The “shifting trade”: the end of colonial rule in Sub-saharan Africa?

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Abstract

This paper aims at investigating whether the recent growth of trade between China and Sub-Saharan Africa (SSA) has generated a trade reorientation effect within the current SSA’s trade pattern detrimental to the former colonizers. To this regard, we use a panel dataset for forty-three SSA countries over the period 1995-2012 both for exports and imports with European economies. The empirical results based on three specifications (OLS, PPML, Hausman-Taylor) show a pro-trade effect of China on the exports and imports of SSA with European Union (EU) that means there is no apparent displacement effect. Then colonial linkages (mainly with France and United Kingdom) have a mixed influence on the current trade pattern of African ex-colonies.

JEL Codes: O55, F1, F14.

Keywords: trade, gravity, displacement effect, China, Sub-Saharan Africa.

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1 Introduction

“The goal I have set is to double the level of trade between France and Africa in five years”\(^1\). Many Sub-saharan Africa (SSA) countries display an economic growth performance significantly higher that during the last three decades (Martinez and Mlachila, 2013). Due to this new attractive economic environment, SSA is today one of the main trade priorities of the major industrialized countries. More precisely, since these latter decades this “scramble for Africa” has materialized mainly through the South-South trade expansion in favor of China. Obviously, this recent trend modified significantly trade relations between SSA and the traditional developed countries. Then, two strands of research emerged.

On the one hand, the economic literature has underlined the consequences of colonial rule on the African trade integration during the colonization and the (post) independence. Mitchener and Weidenmier (2008) argued that the membership to a colonial empire doubled trade between 1870-1913 due to the traditional trade channels as shared language, common currency, trade agreements ... Head et al. (2010) show that the independence effect on post-colonial trade revealed two impacts: (i) the erosion of trade with former colonizers and colonies by more than 60%, (ii) the trade with the rest of world drop about 20%. Other works also tried to better understand the colonial trade linkages depending on the colonial country considered. De Sousa and Lochard (2012) found that the former British colonies trade more than French colonies (“British effect”), i.e. + 36%. This finding results not exclusively from the better performance of the British colonization but also from the pre-colonial conditions.

On the other hand, according to He (2013), “Chinese impacts are significantly positive in all sectors and in general Chinese impacts are stronger than those of the United States and France”. Besada et al. (2008) found that “African interdependence with China thus remains proportionally smaller than that for most other geographical areas, but is growing rapidly”. De Grauwe et al. (2012) found that “China fills a gap left open by the other major world economies, and might even play a key role in the future development of Africa”. Then, the upsurge of Sino-African relationships could explain the ongoing process of post-colonial trade erosion. For instance, from 2000 to 2012, the exports of South Africa to United Kingdom (UK) fell to 41% whereas their exports to China increased to more than 900%. It is the same thing for the Democratic Republic of Congo (DRC) and Gabon with respectively Belgium

\(^1\)The French President declaration during the Elysée Summit for Peace and Security in Africa by December 2013.
and France.

On the whole, the apparent trade erosion phenomenon between SSA and its former colonizers is based on three main explanations: (i) the European construction where former colonizers turned essentially towards the common market, (ii) the trade policy of Africa which experienced two phases with the import substitution after the independence and the “look outward” strategy since the middle of 1990s, (iii) the “wake-up” of some developing countries like BRICs (Brazil, Russia, India and China) at the same period. In this paper, we focus on the third one. We especially studied if the trade colonial erosion with the traditional European developed partners is linking to China. Have trade with China increased at the expense of European countries’ trade in the case of SSA? Does the differential of trade performance between French and British ex-colonies persists? What are the channels of this “shifting trade” through China? Note that several works (Eichengreen and Tong, 2006; Eichengreen et al., 2007; and Greenaway et al., 2008) explored whether the China’s exports have displaced exports of other countries (Asia) to third markets. In our case, at date no article analyzed this problem, except to Giovannetti and Sanfilippo (2009).

So, we work with a panel of bilateral trade flows for 43 SSA countries covering the period 1995-2012. We use augmented gravity models to assess the role of colonial ties and the crowding-out effect of SSA bilateral trade with EU particularly due to China. We also take into account the main econometric problems highlighted by the specialized economic literature (Head and Mayer, 2013): (i) zero trade flows can be corrected by Tobit (Martin and Pham, 2008) or PPML estimators (Santos Silva and Tenreyro, 2006), (ii) The heteroskedasticity problem is removed by the robust covariance estimator of White, (iii) the omission of the multilateral resistance (Anderson and van Wincoop, 2003) and the endogeneity bias is solved by introducing fixed effects and/or instrumental variables (Feenstra, 2004; Gomez Herrera, 2013). We especially include into the gravity models three original variables which give the nature of Chinese trade implication in Africa (Brautigam, 2011): (i) economic and technical cooperation agreements, (ii) loan agreements, (iii) diplomatic ties with China.

The rest of the article is organized as follow. In Section 2 we discuss the “shifting trade” and the erosion of colonial trade linkages in SSA. Section 3 specifies the gravity models implemented. Results are presented in Section 4. Finally, Section 5 concludes.

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2Between 2000 and 2012, the exports of Gabon to France diminished to 49% against + 87% to China. For DRC, the share of their exports to Belgium was 62% in 2000, 7% in 2012 and respectively 0.08% and 70% to China.
2 “Shifting trade” and erosion of colonial trade linkages in SSA: some stylized facts

“Twenty years ago, 60% of world trade was between developed countries (North-North), 30% was between developed and developing countries (North-South) and 10% was South-South. By 2020, we are expecting it to be split equally three ways, so the relative weight of North-South trade will have been halved in just 30 years or so” (Lamy, 2013)\(^3\). This trend is present in all continents where the South-South trade share drastically increased during this decade at the expense of the North-South trade (Figure 1). For instance, between 2000-2012, the share of SSA exports to developing countries augmented to less than 50%, for developing countries in Asia was more than 33.8% and in Latin America was more than 77.6%. A “scissor effect” appears with the fall of North-South trade: the share of exports in all developing regions to developed countries reduced to 20% over this period. Indeed, Rodrik (1998) underlines the importance of trade policy inherited of former colonizers on the current trade performance of Africa.

This “shifting trade” phenomenon essentially results from the economic expansion of some developing countries as BRICs and mainly China (OECD, 2010). The share of Chinese exports in world exports passed from 3.9% to 11% between 2000-2012. Chinese exports to developing countries are more than 40% of total exports in 2000 against more than 50% in 2012. Focusing on the SSA case, the Chinese penetration in Africa is very striking. Indeed, China became in some years the first trade partner in SSA. The share of SSA exports to China was 4.8% and 19.5% in 2000 and 2012, against 5.2% and 3.9% for SSA exports share to France, and 7.4% and 3.4% for SSA exports share to UK.

In this article, we want to explore whether the Chinese emergence as a major trade partner may have undermined the importance of ex-colonizers, more precisely EU, in the African current trade. Some few works (He, 2013; De Grauwe et al., 2012) have already concluded that China has replaced industrialized economies and that this increasing trade between Africa and China was helpful to African economic development\(^4\). More precisely, He (2013) shows that “imports from China had significant positive impacts on SSA countries’ exports in all chosen sectors, while those of


The share of exports from developing economies in the world exports was 32.1% in 2000 and 44.5% in 2012.

\(^4\)Note that imports from China in this developing region also competes with the African products. Edwards and Jenkins (forthcoming) suggest that Chinese exports of manufactures have negative effect on the participation of South-Africa in Africa.
One of the possible explanations justifying these findings could be the China’s foreign economic policy with the “win-win” principle. This latter is based on three channels (Brautigam, 2011): (i) economic and technical cooperation agreements, (ii) loan agreements, (iii) bilateral diplomatic ties through the “Beijing consensus”. Brautigam (2011) points differences in foreign policy between OECD economies and China. So, the expansion of China “into developing countries is not mainly about aid but about all the other instruments of economic engagement” like non-concessional state loans. Moreover, Guillaumont-Jeanneney and Hua (2013) show that the economic cooperation between China and Africa is favorable to the bilateral exports.

Developing countries (Figure 1) are the main trade partners of SSA since 2010 that is a turning point in the African economic integration (Figure 2). During several centuries, developed countries and particularly former colonizers had the monopoly on trade with their ex-colonies. The erosion of colonial trade linkages has been perfectly highlighted by Head et al. (2010) since the independence of Africa where
trade with the rest of world had also reduced. However, two facts come to relativize this evidence. On the one hand, the value of exports of former French colonies in Africa to France augmented by 153% between 2000 and 2012. For African British ex-colonies toward UK, this value increased by 866%. On the other hand, European Union always remains the first provider in SSA even if the share of African imports to EU fall at the benefit of BRICs. Thus, we make here the assumption that SSA economies have reached a “floor level” of trade with their former colonizers. We can explain it by the “sustainability” of colonial linkages where their colonial rule are based on four channels: (i) cultural legacy with common language, (ii) political legacy with legal origins and institutions, (iii) trade policy with the use of a same or common currency and preferential agreements, (iv) development assistance with external financial transfers.

Could we find the earlier facts when considering French and British ex-colonies separately? Several empirical works give interesting elements. Nunn (2009) stated the significant effect of history on the current economic development of developing countries including Africa. In other words, some historic events matter like coloniza-

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The share of SSA imports to EU and BRICs was in 2000 37.3% and 7.8% respectively against 25.6% and 21.7% in 2012. Note that SSA imports to China have been multiplied by around four between 2000-2012.
Figure 3: South-South trade vs post-colonial trade (in %)

Note: For example, (UK) signifies the share of exports of British ex-colonies to UK in the total of SSA exports to UK.
Source: Unctad, calculations of author.

La Porta et al. (2008) tested for the impact of legal origins. The authors show that the conclusion depends on the characteristics of these legal origins (common law or civil law). Finally, De Sousa and Lochard (2012) found that territories colonised by the British may tend to trade intrinsically more. Focusing on Figure 3 allows to give strong supports these empirical findings. Firstly, the “British effect” clearly appears. Indeed, former British colonies trade more with the rest of the world compared to French ex-colonies: these latter export six times less. Secondly, the post-colonial trade is characterised by two facts: (i) the British ex-colonies are always the main trade partners of UK in SSA whereas it is not the case for French ex-colonies with France, (ii) both show a decline in their trade with Metropoles quasi-simultaneously. Thirdly, some characteristics appear in the bilateral exports of ex-colonies with China. In the one hand, British ex-colonies export at least three times more than French ex-colonies. This can be explained by a better endowment in natural resources for former British colonies (South Africa, Nigeria, Sudan ...). On the other hand, contrary to French ex-colonies, exports of SSA countries colonized by UK to China show recently an upward trend.

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6 “We initially find that former British colonies in Africa trade more, on average, than do their French counterparts” (De Sousa and Lochard, 2012).
To sum up two main findings emerge concerning the link between the “shifting trade” and the colonial trade erosion: (i) the reality of a “scissor effect” on the SSA bilateral trade with a continued trade erosion in the case of France and UK (with their ex-colonies) and also a remarkably increasing trade with China, (ii) some differentiated trade performances between former French and British colonies. In what follows, we will try to give strong statistical support to these results by running several ”augmented” gravity models.

3 Econometric specification and data

3.1 Empirical models

To investigate the effect of China and colonial trade linkages on the SSA current trade pattern, we implement an empirical tool commonly used in the international trade literature that is the gravity model

\[ x_{ijt}(m_{ijt}) = \frac{Y_i Y_{jt}}{D_{ij}}. \]  

(1)

This equation (1) shows the positive and proportional effect of economic size \( Y_i \), \( Y_{jt} \) (proxied by GDP of exporters and importers varying in time) on bilateral trade \( x_{ijt}, m_{ijt} \) but also the reserve effect of trade costs (proxied by geographical distance \( D_{ij} \) between trade partners). More precisely, gravity equations mainly admit two sets of explanatory variables: (i) monadic or unilateral factors varying or not in time, (ii) dyadic or bilateral factors constant or not in time. In its most basic form in logs, the gravity model can be written as follows:

\[ \ln x_{ijt}(m_{ijt}) = c + b_1 \ln Y_i + b_2 \ln Y_{jt} + b_3 \ln \tau_{ij} + e_{ij}, \]  

(2)

where \( x_{ijt} \) and \( m_{ijt} \) indicate exports and imports of country \( i \) with country \( j \), the GDP for each country \( (Y_i, Y_{jt}) \), \( \tau_{ij} \) represents trade costs proxied by geographical distance, \( e_{ij} \) is a random error term and \( c \) is a constant.

7 The gravity approach (Tinbergen, 1962) has progressively improved (Head and Mayer, 2013) by integrating the microeconomic development as the Armington hypothesis by Anderson in 1979 (homogenous goods, imperfect substitute goods ...), differences in factor endowments with Bergstrand (1989) and Deardorff (1998), the new international trade theory framework (monopolistic competition, increasing returns ...) with Helpman and Krugman (1987), Anderson and van Wincoop (2003), and the firms heterogeneity assumptions with Chaney (2008) and Melitz and Ottoviani (2008).
Has SSA displaced their exports in favour of China? If yes, what are the main pass-through channels? Do colonial ties still impact the African current trade pattern? In short, we test for the potential link between the rise of China in African trade and the evolution of European colonial influence in the subcontinent.

Accordingly, our empirical model is as follows:

\[
\ln x_{ijt}(m_{ijt}) = c + b_1 \ln Y_{it} + b_2 \ln Y_{jt} + b_3 \ln \tau_{i(j)} + b_4 \ln \text{China}_{it} + e_{ijt},
\]

(3)

\[
\ln x_{ijt}(m_{ijt}) = c + b_1 \ln Y_{it} + b_2 \ln Y_{jt} + b_3 \ln \tau_{i(j)} + b_4 \ln \text{China}_{it} \ast \lambda_i + e_{ijt},
\]

(4)

where \( \tau_{i(j)} \), \( \text{China}_{it} \) and \( \lambda_i \) are respectively time-fixed explanatory variables, “China effect” and characteristics of foreign economic policy of China:

\[
\tau_{i(j)} = (\text{Distance}_{ij}, \exp(\text{DEMO}_{ij}), \exp(\text{REMOT}_{i}), \exp(\text{ColonyUK(FRA)}_{ij})),
\]

(5)

\[
\lambda_i = (\exp(\text{Cooperation}_{i}), \exp(\text{Loan}_{i}), \exp(\text{Diplomatic}_{i})).
\]

(6)

In this latter case, we introduce interaction variables between them and African trade with China to investigate the effectiveness of the Chinese foreign economic policy on bilateral trade with EU. This allows to test whether the economic cooperation, loans and diplomatic ties with China increase or decrease trade with European countries when SSA economies trade with China.

3.2 Data

Our study includes forty-three SSA countries\(^8\) and sixteen European countries \(^9\) over the period 1995-2012, i.e. 12384 observations. Trade data are extracted from Unctad (UnctadStat) with exports and imports \((x_{ijt}, m_{ijt})\) aggregated in thousands of US dollars from the trade goods matrix by partners and products. We collected data about real GDPs \((Y_{ij(t)})\), in millions of US dollars, from the Unctad Secretariat based on the UN DESA Statistic Division and the National Accounts Main Aggregate Database.

\(^8\)These ones are South Africa, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroun, Congo, Ivory Coast, Ethiopia, Gabon, Gambia, Ghana, Guinea, Bissau Guinea, Equatorial Guinea, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Uganda, Central African Republic, Democratic Republic of Congo, Rwanda, Senegal, Seychelles, Sierra Leone, Somalia, Soudan, Swaziland, Tanzania, Chad, Togo, Zambia, Zimbabwe.

\(^9\)Belgium, France, Germany, Italy, Portugal, Spain, Netherlands, UK, Ireland, Poland, Austria, Greece, Finland, Denmark, Norway and Sweden.
Concerning the distance \((\text{Distance}_{ij})\), we retained the classical geodesic distance calculated by the CEPII database\(^{10}\) that is from the great circle formula using latitudes and longitudes of the most important cities and agglomerations in terms of population. The variables remoteness \((\text{REMO}_i)\) is built as dummy variable what takes 1 if the African country is insular or landlocked, and 0 otherwise. The same is applied to determine the two colony variables \((\text{ColonyUK}_{ij}, \text{ColonyFRA}_{ij})\): It takes one when the African country was a French\(^{11}\) (British)\(^{12}\) colony, and 0 otherwise. Like De Grauwe et al. (2012), we search the effect of governance in the bilateral trade relations between African and European countries. We use a proxy of democracy \((\text{DEMO}_{ij})\) through the composite indicator of the American NGO, Freedom House. In fact, this latter is calculated with five components: (i) type of elections (type of vote, majority or proportional ...); (ii) fair elections; (iii) the course of the election campaign; (iv) the possibility of political change; (v) transparency of political financing.

About the variable “China effect” \((\text{China}_i)\), drawing on Eichengreen et al. (2007), Greenaway et al. (2008), Giovannetti and Sanfilippo (2009), we use the exports and imports between SSA economies and China (UnctadStat). A negative value signifies a displacement effect where the bilateral trade fall with EU because of an increase in these latter with China.

Finally, to estimate the influence of the Chinese foreign economic policy on bilateral trade, we use the dataset of Brautigam (2011). So, we take three dummy variables reflecting the pass-through channels of the Chinese policy: (i) economic and technical cooperation agreements \((\text{Cooperation}_i)\) refer to projects by Chinese contractors like construction, foreign aid program ...., (ii) loan agreements \((\text{Loan}_i)\) through grants, concessional and zero-interest loans, (iii) diplomatic ties \((\text{Diplomatic}_i)\) with China that is years in which a country had diplomatic ties with China.

### 3.3 Estimation issues

The first set of issues concerns the presence of zero trade flows in bilateral exports and imports\(^{13}\). Indeed, specialized economic literature about gravity model highlights the bias estimation caused by this latter problem: the log-linear form is unable to deal

\(^{10}\) Cf. Mayer and Zignagos explanatory note (2011) about the Cepii database “GeoDist”.


\(^{13}\) We have 5.9\% and 1.9\% of zero for bilateral exports and imports.
with zero trade flows because the logarithm of zero is undefined. Fortunately, two main solutions exist (Gomez Herrera, 2013): (i) the ad hoc method where we add 1 in the explained variable to estimate in log and we keep OLS, (ii) a more and more used but also a more robust method through the PPML$^{14}$ estimate in level (Santos Silva and Tenreyro, 2006). Furthermore, we test for the presence of heteroskedasticity with the Breusch-Pagan procedure. Insofar, in our case, the null hypothesis of homoskedasticity can be rejected, the PPML estimator is more appropriated than the OLS one because it corrects heteroskedasticity with a robust covariance matrix estimator (White, 1980 and 1984).

A second major issue is the so-called “error medals” problem described by Baldwin and Taglioni (2006), that is the omission of multilateral resistance. Indeed, Anderson and van Wincoop (2003) capture other trade costs across the other exports markets through relative price effects. In other words, trade between two countries depends also on impediments in others countries. The exclusion of this term lead to a omission bias with more unobserved trade barriers. Furthermore, in the extent that it is very difficult to have price indices for each country and to take into account multilateral resistance the fixed effects estimation is the most used (Feenstra, 2004; Head and Mayer, 2013). This method consists in introducing importer, exporter or country-pair (dyad) fixed effects to account the multilateral resistance effect via dummies. However the time-fixed bilateral explanatory variables (distance, colonial linkages ...) will be removed but not unilateral and time-varying variables (GDPS, China$_{it}$) in this case. To remove this drawback, we use a mixed method between the fixed and random effects models, that is the Hausman-Taylor (HT) (1981) estimator (Carrère, 2006; Lavallée, 2006). This latter approach is also robust to cope with possible correlation between explanatory variables and unobserved effects. The Hausman test (1978) allows us to reject the null hypothesis of no correlation. Then, we use the HT estimator with instrumental variables. Note that the HT estimator takes the explanatory variables as instrumental variables, that is to say external instruments are not included. Ultimately, it is an intermediary method between fixed and random effects models. In other words, compared to fixed effects model, the HT estimates the time-fixed independent variables (distance, remoteness, colonial links ...) and, contrary to the random effects model, the HT corrects the endogeneity bias but also takes into account the heterogeneity. Finally, in order to verify that our HT

$^{14}$About the continuous variable and the Poisson distribution: “PPML does not require the data to follow a Poisson distribution (that is why it is a pseudo-maximum likelihood estimator and not a maximum likelihood estimator). In fact, all that is needed for the PPML estimator to be consistent is that the conditional mean of the variate of interest is correctly specified.”
estimator is the better specification, two specific Hausman tests are implemented\textsuperscript{15}: (i) the Hausman test of over-identification between the HT and fixed effects estimators, (ii) the other comparing the HT to the random effects model.

4 Results

4.1 Exports

Table 1 display for the three regression methods (OLS, PPML, HT) the results for both bilateral exports and imports but without considering the role of Chinese foreign policy. We have three regressions (OLS, PPML and HT) with traditional control variables (GDP, distance) and our main interest variable (“China effect”).

The PPML specification gives four main findings. Firstly, according to Santos Silva and Tenreyro (2006), the estimated coefficients are lower than OLS, particularly for geographical determinants. Secondly, an increase in exporter and importer GDPs impact positively bilateral exports, and distance between countries remains a trade barrier. Thirdly, colonial linkages with former French and British colonizers fall bilateral exports. Fourthly, the fact that African and European countries have democratic institutions improve the bilateral exports with EU like with De Grauwe et al. (2012).

With the HT estimator, the expected existence of a displacement of SSA exports because of China is not present. Indeed, a growth of exports with China (+10%) leads a rise of exports (+0.7%) with EU countries. This result supports our descriptive analysis where exports in value with European economies continue to increase but fewer than China. On the whole, these other results are corroborated by the HT estimator even if some determinants are not significant.

Table 1 also states the results by integrating the channels of the Chinese foreign economic policy. Note that the HT simulations are prefered here due to its better performance relative to the RMSE criterion\textsuperscript{16}. The absence of a displacement effect is always confirmed and Chinese loan agreements have a positive impact on bilateral exports with EU. In other words, these latter improve SSA exports with European countries. According to the China Development Bank (CDB), by the end of 2011, CDB has signed special loan contracts, i.e. more than US$ 800 million. So, “projects supported by the loans have directly and indirectly created 11 020 and over 390 000

\textsuperscript{15}Here the HT is confirmed like the better estimator where we do not reject the null hypothesis in the first test whereas for the second test we do it.

\textsuperscript{16}The root-mean-square error (RMSE) measures the difference between the values predicted by a model and the values observed. The higher the value is close to 0 more precise the estimate.
local job opportunities respectively, promoted China-Africa trade volume over US$ 311 million”. So it would seem that exports between SSA and European countries benefit from the Chinese financing intervention in African economies, i.e. a pro-trade effect. It is the same think for the diplomatic ties with China on the SSA bilateral exports with EU.

4.2 Imports

Estimations with PPML (Table 2) underline that the traditional variables have the expected signs, that is to say positive for GDPs, democracy and negative for geographical remoteness and the distance. An increase (+10%) in imports with China also induces a rise (+1.6%) in imports with European economies. Then the HT results show that the pro-trade effect of China is higher than exports where a growth of imports with China (+10%) leads a rise of imports (+3%) with EU countries. In other words, Chinese exports to SSA sustain European exports to African countries through possibly a pro-competitive effect. The colonial linkages for French and British ex-colonies have a significant positive effect on imports, only for the formers.

Concerning the specification including the channels of the Chinese foreign economic policy (Table 2), we retained the HT model which presents the lower RMSE. First of all, note that the results globally are the same as previously described concerning the GDPs, geographical impediments and colonial linkages. Here only Chinese loan agreements are significantly positive on African imports with EU, and diplomatic linkages have a negative sign. One of possible explanations could be that the Chinese financial intervention improve infrastructures in Africa leading a fall of trade costs.

5 Conclusion

“China and Africa will be an important engine for economic growth in the next 20 years and Europe should seize the opportunity to engage with them strategically and not see them as a threat” \(^1\). The “shifting trade” has accelerated a renewed interest of EU for Africa during this latter decade. Since 2009 China became the first trade partners of SSA. This paper also tries to assess the impact of China on the African current trade pattern within a post-colonial context. Several empirical papers have focused on the effects of China and colonial trade linkages on the African

\(^1\)The former WTO Director-General Pascal Lamy during the European Business Summit in May 2013 in Brussels (Belgium).
bilateral trade but without putting them together. This article proposed to fill this gap through three contributions.

Do colonial ties still matter for the African current trade pattern? The answer is mixed. The colonial legacies continue to affect significantly exports of the former colonies of France but non-significantly for imports for the latter and the British ex-colonies.

Has China led to a displacement effect on bilateral trade between SSA and EU? Our simulations conducted to a negative answer. When SSA exports to China increases (+10%), exports to European countries rises also (+0.7%), i.e. there is no a crowing-out effect on bilateral trade in SSA. This finding is corroborated by the imports estimations. In other words, in spite of the “scissor effect” in the African trade between developed and developing countries, the magnitude of the colonial trade linkages erosion has been limited by the pro-trade effect of China.

Finally, what is the contribution of the Chinese foreign trade policy? It depends on the pass-through channel considered (cooperation, loan agreements, diplomatic ties). To this regard, two interesting outcomes emerged: (i) the positive effect of Chinese loan agreements on bilateral exports and imports with EU, (ii) the negative impact of diplomatic ties with China on African exports with European countries.
Table 1: Gravity regressions (exports)

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<tr>
<th></th>
<th>OLS</th>
<th>PPML</th>
<th>HT</th>
<th>HT(1)</th>
<th>HT(2)</th>
<th>HT(3)</th>
<th>PPML(1)</th>
<th>PPML(2)</th>
<th>PPML(3)</th>
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<td>lnGDP(_{it})</td>
<td>1.32(^a)</td>
<td>1.003(^a)</td>
<td>1.57(^a)</td>
<td>1.55(^a)</td>
<td>1.6(^a)</td>
<td>1.56(^a)</td>
<td>1.13(^a)</td>
<td>1.004(^a)</td>
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<td>(0.03)</td>
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<td>lnGDP(_{jt})</td>
<td>1.96(^a)</td>
<td>0.91(^a)</td>
<td>-0.14</td>
<td>-0.12</td>
<td>-0.22</td>
<td>-0.14</td>
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<td>lnDistance(_{ij})</td>
<td>0.12</td>
<td>-0.46(^a)</td>
<td>-0.68</td>
<td>-0.63</td>
<td>-0.74</td>
<td>-0.7</td>
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<td>-0.46(^a)</td>
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<td>(0.12)</td>
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<td>REMOT(_i)</td>
<td>-0.72(^a)</td>
<td>-0.05</td>
<td>-0.18</td>
<td>-0.201</td>
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<td>-0.02</td>
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Note: Standards errors in parentheses with \(^a\), \(^b\) and \(^c\) respectively significance at the 1\%, 5\% and 10\% levels.
Table 2: Gravity regressions (imports)

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Note: Standards errors in parentheses with ^a, ^b and ^c respectively significance at the 1%, 5% and 10% levels.
References


MARTIN, WILL, AND CONG. S. PHAM, 2008, “Estimating the gravity model when zero trade flows are frequent”, *Deakin University*, Faculty of Business and Law, Economics Series 3.


