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# Barriers to the Use of Locally Produced Food Products in Ghanaian Restaurants: Opportunities for Investments

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***Authors' contributions***

*This work was carried out in collaboration between all authors. Author RO designed the study, carried out data collection, analysis and interpretation and wrote the first draft of the manuscript. Authors GE and GR participated in the design of the study and construction of the questionnaire. All authors read and approved the final manuscript.*

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## ABSTRACT

**Aims:** To examine the extent to which locally produced rice, chicken, cooking oils and tomato paste are used in Ghana's restaurants, to identify barriers that inhibit their use and to possibly identify investment opportunities that may increase their production, utilization and consumption.
**Methodology:** Data was obtained from one representative each from 90 restaurants in Accra using semi-structured questionnaires. Basically the questions focused on the various dishes offered, source of raw materials and barriers to the use of locally produced food products in restaurants. The data was complemented by in-depth interviews with some restaurant representatives and secondary data sources.
**Results:** Rice dishes were the most popular in restaurants with fried rice alone being served in 92.2% of the restaurants. In most cases, rice dishes were accompanied by fried chicken and various sauces and side dishes prepared with oils and tomato paste. Findings showed that rice, chicken, cooking oils, and tomato pastes, which were used in the preparation of the dishes, are

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produced in Ghana. However, the restaurant operators preferably used imported versions of these products: imported rice (79 restaurants), imported chicken (80 restaurants), imported cooking oil (71 restaurants) and imported tomato pastes (53 restaurants). Barriers to the use of the locally produced products included poor cooking or functional characteristics, low quality in general, unavailability, high cost, low sensory appeal and ineffective marketing strategies.

**Conclusion:** Restaurants contribute a great deal to the urban food needs, employment creation, and economic development and are most importantly a good marketing avenue for locally produced food products. Therefore, interventions are required in the form of investments to boost local food production, improve product quality and increase product availability. Clearly, some investments are on-going but it is important to integrate the concerns of users of the products so as to provide the desired product quality.

*Keywords: Restaurants, rice, chicken, cooking oil, tomato paste, locally produced products, investments opportunities, Ghana.*

## 1. INTRODUCTION

The services sector is the largest sector of Ghana's economy constituting 50.6%. The distribution of the services sector by non-oil GDP however shows the service sector accounting for a bigger share of 53.9% of the economy [1]. The service sector non-oil GDP share since 2010 has averaged 52.9% with an overall growth rate which is almost 10% in the last four years. The implication is that, Ghana's potential high growth economic sector is the service sector. Development plans and policies for growth and job creation need therefore to examine the opportunities analytically and formulate necessary strategies.

A key component of the service sector is the hotel and restaurant component. It is exhibiting some of the highest growth rates with 13% in 2012 and 13.7% in 2013 [1]. Restaurants in particular are important for tourism development hence the Ghana Tourism Authority (GTA) classifies them as tourism enterprises, which it licenses and regulates. The tourism sector is highly labour intensive and provides vital employment for people with a wide range of skills, as well as the unskilled [2]. Restaurant establishments in particular make high demand for professionals, semi-professionals, skilled, semi-skilled and even the unskilled making these enterprises very important for poverty reduction. The tourism enterprises create both direct and indirect jobs where it is estimated that any direct employment undertaken will result in the creation of 2.5 indirect and induced employments [3]. For example, in 2000, 20,388 direct and 50,971 indirect jobs were created but these figures increased to 65,895 and 164,737 direct jobs and indirect jobs respectively in 2010. These figures naturally do not include jobs in the informal sector which often harbours multiples of jobs in the formal sector.

The tourism sector has also contributed to the development of Ghana's economy in several ways. Since 1985 when tourism was categorised as a priority sector in the Ghana Investment Code (PNDC Law 116, 1985) there had been a steady rise of tourism arrivals and receipts. For example, tourism arrivals rose from 92,000 in 1985 to 827,501 in 2011, with accompanying rise in receipts of US$ 20.2 million and US$ 1,634.3 million respectively [3]. The tourism sector also makes fiscal contribution to Ghana's economy whereby in 2005, a total of Gh₵4.4 million taxes (P.A.Y.E + Corporate + Self-employment taxes) were paid by hotel and restaurants while in 2011 the taxes increased to Gh₵18.6 million (roughly $6.2 million). In addition to its direct contributions to the Ghanaian economy, tourism enterprises contribute to economic development via other sectors such as agriculture and industry. One sector that benefits from tourism enterprises such as hotels and restaurants is the food industry.

Food plays a critical role in tourism development. The major motivations for international tourists in particular to visit a specific destination are the desire to seek new food and dining experiences [4]. Many tourists also need a certain degree of familiarity, and therefore their 'core' food preference may still be dominant, especially in the case of Western tourists visiting destinations in developing countries such as Ghana where some foods and codes of etiquette are unfamiliar to them [5,6]. Furthermore, most tourists are likely to eat traditional foods during their visits but would want to do so under hygienic conditions [6,7]. However, the safety of most traditional foods, including street foods, has been found to be substandard, mainly because the eateries are poorly regulated and the key actors have inadequate education in food safety and hygienic food handling practices [8,9,10,11]. In contrast, restaurants in Ghana are formal enterprises that are often licensed and issued with a Food Hygiene Permit only after the Authorities are convinced that they have satisfied food safety and hygiene requirements. Thus, restaurants in Ghana may be better placed to provide the desired newness, familiarity and a blend of the two (global-local) as well as safe and hygienic foods that most tourists desire.

These restaurants do not only meet the food needs of tourists but they also provide food for urban dwellers whose dietary and consumption patterns have shifted towards out-of-home foods due to urbanisation, rapid economic development, income improvements and increasing numbers of time-constrained consumers [12]. The urban population is currently more than the rural population as it constitutes 50.9% of the total population [13]. In urban Ghana, ready-to-eat, out-of-home food is mainly obtained from informal street food vendors and traditional eateries (*chop bars*), along with formal outlets, such as restaurants. Ghana's informal ready-to-eat food sector has been extensively researched [14,15,16] but the same cannot be said of the formal sector, the restaurants. Therefore, this paper specifically focuses on formal restaurants.

Restaurants are becoming increasingly prevalent in Ghana with the number of licensed restaurants increasing from 94 in 1995 to 340 in 2010, according to the Ghana Tourism Authority. Although information is lacking on the various kinds of dishes these restaurants offer, over the past two decades, any visitor who entered some of these restaurants could see on offer various *rice* dishes often accompanied by meat and *poultry* (chicken) products and sauces and other side dishes prepared with *tomato paste* and *vegetable cooking oils*. Unfortunately however, Ghana is currently not self-sufficient in rice, livestock and poultry, cooking oils and tomato production although the country has a high comparative advantage for these products. For example, rice consumption level is estimated at 660,000 metric tonnes while domestic production in 2013 was 405,048 metric tonnes with an estimated self-sufficiency at 60%. Therefore, to meet the domestic demands, the country imports large quantity of these products, which has become a threat to national economic stability. It is estimated that in total, Ghana spends as much as US$1.5 billion importing these foods: rice ($374 million), wheat ($226.7 million), fish ($283.3 million), poultry ($169.2 million), cooking oils ($127 million, tomato products ($112.1 million) [17].

Despite the low levels of domestic production, in most cases, farmers, processors and traders of products such as rice, poultry, vegetable cooking oils and tomato paste are not able to sell even the insufficient amount of products that are produced locally due to buyers' preferences for imported versions [18,19]. For example, just about 20 percent of locally produced rice is consumed in urban areas due to consumer preferences for long grain aromatic rice, which is principally imported from Vietnam and Thailand [20]. This implies that any interventions aimed at increasing local production of these products also need to implement strategies that will increase their utilization and consumption locally. This paper argues that restaurants are potential users of locally produced food products and that by understanding the barriers that inhibit the use of these products it may be possible to identify investment opportunities that may eliminate the barriers and thus increase the utilization of local food products in restaurants and other foodservice enterprises.

### 1.1 Rice, Chicken, Cooking Oils and Tomato Paste Production and Consumption in Ghana

Rice is a staple food for nearly one half of the world's population [21]. In Ghana it has become the second most important staple, next to maize [22] and serves as an important convenience food for urban consumers [23]. Per capita consumption of rice in 2013 was about 35 kg with urban areas accounting for about 76 percent of total rice consumption [24]. In urban areas, rice is preferred over other staples as it is easy and convenient to prepare and it allows for a wide variety of dishes. Ghana's rice production satisfies around 30-40 percent of demand with a corresponding average rice import bill of US$ 450 million annually [25].

The massive dependency on rice imports has always been a concern for Ghana government especially after food prices soared in 2008. The increasing rice imports have been attributed to the changing preferences of consumers in the West African subregion toward imported rice [26]. To increase local rice production and consumption, the government of Ghana is undertaking rice upscaling programme with the goal of achieving rice production growth rate of 20% per annum, to attain self-sufficiency by 2018 (and reach a surplus of 13% or 111,940 metric tonnes). Indeed, in May 2008, Ghana was one of the first countries within the Coalition for African Rice Development (CARD) to launch its National Rice Development Strategy (NRDS) for the period 2009-2018. The objectives of the NRDS include increasing domestic production and promoting consumption of local rice through quality improvement by targeting both domestic and sub-regional markets.

Similarly, domestic meat production constitutes about 30% of annual total meat consumption and to meet the shortfall, Ghana imports meat and meat products (including chicken). Ghana's total meat imports as shown in Table 1 rose from 97,719 metric tonnes in 2012 to 183,537 metric tonnes in 2013, an increase of 188% with poultry imports alone constituting about 80% of total meat imports [27]. Until the early 1990s, local poultry production could meet about 95% of the domestic poultry requirement [28]. However, as the importation of chicken has increased, the share of local poultry on the Ghanaian market has dropped to 11% from 2000 onwards [29]. As shown in Table 1, in 2013, alone, Ghana spent as much as US$339.4 million to import chicken products [27].

To curb meat and poultry importation government has developed some interventions, which include broiler re-vitalization project with the aim of boosting local production of chicken broiler and reducing chicken imports. The project is expected to progressively reduce chicken imports by 40% by the end of 2016, increase the availability of processed and packaged locally produced chicken (comparable to imported chicken) on the Ghanaian market, and increase their demand and consumption.

Ghana is also not self-sufficient in tomato production while vegetable cooking oil producers have to compete with various types of imported cooking oils on the Ghanaian market. It is estimated that Ghana produces over 300,000 metric tonnes of tomato of which 90% is consumed locally. However, Ghana depends largely on regional imports of tomato during the off season, with imports between 70,000 –80,000 tons of fresh tomatoes from neighbouring countries such as Burkina Faso. It also imports over 78,000 tons of tomato paste and puree per year, of which 12,000 tons is re-exported after being repackaged [27]. Research conducted by the Unilever Ghana Limited revealed that government of Ghana loses about $9 million every year on 40,000 metric tonnes of vegetable oil imports. As an intervention, Ghana is developing the oil palm sector to increase the production of palm fruits for processing into cooking oils [27].

Much as these interventions are good they may not be successful if the perceptions and preferences of users and consumers of these products are not considered. In order to promote the utilization and consumption of locally produced food products there is the need to provide information on the perceptions and preferences of users and consumers as a basis for investments to improve these products' appeal. Even among consumers, factors that influence rice preferences, for example, vary. It has been reported that consumers generally prefer cooked grains to be firm and non-sticky [31]. In Brazil, researchers found that consumers preferred parboiled to milled rice [32] while in Sri Lanka, the factors influencing rice preferences were percentage of head rice, shape of milled rice and aroma [33].

In Ghana, studies done by [23] and [34] have examined consumer preference for imported rice but no known study has focused on restaurants or ready-to-eat food vendors, who are also large users of rice, poultry, tomato products and cooking oils. This study focuses on restaurants to

**Table 1. Import position of meat and meat products and the monetary values from 2009-2013***

| Product | Year | | | | |
|---|---|---|---|---|---|
| | **2009** | **2010** | **2011** | **2012** | **2013** |
| Chicken (MT) | 67,069 | 69,811 | 86,372 | 73,788 | 154,278 |
| Cost(in Million US$) | 147.5 | 153.6 | 190.0 | 162.3 | 339.4 |
| Meat and meat products – including chicken (MT) | 95,176 | 91,904 | 111,284 | 97,719 | 183,537 |
| Cost (in Million US$) | 209.4 | 202.1 | 244.8 | 214.9 | 403.8 |

**MOFA Statistics Research and Information Directorate and computations from Veterinary Services Directorate importation data [30]* examine the extent to which food products or ingredients such as rice, chicken, cooking oils and tomato paste are used in their operations. The study also examines the preferred sources of the main ingredients and barriers that inhibit the use of locally produced versions of these ingredients in restaurants. Findings from this study may provide useful input for planning investments aimed at increasing the production, demand, utilization and consumption of locally produced food products.

## 2. METHODS

Data was collected from restaurant operators selected with the aid of the sampling frame, which was a list of restaurants that were of good standing (that is, restaurants that had obtained or renewed their licences) in the Greater Accra Region (GAR) by December 2012. The list was obtained from the Ghana Tourism Authority, an institution that issues licenses to restaurants. In total, GAR had 203 or 61% of all licensed restaurants in the country and most of them were located in the Accra Metropolitan Area. Qualtrics Sample Size Calculator [35] was used to obtain a sample size of 116 from the 203 licensed restaurants in the GAR at 6% margin of error and 95% confidence level. Semi-structured questionnaires were administered to systematically sampled respondents (restaurant representatives) to obtain data that will provide a better understanding of restaurant enterprises – their products, source of raw materials and barriers that inhibit the use of locally produced food products in their operations.

The questionnaires were administered on a face-to-face basis therefore, field assistants were available to help explain the questions and write out responses (in a language of mutual understanding) as accurately as possible. Self-administration of the questionnaire was allowed, in some cases, at the respondents' request and they filled them out independently. In total, 90 completed questionnaires were retrieved with a response rate of 77.6%.

Additionally, in-depth interviews were conducted with some restaurant representatives during and after the survey to get explanations and better insights [36] into their operations, products, and services. Additional data were gathered from secondary sources. Open-ended responses were coded and the data was analysed using Statistical Package for Social Sciences (SPSS version 20) to obtain descriptive statistics, which are presented later in this paper in the form of tables and figures.

## 3. RESULTS AND DISCUSSION

### 3.1 Dishes Offered in Restaurants

Findings in Table 2 showed that in the formal restaurants, rice dishes were prevalent with fried rice being offered in 92% of the restaurants, jollof rice (44%) and plain rice (24%). Also present in the restaurants were foods such as chicken offered in over 74% of the restaurants, French fries, burgers and pizzas.

**Table 2. Dishes prepared and served in restaurants (n=90)**

| Dish | % of respondents |
|---|---|
| Fried rice | 92.2 |
| Jollof rice | 44.4 |
| Plain rice | 24.4 |
| Fried chicken | 74.4 |
| Grilled chicken | 17.7 |
| French fries | 81.1 |
| pizza | 31.1 |
| burgers | 42.2 |
| Banku& Tilapia | 40.0 |
| Fufu | 38.8 |
| Beef sauce | 8.9 |
| Pastries and snacks | 52.2 |
| Others | 31.1 |

Fried rice and chicken in particular were not only popular in the restaurants but they were also highly purchased and consumed. Fried rice was also among the top four fast-moving foods in all the 83 restaurants that offered it. These findings are in line with [37] who found that about 79% of consumers most often buy fried rice when they visit the restaurant. The findings further showed that fried chicken was also popular as a dish or is usually served with rice and other dishes or, to a lesser extent, with a drink. The popularity of fast foods (e.g. fried chicken, fried rice, French fries) in the restaurants is an indication that dietary patterns are changing in urban Ghana and several reasons could account for this. For example, the popularity of rice dishes could stem from the fact that Ghana experienced a rapid dietary shift to rice, particularly in urban centres, during the early post-independence period. The shift was largely due to increased income, favourable government pricing policies, good storability of rice, ease of cooking, and rapid urbanisation [29]. Rice is becoming a staple in most homes and is usually used for dishes such as plain boiled rice, *jollof* rice, *waakye,* and *omotuo* (boiled rice moulded into balls). Fried rice however is not usually prepared at home because it requires special skills that most people lack and at the same time its preparation is quite laborious; hence it is often prepared and eaten on special occasions or eaten as an out-of-home meal.

### 3.2 Sources of Main Ingredients (Food Products) Used in Food Preparations and Factors that Inhibit the Use of Locally Produced Ingredients

This section presents and discusses the main food products (ingredients) used in the restaurants for food preparation, and in which Ghana is not self-sufficient but has comparative advantage in their production. The ingredients examined were rice, chicken, tomato paste and vegetable cooking oils. Rice was used in preparing rice dishes such as fried rice, plain rice and joll of rice; chicken was used for all chicken products such as fried and grilled chicken, tomato paste for preparing most of the sauces that accompany the main dishes; and vegetable oils for frying foods and preparing various sauces.

Although most of the main ingredients used in the restaurants are produced in Ghana, majority of the restaurants (Table 3) preferred to use imported rice (87.8%), imported chicken (88.9%), imported vegetable oils (78.9%) and imported tomato paste (58.9%) for various reasons.

Barriers that inhibit the use of locally produced food products in restaurants are presented in Figs. 1 and 2, and Table 4. For rice, the barriers have been categorised into (1) cooking (functional) characteristics (which depend on the physico-chemical properties of rice), (2) sensory properties, and (3) marketing strategies. In relation to the cooking characteristics, the respondents (see Fig. 1) were of the view that locally produced rice has too much starch, lower volume of expansion, required too much attention during cooking, hardens shortly after cooking and is not suitable for certain dishes such as fried rice.

Indeed, studies have shown that starch is the most important factor that affects the texture of cooked rice [38]. These authors also report that high amylose (starch) content causes rice to become dried and hard and decrease in softness upon cooling in contrast to rice with low amylose content –rice varieties having low amylose content cook wet and sticky. Also, high amylose content was found to correlate with high volume expansion and flakiness of rice [38]. High volume of expansion is a property of rice that is of commercial importance to food vendors because it can potentially increase their profits. Studies conducted in Ghana found that 46% of locally produced rice is parboiled, which is of poor quality and not liked by consumers [23].

The physico-chemical properties of rice are influenced by varieties, chemical composition and structure, processing method and storage conditions. Moreover, factors such as rice cultivars, moisture content, protein content, lipid content, processing methods, and pH affect the amylose content of rice [39,40]. As long as these factors affect the cooking characteristics of rice it is important to factor them into interventions such as research into the development of rice varieties with acceptable cooking characteristics. The findings also mean that research needs to be conducted to develop recipes specifically for locally produced rice since there may be slight variations in the recipes for different varieties of rice.

**Table 3. Sources of ingredients for restaurant operations as indicated by respondents (n=90)**

| Main ingredient | Source of ingredient and number of respondents (n=90) | | | |
|---|---|---|---|---|
| | Local | Imported | Both local and imported | Not applicable |
| Rice | 7 | 79 | 1 | 3 |
| Chicken | 5 | 80 | 3 | 2 |
| Cooking Oil | 13 | 71 | 2 | 4 |
| Tomato paste | 5 | 53 | 2 | 30 |

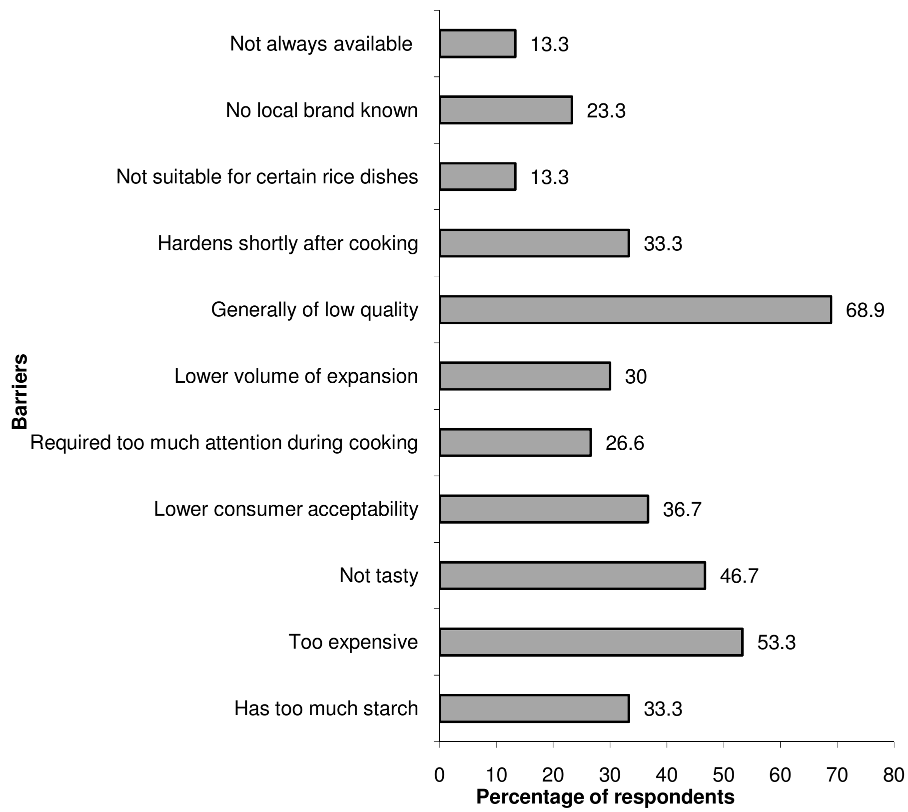


**Fig. 1. Barriers to the use of locally produced rice in preparing dishes in restaurants**

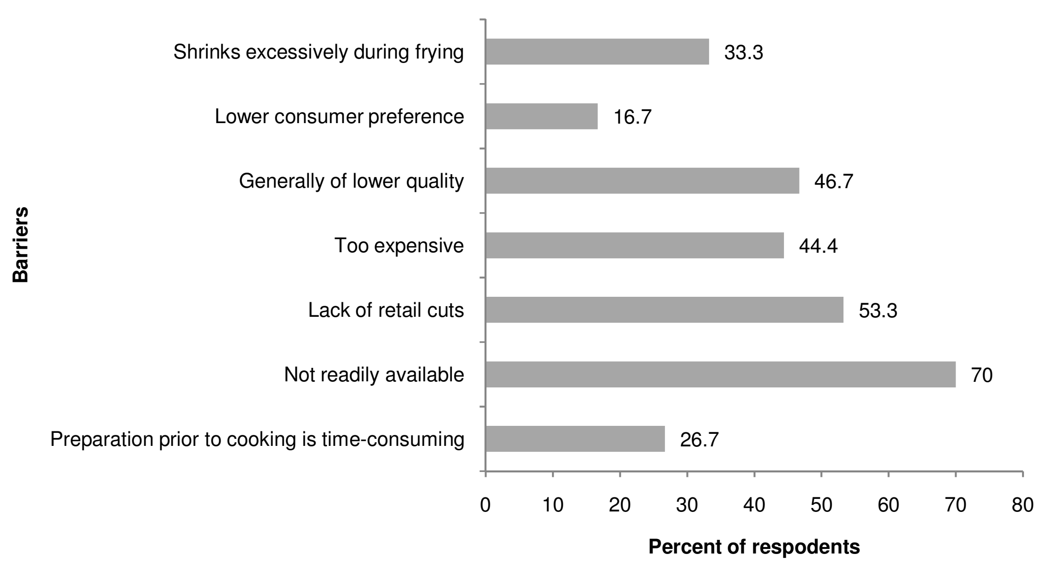


**Fig. 2. Barriers to the use of locally produced chicken in preparing dishes in restaurants**

In relation to the sensory properties, the findings showed that locally produced rice has an unappealing taste and generally not acceptable by consumers. Other studies found that majority of consumers in Ghana preferred imported rice to that produced locally [23], which has been attributed to factors like variations in physical characteristics, nutritional quality, cooking and pasting behaviours, and sensory properties [34,41]. Majority of the respondents in this study mentioned lower quality in general (68.9%) and poor taste (46.7%) Fig. 1 as barriers inhibiting their use of locally produced rice. This implies that generally, issues related to cooking and sensory characteristics greatly influence the choice of rice used for cooking dishes for commercial purposes hence interventions should take them into consideration.

In relation to marketing, 53.3% respondents indicated that locally produced rice was too expensive. Other barriers related to marketing were unavailability of local rice on the market and inability to identify them by any brand name. This supports [34] who also found that most consumers in Ghana are more familiar with imported rather than locally produced rice. This has been attributed to the fact that research efforts to improve the rice value chain has focused on production, high yielding varieties and post-harvest and storage technologies at the expense of market and demand-driven research [20]. Also, unlike locally produced rice, marketing of imported rice is done aggressively through television, radio and print media advertisement and are distributed all over the country [42]. Interestingly, some vendors believed that some traders deceptively package and market locally produced rice as imported brands for fear that people would not buy the former if they knew it was produced in Ghana.

In relation to chicken, barriers inhibiting their use in restaurants as indicated in Fig. 2 include unavailability in the market (70%), lack of retail cuts (53.3%) and general low quality of the chicken (46.7%). Concerning the retail cuts, some respondents indicated that chicken thighs were the preferred cuts suitable for their dishes however locally produced chicken are mostly dressed and sold as full-chicken. They explained that buying a full chicken is not profitable because after cutting out the chicken thighs and sometimes wings and drumsticks, which they may need, all the other parts become “unwanted” and are therefore not prepared for sale. Doing this also requires more time and effort, which the restaurant operators mentioned as a constraint to using locally produced chicken. Furthermore, the respondents were of the view that locally produced chicken is often not fleshy therefore it shrinks excessively during frying and this leads to downward adjustment of the price of fried chicken, which is largely size-dependent. Respondents who have, in some instances, used locally produced chicken indicated that the quality has often been inconsistent, which means that chicken producers and processors do not adhere to any set quality standards.

With regard to vegetable cooking oils, most of the restaurant operators as shown in Table 4 mentioned unavailability (41.1%), high cost (41.1%) and low quality (35.6%) as barriers to the use of locally produced oils. Moreover, unlike locally produced oils, most imported brands are advertised aggressively on television, radio and print media with some being associated with health claims such as cholesterol-free. In addition to these, the vendors indicated that locally produced oils are usually sold in smaller retail volumes (e.g. 4 litres) unlike imported brands, which are available in larger retail volumes of up to 25 litres or even more. They explained that larger retail volumes are more economical for use in their businesses than smaller volumes. This calls for the need for oil producers in the country to beef up their marketing strategies and improve on the quality characteristics of the oils to make them comparable to the imported brands. With regard to tomato paste, the main barriers that were mentioned by restaurant operators (Table 4) include unavailability (33.3%) and lower quality (51.1%). Again, these are factors that can be enhanced through appropriate marketing strategies, research and product quality improvement.

**Table 4. Barriers to the use of locally produced vegetable cooking oils and tomato pastes in restaurants**

| Barriers | % of respondents | |
|---|---|---|
| | Cooking oil | Tomato paste |
| Not readily available | 41.1 | 33.3 |
| Too expensive | 41.1 | 11.1 |
| Lower quality | 36.5 | 51.1 |
| Lower consumer preference | 14.4 | 16.7 |
| Other | 2.2 | |

### 3.3 Investment Opportunities

As the findings have shown, there are barriers to the use of locally produced food products for food preparation in restaurants, which must be removed to increase the utilization of local products. Removing these barriers requires investments in research, training, crop production, development of infrastructure, food processing and marketing. The fundamental point to underscore is the fact that importation of inputs for the restaurant business in Ghana offer immense opportunity for developing local value chains – rice, oilseeds, poultry and tomato.

In relation to rice, investments are required for activities such as the development of rice varieties with improved functional (cooking) and sensory characteristics, development of irrigation and other infrastructure, and improvement of post-harvest handling, processing, marketing and distribution of rice. An area of investment that has often been neglected is marketing and consumer/user research and designing of effective and efficient marketing strategies [20]. Already, the government of Ghana through several public private partnership arrangements has initiated investments through projects such as the NERICA Rice Dissemination Project, Inland Valley Rice Development Project, Rice Sector Support Project, and Sustainable Development of Rain-Fed Lowland Rice Production Project. For example, to mechanize rice production so as to increase production, a Japanese Grant has enabled the Ministry of Food and Agriculture (MOFA) to procure and distribute to farmers on hire purchase machinery such as tractors and accessories, power tillers and accessories, rice threshers, rice reapers, and rice mills. The West Africa Agriculture Productivity Programme (WAAPP) has developed improved variety of aromatic rice and supported the production of breeder seeds including upland varieties, Nerica3, Nerica4, Nerica9, and Nerica14. The National Food Buffer Stock Company is also supporting rice producers by mopping up paddy rice for drying and storage. This activity in particular is relevant as it enables locally produced rice to dry properly to an appropriate moisture level since most local rice on the markets often have high moisture content, which impacts cooking characteristics.

With regard to poultry, investments are required to boost local production, processing, storage, and marketing using innovative approaches that will meet users' quality requirements. As an intervention to boost local poultry production, the government has invested in the raising of 20,000 chicks (cockerels) and distributing them to 1,000 farmers at subsidized rate in 40 districts across six regions (Greater Accra, Volta, Eastern, Central, Ashanti and Western regions). More investments are needed to address barriers such as lack of retail cuts and other marketing issues to increase the availability of locally produced chicken and the convenience in using them in restaurants.

In relation to vegetable cooking oils, investments are needed to boost the production and processing of oils seeds such as oil palm, soybeans and sunflower and to design innovative marketing strategies. Some research investments have been made by the Oil Palm Research Institute (OPRI), which developed and disseminated improved oil palm planting materials capable of yielding 18-20 tons of fresh fruit bunches and about 4 tons of palm oil per hectare. Under the Presidential Special Initiative (PSI) on oil palm, which was initiated by the President of Ghana in 2002 to boost production and export of palm oil and its products, OPRI was commissioned to produce two million oil palm germinated seeds annually. The first phase of 100,000 hectares was expected to produce 300,000 metric tonnes of palm oil a year and revenue of about $90m was anticipated to be realized yearly from the export of palm oil. In May 2008, Pt PP London Sumatra Indonesia (LONSUM) entered into an agreement with the Council for Scientific and Industrial Research (CSIR) of Ghana, to create a joint venture company in Ghana to develop and commercially exploit oil palm genetic resources. The joint venture company known as the Ghana Sumatra Ltd. had an ownership structure of 55% by CSIR and 45% by LONSUM with the latter agreeing to provide funding of up to US$ 4.5 million. Currently, the duration of the joint venture agreement has lapsed and CSIR-OPRI has taken over the company to continue with the production and marketing of the oil palm resources.

In relation to tomato and tomato paste, investments are required to increase tomato production especially during the off season to ensure continuous supply of tomato and to process it into quality and acceptable pastes. Related to this, the government is supporting adaptive research into 24 tomato varieties at the University of Ghana, which will be developed to meet the needs of both fresh and processed tomato markets. The WAAPP is also supporting the development of testing protocols for tomato while the Export Marketing and Quality Awareness Project (EMQAP) is promoting the production of tomato and other vegetables under greenhouses at Demonstration Centres that have been established at different locations in Ghana. Investments have also been made in tomato processing whereby two tomato processing factories were commissioned in 2012 and 2007 in Techiman and Pwalugu respectively. These companies are currently not producing to their capacity due to various challenges including disagreement between management and farmers on the type of tomato varieties to be planted, and how much the farmers should sell to the factory [43,44]. The challenge to address is that many farmers still prefer to plant local tomato varieties, typically with a high water content, many seeds, poor colour, and low brix, which are not appropriate for processing into pastes [18].

Generally, the government of Ghana is initiating several investments to improve the food and agriculture sector and has therefore established the Ghana Agricultural Sector Investment Programme (GASIP), for example, to support value chain development, agriculture financing and research and extension among others. This provides a good support-base for potential investors in the areas of food research, production, processing and marketing with specific focus on rice, poultry, oil seeds, and tomato value chains.

## 4. CONCLUSION

Restaurant operators use large amounts of food products such as rice, chicken, cooking oils and tomato paste in the preparation of various types of ready-to-eat food for tourists and urban consumers. Dishes prepared with rice, which are often eaten with chicken and other side dishes prepared with oils and tomato paste, were prevalent and highly purchased and consumed in restaurants. Although most of the food products (or ingredients) used in food preparation are produced locally, restaurant operators preferably use imported versions of these products due to certain barriers. These barriers include poor cooking or functional characteristics, low quality in general, unavailability, high cost, low sensory appeal and ineffective marketing strategies. The findings imply that food businesses contribute a great deal to the urban food needs, employment creation, and economic development and are most importantly a good marketing avenue for locally produced products. Therefore, interventions are required in the form of investments to boost local production, improve product quality (mainly functional and organoleptic properties), increase product availability, accessibility and affordability so as to increase product utilization at both household and commercial levels.

Clearly, some investments are on-going while others are yet to take off but it is important to factor in the concerns of users of the products so as to provide the desired product quality. To attract potential private investors, there is the need for current investments and projects to demonstrate that the people for whom these products are produced will use them for both the intended and other useful purposes. This study has shown that users will only use these products if the identified barriers have been removed through various investments programmes and projects.

The use of local raw materials in ready-to-eat food business operations will not only increase local production levels but it will also create employment, generate income, and strengthen social cohesion among producers, processors, users and consumers. Furthermore, the use of locally produced foods may lead to the use of fresh, safe and good quality ingredients (since it may be easier to regulate them), reduce food miles and its environmental consequences such as greenhouse gas emission, and increase consumer trust in food and food providers [45]. Both the government and the private sector have a role to play to introduce innovative ways of addressing the concerns of consumers and users of locally produced food products.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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