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Influence of Bilateral Aid on Cameroon's Bilateral Trade Performance with Respect to OECD Donor Countries

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Abstract: The purpose of this work is to study the coherence for development between the Official Development Assistance (ODA) and the foreign trade of Cameroon .Sub-Saharan African countries are the least integrated countries in world trade at the same time as the region is the main beneficiary region of ODA. It is also the region where poverty is increasing most. It seems that the inefficiency of the ODA is due to an incoherence of the policy of official development aid and the other policies of the countries of the North with respect to the Countries of the South. To elucidate this paradox, an empirical study is carried out on the link between ODA and foreign trade of Cameroon. Thus the gravity model measuring the impact of the bilateral ODA flow on Cameroon's bilateral trade flow with 16 OECD countries is specified. The estimates of this model using the Ordinary Least Squares method show that the increase in the volume of official development assistance increases the volume of imports of Cameroon from this donor country. At the same time, this increase in bilateral aid causes a decline in Cameroon's exports to this partner. Through official development assistance, donor countries improve their trade balances to the detriment of Cameroon.

Keywords: Official Development Assistance; North-South trade; effectiveness of ODA; coherence of development policies

JEL Classification: B27

Introduction

The Marshall Plan, of which several elements have been retained in the current system of aid delivery, was intended, on the one hand, to stem the expansion of communism and, on the other, to ensure the hegemony of the United States Global trade so that these same territories serve as markets for US consumer products (Holst & Tarp, 2003). The first milestones of the development cooperation policy are then laid and dictated by objectives of political, geostrategic and commercial order.

It is considered that international aid, in its present asymmetry state, in relations to domination and structural inequalities peculiar to the capitalist world system, is an indispensable link in the mode of reproduction of the relations between the social formations of this global system. It represents one of the essential elements of the strategy of the dominant center in order to restructure the societies of the Third World according to a logical economic globalized market sustained by imperialism. The transactions of funds from the North to the South which is characterized by international aid cannot therefore be regarded as uninterested aid out of logical economy.

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The emergence of fair trade has historically been based on the refusal of international aid as a tool for the development of the populations of the South. A more just trade with the communities was preferred, offering them the possibility of true independence. Developing countries seem to lose their independence from the blackmail of developed countries through international aid.

Fort is to contacted that the ratification of the Economic Partnership Agreement (EPA) of stage between Cameroon and the European Union was strongly denounced by a certain opinion. Indeed, the Ministry of Economy, Planning and Regional Development (MINEPAT) in 2013 estimates cumulative losses of non-oil revenue of 547.7 billion over the period 2010-2020, of which 459.6 billion Between 2015 and 2020. This gap would represent on average of 0.4% of GDP over the latter period, and this situation would increase the need for financing of the economy from 216.3 billion in 2010 to 1 167.5 billion in 2020. The Ministry of Finance (MINFI), meanwhile, estimates in terms of tax revenues at 1330 billion cumulative losses in 2023 and 2470 billion in 2030.

The plan to adapt the Cameroonian economy estimated at 2500 billion FCFA, in perspective to these agreements aims to strengthen the economic fabric through the improvement of the competitiveness of Cameroonian companies. This adaptation plan must be financed both by Cameroon and the EU through the development aid once again. In any case, according to recent MINEPAT statistics, Cameroon has lost close to 700 million FCFA at the end of the first phase of this agreement. Thus, the vigorous entry into the second phase of disenfranchises tariffs on 4 August 2017 raises further concerns.

The debate on the opportunities of rectifying the EPA between Cameroon and the EU has never been unanimous even among the country's economists. The EPAs can be compared to the development programs of the Bretton Woods Institutions, such as the Structural Adjustment Program (SAP), the Heavily Indebted Poor Countries (HIPC) Initiative, which have always demanded trade liberalization as a condition for financial assistance. For the pessimists, the EU, which is the main donor of ACP funds, aims to maintain its market share in these ACP countries through the EPA in the face of the rise of China in international trade.

This emergence of China has led to an increase in exports from China to African countries and at the same time an increase in China's official development assistance to Africa. This seems to be in accordance with the words of Robert McNamara, then President of the World Bank, in his address to the Governors of the World Bank on September 30, 1968: The share of aid funds (ODA) to Developing countries is very low. In practice, all the monetary grants quickly returned to rich countries in the form of products bought from them. There by contributing to the debt of the assisted country which also help finance donor country’s exports. The objective of this article is therefore to determine the impact of the bilateral aid flow on Cameroon's bilateral trade performance vis-à-vis some OECD donor countries.

Literature Review

The literature generally shows that one dollar of aid granted generates more than one dollar of exports for the donor country. Helble et al. (2012) cite, for example, a research paper by Nilsson (1997), which focuses on the relationship between aid and exports of the donor country to the recipients based on four EU donors and 108 beneficiary countries for the period 1975-1992. Nilsson (1997) calculated that a dollar of aid increased the exports of the donor country by $ 2.6. Wagner (2003) studies the effects of aid from 20 donor countries to 109 beneficiary countries for the years 1970-1990 using two different specifications.

He concludes that, on average, a donor country benefits from an increase in its exports: for one dollar of aid, the donor country receives 1.33 dollars in exports. More specifically, for a dollar of aid given on a project, the return in exports directly associated with tied aid is equal to 35%. The remaining share of exports would be generated by additional trade in goods not directly linked to aid projects. It is important to note that these two research papers focus on years when aid was officially tied to something.

However, Wagner's (2003) estimates need to be interpreted with caution because the gravity models used do not include resistances of Multilaterals to trade identified by Anderson and van Wincoop (2003).On the other hand, post-2003 literature systematically includes terms reflecting multilateral resistance. For example, Nowak-Lehmann et al. (2009) and Martínez-Zarzoso et al. (2009) use a dynamic gravity model that takes into account the lessons learned from the work of Anderson and van Wincoop (2003) to study the impact of German aid on Germany's exports to 138 countries Beneficiaries over a period from 1962 to 2005. The authors of the two studies conclude that, in the long term, a dollar of aid generates $ 1.40 of exports with an even greater impact on countries deemed important from a strategic point of view by Germany.

Other articles find positive and significant impacts of aid on the donor country's exports. For example, Nelson and Silva (2012) use an asymmetric gravity model to study the impact of aid on donor country exports and also find that aid favors donor country exports. The empirical literature on the impact of aid on the exports of beneficiary countries also generally finds a positive and significant effect.

Focusing on aid projects targeting productive capacities and trade policies for the period 2002 to 2009, Cali and te Velde (2011) conclude that in addition to reducing transaction costs, Aid for Trade Also have a significant impact on the exports of the recipient countries, particularly where the aid is aimed at developing infrastructure. The authors point out that aid to exporting firms only has a significant impact on certain sectors of activity, suggesting that there may be a selection bias towards the productive sectors. Helble et al. (2012) use disaggregated aid flows from 1990 to 2005 and trade flows of 167 importers and 172 exporters to show that aid to facilitate trade is significantly linked to an increase in flows commercial. For example, one aid-to-trade dollar is associated with an increase in exports of the recipient country of $ 1.33.

These positive effects of aid on exports from the recipient country are reflected in other studies. For example, Nowak-Lehmann et al. (2010) find different effects of aid on exports from developing countries across continents. For example, a one-dollar increase in aid to Africa only increases exports by $ 0.16. On the other hand, the impact is greater for Asia ($ 3.22) and for Latin America and the Caribbean ($ 2.98). Moreover, according to Pettersson and Johansson (2013), the effect of Aid for Trade on beneficiary exports is lower than the impact of technical assistance on trade. The authors find a strong correlation between donor aid and exports, and between aid received by recipient countries and their exports.

The authors' use of disaggregated aid flows also shows that trade-related aid is positively correlated only with donor exports, which could indicate that some forms of aid for trade are easily linked implicitly than other types of aid. This correlation is particularly strong for countries exporting strategic materials. Finally, Hühne et al. (2014) study the effects of aid for trade of all DAC donors on exports and imports from beneficiary countries to donor countries. The authors observer that aid for trade increases exports from beneficiary countries to donor countries by 5% and imports by 3%. The authors conclude that their findings run counter to the idea that donors use aid as a means of promoting their own interests.

However, it would be useful to look at the exports of assisted countries to see if exported goods are not strategic to the donor country, in which case aid could be interested and thus endogenous to trade. To

circumvent this bias, an alternative approach is to investigate the extent to which targeted projects have influenced exports of goods produced by assisted channels. This approach is particularly interesting because it provides a more detailed picture of how specific aid projects affect trade flow.

Using a dual-difference model, Brenton and von Uexkull (2009) show that technically assisted projects is explicitly linked to 88 export development programs in 48 different countries coincided with an increase in exported product concerned. However, the allocation of projects may have favored pathways which would in any case have managed to develop on their own. Indeed, the authors suggest that programs appear to be more effective when there is already some degree of export activity. Moreover, they remain cautious about the criteria that define the control group of countries that have not received aid but similarly everything being equal to those who received it. As a result, no one can say with certainty that a sector would not have flourished anyway if it had not received aid.

Research Methodology

The research methodology includes the specification of the econometric model and the presentation of the procedure of econometric tests mobilized to estimate the parameters of this model. Nowadays, the model of gravity is the most used model to explain international trade.

Specification of the Gravity Model

Tinbergen (1962) and Pöynöhen (1963) are considered to have initiated the model of gravity in international economics. Trade between two countries is positively related to their respective sizes (GDP) and negative relation to barriers to trade (transport costs, tariff and non-tariff barriers, etc.). Several versions of the model have been developed to describe changes in bilateral trade. It is in fact an approach borrowed from the law of universal gravitation of Isaac Newton of 1686 according to which the attraction between two entities is proportional to their mass and inversely proportional to the square of the distance that separates them.

The use of the gravity model in international trade has in the past raised the question of its theoretical foundations. If it claims to be in a position to explain bilateral trade, then it should be able to confirm the theories of international trade. Nowadays, the theoretical foundations of the equation of gravity are much more clearly established. The theoretical model most directly related to the gravity equation is the model of monopolistic competition with transport costs. Other theoretical explanations have also been given to this relation or equation which highlights the link between certain variables.

The model of gravity, as it follows from the previous developments, relates the exchanges between two entities with reinforcement variables and of the friction variables. In its simplest form, if trade between the two entities is taken as a dependent variable, the model is presented as follows:

$$Commerce_{ij} = Y_i^{\alpha_1} Y_j^{\alpha_2} D_{ij}^{\beta} e^{\mu_{ij}}$$

With:

- Commerce ij = trade between i and j

- Y_i and Y_j = respective GDP of i and j

- Dij = distance between i and j

The following hypotheses are considered:

- Trade is an increasing function of the economic mass. Hence α1 and α2> 0;

- Trade is a decreasing function of distance. Hence β <0;
- μij the error term is normally distributed with zero expectation and standard deviation σ.

It is very reductive to consider that trade is only a function of the size of the economies and the distance between countries. In addition to the variables that have just been described, bilateral trade, through its formulation by the gravity model, involves centripetal forces favorable to trade, such as historical and cultural variables. Other variables exert a centrifugal force. Given the difficulty of taking into account all the variables that can negatively affect trade, some authors considered that distance could capture a part of them. This is the case for transport costs, trade barriers in its different forms, time Delivery, storage time of perishable goods) and other transaction costs. Some of these variables can be directly related to distance (transportation costs in some cases).Others, such as trade barriers, are difficult to explain. Several studies have already highlighted the important role of distance in commercial transactions.

However, it should be noted that the weight of distance becomes increasingly negligible in the explanation of bilateral trade with technological advances (Anderson and Wincoop, 2003). In view of the specificity of Cameroon, where much of the foreign trade is carried out by sea, we use this model instead of distance or cost of transport: the Maritime Index of Connectivity between Cameroon and partner countries. Indeed, the Regular Maritime Transport Connectivity Index (LSCI) is based on the five elements that account for the commissioning of container ships by regular shipping companies in the ports of call of one country.

These include the number of vessels, their total container carrying capacity, the number of carriers operating their own vessels, the number of services provided and the size of the largest vessel service. It is evident that the maritime connectivity index is negatively correlated with the cost of transport. The equation increased with stacking by pair countries, can be represented as follows:

With:

$$\log(X) = \beta_0 + \beta'_{ijt} \log(A_{ijt}) + \lambda_{ij}(Z_{ij}) + \gamma_{ijt}(W_{ijt}) + \varepsilon_{ijt}$$

- β = originally common ordered to all pair countries over the period studied;
- A_{ijt} = vector of gravity variables evolving with time;
- Wijt = vector of factors other than gravitational variables and which vary with time (official development aid, domestic investment rate, etc.);
- Z ij = vector of factors invariant with time (distance, common language, colonial past, area, contiguity, etc.).

We considered in this study only the bilateral aid which is our variable of interest. The list of variables to be taken into account is very large and not necessarily exhaustive. The following table presents the variables used in this work.

Table 1. Identification of model variables

Variables	**indicators**
X_i	Flow of exports (in thousands of US dollars) from Cameroon to country i
M*i*	Import flows (in thousands of US dollars) from Cameroon to country i
Y_i	Gross Domestic Product of country i
Y	Gross domestic product of Cameroon

Pi	Population of country i
P	Population of Cameroon
Icm_i	Maritime connectivity index of Cameroon and country i at date t
APD*i*	Official development assistance allocated to country i in Cameroon in year t
*Lag*i	Binary variables (common language) between partner countries i and Cameroon that take the value 1 if yes and 0 if no
Col*i*	Binary variables (colonization, sub-mandate or trust link) between partner country i and Cameroon that take the value 1 if yes and 0 if no
α_i	Fixed effects of exporting countries
β_i	Fixed effects of importing countries
μi	Error term
δ_t	Fixed time effects

Source: Author from literature review

With I = index of partners (i = 1,2, ..., 16); T = time index (t = 1, 2, ..., 10)

Sample Selection and Data Source

Data on aid and trade are derived from the OECD online data base of November 2016. This has the advantage of avoiding the problem of accounting for development aid. Working within the framework of North-South cooperation, the sample of Cameroon's partners consists only of OECD countries that have regular trade flows and development assistance flows with Cameroon since 2006, when aid for trade data are available For these countries, which are for the most part the founding countries of the OECD, which joined in the first decade of its creation.

The partner countries of Cameroon use in this studies are: German, Italy, Spain, Netherlands, Austria, United States, Japan, UK, Belgium, France, Luxembourg, Sweden, Canada,Ireland, Norway, Switzerland.

Specification of the models used for the study. The different models are presented depending on whether the data is panel or time series.

Gravity model with panel data

$$Log(Cit) = \beta_0 + \delta_t + \beta_i + \beta 1\log(\text{APD}it) + \beta_2 \log(Pit) + \beta_3 \log(Pt) + \beta_4 \log(Yit) + \beta_5 \log(Yt) + \beta_6 \log(Icm_{it}) + \beta_7 \text{Lg}_i + \beta_8 \text{col}_i + \mu_{it}$$

The dependent trade variable (Cit) is replaced by thes components (Mit imports and Xit exports) in the following equations

- **Impact of bilateral aid on Cameroon's bilateral imports with its partners** $Log(Mit) = \beta_0 + \delta_t + \beta_i + \beta 1\log(\text{APD}it) + \beta_2 \log(Pit) + \beta_3 \log(Pt) + \beta_4 \log(Yit) + \beta_5 \log(Yt) + \beta_6 \log(Icm_{it}) + \beta_7 \text{Lg}_i + \beta_8 \text{col}_i + \mu_{it}$ **(model 1)**
- **Impact of bilateral aid on Cameroon's bilateral exports with its partners** $Log(Xit) = \beta_0 + \delta_t + \beta_i + \beta 1\log(\text{APD}it) + \beta_2 \log(Pit) + \beta_3 \log(Pt) + \beta_4 \log(Yit) + \beta_5 \log(Yt) + \beta_6 \log(Icm_{it}) + \beta_7 \text{Lg}_i + \beta_8 \text{col}_i + \mu_{it}$ **(model 2)**

Procedure for Estimating Econometric Models

Particular emphasis is placed here on the methodology of panel data and the peculiarity of the estimation of the gravity model in the context of a bilateral relationship. Working on panel data, one must take into account the existence of more or less pronounced individualities between the elements of the sample and the relationships between them (in the case of a gravity model). It is indeed reductive to consider that the set of bilateral relations between the elements of a sample can be represented by a single equation with common parameters. It is precisely the fact that it is necessary to take into account the diversity of individuals and their respective bilateral relations that it is accepted that it is rational to introduce into the equation additional elements reflecting diversity of the population making up the panel.

Theoretically, the question is whether to specify the equation according to the methodology of the panel data with fixed individual effects or random individual effects.

Justification of the choice of an estimate by the fixed effects

In this study we will use the fixed effects methodology. There are many reasons for this choice. In order to highlight these, we will present the empirical arguments used in some works, while taking into account the specificity of our sample, which is composed of two large groups of countries that are very different economically and geographically.

The different empirical justifications for the choice of an estimate by the fixed effects: The choice between fixed effects and random effects in the gravity model has been the subject of many empirical debates among authors such as Egger (2002), Cheng and Wall (2005). For some authors, the choice of the effect may depend on the choice of the sample. Thus, when the work involves a complete homogeneous sample, the analysis according to the fixed effects methodology would be the most appropriate. In the case of a randomly selected sample, the approach using a random effects model seems to be more appropriate. Other analyzes attempt to base their arguments on more econometric bases. This is the case of Cheng and Wall (2005), Egger (2000). Under this approach, the estimation by the fixed effects methodology is advantageous for several reasons.

The fixed effects methodology avoids heterogeneity biases due to the omission of time-invariant explanatory factors that may be correlated with the level of bilateral trade (the dependent variable) as well as with a few of the explanatory variables. This is the case where some unobservable factors are omitted. Fixed effects also explain why each bilateral relationship should be considered unique and not generalized. It is for these reasons that the level and evolution of trade between two given countries may not be identical for all bilateral flows of a given sample. The presence of these effects may also explain in some cases the absence of exchange between two countries in a given sample. Such configurations can be explained by very diverse elements that are difficult to take into account exhaustively in an equation (historical, cultural or political ties, etc.).

It is also noted that the elements involved in the flow of trade are for the most part difficult to quantify exhaustively. It is practically difficult to say with certainty the more explanatory nature of the factors selected in relation to others, on the level of bilateral trade. In effect, the invariant factors controlling a specificity of a bilateral relation that we integrate for the improvement of the explanatory power of the equation are almost unlimited. Most authors choose to use some that are deemed worthy of interest, but more or less arbitrarily. In this case the estimate they make is that of ordinary least squares. However, the coefficients can be biased insofar as the country heterogeneity is not fully taken into account. Specification of the Fixed Effect Model In its simple form, the fixed effects model can be presented as follows:

$$\log\left(X_{ijt}\right)=\beta_0+\alpha_{ij}+\delta_t+\beta'_{ijt}\log\left(A_{ijt}\right)+\varepsilon_{ijt}$$

With:

- α_{ij} the fixed effect relative to a country pair i and j.
- $\alpha_{ij} \neq \alpha_{ji}$ in other words the fixed effect of a couple of countries varies according to the direction of trade.
- δ_t = the temporal effect specific to year t and common to all pair countries (e.g. global situation affecting the exchange relations between the members of the group of countries studied) .

Solution to the Problem of Invariant Factors over Time

By construction fixed effect estimation ignores the invariant factors with time specific to each pair of countries. Indeed, the fixed individual effects are positioned as representative of the variables omitted and the variables constant in time and specific to each pair of countries. Thus the coefficients of distance, contiguity as well as cultural, linguistic, geographic variables and all variables invariant in time will be absorbed in the individual fixed effects. Their respective coefficients as well as the statistical parameters will in this case be represented by null values because of probable co- linearity. The criticism that could be addressed to this procedure by the fixed effects would be precisely the risk of not taking into account the Coefficients of these variables. The solution proposed in Cheng and Wall (2005) was to estimate the bilateral fixed effects α_{ij} first, then to integrate them in an equation as a dependent variable. In this equation, the explanatory variables would be the invariant variables in time or omitted (or not taken into account by the initial estimate according to the fixed effects method) which they are supposed to represent.

Presentation of Results

Table 2. Result of ordinary least squares panel estimations

Variables	MODELE 1)	MODELE 2
explanatory Variables	Coefficients (p-value)	Coefficients (p-value)
Constant	-11.87236 (0.0021)	20.30186 (0.1174)
Log_APDi	0.040791*** (0.0002)	-0.183504*** (0.0000)
Log Pi	1.254571*** (0.0000)	1.622457*** (0.0000)
Log P	-0.815516 (0.4272)	-3.203661 (0.3499)
Log Yi	-0.679792*** (0.0000)	-0.329138*** (0.4502)
Log Y	1.521248 (0.0000)	0.292425 (0.7871)
ICMi	1.973857 (0.0000)	14.34756 (0.0000)

Lagi	-0.034427 (0.1738)	0.120891 (0.2487)
Coli	0.170224*** (0.0000)	0.335854** (0.0119)
R-squared	0.835845	0.703006
Adjusted R-squared	0.835123	0.701699
S.E. of regression	0.606943	2.035161
Sum of squared residues	586.0924	6589.729
Log likelihood	-1466.460	-3401.082
F-statistic	1157.295	538.0010
Prob(F-statistic)	0.000000	0.000000

Notes: *** is significant to 1%, ** is significant to 5%, * is significant to 10%.

For the model 1:

$Log(\ Mit) = -11.872 + \mathbf{0.040}\log(\text{APD}it) + 1.254\log(\ Pit\ ) - 0.815\log(\ P\ t\ ) - 0.679 log(\ Yit\ ) + 1.521\log(\ Yt\ ) + 1.973 log(\ Icmit\ ) - 0.034\text{Lag}_i + 0.335\text{col}_i$

It appears that 83.51% of the change in imports is explained by the variation of the explanatory variables of the model. It should be noted that in this estimated model, the coefficient of official development assistance is positive and significant at 1%. Indeed, an increase in the volume of official development assistance to 1% of Cameroon causes a rise in imports from the donor countries to 0.040%.

For the model 2:

$Log(\ Xit) = 20.301 - \mathbf{0.183}\log(\text{APD}it) + 1.622\log(\ Pit\ ) - 3.203\log(\ Pt - 0.329 log(\ Yit\ ) + 0.292\log(\ Yt\ ) + 14{,}347\ log(\ Icmit\ ) + 0.120\text{Lag}_i + 0.335\text{col}_i$ **(modèle 2)**

It appears that 70.16% of the variation in exports is explained by the variation of the explanatory variables of the model. Thus, about 29.84% of the variation in Cameroon's exports would be explained by other variables not taken into account in the model, such as variables such as exchange rates. It was found, however, that in this estimated model, the coefficient of official development assistance is negative and significant at 1%. Thus, with the risk of being mistaken by 1%, it can be said that an increase in the volume of official development assistance of 1% leads to a decrease in Cameroon's exports to the donor countries of 0.198%.

Conclusion

It was found that Cameroon's main trading partners among the countries of the North and precisely the OECD were also the main bilateral donors of Cameroon. Examining the impact of bilateral official development assistance flows on bilateral trade flows between Cameroon and its partners, a distinction was made between the flows of exports and the flow of imports. The conventional least squares panel estimate shows that the flow of official development assistance has a positive and significant impact on Cameroon's imports from the donor country. On the other hand, the effect of the aid on Cameroon's exports is negative and significant. This situation is therefore not favorable for the development of Cameroon. Although aid is supposed to promote development in the assisted countries, paradoxically,

its allocation to Cameroon depends on the commercial interests of the donor countries to the detriment of those of Cameroon.

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