

Different cities, different cultures, the same quality of life? A qualitative-quantitative approach

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Abstract: L'espressione “qualità della vita” è un concetto complesso, la cui definizione non appare sempre univoca. L'obiettivo del presente studio è quello di proporre un *ranking* di trentuno città Europee (UE 15) in base alla qualità della vita, nella accezione più ampia e completa del termine, includente sia aspetti qualitativi, espressi come percezioni individuali dei cittadini, che quantitativi direttamente misurabili. I dati analizzati sono stati raccolti nel contesto dell'indagine Urban Audit ed il metodo proposto combina diverse tecniche di analisi multivariata.

Keywords: quality of life (QOL), qualitative and quantitative indicator, principal component analysis (PCA), optimal scaling.

1. Introduction

The concept of quality of life (QOL) and the discussion about well-being or happiness have an ancient origin, dating back to Plato and Aristotle. Today, QOL expression is widely diffuse in scientific and common language, but there is not a single and universally accepted definition. In the last two decades, the concept of QOL has frequently used in reference to describe standards of living. Many surveys attempted to assess QOL through quantitative or qualitative indicators.

The quantitative approach tends to focus attention primarily on economic variables like GDP growth, inflation and unemployment. This line of development began with Bauer (1966) and extends to the present (OECD, 2001; Osberg, 2004).

The qualitative approach provides an in-depth study of the motivations, feelings and reactions of selected social groups towards a given subject or concept. This approach started with Campbell, Converse, & Rodgers (1976) and Andrews & Withey (1976). Veenhoven (2000) specifies that the QOL is conceived as a broad concept that covers environment, performance and subjective enjoyment; happiness has understood as a part of the latter meaning. The International Society for Quality-of Life Studies (ISQOLS) has examined 107 meanings, defining the QOL expression as the complex concept that includes both objective and subjective aspects that are the collection of seven dimensions: material being, health, productivity, affectivity, safety, society, and physiological being (Cummins, 1996; Schifini D'Andrea, 1999; Abbate et al, 2000).

In our approach, we assume that QOL is “a mix of subjective and objective aspects, in a latent or evident form; those are seasoned by needs, wishes and expectations”. A good QOL means low crime, availability of arts, entertainment and leisure activity, access to out-of-doors recreational and wilderness areas, excellent infrastructures and great schools. We should have a quantifiable standard of life, but also wishes and expectations that are not directly measurable.

The aim of this paper is to propose a new method based on qualitative and quantitative indicators that are suitable to measure the QOL and to rank European cities.

The intend of city rankings is to provide objective, consistent and comprehensive data of comparison.

We use Urban Audit survey¹, assessing the QOL of Europe's cities. We obtain the rank combining statistical multivariate techniques.

2. Data and method

Subjective indicators are collected by Urban Audit Perception survey, that was conducted in January 2004 to measure the QOL perception, with a synthetic index 0-100 of satisfaction, in 31 European cities of old European member states (EU 15). Objective indicators are collected by Urban Audit survey and are recorded on New Cronos data bank. Those data refer to 2001, the up-to-date year. In this case, we have selected the same 31 cities collected by Urban Audit Perception survey.

All the capitals were included and the most important cities were added. The following table shows the European cities which were analysed with qualitative and quantitative indicators:

Table 1 *European Cities selected*

Belgique: Antwerpen, Bruxelles , Liège	Luxembourg: Luxembourg
Danmark: København	The Netherlands: Amsterdam, Rotterdam
Germany: Berlin, Dortmund, Leipzig, München	Austria: Wien
Greece: Athina, Irakleio	Portugal: Braga, Lisboa
Spain: Barcelona, Madrid, Málaga	Finland: Helsinki
France: Marseille, Paris, Rennes	Sweden: Stockholm
Ireland: Dublin	United Kindom: Glasgow, London, Manchester
Italy: Napoli, Roma, Torino	

The indicators examined are 40, 20 quantitative and 20 quanlitative and cover 5 fields: socio-economics aspects, participation in civic life, education and training environment and culture and leisure.

The quantitative data are structured into **A** matrix and qualitative into **B** matrix. **A** and **B** matrices have the same dimension (31×20), that is 31 European cities and 20 indicators. Before starting with the analysis we add one case that represents the best possible situation in **A** and **B** matrices, and named these **C** and **D**, respectively.

The method proposed is divided into seven sequential steps:

- 1) applying principal component analysis (PCA) on **C** matrix;
- 2) calculating Euclidean distance between normalized scores of “the perfect city” and others cities;
- 3) ranking cities respect to quantitative indicators;
- 4) applying optimal scaling (HOMALS algorithm) on **D** matrix;
- 5) calculating Euclidean distance between quantification scores of “the perfect city” and others cities;
- 6) ranking cities respect to qualitative indicators;

¹ It should download data from website: www.europa.eu.int/comm/eurostat/

- 7) drawing a scatter of position of cities with coordinates equals to Euclidean distance from “the perfect city”. “The perfect city” is an ideal place where every indicator presents the best value.

In the first and fourth steps, we detect the latent dimensions of objective and subjective indicators. The central idea of principal component analysis (PCA) and also optimal scaling is to reduce the dimensionality of the data set while retaining as much as possible the variation in the data set. The new synthetic indicators, obtained in 1 and 3 steps, are metric and orthogonal and then we can calculate Euclidean distance between latent dimensions of cities and “the perfect city” (2 and 4 steps). After those phases, we sort cities based on minimum distance from “the perfect city” and give a rank. The city more close to “the perfect city” has rank equals to one and the furthest holds the end position (3 and 6 steps).

In the seventh step, the Euclidean distances from “the perfect city” are coordinates to draw a plot of QOL. In this way, we look subjective and objective positions.

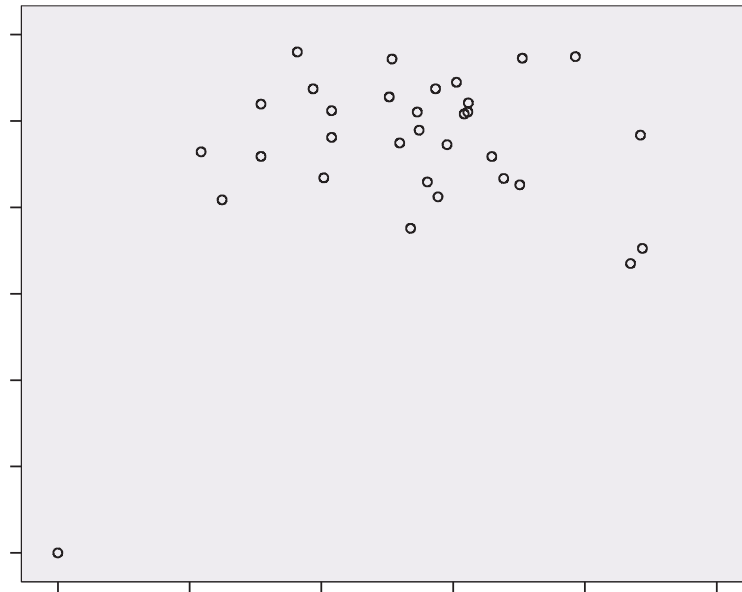
3. The main results

The 20 qualitative indicators are collapsed into 4 latent dimensions, that explain the 80% of variability. The first factor (the 39% of variability) represents satisfaction with public transport, schools, hospitals, doctors, green space, sport facilities, public internet access, internet access at home, the easiness to find a good job; the second factor signifies foreigner are well integrated, facility to find good housing at reasonable price; the third factor is satisfied with cultural facilities and pollution; the fourth is satisfied with cinemas.

The 20 quantitative indicators are the same collapsed into four latent dimensions (76% of variability). The first axis represents the average size of households, the percentage of households that are lone-parent household and average living area in square meters per person; the second is activity Rate and GDP per head; the third is the number of days PM10 concentrations exceed 50 $\mu\text{g}/\text{m}^3$; the fourth is the number of recorded crimes per 1000 population. These results show that the first latent dimension, that is the most important dimension), for the subjective indicators concern satisfaction in public services (transport, hospital, school); while for the objective indicators are household. The cinemas and crime is the less important factor.

The North European cities result have a better QOL, both subjective and objective aspects. München, København, Wien and Amsterdam offer to people a good standards of living. Those cities have a set common aspects: the same geographical position, that is the heart of Europe; they are the economic and cultural centres of their countries; they are active in IT, electronics, communication networks. Moreover, each of those cities has a peculiarity. München, besides, is active in life sciences, and microelectronics. This city has one of the largest concentrations of research institutions in Germany, including two universities, and an important R&D sector which accounts for a large proportion of the city’s workforce. København has an economy based on manufacturing industries, trade, tourism and other services. Wien has the biggest inland container port in Europe. It has always been a hub for trade between eastern and western Europe. Amsterdam’s major activities are banking and financial services, business support services, tourism and the publishing sector. The fig. 1 shows that all cities shapes a big cloud of cities that is far from “the perfect city”.

Fig. 1 Scatter of QOL in the European cities



In European cities, if a city exists where conditions of live are better than others, it will not be the best one. According to Plato, among the inspirers of QOL concept, “the ideal city is a place where all people find harmony with themselves when they achieve their goods and live a good life”, but our results show that we are still far away from “the ideal city”.

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