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The citizen satisfaction index: Adapting the model in Argentine cities

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ABSTRACT

The citizen satisfaction index is an important tool to determine citizens' opinion of the city they live in, which is important to decision makers. However, this satisfaction may be different in different cities worldwide. Zenker et al. (2013) argue that one's overall satisfaction with a city is explained by four main factors: "urbanity and diversity, nature and recreation, job opportunities and cost-efficiency." According to these authors, these four factors explain 50% of the total variance of the overall citizen satisfaction with a city, sampled in German cities. In this work, we adapted and tested the citizen satisfaction model in Argentine cities based on the recommended factors.

1. Introduction

Which is the best place to live? What are the best features that interest you to select a place? Which is the best place for parenting? These are some of the typical questions determining citizens' ideal place to live. The citizen satisfaction index (CSI) is an important tool to determine citizens' opinion of the city they live in, information that is important to decision makers.

In the present study, the CSI model (Zenker, Petersen, & Aholt, 2013), which has been tested in German cities, was taken as the reference. According to this model, one's overall satisfaction with a city is explained by four basic factors, namely "urbanity and diversity, nature and recreation, job opportunities and cost-efficiency," which explain 50% of the total variance of overall satisfaction.

The aim of this study was to test the CSI model in a different cultural sample (medium-sized and small cities of Argentina with 70,000–150,000 inhabitants), through a structural equation model (SEM) based on partial least squares. We simultaneously examined place attachment, parental investment in parenting, and overall satisfaction, using different predictors. We attempted to complement and reinterpret the analysis based on concepts related to sociology of human behavior and evolutionary and environmental psychology to extend the tentative model proposed. Interpretation of the results of the proposed model may help promote future studies on the correlation between citizens and their physical environment.

Our model is consistent with the reference model. It measures the perception of citizens and ignores objective quantitative indicators of a city, such as the unemployment rate and transportation networks. Thus, our work faces the same limitations as those of the reference work. The results of the index do not necessarily imply the need for changing a physical characteristic but for eliminating prejudices and stereotypes, which occupy an important part in the city (Zenker et al., 2013).

2. Adaption and expansion of the CSI model

Several constructs are available (satisfaction, commitment, loyalty, attachment, etc.). To validate our model, we chose satisfaction, attachment, and the perception of the city being suitable for parenting. Therefore, we modeled the attachment to a city as a result of citizen satisfaction, in line with the results of other models of satisfaction (Florek, 2011). Some authors differentiated attachment from identification with the city of residence (Rollero & De Piccoli, 2010). Zenker and Rütters (2014) discussed the role of citizen satisfaction, place attachment, and place brand attitude in positive citizenship behavior. Table 1 lists the factors, items, and differences between the CSI model and our proposed model.

The survey respondents were asked to qualify 1–10 different features of the city in terms of "I am very dissatisfied," "dissatisfied," "neither dissatisfied nor satisfied," "satisfied," or "very satisfied." The items were measured with a Likert scale ranging from 1 ("very dissatisfied") to 10 ("very satisfied"). Other variables measured with the Likert scale included "satisfaction with the city" (1 "very dissatisfied" to 10 "very satisfied"), "quality of life to raise children" (1 "very bad" to 10 "very

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Table 1
Factors, items, and differences.

Factors	Item	Differences between CSI model and our model
Job opportunities: it relates to all issues relevant to work such as the general level of salary. *Cost-efficiency*: it expresses the perception of the cost of living there.	General economic growth in the region. Existence of good jobs and employment opportunities. The general level of wages. The general level of prices in the city/cost of living. Availability of homes. Housing market/cost of house rental or purchase.	We condensed "job opportunities" and "Cost-efficiency," which were originally presented in the CSI model as first-order latent variables, into one reflective construct of second order.
Urbanity and diversity: it could be understood as the urban and metropolitan characteristic of a place, for example, a large city with a wide range of opportunities, cultural events, or business. This factor also describes a city open and tolerant to different cultures and subcultures.	Quantity and quality of cultural activities taking place in the city (theater, nightlife, etc.). Cultural diversity, different cultures, and subcultures. Openness and tolerance on the part of citizens. Coexistence, atmosphere, and positive energy conveyed by the city. Availability of different services. Are you satisfied with the urban visual image provided and transmitted by the city? Variety of shopping opportunities.	The "urbanity and diversity" construct is a second-order latent variable whose reflective constructs of first order are "social relationship and esthetics and diversity of consumer goods and services." This construct was originally presented in the CSI model as first order.
Nature and recreation: it expresses the need of citizens to have low environmental, visual, and noise pollution; parks and public open spaces; and a peaceful place to live.	Natural and public green spaces. Number of parks and open spaces in the city. Options outdoors. Peacefulness. Environmental quality (degree of noise and environmental pollution). Cleanness of the city. Accessibility to running water networks at homes.	The "nature and recreation" construct is composed in our case of the first-order latent variables "Peacefulness and green spaces" and "environmental care." This construct was originally presented in the CSI model as first order.
Quality of life in the city for parenting children and preference for the city	Do you think that this is a good city to raise your children?	We added the variable "environment perception as a facilitator of parenting".
Overall satisfaction	How satisfied are you with your city? In other words, do you generally like to live in the city?	
Attachment to the city: it is the emotional link between people and a city. It is influenced by individual and personal experiences. Therefore, a city has to be significant enough, considering "thoughts, feelings, memories and interpretations evoked by a landscape" as "significant" and "the degree of taste for a landscape compared to another" as "preference."	Do you plan to live in another city either for work or to improve your quality of life? Would you like to go and live in another city or imagine living in another city if you run across economic or job opportunity or just for fun?	Our research limits the meaning of "place attachment" to the "intention to leave the city."

Note: Some factors and items were taken from the work of Zenker et al. (2013) and the rest were designed by us.

good"), and "attachment" (1 "probably yes" to 10 "probably not"). The questions were randomized across participants to prevent the effect on context items.

Finally, the participants were asked about demographic attributes such as age, educational background, and income.

3. Selection of the structural model: partial least square path model versus covariance-based methods

To model the proposal, we preferred to use an SEM based on partial least squares rather than covariance-based methods (CBMs). Both methods show clear differences in their objectives. CBMs estimate model parameters, such that the discrepancies between the initial empirical covariance data matrix and the covariance matrix derived from the model and the estimated parameters are minimized. The model is used to explain the covariation of all indicators. This approach provides global measures of goodness of fit that determine the extent to which the hypothesized model fits the data available. CBMs are better suited for confirmatory research. By contrast, the partial least square path model (PLS-PM) aims to predict dependent variables (both latent and explicit). This involves maximizing the explained variance (R^2) of the dependent variables, which in turn indicates that the parameter estimates are based on the ability to minimize the residual variances of endogenous variables. Compared with CBM, the predictive PLS-PM is more suitable for exploratory theoretical development, but it can also be used to confirm the theory via confirmatory analyses (Barclay, Thompson, & Higgins, 1995).

These two approaches differ in their use of SEM either to develop and evaluate a confirmed theory or to ensure predictive applications (Anderson & Gerbing, 1988). When the former theory is sound and can be developed and evaluated further, estimation methods based on covariance (e.g., maximum likelihood or generalized least squares) are more suitable.

This, the PLS model was used in this study as it was better suited for predictive purposes (Chin, Marcolin, & Newsted, 2003). Indeed, Wold (1979) stated that PLS is mainly used for predictive causal analysis in situations of high complexity, but with underdeveloped theoretical knowledge. Barclay et al. (1995) reported the general use of PLS in predictive models of research, with the focus on developing an emerging theory.

4. Measuring overall satisfaction with the city

We referred to various work for the dimensions selected in this study due to the large quantity of factors. The factors influencing a person's choice of location include the physical perspective (Rodwin

Table 2
Global results of structural model.

Average path coefficient (APC) = 0.485, $P < 0.001$
Average R-squared (ARS) = 0.325, $P < 0.001$
Average adjusted R-squared (AARS) = 0.323, $P < 0.001$
Average block VIF (AVIF) = 1.242, acceptable if ≤5, ideally ≤3.3
Average full collinearity VIF (AFVIF) = 1.803, acceptable if ≤5, ideally ≤3.3
Tenenhaus GoF (GoF) = 0.526, small ≥0.1, medium ≥0.25, large ≥0.36
Simpson's paradox ratio (SPR) = 1.000, acceptable if ≥0.7, ideally = 1
R-squared contribution ratio (RSCR) = 1.000, acceptable if ≥0.9, ideally = 1
Statistical suppression ratio (SSR) = 1.000, acceptable if ≥0.7
Nonlinear bivariate causality direction ratio (NLBCDR) = 1.000, acceptable if ≥0.7