

EVALUATING THE TOURIST SATISFACTION IN FIVE FAMOUS ITALIAN CITIES

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1. Introduction

According to World Travel & Tourism Council (2017), the total contribution of the tourism sector to GDP corresponds to 11.1% in 2016 and is forecast to rise up to 11.9% in 2027. The direct impact on employment, which includes employment by hotels, travel agents and transportation service, was about 5.5% of total employment and it is expected to rise (6.7% of total employment) in 2027. In addition, the domestic tourism in Italy increased in both arrivals (+6.2%) and nights (+4.8%) (Unicredit, 2017).

This allows Italy to be ranked fifth for volume of international tourist arrivals, occupying the sixth position for international tourism receipts (UNWTO, 2017).

In this context, it is evident the importance of tourist satisfaction. A satisfied tourist is more likely to spend money and, more importantly, he/she will come back again in the future, while a low unsatisfied tourist will advertise negatively to the place he visited, also discouraging friends and family to go (e.g. Oliver and Burke, 1999; Hui et al., 2007, Sarra et al., 2015).

This paper aims at analysing the perception of foreign visitors about five Italian cities, which are those most frequently chosen as primary destinations for travelling: Florence, Milan, Naples, Rome, and Venice.

To achieve our goal, we used data from the 2016 Edition of the Survey on International Tourism carried out by Bank of Italy¹ for non-resident travellers. Among the detailed information collected by the sample survey, we focus on travellers' satisfaction, according to 9 items: reception and friendliness of the population (hereafter 'hospitality'); cities and works of art ('art'); landscape and

¹ This is an annual sample survey that Bank of Italy carries out since 1996. It is composed of two parts: resident and non-resident travellers at the Italian borders. The survey collects information on travellers (age, gender, education level, occupation, main motivation for the journey, type of expenditure and travellers' satisfaction for several aspects of the trip) in order to analyse the characteristics of the Italian tourism market. For more details see: <https://www.bancaditalia.it/statistiche/tematiche/rapporti-estero/turismo-internazionale/index.html>

natural environment ('nature'); 'accommodation'; meals ('food'); 'prices'; quality and variety of products in shops ('shopping'); tourist information and services ('information'); tourists' safety ('safety').

We work with a 1-10 rating scale, where a score of 1 means a very poor satisfaction and 10 an excellent experience. In this framework, tourists' satisfaction is a multifaceted phenomenon that requires a multidimensional technique to be investigated. . However, multidimensional approaches tend to collapse all information into a single number that does not allow for the multidimensional nature of phenomena to be taken into account.

For this reason, we believe that the counting approach and the dominance curves can overcome this limitation.

The rest of the paper is organized as follows: Section 2 briefly reviews the methodology and data used. Section 3 reports the main results, whereas Section 4 concludes.

2. Methodology

In what follows, we briefly review the methodology adopted. In particular, we describe the construction of the Headcount index based on the counting approach (Section 2.1) and dominance curve (Section 2.2).

2.1. The counting approach

As discussed above, the tourism satisfaction is a multivariate concept. Thus, we apply here the so-called *counting approach*, introduced by Atkinson (2003) in the poverty field. We denote by $\mathbf{X} = [x_{ij}] \subset \mathbb{R}_+^{n,k}$ the multidimensional distribution of interviewed tourists, where $k=9$ represents the number of dimensions we use to analyse the satisfaction. It is necessary to introduce a satisfaction threshold, which is a minimum acceptable level to say that we are satisfied respect to each of the aspects of tourism. Such threshold ($z \in \mathbb{R}_+^k$) is the counterpart of the poverty line used to define poor those individuals whose income is below the line . The threshold allows identifying who are the unsatisfied through an identification function ($\varrho(x_{.j}, z_j): \mathbb{R}_+^k \times \mathbb{R}_+^k \rightarrow \{0,1\}^k$) that, for a given dimension (j),t maps the element of the matrix to 0 if the value is greater or equal to the threshold and 1 otherwise.

After the identification, we need to introduce an aggregation function that puts together all the information on the unsatisfied tourists. Each dimension can be

weighted, which means that dimensions have a different importance. In what follows, for simplicity, we assume that all the dimensions are equally weighted, $w_j = 1$. Following Alkire and Foster (2011), we introduce an index at individual level that is the weighted sum of the attributes in which individual i is below the satisfaction threshold:

$$d_i = \sum_{j=1}^k w_j c_{ij} \in \{0, 1, \dots, k\}$$

For a given individual i , $d_i = m$ means that the individual is above the threshold in m dimensions. We rearrange individuals in a non-increasing order such that $d_i \geq d_{i+1}$ for $i = 1, \dots, n - 1$.

The counting approach requires to fix a second threshold (double cut-off) on the number of dimensions. Thus, modify the d_i as follow: we set d_i equal to 0 if the individual i is unsatisfied in less the m dimensions, with $m = 1, \dots, k$, otherwise, we keep the original value for d_i . Then, for each value of m , it is possible to compute the number of unsatisfied respondents (q_m) and, consequently, the so-called Headcount ratio, as follows:

$$H_m = \frac{q_m}{n}$$

H_m represents the percentage of unsatisfied people according to the cut-off m

2.2. First order dominance condition

The main problem with this approach is that different cut-offs on the number of dimensions might lead to contradictory results. For this reason, in the poverty measurement, Lasso de la Vega (2010) proposes the construction of the *Deprivation Curves* (*Dissatisfaction Curve in this study*), obtained by plotting, for any vector of deprivation counts, the identification cut-off, ranked in decreasing order against the multidimensional headcount ratio $H_m(\mathbf{d})$ as follows:

$$FD(\mathbf{d}, p) = H_{k-p}(\mathbf{d}), p \in [0, k]$$

This is a robust condition, since if the $FD(\mathbf{d}, p)$ curve, which is a continuous and non-decreasing curve, associated to a given country/city is everywhere to the left and above the FD curve associated to second country/city, then the second one has lower dissatisfaction than the first one for any multidimensional dissatisfaction measure, satisfying the following set of axioms: *Poverty Focus (PF)*, *Symmetry (SYM)* and *Replication Invariance (RI)*, for any identification cut-off. However, if

curves intersect, we need to restrict the set of measure or reduce the range for the cut-offs.

3. Results

As anticipated in the Introduction, data used in our study come from the annual sample Survey on International Tourism carried out by Bank of Italy.

By looking at the plot of the scores (Figure 1), it emerges that tourists have a different satisfaction respect to the nine dimensions. Among the five cities considered, Venice and Rome achieve the lowest score about the prices and Milan for art. On the other hand, Naples and Florence are well evaluated for food art. These results are in line with a consolidated literature that investigated the main driving forces of Italian tourism.

To compute the Headcount index, for each dimension, we have identified the first cut-off equal to 6, that is, the tourists are identified as unsatisfied if their rating is ≤ 5 .

Table 1 reports the values of the Headcount index for each cut-off by city. If we focus in just one dimension, we find that the city better evaluated, which is the city with the lowest value of H_m , is Florence (23.33%), followed by Milan (27.95%). Rome and Naples show similar performances, 35.32% and 36%, respectively, whereas the city with the higher value of the index is Venice (41.89%).

Table 1 – H_m values for the five cities

Cut-off	Milan	Rome	Florence	Venice	Naples
m=1	27.95%	35.32%	23.33%	41.89%	36.00%
m=2	11.17%	10.81%	7.78%	13.89%	10.19%
m=3	5.12%	4.61%	2.87%	5.91%	3.29%
m=4	2.47%	2.00%	0.64%	2.44%	1.35%
m=5	1.19%	1.00%	0.22%	1.20%	0.44%
m=6	0.83%	0.58%	0.02%	0.53%	0.34%
m=7	0.69%	0.47%	0.02%	0.34%	0.25%
m=8	0.54%	0.31%	0.00%	0.08%	0.19%
m=9	0.04%	0.17%	0.00%	0.03%	0.19%

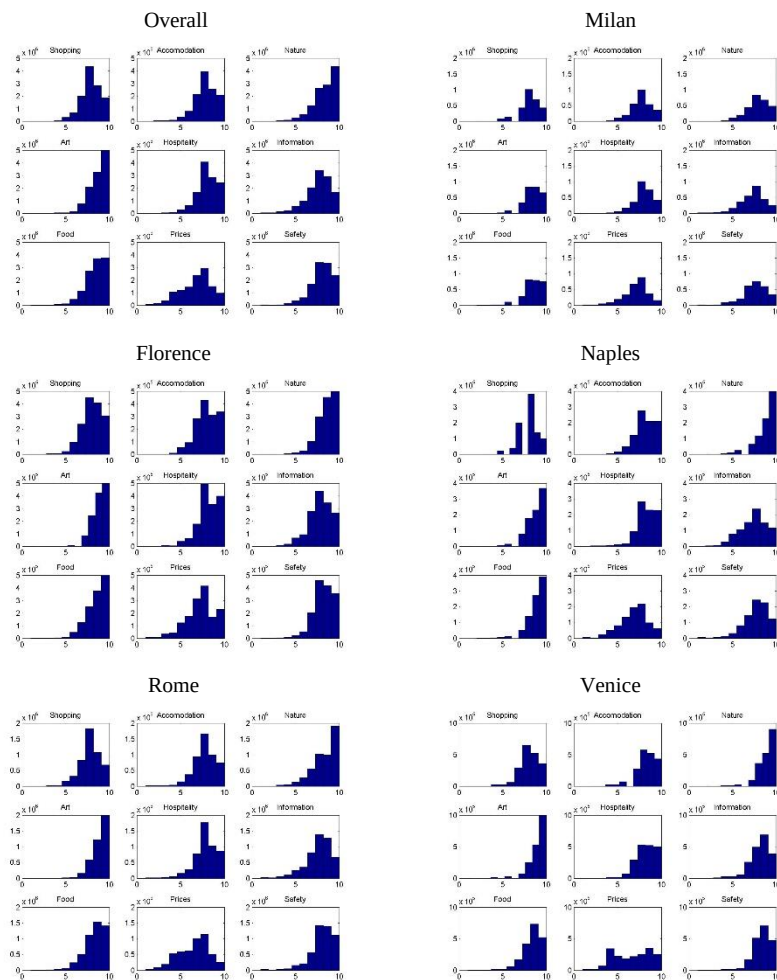
Our elaborations on Bank of Italy data.

Shifting the cut-off from 1 to 2 dimensions, these percentages decrease considerably. The greatest reductions are for Naples (from 36% to 10.19%) and Rome (from 35.32% to 10.81%).

In addition, we get almost zero (percentage) if we consider 5 dimensions for Florence (0.22%), 6 for Naples (0.34%), 7 for Venice (0.34%) ,8 for Rome (0.31%) and 9 for Milan (0.04%).

The results also suggest that for Florence, nobody has a negative evaluation if all the nine aspects are considered. Moreover, until four dimensions, Florence shows the smallest values. This means that Florence is the city with the highest satisfactions. This also suggests further investigation through the construction of the FD curves.

Figure 1 – Overall and by city satisfaction scores by dimensions of satisfaction.



Our elaboration on Bank of Italy survey (2016).

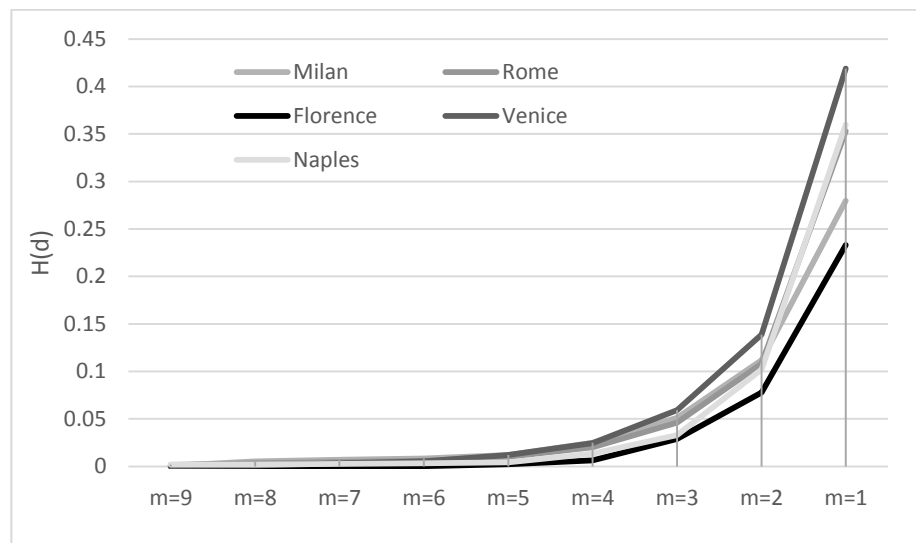
In order to find dominance among the Italian cities, for each of them we construct the FD curves by plotting the dissatisfaction cut-offs against the values of the H_m index (Figure 2).

However, it is not clear if dominance occurs, since for $m \geq 2$ some curves intersect each other. Thus, we decide to plot curves in pairs.

Figure 3 reports the FD curves for all the five cities.

The comparison among the FD curves for Milan and Florence suggests that there is dominance between the two cities (Figure 3a). More in details, Florence dominates Milan since the curves do not cross and the curve of people visiting Florence is always above the curve representing people evaluating Milan. It means that, for each cut-off, people visiting Milan have a worse perception of that city and, more important, for every identification cut-off, all the counting indices that satisfying the three axioms discussed in the methodological section (*Poverty Focus*, *Symmetry* and *Replication Invariance*) rank the two curves in the same way. This implies robustness in the results.

Figure 2 – FD curves.



Our elaboration on Bank of Italy survey (2016).

We find similar results for Rome and Florence (Figure 3b), for Venice and Florence (Figure 3c), and for Naples and Florence (Figure 3d): for all the pair

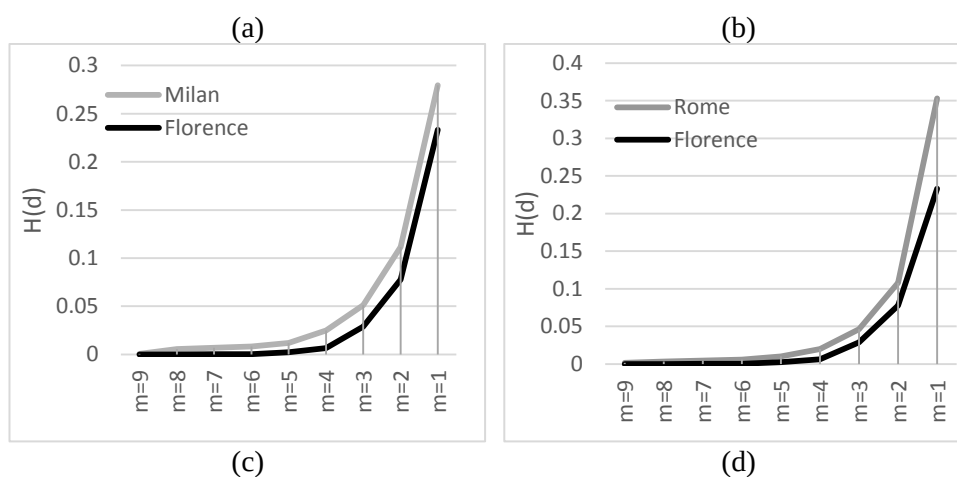
comparisons, Florence dominates since the curve representing the evaluation of people visiting this city is always below the other curves.

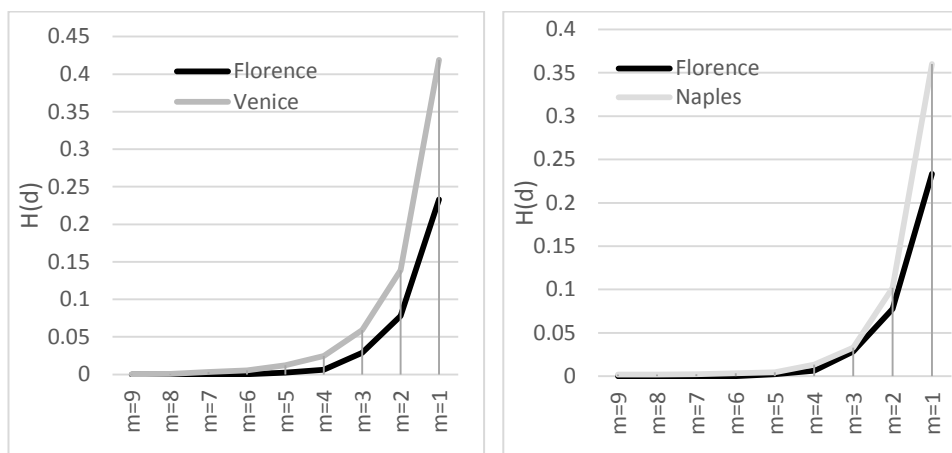
However, it is not possible to have a complete rank of the cities, since there is not dominance among the other curves. For instance, the curves of Naples and Milan cross (Figure 4a).

Since curves intersect, we can restrict the domain of feasible threshold. In fact, for $m > 2$, Naples is better evaluated respect to Milan. On the other hand, for $m = 1$ the curve associated to Milan is above Naples, which implies that Milan has higher evaluation when just a dimension is analysed.

We find a different situation for the curves associated to Milan and Venice (Figure 4b). In fact, the two curves intersect in more than one point, thus we cannot affirm which city is better for tourists.

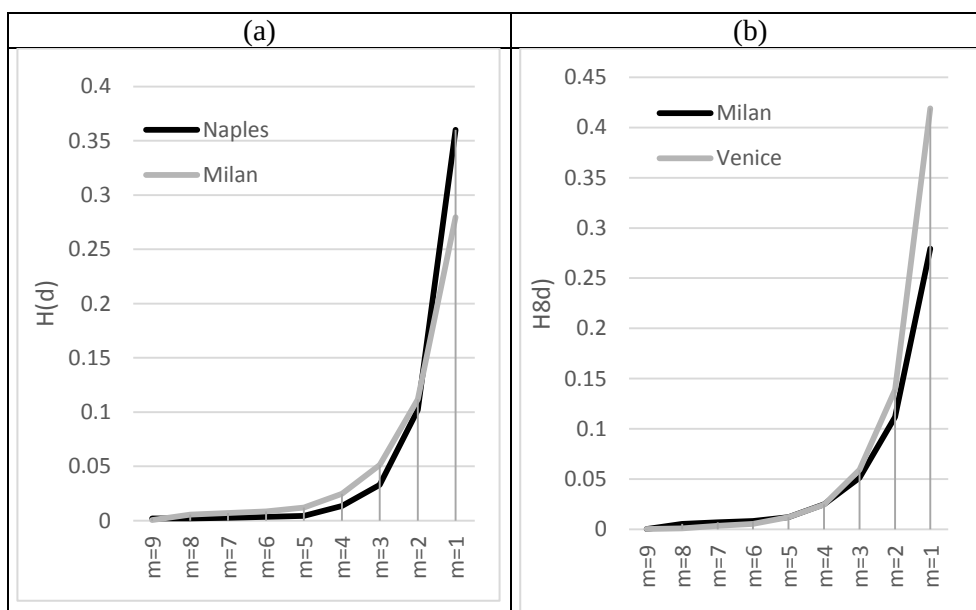
Figure 3 – Dominance for FD curves.





Our elaboration on Bank of Italy survey (2016).

Figure 4 – Dominance for FD curves.



Our elaboration on Bank of Italy survey (2016).

4. Conclusions and further research

Here, we have applied the counting approach and the dominance curves to five Italian cities, namely Florence, Milan, Naples, Rome and Venice in order to evaluate the perceived quality of the Italian tourism.

The main advantage of this methodology is its easily applicability.

The results we got can be a useful instrument for policy makers. In fact, through the curves, the comparison among cities allows analysing their weaknesses.

Further researches can be conducted in different directions. First, for simplicity, in our analysis we have adopted equal weights, that is, each dimension has the same importance. However, it may be plausible that one dimension is more important than another. Thus, we can assume a different system of weights and compute the indices and the curves. If the dominance among curves is preserved, it means that the results are robust.

Second, thanks to the annual availability of the data, it could be interesting to compute the indices and the curves over time, to monitor for any changes in the perceived quality. In fact, once we have results for one year, a policy maker could decide to implement new policies for improving the performance of each city. Thus, the computation of the headcount index and the corresponding curve could be useful to monitor the effective efficiency of the implemented policy.

Third, it could be interesting to evaluate the perceived quality for some subgroups of the population. For instance, it could be of convenience to evaluate if men have the same perceived quality about the tourism of women. Moreover, it is well-known that the age influences the perceived quality, thus it can be of particular interest to compare two cities according to subgroups of population. For instance, by partitioning who have answered to the questionnaire into the three group of young, adult and older tourists.

In addition, the questionnaire collects several personal information, such as the working status, type of accommodation chosen and number of days spent. Thus, it is possible to replicate the analysis taking into account such information.

Finally, it could be interesting to evaluate the satisfaction for different geographical area, for instance at regional or provincial level.

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SUMMARY

Evaluating the tourist satisfaction in five famous Italian cities

Reasoning on the satisfaction of people visiting a country or a city is very important for at least two reasons. First, more satisfied persons are more likely to spend money. Second, if they are satisfied, there will be a higher chance that they want to come back.

In this paper, we investigate the perception that foreign visitors have on five cities around Italy: Florence, Milan, Naples, Rome, and Venice, which are chosen as the main destinations for travelling in Italy. By applying the counting approach and the dominance curve, we compare the perceived tourists' satisfaction and rank the cities in terms of better performance.

Data comes from the annual sample Survey on International Tourism carried out by Bank of Italy for 2016. Our results could be used by policy-makers to monitor the multidimensional aspects of tourist satisfaction in Italy, as well as to evaluate the efficiency of a given policy.

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