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How consumers' motivations and perceptions shape consumption of domestic products in COVID-19 era: A case of poultry meat in Ghana

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ABSTRACT

This study analyzes consumers' motivations, perceptions, and effects of COVID-19 on the consumption of local chicken in Ghana. A cross-sectional survey was conducted to collect data from 400 local poultry consumers. In addition to descriptive analysis, an ordered regression model was used to analyse the effect of COVID-19 on the consumption of local chickens. The results show that consumers consider nutritional and health values, safety, taste, and freshness as the most important motivating factors for the purchase of local chicken. More than one-third of the respondents reduced poultry meat consumption owing to the COVID-19 pandemic. In addition, other factors, such as age, income, market channels, efforts to find local chicken, and support for the local economy, significantly influenced the frequency of consumption. Based on these findings, marketing strategies should focus on the nutritional and health value, safety, taste and freshness associated with the local chicken and support for the local economy. Making chickens available in cold stores and supermarkets increases their consumption.

Keywords: Consumers; perceptions; COVID-19; ordered probit regression local poultry; Ghana
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Introduction

The Ghanaian poultry sector is threatened by the high cost of energy and other logistics, inefficient value chain systems, and high production costs, particularly the high feed cost (Chibanda *et al*., 2022; Wits & Abdulai, 2020). Other weaknesses in the sector include poor management practices, poor linkages among actors, inability of producers to meet consumer preferences, and disease outbreaks (Asumang *et al.*, 2019; Wits & Abdulai, 2020). With the emergence of the COVID-19 pandemic, coupled with disruptions in the international supply of livestock products, consumers are expected to shift towards the consumption of local chicken products. For instance, recent studies (Laguna *et al*., 2020; Li *et al*., 2020; Mehta *et al*., 2020) have reported changes in how consumers purchase, prepare, and eat food during the pandemic. Moreover, a recent study in Oman showed a significant shift in the attitude and behaviour of respondents regarding food and health; there was a shift to healthier diets and an increase in the consumption of

local products due to food safety concerns (Ben Hassen *et al*., 2022).

Other studies have also investigated how the emergence of the COVID-19 pandemic has influenced consumer behaviour (Shahbaz *et al*., 2022; Tan *et al*., 2022; Ben Hassen *et al*., 2021; Kahtun *et al*., 2020; Attwood & Cother, 2020), the supply chain of food (Min *et al*., 2020), and affected other sectors of the world's economy (Kartari *et al*., 2021; Rolfe *et al*., 2021; Biswal *et al*., 2020; Ogier *et al*., 2020; Patil & Patil, 2020; Zhang *et al*., 2020). However, no study has specifically examined how consumers' motivations and perceptions of COVID-19 have affected the consumption of local poultry, especially chickens. To address this gap, the present study seeks to improve the understanding of these changing motivations and perceptions of consumers regarding local poultry meat to assist producers to remain competitive in the COVID-19 marketplace.

This study aims to investigate whether consumers have changed their motives for food choice and perceptions related to local poultry meat amid the COVID-19 pandemic. Food choice involves the selection of foods for consumption, which results from the competing, reinforcing, and interacting influences of various factors (Lund *et al.*, 2007). Thus, this study seeks to determine whether Ghanaian consumers' motivations for purchasing local poultry meat and their perceptions of a range of local poultry meat attributes (such as food safety, taste, price, and convenience) have changed since the outbreak of COVID-19. If there have been changes, how? Thus, the study seeks to answer the following research questions:

i. What is the consumer purchasing behaviour
ii. What factors do consumers consider when buying local chicken
iii. What are the consumers' perceptions of local poultry meat
iv. What is the effect of COVID-19 on local poultry consumption?

Consumer behaviour and poultry consumption

Solomon *et al.* (2010) define consumer behaviour as "the study of the processes involved when individuals or groups select, purchase, use or dispose of products, services, ideas or experiences to satisfy needs and desires." Consumer behaviour encompasses different types of human actions and activities, including purchasing products and services from marketing organisations. In addition, consumer behaviour includes the study of what, why, when, where, and how often consumers purchase and how they use the purchased product. Understanding consumer purchasing behaviour is essential to help firms or marketers create better products and gain a competitive advantage (Narula & Desore, 2016). Consumers' purchases of products or services are subject to many influences. Therefore, many theories, such as the theory of planned behaviour (TPB), have attempted to explain why consumers behave the way they do.

The theory of planned behaviour (TPB) has suggested that an individual's intention to perform a particular behaviour is assumed to be an antecedent of that behaviour (Ajzen, 2002). According to this theory, an individual's attitude, norm, and perceived behaviour control are the three factors that are likely to lead an individual to develop the intention to either exhibit certain behaviours or not. This notion is further elaborated by the utility theory, which suggests that consumers make choices based on the expected outcomes of their decisions. Thus, consumers are rational decision makers who are only concerned with self-interest (Schiffman & Kanuk, 2007).

Cultural, social, personal, and psychological factors influence consumer behaviour (Kotler &Gertner, 2002). Previous

studies on consumer behaviour (Pirvutoiu & Popescu, 2013; Ali *et al*., 2010; Silayoi & Speece, 2004) have also argued that consumers' decisions to purchase a product depend on a combination of attributes such as convenience, variety, price, availability, packaging, cleanliness, and freshness. Regarding the influence of price on the purchasing behaviour of consumers, Saleki *et al.* (2019) confirmed that consumers who are more concerned about price are less likely to develop an intention to purchase organic food compared to consumers who are less sensitive to the cost of organic food. Most studies are categorical regarding the influence of price on consumers' decision to purchase a product, but there are diverse views on the influence of the quality (safety) of a product on the purchasing behaviour of consumers.

Among other factors, Kwakwa (2013) investigated the preference of rural Ghanaians for local and imported chicken meat and found that local chicken meat is preferred over imported chicken meat in terms of quality, taste, patriotism, and tenderness. Another study by Donkor *et al*. (2013) on consumer choice analysis of imported and locally produced chicken products reveals that an individual's purchasing decisions are highly influenced by the price of the commodity, but issues of chicken meat quality have a poor influence on purchasing decisions. In contrast, Ogbeide (2015) confirmed that most consumers prefer lean meat to fatty meat to determine the compositional quality preferences of consumers. However, Ortega & Tschirley (2017) noted that consumers' knowledge and demand for food safety in developing countries is limited, but they will become increasingly aware of food safety issues as urbanisation proceeds and incomes continue to rise.

Asante-Addo & Weible (2020b) examined the influence of perceptions and attitudes on the consumption of local chicken using an ordered probit model. They found that attitudes and perceptions of food safety, price, convenience quality, and ethnocentrism influence the consumption of local chickens. Bannor *et al*. (2020) examined and compared the factors influencing consumers' preferences for indigenous chicken in Ghana using probit regression. They found that different sets of factors determine consumers' decisions to purchase indigenous chicken products and their willingness to pay a premium price. These factors include modern retail outlets, such as shopping malls and restaurants, local food joints and cold stores, excellent packaging or branding of processed parts, and e-marketing. Finally, Atuahene *et al*. (2014) examined the perception and preference of consumers for local poultry meat and found that consumer preferences for locally produced poultry meat are determined by factors such as age, gender, preservation method, healthiness, and packaging method.

COVID-19 and poultry industry

Although several studies have been conducted on consumer purchasing behaviour, the theory of planned behaviour explains that the behaviour exhibited by an individual is preceded by an already occurring phenomenon. Therefore, it is expected that the outbreak of the COVID-19 pandemic could change consumers' purchasing behaviour. Previous literature, such as Shahbaz *et al*. (2022) explored the impact of COVID-19 on the consumption of perishable and non-perishable food commodities in Pakistan. They found that female-headed households decreased their intake of dairy products of perishable and non-perishable food commodities compared to male-headed households during the COVID-19 pandemic.

Another study by Ben Hassen *et al*. (2021) examined the effects of the COVID-19

pandemic on food consumption, diet, and food shopping behaviours in Lebanon. This study revealed that COVID-19 triggered an increase in online shopping, an increase in the consumption of domestic food products, and a decrease in household food waste. Cranfield (2020) analysed the impact of the COVID-19 pandemic on demand shifts in major food categories, including poultry in Canada, and Attia *et al.* (2022) examined the negative impact of COVID-19 on poultry production in developing countries. They modelled the dynamics of the impacts of lockdowns on food systems, identifying factors such as uneven food prices and disrupted supply chains, as well as social protection indicators influencing poultry production.

All the studies outlined confirm the theory of planned behaviour, which suggests that the COVID-19 pandemic caused a change in consumption patterns. However, the study of Cranfield (2020) was not in a developing country setting like Ghana, and the study of Attia *et al*. (2022) was not on consumption, which our paper looks at. Although the studies by Shahbaz *et al*. (2022) and Ben Hassen *et al*. (2021) were on consumption, the products involved were not on poultry, especially local chickens. Therefore, our study on how consumers' motivations and perceptions shape the consumption of local chicken in the COVID-19 era is warranted and fills the gap between Cranfield (2020), Attia *et al*. (2022), Shahbaz *et al*. (2022) and Ben Hassen *et al*. (2021). A review of existing studies in Bangladesh (Rahman *et al.*, 2020), India (Biswal *et al.*, 2020), Indonesia (Surni *et al.*, 2020), Nigeria (Fafiolu & Alabi, 2020), and Ghana (Obese *et al.*, 2020) showed that COVID-19 has affected the importation of livestock products, with the associated effect of lowering consumption, especially in Ghana.

In Ghana, the effect of COVID-19 on the poultry industry is compounded by growing imports of poultry products. Thus, reversing this trend should engage all stakeholders, given that stock production is a major source of livelihood for rural households. Ghana had a vibrant poultry industry in the 1960s because of government promotion and support for commercial poultry producers. In the 1970s, the poultry industry was very competitive owing to the removal of customs duties on poultry inputs. This has created employment opportunities along the poultry value chain. Andam *et al*. (2017) also showed the positive impact of adopting restrictive import policies for chicken meat in Ghana, stimulating domestic chicken meat production. However, there was a steep decline in the 1990s as a result of trade liberalisation policies. According to the Ghana Poultry Project Report, most commercial poultry farms in Ghana either collapsed or produced below capacity in the year 2000, with broiler production decreasing by 80% in 2010 (USDA, 2016). Although poultry meat production has increased over the past decade (Fig. 1), imports continue to dominate the sector. For example, in 2019, Ghana imported 153,448.43 MT of poultry against domestic production of 63,513 MT, with imports translating into 71% of Ghana's poultry demand (Fig. 1).

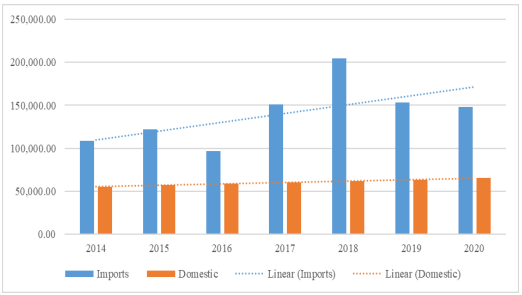

Fig. 1: Trend of poultry meat production versus imports (MT); Source: SRID/MoFA projection. The remainder of this paper is organised as follows. Section 2 defines the sample, procedure for data collection, and the analysis of the study. Section 3 presents the findings of the study. The final section discusses the findings, implications, and suggestions for future research.

Materials and Methods

Data collection

A cross-sectional survey was conducted in the Greater Accra Region of Ghana in January 2022. The study targeted respondents aged 18 years and above who consumed local/domestic poultry meat. The Greater Accra Region was selected because most commercial poultry operations are in this region. This region has a population of 5,455,692 (GSS, 2021). Using this population size, 5% margin of error, and 95% confidence level, the estimated sample size was 385. The Greater Accra region comprises 29 districts. Of the 29 districts, 10 were randomly selected. The sampled districts are listed in Table 1. Within each administrative district, two communities were randomly selected from the list of communities, resulting in a total of 20 communities (see Table I). Within each community, respondents were randomly intercepted and interviewed. 10 respondents from each selected community, 10 respondents were interviewed. In total, 400 respondents were interviewed, which was slightly larger than the calculated sample size. Interviews were conducted on weekdays at different times to increase the chances of responses.

TABLE 1
List of selected districts and communities

No.	District	Community
1	Ashaiman	Ashaiman New Town and Official Town
2	Ayawaso West Municipal	Okponglo and Dzorwulu
3	La Nkwantanan-Madina Municipal	Madina Zongo and Madina Social Welfare
4	Adentan Municipal	Amrahia and Ashiyie
5	Ablekuma North Municipal	Odokor Official Town and Darkuman
6	Tema West	Sakumono and Lashibi
7	Weija Gbawe Municipal	Weija and Mallam
8	Ga East	Ashongman and Kwabenya
9	Ga Central	Awoshie and A-lang
10	Kpone Katamanso	Katamanso and Atadeka

A standardised questionnaire was used for face-to-face interviews. The questionnaire was piloted with 20 randomly selected respondents for feasibility and clarity, and modified accordingly. The interviews were conducted with the help of trained enumerators using computer-assisted personal interviewing (CAPI). The questionnaire contained three sections: Section A had screening questions that limited interviews to only respondents who were 18 years or older and consumed local poultry meat; Section B solicited information about the sociodemographic characteristics of the respondents, and Section C captured questions regarding local poultry meat purchases and consumption patterns and perceptions.

Data analysis

The data obtained were analysed using the STATA (version 15) software package. Data were analysed using descriptive statistics and cross-tabulations. Univariate graphs, such as pie and bar charts, were also produced. In addition to descriptive analysis, an ordered regression model was used to analyse the effect of COVID-19 on the consumption of local chickens. In this study, the measurement of chicken consumption was not based on quantity, but on the frequency of consumption, as estimated by the respondents. The consumption frequency, which is the dependent variable, is therefore categorical in nature (i.e. never, occasionally, once a month; 2-3 times a month, once a week, or two times a week or more). Ordered probit models are appropriate for analysing ordered categorical response variables. According to the statistical distribution of the error terms, there are two major types of ordered regression model. These include ordered probit and logit models (Greene & Hensher, 2010). Researchers have indicated that the results from ordered probit and ordered logit are similar. However, there is no consensus on the best model. Many studies have used the ordered probit model to analyse the factors influencing the frequency of food purchase/consumption (Kumar *et al.*, 2008; Dumortier *et al*., 2017; Asante-Addo & Weible, 2020b). Consequently, this study adopted the ordered probit model developed by McKelvey & Zavoina (1975).

Model specification

For respondent i ($i = 1, \cdots N$), let y_i^* represent the unobserved continuous dependent variable such that

$$Y_i^* = X_i'\beta + \varepsilon_i, \quad i = 1, \ldots, n, \qquad (1)$$

Where Y_i^* is the underlying latent variable that indexes the level of consumption, X_i is a vector of known values of the independent explanatory variables (e.g. age, gender, education, attributes, perceptions) for respondent i, β is a vector of parameters reflecting the relationship between Y and the variables in X_i, and ε_i is the stochastic error term, which is assumed to be independent and identically distributed with a standard normal distribution, that is, $\varepsilon_i \sim N(0, 1)$. The continuous variable Y_i^* is not measured and, therefore, is unobserved. What is observed and measured is the stated frequency of consumption of respondent Y_i, who has J categories. Therefore, the relationship between Y_i^* and the observed variable Y is given as:

$$\begin{aligned} Y_i &= 0 \quad \text{if } Y_i^* \leq 0 \\ &= 1 \quad \text{if } 0 < Y_i^* \leq k_1 \\ &= 2 \quad \text{if } \mu_1 < Y_i^* \leq k_2 \\ &= J \quad \text{if } k_{J-1} \leq Y_i^* \end{aligned} \qquad (2)$$

Where the parameters k_j, $j = 1, \cdots, J\text{-}1$, are unobservable threshold parameters that will be estimated together with other parameters and define potential ordered outcomes for Y_i. The probability that respondent i has a consumption frequency falling within a particular ordinal outcome j ($j = 0, 1, 2 \cdots J$) is given by:

$$\begin{aligned} &\text{Prob } (Y_i=0 \,|X_i) = \Phi(-X_i'\beta) \\ &\text{Prob } (Y_i=1 \,|X_i) = \Phi(k_1 - X_i'\beta) - \Phi(-X_i'\beta) \\ &\text{Prob } (Y_i=2 \,|X_i) = \Phi(k_2 - X_i'\beta) - \Phi(k_1 - X_i'\beta) \\ &\text{Prob } (Y_i=J \,|X_i) = 1 - \Phi(k_{J-1} - X_i'\beta) \end{aligned} \qquad (3)$$

Where $\Phi(\cdot)$ represents the standard normal cumulative density function such that the sum of the above probabilities is equal to one.

These probabilities are estimated using the iterative procedure of the maximum likelihood estimation (MLE) method. This is given as:

$$Log\ L = \sum_{i=1}^{n} ln\ [Prob\ (Y_i)] = \sum_{i=1}^{n} ln\ [\Phi(k_j - X_i'\beta) - \Phi(k_{J-1} - X_i'\beta)] \quad (4)$$

Through the maximisation likelihood function, estimates of the parameters β and threshold parameters $k_1, k_2, k_3, \cdots, k_{J-1}$ are provided. Parameter β is interpreted as the effect of the independent variable on the dependent variable (consumption frequency). Table II lists the explanatory variables used in the regression model.

TABLE 2
Description of variables used in regression model

Variables	Description
Age	18–35 years (ref.)
	36–49 years
	50–65 years
	66 and above
Gender	1 = male; 0 = female
Education	No education (ref.)
	Low education
	High education
Employment	1= employed; 0 = unemployed
Net monthly income	Less than 500 GHS (ref.)
	500–GHS999 GHS
	1,000–1,499 GHS
	1,500–1,999 GHS
	2,000–2,499 GHS
	2,500–2,999 GHS
	3,000 GHS and above
Markets	Direct from producers (ref.)
	Traditional
	Supermarket
COVID-19	1 = if changed in purchasing behavior due to COVID-19
Effort	1 = if respondent makes effort to buy local chicken
Safety	1 = if safety is important for respondent
Freshness	1 = if freshness is important for respondent
Support local economy	1 = if support local economy is important for respondent
Availability	4-point scale: 1 (Not consideration....) to (very important)
Antibiotics	4-point scale: 1 (Not consideration....) to (very important)

Results and Discussion

Socio-demographic characteristics

Table 3 presents respondents' sociodemographic profiles. As shown in the table, the majority of the respondents were female (63%). The majority of the respondents (76%) were economically engaged, with most (29%) earning income in the 500–999 GHS range. More than half of the respondents were of the younger generation (56%) and were between 18 and 35 years of age) with an average age of 36 years. Although 96% of the respondents had formal education, most (60.8%) had primary and secondary education.

TABLE 3
Socio-demographic composition of the sample

Variables	Description	Sample (%)
Gender	Male	36.8
	Female	63.3
Age	Mean age in year (SD)	35.97 (12.45)
	18–35 years	56.0
	36–49 years	28.8
	50–65 years	11.8
	66+	3.5
Education	No education	4.0
	Primary school	6.8
	Junior secondary school/ Middle school	19.0
	Senior secondary school	35.3
	Post-secondary certificate/Diploma	12.8
	Bachelor's degree	19.0
	Postgraduate degree (MBA, MA, MSc, PhD, etc.)	3.3
Employment	Student	12.5
	Employed	76.0
	Retired	2.8
	Unemployed	8.8
Income	Less than 500 GHS	20.3
	500–999 GHS	28.5
	1,000–1,499 GHS	19.8
	1,500–1,999 GHS	14.3
	2,000–2,499 GHS	6.3
	2,500–2,999 GHS	3.8
	3,000 GHS and above	7.3

Consumer purchasing behaviour

The Ghanaian market is flooded with imported frozen chicken (NEA, 2020), which is readily available for consumers to buy from their own vicinity. Unlike imported chicken, which is easily available to buy, consumers have to spend time looking for locally produced chicken. In this study, 62% of respondents indicated that they made an effort to find and buy locally produced chicken.

In the market, approximately 44% of consumers can distinguish between locally produced and imported poultry meat, while 17% are sometimes able to distinguish between the two types. Conversely, 39% of the respondents cannot or find it difficult to distinguish between locally produced and imported chicken at the market. The characteristics used by consumers to distinguish between locally produced chicken and imported chicken include the size (40%) of the meat, tenderness (15%), and when the bird is alive using the nature of the feathers (19%) (Fig. 2). The respondents explained that the meat of locally produced chicken is smaller in size and tougher than that of imported chicken.

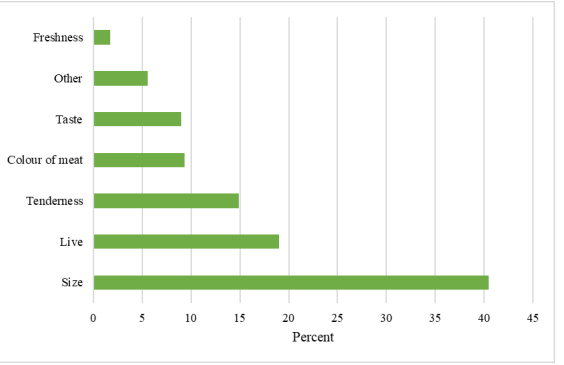

Fig. 2: Features used to distinguish local from imported poultry

Regarding the place of purchase, most respondents (63%) usually bought local chicken meat from the local (traditional) market, followed by direct purchases from producers (15%), where poultry is either slaughtered or sold alive (Table 4). Regarding whether they preferred dressed or undressed poultry, most respondents (59%) preferred their local poultry meat dressed, while 41% preferred to buy live birds to slaughter at home. Of those who preferred dressed poultry, 47%

further indicated that they wished to purchase already-cut chicken whiles, and 12% preferred to buy whole-dressed chicken.

With respect to the frequency of consumption, the results showed that 34% of the respondents consumed locally produced chicken occasionally (Table 4). Only a few respondents consumed local poultry 4 or more times a week (9%) or 2-3 times a week (19%). To provide a clear picture, consumers were asked to disclose how much local poultry meat they were eating at the time of the survey, compared to a year ago. Only 17% of the respondents indicated that they ate more than a year ago i.e. a lot more (6%), and slightly more (11%). Approximately 42% of respondents did not change their consumption levels. Meanwhile, 42% had reduced their current levels of consumption compared to the previous year.

TABLE 4
Place of purchase and consumption behaviour

Description	*Percentage*
Place of purchase of local chicken	
Direct from producers	15.0
Local markets	63.0
Supermarket	9.0
Street vendors	13.0
How often respondents consume local poultry meat (n = 400)	
4 or more times a week	9.0
2–3 times a week	19.0
Once a week	10.8
2–3 times a month	12.8
Once a month	14.5
Occasionally	34.0
How much local poultry meat respondents are eating now, compared to a year ago (n = 400)	
A lot more	6.0
Slightly more	11.0
No change	41.0
A lot less	17.0
Slightly less	25.0
Reasons to reduce future consumption	
Health concerns	61.0
Cost concerns	19.0
Safety concerns	11.0
Others	9.0

Any remedy to increase future purchases of locally produced chicken by consumers begins by knowing the reasons why consumers intend to reduce future consumption and doing the right thing to address this concern. Therefore, respondents were asked to indicate what is likely to influence their decision to reduce the consumption of local poultry (Table 4). The majority (61%) of the respondents disclosed that they intended to reduce future consumption due to health concerns, followed by cost (19%), safety (11%), and others such as convenience and substituting meat with fish (9%).

Motivations: factors consumers consider when buying local chicken

Consumers are guided by certain considerations that motivate them to purchase poultry products locally. Fig. 3 presents the factors consumers consider when deciding to buy local chicken for consumption. Generally, nutrition and health, safety, taste, and freshness of meat are the most important factors considered by consumers when buying local chicken. The

results indicated that 93%, 89%, 88%, and 86% of the respondents considered nutrition and health, safety, taste, and freshness of meat respectively as very important factors motivating their consumption of local poultry meat. The respondents acknowledged that the local chickens were nutritious and healthy, had a good taste, were safe, and fresh (Fig. 3).

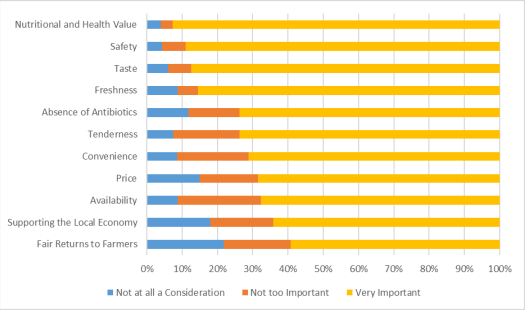

Fig. 3: Factors consumers consider when buying local chicken

Consumer perception of local poultry meat

This section of the study asked consumers about their perception of domestic poultry meat. In addition, this study sought to determine which quality dimensions tend to be associated with locally produced poultry meat, thereby differentiating it from imported meat. Thus, respondents were asked to share their perceptions about poultry produced domestically in comparison to imported poultry. Fig. 4 shows that local poultry meat was considered superior in many product-related dimensions such as eating quality (taste), healthiness, freshness, and naturalness. For instance, respondents considered domestic poultry to be tastier and healthier than imported poultry. Size, cost, availability, and convenience are common weaknesses noted for local poultry. Respondents also perceived local poultry as superior in terms of supporting local farmers and extending the local economy.

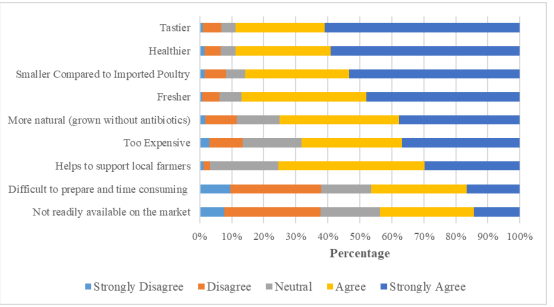

Fig. 4: Consumer perception of local poultry meat

Covid-19 and local poultry consumption

This study answers the fourth research question by analysing changes in the respondents' poultry meat consumption habits due to the COVID-19 pandemic. The results showed that 61% of the respondents did not change their consumption patterns of local poultry meat. On the other hand, 4% indicated that poultry meat consumption had increased (Fig. 5). More than a third of the respondents indicated that their consumption decreased due to the COVID-19 pandemic.

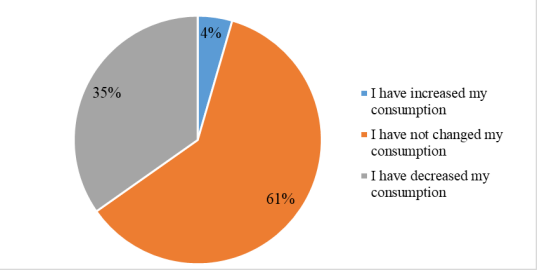

Fig. 5: Changes in poultry consumption during Covid-19 pandemic

Respondents who decreased their consumption were asked to indicate their reasons for reducing their consumption. The results showed that respondents' concerns about health and safety were the reasons for reducing poultry meat consumption (22%). About 20% also attributed the reduced consumption to fear of contracting COVID-19. In addition, about 19% and 14%

of the respondents attributed their reduced consumption to higher prices and reduced income, respectively.

In terms of whether the COVID-19 pandemic affected their intention to change their consumption in the future, the results indicate that the pandemic may have a mixed impact on the consumption of poultry meat. For example, although almost half of the respondents (49%) indicated that they were not likely to change their consumption patterns, more than one-third (35%) were more likely to reduce their consumption in the future (Fig. 6). Meanwhile, only 16% were more likely to have increased poultry consumption.

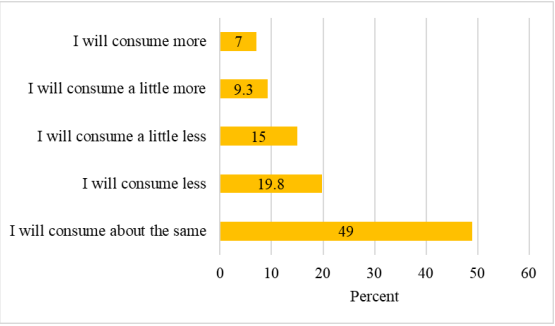

Fig. 6: Intentions to change future consumption

Based on the above descriptive results on the consumption of local chickens, further analyses were carried out to obtain empirical estimates of the frequency of consumption. Table 5 presents the estimation model results. Based on the probit model analysis, age group, income group, supermarket, efforts to find local chicken, and support for the local economy significantly influenced the frequency of local chicken consumption. However, owing to the nonlinear nature of ordered probit models, the estimated coefficients do not have a direct interpretation *per se*. Consequently, the marginal effects are calculated and discussed. The results in Table 5 show that respondents had 33.9%, 14.7%, 13.0%, 10.7%, and 27.7% probability of consuming local chicken occasionally, once a month, two to three times a month, once a week, and twice a week or more, respectively.

The marginal effect represents the effect of a change in the explanatory variable on the predicted consumption level. The estimated marginal effects from the ordered probit model sum to zero for each variable across the consumption frequency categories. The results show that the age of the respondent influences the frequency of consumption. Specifically, respondents aged 36–49 years and 66 years and above had a higher probability of consuming local chicken occasionally, by 12.3 percent and 36.6%, respectively, compared to respondents aged 18–35 years. This implies that older respondents are more likely to consume local chickens less frequently.

Income is also found to have a statistically significant (at 1% and 5% levels for income between 500–999 GHS, and 1,999–2,000 GHS respectively) effect on consumption frequency. The results show that consumers in higher income brackets were more likely to consume local chicken frequently than those with low income. For example, respondents in the income group of 3,000 GHS and above were more likely to consume local chicken two times or more a week by 15.1 percentage points. The results further show that 24.7% of respondents who purchased chicken from supermarkets compared to those who bought it directly from farms or producers were more likely to consume local chicken frequently (i.e. two or more times a week). Consumers who made an effort to buy local chicken compared to those who did not were more likely to consume local chicken frequently by 9.2 percentage points. Finally, respondents who considered supporting the local economy as an important motivation for purchasing local chicken compared to those who did not consider it important were more likely to consume it frequently by 9.2 percentage points.

TABLE 5
Ordered probit results with marginal effects

Variables	Coefficients	Marginal effects				
		Occasionally	Once a month	2–3 times a month	Once a week	Twice or more a week
Predicted prob.		*0.339*	*0.147*	*0.130*	*0.107*	*0.277*
Age						
36–49 years	-0.341** (0.140)	0.123**	0.0126**	-0.00696	-0.0185**	-0.110**
50–65 years	-0.295 (0.191)	0.105	0.0120*	-0.00514	-0.0155	-0.0965
66 and above	-0.962*** (0.259)	0.366***	-0.00994	-0.0505**	-0.0648***	-0.241***
Gender	-0.0648 (0.126)	0.0234	0.00248	-0.00131	-0.00355	-0.0210
Education						
Low education	0.109 (0.237)	-0.0400	-0.00354	0.00277	0.00632	0.0345
High education	0.0748 (0.258)	-0.0276	-0.00223	0.00207	0.00443	0.0233
Employment	-0.152 (0.149)	0.0547	0.00580	-0.00306	-0.00830	-0.0492
Income						
500 GHS – 999 GHS	0.456*** (0.172)	-0.167***	-0.0130*	0.0126	0.0265**	0.141***
1,000 GHS - 1,499 GHS	0.209 (0.198)	-0.0805	-0.00201	0.00914	0.0141	0.0592
1,500–1,999 GHS	0.197 (0.215)	-0.0759	-0.00170	0.00875	0.0134	0.0555
2,000–2,499 GHS	0.535** (0.265)	-0.193**	-0.0181	0.0119	0.0292**	0.170*
2,500–2,999 GHS	0.536 (0.332)	-0.193*	-0.0183	0.0118	0.0293**	0.170
3,000 GHS and above	0.483* (0.268)	-0.176*	-0.0147	0.0124	0.0276*	0.151*
Markets						
Traditional	0.178 (0.169)	-0.0670	-0.00382	0.00615	0.0112	0.0535
Supermarket	0.709*** (0.241)	-0.232***	-0.0400**	-0.00115	0.0263**	0.247***
COVID-19	0.110 (0.114)	-0.0395	-0.00419	0.00221	0.00600	0.0355
Effort	0.284** (0.124)	-0.102**	-0.0108**	0.00572	0.0155**	0.0919**
Attributes & motivation						
Safety	-0.205 (0.200)	0.0740	0.00785	-0.00414	-0.0112	-0.0665
Freshness	-0.301 (0.198)	0.108	0.0115	-0.00606	-0.0164	-0.0974
Availability	-0.114 (0.122)	0.0410	0.00434	-0.00229	-0.00621	-0.0368
Antibiotics	-0.0317 (0.053)	0.0114	0.00121	-0.000639	-0.00173	-0.0103
Support local economy	0.284** (0.123)	-0.102**	-0.0109*	0.00573	0.0155**	0.0920**
Cut-points						
k1	-0.392 (0.386)					
k2	0.0230 (0.382)					
k3	0.383 (0.381)					
k4	0.704* (0.382)					
Chi-squared (chi2)	63.93					
Prob >chi2	0.0000					
Log-likelihood	-574.19					
Number of obs.	400					

Notes: *, **, *** Indicates statistical significance at the 10%, 5% and 1% level, respectively. Robust standard errors are presented in parentheses. Marginal effects (dy/dx) calculated at the mean for continuous variables and for a discrete change from 0 to 1 for dummy variable

The findings show that most respondents made an effort to find and buy locally produced chicken. This suggests that Ghanaians have a good taste for locally produced chicken and are willing to buy it. This result is consistent with the results of the ordered probit regression model. It was found that consumers who made efforts to search for and buy local chicken were more likely to consume local chicken frequently compared to those who did not. Most respondents purchased chicken from local/traditional markets. Purchasing from local markets did not have any significant effect on the frequency of consumption, although a positive relationship was observed.

Instead, we found that, compared to direct purchases from farms or producers, respondents who purchased local chicken from modern market channels (i.e. supermarkets) had significantly higher consumption levels. This may be attributed to proximity, as poultry farms compared to supermarkets are usually located on the outskirts of Accra (peri-urban areas); therefore, respondents may have to travel long distances to access local chickens. The results revealed that the respondents preferred dressed and cut chickens. This is consistent with previous studies (Asante-Addo & Weible, 2020a; Mensah *et al*., 2020; NEA, 2020), which indicate that consumers prefer processed (cut) poultry meat.

The findings also show that respondents considered the price and availability of local chicken as important factors when buying local chicken. They believe that local chickens are expensive and not readily available in the local market. This perception usually decreases demand for local chickens in Ghana. This is in line with the baseline survey report on the Ghana Poultry Project, which concluded that consumers were willing to buy locally produced poultry meat if the cost was the same as the imported poultry products and was more available, especially in dressed and cut portions (USDA, 2016). Local chicken is generally tough and has a good texture. This quality is part of the list of reasons that motivate consumers to purchase local chicken. A similar result was found by Atuahene *et al.* (2014) among respondents in the Kumasi metropolis of Ghana.

In general, although most respondents did not change their consumption patterns, the COVID-19 pandemic led to reduced consumption among consumers compared to a rise in consumption. This is confirmed by the results of the regression model. The effect of COVID-19 on the frequency of consumption was not statistically significant. This result may not be surprising, given that most of the respondents in our survey indicated that they did not change their purchasing patterns due to COVID-19. These findings suggest that COVID-19 may not have significantly impacted the consumption patterns of the respondents. However, as indicated earlier, some respondents (more than one-third of the sample) reduced their consumption due to COVID-19, the major reason being concern about health and safety.

This is also in line with consumers' motivation to purchase local chicken meat. These findings suggest that consumers are generally worried about the health and safety issues associated with meat consumption. Fear of contracting COVID-19 was prominent in their decisions to reduce consumption. Consumers generally believe that the consumption of poultry products could cause COVID-19, and hence, the decision to reduce consumption. This is consistent with other observations (FAO, 2020). Chicken sales were reduced after rumours were rife on social media, creating the impression that humans could contract COVID-19 by consuming chicken in India (FAO, 2020). According to Lobb & Mazzocchi

(2007), as people's risk perception increases, they are less likely to view chicken as safe if it is produced domestically or elsewhere.

In terms of the motivations for purchasing local chicken meat and perceptions, the results show that, in general, consumer responses towards the importance of chicken attributes as a motivating factor for purchasing local chicken meat and their perceptions were largely unchanged when compared to a previous study conducted prior to the emergence of the COVID-19 pandemic (Asante-Addo & Weible, 2020b). Consumers were mostly motivated by taste, health, and freshness in their purchase of local chicken meat, which is in line with previous studies. Therefore, the results suggest that the COVID-19 pandemic has had only a minor effect on Ghanaian urban consumer preferences for local chicken meat. This finding might be due to the fact that this study was conducted in January 2022 when Ghana had relatively low daily cases of COVID-19 and citywide lockdowns were not in place as the government only imposed three weeks of lockdown in 2020 and, as such, consumption patterns of chicken had returned to a closer resemblance of normality in Accra. However, a clear message from these findings is that there is an increasing desire for healthy and safe chicken meat.

From the ordered probit results, we found that older people tended to eat fewer local chickens than younger people. A possible explanation for this finding is that as people age, they are more likely to reduce their meat intake, which may be due to health-related reasons. This result is consistent with the findings of Lin *et al.* (2006). They found that the consumption of poultry was lower among older individuals than among younger individuals. As observed in this study and supported by previous research (Asante-Addo & Weible, 2020b), consumers with high incomes are more likely to consume local chicken meat. This may be explained by the fact that local chickens are expensive in Ghanaian. Therefore, consumers with high income are the ones that would be able to consume it frequently.

As expected, the variable that seeks to support the local economy significantly influences the frequency of consumption. This result suggests that consumers seek direct assurance on specific outcomes, such as supporting the local economy through increased consumption of local chicken. The result of consumers' greater concern about the importance of supporting the local economy could be a signal to policymakers regarding the relationship between interest in local foods and public values (see Kwakwa, 2013).

Conclusion and Recommendation

This study sought to understand consumers' motivations for and perceptions of local poultry meat and examine the effect of covid-19 on local poultry consumption. The results show that consumers consider nutrition and health, taste, safety, and freshness of meat as important motivating factors for the purchase of local chicken. The local chicken was considered tastier and healthier than imported chicken. However, size, cost, availability, and convenience are common weaknesses of local poultry. The findings from the ordered probit model show that the consumption frequency of local chickens is significantly influenced by sociodemographic factors, such as age and income groups.

Other factors, such as markets, efforts to find local chicken, and support for the local economy, also significantly influenced the frequency of consumption. As support for the local economy significantly and positively influences the frequency of consumption, appealing to consumers' loyalty should capture the interests of those who pay attention to and

care about the origin of the chicken they buy. Emphasis should also be placed on not only domestic origin, but also on support for the local economy as well as the perceived freshness that consumers associate with domestically produced chicken. This will help to increase consumption and enhance the competitiveness of the poultry sector.

We also found that the majority of respondents made efforts to find and buy local chicken, and that they were more likely to consume local chicken frequently than those who did not. Therefore, if local chicken is made readily available, consumers will buy more, which will help boost productivity and enhance the growth of the poultry industry. Again, the findings show that most of the respondents consume local chicken occasionally, with only a few respondents indicating their willingness to consume more chicken or a little more in the future. This revelation clearly shows that the market for domestically produced chicken will decrease if consumer concerns are not addressed. Thus, any remedy to increase the future purchase of locally produced chicken must begin with understanding the reasons behind their intention to reduce future consumption. Findings on the role of modern markets in the consumption of local chicken have important implications. Since consumers who purchase from supermarkets are more likely than those who buy directly from farms to consume local chicken frequently, supermarkets can serve as niche markets for producers who can serve those markets as well as a means of increasing consumption of local chicken, given that consumers are interested in convenience due to time constraints.

The finding that respondents perceived local chicken to be expensive and not readily available is of great importance to industry players and policymakers. Efforts to make local chicken less expensive would go a long way to increase demand and boost the competitiveness of the poultry industry. One possible way is to provide subsidies to feed, which constitutes the major cost component in poultry production. Additionally, tenderness is an important factor that consumers consider when buying locally produced chicken. However, it was evident from the findings that there is an increasing desire for healthy and safe chicken meat; therefore, efforts to ensure that local chicken meat products are safe and healthy for consumption are needed.

There is also a need for greater education through mass media and other social media platforms to dispel any rumours and perceptions that associate poultry meat with Covid-19. Poultry farmers' associations with the support of the Ministry of Food and Agriculture can undertake such educational campaigns. Finally, findings showing consumers' higher concern about the importance of supporting the local economy are crucial for the development of the local poultry industry. In this regard, policies to promote consumers' interest in the consumption of local chickens will help reinvigorate local economies.

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