A Comparative Study of EU and US Trade Policies for Developing Countries: The Case of Agri-Food Products

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Abstract— **Trade relations between developed and developing countries are one of the hot topics of the ongoing World Trade Organization (WTO) negotiations. The conclusion of the Cotonou Agreement between EU and African, Caribbean and Pacific countries, the introduction of the EU's Everything But Arms initiative for the least developed countries and the United States' African Growth and Opportunity Act for 39 African Countries, represents tangible incentives for many developing countries to continue their efforts to open their economies and build free markets. This paper analyzes the trade creating effects of EU and US trade policies as total effect, for agri-food products of developing countries in a gravity model framework. Data refer to a 10 year period: 1996-2005. The findings show larger trade creating effects of EU trade policies, especially for upper-middle income countries. Variation in trade creation, across the years, is not statistically significant, except for the low-income countries.**

Keywords— **Gross Trade Creation, Agricultural Trade Policy, Developed and Developing Countries.**

I. INTRODUCTION

The European Union and the United States began to develop trading arrangements with developing countries in the early 1970s and have gradually expanded these programs over time. More than 100 developing countries are covered by the Generalized System of Preferences (GSP) adopted both by the European Union and the United States. The US later established other non-reciprocal trade preference programs through the Caribbean Basin Economic Recovery Act (CBERA) in 1983, the Andean Trade Preference Act (ATPA) in 1991, and, most recently, through the Trade and Development Act of 2000, which extended non-reciprocal preferences to the majority of the Sub-Saharan African countries as well as the Caribbean Basin region. Similarly, the European Union has extended non-reciprocal trade preferences to many countries in the African, Caribbean and Pacific (ACP) regions since 1975 through its ACP-EC Convention of Lomé. In recent times, under the GSP program, the EU adopted the *Everything But Arms* amendments, which offer duty-free access for all LDC products except arms by 2009. In addition, there are also several bilateral free trade agreements between developing countries and the EU and the US.

Studies which analyze either the effects of EU or US trade preference schemes are very common, but studies which compare quantitatively EU and US trade policies with respect to their overall effect for developing country exports appear more infrequent. The following study, based on the World Bank's definition of developing countries, analyses the trade creating effects of EU and US trade policies for agri-food products of developing countries in a gravity model framework. In this way, the findings on the Gross Trade Creation do not reflect necessarily the type of program applied but the overall effects of the EU trade policy *vis-à-vis* those of US policy on developing country agri-food exports. The data set refers to a ten-year period, 1996 to 2005.

II. COMPARISON OF US AND EU TRADE POLICIES

A. EU Trade Policies

GSP. The EU was the first to implement a *GSP* program in 1971, the provisions of which have been revised and expanded many times. In this program, products deemed *non-sensitive* are allowed to enter the EU market duty-free. Products listed as *import sensitive* (determined by the situation of the product sector in EU countries) are accorded a reduction in

tariffs below the MFN rate, depending on the level of sensitivity of the imported product. In addition to the general GSP scheme, there are two more relevant special schemes. The first is the *GSP plus* and is available to especially vulnerable countries with particular development needs. It extends the range of products which can enter the EU duty-free and introduces new rules to the graduation mechanism. The second special incentive scheme is the *Everything But Arms.* This agreement (2001) provides the Least Developed Countries (LDCs) with duty free access to EU markets without quotas or other restrictions for most agricultural products (both primary and processed) except arms and munitions.

ACP preferences. The special trade preferences for African, Caribbean and Pacific (ACP) countries originated in the Treaty of Rome signed in 1957. They have been updated on different occasions (with the Yaoundé Conventions and subsequently with the Lomé Conventions). This program provided duty free access on a non-reciprocal basis to the European market for most products except those covered by the CAP (for these products, certain preferences were available, though). Since 2000[1], the ACP relations have been replaced by the Cotonou Agreement. The latter is meant to be a more complete arrangement that included not only financial aid but also economic partnership agreements to cover many trade related problems such as competition policy, intellectual property rights, sanitary and phitosanitary measures. Preferences for agricultural products (tropical products, temperate products, fruits and vegetables) are differentiated. For certain products (bananas, beef and veal, and sugar), the EU provides special market access via so-called commodity protocols. In 2008 at the latest, the unilateral preferences under the Cotonou Agreement are to be replaced by WTO-compatible reciprocal economic partnership agreements (EPAs) between the EU and individual ACP countries or groups of countries.

Other EU trade policies. Countries around the Mediterranean Sea[2] have been involved in different trading arrangements with the EU since the late 1960s and early 1970s. The bilateral Cooperation Agreements included trade preferences that were non-reciprocal, and gave duty free access for most industrial and many agricultural goods. Since 1995, the Cooperation Agreements have been in the process of being replaced with a new generation of Euro-Mediterranean Association Agreements as part of the Barcelona Declaration.

In Addition, the EU has a number of bilateral or regional Free Trade Agreements (FTAs) with many developing countries, offering them additional market access on top of the GSP preferences.

B. US Trade Policies

GSP. The GSP program was instituted in 1976 and renewed periodically since then. The latest renewal of the scheme took place in 2006 when the US validated it until 2008. It provides duty free access to the US market for about 4600 products, with an additional 1800 products for the least developed beneficiaries. Duty free treatment under the GSP is more extensive for manufactured products than for agricultural products. In particular, the agricultural products subject to tariff rate quotas (beef, peanuts, tobacco, sugar, and dairy products) are ineligible for any amounts in excess of the in-quota country quantity. The granting of duty free access for eligible products is subject to competitive-need limitations which impose a ceiling on the GSP benefits for each product and country. Another way for a country to lose eligibility is graduation. This happens when a country has a per capita income in excess of the one set by the World Bank for high income countries or when it is not considered a developing country anymore.

AGOA. The African Growth and Opportunity Act was introduced in 2000 and is valid until 2008. It is a program offered o 48 Sub-Saharan African countries and extends the products covered by the GSP program. All developing countries in this program receive a duty free treatment for all products currently eligible under the GSP program. A particularity is the abolition of the GSP competitive-need limitations. In other words, the US President every year determines whether the country is eligible based on some criteria, for example, the establishment of a market-based economy, rule of law, elimination of barriers to US

[1] The Cotonou Agreement between the EU and 79 ACP countries was signed on 23 June 2000. It entered into force in April 2003.

[2] Maghreb countries: Algeria, Morocco and Tunisia; Mashreq countries: Egypt, Jordan, Lebanon, Palestinian Authority and Syria.

trade, implementation of economic policies to reduce poverty and others. The main products under this program are energy-related products, textiles and apparel, and transportation equipment. Agricultural products, minerals, and metals represent less than 10%.

Other US policies. The *Caribbean Basin Initiative* was initially a unilateral and temporary United States program initiated by the 1983 Caribbean Basin Economic Recovery Act (CBERA). It was intended to facilitate the economic development and export diversification of the Caribbean Basin economies. Actually only 24 out of 28 countries are eligible participants. Unlike other programs, it is not subject to Country graduation or competitive need limitations. It includes more products than GSP, however, some agricultural products are still excluded (olives, mandarin oranges, wool and others). It was expanded in 2002 through the US-Caribbean Basin Trade Partnership Act (CBTPA), which mainly introduced apparel preferences into the scheme.

The *Andean Trade Preference Act* was enacted in 1991 for the benefit of Bolivia, Colombia, Ecuador, and Peru. It currently provides duty free access to US markets for approximately 5,600 products. The product coverage for agricultural goods is almost identical to the Caribbean Basin Initiative, and also in this case countries are not subject to graduation. The ATPA was renewed in 2001 under the new title of Andean Trade Promotion and Drug Eradication Act, the main change is the extension of duty free access to apparel and footwear. The US, like the EU, has also free trade agreements with some developing countries. They are both regional or bilateral agreements, in this way the according countries agree to eliminate tariffs, quotas, and preferences on most (if not all) goods traded between them.

III. EU AND US IMPORTS OF AGRI-FOOD PRODUCTS FROM DEVELOPING COUNTRIES

This study focuses on the exports of agri-food products to the EU and US market from 102 developing countries in a ten-year period, 1996-2005[3].

[3] The complete list of countries considered in the analysis is available on request by the authors.

According to the World Bank definition, based on the GNI per capita, every economy has been classified as either low income, middle income (subdivided into lower middle and upper middle), or high income. The World Bank uses the term developing country for low-income countries ($765 or less), lower-middle income countries ($766-$3,035) and upper-middle income countries ($3,036 - $9,385)[4]. On the other hand, the meaning of agri-food products used in this work is strongly linked to the USDA's definition of agricultural products. In particular, according to this definition, agricultural products, sometimes also referred to as food and fiber products, cover a broad range of goods from unprocessed bulk commodities like soybeans, feed corn, wheat, rice, unprocessed tobacco, and raw cotton to highly-processed, high-value foods and beverages like sausages, bakery goods, ice cream, beer and wine. The major products derived from plants or animals which are not considered agricultural because of their manufactured nature are cotton thread and yarn; fabric, textiles, and clothing; leather and leather articles of apparel; cigarettes and cigars; and spirits[5].

Figures shown in the following part are referred to the only developing countries considered in this study and are based on own calculations. They are expressed in constant 2001 dollars.

As shown in the following figure 1, page 4, total imports of agri-food products from developing countries to the EU market are greater than imports to the US market. Both EU and US imports are lightly constant until 2001 after that, both of them strongly increase.

Data confirm greater EU imports also from the three income groups with respect to the US (see table 2, page 4). Imports from LMI countries are the highest compared to the LI and UMI countries.

The distribution on the top ten exporters to the EU and US market is quite different both in terms of

[4] For this study, economies are divided according to 2003 GNI per capita, calculated using the World Bank Atlas method. The thresholds are updated every year to incorporate the effect of inflation and thus remain constant in real terms over time.

[5] For a detailed definition of agricultural products according to the USDA, see: http://www.fas.usda.gov/ustrade/USTTips.asp?QI=#agdef

countries listed and quantity exported (see table 1 and 3).

Figure 1 Total EU and US agri-food products imports from developing countries across the years (value expressed in $ billions).

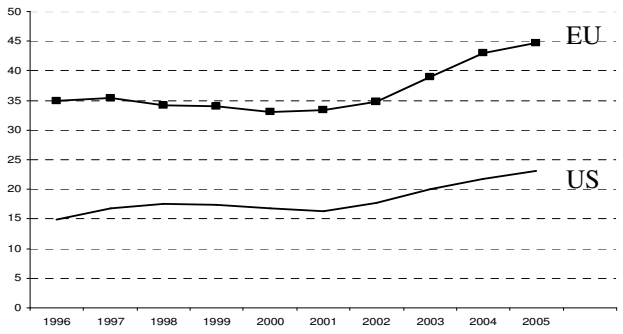

Table 1 Top ten exporters to the EU market divided by income groups *(Own calculations).*

Developing Countries	LI LMI UMI	% over income group	EU pref.	% over Total
Cote d'Ivoire	LI	21,5	ACP-GSP	4,4
India	LI	19,9	GSP	4,0
Kenya	LI	10,1	ACP-GSP	2,0
Ghana	LI	6,6	ACP-GSP	1,3
Nigeria	LI	5,9	ACP-GSP	1,2
Vietnam	LI	5,7	GSP	1,1
Zimbabwe	LI	5,5	ACP-GSP	1,1
Uganda	LI	2,9	ACP-EBA	0,6
Ethiopia	LI	2,7	ACP-EBA	0,5
Madagascar	LI	10,1	ACP-EBA	0,4
Total	***LI***	***88,6***		***20,3***
Brazil	LMI	33,2	GSP	20,5
China	LMI	10,5	GSP	6,5
Indonesia	LMI	7,7	GSP	4,8
South Africa	LMI	7,6	ACP-GSP-BA	4,7
Thailand	LMI	6,6	GSP	4,1
Colombia	LMI	5,5	GSP	3,4
Costa Rica	LMI	4,1	GSP	2,5
Morocco	LMI	3,6	GSP-BA	2,2
Ecuador	LMI	3,1	GSP	1,9
Peru	LMI	2,5	GSP	1,6
Total	***LMI***	***84,5***		***61,91***
Argentina	UMI	58,1	GSP	10,3
Chile	UMI	16,0	GSP-BA	2,8
Mexico	UMI	7,6	ACP-BA	1,3
Mauritius	UMI	5,0	ACP-GSP	0,9
Panama	UMI	3,8	GSP	0,7
Venezuela	UMI	1,9	GSP	0,4
Seychelles	UMI	1,8	ACP-GSP	0,3
Belize	UMI	1,2	ACP-GSP	0,2
Saudi Arabia	UMI	0,8	GSP	0,1
Botswana	UMI	0,7	ACP-GSP	0,1
Total	***UMI***	***97,0***		***17,8***

Table 2 Total EU and US agri-food products imports per income groups across the years (value expressed in $ billions).

	LI		LMI		UMI	
Year	EU	US	EU	US	EU	US
1996	7,706	1,522	21,254	9,348	11,026	6,607
1997	7,671	1,562	22,164	10,758	11,269	6,083
1998	7,717	1,859	20,796	10,586	12,179	6,975
1999	7,256	1,828	20,553	10,030	12,073	7,415
2000	6,557	1,805	20,770	9,474	12,643	7,319
2001	6,471	1,639	21,188	8,911	12,900	7,627
2002	6,790	1,758	21,505	9,835	14,197	8,116
2003	7,955	2,043	24,143	11,290	15,269	8,771
2004	7,949	2,338	27,447	12,070	16,568	9,449
2005	8,112	2,455	28,754	12,669	17,612	10,331

Table 3 Top ten exporters to the US market divided by income groups *(Own calculations).*

Developing Countries	LI LMI UMI	% over income group	US pref.	% over Total
India	LI	41,2	GSP	3,9
Cote d'Ivoire	LI	19,3	GSP	1,8
Nicaragua	LI	6,0	CBI	0,6
Madagascar	LI	6,6	AGOA-GSP	0,4
Kenya	LI	2,5	AGOA-GSP	0,2
Liberia	LI	2,3	GSP	0,2
Ethiopia	LI	1,9	AGOA-GSP	0,2
Ghana	LI	1,9	AGOA-EBA	0,2
Zimbabwe	LI	1,3	GSP	0,1
Nigeria	LI	1,2	AGOA-GSP	0,1
Total	***LI***	***93,8***		***9,6***
Brazil	LMI	14,5	GSP	7,4
Indonesia	LMI	13,1	GSP	6,7
Colombia	LMI	12,1	GSP	6,2
China	LMI	10,5	ACP-GSP-BA	5,4
Thailand	LMI	8,8	GSP	4,5
Costa Rica	LMI	8,5	GSP	4,3
Guatemala	LMI	7,6	GSP	3,9
Ecuador	LMI	5,6	GSP-BA	2,8
Philippines	LMI	5,4	GSP	2,8
Dominican R.	LMI	3,1	GSP	1,6
Total	***LMI***	***89,4***		***51,4***
Mexico	UMI	74,3	NAFTA	29,3
Chile	UMI	14,1	GSP	5,6
Argentina	UMI	8,9	GSP	3,5
Panama	UMI	0,9	CBI-GSP	0,3
Venezuela	UMI	0,8	GSP	0,3
Belize	UMI	0,4	CBI-GSP	0,2
Lebanon	UMI	0,3	GSP	0,1
Mauritius	UMI	0,1	AGOA-GSP	0,04
Grenada	UMI	0,03	GSP	0,01
Saudi Arabia	UMI	0,02		0,01
Total	***UMI***	***99,8***		***39,4***

On the EU market, ten LI countries account for 88,6% of the group's exports and 20,3% over the total exports. In the case of US, ten LI countries account for about 93,8% of the group's total exports and only 9,6% over the total

exports. For LMI countries, in the EU, ten countries account for 84,5% of the group's total exports and 61,91% of the total EU imports. For the US, the top ten LMI countries account for 89,4% of the group's total exports and 51,4% of the total US imports. In the end, UMI countries account, on the EU market. For 97,0% of total exports of group and 17,8% over the total exports. On the other hand, the top ten UMI exporters to US account for 99,8% of the entire group and 39,4% over the total exports.

IV. PREVIOUS STUDIES

Though many studies have analyzed either the effects of EU or US trade preference schemes, very few works have compared quantitatively the effects of the EU and US trade policy on developing country exports.

A study of the Directorate General for Trade of the European Commission, with a gravity model approach, gets interesting findings on the combined effects of EU trade policy on developing country exports *vis-à-vis* those of the US, irrespective of the trade preference scheme applied. In particular, the work is focused on a period of three years (2001-2003) and he considers the total exports from 157 developing countries. It is shown that the EU's trade policy for the poorest countries, in the form of the EBA and the Cotonou Agreement, has increased exports to the EU relatively more compared to developing countries' exports to the US under predominantly the GSP and the AGOA. For these countries, the gross trade creation (GTC) of the EU trade policy, compared to the US trade policy, is about 52%. Positive results of EU trade policies are confirmed in the case of the lower-middle income countries with a GTC of around 20 % less compared to the low-income countries. This indicates that there is less difference between EU and US treatment of exports from the developing countries that principally access the EU and US markets under the GSP schemes. The GTC of the upper-middle income countries is around 47%.

V. EMPIRICAL METHODOLOGY AND DATA

In the last decade, a lot of empirical international trade studies have used a gravity model approach. In particular, this model has been really useful in explaining the bilateral volume of trade between countries. The model is based on the assumption that trade between two countries can be explained by the economic size (GDP and/or per capita GDP) and distance (physical distance and/or various measures of economic distance such as a common border, common language, etc.). Anderson and van Wincoop (2003)[6], considered in many studies as a good reference for the gravity approach, argue that:

$$X_{ij} = \frac{Y_i Y_j}{Y_w}\left(\frac{t_{ij}}{P_i P_j}\right)^{(1-\sigma)}$$

Bilateral trade between two countries j and i is basically determined by two factors. The first is the product of their respective national incomes Y_i and Y_j over the world income Y_w and the second is the level of the absolute trade barrier t_{ij} between them relative to the product of the price indices P_i and P_j , which they call multilateral resistance variable. Anderson and van Wincoop (2003) and Feenstra (2003) suggested that the multilateral resistance term (P_iP_j) can be substituted in empirical studies by considering exporting country specific binary variables. This idea was applied by Rose and van Wincoop (2001) and Nilsson (2005).

We estimate the gravity model using panel data of 102 developing countries over a period of 10 years (1996-2005). About 2% of the observations are deleted from the dataset due to zero or missing values. This translates to 1,954 trade flow observations over the ten year period. For the following study a GLS with country-specific binary variables is applied. The two models used are specified in (natural) logs below:

$$M_{ijt} = \alpha' Z_{ijt} + \beta EU + \beta EU \times t + \theta_j + \varepsilon_{ijt} \quad \text{(E.1)}$$

$$M_{ijt} = \alpha' Z_{ijt} + ELI + ELM + EUM + \theta_j + \varepsilon_{ijt} \quad \text{(E.2)}$$

[6] The basic assumptions made in their study are as follows: each country produces only one good, symmetric trade costs, market clearance and identical homothetic consumer preferences approximated by a CES (Constant Elasticity of Substitution) function.

The equation E.1 allows us to estimate the overall effect of the EU policy *vis-à-vis* the US trade policy, on the other hand, the equation E.2 splits the effects for each income group.

We define the dependent variable M_{ijt} [7] as the real import value of country *i* (EU or US) from the developing country *j* in year *t*, ε_{ijt} is the error term, assumed to have an expected value of zero.

$Z'_{ijt} = \lfloor z_{it}\, z_{jt} \ldots \rfloor$ is a 1x4 row vector of explanatory variables. These include:

- *Product of real GDP*. This variable provides a measure of economic mass which combines the effects of the EU and US (country *i*) potential demand and the potential supply of developing country *j*. We expect the coefficient on this variable to be positive.
- *Geographic distance*[8] between country *i* and country *j*. It is an important measure of transport and transaction costs. Transaction costs are generally lower between adjacent countries due to better information on the markets and similar cultures; transport costs instead, are related to distance. We expect the coefficient sign to be negative.
- *EU colonial ties*. This variable denotes colonial relationships between EU members and developing countries that ended during or after World War II[9]. We do not include US colonial ties since the developing countries considered in this study have not had such ties with the US. The coefficient sign is expected to be positive;
- *Economic distance* between the trading partners. We include the absolute value of the difference in the partners' per capita GDPs. We expect the coefficient on this variable to be negative. The closer the countries are in their economic development (all else equal), the more they will trade.

EU denotes a dummy variable that takes the value of 1 if the importing country is the EU, and 0 if the importing country is US.

θ_j is a vector of exporting country-specific binary variables that account for all unobserved time invariant country effects. In this way we assume that each country has specific characteristics which are constant across the years.

$$ELI' = \beta_1(EU \times D_{LI}) + \beta_2(EU \times D_{LI} \times t);$$
$$ELM' = \gamma_1(EU \times D_{LMI}) + \gamma_2(EU \times D_{LMI} \times t);$$
$$EUM' = \delta_1(EU \times D_{UMI}) + \delta_2(EU \times D_{UMI} \times t);$$

$D_{LI}; D_{LMI}; D_{UMI}$ are dummy variables denoting the income group of the single country; they take the value of 1 if the developing country is a low (LI), lower-middle (LMI) or upper-middle (UMI) income country, 0 otherwise.

t is a time dummy variable that breaks down the data set in two parts 1996-2000 and 2001-2005. Thus it takes the value of 1 if the observation refers to the second period 2001-2005 and 0 if it refers to the first period. In this case, besides specific country features, we assume also that there are some common characteristics among the countries which change across the two periods, for example due to the several trade reforms there have been since 2000.

Given the objective of the paper, the US imports from developing countries are set as counterfactual trade flows. In this way we can know if the EU imports from a specific income group of countries are above or below this benchmark level[10]. In other words, in this way we understand if the trade policies adopted by the EU have been more or less trade creating compared with US trade policies. The EU import values come from COMEXT while US imports are taken from the US Department of Agriculture (USDA). Real GDP values have been obtained from the USDA database[11].

VI. RESULTS

[7] Import values are deflated using the import price index of goods and converted to constant 2001 dollars using yearly averages of the Euro dollar exchange rate

[8] The distance is expressed in kilometres and has been computed as straight line between capitals (the EU capital is set to be Brussels). The values come from the US Department of Agriculture. For more information see: http://www.wcrl.ars.usda.gov/cec/moregen.htm

[9] For more information see the CIA's World Fact book (www.cia.org).

[10] Note that in this way we do not provide information on the effects of specific trade preferences.

[11] http://www.ers.usda.gov/Data/macroeconomics/HistoricalMacroTables.

The findings show that in both models (E.1 and E.2) the included variables explain more than 80% of the variation of exports from developing countries. In both models, the distance variable is negative and also significant at 1 percent level, so developing countries

Table 4 Parameter estimates of model E.1 and E.2
Note: the t-statistics in parentheses are specified as follows: ***, ** and * denote statistical significance at the one, five and ten percent level. The coefficients of the country dummy variables are not reported.

	E.1	E.2
Real GDP product	0.531 (2.580)***	0.47 (2.334)***
Distance	-1.123 (-15.02)***	-1.229 (-16.44)***
Colonial Ties	0.884 (6.354)***	0.635 (4.536)***
Economic Distance	-0.24E-04 (-3.690)***	-0.17E-04 (2.689)***
EU	1.175 (7.718)***	-
EU*t	0.135 (1.474)	-
$EU*D_{LI}$	-	1.425 (8.233)***
$EU*D_{LMI}$	-	0.973 (5.884)**
$EU*D_{UMI}$	-	2.34 (10.37)***
$EU*D_{LI}*t$	-	0.224 (1.832)*
$EU*D_{LMI}*t$	-	0.023 (0.2036)
$EU*D_{UMI}*t$	-	0.118 (0.673)
Adjusted R^2	0.83	0.88

farer from the EU or US, export less than closer countries. The product of real GDP is positive and also significant. The economic distance as excepted, is negative and also significant at ten percent level. This means that developing countries similar to the EU and US in terms of economic development, export more, and vice versa for the poorest countries. The variable for colonial ties is positive and also significant to the one percent level. This is to confirm that developing countries colonized by EU members (UK, France and Belgium) export more agri-food products to the European market. The estimate for the *EU* dummy is positive and significant, this to confirm that EU trade policies have been more trade creating towards developing countries with respect to the US. In addition the dummy $EU \times t$ is statistically insignificant, so we can say that there has not been a consistent trade variation in the second period.

In model E.2, the tree dummy variables referred to the *LI*, *LMI* and *UMI* countries are all positive and significant. The effects are not equal in the three income groups. In particular, the dummy variable coefficient for the lower middle income countries is the smallest; this means that compared to the US benchmark, the EU trade policies towards these countries are more similar in their effects to the US trade policies. The upper middle income countries, in contrast, have exported more to the European market than the other countries. This confirms that for these countries, exporting to the EU market is preferred compared to the US market. Low income countries are in the middle. This variable however is positive and also significant. This confirms that also for this group of countries, the EU trade policies have been more trade creating. With regards to the time dummy *t*, it gives not statistical significance parameters for all income groups except for LI countries, this to confirm that the trade variation in the period 2001-2005 only for these countries is significant.

VII. EVALUATION OF THE GROSS TRADE CREATION

In order to calculate the Gross Trade Creation[12] generated by the EU trade policies toward developing country exports relative to US trade policies, we consider the parameter estimates obtained by the set of dummy variables used in the two models.

The results[13] indicate that trade policies adopted by the EU have been more successful in generating

[12] According to Balassa (1967), the Gross Trade Creation is the sum of trade creation and trade diversion.

[13] GTC is obtained as follows: actual imports in the first or second period from developing countries are divided by the base of the natural logarithm (e) raised to the power of the coefficients of the relevant binary variables in table 2. This provides estimates of the factors by which EU imports from developing countries have increased with respect to US imports as a result of trade policy. Subtracting the latter from actual trade, this yields estimates of GTC (Nilsson, 2002).

exports from developing countries compared to US trade policy. In other words, the values of GTC show how much smaller trade would have been if the EU had used US trade policy. For example, over the 1996-2000 period, the EU trade policy, as total effect, has generated about 69% more exports from developing countries compared to US trade policy.

In the second period, 2001-2005, the EU trade creation has increased to 73% with respect to the US, this may be probably due to more trade oriented policies adopted by the EU from the beginning of 2000.

Table 5 Evaluation of Gross Trade Creation.
The figures are based on own calculations and are expressed in percentage of total EU imports from developing countries. Note: trade variation is statistically significant only for LI countries[14].

	1996-2000	2001-2005
Low income countries	75,9	80,8
Lower-middle income countries	62,2	63,1
Upper-middle income countries	90,4	91,4
EU imports	69,1	73,0

The effect is stronger for upper-middle income countries, where the EU trade policy has increased imports from these countries by about 90% and 91% more compared with US policy respectively for the first and second period.

Considering the EU agri-food trade with LI countries, in the first and second period, has been 75,9% and 80,8% more with respect to the US market. In the end, with the lower middle income countries instead, EU trade policies have generated for the periods 1996-2000 and 2001-2005, 62,2% and 63,1% more trade compared with the US policy system.

In the end we can conclude that trade variation over the two periods is statistically significant only in the case of LI countries[12], this to confirm a high trade creating effect of the Everything But Arms program adopted by the EU since 2001against the GSP and AGOA programs adopted by the US for the same countries. With regards to the overall effect, the EU trade policies have been more trade oriented than the US trade policies towards developing countries over the period 1996-2005, but we are not able to say anything about the variation of the two policy systems across the years.

[14] In order to see if the trade variation of the EU versus US trade policies in the second period, for each income group and as overall effect, is statistically significant, we apply a Wald test on the model E.1 and E.2. The Wald test is approximated with a *chi-squared* distribution with 1 degree of freedom. The statistics for the trade variation as overall effect, for LI, LMI and UMI countries give respectively the values of 2.27, 3.39, 0.42 and 0.45 which are smaller than the relevant critical value (2.70 at 10% significance level), except for LI countries and we can conclude that only in LI countries trade variation is significant.

VIII. CONCLUSIONS

In conclusion, we have seen that EU trade policies for developing countries have created more trade than US trade policies. This is confirmed in all the three income groups. The effects are relatively larger for the upper-middle income countries, and less for the lower middle income countries. This indicates that there is less of a difference between EU and US trade policies applied to the imports from lower middle income countries. In particular, in the 1996-2000 period, exports of agri-food products from low income countries to the EU have increased about 76% more than the exports to the US; lower-middle income countries' exports have increased instead about 62,2% more to the EU compared with the US, and exports from upper-middle income countries by 90,4%. Trade variation between the periods 1996-2000 and 2001-2005 is statistically significant only for LI countries, this to confirm that the Everything But Arms Initiative adopted by the EU have had good results in terms of trade generated since 2001 compared to the AGOA and GSP preferences adopted by the US.. In addition, there has not been significant trade variation, both for the rest of income groups and also as overall effect, this to confirm that trade remains constant across the two periods.

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