

Predominance of Imported Agri-Food Products in Cotonou Supermarkets: Evidence from Price and Elasticity Demand

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Abstract— This study proposes to carry out a critical and economic analysis of agrifood products supply in cotonou city, with a target constituted by supermarket and groceries. In order to understand what justifies the predominance of agrifood products in foreign character compared to the "same" locally produced, we used experimental investigation techniques based on a questionnaire and calculated the coefficient of elasticity of the demand relative to the price of imported agrifood products and those manufactured locally using econometric formula. The results reveal that local supply would be much more preferred but is lower than local demand, also local do not bring all the necessary commercial packaging for conditioning. Additionally it turned out that the 1% increase in the price of agri-food products sold in the companies surveyed, compared to the market price for the same products, will lead to an increase in demand of 0.4% for products. imports and 0.12% for domestically produced products. we understand that these products can be considered as luxury goods by their potential consumers and therefore they are intended for a higher class of people. The findings supports the economic theory an increase in price of luxury goods doesn't lead to the increase of the demand of those goods

Index Terms— agri-food products, imports, predominance, supermarkets, critical analysis

I. INTRODUCTION

The strengthening of global economic integration has had a wide range of economic, cultural and ecological repercussions in Africa, where the state of play in food and demography shows significant differences [1]. The problem of food today is intimately linked to the planet's ability to feed an ever-increasing population; this is why some specialists mention a "race" between demography and food resources [2]. Countries are confronted with the development of export agri-food products to the detriment of food crops, which are necessary for the population.

In fact, in the old days, in Benin, the city of Cotonou obtained a large quantity of agri-food products from local producers and could easily provide a complete list of products that the population needed, what means that the city could import just the surplus [3]. However, today's economic

developments have had visible effects on private initiative in the area of production and local consumption of agri-food products. These effects cause local food producers several problem for the enhancement of their products. This situation in the country leads us to the question that we propose to answer during this study, which is what justifies the predominance of agri-food products in foreign character compared to the "same" products manufactured locally in the near future. all supermarkets and food of the city of Cotonou.

The general objective is to carry out a critical and economic analysis with the agri-food stores, in order to separate our opinion and to post our position. Face to this alternative, we emitted questionnaires constituted of the following hypotheses: the Low local production would push sellers (distributors) to import other similar products, the Local production would not bring together all the commercial packaging, the local products would be more expensive than locally produced ones and finally the Lack of information from local consumers would be the problem.

This paper consists of six sections. First section presented the introduction of the paper. The next section reviews the literature pertaining to the subject. It focuses on the theoretical foundations of production and consumption, food products and globalization. The third section proposes the Research Methodology. Fourth section presents the expected results on the critical and economic analyzes of the data collected from our target. Fifth section concludes the research and the sixth section presents the limitation of study.

II. LITERATURE REVIEW

A. Agri-food business, supermarket and groceries store in Cotonou

Agri-food comes from the term agriculture, which encompasses several definitions. It means either a human activity consisting in producing foodstuffs (plants and animals) and certain raw materials (cottons, natural rubber, flax, etc.) that are useful to man [4]. agribusiness means an industry, a set of activities relating to food products, from the agricultural sector to the retail trade, which today comprises a large industrial sector of food production. It is also about the transformation by the food industry of agricultural products; the prefix "agro" derives from the scholarly element (from the Greek agros "fields") which means "from agriculture" [4]. It has today considerably extended its hold, at the expense of the traditional sector and the retail trade, by the marketing in the mass market of finished products, prepared meals, etc.

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Urbanization and the diversification of human activities have led to an increase in disposable income and the double desire to devote the minimum amount of money to the purchase of food and the minimum time to prepare it [5]. This shows that lower-income households spend more on food expenditures, while higher incomes pay more attention to quality and dietary requirements. Currently, the top one hundred companies in the agri-food industry represent one quarter of the total estimated production of this activity. They are European in majority; there are as many in the United States and a dozen in Japan, and China. This is therefore a sector that mainly concerns the industrialized and rich countries, where small and medium-sized enterprises still survive, sometimes unsuccessfully. As world agricultural production is expanding, the major problem remains the distribution of food resources, to which organizations such as the United Nations Food and Agriculture Organization (FAO) are working for [6].

B. Agrifood Supply in Cotonou

Over the last three decades, Africa's food production has outpaced that of the population, because in the long term the rate of capital growth is equal to the population growth rate, plus an related to technical progress [7]. Nevertheless, the evolutions are again very contrasted from one hemisphere to another or from one continent to another. In Benin, as in most of the developing countries (PVD), there are significant differences between the demographics and the diet.

Benin is predominantly an agricultural country. About 55% of the economically active population was engaged in the agricultural sector in 2000, which accounted for 38% of GDP that year. Small, independent farmers produce 90% of agricultural output, but only about 17% of the total area is cultivated, much of it in the form of collective farms since 1975 [7]. The agricultural sector is plagued by a lack of infrastructure, poor utilization of rural credit, and inefficient and insufficient use of fertilizer, insecticides, and seeds. Smuggling of crops for export or the domestic black market results in understating of crop figures. An estimated 20% of output is informally traded with Nigeria. The main food crops are manioc, yams, corn, sorghum, beans, rice, sweet potatoes, papaws, guavas, bananas, and coconuts. Production estimates for the main food crops for 1999 were yams, 1,771,000 tons; manioc, 2,377,000 tons; corn, 823,000 tons; sorghum, 154,000 tons; rice, 36,000 tons; dry beans, 94,000 tons; sweet potatoes, 67,000 tons; and millet, 34,000 tons. Benin is supposed to be self-sufficient in food crops, given favorable weather conditions [7]. Palm products were long Benin's principal export crop, but in recent years cotton has increased in importance, with production increasing tenfold since 1981. Despite improved production, however, cotton storage and ginning capacity are still insufficient. Peanut production has also recently become important; since 1999, 121,000 tons of shelled groundnuts were produced from 145,000 hectares (359,000 acres). These statistics are distorted by the smuggling of cash crops to and from Nigeria, depending on which country's prices are more attractive... Fishing, mostly in freshwater, provides a significant portion of the diet. Wood production is 72.2 million m³, mainly used as domestic fuel.

In Benin and more precisely in the south of the country in Cotonou, it is not uncommon to see on the long roads, shops called "supermarket" and grocery where a diversity of individuals who seek to source various articles [8]. Thus, there are supermarkets with an area of between 120 and 400 m² "for example the Casino brand", then supermarkets with a sales area of between 400 and 2,500 m² and finally hypermarkets (whose surface can go up to more than 2500 m²), these self-service stores generally include all food products for everyday consumption presented on shelves (meat, fish, fresh fruits and vegetables, frozen foods, canned goods, groceries, wines and spirits) as well as specialized departments (butchers, delicatessens, creamery, bakery) where sellers serve the customers, widening even more the range of products offered outside the food that its sales area is high and offering an assortment of 3000 to 5000 references (e.g. inter market); the largest stores offer very low prices while presenting a complete assortment of 25000 to 40000 references and putting a vast car park at the disposal of their customers (Carrefour) and with very fast rotation [8]. The buyer can find at moderate prices products that can be preserved for a long time thanks to the refrigeration, and especially to the freezing. There are also non-perishable goods, such as stationery, pharmacy cosmetics, household products, household appliances and sometimes books, toys, records, and even clothing. There are also self-service shops specializing in DIY, gardening, and household science.

III. RESEARCH METHODOLOGY

A. Investigation

Structured questionnaire was used for data collection and it consists of 24 questions. The questionnaire was designed to investigate about the reasons that cause the predominance of imported products in the supermarket and understand why some companies do not sell some local food products.

We target few enterprises (Large Grocery and / or "supermarkets") in Cotonou city. That the questionnaire has been sent to. Questionnaires were distributed via email; and personally (two copies for each enterprise). To assure the participants quick and correct response; the questionnaire copies were sent directly to the managers. The total numbers of received questionnaire were 50, but only 30 answers to the questionnaire.

B. Calculation of the elasticity coefficient of demand

This analysis enable us to determine how the price level influences the demand for the products (local, imported) under study. To achieve this We choose a large gamme of 30 products imported, and 30 locales product (cooking oil,sausages,milk, yoghurt, butter, rice,...and so on...). Represented by Ni. The sensitivity of the demand will be expressed by means of the coefficient of elasticity « ϵ » which can be defined by the following formula [9]:

$$e = \frac{\frac{V_1 - V_0}{V_0}}{\frac{P_1 - P_0}{P_0}}$$

- e : price elasticity of demand
 - V_0 : sales volume at the price P_0
 - V_1 : sales volume at the price P_1
 - P_0 : initial price (price before variation "market price")
 - P_1 : modified price
- Under the assumption that if:
- $e < -1$: Very elastic demand (ie a price change leads to a

more than proportional change in sales)

$e = -1$: Elastic demand

$e > -1$: (between 0 and -1) inelastic demand

$e = 0$: Demand perfectly inelastic (demand is constant regardless of price) Note that « e » is generally negative, and then an increase in prices normally leads to a decrease in demand and vice versa.

IV. RESULTS AND DISCUSSIONS

A. Opinion of respondents regarding some unsold local products

Following the research and investigation of some Supermarket and grocery in Benin, it has been noted that:

Table (1): Classification of respondents by refusal to sell certain products offered

| Names of Entreprises | specifics | Ignorance of the place of production | Packaging problem | Bad quality | Customer demand | Benefits | High pricing |
|----------------------|--------------|--------------------------------------|-------------------|-------------|-----------------|----------|--------------|
| Benin Marche | Super Market | no | yes | yes | yes | no | no |
| Erevan | Super Market | no | yes | no | yes | no | no |
| Etoile Rouge | Super Market | no | no | no | no | yes | no |
| Coco shop | grocery | np | yes | yes | yes | yes | no |
| Lucide . | Super Market | no | no | no | yes | no | no |
| Glory shop | grocery | no | yes | yes | yes | yes | no |
| LA GRANGE | Super Market | no | yes | no | yes | yes | no |
| LaFourmie shop | grocery | no | yes | yes | yes | yes | no |
| Chez LEA shop | grocery | no | yes | no | yes | yes | no |
| La Baguette | grocery | no | | no | yes | | no |
| Kiwi shop and Bar | grocery | no | no | no | yes | no | no |
| Petit-a-petit | Super market | no | no | no | yes | no | no |
| St Danielle | Super market | no | yes | no | no | no | no |
| KIRIKOU shop | grocery | no | no | no | no | no | no |
| Supermarcher du PONT | Super market | no | yes | no | yes | no | no |

| | | | | | | | |
|-------------|--------------|----|--|----|-----|----|----|
| Marina shop | Super market | no | | no | yes | no | no |
|-------------|--------------|----|--|----|-----|----|----|

Summary table(2)

| Reasons | Enterprises | |
|--------------------------------------|--------------|-----------|
| | Super Market | Grocery |
| | Effectifs | Effectifs |
| Ignorance of the place of production | 0 | 0 |
| Lack of information | 0 | 0 |
| Bad quality | 0 | 4 |
| Packaging problem | 2 | 6 |
| Customer demand | 2 | 10 |
| Benefit | 2 | 4 |
| High pricing | 0 | 0 |
| Total | 6 | 24 |

Concerning the Foods surveyed, the lack of certain local products on the menus of its agri-food products, is therefore due to the problem of packaging and in addition this product can not bring anything to the turnover since its potential customers have never made any indignation by this lack. As for the other supermarkets, most of them rely on the fact that

this product is not solicited by their usual consumers, and then the problem of packaging is added and in the end, they consider that some local products do not are not of good quality in their opinion, and that their customers do not request.

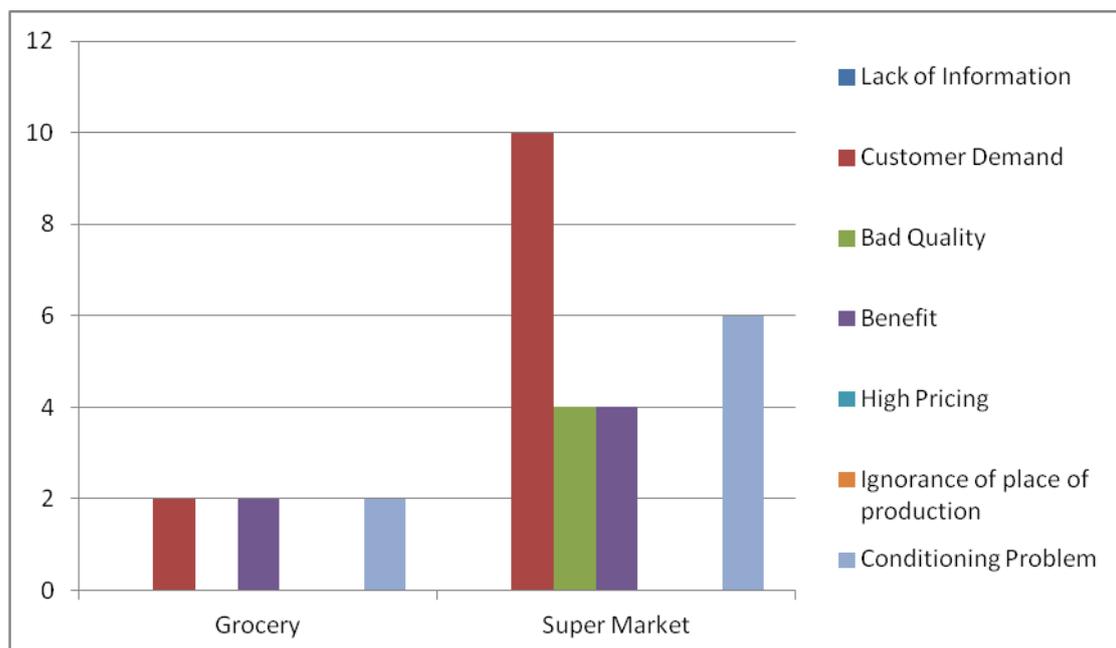


Fig (1): Summary of respondents by refusal to sell certain products offered

After carefully examining the tables and the chart, we manage to deduce from the observations that the economic operators surveyed can only substitute their imports:

- If there is a significant improvement in the quality of local products,
- If there is an improvement in packaging, both for supermarkets and for food,

For some feeds sourcing local products, suppliers would have to lower their prices or adjust their prices. It should be noted that for others, local products are almost rare or almost non-existent in supermarkets and foodstuffs in order to substitute import for them; from where it will be necessary that its products are really seen in the commercial circuit and at good prices.

A. determination of the elasticity coefficient of demand

As we said above, the companies that make up our target, operate in a competitive environment, where price is a reference point. This is how they are positioned to position themselves against their main competitors by choosing to sell their products at the same price, a little more expensive, or a little cheaper or opt for the market price. This leads us to the conclusion that the price level has an influence on the demand for the products under study. To do this, we will proceed to the calculation of the elasticity coefficient of demand (in terms of percentage) in relation to the price of imported

agri-food products and those manufactured locally. To achieve this, we took P_0 for 100% of the market price for all products (imported and local) and P_1 90% of the same price for all products, a negative variation of 10%. Ni represents the products in study. The following table will allow us to calculate this coefficient in relation to the price of the products in study.

Table (3): Agri-Food Products demand in Cotonou city

| Ni | Sales volume of imported products | | | Volume of sales of local products | | |
|----|-----------------------------------|--------------|--------------------|-----------------------------------|--------------|--------------------|
| | V_{oi} (%) | V_{li} (%) | $ \Delta V_i $ (%) | V_{ol} (%) | V_{ll} (%) | $ \Delta V_l $ (%) |
| 01 | 80 | 87 | 7 | 90 | 100 | 10 |
| 02 | 89 | 85 | 4 | 95 | 100 | 5 |
| 03 | 81 | 95 | 14 | 85 | 95 | 10 |
| 04 | 82 | 85 | 3 | 80 | 100 | 20 |
| 05 | 84 | 87 | 3 | 80 | 95 | 15 |
| 06 | 83 | 95 | 12 | 85 | 100 | 15 |
| 07 | 85 | 95 | 10 | 95 | 95 | 0 |
| 08 | 80 | 75 | 15 | 85 | 100 | 15 |
| 09 | 78 | 80 | 2 | 85 | 95 | 10 |
| 10 | 87 | 80 | 3 | 90 | 100 | 10 |
| 11 | 80 | 88 | 8 | 90 | 100 | 10 |
| 12 | 70 | 90 | 20 | 95 | 95 | 0 |
| 13 | 88 | 80 | 8 | 85 | 95 | 10 |
| 14 | 90 | 85 | 5 | 85 | 100 | 15 |
| 15 | 88 | 80 | 8 | 80 | 100 | 20 |
| 16 | 80 | 87 | 7 | 90 | 100 | 10 |

| | | | | | | |
|---------|------|------|-----|------|------|-----|
| 17 | 89 | 85 | 4 | 95 | 100 | 5 |
| 18 | 81 | 95 | 14 | 85 | 95 | 10 |
| 19 | 82 | 85 | 3 | 80 | 100 | 20 |
| 20 | 84 | 87 | 3 | 80 | 95 | 15 |
| 21 | 83 | 95 | 12 | 85 | 100 | 15 |
| 22 | 85 | 95 | 10 | 95 | 95 | 0 |
| 23 | 80 | 75 | 15 | 85 | 100 | 15 |
| 24 | 78 | 80 | 2 | 85 | 95 | 10 |
| 25 | 87 | 80 | 3 | 90 | 100 | 10 |
| 26 | 80 | 88 | 8 | 90 | 100 | 10 |
| 27 | 70 | 90 | 20 | 95 | 95 | 0 |
| 28 | 88 | 80 | 8 | 85 | 95 | 10 |
| 29 | 90 | 85 | 5 | 85 | 100 | 15 |
| 30 | 88 | 80 | 8 | 80 | 100 | 20 |
| Total | 2490 | 2550 | 240 | 1305 | 1470 | 330 |
| Average | 83 | 85 | 8 | 87 | 98 | 11 |

So we have :

- **For the imported products :**

$$e = \frac{\frac{V_1 - V_0}{V_0}}{\frac{P_1 - P_0}{P_0}} \quad \text{From where} \quad e = \frac{\frac{85 - 83}{83}}{\frac{90 - 100}{100}} = \frac{0,02}{-0,1} = -0,2\%$$

This situation is such that the 10% drop in market price for imported agri-food products leads to a decrease in demand of 2% of these same products. Given that is $e > -1$ (between 0 and -1), therefore the demand for these agro-food products is

not elastic; and conversely, if the price of these products increases by 1% of the market price, their demand will also increase the volume of sales by 0.04%.

- **For local products:**

$$e = \frac{\frac{V_1 - V_0}{V_0}}{\frac{P_1 - P_0}{P_0}} \quad \text{From where} \quad e = \frac{\frac{98 - 87}{87}}{\frac{90 - 100}{100}} = \frac{0,12}{-0,1} = -1,2\%$$

We note from this result that the decrease of the price of 10% of the market price for local agri-food products leads to a decrease in their demand of 1.2% and therefore the opposite situation is such that: an increase in their price of 1 %

compared to the market price, will also cause a 0.12% increase in sales.

Summary table(4)

| | Agri-food products | |
|------------------------------------|--------------------|----------------|
| | Imported products | Local products |
| Volume of sales at the price P_0 | 83 | 87 |
| Volume of sales at the price P_1 | 85 | 98 |
| Initial price (P_0) | 100 | 100 |
| Modified price (P_1) | 90 | 90 |
| Coefficient (e) | -0,2 | -1,2 |

Based on the above results, we find that the 1% price increase for all products, results in an increase in demand of 0.4% for imported products and 0.12% for domestically produced products.

V. CONCLUSION

Population diets are defined primarily by its composition ,therefore depend on local production, the standard of living of the inhabitants, the price of food products, and the eating habits of a region or community,country. The results presented above confirm the extent to which globalization has an influence on our consumption patterns in the city of Cotonou; thus if supermarkets and / or food supplies fill their shelves in imported products, for reasons that their consumers do not complain about the lack of some local products however considered as commodities, it is a false assertion all the more because in principle they must first seek to display them because the law of outlet stipulates that "the offer creates its own demand". Also the fact that consumers are not interested for most of them, the way in which these imported products were made, hence the long-term fear of their disastrous effects to the body comparing to if the we consume local products which we are supposed to control the origins, this is another of the effects of globalization on consumption

...

Finally, we believe that local producers must take into account certain parameters as outlined in this work, in order to enhance their production and this by focusing on, taking into account the external appearance by mean the packaging for better conditioning of the product, also the quantity in order to to be able to balance local supply and local demand.

VI. Limitation of Study

It should be noted that this study has several limitations. The data for the study were collected from various supermarket and grocery in different area of only in Cotonou city, it is not possible to make specific conclusions about the

current state of agri-food market in Benin. Also, due to the fact that we encountered some problems related to the level of education of staff and owners in most of the city's supplies, Consequently, this work is not the pretense of completeness and perfection in trying to present a formula or equation model between the supply and demand of agri-food products in Benin, only gaps can be found there.

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