Volume and Issues Obtainable at Center for Sustainability Research and Consultancy

Review of Economics and Development Studies
ISSN:2519-9692 ISSN (E): 2519-9706
Volume 4: No. 1, June 2018
Journal homepage: www.publishing.globalcsrc.org/reads

Protectionist Trade Policies and Agricultural Productivity in WAEMU Countries

[1]HonoréSèwanoudé Houngbédji

[1]Centre d'Etudes, de Formation et de Recherches en Développement
Faculté des Sciences Economiques et de Gestion,
Université d'Abomey-Calavi (UAC), BENIN. hounore@yahoo.fr

ARTICLEDETAILS

History
Revised format: May 2018
Available Online: June 2018

Keywords
Protectionist trade policies ,
State subsidies ,
protection rate,
Agricultural productivity,
WAEMU.

JEL Classification
H7, H29, Q18

ABSTRACT

This paper assesses the effect of protectionist trade policies on the agricultural productivity of WAEMU countries from 1995 to 2016. A multiple linear regression model with panel data was used in this study. The estimations results indicate that the protectionist trade policy captured by State subsidy to agriculture and tax on the import of goods have a positive effect on agricultural productivity of WAEMU countries. In addition, the study reveals that sufficient availability of farm machinery and fertile soil would be of particular importance to the development of agricultural sector. In the face of globalization, these results encourage the adoption of a protectionist trade policy which would certainly improve the agricultural productivity in WAEMU countries.

Corresponding author's email address: hounore@yahoo.fr
Recommended citation: Houngbédji, H. (2018). Protectionist Trade Policies and Agricultural Productivity in WAEMU Countries. *Review of Economics and Development Studies, 4* (1) 1-9
DOI: 10.26710/reads.v4i1.275

1. Introduction

The importance of agriculture as an engine of development has been debated since several decades. The consensus that emerges is that an increase in agricultural production is a key point for the transition from subsistence to commercial farming, which is supposed to lead to an improvement in farmers' incomes (Houmy, 2008). Within this framework, it has been recognized that a developed agricultural sector is an effective mechanism for successful entry of developing countries into globalization. Although agriculture remains a source of wealth for the sub-Saharan African countries[1], it is clear that global competition continues to be unfavourable (Baldin, 2012). Past economic policies in Sub-Saharan Africa failed to stimulate the agricultural sector in an efficient manner as was the case for Asian and Latin American countries (Haggblade and Gabre-Madhin 2010). Empirical evidence has shown that Sub-Saharan African countries are being hurt by agricultural subsidies to production and exports from the North (Tockarik, 2003) even though the World Trade Organization (WTO) has always tried to punish States that violate the regulation in this regard (Anderson and Valenzuela, 2006).

Unlike the industrialized countries, the agricultural sector occupies an important position in the most

1-Agriculture is the main source of employment with 65% of full-time jobs, 25 to 30% of GDP and over half of total export earnings. Most countries in sub-Saharan Africa still depend on agriculture for over 20% of their exports (Douillet, 2012).

developing countries where it is the major contributor to GDP and is the primary source of income for the population (Brüntrup et al., 2008). Thus, the development of agricultural sector is of great importance for poverty reduction in West African Economic and Monetary Union (WAEMU) countries. In this context, it is necessary for these countries to protect the sector through a protectionist trade policy. Producers, in industrialized countries continue to benefit from advantageous commercial policies.

Economic theory is not on the side-lines of the protectionist trade policies that countries engaged in international trade must adopt. While the classics consider that a protectionist trade policy is harmful or even dangerous for the economy, other theories argue that this helps the local industry to develop through State interventions in a context of imperfect competition at a world scale. By protectionist agricultural trade policy, we mean all measures that can be taken to change the equilibrium generated by the imperfect market situation for the benefit of the protectionist nation (Krugman 1979).Strong distortions and price variability observed in global agricultural markets become problematic for all countries depending on international trade. These distortions are source of concern for developing countries, which are faced with a lack of means to support their agricultural production and their producers like in industrialized countries. This situation compromises a genuine "fair competition" despite the interventions of the WTO. It was in this context that, in light of the various reforms and like most developing countries, WAEMU has adopted protectionist trade policies to enable their producers to be competitive in the international market. However, the competitiveness is still embryonic with a structural deficit despite the production potential in the region (ReSAKSS, 2011).

As an illustration, in the WAEMU zone, the stylized facts relating to the dynamic of agricultural productivity regarding the protectionist trade policy (export subsidies and import tax) lead to an ambiguity relationship. Indeed, agricultural productivity has increased from 22% over the period 1995-2002 to 25% and 19% over the period 2003-2010 and 2011-2016, respectively. Over the same periods, the subsidy rate increased from 6% to 18% and then to 30%, while the import tax increased from 24 % on average at 27 % and 28 %[2].This stylized fact seems to confirm at first that the relationship between agricultural productivity and protectionist trade policy is linear. In a second step, these statistics invalidate the supposed linear relation as the increase of the variables related to the protectionist commercial policy does not necessarily induce a growth of the agricultural productivity (we observe a decrease of 6%). These facts reveal that the relationship between protectionist trade policy and agricultural productivity is uncertain. This justifies the interest of this paper in this face of regional market integration observed in developing countries. Therefore, the purpose of this paper is to assess the impact of protectionist trade policies on agricultural productivity within WAEMU countries. The paper is structured in five sections namely: literature review in section 2, methodology in section 3, results and discussion in section 4 and finally; section 5 presents the conclusion.

2. Literature Review

The concept of protectionist trade policy has been widely discussed in the literature. It should be noted that various protectionist trade policy indicators (specialization indices, import tax, intra-industry trade rate, revealed comparative advantages, and subsidy, among other.) have been proposed. They most often focus on the intra-industry exchange versus inter-branch exchange debate. Following the influx of theoretical studies on protectionist trade policy in the early 1980s, many empirical contributions have emerged. We will retain in this paper some recent studies in general and those focused on sub-Saharan Africa countries.

2.1. General studies on protectionist trade policy

In his study, Goreux (2003) seeks to evaluate the damage caused by subsidies to African cotton producing countries. Based on elasticity calculation and simulations, Goreux (2003) shows an increase in the world cotton price index from around 2, 9% to 13,4% and a gain in export earnings. However, the main limit

2-*The statistics were calculated based on data from WDI. We took the average annual indicators of sub-periods*

that blunts the scope of these results lies in the same value of the elasticity retained for the countries. This implies that these countries have the same level of development and, by extension, identical structural characteristics. This hypothesis is not verified. In addition, the theoretical construction of the model would require rich countries to agree to eliminate their subsidies to allow the advent of fair trade as advocated by the WTO. Obviously, this suppression is far from being a reality. From this moment, the empirical literature attempts to qualify the conclusions of Goreux (2003) as "a translation of theory to algebra and finally to numbers "(Shepherd, 2004). In addition, beyond this limit, the study lacks theoretically testable foundations. This limitation was addressed in the work of Poonyth et al. (2004) and Bonjean et al. (2006) who adopted different approaches. First, Poonyth et al. (2004) evaluate the impact of US country subsidies on the world price and traded volumes of cotton using Agricultural Trade Policy Simulation Model (ATPSM). The study reveals that a reduction in subsidies in all countries would result in a 3.1% to 5% increase in the world price depending on the values of the supply and demand elasticities. Bonjean et al. (2006) adopted a Bayesian VAR to evaluate the impact of US and European subsidies on the international cotton market employing a dynamic partial equilibrium model. They found that the impact of US aid on the world price varies, on average, from 3% to 7%; whereas, the impact of European aid is about 2%. Following the same approach as previous studies, Crowley (2007) examines the effects of tariffs imposed by US on Japanese exports over the period 1992 and 2001. The results reveal that US tariff led to a 5% to 7% increase in exports to the third market and a 5 to 19% decrease in Japanese exports.

Beyond this rich empirical literature, in a recent study, Francis (2017) shows that protectionist trade policy has a negative impact on the productivity of the economy by discouraging competition, specialization, innovation and the transfer of knowledge within the USA. Indeed, the study indicates that the economy is thus less able to adapt well to technological changes or economic downturns. Lower productivity growth leads to lower growth. In the same vein, Derek and Collab (2013) have shown that a permanent ten percentage point increase in US tariffs on imports from all regions would result in a permanent 1% decline in the level of real GDP. Thus, tariffs and other protectionist measures can negatively affect an economy in many ways.

2.2. Studies on sub-Saharan African countries

The empirical literature has been abundant in sub-Saharan African countries. First, using time-series econometric techniques, Mahaman (2006) showed that subsidies granted by Northern countries have a negative influence on economic growth in Niger. This leads to a decline in the growth of real GDP and in turn the well-being of the populations. Douillet (2012) analyzed the effect of trade policies adopted by sub-Saharan African countries on GDP growth and agricultural growth, based on a computable general equilibrium model. Referring to the assumption that the impact of trade policies on a country depends on the relative impacts of its competitors (Carrère and De Melo 2010), the study conducts simulations using the general equilibrium model. The results show that strengthening the integration process through multilateral integration favours trade in products at more advanced stages of processing and impacts economies in terms of GDP growth, welfare, and the volume of agricultural exports. Thus, regional integration could be a mean of stimulating this competitiveness through the effect of industrial learning it induces ("learning by doing"). However, the gains from trade reforms are unequally distributed in favour of the richest within Africa, South Africa and Nigeria. Addressing the specific issue of cotton, Faye (2011) assessed the impact of US subsidies on exports of the product over the period 1982 and 2007. Using a vector autoregressive (VAR) model, the study revealed that the effects of an increase in US and European subsidies on Burkina's cotton production are negative in the first four months. On the other hand, these effects become positive between the fourth and sixth months before becoming negative again between the seventh and the tenth month. Overall, the study postulated that US subsidies on cotton negatively affect economic activity and in turn welfare in Burkina.

The issue of protectionist trade policy has not focused solely on annuity products. Other studies have sought to assess their effect on food products such as maize and rice. In this group of studies, we can cite

Wire et al. (2015) and Liverpool-Tasie et al. (2015). From a sample of 820 rice farmers in northern Ghana, Wire et al. (2015) shows that fertilizer subsidy increases land productivity but decreases labour productivity. Liverpool-Tasie et al (2015) using panel data models, estimated the effect of profitability of fertilizer use on maize production in Nigeria. They also found that the strategy to reduce fertilizer transportation costs appears to have a much greater effect on agricultural productivity than fertilizer subsidies. Like subsidies, discriminatory protectionist measures can also distort a country's production and, in turn, exports from a foreign country to third country markets.

In total, the empirical evaluation of these different approaches reveals three main lines of results. While some studies found a positive relationship between protectionist trade policy and agricultural productivity, others show that it generates a negative impact or to some extent that this outcome is mixed or even conditioned. What about the WAEMU countries?

3. Methodology

As part of modelling the effect of protectionist trade policies (PCP) on agricultural productivity (PA), we first try to expose the specified model, and present the characteristics of our specification panel on the eight (8) WAEMU countries during the period 1995-2016.

3.1. Specification

Our specification is based on the empirical model developed by Issiyaka et al (2010) which seeks to analyze the impact of chemical fertilizer subsidies on cereal production in Burkina Faso. Starting from his model, ours is as follows in panel data:

$$Ln(P)_{it} = \alpha_i + \alpha_1 Ln(M)_{it} + \alpha_2 Ln(S)_{it} + \alpha_3 Ln(T)_{it} + \alpha_4 Ln(K)_{it} + \alpha_5 Ln(F)_{it} + \alpha_6 Ln(TA)_{it+} \mu_{it}$$

Where,

- P_{it} the value added of agricultural production from country i in year t ;
- M_{it} a variable of agricultural mechanization which measures the quantity of machine used for the production in country i in year t ;
- S_{it} State subsidy to production in country i in year t ;
- T_{it} are tax on goods, including levies imposed for income or protection and determined on a specific or ad valorem basis from country i in year t ;
- K_{it} the human capital of the country i in year t ;
- F_{it} measures amount of fertilizer used (in kilograms per hectare) for the production in country I in year t;
- TA_{it} arable land available in hectare from country i in year t ;
- μ_{it} denotes the error term.

With α_i, (the specific effect for each country); α_1, α_2, α_3, α_4, α_5 et α_6, the parameters. All variables are in logarithms.

3.2. Variables Description

Agricultural productivity (P): Agricultural productivity measures the efficiency of the use of production factors. There are several productivity indicators such as total factor productivity that reflects the efficiency of the use of all factors of production, including the productivity of land and farm labour, which is the two most commonly, used partial productivity indicators (Farm, 2013). However, as shown by *Fuglie et al. (2012)*, this indicator as defined only takes into account the value of agricultural production. To get a better idea of the economic efficiency of production, it would be more appropriate to use the value added. In the case of our study, we use agricultural productivity in terms of value added of agricultural production.

Protectionist trade policy is captured by state subsidies (**S**) and import tax (**T**) which are supposed to benefit the producers of this good and the state (Oloukoi, 2009).

Agricultural mechanization (M) is the set of tools and machines that can intervene in manual cultivation, hitched or motorized for all operations from clearing and land development to processing. It increases the productivity of human labor (UNIDO, 2008). This variable refers to the number of wheel and track tractors operating in agriculture after the calendar year.

Quantity of fertilizer used (**Q**) results in the use of fertilizers, improved seeds, phytosanitary products, animal or motorized traction, and water control. Thus, the amount of fertilizer used is fertilizer consumption (100 grams per hectare of arable land). It measures the amount of plant feed used per unit of arable land (Rahman 2004).

Arable land " in hectare''(TA) includes temporary land for mowing or grazing, land under the market or vegetable gardens and land temporarily fallow. Land abandoned due to shift culture is excluded.

Human capital (K) is captured by several indicators in the literature. In this paper, the labour force is a good proxy for human capital to the extent that it measures the level of labour available in the agricultural sector.

3.3. Estimation Method and Data Source

The first thing to check when using panel data is the nature of the model specification (homogeneous or heterogeneous specification of the data generating process, fixed effect or random effect). However, before anything else, it is important to assess the quality of our series through the stationary test. This depends largely on the reliability of our estimates. In this respect, we carry out the Im-Pesaran-Shin stationarity test (IPS).

The data used in this study comes from the World Development Indicators database (WDI) and the UEMOA annual reports. This study focuses on the eight (8) countries of WAEMU namely: Benin, Burkina Faso, Côte d'Ivoire, Guinea, Mali, Niger, Senegal and Togo. Given the availability of statistics for each country, the period covered by the study extends from 1995 to 2016. That is, an observation of 176 (22 x 8) for each variable, which allows us to have a cylindrical panel.

4. Analysis and presentation of the results

4.1. Result of preliminary tests

First of all, we need to take a hard look at the data we have. A summary of these data can be found in the following (Table 1) shows large differences in the values of some variables, meaning that the WAEMU countries have different characteristics regarding the evolution of the variables explained. We then chose to use in this analysis a log transformation. This procedure has the advantage of correcting the problem of large discrepancies and gives us the opportunity to interpret the coefficients in terms of elasticity and also allows to exclude the influence of the different units of measurement in the model to be estimated.

The analysis of descriptive statistics of the variables of the model can be extended by that of the correlations that we present in the table 2. Indeed, this analysis aims to detect the problem of Multicollinearity which makes it difficult to interpret the results from the econometric estimations. From this table, it appears that agricultural productivity (P) remains weakly correlated with the explanatory variables. Even better, as can be seen, the partial correlation between the variables is weak by compared to 0.5. Thus, these results suggest a risk of Multicollinearity that is almost low in the model to be estimated.

Table 1: Description of the variables

Variables	Mean	Std. Dev	Min	Max	Observations
Agricultural Productivity (P)	5.94	0.54	4.87	7.03	176
Subsidies (S)	2.24	1.21	-0.90	3.61	176
Import tax (T)	3.19	0.36	2.40	3.84	176
Quantity of fertilizer used (Q)	1.34	1.69	-5.48	3.52	176
Agricultural machines used (M)	6.81	1.55	4.38	9.33	176
Arable land (TA)	2.62	0.65	0.95	3.83	176
Human capital (K)	4.26	0.14	3.93	4.53	176

Source: Author

Table 2: Matrix of correlation coefficients between variables

Variables	P	S	T	Q	M	TA	K
Agricultural Productivity (P)	1.00	-	-	-	-	-	-
Subsidies (S)	0.31	1.00	-	-	-	-	-
Import tax (T)	0.22	0.34	1.00	-	-	-	-
Quantity of fertilizer used (Q)	0.14	-0.19	-0.47	1.00	-	-	-
Agricultural machines used (M)	0.16	0.08	0.14	0.20	1.00	-	-
Arable land (TA)	0.33	0.20	0.02	-0.13	-0.55	1.00	-
Human capital (K)	-0.26	0.22	-0.01	-0.08	-0.15	0.34	1.00

Source: Author, from the estimation in Stata 14

After describing the variables and analyzing the correlation matrix, it is necessary to check the stationarity of the variables, essential condition for a good estimation of the model.

Stationarity test.

The IPS test performed on each series of our model gives the following results reported in Table 3.We find that all P-values are below the critical value of 5%. This leads to the admission that all the variables are stationary. Since the stationarity of the variables is verified, it is appropriate to test for the model specification. It is therefore appropriate to use the Hausman test which aims to choose between fixed effects and random effects model.

Table 3: Results of the stationarity test

Variables	Value of the statistic	P-Value	With constant	With Trend	Decision
P	-2.48	0.0065	Yes	Yes	Stationary
S	-3.24	0.0006	Yes	Yes	Stationary
T	-1.95	0.0252	Yes	Yes	Stationary
Q	-4.27	0.0000	Yes	Yes	Stationary
M	-1.31	0.0937	Yes	Yes	Stationary
TA	-0.56	0.0864	Yes	Yes	Stationary
K	0.66	0.0471	Yes	Yes	Stationary

Source: Author, from the estimation in Stata 14

Table 4 reports the results of the Hausman test of model specification. Note that the conclusions from the first two specification tests are obviously contradictory. Such results of Hausman test makes it possible to discriminate between a fixed effect model and a random effect model. If the probability of the Hausman test is less than 5%, it is concluded that the fixed effects model is preferable to the random effects model. For this study, the chosen model is the one with fixed effect.

Table 4 : Specification test

Fisher's test of our model	
Model	PCS and Agricultural Productivity
Statistical	f. (7,168) = 220 probability = 0.000
R^2 (Within)	0.68
Observation	Presence of individual fixed effects
Test Breush and Pagan	
Statistical	prob > chiba 2 = 0.000
R^2 (Between)	0.60
Observation	Presence of random effect
Hausman test	
Statistical	prob>chi2 = 0.0001
Observation	Presence of fixed effect.

Source: Author, from the estimation in Stata 14

4.2. Estimation result and discussion

The results of model estimates characterizing agricultural productivity through protectionist trade policies are presented in Table 5.The results show that protectionist trade policy variables (subsidies, import tax) and the amount of agricultural machinery used, availability of arable land were found to be relevant in explaining the level of agricultural productivity in terms of value added within WAEMU countries. Indeed, the study indicates that a 10% increase in subsidies to agriculture (S), generates an increase in the capacity to produce in terms of a surplus value added of 0.4%. Thus, the response to an increase in aid to agriculture (S) induces an increase in the level of agricultural productivity. This could be explained by the fact that an increase in subsidies implies a reduction in production costs and therefore an increase in the production capacity which certainly affects agricultural productivity. These results are consistent with those found by Wire et al. (2015) and Liverpool-Tasie et al. (2015) who show that within countries, protectionist trade policies via subsidies and import taxes are an effective weapon for improving the welfare of vulnerable countries in the global market via increasing agricultural productivity.

Table 5: Results of estimations

Endogenous variable : Agricultural productivity		
	Coefficient	T-Student
Grants (S)	0,042	3.94 **
Quantity of fertilizer used (Q)	-0.022	-0.07
Import taxes (T)	0.172	2.11 **
Human capital (K)	-0.054	0.21
Agricultural machine (M)	0.325	7.53 **
Arable land (TA)	0.565	6.70 **
Number of observations	1 76	
R - square within	71 %	

Source: Author, from the estimation in Stata 14

As for the agricultural import tax (T) when it increases by 10%, there is an improvement in local production of 1.7%. This result reveals that the local products protection policy through a limitation of the entry of foreign products into the national markets of the WAEMU countries favours the sale at reasonable prices of local products on their market. Thus the added value resulting from this flow positively influences agricultural productivity. Similarly, the variables quantity of agricultural machinery used and availability of arable land have a positive impact on the level of agricultural productivity of the respective order of 3.2% and 5.6%. This result could be justified by the fact that the higher the use of agricultural machinery, the more the amount of cultivated land. Controlling for other factors, this would

induces an increase in productivity under normal conditions. These results are in line with those found by Crongd (2010) in South Kivu in the Democratic Republic of Congo, which showed that the use of agricultural machinery favoured an 85% increase in maize production, 95% increase in bean production and 11% increase in groundnut production.

In sum, this study shows that protectionist trade policies have a positive effect on the level of agricultural productivity of the WAEMU countries. This corroborates the results of Shepherd's (2004) empirical studies which showed that subsidies affect global production. In addition, these results support studies that state that import restrictions benefit domestic producers (Crowley, 2007; Wire et al., 2015 and Liverpool-Tasie et al, 2015).

5. Conclusion

The purpose of this paper is to assess the effect of protectionist trade policies on agricultural productivity in the WAEMU countries. From the estimation of fixed effect model over the period 1995 to 2016, two major conclusions can be drawn from the study. First, the study shows that state subsidies to agriculture and import taxes have a positive effect on agricultural productivity growth. Second, protectionist trade policies will be conducive to productivity growth, within a framework of quantitative use of agricultural machinery and increasing the availability of arable land.

In terms of implications for economic policies, this study suggests that protectionist trade policies must be encouraged in all the countries of the Union. For this purpose, the study suggests (i) - to provide to producers subsidized agricultural machinery in order to gradually eliminate the use of archaic tools. This would increase the extension of uncultivated arable land and productivity since the farmer man's physical strength is very limited compared to the use of machinery; (ii) to promote the valuation of the potential arable land in each country; (iii) - to train producers to adapt to new farming techniques, climate change, and water management such as irrigation.

References

Anderson Kym and Ernesto Valenzuela (2006). Do Global Trade Distortions Still Harm Developing Country Farmers? Development Research Group the World Bank 1818 H Street NW Washington DC 20433, 41p.

Baldin Claire (2012). La qualité sanitaire et environnementale comme variable stratégique du commerce agricole Nord-Sud : une étude en termes de normes et de technologies agricoles » GREDEG UMR 7321, CNRS, Université de Nice Sophia-Antipolis BU St-Jean Magasins 26p.

Brüntrup M. et al, (2008). Politique commerciale et développement agricole au Sénégal. Studies / Deutsches Institut fürEntwicklungspolitik ISSN 1860-0468. Pdf.

Bonjean, C. S .Calipel et F. Traoré (2006). L'impact des aides américaines et européennes sur le marché international du coton : résultats d'un modèle d'équilibre partiel dynamique, *Notes et Études Économiques*, Ministère de l'Agriculture et de la Pêche, n° 27, avril, 57-89.

Carrèreet De Melo (2010). The Doha Round et Market Access for Least Developed Countries: Scenarios for the EU et US Markets. Journal of World Trade 44 (1): 251–290.

Claire B., (2012). L'impact des Subventions Agricoles et des technologies de l'agriculture de précision sur les Pays de l'Afrique subsaharienne. Commission de l'UEMOA aux questions posées par les Etats membres de l'OMC, Ouagadougou. Pdf

Crongd-Consortium (Conseil Régional des ONG de Développement) SUD-KIVU (2010). *La dépendance alimentaire au Sud-Kivu*. Bukavu, RD Congo : CRONGD. 53-69.

Crowley, (2007). Effets des droits antidumping imposes par les Etats-Unis sur les exportations japonaises d'environ. Economic and Social Commission for Asia and the Pacific (ESCAP). UN, 212.

Derek Anderson et Collab (2013). Getting to Know GIMF: The Simulation Properties of the Global Integrated Monetary and Fiscal Model, IMF Working Paper WP/13/55, 27/02/2013.

Douillet, Mathilde (2012). Trade policies and agriculture in Sub-Saharan Africa Comparative analysis in a Computable General Equilibrium framework. Thèse de doctorat en Sciences économiques

soutenue le 22 juin 2012. Institut d'Etudes Politiques de Paris/Programme doctoral Economie des relations internationales.

Faye Mama Talla (2011). Impact des subventions agricoles sur les exportations de coton du Burkina Faso, Mémoire pour l'obtention d'un DEA, (Economie et finance) Université cheickAntaDiop Dakar, 2011.

Francis Généreux, (2017). Le protectionnisme : un frein à la croissance économique » Desjardins, Etudes Economiques, 4.

Fuglie k., Wang s. And Ball V. E. (2012). Productivity Growth in Agriculture: An International Perspective » Oxford shire, UK: CAB International.

Ganguli b., (2008). The trade effect of Indian Antidumping Actions », review of international Economics, volume 16(5), 930-941, November 2008.

Goreux L., (2003). Préjudices causés par les subventions aux filières cotonnières de l'AOC, atelier AFD-DFID, 30 avril 2003, Paris.

Haggblade s. et e. Gabre-Madhin. (2010). Successes in African Agriculture: Lessons for the Future ». Washington DC: International Food Policy Research Institute et Johns Hopkins University Press.

Houmy Karim, (2008). Guide de formulation d'une stratégie de mécanisation agricole. FAO, Etude de cas : stratégie nationale de la mécanisation agricole au Mali, Rome, 65.

Issiyaka S., Siri A. et Zerbo A., (2010). Analyse de l'impact des subventions de fertilisants chimiques de céréales au Burkina Faso : MEGC micro-simulé, Document de Travail Numéro, 1.

Krugman P., (1987). Is Free Trade Passé? » in the Journal of Economic Perspectives, 1(2), 131-143

Liverpool-Tasie, L. S. O. et al., (2015). Is Increasing Inorganic Fertilizer Use in Sub-Saharan Africa a Profitable Proposition?, World Bank Group, Policy Research WP 7201.

Mahaman Fatchina (2006). Impact des subventions à l'exportation des produits agricoles sur la croissance economique des pays en developpement : cas du niger, Maitrise en économie, FASEG / Université Abdou Moumouni de Niamey Niger.

Oloukoï L. et P. Adegbola, (2007). Etat des lieux des différents politiques menées au Bénin en matière d'irrigation, de changements de politiques et points statistique sur le riz et le Maïs, Rapport. PPA/INRAB-ADRAO, Porto-Novo, 60.

Poonyth et al, (2004). Impact of cotton Subsidies on Developing Countries and poor people in those countries, Document de travail, Overseas Development Institute, Londres

ReSAKSS, (2011). Trends and Spatial Patterns in Agricultural Productivity in Africa », 1961– 2010, 77.

Shepherd B. (2004). The Impact of US Subsidies on the World Cotton Market: a Reassessment », GEM Working Paper, Sciences-Po.

Tokarick S., (2003). Measuring the Impact of Distortions in Agricultural Trade in Partial and General Equilibrium, IMF, Working Paper.

Wiredu A et al, (2015). Impact of fertilizer subsidy on land and labor productivity of rice-producing households in Northern Ghana, Center for Studies of African Economies.