BEYOND THE PLATE: THAI BEEF CONSUMER SEGMENTATION BY ATTITUDES

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Abstract

This article aimed to classify beef consumer segments based on their attitudes toward beef, and to investigate willingness to pay for beef dishes of each segment. The sample size of the study consisted of 625 consumers who consumed meat, but some rejected beef. Participants were selected through accidental sampling of whoever was willing to participate in the study. The instrument for collecting data was an online questionnaire. The data analysis applied descriptive statistics and K-means cluster analysis to identify beef consumer segments. The research yielded the following results:

1) Thai beef consumption was influenced by emotional values, taste, and distinct flavor profiles. Functional fat and marbling value were preferred by current and past consumers. Functional issues like smell, digestibility, health concerns, and texture were avoided. Family traditions, cultural or moral avoidance, and religious beliefs also contribute. Emotional and financial values were less common.

2) Three consumer segments: selective, considerate, and devoted consumer segments were categorised by attitudes toward beef consumption, which indicated different consumption patterns and expenditure for beef consumption. Considerate and devoted consumers had a good attitude towards Thai beef, and they were likely to pay more for quality beef dishes.

3) Despite the low willingness of the selective segment that the price of beef menus was higher compared to other ordinary menus, this segment was conscious of the superior quality and hygiene.

This study provided insights into beef consumer segments exploring their consumption patterns, attitudes towards Thai beef, and WTP for beef dishes, which was useful for beef entrepreneurs developing a differentiated marketing scheme to promote and increase Thai beef's market share.

Keywords: attitude, beef consumption, perceived value, Thai beef, willingness to pay

Introduction

Thailand's cattle business consumes beef third after pork and chicken. Thailand's 2024 beef self-sufficiency ratio is 86.24%. Production rose 1.00% to 1.310 million head in 2024 from 1.297 million head in 2023. The beef farm career creation project and other government policies make beef cow ranching more viable. Since 2020, beef cow production has grown 6.53% year. About 1.43 million farmers raise beef. Most are in the Northeast (68.74%). (DLD, 2024). The OAE (2024) predicts a 3.62% increase in beef consumption in 2025 due to tourism recovery and food service demand. The food industry imports beef from Australia and New Zealand under the Free Trade Agreement to fill this deficit. Imported meat is far cheaper than domestic beef. Imports are expected to reach 40,845 tonnes and 9,235 million baht in 2024, up 34.08% from 2023. Imported meat is sold to wholesale and retail outlets, including supermarkets, making it more accessible and cheaper than Thai-quality beef, which targets mid-value and premium beef markets.

Thailand's beef market is categorised into three segments: the traditional market, the mid-value market, and the premium market (Bunmee et al., 2018). The traditional market is underpinned by the cow-calf production system. The market share in this sector is 50%. The mid-value market share is 49%, supplied by Brahman and certain Bos taurus crossbreed farms or cooperative communities. The price of mid-value beef has risen since 2007 (Bunmee et al., 2018). The expanding imbalance between domestic consumption and production is resulting in an increased importation of high-quality beef.

Thai beef stakeholders face several challenges that require attention. How do beef entrepreneurs incentivise customers to enhance the consumption of Thai beef? What strategies can be employed to enhance market share for imported beef? How can food marketers attract new customers who have not previously consumed beef? This research aims to examine consumer attitudes, beef consumption patterns, and willingness to pay for Thai beef, providing specific data on budget allocation and informing the Thai beef industry's development strategies to align with consumer demand.

Research Objectives

1. To explore perceived value and attitudes towards beef consumption and classify beef consumer segments by attitudes.

2. To compare beef consumption patterns and willingness to pay for beef dishes among beef consumer segments.

Literature Review

Consumer behaviour

Consumer behaviour entails choosing, buying, and using goods and services based on their needs and expectations. Social psychology covers conscious and unconscious human behaviour. These responses can be overt or covert and can change over time depending on people, circumstances, and places. In social psychology, concepts and methods have been invented and refined to help observe and understand human behaviour, especially unnoticed or irrational behaviour. The topics are customer perception, attitudes, preferences, values, and lifestyles. People choose grab-and-go or fast meals based on convenience, past behaviours, and habits (Kahneman, 2011). People usually order "pad kra prao kai rad kao," a basil-flavored chicken stir-fry with rice. They can choose easier, pre-set menu items. Food businesses must understand how and why consumers choose, which is influenced by attitude and perception (Schiffman & Wisenblit, 2015).

Beef attitudes and perceived value

Beef attitudes and beef perception are frequently used interchangeably due to their interrelation. Beef perception focuses on consumer interpretations of beef attributes, which shape attitudes, thoughts, ideas, views, and emotions concerning beef eating. Some customers may think grass-fed beef is healthier or more sustainable than regular beef. This clarifies beef health and environmental perspectives. Some customers may like beef as a good and traditional food but worry about its environmental impact. Beef attitudes and views are complicated and diverse. Understanding beef perceived value and attitudes would increase beef consumption and market share in Thailand. Salehzadeh and Pool (2017) found attitude can directly influence the perceived value of products reflecting the customer's assessment of the benefits derived from purchasing. To provide the beef value that customers expect, beef entrepreneurs need to understand and meet their needs and wants. Nonetheless, perceived value is subjective and varies among consumers. It is a comprehensive idea comprised of various interrelated dimensions (Zeithaml, 1988). Sweeney and Soutar (2001) proposed four dimensions of perceive consumer value: functional, emotional, economic and social value, which is useful to apply the study framework exploring the insight of beef consumers.

Beef consumer behaviour in Thai market

Suwunnamek et al. (2010) categorised Thai beef consumers into two segments: 'buy less' and 'buy more'. The "buy less" group emphasised colour and aroma quality, production origin, and culinary service. The "buy more" group concentrated on reliable farming sources and convenient culinary services. Furthermore, buyers with higher education's generally emphasised quantity over quality. Their suggestions regarding softness, marbling, brands, and purchasing expertise were suitable for a "buy more" demographic. Thai customers liked Thai beef but preferred foreign and marbled meat. Over half of buyers bought local beef based on quality. Consumers care about price but not marbling or tenderness. They concerned about meat production processes and demand high-quality beef (Bunmee et al., 2018). The Department of Research and Strategy National Food Institute (2023) noted that the inclinations of Thai consumers towards meat consumption align with those of global consumers. However, the research on beef consumption among Thai consumers requires additional data to provide valuable insights for marketing strategies and development.

Beef consumer segments

Meenongyai et al. (2017) investigated beef consumption in Thailand, analysing customer behaviour and suggesting four unique consumer types. The preferences may be classified into two categories: lean vs marble, and high vs low consumption frequency. This suggested that the Thai beef consumption market was influenced by a rivalry for healthiness (lean) and taste (marble). However, the Department of Research and Strategy National Food Institute (2023) indicated that Thai meat consumption patterns are similar to those of consumers globally. However, there are several extra factors to consider.

Willingness to pay

Consumer's willingness to pay (WTP) for beef can be influenced by many factors. Thies et al. (2024) found that customers' willingness to pay declined as discolouration increased and was negative for days 4, 7, and 9 of retail display compared to day zero. This finding supports Feuz et al. (2020), who claim that customers are more likely to reject beef that is brown or has other colour hues, and that this is linked to a low willingness to pay (WTP) for these kinds of products (Grebitus et al., 2013). A side from colour, production processes and quality indicators have an important impact. According to Corsi and Novelli (2002), customers are willing to pay a premium for organic beef. Similarly, Makweya and Oluwatayo (2019) reported that buyers would like their beef tender, with fewer fat and bones, and labelled with price, grade/class, size or quantity of the product, and lastly a quality inspection or certification indicator. Furthermore, they are prepared to spend an additional 16.04% for clear quality labelling.

Conceptual Framework

This study established a methodology to investigate beef consumer insights in the Thai market, beginning with what drives consumers for beef consumption and subsequently identifying the perceived value. This phase offered the consumer insight into the reasons for their consumption or non-consumption of beef products. The study employed individuals' attitudes towards beef consumption as a criterion for K-means clustering analysis, classifying participants into three distinct segments. Subsequently, exploratory data analysis was employed to assess attitudes about Thai meat, beef consumption habits, and the willingness to pay for beef dishes (Figure 1).

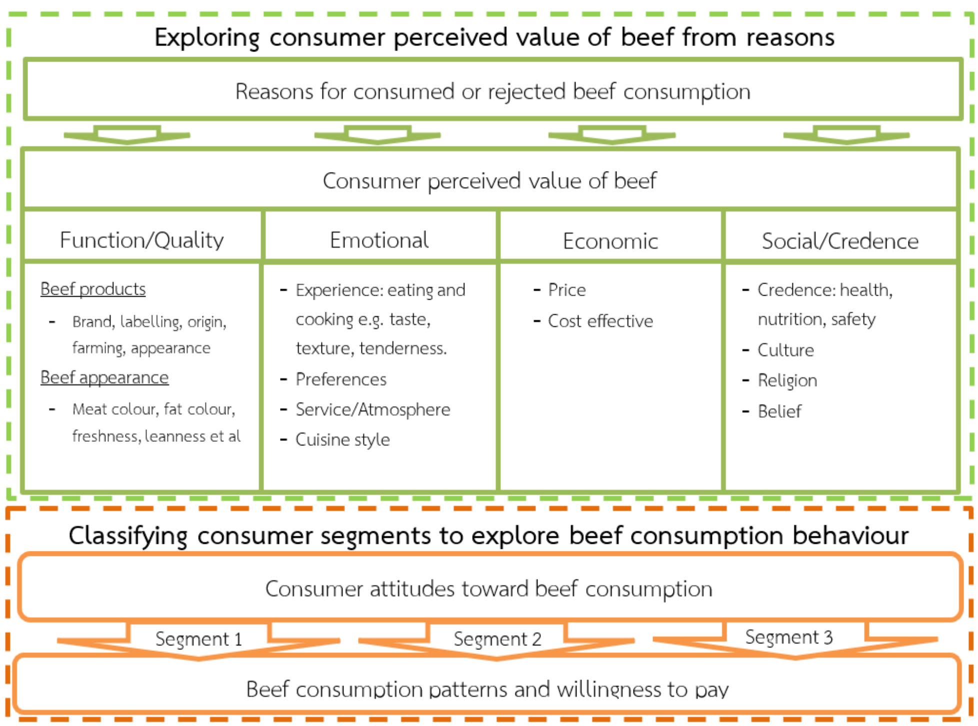

Figure 1 Conceptual framework

Research Methodology

Research Design and Participants

This research used a quantitative research method that was designed using a survey approach to investigate beef consumer behaviour. The study collected data by purposive sampling from a target population of meat-eating consumers who were 18 years of age or older and who ate meat within a month of the date of the survey, which included those who consumed beef or not. There were 625 people who agreed to take part in the study, which is more than the number of expected samples found by Cochran's formula for an unknown population with a 95% confidence interval and a 0.05 margin of error.

Data Collection and Analysis

The data were collected by an online survey using the google form during February to April 2024. The first part of questionnaire was consumer behaviour including the reason of eating or rejected beef consumption, consumer attitudes toward beef, beef consumption, willingness to pay for beef menu, and beef steak consumption. The second part was socioeconomics and characteristics of participants. The analysis of attitudes toward beef used the 5-point Likert scale to assess attitudes and views of Thai beef (see the statement in Table 1). Internal consistency of these statement was calculated by Cronbach's alpha equal 0.90. These statements were used to classified participants into three consumer segments by using K-Means clustering method. In the willingness to pay (WTP) section, the participants were asked how much they were willing to pay for 10 menus by using an open-ended question. Despite participants independently purchasing the beef menu, certain incomplete data had to be excluded from the analysis. WTP was analysed by the one-way analysis of variance (ANOVA) to test the mean of WTP between consumer segments of participants using STATA 18.

Results

Personal information of participants

Data was collected from 625 persons, divided into three categories: non-beef consumers (n=101), former beef consumers (n=232), and current beef consumers (n=292). Females made up the biggest group across all categories, accounting for 65.76% of total participants, followed by men (27.84%) and others (6.40%). The participants had an average age of 32.79 ± 11.90 years, with minimal variance across groups. A small percentage of participants (10.56%) reported monthly salaries of more above 50,000 THB, whereas the majority (44%) earned less than 18,000 THB per month. In terms of education, the majority of participants (59.04%) held a bachelor's or higher degree. 25.92% of the sample obtained a bachelor's degree, whereas 15.04% completed their secondary school.

According to objective 1, the result demonstrated the exploration of reasons for consumed or rejected beef consumption that reflect attitudes and perceived value of beef consumption. For reasons for eating beef, it was indicated that emotional values drive beef consumption, with taste (47.52%) and distinct flavor profiles (27.29%) being most influential. The perceived value of functional, intramuscular fat or marbling prompts current (16.44%) and past (4.74%) consumers to choose beef. Conversely, functional issues—particularly beef smell (18.79%), digestibility (15.55%), health concerns (14.39%), and texture (9.74%)—are the primary reasons for avoidance. Family traditions (like worshipping Guan Yin, 13.23%), cultural or moral avoidance of large mammals (10.90%), and religious beliefs (7.19%) also play a part. Emotional and financial values (like animal cruelty at 5.57% and cost at 4.64%) are less common. Notably, former consumers more frequently cited beef smell (23.71%), whereas families abstaining from beef often avoided large mammals on ethical or cultural grounds (16.33%).

The result of the K-means clustering analysis identified participants who are consuming beef using attitude toward beef consumption into three segments, which are: 1) Selective segment (n=53): Consumers in this group can eat beef but do not prefer it. They will consume beef only when no other options are available. 2) Considerate segment (n=150): These consumers typically consume chicken or pork but may choose beef if its presentation is enhanced. And 3) Devoted segment (n=89): Passionate beef lovers who will always choose beef firstly when it is available on the menu.

The results showed that across all respondents, the majority exhibited a positive attitude toward beef consumption. More than half (50.68%) agreed, and 29.79% strongly agreed that they "likely consume beef," with a mean score of 3.67 ± 1.19. The most frequent response for this statement was "agree." On the matter of consuming beef regularly, 45.89% agreed while 14.73% strongly agreed, resulting in a mean of 3.19 ±1.18. The results reflect diverse customer characteristics. The Selective segment has mostly neutral sentiments towards present and future beef consumption, particularly Wagyu beef. In contrast, the Considerate segment has a general taste for beef—with a considerable majority enjoying frequent intake and an intense preference for Wagyu—but their future consumption plans are unclear. Most notably, the devoted segment displays a strong and long-lasting preference for beef, with substantial agreement on both present consumption probability and future commitment.

According to object 2: The results presented the comparison of attitudes, and beef consumption into three parts: 1) attitudes toward Thai beef, 2) fresh beef consumption and 3) cooked beef consumption. As seen in Table 1 , the overall response to the statement “Thai fattening beef is delicious” yielded a mean score of 3.64±.88, with “Agree” as the most common response. Devoted consumers exhibited the highest agreement (mean = 4.11), while the Selective group leaned toward neutrality (mean = 2.67). This difference was statistically significant (Chi-square = 21.76, $p < .01$), underscoring divergent perceptions of beef flavor across segments.

In terms of their perceptions of Thai beef quality in comparison to imported beef, the Selective group (n=53) had a neutral posture (mean = 2.69), and the Devoted Group (n=89) held a strong belief in Thai beef's competitiveness (mean = 4.12). The difference between groups was significant (Chi-square = 17.38, $p < .01$). The Considerate Group (n=150) leant towards agreement (mean = 3.74). These findings suggest that the majority of them feel Thai beef is as good as foreign beef. When it comes to cost, only the Devoted group (mean = 3.61) is neutral, while the Selective (mean = 2.56) and Considerate (3.50) agree that Thai beef is expensive. The overall response to the phrase "Thai beef is expensive" is neutral (mean = 3.36). In contrast, when asked how convenient it is to get beef, the majority of respondents (mean = 3.57) agreed that Thai beef is easy to find. There is a statistically significant difference (Chi-square = 19.25 and 17.09 respectively, $p < .01$) between groups in terms of the cost and ease of purchasing Thai beef.

Another key future consumption trends, when asked whether they intend to consume Thai fattening beef and Wagyu beef if their income increases, Devoted consumers showed the strongest intention (mean = 4.16 and 4.30 respectively), followed by the Considerate group (mean = 3.80 and 3.82 respectively). Selective consumers remained neutral (mean = 2.64 for both group). The differences across groups were statistically significant (Chi-square = 13.27 and 13.90 respectively, $p < .01$), suggesting that income levels might influence the demand for beef varieties.

Table 1 The rating score of attitudes toward Thai beef comparing between segments

Attitudes	Segments	n	Mean	S.D.
1. Thai fattening beef is delicious.	Overall	292	3.64	.88
	Selective	53	2.67	.99
	Considerate	150	3.71	.60
	Devoted	89	4.11	.76
2. The quality of Thai beef can beat imported beef.	Overall	292	3.66	.93
	Selective	53	2.69	.99
	Considerate	150	3.74	.65
	Devoted	89	4.12	.88
3. I'd rather eat imported beef than Thai beef.	Overall	292	3.49	.98
	Selective	53	2.50	.89
	Considerate	150	3.54	.73
	Devoted	89	4.00	.97
4. Thai beef is expensive.	Overall	292	3.36	.91
	Selective	53	2.56	.84
	Considerate	150	3.50	.68
	Devoted	89	3.61	1.02
5. Thai beef is easily buying.	Overall	292	3.57	.90
	Selective	53	2.83	1.06
	Considerate	150	3.58	.68
	Devoted	89	4.00	.83
6. If I earned more income, I intent to eat Thai fattening beef.	Overall	292	3.68	.97
	Selective	53	2.54	.95
	Considerate	150	3.80	.67
	Devoted	89	4.16	.88
7. If I earned more income, I intent to eat Thai wagyu beef.	Overall	292	3.73	.98
	Selective	53	2.54	1.02
	Considerate	150	3.82	.69
	Devoted	89	4.30	.74
8. I think it will be hard for me to choose Thai fattening beef in the future.	Overall	292	2.91	1.17
	Selective	53	2.60	.90
	Considerate	150	3.06	.99
	Devoted	89	2.83	1.51

Table 1 The rating score of attitudes toward Thai beef comparing between segments (Cont..)

Attitudes	Segments	n	Mean	S.D.
9. I think there will be an increased demand for Thai Wagyu beef.	Overall	292	3.80	1.00
	Selective	53	2.69	.95
	Considerate	150	3.88	.76
	Devoted	89	4.32	.87

Note: Strongly disagree in the point range of 1.00 - 1.80, disagree 1.81 - 2.60, neutral 2.61 – 3.40, agree 3.41 - 4.20, and strongly agree 4.21 - 5.00. * p < 0.10, ** p < 0.05, *** p

Focusing on fresh beef consumption patterns, almost all consumers purchase and consume fresh beef (97.33%), mainly from local markets (55.33%), and supermarkets (42.00%), driven by store quality and convenience. Sensory attributes such as color and fragrance are crucial in their purchasing decisions, with grilled beef and steak being the preferred preparations. For cooked beef consumption patterns, consumers commonly consumed 3–4 times per month, with an average meal expenditure of about 500 Baht. Devoted consumers spend the most (606.73 THB), followed by Considerate (525.33 THB) and Selective (265.56 THB) groups. Most meals cost between 101 and 300 THB, with a preference for BBQ, steakhouses, and noodle shops. Restaurant location matters, as standalone establishments and shopping malls are popular dining venues. Furthermore, a majority favor beef from Thai farms over overseas sources (37.67%), although the Selective group prefers overseas farms (60.38%), aligning with their greater tendency toward imported beef. Overall, quality, price, and meat source are the most important factors influencing beef consumption. Establishing clear metrics and objectives is recommended for the future development of Thai beef.

The WTP for beef dishes of each beef consumer segment would present in Table . According to the study, the shabu buffet had the highest average WTP of 690.57 THB (range: 200-7,000 THB), followed by the Thai BBQ buffet at 607.80 THB (range: 189-5,000 THB). For individual dishes, respondents were willing to pay approximately 550.70 THB for grilled wagyu beef, 530.80 THB for a 300g Thai fattening steak, 456.40 THB for grilled Thai fattening beef, and 362.49 THB for grilled beef. Street food items had lower WTP values, averaging 252.82 THB for fattening beef noodles, 181.43 THB for regular beef noodles, 232.98 THB for an Isaan Beef Salad, and 166.77 THB for a stir-fried beef dish with holy basil.

Notably, the Devoted consumer segment consistently exhibited higher WTP across all categories. Although the higher mean WTP for shabu (798.18 THB) and Thai

BBQ buffets (699.43 THB) by this group did not reach conventional levels of statistical significance, significant differences emerged for grilled dishes. Specifically, the Devoted group's WTP for Thai fattening steak (616.40 THB) and grilled Thai fattening beef (524.37 THB) was significantly higher compared to other segments. Similarly, for street food, significant disparities were observed, with the Devoted group willing to pay substantially more—particularly for fattening beef noodles, where the difference reached approximately 162 THB compared to the Selective group.

Table 2 Mean of willingness to pay comparing between segments

Menu	Overall	Selective	Considerate	Devoted	F	*p*- value
1. Shabu buffet	690.57 (632.35)	554.72 (746.64)	662.91 (411.88)	798.18 (837.02)	2.36	.096
2. Thai BBQ buffet	607.80 (474.75)	512.94 (769.63)	578.32 (310.13)	699.43 (521.50)	2.65	.072
3. Thai fattening steak	530.80 (361.57)	368.72 (221.09)	532.40) (329.50)	616.40 (432.15)	6.80	.001
4. Grilled wagyu beef	550.70 (467.58)	492.87 (770.47)	546.46 (325.02)	583.82 (485.80)	0.53	.588
5. Grilled Thai fattening beef	456.40 (367.23)	284.65 (197.70)	463.80 (312.58)	524.37 (473.23)	6.25	.002
6. Grilled beef	362.49 (394.61)	326.14 (767.27)	374.97 (290.86)	359.14 (274.59)	0.25	.781
7. Beef noodle	181.43 (214.36)	86.32 (145.29)	190.29 (213.29)	213.50 (232.60)	5.52	0.004
8. Fattening beef noodle	252.82 (253.72)	136.29 (158.98)	258.21 (250.67)	298.32 (278.98)	5.98	0.002
9. Isaan Beef Salad	232.98 (239.61)	122.28 (145.15)	244.34 (245.28)	267.34 (253.06)	5.74	0.003
10. Stir-fired beef with holy basil	166.77 (195.55)	68.53 (25.71)	180.74 (194.97)	192.05 (227.79)	6.80	0.001

Note: Standard deviation is in parentheses.

Discussion

According to the results of the first objective, consumers' main reason for consuming beef is that it is delicious, consistent with the findings of Gutkowska et al. (2018). Their reason highlighted that emotional value is the most important perceived value of beef consumption. Functional values like smell and tenderness are the primary reasons for beef rejection. This information is very useful for beef researchers to improve the characteristics of beef products and solve such issues, which is consistent with the suggestion of Pethick et al. (2021). Based on attitudes toward beef consumption, three groups of consumers were put together based on how they felt about eating beef consistent with Zakowska-Biemans et al. (2017). These groups had different eating habits, which is in line with Gutkowska et al. (2018). However, Suwunnamek et al. (2010) categorised Thai beef consumers into two segments by amount of purchase. This indicates that different factors of information will provide different consumer segments that researchers would widely explore in the future.

For the second objective findings, selective and devoted consumer segments had a good attitude toward Thai beef. The local fresh market was an important source of beef supply. All segments were more focused on beef qualities such as colour and smell, indicating freshness, and less interested in price, origin, packages, brands, and peer reviews. In contrast, Zakowska-Biemans et al. (2017) found that Poles preferred personal sources of information and packaging. Schnettler et al. (2018) discovered that the origin and information pertaining to animal welfare held greater significance for consumers in Chile. The WTP finds for beef menu indicated that beef differentiation is necessary for restaurants because consumers valued beef differently which consists with finding of Henchion et al. (2014). Considerate and devoted consumers were likely to pay a premium for Thai beef and street food dishes compared to selective consumers consistent with Adalja et al. (2015), and Zare Mehrjerdi and Woods (2024). This indicated localism trend in Thai market, which is very good opportunity for Thai beef industry.

Body of Knowledge

To explore beef consumers, the information can be summarised in the diagram presented in Figure 2. Researchers acquired significant insights into the perceived value of beef. This knowledge is essential for the Thai beef industry to develop goods that align with consumer value expectations, which is critical for formulating targeted marketing strategies for each category.

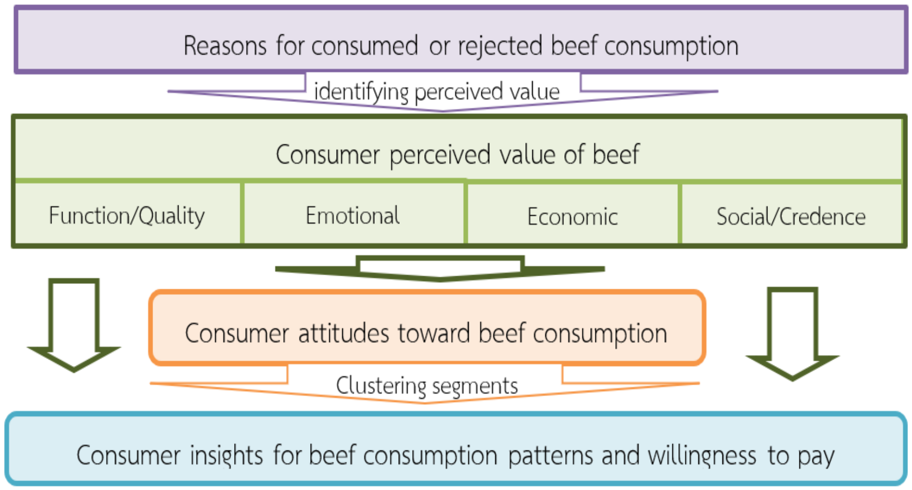

Figure 2 the flow of exploring consumer reason, perceived value and attitudes toward beef consumption

Conclusions

This study employed explanatory data analysis to analyse customer perceptions on the value of beef and their attitudes toward its consumption. It subsequently categorized beef consumers into groups according to their attitudes toward beef, facilitating comparisons of consumption patterns among different groups. For customers who enjoy beef, emotional value represented a substantial perceived benefit of their consumption, but functional value became the primary rationale for rejecting beef. We classified beef consumers into three categories: selective, considerate, and devoted. Considerate and devoted groups had favourable attitudes regarding Thai beef, but selective groups maintained neutral attitudes. Additionally, the study examined the readiness of each beef customer segment to pay for beef dishes. The findings indicated that beef quality was the paramount feature influencing consumption across all groups, particularly among considerate devoted consumers. These segments are more likely to spending greater amounts on Thai beef, premium beef, and street food offerings. This represented a fantastic opportunity for the Thai beef sector.

Suggestion

1. Suggestion for implementation

1.1 Results from objective 1 suggested the emotional value of beef drives customer preferences. To maintain consumer satisfaction, beef entrepreneurs have to monitor product and service quality regularly. Customer segments can be defined by beef consumption attitudes. Beef entrepreneurs can increase profits by offering recipes for each market niche.

1.2 Results from objective 2 suggested that selected beef consumers are the largest group. This group ate meat 3–4 times a month and chose noodles and buffets. Food marketers should promote noodles or buffets to increase beef consumption. All beef businesses prioritise beef quality to sustain client preferences and consumption. Consumers may pay more for Thai fattening beef. Beef entrepreneurs must set a fair charge for the beef menu and regularly check the meat quality to guarantee all dishes are worth it.

2. Suggestion for the future research

This research focused on explanatory analysis to comprehend beef customer behaviour across various segments. Understanding the elements that influence their behaviour and willingness to pay (WTP) will improve the Thai beef business. Future research should investigate the relationship between perceived value, attitudes, and willingness to pay for the beef menu. Furthermore, researchers may examine beef intake across various cultural contexts, yielding insights into behavioural differences among individuals.

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