Burkind Faso	0.67%	0.26%	0.45%	1.38%
Congo (Dem. Rep.)	0.51%	0.69%	0.36%	1.56%
Eq. Guinea	0.00%	3.55%	0.00%	3.55%
Eritrea	0.00%	0.33%	0.36%	0.70%
Ethiopia	5.23%	2.71%	2.64%	10.58%
Gambia	0.79%	0.03%	0.01%	0.82%
Guinea	0.03%	0.03%	0.13%	0.20%
Guinea Bissau	0.02%	0.00%	0.02%	0.03%
Malawi	16.22%	6.15%	0.02%	22.39%
Mali	0.10%	0.03%	0.28%	0.41%
Mauritania	15.17%	0.20%	0.32%	15.69%
Niger	0.35%	0.00%	0.22%	0.57%
Sao Tome & P.	0.00%	0.01%	0.01%	0.02%
Senegal	34.28%	0.16%	3.58%	38.02%
Sierra Leone	0.14%	0.00%	0.17%	0.31%
Togo	0.84%	0.00%	0.63%	1.48%
Total	76.59%	14.17%	9.24%	100.00%

Table D: Average compliance cost across countries and sectors

TDC partner	1	2	3	4	5	6	7	8	9	11
Angola	1,910									
Benin	0	0	305					94		441
Burkina Faso		0	12			1,418		6	16	28
Congo (Dem. Rep.)	0		2	168,653	448	14,131	9	13	39	
Eq. Guinea						21,698			32	
Eritrea	0							4		10
Ethiopia	0	0		7		2,607		8	37	56
Gambia	0	17		880						
Guinea		79	15,982	3,221				5,952	5,488	34,763
Guinea Bissau	0	0	0						0	
Malawi		1	749	21						642
Mali		0		0		18	192	0	0	0
Mauritania	0			8						
Niger		1						923		4,228
Sao Tome & P.	0	1	1							
Senegal	0	0	1	0		28	245	0	0	1
Sierra Leone				24,866			104,139,529			217,964
Togo		0	6	1				1	3	6
average cost	11	4	1,928	330	168,653	3,703	10,128,364	138	153	5,889

Table D continued

TDC partner	12	13	14	15	16	17	18	20	average cost
Angola									1,910
Benin									232
Burkina Faso		203	729	31,695			43,892	205	6,124
Congo (Dem. Rep.)		238							3,067
Eq. Guinea								2,921	
Eritrea									9
Ethiopia	112	470	1,596				95,797	475	3,167
Gambia									108
Guinea							47,421,426		14,650,420
Guinea Bissau	0				343	2,031			153
Malawi								42	
Mali	2	3	10	472	25,613,009		593	3	2,964,968
Mauritania									0
Niger			70,024					25,950	30,348
Sao Tome & P.									1
Senegal	3	13	577		201,605,756	769	4	5,088,925	
Sierra Leone									20,969,174
Togo	13	38	138	6,625			7,553	24	467
average cost	40	149	14,655	6,981	20,045,038	178,782,693	8,600,032	1,823	2,425,032