



Factors affecting broiler meat consumption in Karrari Locality, Khartoum State, Sudan

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Abstract

The aim of this study was to investigate on the factors affecting broiler meat consumption in Karrari locality- Khartoum State- Sudan. A stratified random sample was selected; where the locality was divided into three strata (administrative units) these strata were further subdivided to blocks according to income level. From these blocks equal numbers of 100 households were selected randomly. Data from the primary source were as collected using a questionnaire and personal interviews. Both descriptive and analytical statistics were used to analyze the data and SPSS programme was employed for statistical analysis. The study revealed that the studied population was heterogenous with respect to the education level and they belong to the different states of the country. Most of the households were headed by males (78%); the most common age group was 31-40 year. The average household size was 4.6 (5) and the average monthly income was SDG 1080.7 ± 926.2 (US\$ 245.11± 210. 07), there was significant difference (P<0.01) in the level of income between the three administrative units. Most of the households (%61.7) preferred poultry meat; broiler meat was the most preferable one (94%). There was a positive correlation (the correlation coefficient =0.583) between the income and quantity of broiler meat consumed (P<0.01); the consumption function was $C = 1.373 + 0.002Y$. An increase in the broiler price will lead to reduction in the quantity consumed and a drop in price will lead to increased consumption. A rise in red meat price will lead to increase in broiler meat consumption. The annual average per capita consumption was 11.3Kg. The study concluded that broiler meat consumption in Karrari locality comes in agreement with the economic theory of demand. Also income was the most important factor that affects consumption. The annual per capita consumption was higher than that in Sudan and some other countries.

Keywords: broiler meat; consumption; Per capita consumption; consumption function; income elasticity

Introduction

Meat has a high nutritive value. Meats from different animal sources differ in their protein, fat and water contents (humdi, 2013). Because poultry meat is considered as cheap compared to other animal meat, it gained the advantage of being the prime source of animal protein. Broiler is the most common source of meat because it costs less in production and is not prohibited by some religious groups like pork and beef. According to (United State Department of Agriculture, 2012) the world annual broiler consumption will reach 127.002million ton by 2021 and the per capita consumption will increase at 1.11% based on 2012 rate.

Ellaythi *et al.*, (2003) defined consumption as the quantities of goods or service that consumer is willing and able to purchase at different price levels during a certain period of time. They also defined it as “to obtain or purchase a commodity in order to satisfy a final need”. There are many factors affecting consumption. According to Abdelmutalb (2003) the price of the commodity is one of these factors and there is a negative relationship between the quantities demanded and the price of the commodity. For him the income also affects the quantity consumed, the relation between the income and quantity consumed is a positive one. Naga (2008) added that this relationship is negative in case of inferior goods. Elaarif (2009) considered the consumer preference and taste beside the number of consumers as among the factors that influence consumption. Goreysa and Yonis (1984) added that there is a positive relation between the quantity demanded and the consumer taste. For Ibrahim (2012) the prices of other commodities influence the consumption of a certain commodity, competitive goods have a positive relationship with the quantity consumed. Worldwide poultry meat consumption expanded from 66.4 million tonnes in 2000

to almost 91 million in 2009 (The poultry site, 2013). The world per capita consumption of poultry meat in 2012 was 97.8 pound (43.5 Kg) out of 80.4 pound (35.7Kg) was broiler meat (national chicken council, 2014). In spite of resource endowment, it was estimated that the annual per capita consumption in Sudan was one kg which is much lower than the global average. This is attributed to the taste of Sudanese consumer who prefers red meat. The government policy which enhances red meat export will lead to the rise in red meat price in the local market. Broiler meat will be the best substitute in this case, but changing consumers taste needs investigation on the factors that influence broiler meat consumption. This was in the interest of the current work.

Materials and Methods

This study was conducted at Karrari Locality, one of the seven localities of Khartoum State. The locality lies in the west north part of the State; it occupies an area of 3900 square kilometers and is divided into three administrative units (Karrari, 2012). The total population accounts to 714079 (The statistics bureau, 2009).

Both secondary and primary data were used. The secondary data were collected from different sources. For the collection of the primary data cross sectional survey was conducted. A total of 300 household were selected using multi stage random sample. In the first stage the locality was divided to three administrative units and these units were further sub-divided into blocks. Questionnaires sheet was used to collect the required data.

SPSS programme was used to analyze the data. Both descriptive and analytical statistics mainly chi square test and the correlation coefficient were used.

Results

The characteristics of the households

The study revealed that 78% of the households were headed by males. The most common age group was 30 to 40 years. The education level was characterized by heterogeneity, Graduates accounted to 25% whereas the illiteracy approached 23%.

Most (67%) of the households had 3-5 members with an average of 4.5. The original homes of these households were; Western region, Khartoum State, Northern region, Central region and Eastern region (27.0%, 26.3%, 25.3%, 24.6% and 4, 6% respectively.

The average income was SDG1080.7± 926.2 approximately US\$ 245. Table (1) shows that there was a significant difference in the income levels between the three administrative units ($P<0.01$), Most of the high income group were found in Elthawra administrative unit, whereas most of the lower income group were found in Karrari administrative unit,

Broiler meat consumption in Karrari locality

The study revealed that 61.7% of the study population preferred poultry meat to other meat types. There was a significant difference ($P< 0.01$) in this preference between the administrative units. Three types of poultry meat are consumed in the locality, these are broiler, pigeon and ducks meat with broiler meat being superior to the other two types (94%, 4.7% and 1.3%) respectively, Broiler meat can be sold as cuts or whole chick. Unlike the case of the other administrative units, most of the people in Karrari preferred to purchase broiler cuts.

Factors affecting broiler meat consumption in Karrari locality

Fig.1 presents the relationship between the monthly income and the quantity of broiler meat consumed in Karrari locality (The consumption function). The study revealed

that the consumption function of broiler meat in Karrari locality was as follows:

$C = 1.373 + 0.002Y$ (Computed from field data)

:Whereas

C= the quantity consumed

Y= the monthly income.

Table (2) presents the impact of 100% increase in disposable income on the quantity of broiler meat consumed. Most of studied households (79%) indicated that they will increase their consumption, while 21% will not do so. No single household stated that they will reduce the quantity consumed.

The impact of broiler price change on the quantity consumed

Tables (3 and 4) display the impact of broiler price change on the quantity consumed. The impact of the price rise was a reduction in the quantity consumed; more than 80% of the studied population in the locality will reduce their consumption. This impact varies significantly ($P<0.01$) between the three administrative units. Karrari inhibitors were the most affected followed by North Rural unit inhabitants than Elthawra inhabitants.

On the other hand, drop in the price of broiler meat will be accompanied by increased consumption; (86.7%) of the study population will increase their consumption with the drop in the price. There was a significant difference ($P<0.01$) in this impact between the three units.

The impact of red meat price change on broiler meat consumption

For most (77%) of the study population the rise in the price of red meat (Beef and mutton) will positively affect the quantity of broiler meat consumed. Also a significant difference existed between the three administrative units ($P<0.01$).

Table (5) shows that 66.7% of the studied population will increase their broiler meat consumption if its prices equates the price of beef or mutton, while 23% will reduce their consumption and 10.5% will not change the

quantity consumed. Significant difference ($P < 0.01$) also existed in this respect between the three administrative units.

The impact of household members on the quantity consumed

The study revealed that there was a significant ($p < 0.05$) weak positive correlation (0.141) between the number of the household member and the quantity of broiler meat consumed.

The study also revealed that the annual average per capita consumption in Elthawra, Karrari and North rural administrative units were 18.3, 5 and 10.6 Kg respectively. The overall annual average in the locality was 11.3Kg.

Discussion

The general characteristic of the study population indicated the heterogeneity of Karrari locality inhabitance. The different education levels, different original states reflect rural urban migration especially if the dominant age group of the heads of the households was (31-40) year. Although most of the households were headed by males, there were a considerable number of female headed households. This heterogeneity justified the selection of the locality to conduct this study. The number of household members was less than that in Sudan and Khartoum State (5.7 and 6.0) respectively (The Statistical Bureau, 2008). The significant difference in the income level among the administrative units was attributed to the types of work practiced by the inhabitants. While Elthawra inhabitants were mainly businessmen, Karrari inhabitants were involved in small private jobs.

The average monthly income was SDG 1080.7 ± 926.2.7 the minimum income level was SDG 250 while the maximum was 10000 (US\$ 245.11) which is less than US\$ 274 monthly income in the Sudan in 2012 (World Bank Development Indicators,

2013). This difference could mainly attribute to exchange rate.

From the wide range of poultry meats, the study population used to consume only three types, these were broiler, pigeon and duck meat. Broiler meat being superior to the others because of the growing broiler industry in the State and to the meat quality and taste.

Unlike the inhabitants of the two other administrative units, Karrari inhabitants prefer cuts to whole chicken; the low income stems behind this preference as they cannot afford to buy whole chicken. It is worth mentioning that this administrative unit encompasses the largest market in the locality (Sabreen Market), where poultry offal including legs, internal organs, necks and wings are sold. Moreover, the inhabitants of Karrari administrative unit prefer beef more than broiler meat, because small amount of beef can be used with vegetables to prepare a meal of a large volume.

The positive slope of broiler meat consumption function in the locality indicates the positive relationship between the income and the quantity consumed and that this commodity is a normal one, which comes in agreement with the economic theory (Ellaythi *et al.*, 2003). The negative relationship between the price of broiler meat and the quantity consumed also consolidates the economic theory of demand. The rise in price of red meat (competitive commodity) resulted in increase in the quantity consumed from broiler meat; this also comes in agreement with Ibrahim (2012).

The positive association between number of household members and the quantity consumed comes in agreement with Ibrahim (2012).

Based on The meat site (2010), the average per capita consumption of broiler meat in the locality is higher than that in the Sudan, India, China and Indonesia, equal to that in

South Africa and less than in United State of America, France, United Kingdom, Canada, Qatar, Libya and Lebanon.

Conclusion

The study concluded that Karrari locality encompasses a variety of inhabitants with regards to original homes, income and education levels. Most of them prefer poultry meat to other types of meat with broiler meat being the most preferable. Consumption of broiler meat is positively influenced by the increase in income level. The increase in broiler price will result in reduction of the quantity consumed, while

the drop in the price of broiler meat will be accompanied by increased consumption. The rise in the price of red meat positively affects the quantity of broiler meat consumed. Karrari administrative unit inhabitants were the most affected by the change in income and the price change followed by North Rural unit inhabitants then Elthawra inhabitants. The relatively low income in Karrari administrative unit resulted in the low annual per capita consumption compared to the two administrative units. The annual per capita consumption was higher than that in Sudan and some other countries.

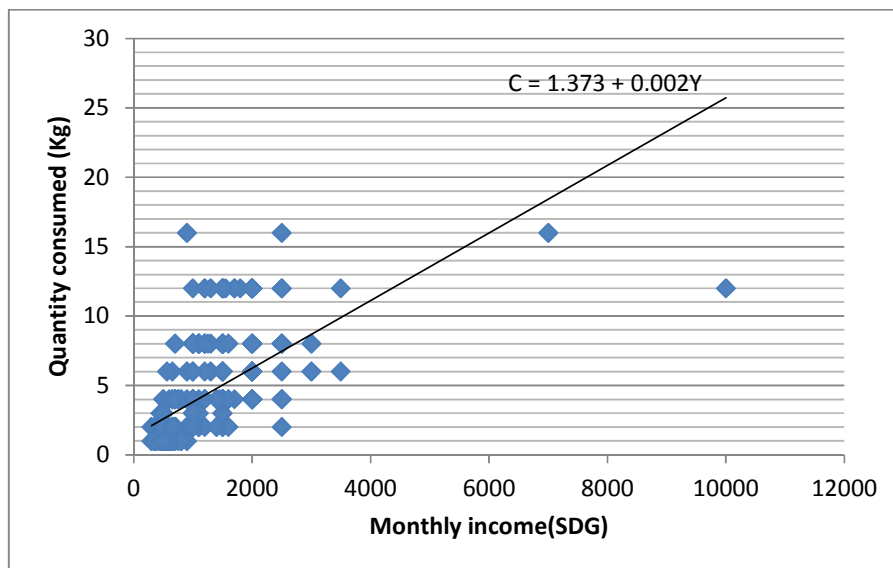


Fig.1: Broiler meat consumption function in Karrari Locality

Table 1: the monthly income

Income level	High	Middle	Low	Total	Sig. level
Administrative unit					
Elthawra	81	18	1	100	
Karrari	03	39	58	100	
North rural	26	27	47	100	
Karrari locality	110	84	106	300	0.00
Percentage %	36.7	29	34.3	100	

Source: Field survey 2013

Table2: Impact of 100% rise in income on the quantity consumed

Increase in consumption	Number of households	Percentage%	Elasticity coefficient	Income elasticity
100%	20	6.7	1	Unit elastic
50%	58	19.3	0.5	inelastic
25%	159	53.0	0.25	inelastic
zero	63	21.0	zero	Completely inelastic

Source: Field survey 2013

Table 3: Change in the quantity consumed due to the rise in broiler price

Administrative Unit	Drop in the quantity	No change	Total
Elthawra	77	23	100
Karrari	97	3	100
North rural	91	9	100
Karrari locality	265	35	300
Percentage %	88.3	11.7	100

Source: Field survey 2013

Table: 4 Change in the quantity consumed due to the drop in broiler price

Administrative Unit	Increase in the quantity consumed(Kg)	No change	Total
Elthawra	66	34	100
Karrari	97	3	100
North rural	97	3	100
Karrari locality	260	40	300
Percentage %	86.7	13.3	100

Source: Field survey 2013

Table: 5 Change in the quantity consumed due to equal price of broiler and red meat

Administrative Unit	No change	Drop	Rise	Total
Elthawra	4	17	79	100
Karrari	4	50	46	100
North rural	23	2	75	100
Karrari locality	31	69	200	300
Percentage %	10.3	23	66.7	100

Source: Field survey 2013

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العوامل التي تؤثر علي إستهلاك لحوم الدواجن بمحلية كرري - ولاية الخرطوم - السودان

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المستخلص

أجري هذا البحث بهدف دراسة العوامل التي تؤثر على استهلاك لحوم الدواجن بمحلية كرري- ولاية الخرطوم - السودان. تم إختيار عينة متعددة المراحل حيث تم في المرحلة الأولى تقسيم المحلية الى ثلاث وحدات ادارية (طبقات). في المرحلة الثانية قسمت الوحدات الى حارات حسب مستويات الدخل ثم اختيرت أعداد متساوية من الأسر من كل طبقة عشوائياً. تم جمع البيانات من المصادر الأولية عن طريق الاستبانة والمقابلات الشخصية. استخدمت الدراسة المنهج الإحصائي الوصفي والتحليلي في تحليل البيانات بواسطة برنامج التحليل الإحصائي (SPSS). توصلت الدراسة الى أن مجتمع الدراسة غير متجانس فهناك مستويات تعليمية متباينة. وينتمون الي ولايات السودان المختلفة. معظم أرباب الأسر من الذكور حيث بلغت نسبتهم 78% وتتراوح أعمارهم ما بين 31-40 سنة. بلغ متوسط عدد أفراد الأسرة بالمحلية 4.6 (5 أفراد). بلغ متوسط الدخل في المحلية 1080.7 ± 926.2 جنيه سوداني. ما يعادل 210.07 ± 245.11 (US\$). وهناك فروق معنوية بين مستويات الدخل في الوحدات الإدارية المختلفة بالمحلية (P<0.01). معظم المبحوثين بالمحلية (61.7%) يفضلون لحوم الدواجن على اللحوم الأخرى. تأتي فراخ اللحم في أعلى قائمة التفضيل بنسبة 94% . هناك ارتباط متوسط بين الدخل والكمية المستهلكة من لحوم الدواجن وقد بلغ معامل الارتباط 0.583 (P<0.01) وأن دالة الإستهلاك موجبة الميل $C = 1.373 + 0.002Y$. زيادة سعر لحوم الدواجن يؤدي الى نقصان الكمية المستهلكة منه وأن معظم سكان المحلية يزيد إستهلاكهم بنقصان سعر الدواجن. يزيد إستهلاكهم من لحوم الدواجن بزيادة سعر اللحوم الحمراء. كما توصلت الدراسة الى أن متوسط استهلاك الفرد بالمحلية يبلغ 11.3 كجم في السنة. خلصت الدراسة الى أن إستهلاك لحوم الدواجن بالمحلية يخضع لنظرية الطلب وكذلك لفرضيات البحث وأن الدخل هو العامل الأكثر تأثيراً على إستهلاك لحوم الدواجن كما خلصت الى أن متوسط نصيب الفرد من لحوم الدواجن بالمحلية يفوق متوسط نصيب الفرد بالسودان وبعض الدول الأخرى.