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Working paper

Food Demand System, Nutrition and Agricultural Policies Nexus in Cameroon

Abstract:

This document lays out the technical details for the project titled "Food Demand System, Nutrition and Agricultural Policies Nexus in Cameroon". Its objective is to address the improvement of nutrition level through an examination of agricultural policies using food demand system analyses. The food demand system will be evaluated using the AIDSILLS model, which is the Almost Ideal Demand system model corrected to consider the Iterated Linear Least square (ILLS); the study will translate the estimated demand elasticities into changes in nutrients level following an approach developed in Huang (1996) and, lastly the nutrient compensation variation methodology, using scenarios, will help backup the nutritional changes of a given agricultural policy. Expected results extend from positive understanding of food demand; through an identification of up-beat nutrition outcome points; to the determination of confident meticulous paths that will guide agricultural policy decision in ameliorating nutritional status.

CONTEXT OF THE STUDY

Agricultural Policy implementation in Cameroon has shown a great implication of public authorities due to the fact that agriculture has always stand out as the pillar sector for the development of Cameroon. A historical approach shows that agricultural and food policies in Cameroon can be share into four major periods: the 1960-86 period that witnessed the five-year development plans period. The outcome of this period shaped a less successful period named the beginning of the economic crisis period that went from 1986 to 1990. The enormous challenges of this period where fully transferred to the New Agricultural Policy period (1990-98) characterised by profound modification of the food and agricultural sector in

Cameroon and structured the way for the fourth period themed the Agricultural Policy - New Challenges that started since 1999 till today. An examination of these four periods will capture the medulla of food and agricultural policies and consequently the implication of the state to improve them.

The days after the independence of Cameroon cannot be recall without a preview of the five-year development plans period (1960-86). It started from the independence in 1960 and was characterized by the promotion of export and industrial crops. The young state was still in search of financial means for its functioning and the previous crops brought in foreign currency for the state even though the contribution to improving living conditions in rural areas was always one of the arguments swung as justification. In this system, smallholders were considered as tools to guarantee mass production in a way that was at times forced upon them. The state, guaranteed prices and strictly controlled purchase operations of inputs and sale of agricultural export commodities such as cocoa and coffee. The policy instrument that was mostly used here was the price stabilization mechanisms. But beside this, other instruments of this policy were the creation of large development projects and the implementation of development companies that allowed the state to be present among farmers, provide them with the required technical advice and develop the necessary infrastructure to improve their lives.

Along with traditional agricultural exports, rice and wheat were promoted by the state as a substitute for imports. However, basic food crops (cassava, taro, yam, potato, maize, sorghum, groundnuts, beans, plantain, etc.) were traditionally produced without any support except specific technical advice given within the purpose of maintaining and consolidating food self-sufficiency. The results of this policy were generally described as mixed. Indeed, yields remained low despite efforts to promote agricultural research and technical supervision of producers (Bokagne, 2006). The non-achievement of targets set by the state was partially due to farmers' inadequate access to inputs and other factors of production, an inefficient management system, stagnant farm productivity, aging farms and producers and the backlog of agricultural research on food crops. At the end of this period, Cameroon started oil production, which resulted in a slowdown of investment in the agricultural sector and a drop of engagement on agricultural activities.

Starting in 1985, the period characterised as the beginning of the economic crisis that lasted for almost five years, was very difficult from unanimous views. Cameroon's economy went into recession, following the sharp decline in export earnings due to falling prices of major commodities namely cocoa and coffee coupled to falling oil revenues. The

state's main instrument for managing export sectors, ONCPB, recorded a deficit of nearly 30 billion XAF. This failure goaded a total change of policy focused on redefining the development strategy, especially the role of the state in the economic sphere. This gave rise to a liberalized environment, characterized by non-tariff barriers being gradually reduced, restructuring or privatizing / liquidating most production and commercialization enterprises, deregulating prices, and making actors, including professional and interprofessional organizations, accountable. This brought about the enactment of the Law on Freedom of Association in 1990. This law was then supplemented in 1992 by the law on common initiative groups and cooperatives.

Regarding other food sectors, falling prices of coffee and cocoa helped to reconsider their place in the household economy. The development of short-cycle crops, such as maize and vegetable products, gained importance. In addition, liberalization options highlighted the place and role that farmer organizations and the private sector were to play in managing agricultural sectors. Overall, state measures showed a strong political will to strengthen agriculture as the key driver of economic and social development, given its significant contribution to the economy (export crops alone account for 50 percent of foreign exchange earnings) and the need to maintain food self-sufficiency. Nevertheless, production potential remained underutilized and food crop shares on the exports market remained insignificant. It was therefore necessary for the government to move towards an agricultural policy adapted to the requirements of competitiveness and to adapt to external shocks on commodities. This is what justified the development and implementation of the New Agricultural Policy (NAP).

The guidelines of New Agricultural Policy (NAP) policy focused on implementing deregulation and privatization measures to streamline resources, finding more efficient management practices and privatizing the capital management of parastatal enterprises. The operating mode was to empower more farmers to diversify agricultural production, enhance production potential and existing market opportunities and protect domestic production. Five priorities were identified: Modernize the production apparatus, food safety management, promote and diversify exports, develop agricultural products processing and balance supply chains. All these measures, coupled with the devaluation of the XAF in 1994, led to the improved competitiveness of domestic products and to a significant growth recovery in certain sectors such as cotton, cocoa, banana, rubber, maize, fruits and vegetables. However, the results were below expectations for most food products because of the malfunction of internal markets, which affected domestic products' competitiveness. This

has highlighted farmers' precarious living conditions and the uncertainty of their farming systems, resulting in government tackling the "new challenges" that the agricultural sector should now strive to meet.

The new Agricultural Policy provides specific guidance for the roots and tubers sector in the general framework of the starches development policy through a National Program for the Development of Roots and Tubers (PNDRT) that was established and mobilized financing from IFAD in 2004. Since its inception in 2005 to date, this program has brought about a significant overall increase in roots and tubers production with 214 percent for cassava (from 15 tonnes / hectare to 25 tonnes), 187 percent for yam and 325 percent for potato (PNDRT, 2010). However, issues related to organizing stakeholders and markets and the low level of processing still need to be addressed to enable an impact at household level through better sharing of the added value generated and reducing transaction costs.

The Agricultural Policy and the Rural Sector Development Strategy since 1999 gave itself some objectives: Consolidating the agricultural sector as an engine of economic and social development of the country, promoting professional and inter-professional organizations for the various economic operators, as they should be the main actors in agricultural development as well as improving the population's food security through increased production and total income. The management difficulties and poor results forced in 2003, the government of Cameroon to develop a rural sector development strategy document. Thus, current agricultural policies mainly aim to reach production goals as defined in this strategy document. The official intervention of the state is organized around seven strategic pillars among which sustainably develop production and supply of agricultural products, and Manage food insecurity risks. From the previous, there appear a great involvement of public authorities to the food and agricultural sector.

PROBLEM STATEMENT

Looking at the budget of the ministry of agriculture and rural development, which went from 40129 to 72 000(2007-11) millions XAF, with an average yearly increase of 63.742 million XAF, showed renewed interest by the government in agriculture. Key donors including: the World Bank with PACA (program for the Improvement of Agricultural competitiveness) funding of nearly 30 billion XAF for the first face, the European Union, AFD through the Contracts for Debt Relief and Development Agreement (C2D), where

agriculture is chosen as the focal sector of the second C2D, IFAD, AfDB and many other donors are also contributing significantly. There have also been a construction of five research centers corresponding to the five agro ecological zones that the country presents. According to the OECD, between 1973 and 2004, multilateral aid received by Cameroon over thirty years amounted to about 600 billion XAF with food subsector having a primordial place in the multidimensional agricultural policies.

Specific agricultural policies in support of food chains in Cameroon since some years were oriented toward developing production and supply of agricultural products. The main actions of the state consisted in signing agreements with domestic and foreign operators for strategic crop intensification. It also improved product promotion and implemented incentives through the organization of small knowledge exchange groups and agricultural fairs at regional and national levels. One cannot ignore the support to modernize production through the development of mechanization as well as establishment and continuing projects and programs to support strategic sectors.

A closer look on the projects and programs, specific to food security shows that, some were commodity oriented among which the Plantain Sector Re-launch Program (CSRP), Maize Sector National Support Program (PNAFM), Roots and Tubers Development Program, Revitalizing the potato sector project, launching and relaunching rice production in the Logone Valley, etc. Other initiatives emphasized on capacity building and autonomy of farmers like the National Agricultural Extension and Agricultural Research Program (PNVRA), the project to support the integration of young farmers, the Grassfield Participatory and Decentralized Development Project (GP-DERUDEP), the Grassroots Poverty Reduction Sub-Program (SPRPB), etc. others actions were also focused on some geographically suitable areas like the Lowland development program, the Rural Development Project in the Region of Mount Mbappit, the Rumpi Area Participatory Development Project, etc. But marketing and competitiveness were not left out with the Competitiveness of Agricultural Operations Improvement Program (ACEFA), Project against the major scourges of food production, the Agricultural Value Chain Development Support Program (PADFA), and also the National Program for Food Security (NPFS).

The objectives of the NPFS were the use of natural resource base, Crop Intensification, diversification of production systems, processing and marketing of products, Monitoring, warning and crisis response mechanism, and Nutrition. Other policies in favour of nutrition included Extend of the Grain Office to the whole country; Establishment of a structure to ensure consumer goods supply (MIRAP); the “emergency aid” program with a

budget of five billion XAF, implemented from 2008 following hunger riots. It firstly ensures the production of sensitive crops (rice, maize, plantain and cassava), the rehabilitation of seed farms. This program helped equip producers of these sectors in agricultural inputs (seeds and seedlings, fertilizers and pesticides) and agricultural equipment. Also, the case for rice and maize sectors, for which an agreement was signed with Chinese investors for rice production on nearly 6000 ha in Nanga Eboko. A similar agreement was signed with Italy for a concession on 2000 ha in the northern region. Two domestic investors have been set up in the Adamawa region to each cultivate 1 000 ha of maize. All the above and many other actions by the state and its partners were carry out in favour of food production, distribution, processing, marketing and utilisation. From such engagement, one is tempted to see an investigation on nutrition outcome of the apparently providential agricultural and food sector as a waste of time but we shall take the risk.

Nutrition problems in Cameroon are important and seems not to spare any sphere of the population. According to a study carried out by UNICEF (2014), children under five are facing serious nutritional challenges that vary from stunting (with 1,163,000 children affected), wasting (207,000), overweight (232,000), etc. The low birth weight (11,000 in 2010) calls for an examination of the woman's situation which shows that in 2011, 8% of women of reproductive age present severe thinness among which 1% with short stature. A study on the metabolic risk factor for diet-related non-communicable diseases carried out in 2008 informs that 43% of both sexes present a raised blood pressure, slightly higher for men, a blood raised glucose of 10% and a raised blood cholesterol of 22% for both sexes, slightly higher for women (WHO, 2014). The same source teaches that in 2008, 42% of female and 33% of men were in an overweight (BMI≥25) situation while the obesity rate (BMI≥30) for both was 11% with 15% for women. concerning the micronutrient status of population, Stevens et al, 2013 as well as WHO(2009, 2004), state that 42% of women of reproductive age have anaemia while in 2000, there was 39% vitamin A deficiency in preschool-age children. Generally, chronic malnutrition is Widespread in Cameroon (35.8%) with 45% from the north alone; 170,000 children under 5 are suffering from acute malnutrition, 175,000 of women of childbearing age are exposed to the risk of undernourishment(UNICEF, 2014; WHO, 2009). From the above, there is emergency need for action in other to improve the nutritional status of the population.

The dilemma situation where there are great actions in favour of the production, distribution and utilization of food but unfortunately coupled to another great cohort of nutrition problem invites imperatively to address certain questions: Mainly, how can

agricultural and food policies be improved for better nutrition outcome on the population? In subsidiary ways: what are the features of the food demand system of Cameroon? The results from the previous will catalyse the answer to the next preoccupation which is: what are the nutrient composition of the various food demanded by the populations? And lastly, how vulnerable are the nutritional status of the populations to agricultural policies?

Objectives

- Evaluate the whole demand system of Cameroon as well as specific demands based on regions, age groups, income level, gender, ecological zone or other determinants of the food system.
- Address the contribution of the food demand systems to the nutritional outcome of the population as well as the specific nutritional outcomes of regions, age groups, income level, gender, ecological zones.
- Investigate the impact of agricultural policies on the nutritional outcome of the populations from a shock on determinants and the corresponding fall(increase) in the level of nutrients that may be converted in terms of body weight loss(gain) or other indicators.

METHODOLOGY

From the above, there are different methodologies that will enable to back up the objectives assigned to our study.

Method for evaluation of the food demand systems of Cameroon

The demand system will be evaluated using the AIDSILLS(Lecocq and Robin, 2015), which is the Almost Ideal Demand system(AIDS) of Deaton et Muellbauer(1980) corrected recently to consider the Iterated Linear Least square(ILLS) developed by Blundel and Robin(1999). We use the most popular AIDS model framework in our study. The AIDS model has many desirable attributes: (a) it is an arbitrary first order approximation to any demand system, (b) it satisfies the axioms of choice, (c) it aggregates over consumers, and (d) it is easy to estimate. QUAIDS is a generalized AIDS model with a quadratic term of income in the Engel curve, so that Engel curve becomes more flexible in terms of fitting (Abler 2010; Meyer, Yu and Abler 2011). Note that QUAIDS needs more samples due to more parameters to be estimated. If the sample sizes are not large enough for some African countries when only the yearly observations are available, we then can use AIDS model instead. A typical QUAIDS model (Banks et al. 1997) can be expressed as

$$W_i = \alpha_i + \sum_{j=1}^{n} y_{ij} \log p_j + \beta_i \log \frac{E_F}{a(p)} + \frac{\lambda_i}{\prod p_j^{\beta_j}} \left[\log \frac{E_F}{a(p)} \right]^2 + u_i \quad (1)$$

Where

$$\log a(p) = \alpha_0 + \sum \alpha_i \log p_i + \frac{1}{2} \sum \sum y_{ij} \log p_i \log p_j \quad (2)$$

$$\begin{aligned} b(p) &= \prod p_k^{\beta k} \\ \lambda(p) &= \sum \lambda_i \log p_i \end{aligned} \quad (3)$$

We put the following restrictions in order to satisfy the demand theory:

(1) Adding-up and homogeneity require $\sum \beta_i = \sum \lambda_i = 0$, $\sum_j y_{ij} = 0$, $\sum \alpha_i = 1$

(2) Symmetry $\gamma_{ij} = \gamma_{ji}$, for $i \neq j$

Here w_i is budget share of food i in total food expenditure, p_j is the price for food j, E_F is the total food expenditure, u_i is a random error following normal distribution.

Note that if λ_i = 0, the second order term in Equation (1) vanishes. Equation (1) degenerates to an ordinary AIDS model. Using the price index encounters the estimation difficulties due to non-linearity in parameters. The theory of the household does not provide any empirically plausible value for α_0. In practice, the Stone Price index is widely used for approximation. It is so-called LA/AIDS model, and

$$\ln(p^*) = \sum_k w_i \ln(p_i) \quad (4)$$

Since prices are never perfectly collinear, applying the Stone Price index will introduce the measurement errors of the units (Moschini,1995). The problem can be solved if the prices are scaled by the sample mean, and become a price index P_t. Thus, the Stone Price index becomes

$$\ln(P^L) = \sum_K Wi \ln(p_i) \quad (5)$$

The flexibility property developed by Poi, in a series of three articles, to show how to fit ml (Poi, 2002) and nlsur (Poi, 2008) commands respectively AIDS and QUAIDS in Stata will be used to bring out the specificities of our study. The third paper introduced the quaids command (Poi, 2012), more simplified, and giving the possibility to introduce the demographic variables as well as the computation of expenditure and price elasticities using post estimation tools. But the quaids command has two main shortcomings notably

endogeneity and the use of nonlinear techniques (nlsur) that are very important when looking at high required number of parameters to estimate. In a recent article, Lecocq and Robin (2015) presented an alternative to the quaids command, called aidsills, where the potential endogeneity of prices and total expenditure can be tested and controlled for and where the estimation is performed using linear techniques.

From Lecocq and Robin (2015) paper, aidsills is based on Gauss's aids.src program written by Robin to estimate the AIDS and QUAIDS using Blundell and Robin's (1999) iterated linear least-squares (ILLS) estimator. Although nonlinear, almost-ideal (AI) demand models, as most popular parametric demand systems, share a common property: they are conditionally linear. That is, they are linear in all the parameters conditional on a set of functions of explanatory variables and parameters. Browning and Meghir (1991) exploited this conditional linearity to construct a simple Iterated Linear Least Square estimator for the Almost Ideal demand model, and Blundell and Robin (1999) generalized it and derived the conditions for its consistency and asymptotic normality. Blundell and Robin (1999) also showed how to account for endogeneity of total expenditure by using the instrumental-variable (IV) and augmented regression techniques of Hausman (1978) and Holly and Sargan (1982). It is a recurrent problem that keep coming up in demand analysis and that can come from using expenditure or unit value in the analysis. Most studies usually go for unit value endogeneity or expenditure endogeneity but generally not both as we will in this work.

Method of Assessing the contribution of food demand system to nutritional status

Given the estimated demand elasticities, we can translate them into changes in the total level of nutrients available for consumption by following the same approach developed in Huang (1996). To explore the linkage of the demand model to nutrient availability, let ki be the quantity of the k^{th} nutrient in a total of k nutrients obtained from a unit of the i^{th} food. The total quantity of that nutrient, say φ_k, obtained from various foods may be expressed as:

$$\varphi_k = \sum_i a_{ki} q_i \tag{6}$$

This is what Lancaster called the «consumption technology» of consumer behaviour. Suppose a household consumes n foods with a predetermined total food expenditure, *m*, the demand for i^{th} food quantity q_i can be expressed as:

$$q_i = f(p_1, ..., p_n, m)^{\text{th}} \tag{7}$$

Furthermore, the demand system may be expressed by applying the first-order differential Approximation of the conceptual demand relationships as:

$$dqi / qi = \sum_j e_{ij}(dpj / pj) + \eta_i(dm / m) \quad (8)$$

where e_{ij} is a price elasticity of the i[th] commodity, with respect to a price change of the j[th] commodity, and η_i is expenditure (or income) elasticity showing the effect of the i quantity in response to a change in per capita expenditure. This demand model is a general approximation of conceptual demand relationships relating to some small change from any given point on the n-commodity demand surface.

By differentiating φ_k of equation 10 with respect to price and expenditure and then by incorporating equation 12, as shown in Huang (1996), relative changes in nutrient consumption can be expressed as a function of relative changes in prices and expenditure:

$$d\varphi_k / \varphi_k = \sum_j (\sum_i e_{ij} a_{ki} q_i / \varphi_k)(dp_j / p_j) + (\sum_i \eta_i a_{ki} q_i / \varphi_k)(dm / m) \quad (9)$$

$$= \sum_j \pi_{kj}(dp_j / p_j) + \rho_k(dm / m)$$

Where $\pi_{kj} = \pi_{kj} = \sum_i e_{ij}\alpha_{ki} q_i / \varphi_k$ is a price elasticity measure relating the effect of the j[th] food price on the availability of the k[th] nutrient, $p_k = \sum_i \eta_i a_{ki} q_i / \varphi_k$ is an income elasticity measure relating the effect of income on the availability of that nutrient.

Obviously, the measurement of π_{kj} represents the weighted average of all own- and cross price elasticities (e_{ij}'s) in response to the j[th] price with each weight expressed as the share of each food's contribution to the k[th] nutrient ($\alpha_{ki} q_i / \varphi_k$'s). Similarly, the measurement of p, represents the weighted average of all income elasticities (η_i's) with each weight again expressed as the share of each food's contribution to the k[th] nutrient.

In measuring the effect of food stamp benefits (as part of total food expenditure) on nutrient consumption, we need information on the relationship between food stamp benefits and food expenditure. Letting variable s be the food stamp benefits, the elasticity of food expenditure with respect to food stamp benefits can be expressed as $(dm / m) / (ds / s)$. Thus, the nutrient elasticity with respect to food stamp benefits can then be derived as:

$$(d\varphi_k / \varphi_k) / (ds / s) = [(d\varphi_k / \varphi_k) / (dm / m)][(dm / m) / (ds / s)] \quad (10)$$

$$= \rho_k[(dm / m) / (ds / s)]$$

Impact of agricultural policies on the nutritional status method

This section describes the Huang (1996) and Zheng and Henneberry (2012) method used to determine nutritional changes facing Cameroonian households as feedback of a given agricultural policy. Government policies to improve nutrition and food security are abundant and diverse. Through programs and projects, it targets the amelioration of production of various foods, their better distribution and competiveness through the organisation of markets, better management through capacity building initiatives, etc. Based on the previous, it will be difficult to impute the nutritional mutations of the population to a particular food program alone nor to sectorial fussy food programs. Thus, in other to better address the impact of agricultural policies on the nutritional status of the population, we will precede through scenarios of changes in the main determinants of food demand notably prices and expenditures.

We follow Huang (1996) and Zheng and Henneberry (2012) method to assess and to quantify the short-term effects from price increments in various food categories on the consumption of nutrients using the nutrient elasticities. The assumption of weak homothetic separability allows relative changes in consumer nutrient intake to be expressed as functions of the relative changes in food prices and per capita food expenditure.

$$\Delta \ln \xi_\ell = \sum_i \pi_{\ell i} \Delta \ln P_i + \eta_\ell \Delta \ln y$$

Where $\Delta \ln \xi_\ell = \Delta \ln \xi_\ell / \xi_\ell$ stands for the change in per capita consumed quantities of nutrient ℓ, ξ_ℓ is the daily amount of nutrient consumed by one person; $\Delta \ln P_i = \Delta P_i / P_i$ is the relative change in the i composite food commodity price; $\Delta \ln y = \Delta y / y$ is the percentage change in food per capita expenditure. Under this structure, a change in the i food price category or the per capita expenditure will result in nutrients' intake variations from changes in food quantities consumed.

The use of scenarios will help to assess the impact of agricultural policies on nutrition level. Prices increase (decrease) will be arbitrary as well as expenditure change too. In addition, quintile analysis will be exploited to better motivate the impact of income policies on nutrition level. Changes in prices may vary from one group of commodities to another or still the same for all the groups. An attempt will be made to view changes induce by agricultural policies showing differences in spatial nutritional needs of the population. For example, we will be able to appreciate the impact of a 3% increase in the price of cereals on the nutrition level of children of less than 5 years old in the north of Cameroon.

DATA ISSUES

The main barrier for conducting studies on food demand in Africa in general and Cameroon in particular is data availability. A good demand system requires information on household income or expenditure, quantity of consumption, price and demographical information. Since 1996, Cameroon has conducted three data collection on households. The survey of 1996 was not elaborate enough to consider all the characteristics of the population. This insufficiency was corrected in 2001 with a new survey that was latter updated in 2007 with real emphases on the aspects of poverty and inequality within the population. Even though there is a fourth study presently going on, we will rely on the third national survey collection of 2007 for this study.

Since our survey data presents consumed quantities and unit value, we will be using the latter as prices and the product of unit value and quantities consumed will generate expenditures that will be used as income. Let us recall that the use of unit value and expenditure in place of price and income generate an endogeneity problem as explained in the methodology, which also point out that this problem has been consider in the choice of the AIDSILLS instead of the AIDS model. Since ECAM 3 is a household survey, it has enough information on the demography that will enable to compare the demand of different regions of the country, demand per income stratum, and other geographical and social specifications that can allow to stipulate specific recommendation to help the nutrition status. The AIDS model gives the possibility to bring in socio demographic data. Since there is no constraint, all prices and income will be in FCFA.

Section 14 of the household survey database gives the nutrient content of each food and the estimation of the demand system show the elasticity among the commodities. From the previous, we will compute the data on nutrients for each of the demand for food per specification.

EMPIRICAL EXECUTION

The various steps to run this work are as follows:

- Acquisition of the 2007 household survey database;
- identification and processing of variables of interest;
- mobilization of appropriate hand-out and software;
- estimation of the general and specific food demands;
- Deduce the nutrient compositions of food stuffs;

- Simulation of the nutritional value of the various demands based on the socio-demographics determinant variables selected;
- Run the various the various scenarios based on price and income changes;
- Correlate the changes in nutrition to the previous agricultural policies;
- Policy recommendations from the above.

AWAITED RESULTS

At the end of this study, the policy maker will be able take precise action on the demand system that will improve the nutritional status of a well cited group of consumers. Specifically:

- The estimation will give precise information on the food demand of a region, of the children of that region, on the female children of that region, on the female poor children of that region, etc.;
- Nutritional value of the various demand systems will help to know the main sources of nutrition of each region, that of specific consumer groups of the region as well as the substitution mechanisms of different income groups to keep up to nutritional outcome;
- Impact of agricultural policies on the nutrition level of the population information will identify the importance of specific food groups per region(or other determinant), on which the nutritional outcome of the population is highly sensitive.

WRITE-UPS

- ✓ Give some side elements that should be addressed in the agricultural and food demand policy making and implementation in favour of nutrition in Cameroon.

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