

Bilateral trade and the least developed countries

Do the LDC status and the GSPs offered with them increase bilateral exports?

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Introduction, context and literature review

This paper aims to analyze the effect of the least developed country (LDC) status on exports by answering the following questions: (i) Do the LDC status and the general system of preference (GSP) that come with it increase exports for those countries benefiting from it and (ii) How do these exports vary with regards to the importer's characteristics (revenue and GSP)?

The LDC status has been created by the UN in 1971 and is awarded to the poorest countries in the world based on three criteria : GNI, human assets index and economic vulnerability index. To become an LDC, a country has to be below two of the three thresholds and have a population no larger than 75 M inhabitants. This status not only comes with various advantages in the multilateral system including access to special funds and development aid, but also with bilateral trade advantages in the form of GSPs. These GSPs usually take the shape of massive unilateral tariff reductions/elimination, like the "Everything but Arms" scheme from the EU, which, as the name suggests, allows any product aside from specific categories from an LDC to enter the EU market with no tariffs or quotas whatsoever.

The question of whether this LDC status and the GSPs accompanying it are effective to boost trade in these countries is extremely important as these schemes are supposed to help economic integration on a global scale, yet has only been scarcely studied. Klasen et al. (2020) provide preliminary econometric evidence that the LDC status indeed increases exports by using an augmented gravity framework (PPML) and an LDC exporter dummy. This paper seems to be the only one looking at the issue on a global scale, although there are plenty of publications analyzing the effect of a specific GSP or of the LDC status in a specific geographic zone. Among others, Thelle et al. (2015) look at the effect of the EU "Everything but Arms" GSP on LDCs, and Ito (2013) of the Japanese GSP. The results of these studies are mixed : one one hand, Klasen et al. (2020) and Thelle et al. (2015) find positive effects on exports from LDCs, where Ito (2013) finds no significant impact. In any case, even the global study by Klasen et al. does not decompose the impact of the LDC status by the characteristics of the trading partners, although this seems like an important question. Indeed, GSPs could cause trade diversion for LDC countries by redirecting their exports from non-GSP to GSP countries. Since GSPs are mainly (but not only) offered by developed countries, there could also be a reduction in South-South trade due to the cost reduction that GSPs impart on South-North exports.

By adapting the methodology used by Klasen et al. (2020), this paper will therefore provide a basis for a discussion on these potential trade diversion effects. One factor that will not be taken into account due to the limited availability of the data will be that of intra-national trade. There is good reason to believe that the reduction in export costs to GSP countries would divert some intra-national trade, however this hypothesis will not be tested in the current paper.

Estimation strategy and variables

The methodology used in this paper is inspired by Klasen et al. (2020). The main theoretical foundations of the augmented gravity model that will serve as our basic model can be

found in Anderson and Von Wincoop (2003) and have been discussed further by Yotov et al. (2016). In this specification, the country-specific characteristics and controls traditional to gravity (GDP, population, etc.) as well as the multilateral resistance terms are taken into account through exporter and importer year fixed effects, and the log of distance is included. The gravity equation is then estimated using PPML and clustered standard errors on the country-pair level. Finally, we add several pair-specific dummies (depending on the model) to estimate the effect of the LDC status (exporter side) and the revenue and GSP characteristics (importer side). We follow Klasen et al.'s decision to only have the exporter and importer year fixed effects vary every 6 years to allow the estimation of the LDC effects.

This paper diverts from Klasen et al. (2020) in three significant ways : First, we use data from 2000 to 2020 (vs 1995-2013 for Klasen) which mainly changes the list of LDCs as some like Samoa or Equatorial Guinea have graduated in that time. Second, we use absolute trade values rather than trade shares since we are looking to estimate trade diversion effects on exports as a whole for LDCs. Third, we decompose the LDC effect depending on the characteristics of the importer.

While the first set of estimations is done using the full sample of 208 countries, for robustness a second set of estimations restricts the exporters to LDCs, countries similar to LDCs in at least one of the three categories (method adapted from Klasen) and countries that have graduated from the LDC status between 2000 and 2020. This last category is also a diversion from Klasen, and follows the logic that these countries that graduated would still be very close to LDC countries in terms of individual characteristics. This second design uses the RDD methodology and reduces endogeneity issues that could be linked to the LDC variable by only comparing similar countries. The list of countries included in the reduced sample set is available in the annex.

Results and conclusion

Table 1 shows the results for the 4 sets of regression in the baseline sample. Contrary to Klasen, we do not find a significant effect on exports for countries benefitting from the LDC status (column 1). Since we are using trade values rather than shares, this means that while countries would import more from LDCs relative to other countries, they would not increase their actual import volumes (which could mean that the LDC status just leads to a reduction in exports from other non-LDC countries). The LDC exports to GSP countries (column 2) however are 56% higher than non-LDC exports (we follow Kennedy, 1981 for the PPML results interpretation, that is $(exp(\beta) - 1 * 100)$). These results, interpreted along with these from column 1, are in line with the intuition that the LDC status does not increase exports as a whole but just modifies the structure of exports. Column 3 does not find any significant effect for the revenue effect. Finally, column 4 interacts revenue and GSP offerings, and finds that the LDC status only seems to increase exports to low/medium income countries with GSP schemes, and decreases exports to other low and medium income countries (although that result is not significant).

Table 1 : Full sample	(1)	(2)	(3)	(4)
VARIABLES	Global effect	GSP effect	Revenue effect	Revenue X GSP
LDC exports	0.150 (0.278)			
To GSP countries		0.446** (0.216)		
To high income			-0.125 (0.275)	0.044 (0.302)
To low/med income				-0.315 (0.305)
To high income X GSP				0.122 (0.200)
To low/med income X GSP				0.929** (0.366)
ln_DIST	-0.868*** (0.025)	-0.868*** (0.025)	-0.868*** (0.025)	-0.868*** (0.025)
Observations	546,404	546,404	546,404	546,404
Exporter x Year FE	Yes	Yes	Yes	Yes
Importer x Year FE	Yes	Yes	Yes	Yes
Pseudo R^2	0.920	0.920	0.920	0.920
Number of pairs	37505	37505	37505	37505

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 2 shows the same regressions for the reduced sample of countries. The results are generally similar although slightly less significant but with stronger effects. The loss of significance mainly comes from the fact that the countries in the reduced sample have less precise and available trade data, which inevitably creates noise. The higher levels on the other hand show that the results from the full sample were downward biased, which makes sense since the control group (all non-LDC countries) in the full sample would have higher exports than the control group (only LDC-similar countries) in the reduced sample. In these final results, the LDC status increases exports to GSP countries by 66%, and exports to low and medium income GSP countries by 235%. This, again, confirms that effect of the LDC status is extremely localized.

As a general conclusion, the results found in this paper are coherent with what was expected : the LDC status does not seem to have a significant impact on export levels for the least developed countries, which is in line with Ito (2013). While this analysis does not prove that there are indeed trade diversion effects, it provides a basis for further discussion on the topic. Namely, an extension with sufficient data could be to include intra-national trade in the regressions to be more in line with the recent developments in international trade theory. Overall this question matters because if GSPs and the LDC status do not significantly boost exports, then their welfare effect would be limited to null. It could even be negative if the GSPs deprive countries that do not offer them of cheap imports. In that regard, a GE analysis on welfare could also be appropriate.

Table 2 : Reduced sample	(1)	(2)	(3)	(4)
VARIABLES	Global effect	GSP effect	Revenue effect	Revenue X GSP
LDC exports	0.137 (0.282)			
To GSP countries		0.511** (0.260)		
To high income			-0.086 (0.335)	0.056 (0.313)
To low/med income				-0.481 (0.312)
To high income X GSP				0.081 (0.203)
To low/med income X GSP				1.210** (0.511)
ln_DIST	-0.712*** (0.110)	-0.720*** (0.106)	-0.710*** (0.113)	-0.747*** (0.101)
Observations	130,006	130,006	130,006	130,006
Exporter x Year FE	Yes	Yes	Yes	Yes
Importer x Year FE	Yes	Yes	Yes	Yes
Pseudo R^2	0.836	0.838	0.836	0.840
Number of pairs	10585	10585	10585	10585

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

References and country lists

Stephan Klasen et al. (2021), Does the designation of least developed country status promote exports?, The Journal of International Trade & Economic Development, 30:2, 157-177.

Ito, T. (2013). Did the LDC countries benefit fromDuty-free Quota-free access to the Japanese market?” Working Paper, 2013

Thelle, M., Jeppesen, T., Gjodesen-Lund, C. and van Biesebroeck, J. (2015). Assessment of Economic Benefits Generated by the EU Trade Regimes towards Developing Countries, EU Development Policy, Economic Analysis Team. Vol. I, June 2015.

Anderson, J.E. and Van Wincoop, E. (2003). Gravity with Gravitass: A Solution to the Border Puzzle. American Economic Review, 93, 170-192.

Exporter countries included in the reduced sample (LDCs in bold, note that some of these countries changed status between 2000 and 2020)) : **Afghanistan, Benin, Bhutan, Botswana, Burkina, Faso, Burundi, Chad, Ethiopia, Guinea, Haiti, Lesotho, Malawi, Maldives, Mali, Nepal, Niger, Rwanda, Samoa, Somalia, Sudan, Uganda, Tanzania, Yemen, Bangladesh, Central African Republic, Gambia, Cabo, Verde, Comoros, Guinea-Bissau, Djibouti, Equatorial Guinea, Sao Tome and Principe, Sierra Leone, Togo, Vanuatu, Kiribati, Mauritania, Tuvalu, Myanmar, Mozambique, Liberia, Cambodia, Democratic Republic of the Congo, Solomon, Islands, Zambia, Angola, Eritrea, Senegal, Timor-Leste, South Sudan** Samoa, Cameroon, Cote, d’Ivoire, Ghana, Guyana, Honduras, India, Iraq, Kenya, Mongolia, Namibia, Nicaragua, Nigeria, Pakistan, Papua New Guinea, Swaziland, Vietnam, Zimbabwe