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# Management, Tourism and Smart Technologies


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# Analysis of Citizen Satisfaction in Municipal Services

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**Abstract.** Local authorities play a vital role in community development and are one of the sources closest to the population. Today's citizens have become more attentive and demanding and do not accept undifferentiated treatment from local elected officials. In fact, as users of the public services provided by local authorities, citizens are continuous evaluators of both their services and the public policies adopted by the elected representatives. As voters and, therefore, decision-makers, citizens certainly cast their votes for whomever they expect to meet their needs.

This study seeks to evaluate the satisfaction and define a Satisfaction Index (SI) of the citizens towards their municipality of residence, namely the municipality of *Alfândega da Fé*, Portugal.

With a quantitative approach, this case study applied a questionnaire survey to a sample of residents in the selected municipality. In total, 350 questionnaires were collected, corresponding to approximately to 0.076% of the population, assuming a sampling error of 5.03%.

The results obtained regarding the SI show that the citizens of *Alfândega da Fé* are globally satisfied with their municipality of residence, scoring 73.29 points out of 100 for overall satisfaction. The results also show that the dimensions 'Quality of life in terms of leisure, access to culture, environmental quality and safety', 'Image of the municipality' and 'Quality of basic infrastructures and services' have the most significant weight in the overall satisfaction of the citizens with their municipality of residence.

**Keywords:** Citizen satisfaction · Municipal services · Satisfaction Index · Perceived quality

## 1 Introduction

Satisfaction seems to be related to the subjective perception of citizens and the adequate performance of local government. Although quality and satisfaction are two distinct concepts, there is a closely linked and actual construction between them to understand citizens' satisfaction levels.

Satisfaction can be seen as the ramification of a governing partnership. As a knowledgeable citizen, the local elected official represents the majority's will for the community's welfare. Knowledge of the territory's characteristics and proximity means that

local elected representatives are closer to them. Understanding the specific weaknesses of citizens and the potential of the territory helps make decisions that are swift, timely, and capable of developing the community more quickly and efficiently.

Living in sparsely populated territories can be an advantage for living a better quality of life, both environmentally and socially. The high degree of proximity in these territories between local elected officials and citizens can be an asset since, in places with larger populations, it is more difficult to understand the individual needs, especially those of the minority [1]. These territories have a greater tendency towards cooperation and social, cultural, and recreational well-being.

Knowing the citizen's perception of the local authority is highly relevant to all actors involved [2, 3]. Citizens are users of services and therefore have an opinion about them. In turn, if mayors become aware of these evaluations, this may be of great benefit not only for current public policies but also for the redefinition and definition of new public policies that meet the citizen's well-being [4–11].

Local governments should seek to adopt and adapt public services according to citizens' needs and preferences; they are inevitably continuous evaluators of decision-makers efforts and results. A previous study showed that the better the citizens' general living conditions, the more they support the local government [12]. Cultural and leisure facilities, essential collective services, and others significantly impact the citizens' evaluation. The study of the mentioned authors shows that the more financial resources municipalities have at their disposal and the more investments they make, namely in physical structures, the satisfaction also tends to increase. Citizens have a relative capacity to influence municipal decisions and activities; however, perhaps the most important thing is not the expenditure on services per se but the citizens' perception of their expenditure.

In turn, making these satisfaction assessments known to the municipalities can also be valuable because by involving them in political and social life, they can better evaluate local public policies and the performance of those whom they elected to represent them, and this may bring about a more realistic scenario between the electoral promises and reality.

The main objective of this study was to evaluate the resident citizens' satisfaction in different areas, including the municipality's image, the basic infrastructures and services, the quality of life in economic and leisure terms, the access to culture, the environmental quality and safety in the *Alfândega da Fé* municipality. Specifically, we sought to define an index to assess citizen satisfaction with their municipality of residence. A questionnaire was applied to the *Alfândega da Fé* municipality citizens to achieve the defined objective.

It is expected that the obtained results will enable the signaling of alert indicators that constitute management instruments for the redefinition of public policies taken by local elected representatives to contribute to improving the performance of public management. Knowing the citizens' satisfaction level may provide beneficial information for elected representatives helping them make decisions, solve existing problems and guide them toward results.

Given that citizens can be potential agents in the joint dynamization of the territory, growth, the development of organizations, the land, and people and, as a result, the country, it is also hoped that this study will be of great importance to increased civic

participation. Citizens need to realize that this role is not unilateral but rather bilateral; there must be a reciprocal give and take. To this end, the citizen should try to do their part by finding out about local elected representatives' decisions and participating in them whenever possible. Without effective participation, there can be no conscious and coherent degree of satisfaction with public policies. Therefore, this study's results can be a demonstration framework for citizens and local elected representatives to learn about the citizens' evaluation of the operating services and policies and encourage them to become true partners in local government.

## 2 Customer Satisfaction Index

There are several converging definitions for one where it encompasses something in conformity with a sure thing and according to expectations.

The Consumer Satisfaction Index (CSI) measures the interaction between customer/citizen, product, service, and result/quality/performance. These indices can demonstrate the quality achieved and consumer satisfaction through the disconfirmation theory, characterized previously [13].

Disconfirmation theory [13] is often used to study customer/citizen satisfaction and dissatisfaction, in which disconfirmation is the assessment that the customer/citizen does regarding the performance of a product/service/policy considering their expectations [14].

CSIs were built either at a national scale [(first gained relevance in Sweden and subsequently applied in several countries (USA and Europe)] or for different types of products and services [15]. Based on economic behavior theories (disconfirmation of expectations theory by [13]), the CSI tries to identify the determinants of quality, how consumers perceive a certain quality and the outcomes. One problem of this index may arise from the fact that past experiences and expectations are directly related, i.e., good past experiences produce higher expectations, and bad experiences produce lower expectations.

For public administration, expectations are even more challenging issues. While bureaucracy bashing tends to lower expectations, political preferences may distort the perceived quality of services.

The most influential CSI is the American Customer Satisfaction Index (ACSI) [16]. The ACSI model [16 p.9] is presented as a cause-and-effect model with indices for drivers of satisfaction on the left side (customer expectations, perceived quality, and perceived value), satisfaction in the center and outcomes on the right (for businesses, these are customer complaints and customer loyalty, including customer retention and price tolerance, for governments there is no indication).

The ACSI is an econometric model that integrates perceptions of quality and satisfaction by analyzing specific behaviors such as complaints, i.e., based on the expectation disconfirmation theory [13]. It assumes that customers have expectations about service quality and that these are formed from previous experience or the reputation of the service. The index provides elected officials and citizens with a unique perspective on how citizens evaluate what is being done.

In another study [17], the ACSI reveals which services influence people's general quality evaluations and satisfaction with local government services and potential behavioral consequences. This index gives policymakers with a different perspective on public services and their effects on citizens. It can help elected officials identify areas where they can make improvements or additional efforts based on citizen satisfaction to improve citizens' quality of life.

The Norwegian Customer Satisfaction Barometer (NCSB) [18] went further by eliminating expectations from the model and focusing on image and loyalty. The NCSB introduced a new way of measuring quality through the SERVQUAL model [19]. The core of the SERVEQUAL consists of five dimensions of service quality (assurance, reliability, responsiveness, empathy, and tangibles) that allow indirect comparisons between expectations and perceived performance to assess quality.

### 3 Data Collection

Each location should be studied individually to understand satisfaction since each has a particular characteristic context. Applying a case study will obtain more factual data regarding a particular population's satisfaction levels [20].

Data collection was carried out through a questionnaire to a random sample of 350 residents in the *Alfândega da Fé* municipality (approximately 0.076% of the population) aged 18 years or older. The sampling error was 5.03%, assuming a significance level of 95%, making the sample representative of the study population.

*Alfândega da Fé* is a low population density territory with an aged population and reduced opportunity of maintaining or increasing the municipality's young population. For example, in 2001, the resident population by age group was: 0–14 (745); 15–24 (719); 25–64 (2,845);  $\geq 65$  (1,654), while in the year 2011, the distribution by age group was: 0–14 (496); 15–24 (497); 25–64 (2,451);  $\geq 65$  (1,660). Besides the aging of the population, in the *Alfândega da Fé* municipality, one can also notice scarce labor opportunities for young people to settle in, since according to the same report (INE, 2011), the little fixation of young people in the municipality is due to the lack of employment opportunities in the region, as the unemployment rate is the highest in the 15–24 age group. According to the PORDATA database ([www.pordata.pt](http://www.pordata.pt)), in 2018, the *Alfândega da Fé* municipality had an aging index of 393 points.

The questionnaire seems to be the most appropriate data collection instrument since the citizens, as users and continuous evaluators of the public policies adopted by the decision-makers are the main "clients" of the local administration.

A previous study noted that customer satisfaction should not be measured in isolation but together with service quality [21].

The data collection method considered the evaluation of different dimensions of satisfaction: 'Image of the Municipality', the 'Quality of Basic Infrastructures and Services in the Municipality', the 'Quality of Life in Economic Terms', and the 'Quality of Life in Terms of Leisure, Access to Culture, Environmental Quality and Safety'.

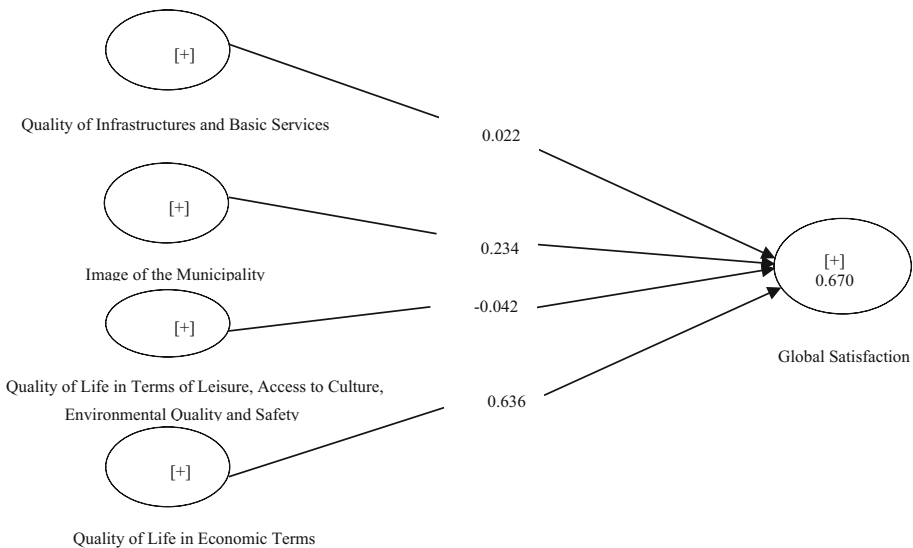
## 4 Results

### 4.1 CSI and Analysis of the Impact of its Determinants

We analyzed structural equations using the PLS estimation method to analyze the results obtained in each of the scales of assessment of the dimensions under analysis and the relationship between them. The mean scores of each item of the dimensions analyzed were calculated. Their convergent and divergent validity were determined using the mean-variance extracted (MVE) and the heterotrait–monotrait ratio of correlations (HTMT), respectively.

The predictive capacity of the model explaining Global Satisfaction was also calculated using the Blindfolding analysis.

As shown in Fig. 1, the proposed model defined ‘Image of the Municipality’, ‘Quality of Infrastructures and Basic Services’, ‘Quality of Life in Economic Terms’ and ‘Quality of Life in Terms of Leisure, Access to Culture, Environmental Quality and Safety’, to explain the effect of the variables related to the dimensions.



**Fig. 1.** Structural equation model and cause-effect relationships.

These results allow us to evaluate the determinants of Global Satisfaction of residents with the *Alfandega da Fé* municipality regarding their convergent and divergent validity and reliability.

According to Table 1, it can be stated:

- Concerning the ‘Image of the Municipality’ dimension, the item that contributes most to it is ‘A Municipality where one LIVES WELL (*i.e.*, where citizens/residents have a quality of life)’ (22.5%). In contrast, the ‘The municipality has NATIONAL RELEVANCE (*i.e.*, contributes to the country GDP, is important for the national economy...)’ item was the least relevant.

- The item that best defines the ‘Quality of Infrastructures and Basic Services’ dimension is the ‘MUNICIPAL SERVICES: Quality of MUNICIPAL SERVICES in serving the citizens, good service, professionalism ... of the Parish Council, Municipality,...’ (26.6%), while ‘SANITATION AND BASIC PUBLIC SERVICES: Quality of PUBLIC SERVICES (water, sanitation, energy, waste collection treatment...)’ is the most critical item (23.9%).
- Concerning the ‘Quality of Life in Economic terms’ dimension, it is observed that the ‘EMPLOYABILITY (*labor supply – employment...*)’ item is the largest contributor to this dimension (27.3%). The ‘How do you rate the relation QUALITY/COST OF LIFE in the Municipality of *Alfândega da Fé*?’ item is the least relevant (22.3%).
- The ‘Quality of Life in Terms of Leisure, Access to Culture, Environmental, Quality and Safety’ dimension, the item ‘Environmental Quality and Safety’ stands out as the most significant contributor to the ‘Quality of PUBLIC SECURITY services (*has good police and security services, security, surveillance e prevention...*)’ (31.4%) item, the least relevant being the ‘Good “AIR” and ENVIRONMENTAL QUALITY (*non-polluted,... Green spaces, gardens, Prado amphitheater, biological ornamental lake, Castle sightseeing...*)’ (5.5%).
- The ‘GLOBAL SATISFACTION’ (34.3%) and ‘It represents the ideal, fulfilling all your expectations, what is in your opinion when you CONSIDER that LIVING IN THE MUNICIPALITY of *Alfândega da Fé* MEETS YOUR EXPECTATIONS’ (34.3%) items stand out the most compared to the ‘GLOBAL SATISFACTION with the work that local authorities have done in the *Alfândega da Fé* (*its local council, parish council,... in general*) given PUBLIC FINANCIAL RESOURCES available to them?’ (31.4%) item.

It should be noted that all dimensions present adequate factor reliability considering the internal consistency values (Cronbach’s Alpha and composite reliability) consistently higher than 0.7 (Table 1).

Also, according to the data in Table 2, the model presents excellent predictive validity, considering the effect size ( $F = 0.58$ ), which is high ( $>0.35$ ).

Table 2 presents the results concerning the convergent and divergent validity of the dimensions studied. Thus, all dimensions present an adequate convergent validity considering the MVE value above 0.50. Also, the HTMT result, which allows for assessing the divergent validity, reveals that it is sufficient since it is always below 0.90. The HTMT ratios range from 0.48 to 0.88, which means no correlation between the constructs. A correlation exists between constructs, but this does not affect the results, as evidenced by the statistic  $t > p\text{-value} = 0.000 < 0.05$ . It should be noted that the construct ‘Global Citizen Satisfaction’ was built from the variables ‘Global satisfaction that the municipality presents regarding the *Alfândega da Fé* municipality’, ‘Satisfaction with resources taking into consideration the public financial resources available in the municipality’ and ‘Fulfillment of expectations’.

After analyzing each of the determinants likely to influence the satisfaction of the municipalities and the Global Satisfaction of the Citizens with the municipality of residence (i.e., *Alfândega da Fé*), we analyzed the explanatory model of satisfaction results according to the different dimensions.

**Table 1.** Measures for evaluating the quality of the proposed model.

	Index (0–100 points)	% Importance	Cronbach' Alpha	Composite reliability	<i>F</i>
Visibility	68.57	17.4%			
Development	75.83	22.1%			
Living well	84.29	22.5%			
Modernization	74.22	22.2%			
National relevance	64.35	15.6%			
<b>Image of municipality</b>	<b>73.46</b>	<b>100.0%</b>	<b>0.89</b>	<b>0.91</b>	-
Teaching	82.23	24.0%			
Health	77.60	25.4%			
Sanitation and basic public services	76.23	23.9%			
Municipal services	74.40	26.6%			
<b>Quality of infrastructures and basic services</b>	<b>77.61</b>	<b>100.0%</b>	<b>0.87</b>	<b>0.91</b>	-
Quality/Cost of life	64.74	22.3%			
Employability	61.77	27.3%			
Attracting companies	54.86	26.9%			
Housing	74.11	23.4%			
<b>Quality of life in economic terms</b>	<b>63.87</b>	<b>100.0%</b>	<b>0.89</b>	<b>0.93</b>	-
Cultural events	92.45	28.5%			
Leisure services	91.45	26.9%			
Public safety	79.25	31.4%			
'Air' and Environmental Quality	97.83	5.5%			
Natural resources	98.00	7.5%			
<b>Quality of life in terms of leisure, access to culture, environmental, quality and safety</b>	<b>91.82</b>	<b>100.0%</b>	<b>0.80</b>	<b>0.84</b>	-

*(continued)*

**Table 1.** (continued)

	Index (0–100 points)	% Importance	Cronbach' Alpha	Composite reliability	F
Global satisfaction that the citizen has with the municipality of <i>Alfândega da Fé</i>	76.86	34.3%			
Satisfaction with resources given the public financial resources available to the municipality	70.91	31.4%			
Fulfillment of expectations	72.11	34.3%			
<b>Total satisfaction</b>	<b>73.29</b>	<b>100.0%</b>	<b>0.94</b>	<b>0.96</b>	<b>0.58</b>

**Table 2.** MVE<sup>a</sup> and HTMT<sup>b</sup> test results.

Dimension	1	2	3	4	5
1-Image of municipality	0.68 <sup>a</sup>	0.71 <sup>a</sup>	0.76 <sup>a</sup>	0.53 <sup>a</sup>	0.89 <sup>a</sup>
2-Quality of infrastructures and basic services	0.83 <sup>b</sup>	-	-	-	-
3-Quality of life in economic terms	0.86 <sup>b</sup>	0.79 <sup>b</sup>	-	-	-
4-Quality of life in terms of leisure, access to culture, environmental quality, and safety	0.65 <sup>b</sup>	0.62 <sup>b</sup>	0.65 <sup>b</sup>	-	-
5-Global Citizen Satisfaction	0.78 <sup>b</sup>	0.67 <sup>b</sup>	0.88 <sup>b</sup>	0.48 <sup>b</sup>	-

Note: <sup>a</sup> MVE; <sup>b</sup> HTMT

#### 4.2 Multiple Linear Regression Analysis of the Effect of Dimensions on Global Citizen Satisfaction

According to Table 3, the set of determinants explains 67.0% of the citizens' Global Satisfaction with their municipality of residence.

More specifically, it can be stated that concerning the global satisfaction of the citizen:

- The dimension 'Image of the Municipality' contributes to the highest variance of satisfaction with the municipality, explaining 51.1% of the effect. Specifically, the variance of the overall satisfaction with the municipality is expected to increase by 0.23 points (HTMT = 0.23).

- The second-largest contribution comes from the dimension ‘Quality of Life in Economic Terms’, which explains 13.9% of the satisfaction, with an increase in its variation of 0.64 points (HTMT = 0.64).
- The third-largest contribution concerns the dimension ‘Quality of Infrastructures and Basic Services’, which explains 1.8% of satisfaction and contributes to its variance by 0.02 points (HTMT = 0.02).
- Finally, the most negligible contribution, which is almost null, is due to the dimension ‘Quality of Life in Terms of Leisure, Access to Culture, Environmental Quality and Safety’, which only explains 0.2% of the citizens’ global satisfaction. Its increase is expected to contribute to a 0.04 points decrease (HTMT = -0.04) in the citizens’ global satisfaction with their municipality of residence.

**Table 3.** Analysis of the impact of its determinants.

Dimensions	Index (0–100 points)	HTMT	p-value	R <sup>2</sup> (% importance)	Importance 100%
Image of municipality	73.46	0.23	0.000	0.511 (51.1%)	76.3%
Quality of infrastructure and basic services	77.61	0.02	0.662	0.018 (1.8%)	2.7%
Quality of life in economic terms	63.87	0.64	0.000	0.139 (13.9%)	20.7%
Quality of life in terms of leisure, access to culture, environmental quality, and safety	91.82	-0.04	0.400	0.002 (0.2%)	2.9%
Global Citizen Satisfaction	73.29	-	-	0.670 (67.0%)	100.0%

## 5 Conclusions, Limitations, and Future Research

The present research aimed to propose an index of citizens’ satisfaction with their municipality of residence – *Alfândega da Fé*. The study is based on the citizens’ importance that the local political decision-makers should recognize since they make value judgments regarding satisfaction with the services provided and the local public policies adopted for their residence territories. The competitiveness between municipalities is increasingly evident when discussing the attractiveness of municipalities to citizens.

The SI provides local elected representatives with results concerning citizens’/people’s satisfaction since it shows them their opinions of their political actions. The SI also defines or redefines the local public policies adopted to meet the citizens’

expectations. Letting citizens know about these evaluations (if they are primarily positive) can also be valuable because it can appeal to potential citizens looking to settle and/or install new companies.

Notably, the municipality of *Alfândega da Fé*, as the municipality of residence, obtained an overall citizen satisfaction score of 73.29 points. The score obtained allows us to state that the citizens of *Alfândega da Fé* seem to be entirely satisfied with their municipality of residence.

Finally, even though this research may constitute an analysis on a micro-scale, given that it is a small municipality in the interior of Portugal, overall, citizens are satisfied with their municipality of residence. It is therefore hoped that these results will provide support and incentives for the continuous improvement of local public policies in the municipality and, consequently, a continuous social and political well-being for resident citizens/people and that it may also constitute a potential attraction for the continuity of residents, new residents, and the installment of new companies.

Even though the previously defined objective – to know the satisfaction of the citizens of *Alfândega da Fé* – was considered to have been achieved, naturally, there are limitations in this research, starting with the application of questionnaires that could have been carried out online to cover a larger sample. Another limitation may be the use of the questionnaire since the results are based on the respondents' perceptions, not allowing the veracity of the respondents' answers to be ascertained.

As a suggestion for future research, we suggest exploring new variables, namely complaints, trust, and intention to stay or change the municipality of residence. The study's extension to other municipalities may also contribute to further investigating the theme, broadening it, allowing a more comprehensive discussion, and even presenting a global satisfaction ranking of the citizens of different municipalities.

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