Cocoa Farmers' Perception of the Effect of World Trade Organization's Standards on Production in Ondo State, Nigeria

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Résumé
Oladele, O. I. *La perception des paysans du cacao de l'effet des Normes de l'Organisation Mondiale du Commerce sur la production dans l'état d'Ondo au Nigeria.* L'étude a examiné la perception des paysans du cacao de l'effet des normes de l'Organisation Mondiale du Commerce sur la production de cacao dans l'état d'Ondo au Nigeria. Une technique d'échantillonnage aléatoire simple a été utilisé pour sélectionner les paysans dans la zone couverte par le projet et des données primaire ont été rassemblé à l'aide d'un questionnaire structuré sur les objectifs de l'étude. La statistique descriptive a été utilisée pour analyser les caractéristiques socio-économiques des paysans, tandis que le modèle probit a été utilisé pour capturer la perception des paysans sur les normes de l'Organisation Mondiale du Commerce. Le résultat du modèle probit montre que l'âge (t = 3.49), le propriétaire foncier (t =-4.14), la connaissances d'OMC (t = 3.61), coop comme source d'intrants (t = 1,96), le marché libre comme source d'intrants (t = 2,99), entrée concessionnaires comme source d'information (t = 4.72), des amis comme source d'information (t = 2.59) et les méthodes d'acquisition des terres (t = 1,88) sont fortement liés à la perception des paysans.

Mots-clés : La perception des paysans du cacao, Organisation Mondiale du Commerce, Nigeria.

Abstract
The study examined the perception of cocoa farmers of the effect of the standards of the World Trade Organisation on cocoa production in Ondo State, Nigeria. Simple random sampling technique was used to select farmers in the area covered by the project and primary data were collected through the use of a structured questionnaire on the objectives of the study. Descriptive statistics was used to analyze the socio-economic features of the farmers while the probit model was used to capture the perception of farmers of the standards of the World Trade Organisation. The result of the probit model shows that age (t = 3.49), land ownership (t = -4.14), knowledge of WTO (t = 3.61), coop as source of inputs (t = 1.96), open market as source of inputs (t = 2.99), input dealers as source of information (t = 4.72), friends as source of information (t = 2.59) and land acquisition methods (t = 1.88) are significantly related to the perception of farmers.

Keywords: Cocoa farmers' perception, World Trade Organisation, Nigeria.

Introduction

Although cocoa was discovered in Latin America, where is was introduced to other regions of the world, by 1920, Africa began to emerge as the predominant regional player in the global cocoa production. Cocoa is a major agricultural commodity produced in the development economies of the Tropics, which are located in South and Central America, sub-Saharan Africa, South East Asia. On the other hand, cocoa is consumed primarily in the middle and high income economies of the world's temperate zones. Most of the cocoa produced globally is consumed in North America and Europe (Hartanyo and Smith, 1993). Over the years, cocoa has played an important economic role particularly in producing countries, where cocoa plantations have employed labour and fetched foreign exchange earnings needed to purchase capital and consumer goods, liquidate foreign debt and stabilize balance of payment positions. Export earning from cocoa have been crucial to the stability of domestic economies in such African countries as Cote d' Ivoire, Ghana and Cameroon, where it is a major cash crop (Mabele, 2000). Most African economies are characterized by a heavy dependence on commodity production, with little value added before exports, which are destined to an increasingly concentrated international market place. In about forty African countries, commodities continue to account for more than 50 per cent of their merchandise exports. In 34 of these countries, commodities account for 70 per cent or more of their exports and for two among the latter, commodities account for at least 90 per cent of their exports. Also, in more than 20 African countries, commodity dependence has increased or stabilized at the same level since 1980 (Megzari, 1999). In Nigeria, cocoa production has undergone tremendous changes in Nigeria over the past several decades. At independence in 1960, cocoa, was a predominant commodity, accounting for a significant proportion of the country's foreign exchange earnings. However, with the advent of oil in the 1970s, cocoa, along with other agricultural commodities, suffered a precipitous decline with the neglect of the agricultural sector and the elevation of the crude oil industry as the driver of Nigeria's economy. Since the 1970s, not only has cocoa production volumes declined and with them export earnings derived from the commodity, but also, Nigeria's crude oil and gas industry has grown to be come the cornerstone of the nation's economy. Although, cocoa export volumes surged in the late 1980s, following liberalization of the export market, which was a major element of structural adjustment, the value of cocoa exports as a share of annual foreign exchange earnings continues to decline in Nigeria. Nevertheless, cocoa remains one of Nigeria's largest agricultural commodity exports. At present, cocoa is grown in most parts of southern Nigeria

extending from areas having 1,100mm annual rainfall towards the north to areas having 2,500mm annual rainfall towards the coast. These include several states of the country namely Ondo, Oyo, Osun, Ekiti, Edo, Abia, Akwa Ibom, Cross Rivers, Kwara, Imo and Ebonyi States. There are pockets of land suitable for cocoa production around Mambilla Plateau in Taraba State. The importance of cocoa in Nigeria before and after independence, stimulated the interest of successive government in cocoa production. The climatic compatibility of cocoa with the Nigerian environment coupled with the successful combination of cocoa with arable crops in cultivation by peasant farmers promoted the thriving of the crops since its introduction (Oni, 2000), and in the early 1970s, Nigeria was reported as the second largest cocoa producer in the world (FAO, 2000).

With time, the state owned structures and methods for commodity administration in production, marketing and processing did not meet the yearnings of the countries' production and their economy. In an attempt to ensure sustainability of these commodities, obtain good qualities, favourable price and protection of the environment; various bodies have come out to redress what had been wrongly carried out by the pronouncement of liberalization. The international communities came up with different antidotes including globalisation of production and liberalization of trade. The facts of globalisation of world production and liberalization of trade later became a common knowledge and the asymmetrical, dis-proportionate and unbalanced relationship between the developed and the less developed economies could no more be concealed under the pretext of equality of nations. At the nearest opportunities, there were rumblings and in some instances outright protest from the government and civil societies of the poor and the so-called developing countries at conferences and other opportunities. These new reforms had their toll on the commodities, the practitioners (exporters and importers) alike for the fact that many of the countries were ill prepared to absorb the changes.

In the wake of the liberalization regime across the West African Cocoa Community, the vast majority of smallholder producers remain in the state of flux. The once structured cooperatives gave way to a highly fragmented cocoa chain that constitutes severe implication for production capacity, quality pricing and income generation potential. Whereas the severities of the impact continuously vary from country to country, the foundation to re-inventing the robust cooperative frame work that ensures discipline and coherent trade chains, are still very much in place. Without strong farmer-driven organization, it is difficult to see how the majority of cocoa farmers in West Africa will have sufficient

leverage as a credible and effective partner for sustainability, not only in trade relations but also in the overall future of cocoa agriculture.

The governments of cocoa producing countries, the cocoa industry and international donors continue to invest in research into better, non-chemical management systems to control pests and diseases in order to satisfy the market requirements of the purchasing countries. For example, Imoudu and Igbatayo (2003) reports that concerns have been expressed by the food safety authorities of some EU countries regarding the presence of detectable levels of ochratoxin A (a mycotoxin) in some cocoa beans (although it should be noted that ochratoxin A is also present in many other foodstuffs and cocoa makes only a very small contribution to the acceptable daily intake).

With the foregoing there is need therefore to improve the production system of cocoa as an important cash crop in West Africa, which is a source of livelihood for small holder farmers, who produce the bulk of the commodity in the region. In the past couple of decades however, cocoa production has declined in sub-Sahara Africa, against the background of worsening conditions of small holder farmers, who find it difficult to afford the costs of inputs, which have assumed a steady increase in the past several years. Consequently, cocoa production has been undermined by diseases and pests, resulting in reduced output and quality of beans sold in the market. At the same time, the poor condition of farmers has constrained their ability to rehabilitate ageing plantations, with severe consequences for farm output and farmers' incomes. This trend has been exacerbated by the withdrawal of subsidies to farmers by many African governments in the wake of economic reforms, and the need to satisfy the World Trade Organisation's Standards. This study examines the Cocoa Farmers' Perception of the effect of World Trade Organisation's (WTO) Standards on Production in Ondo State, Nigeria. Specifically the study examines the age, gender, marital status, educational level, household size, land ownership, land acquisition methods, farm size, number of farm plots, farming experience, labour use types, awareness of WTO, application of WTO, knowledge of WTO, sources of inputs and sources of information among cocoa farmers. The study also explores the relationships between the variables and the perception of the farmers.

Methodology

The study was carried out in Ondo State. Ondo State is one of thirty-six (36) states carved out of the old Western state on the 3rd of February, 1976. It has an area of 14,769km^2. The state lies between longitude 4^0 30" and 6^0 00" East of the Greenwich meridian and latitude 5^0 45" and 8^0 15" North of the equator. The state has a population of 3,441,024 people (National Population Commission, 2006).

The climate of the state is tropical with two distinct seasons of rainy and dry seasons. The rainy season occurs between April and October, while the dry season begins in November and lasts till April. The August break represents a period of low rainfall in the mist of rainy season. The global climate change is however gradually impacting on the climate of the state to the extent that minor alterations are now noticeable in the rainfall regimes. Ondo state is blessed with a 12 derived sunshine hours and a moderate year round temperature of 25°C. Annual rainfall varies from 2,000mm in the Southern part of the state and 1,150mm in the Northern extremes. The adequate rainfall encourages growth of luxuriant forest vegetation in most parts of the state while there are traces of the derived savannah to the Northern extremes which offers attraction to the cattle rearers.

The geographical location of the state with the Atlantic Ocean as its southern boundary and Guinea savannah in the North makes it a veritable agricultural zone for the cultivation of diverse crops as well as propagation and utilization of forest resources. The food crops include maize, yam, cassava, plantain, coco yam as well as tree crops like cocoa, coffee, kola-nut, cashew, oil-palm, rubber, citrus (orange, lime, grapefruit, tangerine), pawpaw, pineapple and guava. Ondo state currently produces about 200,000 tonnes of cocoa constituting about two-third of the cocoa being produced in Nigeria. Cocoa is still largely exported raw (in beans).

The population for this study are cocoa farmers in Ondo State. The state is made up of eighteen (18) local government areas. Out of these 18 local government areas, four local governments which are the major producers of tree crops were purposively selected. The local governments are Odigbo, Ile-Oluji/Okeigbo, Idanre and Okitipupa local governments. Due to the lack of a definite sampling frame, a large sample size of $n \geq 30$ was used to select at least 100 farmers as the sample size.

The study generated data from primary source through the use of interviewed schedule based on structured questionnaire with the objectives of the study with a reliability coefficient of 0.89 from a split half test. The probit model was used to analyse farmers' perception of the effect of WTO standards. In instances where the dependent variable is binary (0/1), *logit* and *probit* models are most commonly used for analysis (Feder *et al*., 1985). The choice of explanatory variables (socio-economic characteristics) was based on literature on past studies and the characteristics found among the respondents. The relationship between the probability of adoption variable Pi and its determinants q is given as:

$$P_i = \beta q_i + \mu_i$$
$$P_i = 1 \text{ for } X_i \geq Z$$
$$i = 1, 2 \ldots\ldots, n$$

where q_i is a vector of explanatory variables and β is the vector of parameters. The probit model computes the maximum likelihood estimator of β given the non-linear probability distribution of the random error μ_i. The dependent variable P_i is a dichotomous variable which is 1 when a the perception is favourable and 0 if otherwise. The explanatory variables are:

X_1 = Age
X_2 = Dummy variable for gender (male = 0, other = 0)
X_3 = Dummy variable for marital status (married = 1, others = 0)
X_4 = Dummy variable for educational level (educated = 1, not educated = 0)
X_5 = Dummy variable for land ownership (land owner = 1, others = 0)
X_6 = Dummy variable for land acquisition methods (inheritance = 1 , others = 0)
X_7 = Farm size (ha)
X_8 = Number of farm plots
X_9 = Farming experience in years
X_{10} = Dummy variable for labour use types (hired = 1, others = 0)
X_{11} = Dummy variable for awareness of WTO (aware = 1, not aware = 0)
X_{12} = Dummy variable for application of WTO (application = 1, non-application = 0)
X_{13} = Knowledge of WTO (knowledge scores)
X_{14} = Dummy variable for coop as source of inputs (cooperative society = 1, others =0)
X_{15} = Dummy variable for open market as source of inputs (open market = 1, others = 0)
X_{16} = Dummy variable for input dealers as source of information (input dealers = 1, others = 0)
X_{17} = Dummy variable for friends as source of information (friends = 1, others = 0)

Results and Discussion

Table 1 presents the results of the personal characteristics of the cocoa farmers. Majority of the farmers are above 60 years of age, male, married, educated and with household size of at least 5 members. This trend of the result could be due to the prevailing socio-cultural practices and beliefs among farmers in the study area. Similarly, a great proportion of the respondents are owners of their farmland, which was acquired through inheritance, with at least 10 years of farming experience and predominantly use hired labourer.

Table 2 shows the perception of cocoa farmers to the effect of WTO standards on their production. From the list of 15 issues from which farmers expressed their perception on a 2 point scale of agree = 2 and disagree = 1, two most prominent issues are promotion of domestic support – subsidies and other programmes and raising and guaranteeing farm gate prices and farmers' income each with 91 per cent of the respondents agreed with these issues. Other issues on the table were equally high in terms of the agreement of the respondents with the effect of WTO, however about a fifth of the respondents disagree with the WTO effects in terms of greater returns on production, adequate farm hygiene and farm practices, discrimination between countries with similar conditions and changes in the production and processing practices.

Table 1. Personal characteristics of cocoa farmers.

Variables	*Percentages*
Age	
Less than or equal to 50 years	40
Above 50 years	60
Gender	
Male	97
Female	3
Marital status	
Married	94
Separated	6
Educational level	
No formal education	37
Primary education	30
Secondary education	22
Tertiary education	11
Household size	
Less than 5	15
5-10	62
Above 10	21
Ownership of farmland	
Yes	97
No	3
Method of land acquisition	
Inheritance	64
Purchase	33
Non-response	3
Farm size	
Less than 10	26
10 and above	74
Farming experience	
Less than 10 years	17
10 - 20 years	25
Above 20 years	58
Labour use type	
Hired	83
Family	10
Sharecropping	7

Table 2. Respondents perception of the effect of WTO standards on cocoa production (n = 100).

Items	*Agree*	*Disagree*
It leads to greater returns on production	85	15
It ensures adequate farm hygiene and farm practices	85	15
It has promoted market access	89	11
It has promoted domestic support - subsidies and other programmes	91	9
It has reduced trade restrictions confronting imports	88	12
It raises or guarantees farm gate prices and farmers' income	91	9
It has promoted the adoption Sanitary and Phytosanitary measures Agreement or SPS	86	14
WTO standards discriminate between countries with similar conditions	85	15
It has encouraged more scientific research on cocoa	89	11
It has encouraged the application of international standards, guidelines and recommends to cocoa production	85	15
It has led to changes in production and processing practices	85	15
It has encouraged provisions on control, inspection and approval procedures	89	11
WTO standards are too complex for application in a developing world	86	14
It has encouraged the private sector participation in the production process	89	11
Procurement of inputs has been easier with the introduction of WTO standards	88	12

From the result of the probit model (Table 3), the Chi-square value was used to determine the goodness of fit of the model. The value is statistically significant at one per cent level. The result also shows that eight variables are statistically significant at various levels. Six variables significant at 5% are Age (X_1) Land ownership (X_5), Knowledge of WTO (X_{13}), Coop as source of inputs (X_{14}), Open market as source of inputs (X_{15}), Input dealers as source of information (X_{16}), Friends as source of information (X_{17}).

Only Land acquisition methods (X_6) is significant at 10 %. It can be deduced that the older the farmers become the

Table 3. Probit regression analysis of effect of WTO's standard on cocoa production.

Variables	*Regression coefficients*	*Standard error*	*Coeff./S.E.*
Intercept	-0.60984	0.42887	-1.42198
Age	0.01630	0.00466	3.49753**
Gender	0.06460	0.12520	0.51598
Marital status	0.01354	0.04449	0.30426
Educational level	0.05658	0.04123	1.37234
Household size	-0.00060	0.00441	-0.13614
Land ownership	-0.65591	0.15842	-4.14039**
Land acquisition methods	-0.03366	0.01782	-1.88846*
Farm size	0.00171	0.00382	0.44849
Number of farm plots	0.00497	0.00503	0.98869
Farming experience	0.00253	0.00439	0.57625
Labour use types	-0.01490	0.01991	-0.74837
Awareness of WTO	-0.06748	0.08234	-0.81950
Application of WTO	0.11661	0.07285	1.60076
Knowledge of WTO	-0.31181	0.08628	3.61417**
Coop as source of inputs	-0.04773	0.02426	-1.96721
Open market as source of inputs	0.09924	0.03316	2.99304**
Input dealers as source of information	0.15347	0.03250	4.72216**
Friends as source of information	0.06813	0.02625	2.59580**
Goodness-of-Fit Chi Square	1475.817		
DF	81		
P	0.000		

* significant at $p < 0.05$
** significant at $p < 0.01$

higher the probability of adoption of WTO standards. There is a positive relationship between the knowledge of WTO standards and the probability of adopting WTO standards. Also, positive relationships exist between the use of cooperative society, open market and input dealers as sources of information and the probability of favourable perception of the WTO standards. This might be due to the fact that these information sources in order to encourage farmers to patronize them provide advisory services to the farmers on their production activities. This indicates that farmers who are members

of the cooperative society have greater probability of adopting WTO standards. This is because of high level of interaction among members of the same group is a means of disseminating innovation to the members. Farmer groups are sources of inputs to farmers and also exert peer influence on members to adopt innovation.

Conclusion

The study has clearly shown that cocoa farmers are generally aware of World Trade Organisation's Standards on production and that their perception of their effect is generally favourable on the different components covered in the study. Significant variables affecting farmers' perceptions are age, land ownership, knowledge of WTO, coop as source of inputs, open market as source of inputs. Input dealers as source of information, friends as source of information and land acquisition methods. It is therefore important that more information on the actual practice and provision of facilities to enable farmers meet up with these standards to ensure good returns from their produce.

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