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CONSUMPTION PATTERNS OF CHICKEN, BEEF AND MUTTON: A STUDY AMONG CONSUMERS IN KOTA KINABALU, SABAH, MALAYSIA

Assis, K.
Faculty of Science and Natural Recourses, Universiti Malaysia Sabah, UMS Road, 88400 Kota Kinabalu, Sabah, Malaysia

Komilus, C. F.
Faculty of Bioresource and Food Industry, Universiti Sultan Zainal Abidin, Gong Badak Campus, 21300 Kuala Terengganu, Terengganu, Malaysia

Bonaventure, B. & Mohd Shahrol Ridzal, O
School of Sustainable Agriculture, Universiti Malaysia Sabah, Sungai Batang Road, Mile 10, 90000 Sandakan, Sabah, Malaysia

Abstract

Sabah is a unique state in Malaysia as the population is heterogeneous and culturally diverse, with more than 30 different ethnic races and over 80 local dialects spoken. The current statistics show that per capita consumptions of beef, mutton and poultry meat in Sabah have increased over the last few years. Many past studies have found that demographic and socioeconomic status of consumers had significant impact on their consumption patterns of livestock products. Therefore, the objective of this study was to identify the current consumption patterns of beef, mutton and chicken among multicultural consumers in Kota Kinabalu, Sabah. A cross-sectional survey method through self-completion questionnaire was used to elicit all the information required in order to achieve the objective of the study. A total of 110 consumers were selected randomly as the consumers during the study. The survey was conducted at supermarkets' areas such as Giant Supermarket and Survey Supermarket located in Kota Kinabalu, Sabah. Descriptive statistics, chi-square test and cluster analysis were used to analyze all the data collected from the consumers. Chi-square tests showed that there were significant relationship between frequency of consuming beef among the consumers and their age, race and religion. Chi-square tests also showed that gender, race, religion, monthly income, and education level had significant relationship with the frequency of consuming mutton among the consumers. But chi-square tests showed that there were no significant relationships between frequency of consuming chicken by the consumers and their demographic and socioeconomic characteristics. This shows that chicken meat is the most popular type of meat among the consumers regardless of their background. A hierarchical cluster analysis using Ward's method produced 4 clusters. But chi-square tests showed that there were no significant relationships between the cluster and the gender, age, race, religion, marital status, household size, monthly income and also education level of the consumers.

Key words: consumption, chicken, beef, mutton, demographic, socioeconomic

1.   INTRODUCTION

Over the last few decades, Malaysia has experienced rapid economic and population growth. With increasing population and improved per capita income as well as lifestyle changes resulting from urbanization, it is predicted that there will be further increases in demand for meat and also meat products in Malaysia. Beef, mutton, and chicken meat are among livestock products which largely consumed by consumers in Malaysia (Abdullahi Farah and Zainalabidin, 2007). Sabah

is a unique state in Malaysia as the population is heterogeneous and culturally diverse, with more than 30 different ethnic races and over 80 local dialects spoken. Figure 1 and Figure 3 show the self-sufficiency level and the per capita consumption of Sabah for beef and poultry meat (i.e. chicken and duck meat) respectively. Figure 2 shows the self-sufficiency level and the per capita consumption of mutton in Malaysia.
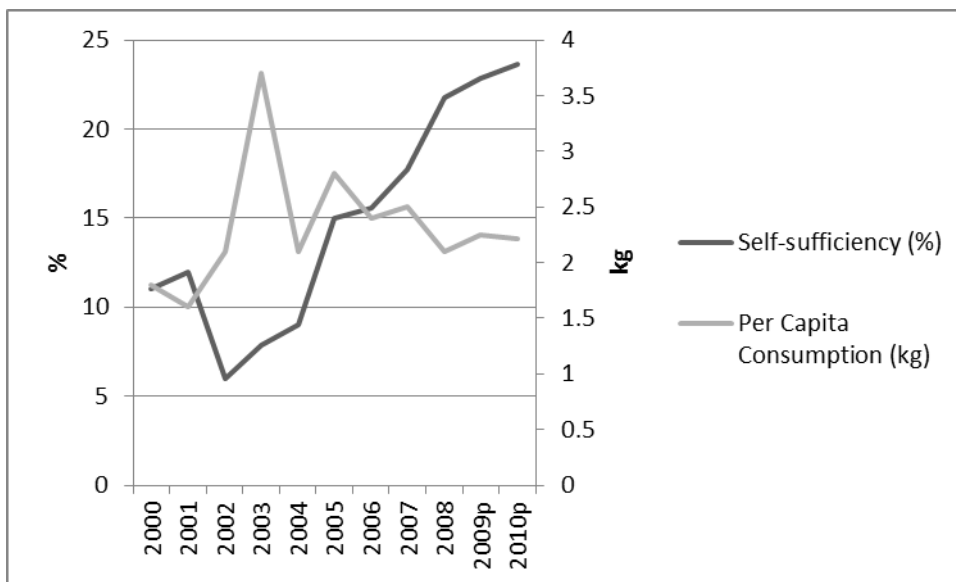
Note: p = Provisional
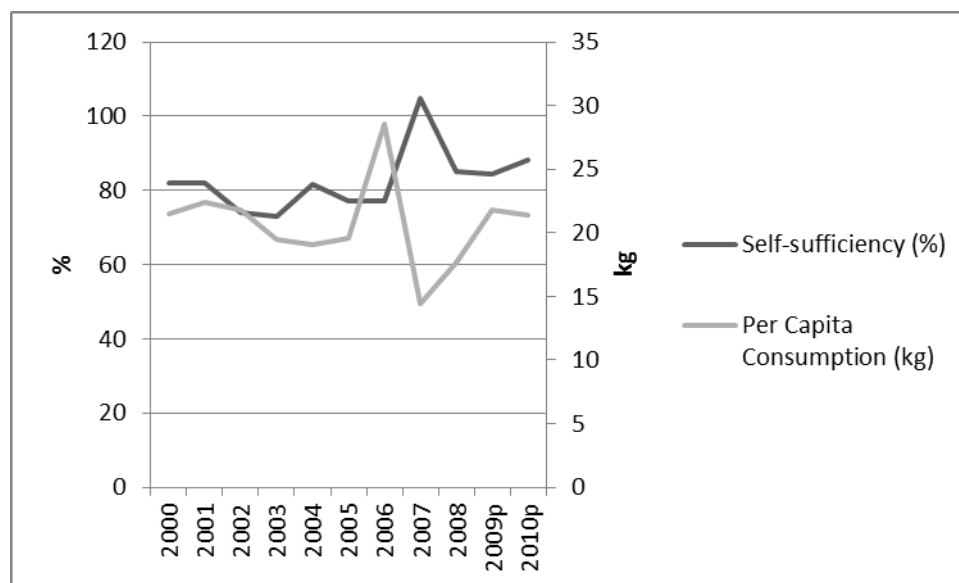**Figure 1: Self-Sufficiency and Per Capita Consumption of Beef in Sabah**
Source: Department of Veterinary Services (2012)
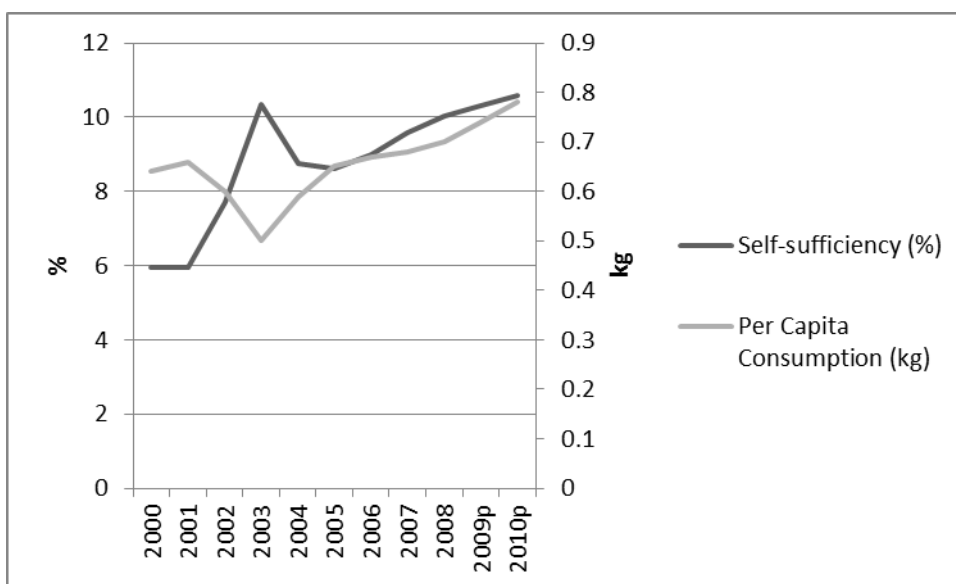
Note: p = Provisional
Figure 2: Self-Sufficiency and Per Capita Consumption of Mutton in Malaysia
Source: Department of Veterinary Services (2012)

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Note: p = Provisional

Figure 1: Self-Sufficiency and Per Capita Consumption of Poultry Meat in Sabah
Source: Department of Veterinary Services (2012)

Many past studies have proved that demographic and socioeconomic status of consumers had significant impact on their consumption patterns of livestock products. He et al. (2003) have found that age, education level, gender, ethnic status, health condition, and consumption experience had a significant impact on meat consumption. Renuka et al. (2009) have stated that the accessibilty to livestock products is often confined to those belonging to the higher strata of the economic spectrum and the frequency of consumption of these products increase with income. Therefore, the objective of this study was to identify the current consumption patterns of beef, mutton and chicken among multicultural consumers in Kota Kinabalu, Sabah.

2.   METHODOLOGY

A cross-sectional survey method through self-completion questionnaire was used to elicit all the information required in order to achieve the objectives of the study. The questionnaire form contains 3 sections, section A contains the questions about demographic and socioeconomic characteristics, section B contains the questions about consumption pattern of the selected livestock products and section C contains some questions about criteria or factors considered before buying meat. A total of 110 consumers were selected randomly as the consumers during the study. The survey was conducted at supermarkets' areas such as Giant and Survey located in Kota Kinabalu, Sabah. Descriptive statistics, chi-square test and cluster analysis were used to analyze all the data collected from the consumers.

3.   RESULTS AND DISCUSSION

Table 1 shows the demographic and socioeconomic characteristics of the consumers. The distribution of the consumers across gender is almost identical whereby 52.7% or 58 consumers are male and 47.3% or 52 consumers are female. Majority of the consumers are aged between 20 to 40 years old (i.e. 80 consumers or 72.7%) and almost half of them are Bumiputera Sabah (i.e. 49 consumers or 44.5%). A total of 66 consumers or 60% are muslim. In term of education level, all of the consumers can be considered as educated consumers as all of them have completed their school with the minimum PMR. A total of 79 out of 110 consumers or 78.2% gain at least RM1000 per month.

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Table 1: Characteristics of the consumers

Characteristic		No. of Respondent	Percentage	Mean
Gender	Male	58	52.7%	
	Female	52	47.3%	
Age				31
Age	< 20 years old	8	7.3%	
	20 - 40 years old	80	72.7%	
	> 40 years old	22	20.0%	
Race	Malay	36	32.7%	
	Chinese	21	19.1%	
	Indian	4	3.6%	
	Bumiputera Sabah	49	44.5%	
Religion	Islam	66	60.0%	
	Christian	31	28.2%	
	Hindu	4	3.6%	
	Buddha	9	8.2%	
Marital status	Single	54	49.1%	
	Married	54	49.1%	
	Divorced	2	1.8%	
Household size				4
Household size	1 - 5 members	98	89.1%	
	6 - 10 members	12	10.9%	
Education level	PMR	2	1.8%	
	SPM	31	28.4%	
	STPM	21	19.3%	
	Diploma	23	21.1%	
	Bachelor Degree	30	27.5%	
	Master Degree	2	1.8%	
Monthly Income	< RM1000	31	28.2%	
	RM1001-RM2000	26	23.6%	
	RM2001-RM3000	39	35.5%	
	RM3001-RM4000	12	10.9%	
	RM4001-RM5000	2	1.8%	

Table 2 shows the frequency of consuming beef, mutton and chicken among the consumers. Majority of the consumers or 44.5% stated that they consume beef 1 to 3 times a week. But 47 out of 110 consumers mentioned that they do not eat or consume mutton at all. Chicken meat is most frequently consumed by the consumers as compared to beef and mutton whereby 99.1% of them claimed that they consume chicken at least once a week. These findings were consistent with the results of the study conducted in Peninsular Malaysia by Abdullahi Farah and Zainalabidin (2007). They found that the consumers had negative perception towards mutton due to lack of knowledge and the special quality of mutton. Hence,

mutton is not as a preferred meat compared to other meats such as beef and chicken. They also found that factors such as availability and high price also hinder the majority of the consumers from consuming mutton.

Chi-square tests showed that there were significant relationship between the frequency of consuming beef by the consumers and their age, race, and religion. Chi-square tests also showed that gender, race, religion, monthly income, and education level had significant relationship with the frequency of consuming mutton among the consumers. But chi-square tests showed that there were no significant relationships between frequency of consuming chicken by the consumers and their demographic and socioeconomic characteristics. This shows that chicken meat is the most popular type of meat among the consumers regardless of their background. These findings are also consistent with Tey (2008)'s whereby gender and employment status were not significantly related to quantity of food consumed.

Table 2: Frequency of consuming beef, mutton and chicken

Question		Count	Percentage
How frequent do you consume beef?	Do not eat/ Never	11	10.0%
	Once a week	19	17.3%
	1-3 times a week	49	44.5%
	4-6 times a week	17	15.5%
	Everyday	1	0.9%
	Once a month	13	11.8%
How frequent do you consume mutton?	Do not eat/ Never	47	42.7%
	Once a week	20	18.2%
	1-3 times a week	14	12.7%
	4-6 times a week	2	1.8%
	Everyday	0	0.0%
	Once a month	27	24.5%
How frequent do you consume chicken?	Do not eat/ Never	1	0.9%
	Once a week	2	1.8%
	1-3 times a week	48	43.6%
	4-6 times a week	42	38.2%
	Everyday	17	15.5%
	Once a month	0	0.0%

Majority of the consumers (i.e. 50 consumers or 45.5%) stated that they normally buy meat at supermarket or hypermarket and followed by wet market (39 consumers or 35.5%), retail shop (17 consumers or 15.5%) and other places (4 consumers or 3.6%) (See Table 3).

Table 3: Location of purchasing meat

Question		Count	Percentage
Where do you normally purchase meat?	Supermarket, hypermarket	50	45.5%
	Wet market	39	35.5%
	Retail shop	17	15.5%
	Others	4	3.6%

Table 4 shows the type of meat that frequently consumed by the consumers. Most of the consumers (i.e. 32 consumers or 32.7%) stated that they frequently buy raw type of beef, followed by cooked beef bought from restaurants (31 consumers or 31.6%), frozen beef (17 consumers or 17.3%) and processed beef (17 consumers or 17.3%). For mutton, majority of

the consumers claimed that they frequently consume cooked mutton bought from restaurants. A total of 72 consumers (66.1%) stated that they frequently consume or buy raw type of chicken.

Table 4: Preferable meat type

Question		Count	Percentage
Which type of beef do you frequently consume?	Raw meat	32	32.7%
	Processed meat	17	17.3%
	Canned meat	0	.0%
	Frozen meat	17	17.3%
	Cooked meat	31	31.6%
	Others	1	1.0%
	Total	98	100.0%
Which type of mutton do you frequently consume?	Raw meat	8	11.4%
	Processed meat	1	1.4%
	Canned meat	0	.0%
	Frozen meat	17	24.3%
	Cooked meat	39	55.7%
	Others	5	7.1%
	Total	70	100.0%
Which type of chicken meat do you frequently consume?	Raw meat	72	66.1%
	Processed meat	7	6.4%
	Canned meat	0	.0%
	Frozen meat	5	4.6%
	Cooked meat	25	22.9%
	Total	109	100.0%

Majority of the consumers responded that they normally will consider two criteria when purchasing meat, namely type of meat (70 consumers or 63.6%) and price of meat (68 consumers or 61.8%). More than 50% of the consumers claimed that they normally will not consider cholesterol content and impact on health when buying meat (See Table 5).

Table 5: Criteria of purchasing meat

Criteria		Count	Percentage
Type of meat	No	40	36.4%
	Yes	70	63.6%
Freshness	No	55	50.0%
	Yes	55	50.0%
Cholesterol content	No	83	75.5%
	Yes	27	24.5%
Price	No	42	38.2%
	Yes	68	61.8%

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Health	No	61	55.5%
	Yes	49	44.5%

Table 6 shows the factors that influence the consumers to consume beef, mutton or chicken. Majority of the consumers mentioned that they prefer to consume beef as well as mutton because the taste. They believed that these two livestock products more tasty compared to other livestock products. But majority of the consumers stated that they normally prefer to buy chicken meat due the cheaper price (56 consumers or 73.7%) and easily to get (50 consumers or 65.8%) compared to other types of meat.

Table 6: Factors Concerning Type of Meat Consumption

Factors of consuming		Type of livestock product					
		Beef		Mutton		Chicken	
		Count	%	Count	%	Count	%
Tastier	No	2	8.0%	0	.0%	38	50.0%
	Yes	23	92.0%	9	100.0%	38	50.0%
More nutritious	No	17	68.0%	7	77.8%	51	67.1%
	Yes	8	32.0%	2	22.2%	25	32.9%
Healthier	No	22	88.0%	9	100.0%	46	60.5%
	Yes	3	12.0%	0	.0%	30	39.5%
Cheaper	No	25	100.0%	9	100.0%	20	26.3%
	Yes	0	.0%	0	.0%	56	73.7%
Availability	No	16	64.0%	9	100.0%	26	34.2%
	Yes	9	36.0%	0	.0%	50	65.8%

A cluster analysis was performed based on the five criteria or factors considered by the consumers before buying meat, namely type of meat (Yes=1; No=0), freshness (Yes=1; No=0), cholesterol contain (Yes=1; No=0), price (Yes=1; No=0) and healthiness (Yes=1; No=0). A hierarchical cluster analysis using Ward's method produced 4 clusters. This result was supported by one-way ANOVA test which showed that all the four clusters of consumers are significantly different ($p<0.05$) between each other in terms of type of meat, freshness, cholesterol contain, price and healthiness. But chi-square tests showed that there were no significant relationships between four clusters of consumers and their gender, age, race, religion, marital status, household size, monthly income and also education level. Table 7 shows that there was significant relationship between the cluster and the frequency of consuming mutton. Majority of the consumers which clustered under Cluster 1 (20 consumers or 62.5%) and Cluster 3 (15 consumers or 68.2%) do not eat or consume mutton at all.

Table 7: Frequency of consuming by cluster

		Cluster							
		Cluster 1		Cluster 2		Cluster 3		Cluster 4	
		Count	%	Count	%	Count	%	Count	%
How frequent do	Do not eat/ Never	5	15.6%	0	.0%	3	13.6%	3	10.7%
	Once a month	2	6.3%	4	14.3%	4	18.2%	3	10.7%

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you consume beef?	Once a week	7	21.9%	3	10.7%	4	18.2%	5	17.9%
	1-3 times a week	13	40.6%	15	53.6%	9	40.9%	12	42.9%
	4-6 times a week	5	15.6%	6	21.4%	2	9.1%	4	14.3%
	Everyday	0	.0%	0	.0%	0	.0%	1	3.6%
How frequent do you consume mutton?*	Do not eat / Never	20	62.5%	6	21.4%	15	68.2%	6	21.4%
	Once a month	5	15.6%	7	25.0%	7	31.8%	8	28.6%
	Once a week	4	12.5%	8	28.6%	0	.0%	8	28.6%
	1-3 times a week	2	6.3%	7	25.0%	0	.0%	5	17.9%
	4-6 times a week	1	3.1%	0	.0%	0	.0%	1	3.6%
	Everyday	0	.0%	0	.0%	0	.0%	0	.0%
How frequent do you consume chicken?	Do not eat / Never	1	3.1%	0	.0%	0	.0%	0	.0%
	Once a month	0	.0%	0	.0%	0	.0%	0	.0%
	Once a week	2	6.3%	0	.0%	0	.0%	0	.0%
	1-3 times a week	13	40.6%	16	57.1%	9	40.9%	10	35.7%
	4-6 times a week	9	28.1%	8	28.6%	10	45.5%	15	53.6%
	Everyday	7	21.9%	4	14.3%	3	13.6%	3	10.7%

*Significant relationship (Chi-square test)

4.   CONCLUSION

Chicken meat was the most popular meat compared to beef and mutton among the consumers in Kota Kinabalu, Sabah regardless of their demographic and socioeconomic characteristics. The study has also revealed that demographic and socioeconomic characteristics of the consumers had significant relationship with their frequency of consuming beef and mutton. The results of the study could be significant to the policy makers and other interested parties in helping them to make strategic decisions about the consumers' consumption patterns on beef, mutton and chicken especially in Sabah.

5.   REFERENCES

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