

**Online Appendix to “Are Trade Preferences a Panacea?
The Export Impact of the African Growth and Opportunity Act”**

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Appendix A: AGOA and GSP eligibility

Appendix Table A1. AGOA eligibility across countries and over time

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Angola				X	X	X	X	X	X	X	X	X	X	X	X	X	X
Benin	X	X	X	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Botswana	X ¹	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Burkina Faso					X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Burundi						X	X	X	X	X	X	X	X	X	X		
Cameroon	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Cape Verde	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Cen African Rep	X ¹²	X ¹²	X ¹²														X ¹²
Chad	X	X	X	X	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Comoros								X	X	X	X	X	X	X	X	X	X
Congo (DROC)			X	X	X	X	X	X	X	X							
Congo (ROC)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cote d'Ivoire		X	X ¹²	X ¹²							X	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Djibouti	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Eritrea	X	X	X														
Ethiopia	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Gabon	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Gambia			X	X	X	X	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²			
Ghana	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Guinea	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X
Guinea-Bissau	X	X	X	X	X	X	X	X	X	X	X				X	X	X
Kenya	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Lesotho	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Liberia							X	X	X	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Madagascar	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²					X	X	X	X
Malawi	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Mali	X	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²		X	X	X	X
Mauritania	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X
Mauritius	X ¹	X ¹	X ¹	X ¹²	X ¹²	X ¹	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Mozambique	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Namibia	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Niger	X	X	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²		X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Nigeria	X	X	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Rwanda	X	X	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Sao Tome & Prin	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Senegal	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Seychelles	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Sierra Leone	X	X	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
South Africa	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
South Sudan													X	X			
Swaziland	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²			
Tanzania	X	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Togo								X	X	X	X	X	X	X	X	X	X
Uganda	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²
Zambia	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²	X ¹²

Note: X eligible for AGOA, ¹ eligible for apparel provisions, ² eligible for LDBC special rule. Equatorial Guinea, Somalia, Sudan, and Zimbabwe have never been eligible for AGOA.

Appendix Table A2. GSP and GSP-LDC eligibility across countries and over time

Country	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
Angola	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Benin	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Botswana	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Br Indian O Ter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Burkina Faso	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Burundi	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Cameroon		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cape Verde	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X	X	X	X	X	X	X	X
Cen African Rep	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Chad	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Comoros	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Congo (DROC)	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Congo (ROC)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cote d'Ivoire	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Djibouti	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Eq Guinea	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹							
Eritrea					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ethiopia		X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Gabon				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Gambia	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Ghana	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Guinea	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Guinea-Bissau	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Kenya	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Lesotho	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Liberia												X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Madagascar	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Malawi	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Mali	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Mauritania				X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Mauritius	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mozambique	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Namibia	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Niger	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Nigeria					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rwanda	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Sao Tome & Prin	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Senegal	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Seychelles	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sierra Leone	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Somalia	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
South Africa	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
South Sudan																		X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Sudan																							
Swaziland	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tanzania	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Togo	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Uganda	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Zambia	X	X	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹	X ¹
Zimbabwe	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Note: X eligible for GSP, ¹ eligible for GSP-LDC

Appendix B: Summary statistics and additional data issues

1. Summary statistics on estimating sample

Appendix Table B1. Summary statistics on estimating sample

Panel A. Number of HS 6-digit products and US imports for AGOA and control countries

	Number of HS 6-digit Products and US Imports			
	AGOA Countries (44)		Control Countries (164)	
	Mean	Standard Deviation	Mean	Standard Deviation
Number of HS 6-digit products per country (with imports>0)	97	240	734	1,068
Number of AGOA eligible HS 6-digit products per country (with imports>0)	28	57	188	226
Log (imports) per country-HS 6-digit product	9.84	1.05	10.71	1.25
Log (imports +1) per country-HS 6-digit product	0.24	0.57	1.91	2.59

Panel B. Number of GSP LDC-eligible or AGOA-eligible HS 6-digit products for AGOA countries

		AGOA/GSP Countries			
		GSP LDC (810)	AGOA Non-LDC (769)	AGOA Only (91)	AGOA Apparel (239)
		For products with imports> 100			
Number of HS 6-digit products per country	Mean	4	26	5	23
	Max	11	195	34	120

Note: In Panel B the total number of products in the HS classification at 6-digits is 5,070 and each cell shows the average across AGOA countries over the sample period.

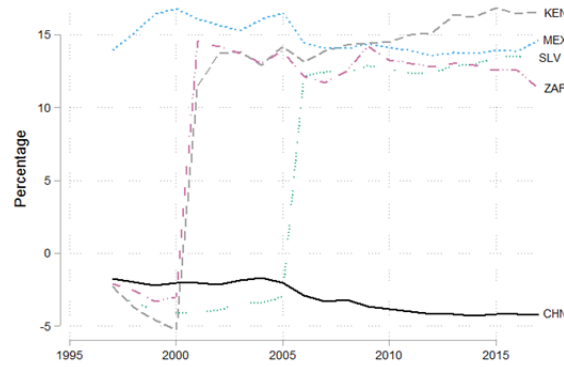
2. Relative preference margin

The formula for the RPM is based on Nicita (2011) and is given by:

$$RPM_j^{US} = \sum_{hs} X_{j,hs}^{US} \left(\frac{\sum_V X_{v,hs}^{US} t_{US,hs}^v}{\sum_V X_{v,hs}^{USA}} - t_{US,hs}^j \right) / \sum_{hs} X_{j,hs}^{US}$$

where j is the country exporting to the US, X is export value, V are other exporting countries competing with country j, t is the tariff paid in the US, hs is an HS 8-digit product. Relative to Nicita (2011) we simplify the formula in that we do not consider trade elasticities thus assuming that all countries' export flows react similarly to a reduction in tariffs. Ideally, to calculate the true preference margin, we would also include the tariff-equivalent of the quotas of the MFA and the impact of its end on the preference margins, but this exercise is beyond of scope of this study.

Appendix Figure B1. Relative preferential margins in apparel for selected countries

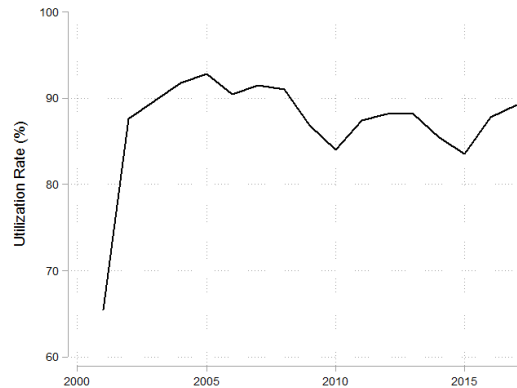


Source: US database described in Section 2 in the paper.

3. Preference utilization

The low utilization rate observed in the first couple of years of AGOA in the figure below is likely due to an imprecision in our definition of eligibility to AGOA for a given country by year whereas AGOA entered into force for different countries in different months of the year. Non-utilized preferences in recent years are mostly accounted for by oil-related products for which the US MFN duty is very low (less than 1 percent).

Appendix Figure B2. AGOA preference utilization



Source: US database described in Section 2 in the paper.

Notes: the utilization rate is defined as the share of dutiable preference-eligible imports that enter the US (originating in SSA countries) using AGOA in each year. Imports entering under different duty-free eligible programs are excluded from the calculation.

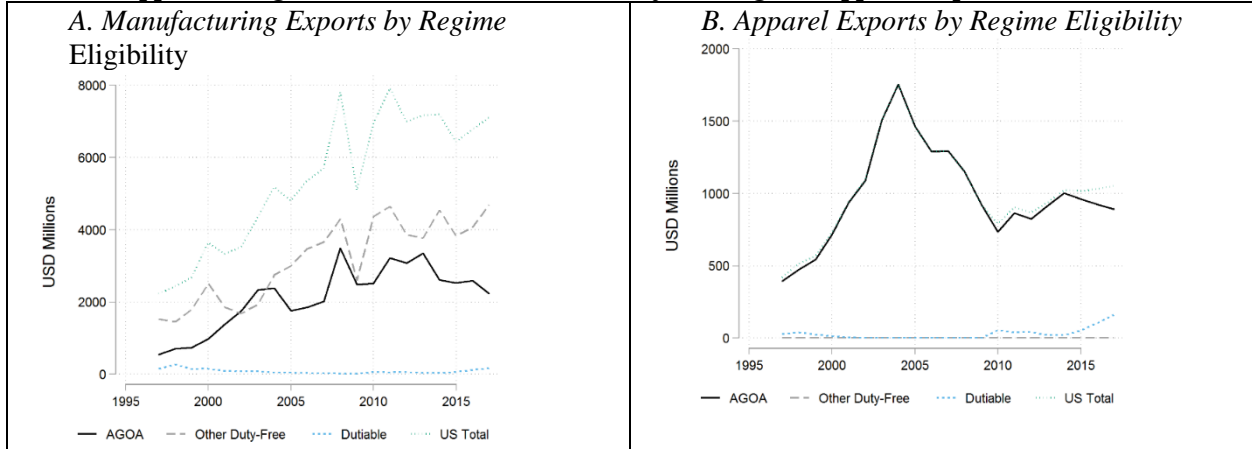
4. Additional tariff data

In the regression analysis in Section 7 of the paper, we use the average MFN import tariff imposed by each AGOA country in each year. The tariffs are taken from a newly constructed database by Teti (2020), which is based on the TRAINS and IDB databases. We use MFN tariffs averaged at the country-year level.

5. African exports to the US

Below we link SSA export performance to GSP LDC and AGOA by decomposing graphically the export flows into AGOA-eligible, other duty-free eligible (MFN zero, GSP, and GSP LDC), and dutiable exports.

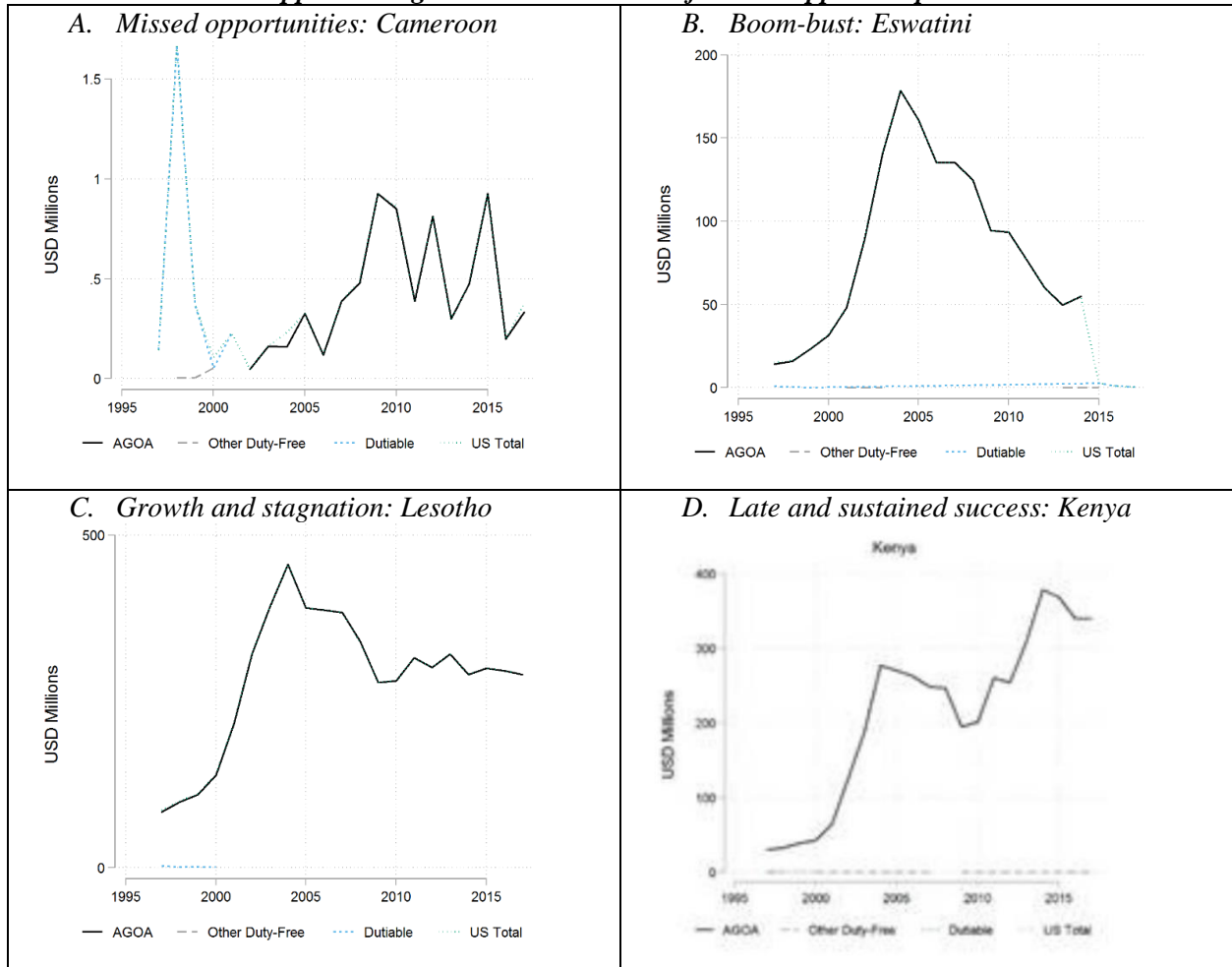
Appendix Figure B3. AGOA and SSA manufacturing and apparel exports to the US



Source: US database described in Section 2.

Note: Exports are classified by tariff regime eligibility by product-country-year and do not account for preference utilization. Eligibility for AGOA is extended before 2001 in the graphs for easier comparison.

Appendix Figure B4. Four stories of AGOA apparel exports



Source: US database described in Section 2.

Notes: Exports are classified by tariff regime eligibility by product-country-year and do not account for preference utilization. Eligibility for AGOA is extended before 2001 in the graphs for easier comparison. The other countries in the group of Panel A are Côte d'Ivoire, Ghana, Sierra Leone, Seychelles, and Zambia. The other countries in the group of Panel B are Botswana, Cape Verde, Madagascar, Malawi, Mozambique, Namibia, South Africa, and Uganda. The other country in the group of Panel C is Mauritius. The other countries in the group of Panel D are Ethiopia, Rwanda, and Tanzania.

Appendix C: Additional regression results

Appendix Table C1. Baseline impacts of AGOA and GSP allowing for sub-groups in non-apparel

Data at country-HS 6-digit-year level		
Dependent variable is:		
	Log (imports + 1)	Dummy for positive US imports
	(1)	(2)
GSP LDC * Africa * Agriculture	0.060* (2.14)	0.003 (1.13)
GSP LDC * Africa * Manufacturing	0.146*** (6.86)	0.010*** (6.15)
GSP LDC * Africa * Mining	-0.112 (-0.69)	-0.009 (-0.77)
GSP LDC * Non-Africa * Agriculture	-0.075** (-2.77)	-0.007** (-3.01)
GSP LDC * Non-Africa * Manufacturing	-0.029 (-1.28)	-0.003 (-1.80)
GSP LDC * Non-Africa * Mining	-0.132 (-1.69)	-0.010 (-1.88)
AGOA Non-LDC * Agriculture	0.007 (0.28)	-0.002 (-0.91)
AGOA Non-LDC * Manufacturing	0.047** (2.58)	0.002 (0.98)
AGOA Non-LDC * Mining	-0.287 (-1.52)	-0.023 (-1.64)
AGOA Non-apparel * Agriculture	0.147* (2.34)	0.011* (2.02)
AGOA Non-apparel * Manufacturing	0.040 (0.93)	-0.002 (-0.52)
AGOA apparel	0.200*** (4.78)	0.012*** (3.63)
Treatment group-specific time trends	Yes	Yes
Country-product fixed effects	Yes	Yes
Country-year fixed effects	Yes	Yes
Product-year fixed effects	Yes	Yes
Observations	27,420,560	27,420,560

Notes: Robust t-statistics in parentheses, clustered by HS 6-digit product. ***, **, and * indicate significance at 1%, 5%, and 10% confidence levels, respectively. Estimates of a variant of Eq. (1) allowing for separate coefficients for agriculture, manufacturing, and mining sub-sectors shown.

As an alternative to Eq. (1) we use detailed data on the tariffs that the US applied to all HS 6-digit products and all countries over the period 1997-2017, to estimate the trade effects of tariff preferences granted by the US under different schemes, including AGOA, using the following specification:

$$\ln(\text{Imp}_{cpt}) = \gamma(\tau_{cpt}^{MFN} - \tau_{cpt}^{Pref}) \times 1[c \in AFR] + \gamma(\tau_{cpt}^{MFN} - \tau_{cpt}^{Pref}) \times 1[c \in NonAFR] + \delta_{cp} + \delta_{ct} + \delta_{pt} + \epsilon_{cpt} \quad (D1)$$

where $\tau_{cpt}^{MFN} - \tau_{cpt}^{Pref}$ is the difference between the MFN tariff rate and the best available US preferential tariff rate. As in Equation (2) we control for a stringent set of fixed effects: country-product, country-year, and product-year. Since Eq. (D1) relies on a continuous tariff preference variable (which captures the magnitude of the trade preference) rather than discrete country-product treatment groups, we do not control for treated group-specific time trends. The coefficient of interest γ captures the trade effects of the tariff preferences given to a country-product pair relative to the average export of that country-product pair. To capture the trade effect of the tariff cuts provided to African countries, we include the tariff preference

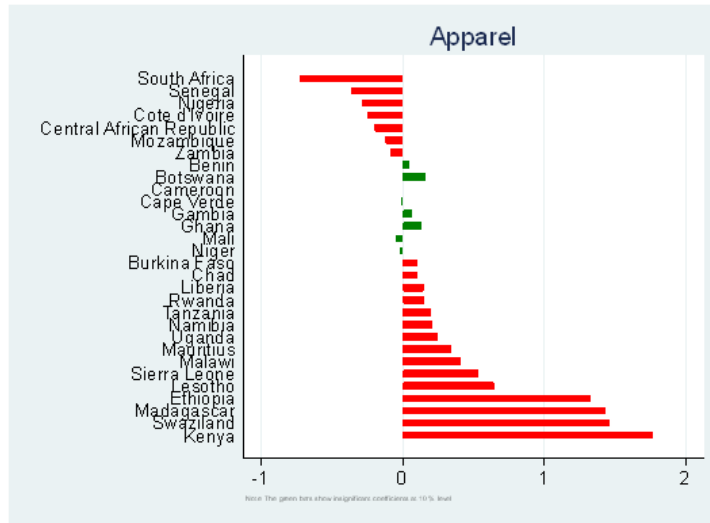
variable twice: once interacted with an indicator for African countries and once interacted with an indicator for non-African countries.

Appendix Table C2. Impacts of US preference margins

	Data at country-HS 6-digit-year level (including zeros) is used		
	Dependent variable is:		
	Log (imports + 1)	Log (imports + 1)	Log (imports + 1)
	(1)	(2)	(3)
Preference margin	0.007 (1.01)		
Preference margin * Africa		1.650*** (8.90)	
Preference margin * Non-Africa		-0.0003 (-0.39)	
Preference margin * Africa * Agriculture			0.370*** (3.44)
Preference margin * Africa * Apparel			3.360*** (8.23)
Preference margin * Africa * Manufacturing			1.567*** (9.40)
Preference margin * Africa * Mining			-1.257 (-0.74)
Preference margin * Non-Africa * Agriculture			0.358 (1.95)
Preference margin * Non-Africa * Apparel			-2.423*** (-3.95)
Preference margin * Non-Africa * Manufacturing			0.0002 (0.37)
Preference margin * Non-Africa * Mining			6.317*** (5.58)
Country-product fixed effects	Yes	Yes	Yes
Country-year fixed effects	Yes	Yes	Yes
Product-year fixed effects	Yes	Yes	Yes
Observations	21,931,483	21,931,483	21,931,483

Notes: Robust t-statistics in parentheses, clustered by HS 6-digit product. ***, **, and * indicate significance at 1%, 5%, and 10% confidence levels, respectively. Estimates for Eq. (D1) are shown.

Appendix Figure C1. Baseline impacts of AGOA on apparel by country



Note: figure shows coefficients and 95 percent confidence intervals based on robust standard errors, clustered by HS 6-digit product obtained by estimating Eq. (1) allowing for separate coefficients for each African country.

Appendix D. Firm-level analysis

D1) Customs transaction-level data

Our analysis makes use of exporter-level data from customs for Ethiopia, Kenya, Madagascar and Mauritius, collected in the context of the Exporter Dynamics Database described in Fernandes et al. (2016). Each country’s dataset covers the universe of raw export transactions obtained from the local customs agency and includes information at the exporter-product-destination-year level based on six variables: country of origin, exporting firm identifier, country of destination, product, export value, and year. The raw customs data sets were subjected to uniform reformatting and to a series of cleaning procedures following those described in Fernandes et al. (2016). Firms are identified by their actual names, their tax identification number, or an artificial unique code randomly created by the local customs agency which allows us to create a panel of firms for each country. Regarding product nomenclatures, we use a concordance between product codes in the Harmonized Classification (HS) at the 6-digit level in the 2002, 2007, and 2012 versions (used in the raw customs data sets) and the 1996 version. Export values are Freight on Board (FOB) figures measured in USD converted from local currency to USD when necessary using exchange rates taken from the IMF’s International Financial Statistics.

Our analysis based on customs data focuses on exports of apparel products (HS chapters 61-63) to the US. Appendix Table E1 shows the number of exporters of apparel to the US in each year for each country.

Appendix Table D1. Number of exporters of apparel to the US per country and year

	Ethiopia	Kenya	Madagascar	Mauritius
2000				47
2001				54
2002				58
2003				58
2004				52
2005	14			49
2006	25	79		39
2007	27	50	58	40
2008	25	30	63	31
2009	27	26	49	30
2010	25	33	36	33
2011	22	43	18	38
2012	23	48	19	45
2013	28	43	19	46
2014	36	51	23	50
2015	40	46	29	35
2016	41	43	36	35
2017	44	59	31	

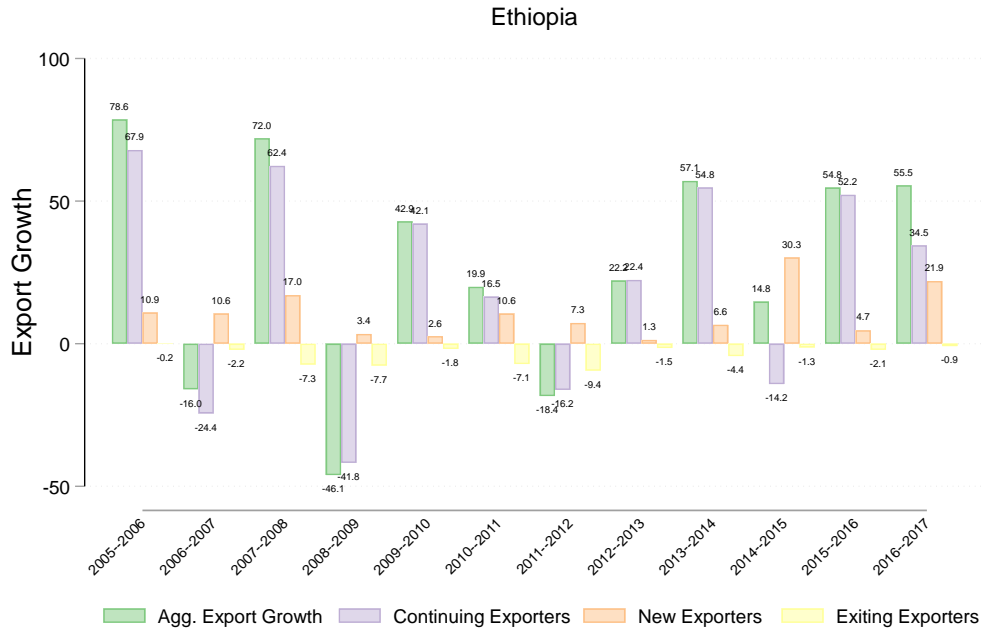
D2) Export growth decomposition formula and results

To understand the sources of aggregate growth, we decompose the change in each country’s exports to the US between year $t-k$ and year t , ΔE_t into the change due to increases or decreases in exports at the existing exporting firms (i.e., intensive margin), the increase due to entry of new exporting firms, and the decrease due to the exit of existing exporters. The decomposition of export growth is as follows:

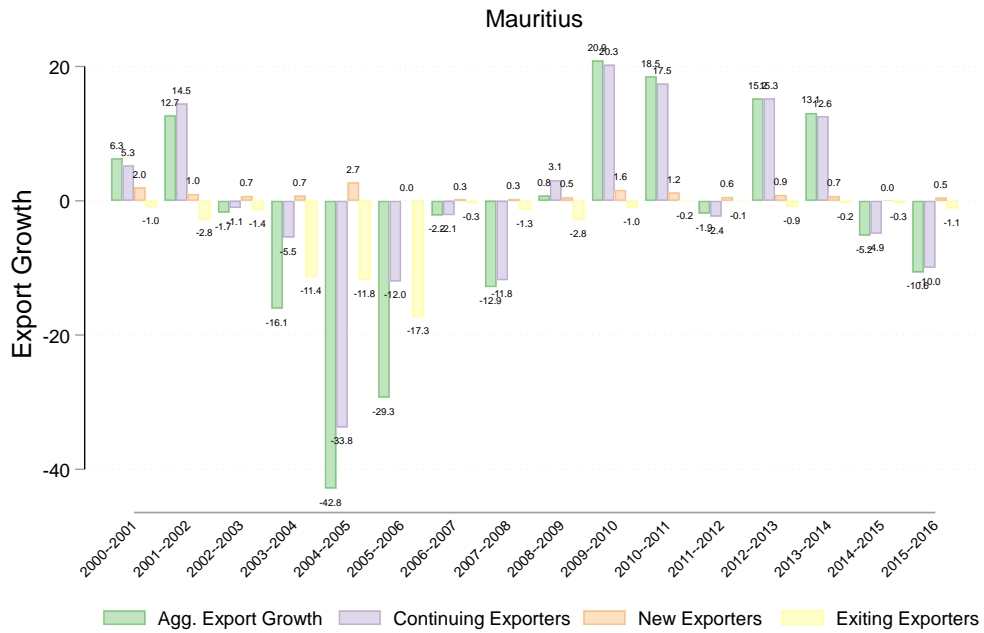
$$\Delta E_t = \sum_{j \in C} \Delta E_{jt} + \sum_{j \in E} E_{jt} - \sum_{j \in X} E_{jt-k}$$

where ΔE_t is the change in country’s export between year $t-k$ and year t , C is the set of continuing exporters that are active in export markets in both $t-k$ and t , E is the set of entering exporters that are active in export markets in t but not in $t-k$, and X is the set of exiting exporters that are active in export markets in $t-k$ but not in t .

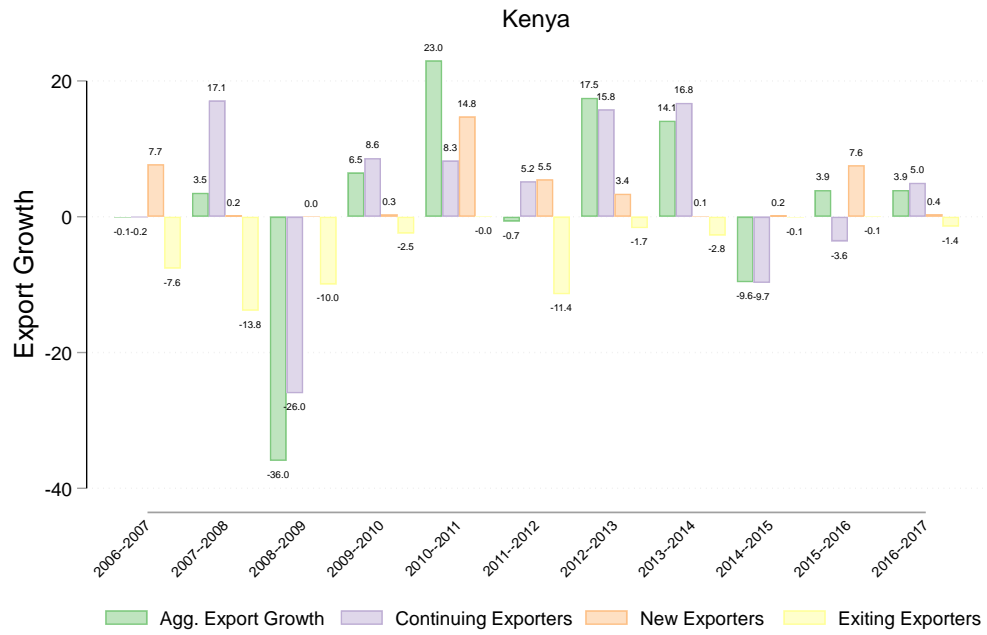
Appendix Figure D1. Apparel export growth (year-to-year) decomposition for Ethiopia



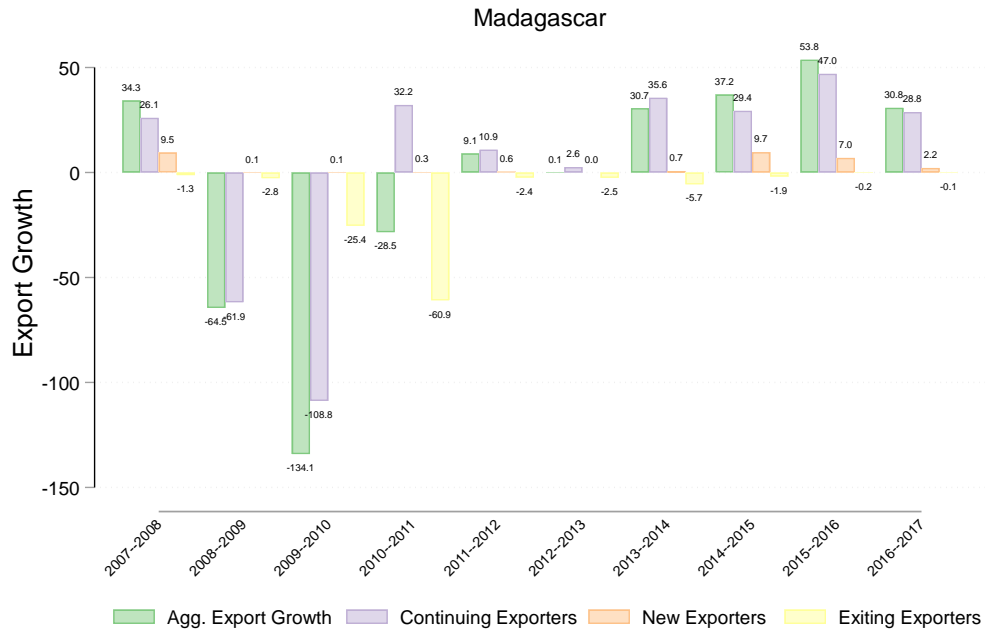
Appendix Figure D2. Apparel export growth (year-to-year) decomposition for Mauritius



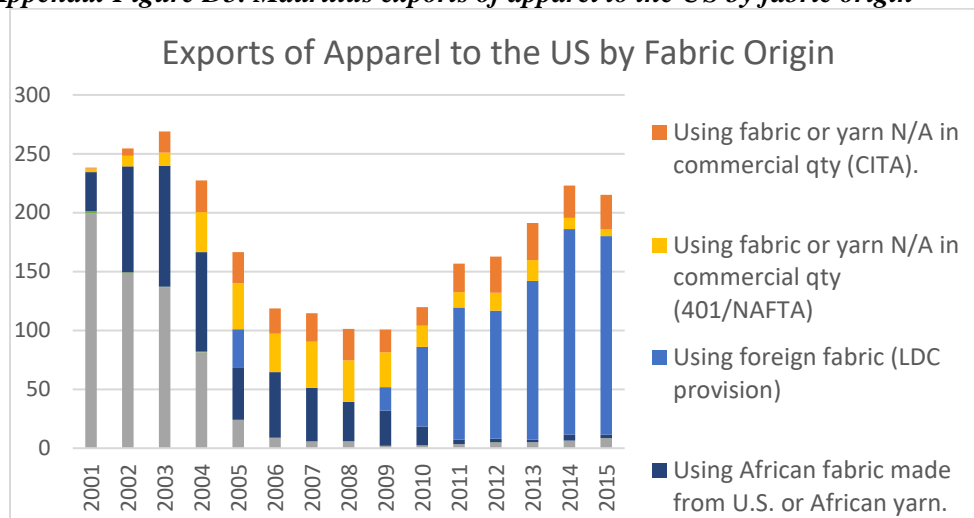
Appendix Figure D3. Apparel export growth (year-to-year) decomposition for Kenya



Appendix Figure D4. Apparel export growth (year-to-year) decomposition for Madagascar



Appendix Figure D5. Mauritius exports of apparel to the US by fabric origin



Source: USITC-OTEXA.

Note: Exports are classified by tariff regime eligibility and by fabric origin by product-country-year.

D3) Case study on Ethiopian apparel exporting firms: trade preferences or domestic policy reforms?

The raw country-product-year export data and the yearly impacts of AGOA clearly demonstrate that Ethiopia saw a late success in its apparel export growth to the United States. The effect of AGOA on apparel exports remains statistically significant after controlling for changes in exports to the European Union that occurred after AGOA came into force. To further verify that the boost in export to the US can be largely attributed to AGOA, we visited factories in Ethiopia and interviewed leading firms in the apparel sector. This section relies on information obtained from fieldwork in Ethiopia and testimonies of corporate executives.

Jay Jay Textile PLC was founded in 1971 in the Indian state of Tamil Nadu and operates production plants in Sri Lanka and Bangladesh. The company started its operation in Ethiopia in 2014 and began exporting to the US market in 2015. The main motivation to set up a factory in Ethiopia in 2014 was the establishment of the EPZ that addresses infrastructural challenges by providing land and factory sheds as well as electricity, water, and communication services. The decision was also motivated in part by the need to circumvent the high tariffs on apparel in the US market that were constraining clothing exports from its production plants in Sri Lanka and Bangladesh. “While Ethiopia’s workers have relatively low productivity levels compared to those in Sri Lanka and Bangladesh and inadequate trade logistics greatly affects the company’s cost, quality and lead times, the duty-free market access to the US market under AGOA significantly helped offset cost disadvantages due to the lower productivity of their workers and logistics costs.” While most Sub-Saharan African countries benefit from AGOA trade preferences, the company operation manager noted that the factors that set Ethiopia apart are the government’s pro-active industrial policy targeting the apparel and textile sector combined with the establishment of well-managed industrial parks. Countries like Mauritius have also developed infrastructure that can support a competitive apparel sector but have relatively high cost of labor. Hence, trainable inexpensive labor is another reason why the company was attracted to Ethiopia.

Jay Jay Textile PLC focuses primarily on apparel products for babies (newborns, infants and toddlers). Its production in its Ethiopian plant is entirely CMT (Cut-Make-Trim), sourcing all its materials from India (60 percent) and China (40 percent). The company sources materials from foreign markets for two reasons. First, the U.S. buyers determine where the materials should be produced and sourced from. Second, the quality of fabric and accessories produced in Ethiopia is not adequate for use in apparel exports to the U.S. market. Products produced by the company are mainly sold in the United States and only a small

share goes to the European market. There are two reasons behind this. First, the preference margin to the EU relative to the US is relatively small. The company can offer a more competitive price to EU buyers from its plants in Sri Lanka and Bangladesh since both countries have duty-free access in the EU under EBA. Second, European buyers order small quantities and diversified products. Producing differentiated products in smaller batches involves higher production costs, thereby making exporting to the US market relatively more profitable.

SHINTS ETP GARMENT PLC, which is headquartered in the Republic of Korea, established its production plant in Ethiopia in 2014 also. The company operates production plants in Vietnam and Ethiopia. The firm noted that the main reason to set up a factory in Ethiopia was the establishment of the EPZ which addresses the main infrastructural challenges. However, the company indicated that low labor productivity combined with inadequate trade logistics makes it difficult to compete in the US market, despite Ethiopia's cost advantage due to lower wages than in Vietnam. Compared to workers in Vietnam, the company indicates that Ethiopia's workers have low productivity due to low skill and high labor turnover. In addition, inadequate trade logistics greatly affects the company's cost, quality and lead times. However, the duty-free access to the US market under AGOA helped offset these cost disadvantages.

SHINTS ETP GARMENT PLC's production in Ethiopia focuses on less sophisticated large-run products on a CMT basis, with its production plant in Vietnam pursuing the more sophisticated activities. The firm relies entirely on imported materials from Asia (Vietnam, Thailand, China and Taiwan, China). The factory in Ethiopia depends on its headquarters in Korea to generate orders, design and send them fabric and accessories it needs. But it has a plan to build a vertically integrated plant in Ethiopia in the future.

NOVASTAR Garment PLC was established in 2006 by two Ethiopian diaspora (neither of whom had previous experience in the apparel sector). The factory is located outside of the EPZs. The company was established in response to the duty-free access to the US market granted under AGOA. While the decision to establish had been made in 2001, the year when AGOA came into force, actual production started only in 2006 when the construction of the production plant was finalized.

NOVASTAR company focuses primarily on sportswear made of polyester because AGOA trade preferences offer significantly larger duty savings for these products, which face higher U.S. import tariffs than do cotton products. While the US is the main market for the company's exports, it has also tried to expand its exports to the EU market but has struggled there for at least for two reasons. First, the company indicated that the EU does not offer the same benefits as the US since major low-cost Asian exporters such as Bangladesh are also benefiting from the preferential agreements with the EU. This indicates that not only the preference margins the country provides matter but also the availability (or lack thereof) of duty-free access by competitors. Second, stringent cost requirements by the European buyers also contribute to the favorability of the US market. The company managing partner indicates that they are not eager to expand their market due to supply-side constraints. As NOVASTAR is located outside the EPZs, it faces severe infrastructure challenges including unreliable and costly electricity; insufficient supplies of clean water; and poor road, rail, and port infrastructure. However, the company is not willing to relocate since that involves huge costs compared to the potential benefits.

PVH Corp began producing goods in Ethiopia in 2017 through a joint venture that it formed with Arvind Limited. AGOA renewal was a critical factor in PVH's decision to invest in Ethiopia (Mihretu, M. and Llobet, G., 2017). As the following testimony of William McRaith, the Chief Supply Chain Officer of PVH Corp, at the US senate committee hearing indicates AGOA renewal encouraged PVH to make long-term investments.

"Companies cannot commit to individual investments ranging in the hundreds of millions of dollars unless they have more certainty about the rules in place. We are embarking on these types of investment. However, it will take 12-24 months to set up very expensive yarn spinning, fabric weaving/knitting and apparel making facilities. We then need to train workers on the use of complicated machinery, build production capacity and be able to have benefits long enough to cover the full depreciation of our investments which takes in the ideal world 8 years...if we have any delays along the way, we will need the full 10-year period to recoup costs. The proposed ten-year AGOA extension is a strong signal showing that

Congress is working with the private sector in helping Africa develop and diversify into economic independence.”

Summary

While the establishment of EPZs has played an important role in Ethiopia’s apparel export boom, EPZs would likely not have been sufficient without the AGOA preferences, which played an important role in the emergence and growth of apparel exports from Ethiopia by offsetting the cost disadvantages resulting from lower labor productivity, higher logistics costs, and considerably longer lead times. If AGOA preferences did not exist, leading apparel companies would not set up their production plants in Ethiopia. AGOA has been in effect since 2001 but the fact that apparel exports surged only after the establishment of the EPZs suggests that tariff preferences alone were not sufficient to boost exports to the US market. Despite the impressive growth in export volumes, the export performance of Ethiopia has not been accompanied by dynamic benefits. Production is predominantly CMT, using fabric largely imported from Asia. The local production process is characterized by highly routine steps used to produce basic very large volume items. Most firms produce basic products (concentrating on a narrow range of garments). Producing differentiated products in smaller batches requires more skilled workers. Foreign factory owners are not closely integrated into the local community. Hence, the combination of a productivity disadvantage and a weak domestic upstream industry makes the Ethiopia apparel industry’s survival totally dependent on trade preferences. If these preferences disappeared, industrial expansion in the apparel export sector would collapse.

References

- Mihretu, M. and Llobet, G., 2017. Looking Beyond the Horizon: A Case Study of PVH’s Commitment in Ethiopia’s Hawassa Industrial Park.
- Teti, F. 2020. “30 Years of Trade Policy: Evidence from 5.7 Billion Tariffs,” ifo Working Paper No. 334, ifo Institute, Munich.