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Determinants of Consumption of Fluid Milk Products in Dar es Salaam, Tanzania

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Abstract
This paper investigated the determinants of consumer choices of fluid milk products in Dar es Salaam, Tanzania. The study was carried out in Dar es Salaam; the most populated city in the country (about 4 million residents). Specifically, the study sought to (i) explore locally and imported milks brands in the market; (ii) to examine fluid milk intake level amongst consumers (iii) examine characteristic features of locally processed milk products present in the market (iv) assess consumer choice responses to characteristic features of fluid milk products. A survey of 384 consumers was conducted, complemented by interviews of key stakeholders; importers of milk product, processors and wholesalers of local brands. It was found that the Dar es Salaam fluid market is dominated by imported milk brands and products mainly from Kenya and South Africa. The dominant imported fluid milk was Ultra Heat Treated (UHT) with 6 to 12 months shelf-life. Local processors had limited access to UHT technology and thus produced short-lived milk which was dependent on refrigeration. A number of intrinsic and extrinsic consumption drivers which determined consumer responses were identified to include product form, price, packaging, taste/flavour and availability. Milk consumption was far lower than recommended by FAO/WHO mainly due to low level of consumer income and awareness/education. The study concludes that consumer responses to fluid milk products is determined driven mainly by intrinsic and extrinsic product characteristics and there is low consumption rate of milk in the market. A number of recommendations were put forward mainly directed towards enhanced product consumption promotion.
Keywords: Fluid Milk Products Consumption, Dar es Salaam Milk Market, Milk Consumer Choice Responses, Milk Product Characteristics

Introduction

Milk has been recommended as an important source of nutrients, especially calcium for good bone and teeth health. Therefore, it is advisable to consume an adequate amount of milk and milk products for health. Despite being ranked third in Africa in cattle population after Sudan and Ethiopia, Tanzanians are known to be the lowest milk consumers amongst East African citizens; with average annual consumption rate of about 45 litres per capita (2012/13) against 200 l/capita recommended by FAO/WHO (MLFD, 2011). The consumption level in Kenya is about 98.64 l/capita per annum (FAO, 2007). The average milk consumption level for developed regions of North America and Europe is in excess of 200 kg per capital (Uzunoz and Akcay, 2012). Increasing population and income, together with the growing popularity of dairy products, particularly among developing country consumers is a key factor behind strong demand in the medium term (OECD/FAO, 2011). Per capita consumption in Western Europe is in excess of 300 kg of milk/year compared with less than 30 kg (and even sometimes as little as 10 kg) in some African and Asian countries. It is estimated that Tanzania has 22.8 million cattle where 740,000 are dairy cattle produced by about 218,418 households (ILR, 2013). About 70% of the milk produced comes from indigenous cattle kept in rural areas, while the remaining 30% comes from improved cattle mainly kept by smallholder producers (URT, 2011). Milk yield ranges from 1-2 litres per cow per day for indigenous cows and 7-10 litres per cow per day for improved cow. In Tanzania, about 30% of milk produced from dairy herd is consumed at home and 70% is sold in informal as well as formal market (ILRI, 2013). Currently, the total milk processing capacity is about 384,600 litres per day; however the actual processed amount is about 105,000 litres per day, which is equivalent to about 27% of installed capacity (URT, 2011). There are about 48 milk processing plants; majority of which operate under capacity. The current processing capacity accounts for 5% of the annual milk production as many consumers buy unprocessed milk directly from dairy farmers in the neighborhood. The raw milk is collected by wholesalers, street milk hawkers from village milk collectors such as local cooperatives, producer organizations and sometimes directly from producers. Dar es Salaam presents a good market for processed fluid milk in Tanzania due to high population. As par 2012 population and housing census, Dar es Salaam had 4,364,541 residents (NBS, 2013).

Significant amount of literature cites determinants of consumer choices of milk and dairy products. However, there is limited knowledge of factors determining consumption of fluid milk products amongst consumers in Tanzania. For example, Foodafactoroflife (2009) lists a number of factors which determines food choices in the UK to including cost, cultural or religious practices, availability, preferences, health concerns, nutrient needs. A study in Turkey by Uzunoz and Akcay (2012) identified that consumers prefer packaged milk because of its guarantee of quality, long shelf life easy to carry and store. The desire to purchase a safe food product is also a reason to prefer packed fluid milk. They also saw that education, age, income, and other

demographic characteristics of consumers influence packaged fluid milk consumption choices among consumers but also factors such as increasing consumer awareness and concerns about health and food safety and advertising play important roles. Fuller *et al.,* (2004) used 2001-2002 urban survey data to analyze demographics, cultural factors, and purchasing behaviors influencing the consumption of fresh milk, yogurt, ice cream, and powdered milk in urban areas of China. This study investigated determinants of fluid milk consumption in Dar es Salaam.

The general objective of the study was to investigate determinants of fluid milk consumption in Dar es Salaam market. The specific objectives were: (i) to explore locally and imported milks brands in the market; (ii) to examine fluid milk intake level amongst consumers; (iii) to examine characteristic features of locally processed milk products present in the markets; (iv) to assess consumer choice responses to intrinsic and extrinsic attributes of fluid milk products available in the market.

Literature Review

Levels of per capita consumption of dairy and other livestock products are determined by a number of factors, including economic factors such as income levels and relative prices, demographic factors such as urbanization, and social and cultural factors (FAO, 2013). Economic growth and rising incomes have been driving growing consumption of livestock products in much of the developing world. The consumption of milk has mainly depended on use of particular milk product which impacts on health of different age groups. For example, growing children need fresh milk as it contains a lot of calcium which is an essential mineral required in growth of bones (Marshall, *et al.,* 2005; Miller, et al., 2007; Murphy, 2008; Bánóczy, 2009; Organicfacts, 2014). Other health benefits of milk include smoother skin, stronger immune system, prevention of illnesses such as hypertension, dental decay, dehydration, respiratory problems, obesity, osteoporosis and even some forms of cancer. The beneficial health nutrients obtained from milk are essential for the human body and help prevent a number of chronic ailments (Organicfacts, 2014). In their study in Ghana, Aidoo, *et al.,* (2009) found that the principal determinants of aggregate dairy consumption of milk were identified as income level of household head, distance from home to purchase point and the level of urbanization of consumer's home location. In terms of dairy products it was observed that evaporated milk and raw fresh milk were more preferred. Studies to define the milk consumption amount and the related factors may contribute to the solution of increasing the consumption of milk among consumers (Bitirak, et al., 2008). This is because such studies form basis for formulating relevant consumption policies and promotion strategies.

Materials and methods

The study was conducted in Dar es Salaam. The choice of Dar es Salaam was motivated by the fact that the city is the major market for locally produced milk in Tanzania mainly because it is the most populated urban center in the country. According to 2012 population and housing census, the city's population was about 4 364 541, accounting for about 10% of Tanzania's mainland population, with average household size of 4 and male female ratio of 95 (URT, 2013). Based upon statistical formula indicated below, a survey was conducted to 384 respondents. The sampling was simple random. The following formula was used to determine sample size.

$$n = \frac{rd(1\text{-}rd)\ \mathrm{N}}{rd(1\text{-}rd) + (\mathrm{e}/\mathrm{z})^2\ (\mathrm{N}\text{-}1)}$$

Where: n = sample size; rd = response distribution (50%); N = population size; *e* = desired margin error (5%); *c* = *z* score (1.96). The determination of sample size assumed no variation of product choices amongst socioeconomic and demographic groups. Data collection employed questionnaire to consumers and interview schedule to purposively selected milk products distributors sellers. The study also used secondary data from important dairy sector stakeholders, particularly, TRA, TAMPA, TBS and TFDA.

Findings of the study

In the sample 61.7% of respondents were males and 38.3% females. With respect to age, only 1.2% of respondents were under 20 years of age. About 60.1% of respondents were married and the remaining 39.9% were singles. The study also grouped respondents with respect to religious affiliation. Consumers' religious affiliation affects consumption pattern of markets products (Heiman, *et al*, 2001; Minkler and Cosgel, 2004). With respect to religious affiliation, 7.7% of respondents were Hindu, 34.7% Muslims, 48.8% Christians and 2.8% were respondents affiliated to none of the religions.

Local milk brands and products in the market

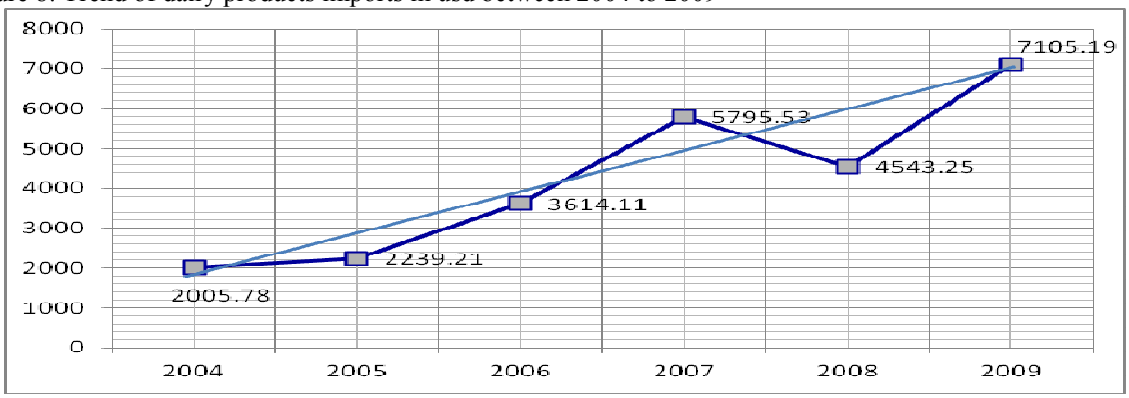
With respect to locally processed milk brands, Dar es Salaam was found dominated by Tanga Fresh, ASAS Dairies, Mara Dairy. Other local brands observed in the city were DESA Milk, Kilimanjaro Creameries, Musoma milk, Serengeti Delight, CEFA milk, Azam milk, SADO, Shambani milk and Dar es Salaam Dairies.

Characteristically, the local milk brands were not as differentiated as the imported ones. Apart from milk processing by-product such as cheese and ghee and derivatives such as ice-cream and biscuits, all local processors essentially produced liquid milk products. The naming of these milk products depended upon processing method, product content and/or state of the finished product, particularly its fat content. Based on processing method, the study identified fresh milk, yoghurt, cultured milk. On the basis of content or state of finished product the study identified flavored milk, which was cultured or yoghurt mixed with other food substances that changed natural milk taste. The basic forms observed in the market were fresh milk, yoghurt, flavored and cultured milk.

Imported Milk Brands

Tanzania imports milk from over 37 countries; the major ones are South Africa, Kenya, United Arab Emirate, The Netherland, Denmark and Ireland. Others are Australia, China, Cyprus, Egypt, France, Germany, India, Indonesia, Italy, Lebanon, Malaysia, Mauritius, Mauritania, New Zealand, Oman, Pakistan, Poland, Portugal, Saudi Arab, Singapore, Swaziland, Switzerland, Syria, Thailand, Uganda, Ukraine, United Kingdom, United States and Yemen. Figure 1 shows that the milk imports have been generally increasing over years. Reportedly, this was due to local processors' failure to produce long shelf-life products due to non-ownership of UHT and other technologies. Local processors also complained of limited availability of raw milk from rural producers.

Figure 8: Trend of dairy products imports in usd between 2004 to 2009



Source: Adopted from TRA, 2010

Direct observation and interviews with traders in Dar es Salaam identified a substantial list of imported milk brands. Most of these brands come from the neighbouring Kenya, Uganda and South Africa. A considerable number of brands are imported from Asian Countries and few from the EU. Table 12 lists the imported milk brands identified by the study.

Table 1: Imported milk brands in Dar es Salaam market

BRAND NAME	Product(s)	PRODUCING COMPANY
ALL SEASONS	UHT Full Cream and Fat-Free Long-Life Milk	Intshona Milk Products (Pty) Ltd, South Africa
BIO SHAKEY	Strawberry flavoured milk	Bio Foods Products Ltd, Nairobi,Kenya.
BROOKSIDE	Long Life and Cultured Milk	Brookside Dairy Limited, Nairobi, Kenya
CLOVER	Full Cream and fat-free Long-life Milk	Clover S.A (Pyt) Ltd, South Africa
CRYSTAL VALLEY	Low Fat and Full Cream Milk	Milkaut S.A, Franck, Santa Fe , Argentina
DEWFRESH	Low Fat and Skimmed Milk	Dewfresh (Pty) Ltd, South Africa
First Choice	Full Cream Milk, strawberry, ginger, cola and cream soda flavored milk	Woodlands Dairy (Pty) Ltd, South Africa
FRUCHTEGUT	Raspberry yoghurt	Zott, D-86690 Mertingen, Germany
G.B.K CLASSIC	Uht milk	Gbk Dairy Products (U) Ltd, Mbarara, Uganda
INYANGE	Uht whole milk	Inyange Industries, Kigali, Rwanda
KCC	Uht milk, uht whole milk	New KCC, Nairobi, Kenya
KRAFT	Cheese	Kraft Foods, Bahrain
LACNOR	Uht full cream milk	Albeheura Lacnor, Sharjah, UAE
LACNOR	Skimmed milk	Al Buheira Lacnor, Sharjan, UAE
LEA	Uht fresh milk low fat/ skimmed milk	Spin Knit Dairy Ltd, Nairobi-Kenya
London Dairy	Banana, Manago, Chocolate and Vanila milk shakes	Al Ain National Juice & Refreshments Co. Al Ain, UAE
LUNA	Full cream evaporated milk	National Food Industries Co. Ltd, Saudi Arabia
MANA	Evaporated milk	Hochwald Naharungsmittelwerke Gmbh, Thalfang, Germany
MILCOW	Full cream milk	El Sakr Food Industries, Alexandria, Egypt
Nestle		Nestle, Switzerland
NIDO	Instant full cream milk	Nestle Kenya Ltd, Nairobi
PARMALAT	Long life full cream milk	Parmalat Zambia Limited, Lusaka Zambia
PARMALAT	Yoghurt	Parmalat Zambia Limited, Lusaka, Zambia
TIFFANY	Strawberry, Chocolate And Pineapple flavored Milkshake	Al-Ain National Juice & Refreshment Co. Ltd, Abudhabi, UAE
TOM MILK	Banana, mango, pineapple & peach Flavored Low Fat Flavored Yoghurt	Ano 2000, Lda, Maia, Portugal, EU
TUZO	Uht long life whole milk	Brookside Dairy Limited, Kenya
UHT FINO	Whole milk	Brookside Dairy Kenya, Nairobi, Kenya

Source: Created by Authors, 2013

Milk consumption

About 284 respondents were asked to indicate the average quantity of milk in litres they consume per month. Results are shown in Table 4. Depicting from the table one sees that the average quantity of milk consumed is 48 litres per annum (taking averages of the maximum values). This value is not far from the average national figure 45 litres per annum. The table indicates that most of interviewed consumers (32.7%) take 1 to 3 litres of milk per month (minimum of 12 litres and maximum of 36 litres per year) and only 4.2% of the interviewed respondents took 1 to 10 litres of milk per month (Maximum of 120 litres per annum). Generally, the per capita milk consumption among interviewed respondents is low compared to the quantity recommended by FAO/WHO (i.e. 200 litres per annum).

Table 2: Milk consumption in Litres/month

Milk consumption (Litres/month)	Frequency	Percent	Cumulative Percent
0	65	22.9	22.9
1-2	45	15.8	38.7
1-3	93	32.7	71.5
1-4	47	16.5	88.0
1-5	22	7.7	95.8
1-10	12	4.2	100.0
Total	284	100.0	

Source: Created by authors, 2014

The study also sought to find out if there was association between milk consumption and some socio-economic attributes. The attributes tested were sex, age, marital status, education, income, and religion, Chi-square test was used to test the association and Cramer's V to establish strength of the association. As rule of the thumb, Cramer's V values of less than 0.30 represents weak association; the values between 0.30 and 0.50 represent moderate or medium association, while values greater than 0.50 reflect strong association (Steinberg, 2008). Based upon this rule, Table 5 shows that consumer's V income and education have stronger association with milk consumption (Cramer's V values of 0.439 and 0.421 respectively). Other attributes (age, sex, marital status and religion) show weaker association.

Table 3: Association of milk consumption with respondents' socioeconomic status

Socio-economic attribute	Chi-Square (N, df)	Cramer's V
Sex	(284, 5) = 11.829	0.2040
Age	(283, 15) = 34.583	0.2020
Marital Status	(283, 10) = 19.576	0.1860
Education	(284, 15) = 151.278	0.4210
Income	(284, 15) = 163.914	0.4390
Religion	(284, 15) = 20.441	0.1550

Source: Created by authors, 2014

Intrinsic an extrinsic features of fluid milk products

Intrinsic features are internal attributes of a product that draw attention of customers e.g. taste/flavor and smell while extrinsic features are visible features that attract consumers e.g. form or colour. Characteristically, local milk brands are fluid. No local processor produces skimmed or concentrated milk brands. The study identified a number of features employed to draw consumer attention. These include packages, packaging materials, flavor, and smell and product price. Availability of milk to consumers was also reported to be important determinant of consumers' choice of milk.

Consumer choice responses of processed fluid milk products

Consumers were requested to show their level of agreement with respect to importance of the following factors as determinants of consumer's choices. Likert scale was used to rank respondents degree of satisfaction. In this scale, 1 stood for strongly disagree, 2 for disagree, 3 for neither disagree nor agree, 4 for agree, and 5 for strongly agree. The several factors were identified from literature review (e.g. Martnez, 2008; Elbel, *et al.,* 2010; Roberto, et al., 2010; Kolby, 2010; Nestle and Ludwig, 2010). Table 3 shows level of agreement of respondents with respect to factors determining consumer choices of milk brands.

Table 4: Respondents level of agreement with milk product choice factors

Product choice factor	N	Mean	Mean Rank	Std. Deviation	Std Dev. Rank
Taste, flavour and smell	284	4.55	1	0.4984	10
Product price	282	4.44	2	0.6837	9
Package type	282	4.23	3	0.7123	7
Packaging materials	283	4.18	4	0.8175	4
Milk product (yoghurt, fresh milk, etc)	281	4.15	5	0.8544	1
Shelf-life (expiry date)	283	3.79	6	0.8406	3
Product label	284	3.77	7	0.7248	6
Availability of product	282	3.63	8	0.6999	8
Existence of substitutes	282	3.45	9	0.8476	2
Consumer's socio-cultural factors	272	3.37	10	0.7327	5

Source: Created by authors, 2014

Table 4 indicates that all respondents agree that the listed factors determine consumers' choice of milk product. The level of agreement however, differed from factor to another. Taste/flavour and smell were ranked highest in the list while socio-cultural factors were ranked lowest.

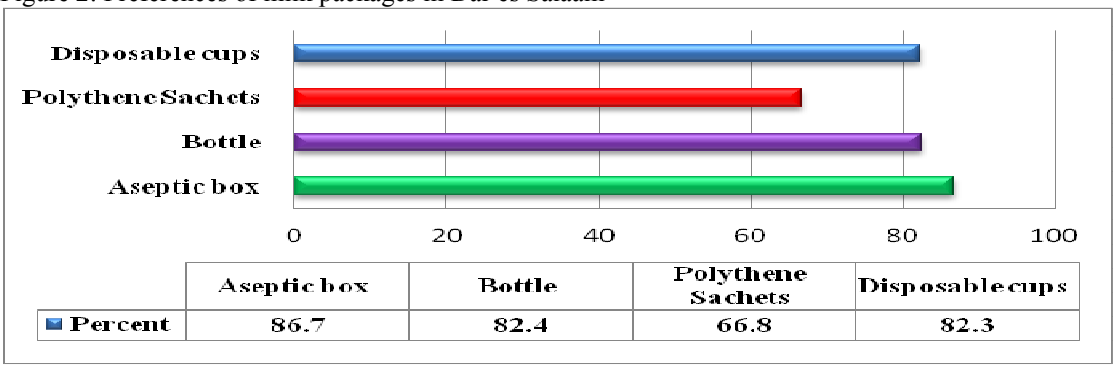
Taste (flavour) and smell

Taste and smell were also described by consumers as determinant factors of milk consumption. Appealing taste and smell tend to attract attention of consumers. For example, when presented with flavoured yoghurt processed by ASAS Dairies, 63.3% of consumer chose strawberry flavour, 74.4% chose vanilla-flavored yoghurt. The reasons for choice varied amongst individual consumers; some said they were more attracted by smell while others were attracted with taste/flavor. This is because these attributes primarily determine whether an edible product will be consumed or not. Sellers also singled out these attributes as determining choices of milk products to put in shelves for their customers. These product intrinsic attributes were therefore shared by consumers and sellers as they are mutually beneficial partners. So milk products with attractive flavours and smell were considered attractive to all consumers. ASAS Dairies yoghurt was praised because of taste and flavour whereas Tanga Fresh plain yoghurt was cited by most consumers to have appealing taste.

Choice responses to Packaging

Consumers are sensitive to different package forms. The common packages (containers) comprised of aseptic boxes, bottles of varying forms and shapes and sachets and disposable cups. Consumers were seen to be attracted by packaging they used to seeing in the market. Generally, aseptic boxes and bottles were seen as packages for the high income consumers while polythene-made sachets (pouches) and plastic cups were regarded as packages for the ordinary consumers. The choice options were partly influenced by their exposure to many forms of packages. Respondents had reasons why they chose one package instead of the other. For example, many who chose bottles explained that the containers reusable; those who chose aseptic box, they said is durable and presentable for example when sending a gift or put in a refrigerator and more hygienic than pouches (sachets) and cups. Figure 2 shows choice of packages in Dar es Salaam.

Figure 2: Preferences of milk packages in Dar es Salaam



Packaging materials

Packaging material is different from a package. Whereas the former is raw material the latter is the product. The packaging materials observed were papers (cupboards), plastics and polythene substances. Customers at different places and socio-economic groupings had different choices of packaging materials. While some chose

disposables others chose durable materials. With regard to packaging materials, 67.2% respondents were interested with plastics (bottles), 22.8% preferred aseptic box materials (cupboard), while 9.6% reported that they preferred materials for disposable pouches and cups. Those who chose plastic materials were interested in the possibility of reusing the package after consuming milk. For example, some said they use packages to keep sugar, salt and other kitchen consumables. Those who preferred pouches and cups reportedly avoided accumulation of milk containers at homestead (i.e. they were sensitive to environment pollution).

Package colour

There were certain colors of packaged milk that attracted consumers more than others. Majority of consumers of milk packaged in disposable cups were interested with pink colored-milk. There were colors that consumers would not like to see in milk packages. These colors include black, red, and green milk. Here package colour refers to color that dominates the package. However, the package may be decorated with some other colours.

Table 5: Consumer choice responses to package color

Package type	White	Transparent	Blue	Green	Black
Pouches	93.5%	63.4%	77.6%	72.4%	3.1%
Cups	94.6%	53.2%	63.2%	43.8%	2.3%
Aseptic box	81.5%	0.00%	92.2%	88.2%	17.4%
Bottle	57.3%	91.4%	2.3%	3.1%	3.6%

From Table 6, consumers' choice of package color depends on package type. Exploring Table 5 one finds out that out of all packages, most consumers preferred white colour. There was no transparent color for aseptic boxes. With respect to transparent colour, most consumers would prefer bottles which are transparent. With respect to blue and green majority of consumers would prefer pouches and aseptic boxes be decorated with this colours. Black color was the least colour chosen by consumers.

Labeling

Labeling displays content information to consumers. Labeling attracted most of elite consumers especially the technocrats and religious groups which wanted to know the source of milk. Technocrats were interested to see the nutritional value of milk products, while religious groups were interested in origin and methods of processing. Muslim and Indians were sensitive to the origin of the product while Christians were insensitive to product origin.

Product shelf-life (expiry date)

Consumers were sensitive to shelf-life of liquid milk products. Parents with children, in particular, would like to buy large quantity of milk and keep in fridge, sometimes for 3 to 4 months. They complained that local milk brands cannot stay such long. This was a contributing reason why most parents would opt for imported powdered milk despite some saying it was not better for children than the locally processed.

Comparison of choices amongst socio-cultural consumers

A number of socio-cultural factors were identified to determine variation in consumer choices of milk products. These were age, sex, religious background and marital status. However, these factors were associated with variation in choices of milk products.

Table 6: Factors determining milk buying amongst socio-cultural groups

Socio-cultural group	**Buying determining factors considered first***						
	1	2	3	4	5	6	7
Indians	1	7	2	3	5	6	4
Muslims	7	1	5	2	6	3	4
Christians	4	2	6	1	7	3	5
Women (with children)	1	6	2	5	4	7	3
Singles (women)	2	6	4	5	3	1	7
Singles (men)	2	6	4	1	5	3	7

**1-Nutrition value, 2-Taste/Flavour & Smell, 3-Package, 4-Price, 5-Expiry date, 6-Availability, 7-Source/Processor*

Depicting from the table one finds out that socio-cultural grouping is an important determinant of consumer choices. For example Indian and Muslim consumers were not sensitive to price but to nutritional value and product origin/processor; some of them would prefer products from countries of their origin or product produced by fellow Indians or Muslims. Ordinary Tanzanian consumers were more sensitive to price, taste/flavor and smell and availability of the product. Amongst local consumers, suckling women were observed

to be extra sensitive because they are obliged to feed children milk product which would not affect child's health.

Conclusion and Recommendations

Conclusion

The main objective of the study was to investigate determinants of milk consumption in Dar es Salaam market. Specifically, the study intended to examine consumption levels among consumers, explore locally and imported milk brands and products, examine intrinsic and extrinsic attributes of fluid milk products in relation to customer responses.

The study found that majority of local milk processors produce fluid milk with short shelf-life because they had limited access to UHT technology. This gave an opportunity for foreign fluid milk processors to export milk into Tanzania. Most of imported fluid milk originated from Kenya and South Africa. Other countries exporting milk to Tanzania were mainly Arabian and European. Powderly milk brands mainly were European in origin. It was found that the market was flooded with imported milk in different forms, namely, liquid, concentrated and powder. The consumption level of milk amongst consumers in Dar es Salaam market was generally low compared to other East African countries of Kenya and Uganda and the world at large. The main drivers of consumption were observed to be economic status and education. Other drivers, though weak, were age, sex, marital status, and religion. Intrinsic and extrinsic characteristics that determined consumers' choices of fluid milk products were taste/flavour and smell, product type, price, packaging, product availability, and cultural beliefs.

Recommendations

Local processors have to be more innovative in terms of product types and forms they produce. This is important because in long run they may be driven out of the market by milk importers mainly from Kenya, South Africa and other countries. They should seek capital to invest in high technologies which produce UHT and skimmed milk products. They should also invest in improved dairy farming to address the challenge of limited milk availability. The government should support local processors gain technological capacity to process diverse milk products seen amongst importers.

The fact that milk consumption level in Dar es Salaam and Tanzania at large is still far lower than the recommended by FAO/WHO requires that distributors of processed milk do promotion campaigns aimed at awareness creation and educating consumers on the benefits of milk. Lobbying may be necessary to induce consumers in institutions such as hospitals, prisons, and mining sites where people need milk due to nature of their conditions and activities they do. Other areas where milk consumption can be promoted include secondary schools, colleges and Universities.

Local processors should adopt features that give imported milk market advantages. These include diversifying into different product forms, packaging, taste and flavour; and ensure consistent availability of products in the market.

More marketing and promotional efforts are required by local processors to ensure that their products get adequate penetration into the market. There is a need to reach remote areas not reached only by informal marketers such as street milk hawkers. The study findings call for the need for local processors to have different milk delivery points depending on location.

References

Aidoo, R., Nurah, G.K., Fialor, S.C., Ohene-Yankyera, K (2009) Determinants of dairy consumption expenditure in urba.n communities of Southern Ghan. Journal of Science and Technology (Ghana), Vol. 29. No.1

Ajzen I, and Fishbein, M (1980) Understanding attitudes and predicting social behaviour. Englewood Cliffs, NJ: Prentice-Hall.

Bánóczy, J. (2009) Milk fluoridation for the prevention of dental caries.World Health Organization: Available at http://whqlibdoc.who.int/publications/2009/9789241547758_eng.pdf

Colby S.E, Johnson L, Scheett A, Hoverson B. (2008) Nutrition marketing on food labels. *Journal of nutrition education and behavior*. 42(2):92-8.

Elbel B, Kersh R, Brescoll V.L, Dixon L.B. (2009) Calorie labeling and food choices: a first look at the effects on low-income people in New York City. *Health affairs (Project Hope)*. 2009;28(6):w1110-21.

EUFIC (2014) European Food Information Council

Fuller, F. H. Beghin, J. C. and Rozelle, S. (2004) "Urban demand for dairy products in china: evidence from new survey data," Working Paper 04-WP 380, Center for Agricultural and Rural Development Iowa State University Ames, Ames, Iowa, USA.

ILRI (2013) Overview of the Tanzanian dairy industry challenges and opportunities. [http://www.slideshare.net/ILRI/cleaned-project-mutagwabasep2013-26691249] site visited 5/09/2014

ILRI (2013) Dairy production and related environmental issues in Tanzania. Also found at http://www.slideshare.net/ILRI/cleaned-project-otsyinasep2013 (retrieved on 5 September, 2014)

Marshall, T.A. (2005) Diet Quality in Young Children is influenced by Beverage Consumption *J Am Coll Nutr* 24(1) 65-75.

Martinez S, Kaufman P. (2008) Twenty Years of Competition Reshape the U.S. Food Marketing System. *Amber Waves*.

Miller G.D, Jarvis J.K & McBean L.D (2007) The Importance of Milk and Milk Products in the Diet In: Handbook of Dairy Foods and Nutrition Third Edition [Wolinsky I, editor]. CRC Press, Boca Raton, Florida, USA.

MLFD (2011) Tanzania dairy industry: status, opportunities and prospects. Ministry of Livestock and Fisheries Development

Murphy, M.M *(2008)* Drinking flavoured or plain milk is positively associated with nutrient intake and is not associated with adverse effects on weight status in US children and adolescents. *J Am Diet Assoc.* 108(4):631-9.

OECD/FAO (2011) Agricultural Outlook

Pazarlioğlu, M. V. Miran, B. Üçdoğruk, Ş. and Abay, C. (2007) "Using econometric modelling to predict demand for fluid and farm milk: a case study from Turkey," Food Quality and Preference, vol. 18, no. 2, pp. 416–424.

Roberto CA, Larsen PD, Agnew H, Baik J, Brownell KD. Evaluating the impact of menu labeling on food choices and intake. *American Journal of Public Health*;100(2):312-318.

Story M, Kaphingst KM, Robinson-O´Brien R, Glanz K. (2008) Creating healthy food and eating environments: policy and environmental approaches. *Annual Review of Public Health*;29:253-272.

Uzunoz, M. and Akcay, Y. (2012) A Case Study of ProbitModel Analysis of Factors AffectingConsumption of Packed and UnpackedMilk in Turkey. *Gaziosmanpasa University, Tokat, Turkey*