

# Analysing the Impact of the EBA Initiative Using a Gravity Model

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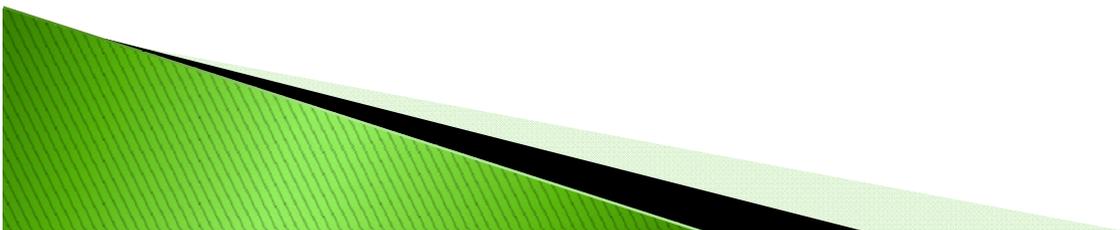
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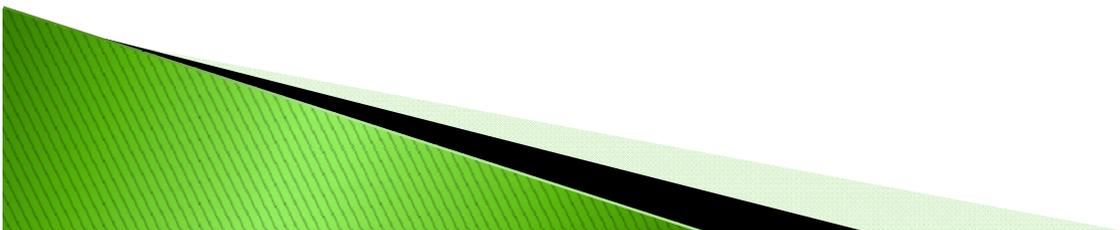
# The aim is:

- ▶ to assess the effectiveness of the Everything But Arms (EBA) initiative launched by the EU in 2001;
- ▶ to evaluate whether EBA has been effective in increasing exports from LDCs to the EU over the period 1995–2006.



# EBA (1 / 2)

- ▶ It is a special arrangement in favour of LDCs; it provides tariff free and quota free access to all EU imports from the 49 LDCs as defined by the UN, except for arms and ammunition.
- ▶ Its goal is to boost LDCs' growth by removing all trade restrictions when they export to EU market.



# EBA (2/2)

- ▶ Its effectiveness is not assured due to:
  - External reasons to EBA (i.e., weak supply capacity of LDCs; weak institutional capacity of LDCs to effectively manage all the administrative issues in order to apply for a trade preference);
  - Internal reasons to EBA [i.e., strict Rules of Origin (RoO)].

In addition, granting full market access does not necessarily translate into increased exports from LDCs because of trade arrangements which pre-existed EBA.



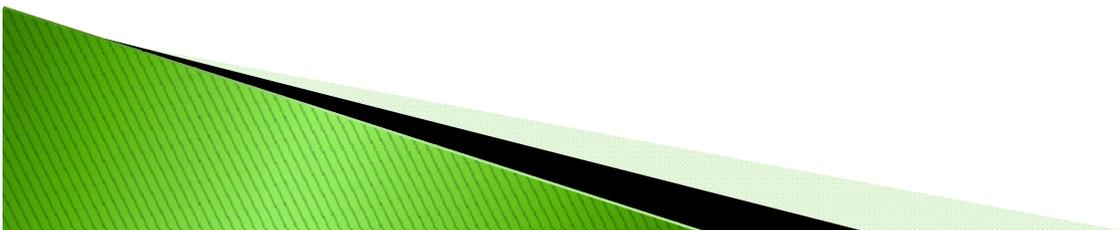
# Related literature

- ▶ It is comprised of the papers by Pishbahar and Huchet-Bourdon (2008), and Gradeva and Martinez-Zarzoso (2009).
- ▶ These studies share the use of aggregated data, i.e. total exports from LDCs to the EU, and the use of a dummy variable as proxy for the preferential policy.
- ▶ From an econometric point of view, Pishbahar and Huchet-Bourdon (2008) use the OLS estimator, while Gradeva and Martinez-Zarzoso (2009) consider the Heckman (1978) procedure in order to control for selection bias due to many zero trade flows.
- ▶ These two works conclude that EBA is not effective in increasing LDC exports to the EU.



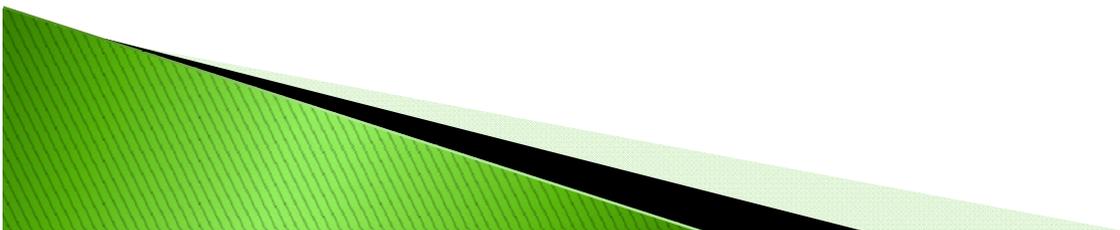
## With respect to the related literature

- ▶ This paper provides further evidence in this field of research by attempting to improve the reliability of results obtained when evaluating the effectiveness of EBA within the analytical framework of the gravity approach.
- ▶ The empirical setting considers three key issues regarding the use of disaggregated data of trade flows, the measurement of trade preferences and the econometric estimators to be employed.



# Disaggregated data on trade flows

- ▶ The use of total exports is not adequate for evaluating the impact of preferential trade agreements which are conceived to be applied at the product level.
- ▶ Using disaggregated data we can understand whether and to what extent the preferential treatment granted by the EU to LDCs through EBA enhances the exports of tariff-triggered products.
- ▶ The evidence based on disaggregated data does not suffer from the shortcoming relating to tariffs aggregation.



# Selection of commodities (1 / 3)

- ▶ Data disaggregated at HS8 level are used.
- ▶ As a study cannot analyse all products, given that the amount of data to be elaborated would be enormous, a selection of products must be made.
- ▶ In this paper, we focus on a group of products at HS4-digit which have been selected by considering three conditions.



# Selection of commodities (2/3)

- ▶ The first condition refers to the existence of an export capacity of LDCs before 2001.
- ▶ The rationale underlying this hypothesis is that if no radical change in the production and export structure of LDCs may occur, then a removal of tariffs determines a short run effect which can only be picked up in the empirical analysis if the preferred countries were able to export before EBA was implemented.
- ▶ Therefore, we ordered all HS4-digit goods by the LDCs' exports share of the world market in 2000, that is before EBA was in force, and selected products with a market share higher than 4%.



# Selection of commodities (3 / 3)

- ▶ The second condition is that GSP tariffs applied by the EU are positive. This ensures that, for the products selected, EBA introduced a real gain in terms of tariff preferences.
- ▶ Finally, we excluded from the study the products with intra-year variability of tariffs because, in such a case, monthly data on exports and tariffs should be used in order to address the issue of seasonality. However, in the case of LDC exports, monthly time series involve a huge number of missing values.
- ▶ The HS-4 level products which satisfied the above mentioned three conditions are cloves, vanilla beans, coffee, crustaceans and molluscs.

# The gravity specification

$$X_{ijt}^s = (GDP/POP)_{it}^{\alpha_1} \cdot (GDP/POP)_{jt}^{\alpha_2} \cdot (POP_{it})^{\alpha_3} \cdot (POP_{jt})^{\alpha_4} \cdot \exp(\alpha + \alpha_t + \alpha_{ij}^s + u_{ijt}^s + \delta_1 MTR_{it} + \delta_2 MTR_{jt} + \beta_1 GSP_{jt}^s + \beta_2 ACP_{jt}^s + \beta_3 RTA_{jt}^s + \beta_4 13LDC_{NotACP,jt}^{s,pre2001} + \beta_5 13LDC_{NotACP,jt}^{s,post2001} + \beta_6 36LDC_{ACP,jt}^{s,pre2001} + \beta_7 36LDC_{ACP,jt}^{s,post2001})$$

- ▶ where subscript  $i$  refers to the individual EU-15 importers ( $i=1, \dots, 15$ ),  $j$  to exporters ( $j=1, \dots, 191$ ),  $t$  to the year ( $t=1995, \dots, 2006$ ), and  $s$  indicates the agricultural commodities, at HS8-digit level, which are included in the five groups of aggregate products we selected at HS4-digit level.

# Variables (1 / 2):

- ▶ X is the EU's import flow (Comext)
- ▶ GDP is the Gross Domestic Product (WDI)
- ▶ POP is the population (WDI)
- ▶  $\alpha_{ij}^s$  indicates the commodity–country pair fixed effects
- ▶  $u_{ijt}^s$  is the error term
  
- ▶ All data regarding values are in constant 2000 Euros.

# Variables (2/2)

- ▶ MTR stands for Multilateral Trade Resistance and is meant to measure trade barriers that each country faces with respect to all its trading partners.
- ▶ For each preferential variable (GSP, ACP, EBA and RTA) and each tariff-line, we compute the preferential margin as the difference between the applied MFN duty and the preferential duty granted under each specific trade arrangement (DBTAR and TARIC).

# Preferential variables for LDCs

- ▶  $13LDC_{Not-ACP}^{pre-2001}$  and  $13LDC_{Not-ACP}^{post-2001}$  indicate the margin of preference enjoyed up to 2001 and after 2001, respectively, by the group of the 13LDCs which did not sign the Cotonou.
- ▶  $36LDC_{ACP}^{pre-2001}$  and  $36LDC_{ACP}^{post-2001}$  indicate the margin of preference enjoyed up to 2001 and after 2001, respectively, by the group of the 36LDCs which signed the Cotonou agreement.

# Estimation method (1 / 3)

- ▶ The results obtained from the estimation of a gravity equation suffer from three main potential sources of bias, which are related to country–pair heterogeneity, endogeneity and the presence of zero trade flows.
- ▶ Heterogeneity may be due to observable and non–observable factors which are specific to each commodity–country pair.
  - We have included in the gravity equation a set of commodity–country pair fixed effects ( $\alpha^s_{ij}$ )

## Estimation method (2/3)

- ▶ The endogeneity issue is related to the fact that PTA variables could be determined simultaneously with trade flows. Thus, we perform the Davidson–Mackinnon (DM) endogeneity test, which compares OLS and IV estimations in a panel framework.
- ▶ The p-values of the DM test allow us to reject the hypothesis of endogeneity of the preferential variables in all estimations.

# Estimation method (3 / 3)

- ▶ With regards zero trade flows, we take into account the arguments put forward by Santos Silva and Tenreyro (2006) according to which a multiplicative gravity specification is more appropriate than a log-linear one.
- ▶ We use the negative binomial model with fixed effects, because the Poisson model assumes equal mean and variance of the dependent variable whereas the negative binomial model allows the likely over-dispersion in trade flow observations to be taken into account.

# Estimates of the multiplicative specification of the gravity model.

	<b>Cloves 0907</b>	<b>Vanilla beans 0905</b>	<b>Coffee 0901</b>	<b>Crustaceans 0306</b>	<b>Molluscs 0307</b>
<b>GSP<sub>only</sub></b>	-0.280 ***	0.116 **	0.047 **	0.045 ***	-0.026 ***
<b>ACP<sub>only</sub></b>	-8.279	-0.028	0.048	0.045 ***	-0.057 ***
<b>RTA</b>	0.282 ***	0.034	0.030 ***	0.040 ***	0.027 ***
13 <i>LDC pre - 2001 not - ACP</i>				0.062 ***	-8.599
13 <i>LDC post - 2001 not - ACP</i>				0.037 ***	-0.136 *
36 <i>LDC pre - 2001 ACP</i>	-0.088	0.251 ***		0.052 ***	-0.015
36 <i>LDC post - 2001 ACP</i>	-0.196 **	0.410 ***	-0.057	0.040 ***	0.000
<b>log(POP_exporter)</b>	-0.142 **	0.180 ***	-0.120 ***	0.027 ***	0.037 ***
<b>log(POP_importer)</b>	0.507 ***	0.511 ***	0.205 ***	0.192 ***	0.156 ***
<b>log(GDP/POP_exporter)</b>	-0.808 ***	0.262 ***	0.454 ***	0.072 ***	-0.041 ***
<b>log(GDP/POP_importer)</b>	1.374 ***	1.453 ***	-0.151	-0.100 ***	-0.004
<b>MTR_importer</b>	-1.218 ***	-2.686 ***	-0.254	0.195 ***	0.141 **
<b>MTR_exporter</b>	83.33 ***	6.084	7.920 ***	8.561 ***	8.854 ***
<b>Trend</b>	0.191 ***	0.180 ***	0.159 ***	0.008 ***	0.161 ***
<b>Costant</b>	-30.16 ***	-33.67 ***	-325.61 ***	-8.268 ***	-9.082 ***
<b>Observations</b>	1056	1350	4877	60432	26322
<b>Davidson- MacKinnon test of exogeneity</b>	0.503	0.213	1.499	0.162	2.890
<b>p-value</b>	0.479	0.645	0.221	0.687	0.089

# Concluding remarks

- ▶ Results, in some ways, contrast with those obtained in previous works which have found that EBA was not effective in increasing EU imports from LDCs.
- ▶ By using trade at a very high level of data disaggregation, we have shown that the EBA initiative exerts for some products a positive role in enhancing LDC exports to the EU.

# Concluding remarks

- ▶ In particular, the exports of crustaceans and vanilla beans were positively affected by the preferential treatment provided under EBA while no conclusion can be drawn when considering the exports of coffee, molluscs and cloves.
- ▶ The fact that only few LDCs exported to the EU might be due to the weak supply capacity of LDCs.

# Concluding remarks

- ▶ Results could also be related to the existence of non-tariff barriers, such as transaction costs associated with RoO, administrative compliance costs and sanitary and phytosanitary standards which might diminish the effectiveness of preferential margins, especially for the smallest or poorest countries.
- ▶ LDCs have possibly reacted slowly to the new trade regime introduced by EBA in 2001. For instance they may have taken time to invest in their sectors of specialisation in order to get the advantages to export towards the EU more than before.

# Concluding remarks

- ▶ A limitation of this study is that it is based on a small number of products and, therefore, concerns arise regarding the possibility to generalise the results. The main motivation for the work stems from the belief that preferential trade policies have to be evaluated by using disaggregated data and, hence, a selection of products is necessary.
- ▶ The evidence obtained in this paper, supports the approach of conducting a study using data at product level. Indeed, in such a way, we gauge the sector specificities which, otherwise, using aggregated trade flows, would be hidden.

# Concluding remarks

- ▶ Further evidence on the effectiveness of EBA could be found if analyses are made as country–case studies and when the medium and long term effects of adjustments by the LDCs, such as compliance to standards and investments in production, are fully revealed.