



Customer satisfaction in the fish market of Presidente Figueiredo (Central Amazon)

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Abstract

In this paper, we describe the customers' satisfaction level in the Presidente Figueiredo fish market. To obtain this information we interviewed 145 customers, between 09/2017 and 04/2018, distributed among the city's four main sale places. From this sample, 57% said they were satisfied with the available fish and only 15% were dissatisfied. Freshness seems to be the most important aspect in this market: 22% of the satisfied respondents pointed freshness as one of the reasons for their satisfaction and 45% of the dissatisfied respondents pointed the lack of freshness as the reason for their dissatisfaction. We also note the older establishment had a higher the proportion of dissatisfied customers. We believe there is a tendency to disappoint customers, caused by unpleasant events, throughout the venture's life time. Regardless of this question, we can conclude that a good strategy to attract and retain customers would be to invest in the product freshness.

Keywords: Food. Trade. Public.

A satisfação dos clientes no mercado de pescado de Presidente Figueiredo (Amazônia Central).

Neste estudo descrevemos o nível e os motivos de satisfação dos compradores de pescado de Presidente Figueiredo. Para gerar essas informações, entre 09/2017 e 04/2018, entrevistamos 145 compradores distribuídos entre os quatro principais pontos de venda do município. Dessa amostra, 57% afirmaram estar satisfeitos e 15% insatisfeitos com o pescado vendido no município. O frescor foi o aspecto mais importante para satisfação e insatisfação dos entrevistados: 22% do público satisfeito apontou o frescor como razão de sua satisfação e 45% do público insatisfeito apontou a falta de frescor como razão de sua insatisfação. Observamos ainda que quanto mais antigo o estabelecimento, maior a proporção de clientes insatisfeitos. Acreditamos que exista uma tendência de decepcionar os clientes ao longo da vida do empreendimento e que é nesses eventos decepcionantes que os clientes se tornam insatisfeitos. Independente dessa questão, podemos concluir que uma boa estratégia para conquistar e manter clientes é investir na conservação do frescor dos produtos.

Palavras-chave: Alimento. Comércio. Consumidor.

1. Introduction

Inside the Manaus Metropolitan Region, Presidente Figueiredo shows some potential within the fish market chain: Despite the precarious marketing structure (Cabral, 2013), the local population shows great appreciation for fish products (Pacheco, 2013; Souza, 2013; Barbosa and Sampaio, 2016); It is an important tourist route to Latin America (Gandra, 2010); The annual fish production already exceeded 1000 t in 2012 (Souza, 2013); And has benefited from a government project, the APL Piscicultura, aimed to

expand its aquaculture area by 300 ha and increase production by an extra 2000 t (Lima *et al.*, 2015).

Despite the potential, little progress can be made without understanding the local consumers. In this topic, some information we already have from past studies it that home fish consumption in the city varied from 16 to 43 kg (Pacheco, 2013; Souza, 2013; Barbosa and Sampaio, 2016) and that the number of families preferring fish to other meats was 34 to 41% (Pacheco, 2013; Barbosa and Sampaio, 2016). These are home consumption, however. We did not find surveys on customers, *i.e.* the people who go to the market and buy the fish. In most cities, the fish market encompasses

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several consumer groups, each with specific habits, influenced mainly by cultural and economic factors (Cerdeira et al., 1997; Jesus et al., 2014). Understanding the consumer and their behavior may be the most important step before setting up a new venture or market policies.

Being that so, the purpose of this research was to describe the customers' satisfaction at the Presidente Figueiredo fish market. We expect this information to be useful for private and public agents and most importantly to strengthen this market.

2. Methods

2.1. Study subject

The customers of Presidente Figueiredo's fish market seemed a diverse group. Here is our sample profile: the age ranged from 17 to 87 year old; *ca.* 40% are women; only *ca.* 5% were born in the city, *ca.* 55% are from other cities of the Amazonas State and *ca.* 40% from other states in Brazil; Education ranges from illiterate to postgraduate, in the middle *ca.* 53% studied from elementary to high school; *ca.* 5% are retired and *ca.* 5% are domestic employees.

2.2. Experimental design

From 09/2017 to 04/2018, we interviewed 145 individuals with no repetition. To ensure representativeness, we sampled the four main sale places in the city: Mecardo Municipal (Municipal Market), Esquina do Peixe (Fish Corner), Peixaria do Cametá (Cametá Fish Market) and Peixaria do Chefe (Chief Fish Market). We prefer to call these ventures a "sale place", but they are somewhat mobile. One of them, the Peixaria do Cametá, were even a selling car one year prior to this study.

2.3. Interviews

Our interviews flowed through these steps: (1) Observation – we waited a customer purchase some fish so we could approach him/her; (2) Approach – we presented ourselves and our study (*i.e.* objective, methods and interview time); (3) Invitation – we asked if the customer had interest to participate to prevent any unwillingness bias (Boni and Quaresma, 2005; Britto and Feres, 2011); (4) Interview – we asked for a brief profile and applied a five item questionnaire. In this study we analyze only one of these questions: "Are you

satisfied with the quality of fish sold in the city? Why?"

2.4. Data analysis

The answers were categorized so we could group them and estimate their proportions. In addition to the satisfied and unsatisfied groups, we used the undecided group for vague or contradictory answers (*e.g.* "I must be satisfied as I have no choice...", "I am satisfied only when I buy at the right place"). Among the reasons for satisfaction/dissatisfaction, we identified six main categories: freshness (for answers *e.g.* "fresh fish" or "beaten fish"), variety (*e.g.* "we have variety here" or "it just have one kind of fish"), hygiene (*e.g.* "this fish is clean" or "the flies are all on top"), supplies (*e.g.* "there are always fish here" or "it lacks fish in the city"), price (*e.g.* "fish is cheaper here" or "I don't like these fish prices") and service (*e.g.* "they care about the customer here"). For not so clear answers, we use the category others (*e.g.* "by the distance it comes from, it's fine", "they put a lot of ice and take away the benefits of fish", "most fish are no good" or "we see the fish preparation").

For group comparison, we used Bayesian analysis with R (McElreath, 2015; R Core Team, 2018). We used the following mathematical model to describe the group proportions:

$$z_i \sim \text{Binomial}(n, \theta_i) \quad (1)$$

Where θ_i is an estimate of the proportion of group i within the population (*e.g.* the "satisfied" group proportion within Presidente Figueiredo's fish buyer population), z_i is the number of respondents categorized in the group i and n is the total number of respondents.

3. Results

Group proportions are in Tab.1 and the information we found most relevant in Fig.1–2. In summary, 57% of respondents said they were satisfied with the fish sold in the city's market; freshness was the main reason for satisfaction for 22% of satisfied respondents and the lack of freshness the reason for dissatisfaction for 45% of dissatisfied audience.

Table 1: Consumers satisfaction and dissatisfaction in the Presidente Figueiredo fish market: Theses estimates fits the data to the model presented in Eq.1 and are

measured in %, the proportion of the group among the population; We use the “Mode (95 % HDI)” notation; The Mode is the most credible estimate value according to our model, i.e. it is an estimate for the population and may differ from the proportion within our sample; The 95 % HDI is the range which contains 95 % of the most likely estimate values.

	Satisfied	Dissatisfied	Undecided
Overall public	57 (48–65)	15 (9–22)	27 (20–36)
Divided by sale place			
Peixaria do Chefe	59 (23–89)	2 (0–40)	38 (10–76)
Peixaria do Cametá	64 (47–78)	28 (15–44)	8 (2–21)
Esquina do Peixe	57 (44–69)	14 (7–25)	29 (18–41)
Mercado Municipal	53 (37–67)	24 (12–38)	23 (12–38)
Reasons			
Freshness	22 (13–32)	45 (26–65)	–
Variety	11 (5–19)	13 (3–32)	–
Hygiene	6 (1–13)	13 (3–32)	–
Supplies	10 (4–18)	5 (0–20)	–
Price	9 (3–16)	5 (0–20)	–
Service	3 (0–8)	1 (0–13)	–
Others	5 (1–11)	10 (1–26)	–
Couldn't answer	42 (31–53)	9 (1–26)	–

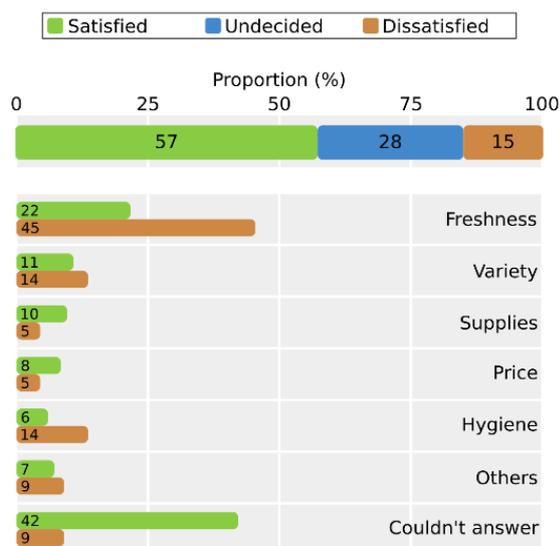


Figure 1: Satisfaction and dissatisfaction reasons in the Presidente Figueiredo fish market: The overall satisfied, undecided and dissatisfied public is in the top panel and their reasons in the lower panel; The majority of the consumers seems to be satisfied ($P>0.99$); Among the dissatisfied consumers, freshness was the most common complaint ($P>0.99$); Among the satisfied respondents, those who couldn't answer were the most common ($P>0.99$), but freshness was also a common reason for satisfaction ($P>0.96$).

4. Discussions

Our results show some potential improvements for the Presidente Figueiredo fish market. Most respondents point themselves and satisfied customers (Fig.1). Nevertheless, we

cannot say a proportion of 6 out of 10 customers is a striking majority. Besides that, there are a lot of buyers who say they are satisfied, but couldn't point a reason. It would be appropriate to call them “satisfied consumers who couldn't explain their satisfaction”, but for simplicity we will just call them “satisfied for no reason”. We believe that our polite culture induce most of these “satisfied for no reason” respondents to reply “I'm satisfied” when actually are neutral, i.e. neither satisfied nor dissatisfied. If this is true, we should have a volatile satisfaction in this market and at the first frustration these satisfied customers should immediately become dissatisfied. Fig.2 may be evidence of this trend, because it shows that, for older sale place, there is a higher proportion of dissatisfied consumers (top panel) and a smaller proportion of “satisfied for no reason” (lower left panel).

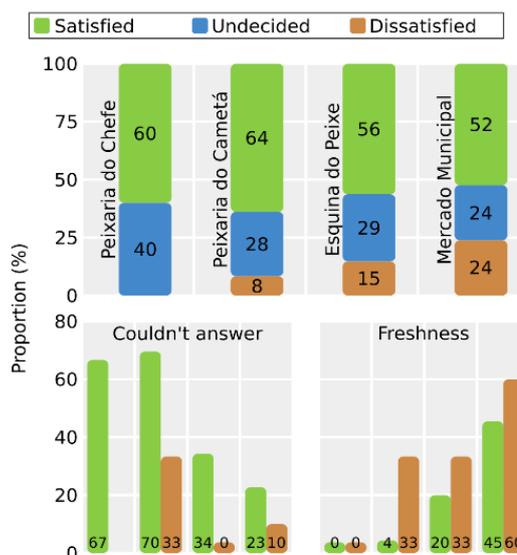


Figure 2: Sale places and satisfaction in the Presidente Figueiredo fish market: In the three panels, we sorted the places by operation time, the most recent to the left and the oldest to the right, with labels only in the top panel; It was not possible to pinpoint how many year these are operational, as they change places, strategies and even activities over time; The top panel shows the proportion of satisfied, dissatisfied, and undecided customers; The lower left panel shows the proportion of customers who did not say why they feel satisfied or dissatisfied with the fish; The lower right panel shows the proportion of customers satisfied or dissatisfied with the city's fish due to its freshness; This is still uncertain, but it seems there is an increase in dissatisfaction over time ($P<0.89$) and we discuss this idea ahead.



Concerning freshness, from our perspective as “fish students” this is one of the most important aspects of the product. Freshness reflects in taste, texture, firmness and other properties of fish meat. It was no surprise, therefore, that the consumer put great value to this aspect. Freshness exceed all other satisfaction reasons, including price, which is usually the most prevalent in the fish market (Verbeke and Vackier, 2005; Scholderer and Trondsen, 2008; Jesus *et al.*, 2014). We think it would be interesting for an entrepreneur to explore this economic inflexibility of freshness and try to find out how much the consumer is willing to pay for the quality of their product. By this reasoning we can also think that investing in freshness may be a good strategy to attract and keep customers, helping to consolidate the venture in the market.

4.1. Is there a tendency to disappoint the customer?

This is one of the conjectures that could generate the results of Fig.2: The longer the venture operates, more opportunities to generate disappointment among customers. Indeed, the worst case establishment, the Mercado Municipal, actually has a long negative track record, at least since 2012 (Cabral, 2013). But this is just a conjecture. We looked at other possibilities as well. You can read them below.

1. The association between dissatisfaction and operation time was coincidence and the different degrees of satisfaction and dissatisfaction is due to business practices. If this is not false, the entrepreneur can change practices to reverse dissatisfaction;
2. More customers naturally induce more negative reviews, which was already observed in other fish markets (Scholderer and Trondsen, 2008). If this is not false, dissatisfaction is inevitable not because of operational time, but due to the increasing popularity of the establishment;
3. The high dissatisfaction observed among the Mercado Municipal customers not necessarily represent dissatisfaction with this place. Whereas the question asked was “Are you satisfied with the quality of fish sold in the county?”, the high dissatisfaction there would be evidence of the dissatisfaction with other places. In this

scenario, the Mercado Municipal would be the best selling point at the market, *i.e.* as if people were going there as their last resort. This thinking, however, is not consistent with previous studies (Cabral, 2013);

Unfortunately, as we have few local studies, it is difficult to better substantiate these discussions. Therefore, we reinforce the importance of systematic and long-term studies, including home survey (Funge-Smith, 2016), to deepen our knowledge of the local market.

5. Conclusions

About half of the customers are satisfied with the Presidente Figueiredo fish market. Currently, freshness is the most important reason for their satisfaction. There seems to be a tendency to disappoint the customers through the venture lifetime: the older they get, the more dissatisfied customers.

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