



An economic study to measure the impact of consumer taste on increasing demand for Rayyan chicken and competing food products in Tikrit District in 2024

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ABSTRACT

This paper examined the household demand of three chicken meat namely Rayyan chicken, local chicken and imported chicken in Tikrit District and specifically the consumer food taste as a behavioral determinant of the quantity demanded. In 2024, cross-sectional data were gathered in 100 households on a structured questionnaire and transformed into an ordinal index with a scale of 03. Demand models of each type of chicken were estimated separately using the double-log. The findings indicated that Rayyan chicken was the healthiest choice by the households with 70, then local chicken with 20 and imported chicken with 10 percent. The results also indicated that the elasticity of taste was greatest in the case of Rayyan chicken, which shows that the elasticity of taste is the most responsive to sensory qualities and brand name. Local chicken had a medium elasticity and the lowest response was the imported chicken where they were more dependent on price and the convenience of storing. The findings confirm that one of the key elements that influence the demand of poultry in Tikrit District is food taste and that the organized national product has competitive advantage. The research reveals the significance of incorporating sensory qualities in the marketing plans and policy interventions to favor the local production of poultry.

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دراسة اقتصادية لقياس اثر ذوق المستهلك في زيادة الطلب على دجاج الريان والمنتجات الغذائية المنافسة في قضاء تكريت لعام 2024

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الخلاصة

حالت هذه الدراسة طلب الأسر على ثلاثة أنواع من لحوم الدجاج- دجاج الريان، الدجاج المحلي، والدجاج المستورد- في قضاء تكريت، مع التركيز على دور الذوق الغذائي للمستهلك بوصفه محدداً سلوكياً للكمية المطلوبة. وقد جُمعت بيانات مقطعة عام 2024 من 100 أسرة باستخدام استبيان مهذلة، وتم تحويل التفضيلات الحسية إلى مؤشر ترتيب ينراوح بين (0-3). جرى تقدير نمادج طلب لوغارتمية مزدوجة منفصلة لكل نوع من أنواع الدجاج. أظهرت النتائج أن دجاج الريان يهيمن على تفضيلات الأسر بنسبة 70٪، يليه الدجاج المحلي بنسبة 20٪، ثم الدجاج المستورد بنسبة 10٪. كما بيّنت النتائج أن مرونة الذوق كانت الأعلى لدجاج الريان، مما يعكس استجابة قوية للخصائص الحسية ولمكانة العلامة التجارية. في حين أظهر الدجاج المحلي مرونة متوسطة، بينما سجل الدجاج المستورد أضعف استجابة، إذ يعتمد طلبه بصورة أكبر على السعر ومكانية التخزين. وتوكّد النتائج أن الذوق الغذائي يمثل عاملًا محوريًا في تشكيل طلب الداخرين في قضاء تكريت، كما تبرّز الميزة التنافسية للمنتج الوطني المنظم، مشددة على ضرورة دمج الخصائص الحسية ضمن استراتيجيات التسويق وسياسات دعم الإنتاج المحلي.

الكلمات المفتاحية: ذوق المستهلك، دالة الطلب، دجاج الريان.

INTRODUCTION

The demand of poultry meat is one of the main issues of agricultural economics, especially given the significant change in food consumption trends witnessed in Iraq in recent years. The increasing population rates, increase in household income and the increase in the prices of red meat have all led to an augmented dependence on chicken meat as a major food item in the Iraqi food basket. These developments are a reminder that it is crucial to determine the variables that define consumer purchasing behavior, particularly sensory and behavioral ones that have scarce empirical evidence in the literature (Saied *et al.*, 2022; Osman and Hamdy, 2022).

The presence of perceived high quality and constant sense of appeal in Rayyan chicken has enabled it to gain a strong market presence in Salahuddin Governorate, that of Tikrit District in particular. Although there have been a number of Iraqi studies on the poultry demand, they have not investigated the conventional economic determinants including price and income. Nevertheless, past studies have been mostly silent on the quantitative evaluation of sensory taste in an economic context and this forms a significant research gap. Adding taste to the equation of a measurable demand can offer an additional clarification of the variations in the amount of chicken of different types demanded and it can be an overall comprehension of consumer behavior (Shabib and Mukhlef, 2015; Abdulrazzaq and Al-Rubaee, 2024).

The paper fills this gap by quantitatively assessing the role of consumer taste on the demand of Rayyan chicken compared with local and imported options using the recent field data obtained in Tikrit District. The results are intended to serve the purpose of improving the production and marketing strategies as well as to increase the competitiveness of the poultry that is produced locally. The research problem is formulated in the fact that there is no clear quantitative estimate that may prove to what degree the food taste of consumers enhances the demand of Rayyan chicken over the local and imported chicken in Tikrit District. The necessity of this gap is as follows: econometric analysis is required that can reflect real consumer behavior and quantify this effect in a reasonable empirical context. This study is important because it addresses a behavioral aspect that has not been fully captured in the Iraqi research on the consumption of poultry-meat, that is, consumer food taste and how it helps in defining the amount of different types of chicken that should be demanded. Past literature has been majorly focused on the conventional economic

parameters, which include price, and income, whereas quantitative estimates of the strength of taste as a determinant of demand are not available, especially in a market that has unique localities like that of Tikrit District. In line with this, this study presents factors quantitatively that both producers and marketers can use in formulating production and marketing policies with respect to consumer tastes.

This research paper will be conducted to gauge the impact of consumer food taste on the quantity of Rayyan chicken demanded in Tikrit District and compare their impact with the impacts of local and imported chicken by estimating taste elasticity by using a proper economic model. The research also aims at giving quantitative indicators that provide the explanations to the competitive advantage enjoyed by Rayyan chicken, compared to its counterparts in the local market.

Research Hypothesis:

Based on the research problem and its objectives, the following hypotheses were formulated:

Alternative Hypothesis (H1): There is a statistically significant positive relationship between consumer taste and the quantity demanded of each of the following types of chicken in Tikrit District: Rayyan chicken, local chicken, and imported chicken.

Null Hypothesis (H0): There is no statistically significant relationship between consumer taste and the quantity demanded of the three types of chicken.

The alternative hypothesis (H1) is accepted upon rejecting the null hypothesis (H0), in accordance with the results of the econometric estimation and statistical significance tests.

Previous studies:

The literature review written in recent years (2020-2024) indicates that there is increasing interest in examining how sensory characteristics, including taste, freshness, and perceived quality, determine consumer demand of poultry meat. Majority of studies have however done studies descriptively and not quantitatively through an econometric model.

Asante-Addo and Weible (2020) studied the consumer attitude towards chicken of local and foreign origin in Ghana. Their experiment showed that preference is not based on price in determining consumer preference but taste, freshness and perceived quality. The result is consistent with the main assumption of the current study, which assumes that taste is an attribute of behavior and not a secondary attribute.

Baviera-Puig *et al.*, (2021) divided the consumers in Spain into segments to determine which factors impacted their choice of chicken and turkey meat. The findings have identified the significance of taste, product image, and preparation technique. Their analysis, however, unlike the current analysis, did not go beyond a marketing segmentation approach and did not estimate quantitative taste elasticity.

Setyanovina *et al.*, (2021) examined the nature and preferences of chicken shoppers just before and during the Covid-19 pandemic. Their results validated the presence of sensory attributes as especially the taste, smell and freshness as the most important factors in deciding between local and broiler chicken. Even though their study focuses on the preference of senses, it failed to operationalize taste as an index and failed to include it in a demand function.

Cui *et al.*, (2022) made a contribution to the literature, investigating the aspect of taste preference as well as the perceived health risk (avian influenza) among Chinese consumers. Their findings supported the heavy power of taste on the consumer choice, but

the analytical attention was paid to the behavioral correlations without the formation of an econometric model like the double-log functional form in the current study.

Khash and Oda (2023) compared household consumption of chicken meat in the Babylon Province in Iraq. They found out that the most effectual attributes in consumer decision making are freshness, taste and trust in quality. In as far as the study is applicable in the context of Iraq, it did not quantify the taste nor did it determine the elasticity of the taste, which restricts its capacity to determine the extent of the impact of taste.

Lastly, Abdulrazzaq and Al-Rubaee (2024) investigated the local chicken and imported chicken preference in Kut City. It determined that freshness, taste and smell were the major determinants in consumer choice. Although it provided the information in line with the current study, it used a descriptive methodology without the ability to quantify sensory properties into an objective measure.

What Distinguishes the Present Study from Previous Research?

The study also contrasts with most of the past studies by the fact that it quantifies the food preference as such taking the form of a simplified ordinal index (03) instead of general descriptions or non-quantitative comparisons. It also analyzes three kinds of chicken in the same local market, one being a particular national brand (Rayyan chicken) which was not addressed in the previous research since most of the previous studies were based on the comparison of local and imported products. Further, the research is grounded in recent field data in 2024 Tikrit District which gives good empirical connection on the current consumer behavior in the Iraqi market and makes this study a valuable addition to the body of knowledge on food demand analysis.

Theoretical Framework:

Demand: It is defined as the quantity of a particular product that a consumer is willing to purchase within a specific period of time, taking into account purchasing power (Mankiw, N. G. 2014, 85).

Demand Function: The demand function is defined as the relationship between the quantity demanded and the factors affecting it. The relationship between the quantity demanded and the factors affecting it can be formulated using the following functional formula: (Al-Fatlawi and Al-Zubaidi, 2018).

$$Q = f(P, T, Y, P_-)$$

Where:

(Q): Quantity demanded

(P): Price of the same good

(P_-): Prices of substitute and complementary goods

(T): Tastes and preferences

A change in quantity demanded means a shift from one point to another on the same demand curve due to a change in the price of the good, assuming other factors remain constant.

Consumer Taste: The Impact of Consumer Taste on Increasing Demand for Al Rayyan Chicken and Competing Products

One of the key factors, including consumer income, is the consumer taste, which defines the buying behavior of the majority of consumers. Consumer taste is affected by various psychological, social, economic and cultural factors. It also has a leading role in identifying the kind of products customers like and this influences the market demand. The fundamental notions concerned the consumer preferences and their impact on higher demand of Al Rayyan Chicken as applied in this theoretical framework, and the factors that determine this..

1. The Concept of Consumer Taste: Consumer taste is embodied in a set of preferences and tendencies that influence purchasing decisions. This taste is formed as a result of several factors, the most important of which are: (Kotler, P., & Keller, K. L., 2016.) Source: (Personal needs, quality awareness, personal product experiences)

2. Economic Factors Influencing Consumer Taste: Economic factors are among the most prominent influences on consumer behavior and taste. These factors include: (Personal income: Price: Inflation) (Source: Schiffman, L., & Kanuk, L., 2010)

3. Sociocultural factors: Social and cultural customs significantly influence consumer preferences and consumption trends: (Traditions and eating habits, social influences) (Source: Solomon, M. R., 2018)

4. Consumer behavior and purchasing decisions: Consumer behavior is characterized by analyzing and weighing the various options available to them. Within the framework of consumer behavior analysis, it can be observed that purchasing decisions are influenced by the following: (Previous experience, social evaluation) (Source: Engel, J. F., Blackwell, R. D., & Miniard, P. W121, 2015)

5. The relationship between consumer taste and demand for Al-Rayyan chicken and competing products : The relationship between consumer preferences on one hand and the demand of Al-Rayyan chicken and substitute products on the other is best studied using the demand of the Al-Rayyan chicken and products competing it in the Tikrit District. Quality, price, local taste and marketing are the factors that can result in the high demand of a product provided it corresponds to the preferences of the consumers in the area. This kind of analysis is critical in the knowledge of how the buying decision can be affected by this local product as opposed to other alternatives available in the market.

MATERIALS AND METHODS

This study was based on cross-sectional data based on a sample size of 100 households in Tikrit District in Salah al-Din Governorate who consume one of the three types of chicken commonly found in the local market (Al-Rayyan, local, and imported). The information was collected using a short questionnaire that was conducted through direct personal interviews to obtain accurate data and to get the actual behaviors of the consumers at the time when the data was being collected.

The converted sensory-preference responses were converted into ordinal taste index composed of four levels (03) as no preference, low, moderate, and high preference in order to convert food taste into a measurable economic variable. This method of coding allowed treating the aspect of taste as a behavioral variable which also indicates the actual preference of the consumer but maintains the qualitative aspect of taste. The annual habitual chicken consumption quantity in the household (Y) was assumed to be the

dependent variable in the study as it is a constant consumption behavior in the cross-sectional sample.

Once the raw data was put in SPSS version 26, a diagnostic check was done in order to confirm the consistency of data and also to identify outliers or missing data that could bias estimation. The first check showed that the data can be used in econometric analysis. Some functional forms of demand equation were tried in order to find the most suitable specification to the nature of the variables. The findings demonstrated that the **DLF** form had passed the statistical and econometric diagnostic of model validity and residual behavior and the estimated coefficient was stable and statistically significant- justifying the usage of this model to elucidate the association between food taste and the quantity demanded. Accordingly, the following model was adopted as the main analytical specification:

$$\ln(Y) = B_0 + B_1 \ln(T) + u$$

Where:

- **Y** = annual habitual quantity of chicken consumed (kg/year)
- **B₀** = baseline consumption level when taste = 0
- **B₁** = taste coefficient
- **T** = taste index derived from preference scores
- **u** = random error term capturing unexplained factors

The use of this model was an essential move in the analysis of the relationship between taste and quantity demanded since it made it possible to directly estimate taste elasticity in a consistent economic and econometric model.

The results of the research indicate the behavioral nature of 100 household sample in Tikrit District. The findings indicated that there were distinct variations between the tastes of the consumers on the kind of chicken they desired in the local market. This part outlines the outcomes of the analysis of the statistical and economic data presented in the form of the results, and their economic and statistical explanation.

RESULTS AND DISCUSSION

Table (1) illustrates the relative distribution of consumer preferences across the three types of chicken. The results clearly show that Al-Rayyan chicken ranks first, preferred by 70% of the sampled households, followed by local chicken (20%), while imported chicken accounts for only 10% of total preferences.

Table (1): Consumer preferences and their relative importance

Type of chicken	Number of families	Percentage(%)	Relative importance (number of households / total number)
Rayyan chicken	70	70%	0.7
Local chicken	20	20%	0.2
Imported chicken	10	10%	0.1
Total	100	100%	1.0

As the results in Table (1) show, there is an apparent dominance in the local market by Al-Rayyan chicken, and it has a wide consumer base that feels that the product is close to their sensory expectations and quality perception. This relative allocation gives a

significant initial guide of the separation between the three products regarding the food taste and it shows the impact of a number of taste associated factors- especially flavor, perceived quality, and brand trust. The large percentage of consumers who choose Al-Rayyan chicken indicates that the product has been able to create a stable and favorable image among local consumers. This image is supported by its regular presence in the contemporary stores, as well as by the constant quality level assigned to the brand name. Additionally, the modern shopping habits of customers who tend to get everything they need in one shopping location have only enhanced the stand of Al-Rayyan, since it is easily accessible, visible and frequently fresh in the supermarkets. The increasing demand of Al-Rayyan chicken is also influenced by another factor, which is the increasing awareness of the consumers and their will to support and promote domestic products. Conversely, the reduced proportion of local (live or freshly slaughtered) chicken can be explained by the dissimilarities in marketing, presentation of products, and the conventional choice of certain consumers to purchase the bird themselves.

Regarding imported chicken, the low market share is aligned with the current perception of Iraqi consumers towards frozen meat products and their constant fear of transportation and quality of storage. After verifying that the Double Logarithmic Function (DLF) satisfies all econometric and economic criteria, a separate model was estimated for each chicken type to reflect the behavioral differences among the categories of local consumers.

Table 2. Results of Estimating the Econometric Models for the Three Types of Chicken Using the Double-Log Function (DLF)

Type	Model Equation	t-Value Statistics	Goodness-of-Fit Statistics
Al-Rayyan Chicken	$\ln Y = 2.50 + 0.91 \ln T$	$t = (7.04)$ Intercept. $\ln T = (5.07)$	$R^2 = 0.70$ $F = 25.70$ $D.W = 2.07$
Local Chicken	$\ln Y = 2.89 + 0.83 \ln T$	$t = (5.02)$ Intercept. $\ln T = (4.11)$	$R^2 = 0.67$ $F = 16.89$ $D.W = 2.01$
Imported Chicken	$\ln Y = 3.41 + 0.71 \ln T$	$t = (6.12)$ Intercept. $\ln T = (3.18)$	$R^2 = 0.65$ $F = 10.11$ $D.W = 1.98$

From the table above, the estimated taste elasticities reveal a clear structural divergence among the three types of chicken. This indicates that the relationship between consumer taste and the quantity demanded does not follow a single functional pattern. Consequently, pooling the data into one unified model would lead to biased estimates and an unrealistic

assumption of homogeneous consumer behavior across households. In contrast, estimating separate models ensures a more accurate representation of the actual behavioral differences among the distinct consumer groups for each chicken type.

The estimates of the model of Al-Rayyan chicken of the Double-Log Function (DLF) model provided indicated that the taste coefficient is the highest of the three types which is 0.91. This implies that the relationship between incumbent preference of higher taste and consumption of this product is strong and substantive. The statistical significance of this effect under stringent confidence levels is also seen by the high t-value (5.07). The R² of the model = 0.70 indicates that the model accounts 70 percent of the change in the quantity demanded, which is extremely high among cross-sectional data, and which is also indicative of the relatively homogenous buying behaviour of the consumers who are more inclined towards purchasing the Al-Rayyan chicken. The overall model significance, F-statistic (25.7) is significant, whereas the acceptable value of Durbin-Watson (2.07) is within range, which proves that there is nothing like autocorrelation between the residual values. The results on the economic part illustrate the clear marketing and quality-based differentiation of Al-Rayyan chicken which includes freshness, constant market supply, and high brand image that allows it to dominate the local poultry market in the Tikrit District.

Local fresh chicken was estimated to have a taste coefficient of 0.83, which indicates that the sensitivity of the product to taste is significant but relatively low in comparison with Al-Rayyan. The coefficient is very significant with the t-value of 4.11 showing the same. The R² of the model (0.67) is quite high considering being cross-sectional with only one behavioral variable and the Durbin Watson value (2.01) indicates that there is no autocorrelations. F-statistic (16.89) also shows the significance of the model on a global basis. Interpretatively, demand of local fresh chicken is motivated to a large extent by freshness and on-site slaughter which is being pursued by a sub-group of Iraqi consumers. Nevertheless, the lack of consistency of quality across the stores, extra work and time spent on cleaning and preparation, and variations in sales strategies decrease its reactivity in comparison with Al-Rayyan. However, local chicken is also a significant option among consumers who think more about the taste of the traditional and less processed products.

The lowest coefficient of taste was the level of imported chicken of 0.71 which implies that demand is not that sensitive to the taste factors. Although the sample proportion is quite small, the statistical significance of the coefficient is proved by the t-value (3.18). The model R² = 0.65 represents a fairly high level of explanatory power, and the Durbin -Watson (1.98) test value indicates the lack of autocorrelation. The value of F (10.11) shows that the complete model is statistically significant. Economically, the non-sensory demands of the imported chicken including relative price, longer storage (frozen form), promotional offers and substitution (as an emergency or a secondary choice) are the major factors in influencing the demand on the imported chicken. The influence of sensory qualities is weaker, which is the reason as to why the taste elasticity is low.

The three categories of chicken have different elasticities of taste which display the same variation in the responsiveness of the sensory preference, indicating inherent disparities in the process by which the sensory characteristics of each product are considered by consumers. The elasticity of Rayyan chicken is the greatest (0.91), and it means that any rise in the perception of its taste results in the perceivable growth in the

amount of the demanded product. This high reaction has a close relationship with the perceived product quality, brand reputation and the constant status of Rayyan chicken in the contemporary retail stores- factors that contribute to a more consumer confidence and consumer loyalty, compared to the competing products.

The elasticity of local chicken is also relatively elevated (0.83) because the consumers have a great deal of demand on freshness and flavor of direct slaughter. Nonetheless, its taste sensitivity is not as high as Rayyan chicken because of the legacy modes of retailing, the unavailability of convenience of ready-cooked meals, and the extra time and efforts needed to clean and prepare the food. Furthermore, there are consumers who choose the chicken by hand, and this aspect makes consumers more sensory, but less stable and predictable in demand than the packaged and standardized products.

On the other hand, imported chicken has the least elasticity (0.71), which once again proves that its demand is most influenced by non-sensory characteristics like reduced price, better long-term storage and promotional deals, but sensory characteristics are less important when compared to the fresh products. This trend is also indicative of the established consumer anxiety in the areas of transportation, storage facilities, and slaughter origination. On the whole, the findings prove that the element of taste is also extremely important in the process of creating demand; but, the magnitude of this effect varies structurally between the three types of chicken. This disparity is a measure of product quality, positioning in the market and consumer trust to the product in the local market.

This study is in close relation to the modern literature that underlines the vitality of the sensory attributes in determining consumer demand of poultry products. The very high taste elasticity of Al-Rayyan chicken is directly proportional to findings of Asante-Addo and Weible (2020), who stated that freshness and flavor are prioritized more in the purchase decisions than the price, and this trend is replicated in the high rate of share preference in Tikrit with Al-Rayyan. On the same note, the significance of brand recognition and product image expressed by Baviera-Puig *et al.*, (2021) is consistent with the high consumer confidence in Al-Rayyan chicken found in this research. In the case of local chicken, the average taste elasticity aligns with Khash and Oda (2023), who put emphasis on the Iraqi buyers, who depend on freshness and instant slaughter. Nonetheless, unlike the case of Setyanovina *et al.*, (2021) that reported that people started to prefer local products more in times of crisis, the Tikrit data did not reflect a similar pattern, signifying that the market conditions were relatively stable at the time of the study. With imported chicken, the elasticity of taste is low as witnessed in the present study, similar to the previous studies which established weak trust in frozen meat products. However, the findings are different compared to Cui *et al.*, (2022), who registered increased preferences on imported poultry in some Asian markets because of the stronger perceptions on food safety. This is not the case with the Tikrit market where the aspect of freshness and time of slaughter is still determinant. On the whole, the comparison proves that the results of this study are relevant to the global research trends according to which sensory characteristic are the key determinants of poultry demand and the distinctive nature of the Tikrit market, where freshness and the belief in home production are the main factors of consumer buying behavior and are formed in very local ways.

CONCLUSION

Food taste is a core determinant of demand, as even a simple taste-based model explains a substantial share of variation in quantity demanded, indicating that consumers in Tikrit do not perceive chicken meat as a homogeneous product. Al-Rayyan chicken demonstrates the strongest demand response, where the combination of desirable sensory attributes and organized marketing structure results in the highest market share, taste coefficient, and model fit, reinforcing strong consumer preference and brand loyalty. Local and imported chicken exhibit weaker taste responsiveness, with local chicken constrained by limited marketing structure and preparation costs, while imported chicken reflects a trust deficit rather than inferior quality, being perceived mainly as a complementary or emergency good. Consumer heterogeneity and the ordinal taste index justify separate demand models, as variations in taste elasticities and model performance across chicken types confirm that behavioral differences are substantial and can be effectively captured using a structured taste scale.

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