

ASSESSING DIMENSIONS OF THE CITY'S REPUTATION

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SUMMARY

In social psychology, reputation has been studied with reference to different objects (individuals, brands, cities, etc.) and methodologically, measured discerning between its subdimensions. In this article, city reputation is operationally defined, by using the validated City Reputation Indicators scale. This empirical tool is useful to evaluate the separate dimensions of city reputation independently. Data, obtained from a survey administered in the city of Naples, were analysed using the Classification-tree, a non-parametric procedure, widely used in supervised classification. We also used the Spearman rank correlation, in order to assess the degree of association between overall citizen satisfaction and overall city reputation. The classification tree has made possible the identification of the key path which better identifies people considering Naples a city with a good reputation. Furthermore, results also show the main constituents of city reputation.

Keywords: Citizen Satisfaction, City Reputation, Tree-Based Methods, Sample Survey.

DOI: 1026350/999999_000046

ISSN: 18246672 (print) 2283-6659 (digital)

1. INTRODUCTION

Citizens can participate in the administrative decision-making process in different ways. Conventional forms of participation (voting, promoting rights campaigns, joining neighbourhood committees or interest groups, etc.) are still essential for politics. Public assemblies regarding some local issues, ranging from urban planning to waste collection, often represent a usual formula for citizens' participation in the decision-making process (Amato, Fasanelli and Rivero, 2019). In the context of governance, a feedback tool is represented by the performance indices of public services, obtained from the synthesis of specific indicators; in addition to objective performance measurements, a different feedback tool is represented by citizen surveys. The surveys

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conducted on citizens, anyway, as non-conventional forms of participation, are fundamentally different. They measure general public opinion, attitudes, satisfaction with public services and offer potentially useful information to public administrators.

Citizen satisfaction borrows from customer satisfaction models, tools and analysis methods, but differs mainly in the context in which it is applied, that of public services. The object of the evaluation is not the only distinctive element; improving the quality of life, strengthening the relationship of trust between institutions and citizens, ensuring a guarantee function towards citizens, supporting decision-making processes, represent the substantial purposes for which citizen satisfaction surveys are conducted. It is not a matter of pursuing objectives such as expanding market shares or increasing profits, as for the private sector, but of obtaining useful information in order to rationalize choices, interventions and programs to improve the quality of the services provided by public administrations.

Citizen satisfaction, anyway, isn't the only tool useful for that purposes. In fact, city reputation can be considered a valid integration to citizen satisfaction. While the latter implies a judgment by the resident citizens on specific services provided by the public administration, the reputation, being an assessment expressed by non-resident citizens, can allow a more precise identification of the strengths and weaknesses of a public administration. By intersecting the results obtained by using these two tools, policy makers will be able to arrive at a more precise planning of the policies to implement.

2. THEORETICAL BACKGROUND

Citizens' surveys provide an economic and systematic way to subjectively measure the performance of a public administration (or at least the perception of a performance). Many models were developed by marketing discipline with the aim of explaining consumer attitude formation (Johnson, Nader and Fornell, 1996; Oliver, 1980; Parasuraman, Zeithaml and Berry, 1988; Parasuraman, Berry and Zeithaml, 1991; Cronin and Taylor, 1992; 1994). Many of these models have been adopted by a growing number of governments which are using citizen surveys to measure the results of their service delivery and to get feedback from their "customers" (Morgeson, VanAmburg and Mithas, 2011; Ballas, 2013).

Detecting citizen satisfaction with public services is therefore a relatively simple and effective strategy for assessing the real quality of the service. Provided this is true, such knowledge could be useful in many ways. It could, for example, help local governments to prioritize the improvement of particular sectors; support consumer associations or neighbourhood committees to recognize the reliability of the companies providing the services; more generally, to allow the political and managerial class to evaluate the success of "innovative" initiatives in the provision of public services.

It is important to understand the levels of citizen satisfaction towards local public services and its determinants, at the same time it is useful to better understand the process that citizens use to form their satisfaction judgment on the quality of services offered by local administration (Howard, 2010; Pagani, Zaccomer and Zanarotti, 2011).

As previously mentioned, expectations appear particularly relevant on the influence of satisfaction with goods and services in the private sector, but, at least until recently, they have been little considered in the analysis of satisfaction with public services (Fornell, Johnson, Anderson, Cha and Bryant 1996; Van Ryzin, 2004, 2006; Roch and Poister, 2006; James, 2009; Charbonneau and Van Ryzin, 2012).

The expectations of citizens are actually important, because the measure of satisfaction can be used to evaluate the services and, consequently, influence the decision-making process of the local administrators or modify the operating procedures of the services. Furthermore, it should not be underestimated that the performance of services influences the attitude towards voting decisions and that dissatisfaction can condition voting preference (Lyons, Lowery and DeHoog, 1992; Dowding, 1996; James and John, 2007).

Studying citizens' expectations in the satisfaction assessment also includes the possibility that high satisfaction may depend on low expectations rather than simply well-performed public services, and that low satisfaction may depend not only on poorly performed services but on high one's expectations. It can be useful to consider the influence of expectations as a mitigating factor in the subjective assessment of a public service.

2.1 City reputation as an additional evaluation

The concept of city reputation, directly derived from the one of 'corporate reputation', is founded on expectations about the capacity of the city governance to satisfy stakeholders and it is constructed starting from the whole stakeholders' expectations. These expectations vary with the stakeholder's specific mindsets, as well as sociocultural level. Furthermore, each inhabitant may have more than one stake in the city, being, for instance, a business owner, a parent, a tourist, even an organization, or a combination of these. Territorial agencies try to satisfy the interests of various city stakeholders and try to signal to them the city's capacity to satisfy these expectations. Important resources to promote these opportunities, that means also to promote city reputation, are events organization (culture, sport, leisure, etc.), safeguarding historical buildings and monuments, and even the enhancement of urban environment, especially the natural one (Delgado-García and de Quevedo-Puente, 2016).

There is a lot of literature on citizen satisfaction that, paraphrasing Permentier, Bolt and van Ham (2011) distinguishes three main groups of factors: personal/household characteristics; subjective evaluations of city attributes and subjective evaluation of the housing; and objective city characteristics. Authors underlines that subjective evaluations of city attributes are more important in explaining citizen satisfaction than personal/household characteristics and objective city attributes. Few studies explore how people perceive the reputation of a city. Permentier, van Ham and Bolt (2007) suggested that citizen satisfaction and the perception of city reputation have overlapping determinants. The aim of this study is to identify to which extent there are differences in the determinants of citizen satisfaction and the perceived reputation of the city. The purpose is to come to a better understanding of the factors that are important in how people see the reputation of a specific city.

2.2 *Reputation from corporation to cities*

Corporations and cities both can be considered as micro-systems that include a certain number of people sharing environment, culture and objectives. For this reason, the conceptual framework of corporate reputation can be used to study city reputation as well. In fact, corporate reputation has been applied to places in the field of tourism and marketing research (Bonaiuto, Ariccio, De Dominicis, Fornara, Molinaro, Troffa and Wang, 2019). Nevertheless, it is still not clear what really means “place reputation”. Bonaiuto and Alves (2012), for example, define it as “the set of beliefs and expectations – based on direct and indirect experiences – regarding people-environment transactions” (p. 239). The idea of place and also city reputation, indeed, involves evaluations attributed by residents and non-residents to the place. Paraphrasing Andersen (2008), city reputation does not depend on its objective attributes but rather on the composite conceptualizations, attitudes toward, beliefs and social representations of the place, highlighting the social constructed and shared characteristic of the reputation of a place. In other words, the multifaceted cultural dimension of the city reputation.

3. RESEARCH BACKGROUND AND METHODOLOGY

According to Bonaiuto *et al.* (2019, p. 34), city reputation “is an image shared by a significant number of individuals”. The interesting perspective proposed, conceptualize city reputation as a psycho-social object based on a constructed shared reality: reputation is not simply what an individual think and feels about a place, but rather how a social group evaluates the place. The Author define city reputation as a multi-dimensional construct composed by multiple different measurable dimensions, derived from preliminary quali-quantitative studies.

The identified themes are:

1. Quality of Life, analyse perceived livability of the city focusing on how much the city appears as chaotic and stressful and which is the perceived quality of human relationships in the city;
2. Safety, concern the perceived safety of the different neighbourhoods of the city, the perceived crime safety concerning the differences between the central and peripheral zones of the city. This dimension also includes the perception of the city lack of caring;
3. Cost of Living, indicates if life in the city is perceived as expensive or not;
4. Weather, refers to the perception of the interviewees about the appeal of the weather;
5. Compatibility, denotes how the city faces the need for culture and leisure, services and working and how the city promotes economic chance and compatibility between the individual’s needs and lifestyle;
6. Landscape Quality, takes in count how the city is rich in historical and artistical assets;
7. Care and Maintenance, includes issues concerning the differences between the central and the peripheral neighbourhoods, as well as the city’s perceived degree of pollution;

8. Public Transportation, takes into account the perceived possibility to move across the city considering the levels of the traffic;
9. Food, investigates the city's culinary reputation, including food's price and value;
10. Place identity, explores the way in which the city is perceived as peculiar and easily identifiable and also the degree of identification with it;
11. Place Attachment, evaluate the degree of attachment to the city;
12. Inclusiveness, examines the perceived friendliness of the city and how it makes its inhabitants and visitors 'feel at home'.

This research empirically investigated the concept of city reputation by using the methodological multi-dimensional tool developed by Bonaiuto *et al.* (2019) and named City Reputation Indicators (CRIs). This study is an explorative research that focuses on understanding the role played by every sub-dimension of the mentioned scale in determining a city's reputation. The case study consists in evaluate the reputation of the city of Naples (Italy) using the strategy of structured interviews. In total, 208 interviews were conducted by seven different experienced researchers and carried out over three months (from June to September 2020). Respondents, all non-resident citizens of the metropolitan area of the city of Naples, were approached face-to-face. Paraphrasing Overman, Busuioc and Wood (2020) people (i.e. citizen/stakeholder) contact with the city is necessary for people to be able to evaluate the separate dimensions of reputation independently. For this reason, participants were contacted at the national train station of Naples and asked if their relationship with the city was stable and then interviewed by using a paper and pencil procedure. Before starting interviews, we asked every participant to provide the necessary consent in accordance with the European Association of Social Psychology ethical guidelines. The whole research process was carried out in accordance with the European Code of Conduct for Research Integrity (ALLEA, 2017). Table 1 provides an overview of descriptive characteristics for our respondents.

The self-report questionnaire included 179 items covering the mentioned 12 dimensions. The response scale was a seven-point Likert-scale, ranging from 0 = 'totally disagree' to 6 = 'totally agree'. The items were not listed here for the sake of simplicity. However, they are completely available, as well as dimensions and factors related to, in the Appendix A1.

Data were analysed using the Classification-tree, a non-parametric procedure, widely used in supervised classification, for predicting categorical dependent variable (denoted by Y) with categorical and/or continuous p predictor variables (each of them denoted by x). The data can be hierarchically organized in a connected and oriented graph called tree and are partitioned into nodes on the basis of conditional binary predictor variables. At the beginning all data are in a single node (called root node). This node is then split into two subsets (called child nodes) according to a splitting criterion that identifies among the possible predictor variables the variable that provides the best partition of the initial set into 'child' nodes. Optimality is established by maximising the decrease of an appropriate measure of impurity that evaluates the degree of heterogeneity of the values comprising the response variable within a certain node.

Let $x_i = (x_{i1}, x_{i2}, \dots, x_{ip})$ denote the i -th observation of the predictor variables. A binary tree is built by recursively partitioning the predictor space Ξ into subsets so

TABLE 1. - Respondents' descriptive characteristics – Sample size = 208

Variables	Levels	n	%
Age	18-24	25	12.0
	25-34	44	21.2
	35-44	30	14.4
	45-54	44	21.2
	55-64	54	26.0
	>65	11	5.3
Gender			
	Male	102	49.0
	Female	106	51.0
Education			
	Primary school diploma	2	1.0
	Middle school diploma	22	10.6
	High school graduate	84	40.4
	Degree and post-degree	99	47.6
	Not specified	1	0.5
Marital status			
	Single	76	36.5
	To live with partner	17	8.2
	Married	97	46.6
	Separated or Divorced	13	6.3
	Widowed	3	1.4
Job Situation			
	Employed	122	58.7
	Unemployed	24	11.5
	Student	23	11.1
	Housewife	14	6.7
	Retired	14	6.7
Not specified	11	5.3	

that the values of the response variable Y , corresponding to the cases $\{x_i \in A\}$ with $A \subset \Xi$, are more homogeneous (Breiman, Friedman, Olshen and Stone, 1984; Chipman, George and McCulloch, 1998).

In particular, let s be the split generated by a generic variable so that we have the 'parent' node, t , which generates the left and right child nodes, t_l and t_r , respectively. The change in the impurity generated by splitting the parent node into the two child nodes is given by:

$$\Delta I(s, t) = i(t)pt - [i(t_l)pt_l + i(t_r)pt_r] \quad (1)$$

where p_t , p_{t_l} and p_{t_r} represent the proportion of cases in the nodes t , t_l and t_r respectively. The best partition is given by the s^* for which the decrease of the impurity measure is maximised with respect to all possible splits generated by the set of predictors:

$$s^* = s \mid \Delta I(s, t) = \max \quad (2)$$

This process continues until the tree attains its maximum size. In the next step, the tree is pruned, with branches that lead to the smallest decrease in accuracy removed.

The final resulting tree is displayed as a connected and orientated graph where nodes represent the splitting variables, and the links illustrate the estimated threshold defining the two descendant subsets.

Tree-based methods can be used for exploratory analysis in order to understand the dependence relationships between the target variable and the predictors (Costa, Galimberti and Montanari, 2006; Fasanelli, Galli and Piscitelli, 2020a). CART is a well-known binary segmentation procedure for building a decision tree (Breiman *et al.*, 1984). First, it produces the maximal expanded tree; then it finds a sequence of nested pruned trees by cutting off the weakest link at each step according to a cost complexity measure (Therneau and Atkinson, 1997). However, the pruning step has to account for the trade-off between bias and variance due to the merging of terminal nodes and to the possibility of over fitting the data (Hastie, Tibshirani and Friedman, 2009). Complex tree structures are inaccurate because of increasing variance (very high sensitivity to sample data), whereas tree models having very few leaves are inaccurate because of increasing bias (not enough flexibility). CART identifies the best-pruned tree by means of a cross-validation approach.

Finally, to facilitate interpretation of the results, the CART procedure evaluates the relative importance of variables used to define a split. The greater the contribution of a predictor in reducing the overall impurity, the greater is its importance. CART sorts the variables according to their importance considering both of the roles they may have, that is, as primary or surrogate splitters. The latter are cut points, with accuracy comparable to that of the first (primary) optimal splitters. Then, the variable importance is computed by summing up the improvement measures attributable to the given variable in its role as either a primary or a surrogate splitter and by scaling this overall improvement by the importance measure of the predictor with the best performance. A measurement of the variable's importance is then given by:

$$M(x_i) = \frac{\sum_{t \in \pi} \Delta I(\hat{S}_i, t)}{\max_{1 \leq k \leq p} M(x_k)} \quad (3)$$

where $M(x_i)$ is the importance measure of the i -th predictor and \hat{s} indicates the surrogate splits.

Tree-based methods are usually applied for predictive modelling approaches or exploratory data analysis (Siciliano, Tutore, Aria and D'Ambrosio, 2010; Iorio, Aria and D'Ambrosio, 2015; Fasanelli, D'Alterio, De Angelis, Piscitelli and Aria, 2017). They can also be used for variable selection since the measure of variable importance provides a useful ranking for subsequent analysis. To determine variables' importance, more performing methods in predicting terms, such as Random Forest, were not used, because the aim of this research is exploratory. We are interested just to interpret the interactions between predictors.

The tree-based approach has two advantages: it is non-parametric, since no specific distribution of Y is assumed, and it does not require any specification of the type of relationship (linear or non-linear) between Y and the predictors.

In our opinion the use of a tree-based method instead of a (generalised) linear model because OLS- based regressions (with no interaction terms) return one type of best fit to the data, namely a straight-line combination of the independent variables in a higher-dimensional space. Moreover, since the flexibility and robustness it offers to analyse such kind of data; a strong tolerance to missing responses as well as the absence of strict constraints in terms of distributional assumptions about the data – along with the intrinsic capability of addressing in an easy way interaction, nonlinear effects, and causal priorities – coupled with the possibility of attaining a high degree of interpretability of the classification rules, makes it a very good candidate for an explorative approach to our data.

4. RESULTS AND DISCUSSION

The data were gathered from 208 citizens all residents in the province of Naples with a stable relationship with the city, verified before beginning to interview each participant. Of these, 51% of respondents were female and the remaining 49% were male. In their opinion the city of Naples has a “good” reputation (42% ranging from “More or Less Positive” to “Completely Positive”), even if the 25% of interviewees shows a “neutral” positioning about the reputation of the city of Naples (“Neither Positive nor Negative”) and the remaining 33% consider the reputation of the city of Naples ranging from “More or Less Negative” to “Completely Negative”.

We considered the “overall city reputation”, measured on a 3-point scale (good – neutral – bad), as the response variable, and looked at 27 possible predictors. Bonaiuto *et al.* (2019) validated the 12 scale of city reputation highlighting 27 factors, synthesis of the 179 items. In this study, for each respondent, we computed the median score of all the items that compose each one of the 27 factors. In this way, in our data matrix, the independent variables of city’s reputation will consist of only 27 dimensions, rather than 179 items. The complete description of these dimensions is reported in Appendix A1.

We performed, on the factor’s matrix, the classification tree in order to explain the dependence of overall city reputation on all the other factors, but also to define the importance of each predictor with respect to the dependency structure of the response variable. The classification tree was made with IBM-SPSS 25. The classification trees were built using the generalised Gini splitting function based on absolute differences in scores. In other words, the cost of misclassification is given by the absolute differences in scores assigned to the categories within the response (Fasanelli, Galli, Riviero and Piscitelli, 2020b; Procentese, Fasanelli, Carnevale, Esposito, Pisapia, Arcidiacono and Di Napoli, 2020; La Barbera, Amato, Fasanelli and Verneau, 2021). The selection of the optimal tree size was obtained with a procedure based on the cost-complexity metric (Breiman *et al.*, 1984). The final tree was selected via 10-fold cross-validation, and we used 1 – SE rule for the tree pruning procedure identifies a final tree with seven terminal nodes. Figure 1 show the decision tree obtained.

We focus our analysis mainly on the third category (good) of the “overall city reputation” variable. The percentage of “good reputation” of the city of Naples, calculated on the entire sample, is equal to 41.6%.

As shown in Table 2, the percentage of “good reputation” evaluated from two terminal nodes out of seven is greater than the one calculated on the entire sample (87.3% versus 41.6% in terminal node 12; 53.3% versus 41.6% in terminal node 10).

The most important node (terminal node 12) represents 31.8% of the interviewees and corresponds to the highest level of reputation of the city of Naples (equal to 87.3%). Respondents belonging to this node are characterised by very high ratings concerning “place attachment” ($PA > 3$) and moderately ratings concerning the “livability” of Naples ($Liv > 2$) and very high ratings concerning “cultural/artistic heritage” ($CAH > 3$).

Terminal node 10 represents 8.7% of the respondents and is marked by a high level of reputation of the city of Naples (equal to 53.3%) linked to “culture & leisure” ($CeL > 1.5$). Participants belonging to this node are characterised by very high ratings concerning “place attachment” ($PA > 3$) and moderately ratings concerning the “livability” of Naples ($Liv = 2$).

On the other hand, about 15% of the interviewees are marked by a bad reputation of the city of Naples (92.3% in terminal node 3). Respondents belonging to this node are characterised by low ratings concerning “place attachment” ($PA \leq 3$) and low ratings concerning “livability” ($Liv < 2$). In addition, also terminal node 7 (8.1% of the participants) is marked by a bad reputation of the city of Naples (71.4%). Respondents belonging to this node are characterised by low ratings concerning “place attachment” ($PA \leq 3$) and low ratings concerning “livability” ($Liv < 2$) and very low ratings concerning “pollution” ($Pol = 0$).

TABLE 2. - *Classification tree in tabular form*

Node	Size (prop)	Mode	Prop (Bad)	Prop (Neutral)	Prop (Good)	Path
3	26 (0.1503)	Bad	0.923	0.77	0.00	Place attachment $\leq 3 \cap$ Livability ≤ 1.5
7	14 (0.0809)	Bad	0.714	0.286	0.00	Place attachment $\leq 3 \cap$ Livability $\leq 1.5 \cap$ Pollution ≤ 0.5
8	38 (0.2196)	Neutral	0.342	0.395	0.263	Place attachment $\leq 3 \cap$ Livability $\leq 1.5 \cap$ Pollution > 0.5
9	14 (0.0809)	Bad	0.500	0.357	0.143	Place attachment $> 3 \cap$ Livability $\leq 2 \cap$ Culture&Leisure ≤ 1.5
10	15 (0.0867)	Neutral	0.00	0.467	0.533	Place attachment $> 3 \cap$ Livability $\leq 2 \cap$ Culture&Leisure > 1.5
11	11 (0.0636)	Neutral	0.182	0.455	0.364	Place attachment $> 3 \cap$ Livability $> 2 \cap$ Cult/Artistic heritage ≤ 3
12	55 (0.3179)	Good	0.036	0.091	0.873	Place attachment $> 3 \cap$ Livability $> 2 \cap$ Cult/Artistic heritage > 3

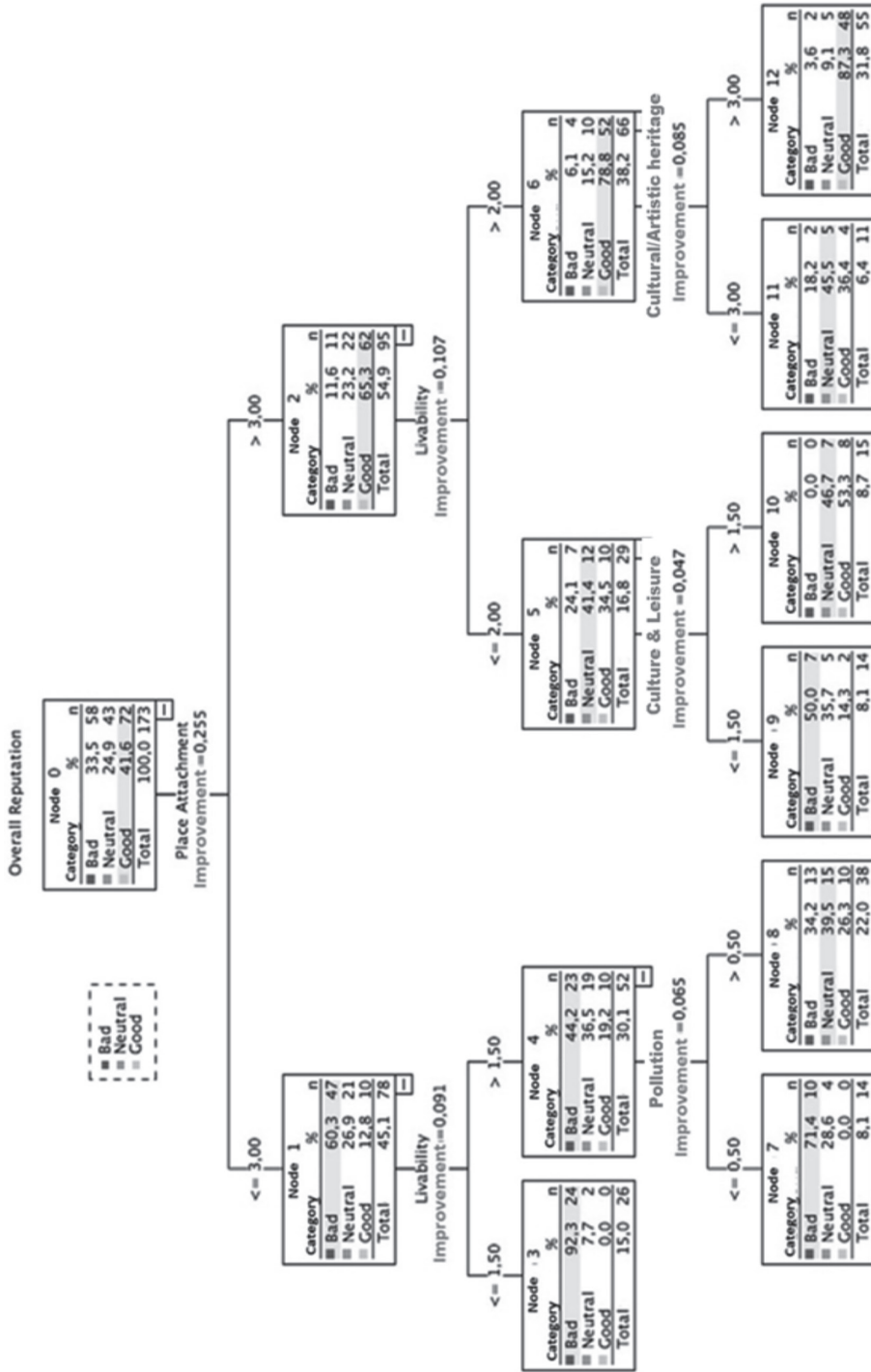


FIGURE 1. - Classification tree

Finally, to have an overall assessment of the importance of each variable, in terms of its effect on “overall city reputation”, it is possible to use the CART approach, which allows to compute the importance of the variables in terms of their predictive power. Variable importance in CART is the contribution of each predictor in reducing the overall impurity measured using the generic measure of split. The greater the contribution of a predictor in reducing the overall impurity the greater its importance.

Table 3 shows the ranking of variables according to their contribution in reducing the overall impurity. The force of each variable is evaluated in percentage with respect to the effect of the stronger variable.

As shown in Table 3, the most important predictors are: “Livability”; “Place Attachment”; “Friendliness”; “Work and Services”; “Neighbourhood”; “Lifestyle”; “Cost of Living”. According to these results we can say that there are essentially three fields that strongly influence the city reputation. Firstly, it appears clearly that the “environment” is crucial for the city reputation. Having a high level of ratings for livability and a high level of ratings for place attachment rank as the 1st, 2nd predictor by importance. Secondly, city reputation is strongly influenced by “social relationships”. This result is coherent with idea that social connections and more generally the social

TABLE 3. - *Measure of variable importance*

Independent Variable	Importance	Normalized Importance
Livability	0.437	100,00%
Place Attachment	0.313	71.60%
Friendliness	0.296	67.90%
Work & Services	0.241	55.20%
Neighbourhood	0.239	54.70%
Lifestyle	0.236	54.10%
Cost of Living	0.197	45.10%
Centre/Periphery Safety	0.183	41.90%
Welcome	0.182	41.70%
Pollution	0.164	37.60%
Restorativeness	0.140	32.20%
Connections & Mobility	0.131	29.90%
Culture & Leisure	0.117	26.80%
Identification with the City	0.114	26.10%
Cultural/Artistic Heritage	0.084	19.20%
Weather	0.080	18.20%
Centre/Periphery	0.075	17.10%
City Care	0.075	17.10%
Calmness & Order	0.069	15.80%
Social Climate	0.068	15.60%
Food Price	0.066	15.10%
Closure	0.064	14.70%
Place Distinctiveness	0.064	14.70%
Culinary Tradition	0.048	11.00%
Traffic	0.046	10.50%
External Appearance	0.017	3.90%
Crime Safety	0.001	0.10%

environment where people interact are crucial for the reputation of a city. Thirdly, “economic issue” is an important field of city reputation because work provides economic resources for the individuals and also for its social effects in terms of self-esteem, status and social contacts. According with Song, Kim and Favero (2020, p. 213) social disparities “play a powerful role in shaping both how we perceive others and how others perceive us”. Authors besides suggests that “citizens’ evaluation of performance is fundamentally a relative process” and “comparing outcomes between different social groups may shape citizens’ perceptions of public service providers”.

The other predictors contribute to a less significant way (40% or less of the effect of the 1st predictor) to reduce “overall city reputation” (Table 3). However as shown in the analysis of the classification tree (see Figure 1), even if a dimension does not have a strong effect per se on “overall city reputation” it can have a strong cumulative effect when associated with other predictors.

Citizen satisfaction, in general, investigates citizens judgements regarding the performance of local government with respect to the quality of basic public services. In this study we considered as citizens, people who frequently stay in the city of Naples, even if they are not residents. Asking for their judgment (in terms of agreement) on some characteristics of the city and exploring their degree of satisfaction with respect to some city services (*e.g.* public transport, social and health care, etc.) we obtained a control variable for the reputation of the city. In our opinion, in fact, satisfaction related to city characteristics and/or services is positively associated with the city reputation. It seems to be impossible to register high levels of satisfaction and, at the same time, low reputation for the same city. In order to verify this hypothesis, we assessed the degree of association between two measured variables (*overall citizen satisfaction* and *overall city reputation*) in order to evaluate the degree of association between the underlying true variables (satisfaction and reputation) (Kim, 1975).

We used the Spearman rank correlation, in order to assess the degree of association between overall citizen satisfaction and overall city reputation, because we assume that the joint distribution is discrete. Moreover, Spearman rank correlation coefficient is a non-parametric measure, it does not carry any assumptions about the distribution of the data and is the appropriate correlation analysis when the variables are measured on a scale that is at least ordinal. In our data, the Spearman’s coefficient is equal to 0.732, this indicates a strong positive relationship between *overall citizen satisfaction* and *overall city reputation*, *i.e.* has a high positive association; that is, the higher level of satisfaction, the higher level of city reputation also, and vice versa. Furthermore, have also run statistical significance tests and Spearman rank correlation coefficient is significant at the 0.01 level (2-tailed); at this significance level we can reject the null hypothesis, *i.e.* there is (monotonic) association between *overall citizen satisfaction* and *overall city reputation*.

5. DISCUSSION AND CONCLUSION

In this paper we used classification tree analysis to evaluate the effect of scale factors deriving from CRIs assessed by Bonaiuto *et al.* (2019) on the reputation of the city of

Naples among its users. The aim was to identify the importance of the explanatory independent dimensions, which contribute to measuring reputation.

In our case study, the variable response of the classification tree is the overall city reputation, whose predictors are to be found among the 27 factors identified by the authors of the CRIs scale (Bonaiuto *et al.*, 2019).

Classification tree shows different paths in the hierarchical structure helping us to identify the different interactions between city reputation and its dimensions. Specifically, interactions between high ratings concerning affective and emotional dimensions, that connect people to the city (place attachment) and perceived livability of the city, as well as positive “disposition” of the city in making its visitors ‘feeling at home’ (welcome), are the key path which better identifies people considering Naples a city with a good reputation.

Furthermore, the classification tree has made possible the identification of the main constituents of city reputation, providing the ranking of the mentioned dimensions by their decreasing level of impact on city reputation, giving thus an idea of the importance of each factor. The most important dimensions are referred to two fields: the city’s features that connect people to Naples and the socio-economics characteristics of the city. Specifically, the analysis carried out has identified the following, as the major factors impacting on city reputation: “Livability” (perceived livability of the city); “Place Attachment” (overall affects and emotions that connect people to the city); “Friendliness” (perceived friendliness of the city); “Work & Services” (how the city faces the need for services, working and economic chances); “Neighbourhood” (perceived safety of the different neighbourhoods of the city); and “Lifestyle” (how the city is compatible with the individual’s needs and lifestyle).

The results clearly show that city reputation is achieved through a delicate balance among social-environmental-work factors, coherently with the literature on the reputation (Permentier *et al.*, 2011). In fact, according to Overman *et al.* (2020, p. 3) “Reputation is not a unidimensional concept but one that draws on multiple bases”. This article considers city reputation as a multidimensional construct and has treated it in this way through the analysis of all its components.

Moreover, research results regarding the impact of city reputation on citizen satisfaction are quite absent. That impact maybe is negligible on perception of reputation because the reputation of a city is to a large extent created by other city residents. These other city residents are not likely to assess the reputation of a city on the basis of detailed information of city attributes but will tend to base their view on a limited number of physical and – mainly – social characteristics of the city (Permentier *et al.*, 2011). Nevertheless, one of the strengths of the survey strategy developed by Bonaiuto *et al.* (2019) lies in overcoming the main limitation of the most famous city reputation ranking. City RepTrak® is a global survey based on more than 12,000 ratings, collected in the G8 countries, which ranks the world’s 56 most reputable cities based on levels of trust, esteem, admiration, and respect. Perceptions regarding 13 attributes are grouped into three dimensions: Advanced Economy, Effective Government, and Appealing Environment. Promoting and developing effective government is the most important priority for cities to achieve a high reputation. This finding is closely dependent on the sampling choices that the CityRepTrak drafters made. Choosing to interview people who do not have a stable relationship with the city they are evaluating is

to assume – as meaningful – only the superficial opinion laypeople have of a city, i.e. their prejudice. The report's editors point out, in light of their data, that cities should specifically promote safety, beauty, and leadership. They reiterate that these are the key attributes that drive the reputation of cities. The crucial shift between beauty and safety as the most important attribute is a clear sign of both the current sociopolitical landscape shaping cities – stability and reassurance are important – and the positioning of respondents. In our study, we chose to interview only people who had an ongoing relationship with the city because we wanted an implicit, “expert” assessment and not just an aprioristic judgment, often influenced by media representations of a city. In this choice, we believe, lies the specificity of CRIs and its added value, compared to other measures of reputation, even those more prestigious and widespread.

In the concluding notes of the paper in which the City reputation tool was validated, Bonaiuto *et al.* (2019, p. 56) stated:

Along this line, it must be stressed that present results refer, for the quantitative tool (*i.e.*, CRIs), only to reputation ‘from within’, so to speak: in fact, they depict the reputation the inhabitants hold about their own city (*i.e.*, the internal stakeholders, so to speak). Future studies will need to address the same issue from the perspective of visitors, tourists, commuters, etc. – *i.e.*, all non-resident city users. This is in fact a typical issue within any kind of reputation study: it is well known that the reputation concept can vary according to the specific stakeholder perspective.

In order to accomplish this expectation, in this article we presented a study conducted by interviewing only non-resident city users. Also, in this case, results are interesting and confirm the usefulness of the tool, consisting of a city assessment by using multiple different dimensions. This multi-dimensional scale, in comparison with existing tools for similar aims, seems to pay a wider attention to the complex configuration of this topic. The research here presented, even if as an exploratory intent, could be considered another validation step of the first version of the scale useful to measure city reputation, especially for its use in a more varied context than the specific one of its development. Inspired by the Authors of the tool, in this article are also presented analyses aimed to test existing relationships with other constructs. In particular, a positive monotonic association is also found between city reputation and citizen satisfaction identifying interesting points of connection useful for next research in this fascinating field of the Environmental Psychology. The data from the classification tree, in particular, highlights a very interesting result. Research participants are divided into two subgroups, those for whom the reputation of the city of Naples is very bad and those for whom it is very good. The formers are essentially conditioned by “pollution”, the latter by “culture & leisure”, as well as by “cultural/historical heritage”. The Council of Europe trying to go further with the *Faro Convention* (2005), with the document “*Heritage and Beyond*” (2009) invited European communities to transform “heritage” in “action”, recognizing the importance of the local and the ordinary, as well as embedding of heritage values into social attitudes.

This new approach often works through focusing on context rather than only the cultural heritage itself, recognizing other ways to achieve sustainable management of heritage than only the conventional approach of careful, conservative physical preser-

vation or restoration. For “new heritage”, the overall objective is not necessarily preservation but the management of change, to which the end preservation is just one means. So, these data show how important are the aims of the *Faro Convention* (2005). It promotes a wider understanding of heritage and its relationship to communities and society. The Convention encourages institutions, and not only, to recognize that objects and places are not, in themselves, what is crucial about cultural heritage. They are important because of the meanings and uses that people attach to them and the values they represent. In our case a key determinant of city reputation.

In conclusion, it is our hope that this work may contribute to better understanding of contemporary urban politics. Firstly, it proposes to the public management a test designed to assess the reputation of contemporary metropolitan areas in a customizable manner. Using this procedure, it will be possible to disentangle the specific weight of each indicator on the overall reputation of the city among its stakeholders, even when non-resident. Although in other areas of study concerned by reputation analysis the effectiveness/efficiency of performance and procedures really matter, this study shows that when the evaluation involves a city, the affective and emotional dimensions, such as “feeling at home” (among others), identify the key path that best represents the way people think when they consider a city worthy of a good reputation. Last but not least, this article would like to warn public managers who should certainly focus on the operational and structural dimensions of a city’s functioning, but at the same time they should not neglect those dimensions that are only apparently “softer”, more shallow, which are related to emotions, feelings and, above all, city’s ethics/morality.

ACKNOWLEDGEMENT

The authors would like to thank prof. Marino Bonaiuto for sharing his assessment tool and for his thoughtful and useful advice.

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APPENDIX

TABLE A1. - *Dimensions, Factors and Items of CRIs Scale – Descriptive Statistics for All Items*

Dimension	Factor	Item	Median	IQR
Scale 1: Quality of Life	Factor 1: Livability	This is a liveable city	2	3
		It is a great pleasure to spend time in this city	4	2
		I find myself well in this city	3	2
		I feel comfortable in this city	3	2
		The quality of life is good	2	2
		The quality of life of this city meets my needs	2	2
		This city offers a high quality of life	2	2
		This is a non-liveable city (R)	3	3
		It is nice to live in this city	3	2
		This is a well-organized city	2	2
	The quality of life is poor	3	2	
	Factor 2: Calmness & Order	This city is chaotic (R)	1	2
		In this city there is a lot of silence	1	2
		It is a very noisy city (R)	1	2
		This city is dispersive (R)	3	2
		This city is crowded (R)	1	2
		In this city it is important not to let your guard down (R)	1	2
	Factor 3: Social Climate	This is a frenzied city (R)	2	2
		People are detached (R)	5	2
		People are friendly	5	2
		People in this city are welcoming	5	1
		In this city, it is difficult to feel at home (R)	4	2
		People in this city are more sociable than in others cities	5	1
		The mindset of this city is severe (R)	4	2
		In this city it is easy to create social relationships	5	1
		I am not able to understand the people of this city (R)	4	2
	The people of this city are kind	4	2	
	Scale 2: Safety	Factor 1: Neighbourhood	Crime is not a problem	0
The streets of the city are quite safe			1	2
The streets of the city centre are safe			2	2
In this city, the city centre is safer than the periphery			3	2
This city is safer than it appears on the news			3	2

(follow)

Dimension	Factor	Item	Median	IQR	
Scale 2: Safety	Factor 2: Crime Safety	In this city it is not safe to go out at night (R)	3	3	
		Thefts are a common occurrence in this city	4	2	
		While you are walking through the city, you can run into spiteful persons (R)	2	2	
		In the streets of this city the crimes are frequent (R)	2	2	
	Factor 3: Centre/ Periphery Safety	You can walk comfortably through the periphery of this city	2	2	
		I go out comfortably at night in the periphery of this city	2	2	
		It is safer to live in the periphery than in the city centre	2	2	
	Factor 4: External Appearance	Neighbourhoods of this city are neglected (R)	1	2	
		In this city there are a lot of neglected buildings (R)	1	1	
		News on the media give a dangerous image of this city (R)	1	2	
		Media often report crimes committed in this city (R)	2	2	
		Media speak very well of this city	2	3	
	Scale 3: Cost of Living	Factor 1: Cost of Living	This city has a high cost of living (R)	4	1
			The cost of living in the centre of this city is high (R)	2	1
			Living in this city is economically complicated (R)	3	1
In this city you can live well with modest costs			3	2	
Life in this city is cheaper than in other cities			4	1	
Prices are modest in this city			3	2	
Buying in the centre of this city is expensive (R)			3	2	
Services offered by this city are in proportion to costs			2	2	
In this city houses are cheap			2	2	
Rentals are expensive (R)			2	2	
Buying a house in the centre of this city requires considerable economic efforts			5	2	

(follow)

Dimension	Factor	Item	Median	IQR	
Scale 4: Weather	Factor 1: Weather	I love the weather of this city	5	2	
		This city is welcoming because of its weather	5	2	
		The weather of this city facilitates social interactions	5	2	
		In this city people spend a lot of time outdoors	5	1	
		The weather is good	5	1.5	
Scale 5: Compatibility	Factor 1: Culture & Leisure	This city offers adequate entertainments	4	2	
		This city is full of restaurants	5	1	
		This city lacks cinemas (R)	4	1	
		In this city there is a lot to do at night	3	2	
		This city is disappointing in terms of entertainment options (R)	3	1.25	
		This city offers entertainments for any age	3	2	
		This city is economically underdeveloped (R)	3	2	
		There is a lot of tourism	4	3	
		This city is culturally dead (R)	4	3	
		This city lacks concerts (R)	3	3	
		In this city you can join a lot of important events	3	2	
	This city allows you to meet culturally different people	4	2		
	Factor 2: Work & Services	In this city it is possible to do economically well	3	1	
		Services are a virtue of this city	1	2	
		Childcare services in this city are very adequate	3	2	
		Hospitals in this city are really efficient	2	2	
		It is hard to find a job in this city (R)	1	2	
	Factor 3: Lifestyle	This city offers a lot of working opportunities	1	3	
		I think that this city is not able to meet my needs (R)	3	3	
		This city is compatible with my ideal lifestyle	2	2	
		The lifestyle of this city is not attractive to me (R)	3	2	
			This city offers a better lifestyle in respect to other cities	3	2

(follow)

Dimension	Factor	Item	Median	IQR
Scale 6: Landscape Quality	Factor 1: Cultural / Artistic Heritage	There is a lot to see in this city	5	2
		The value of this city is increased by its monuments	5	2
		The history of this city is fascinating for me	5	1
		This city has a wide artistic heritage	6	1
		In this city you can spend a lot of time enjoying the artwork	5	2
	Factor 2: Resto- rativeness	In this city you can find areas of uncontaminated nature	2	2
		In this city there are places where you can relax	3	2
		There are green areas where you can spend your time	3	2
		There is a lack of green areas (R)	1	2
		In the city centre there is a lack of green areas (R)	2	2
		There are a lot of green areas where you can escape the chaos of urban life	3	2
		You can easily reach nice green spaces	3	2
		There are relaxing places	3	2
	Scale 7: Care	Factor 1: City Care	Green areas are well equipped	2
The city is not well cared for (R)			1	3
The natural landscape of this city is well kept			2	2
The inhabitants take care of their city			1	2
Buildings' facades are well finished			2	2
Factor 2: Centre/ Periphery		The city as a whole is clean	1	2
		The periphery is less well groomed than the city centre (R)	2	2.25
		The periphery is less clean than the city centre (R)	2	2
Factor 3: Pollution		The air of the city is not clean (R)	1	3
		In the city there is too much smog (R)	1	2

(follow)

Dimension	Factor	Item	Median	IQR
Scale 8: Public Transportation	Factor 1: Connections & Mobility	Public transportation is efficient	1	2
		This city allows you to get around on foot	3	3
		In this city you can move quickly	2	2
		The different zones of this city are well connected	2	2
		This city has an efficient subway	3	2
		The bus stops are adequately spread along the city	2	2
		Streets and pavements of this city are wide enough	2	2
		It is hard to get about in this city	4	2
		In this city there is adequate parking for handicapped persons	2	2
		The city centre and the periphery are badly connected (R)	2	2
		Wherever you are in this city, it is easy to connect to the internet	2	2
		In this city, everything is at your fingertips	2	2
		This city is people-friendly	3	2
		It is difficult to get around in this city (R)	2	2
	It is very complicated to reach a place (R)	2	2	
	Factor 2: Traffic	There is a need for more cycling lanes (R)	2	2
		There is a lot of traffic in this city (R)	1	2
		At some times of the day it is difficult to move using the public transportation in this city (R)	1	2
		At some times of the day it is difficult to move in your private car in this city (R)	1	1
		There is a lack of bus lanes (R)	2	2
Traffic is unbearable during the rush hour (R)		1	2	
Traffic is a problem for this city (R)		1	2	
Traffic decreases this city's livability (R)		1	2	
Scale 9: Food	Factor 1: Culinary Tradition	The high quality of the food in this city attracts the tourists (R)	2	2
		Typical culinary products of this city are well known	5	2
		It is easy to find typical culinary products of the city	5	2
		The city deserves to be visited for its typical culinary products	5	1
		The food is an attraction for this city	5	1
		The food of this city is better than in other cities of Italy	3	2

(follow)

Dimension	Factor	Item	Median	IQR
Scale 9: Food	Factor 2: Food Price	In this city, you pay more for the location than for the food (R)	3	2
		The food in this city is too expensive (R)	3	1
		It is too expensive to eat in the restaurants of this city (R)	4	1
Scale 10: Place Identity	Factor 1: Place Dis-tinctiveness	This city is like any other (R)	4	2
		This city is ordinary (R)	5	2
		This city has no identity (R)	5	2
	Factor 2: Identifica-tion with the City	The inhabitants identify strongly with their city	4	2
		People who were born in this city identify with it	4	1
		I strongly identify as an inhabitant of my city in its entirety	4	2
		I identify more with this city than with other cities	4	2
		The inhabitants of this city reflect its identity	4	2
The inhabitants of this city are recognizable	4	1		
People who were born in this city feel like it is their own city	5	2		
Scale 11: Place Attachment	Factor 1: Place Attachment	I feel like this city is mine	4	2
		Now this city is a part of me	4	2
		It would be difficult for me to leave this city	3	2
		This is an ideal city for me	2	2
		I do not feel integrated in this city (R)	4	3
Scale 12: Legibility	Factor 1: Friendliness	It is easy to find my way in this city	3	2
		This city has an adequate number of visitor centres	2	2
		In this city there are reassuring places	3	2
		In this city there are places where you are scared to lose your way (R)	3	2
		The road information is clear	2	2
		The rules are clear	2	2
		It is easy to move in this city	2	2
		It is easy to use the public transportation	2	2
		It is easy to understand how the city is structured	3	2
		It is easy to understand other people's behaviours	3	2
		In this city it is easy to assert one's rights	2	3
It is not easy to understand the habits of the inhabitants of this city (R)	3	2		

(follow)

Dimension	Factor	Item	Median	IQR
Scale 12: Legibility	Factor 2: Welcome	It is a welcoming city	4	2
		At first sight, you trust people in this city	4	2
		Moving around in this city is upsetting	3	2
		It is easy to interact with people	4	1
		You understand how to interact with people	4	1
		It is easy to know how to behave	4	1
		It is easy to understand the pace of this city	4	1
		It is easy to understand how to live in this city	4	1
	Factor 3: Closure	The initial experience in this city is scary (R)	3	2
		The physical configuration of this city is upsetting (R)	4	2
		When you ask for information, people are not happy to help you (R)	4	2
		Upon arrival you feel alienated (R)	4	2
		You are not able to interact adequately with people (R)	4	1.25
		It is not easy to understand how other people act (R)	3	1