# 8

# An Approximation of Social Well-Being Evaluation Using Structural Equation Modeling

Periurban livestock has proved to be important since it caters to food cities, transforms waste from local restaurants and markets, and provides economic, cultural and social incentives that provide well-being to families and the entire community. The objective was established by indicators of social welfare in periurban communities through categorical principal components analysis and structural equation modeling to understand why farming families continue to survive in spite of high production costs, pressure for land use and environmental pollution.

## 8.1. Introduction

Urban spaces have gradually gained ground with respect to rural areas. Migration of people from the countryside to cities is becoming more frequent as they seek better employment opportunities, wages and living conditions. This causes communities on the periphery to grow and provide adequate public services.

Health is one of the important needs that a human has, and according to World Health Organization (WHO) (OMS 2015), this concept involves not only the absence of diseases or pathologies, but also includes social and psychological aspects.

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Welfare is another aspect that is closely related to health; Graaff (1967) mentions that it is the state in which one is well, without diseases, with health, energy, etc. Therefore, it can be compared with happiness, joy, satisfaction, etc.

FAO (2014) has given importance to small-scale family farming activities carried out in rural, urban and periurban communities because it estimates that 20% of total consumption in cities around the world is produced by small-scale systems. In Mexico, for example, according to SAGARPA (2012), about 25% of the pork meat is produced by family farm. This kind of farm has a main characteristic that it is carried out in confined spaces, generally in the backyards of houses, and uses organic waste of the house.

Despite the studies about the importance of small-scale family farming, the role in health and social welfare of this kind of farm is not clear, so the objective of this study was to establish indicators of social welfare in periurban communities through structural equation models (SEMs) to understand why farming families continue to survive despite high production costs, pressure for land use and environmental pollution.

## 8.2. Wellness

It is the state in which one is well, without diseases, with health, energy, etc. Therefore, it can be brought by happiness, joy, satisfaction, etc. This concept includes material and immaterial factors; while material factors are measurable, immaterial factors are difficult to measure as they represent states of mind and psychological factors of the human being (Graaff 1967).

The concept of well-being is mainly concerned with qualitative factors, which are generated through the integration of growth and development for the satisfaction of both material and immaterial needs of individuals in a society (Graaff 1967).

The well-being of a society is not only the absence of illnesses or weaknesses, but it also can be expressed by the strengths of the community, such as facing stress in complex situations (Rodríguez *et al*. 2008).

## 8.3. Social welfare

According to Putnam (2000), social capital plays a significant role in every aspect of our personal and community life, so it is affected by physical health (Cabañero *et al*. 2004) and especially by mental health (U.S. Department of Health and Human Services 2001). Social welfare depends on the role of the people who

work in a society and what we do about certain circumstances (Keyes 1998). It is composed of the following dimensions:

1) Social integration (SI): It is defined as "the assessment of the quality of the relationships we maintain with society and community" (Keyes 1998). This dimension considers that "healthy people feel part of a society", and establish social networks, which includes family, friends, neighbors, etc.

2) Social acceptance (SA): It is imperative for mental health (Keyes 1998) to be and to belong in a community, and this feeling must have three qualities: trust, acceptance and positive attitudes toward others (attribution of honesty, kindness, kindness, capacity), and acceptance of the positive and negative aspects of our own lives.

3) Social contribution (SC): The feeling of being useful is important for self-confidence because if you "are a vital member of society, you have something useful to offer the world" (Keyes 1998), and according to Bandura (1997), to be useful is a synonymous of utility, profit and efficiency.

4) Social update (SU): This dimension considers that society and institutions are dynamic entities. They move in a certain direction in order to achieve benefits (trust in progress and social change). In addition, social updating implies the belief that society controls its destiny and drawing roads for the future. People who are healthier from the mental point of view trust in the future of society, their potential for growth and development and their ability to produce well-being (Keyes 1998).

5) Social coherence (SCo): The cohesion refers to the ability of understanding social dynamics, such as the way of organizing the social world and the concern to know what is happening in the world. Healthy people not only care about their world, but also they have the feeling that they are able to understand what is happening around them (Keyes 1998). According to Blanco and Diaz (2005), people find a logic in the events that surround them.

## 8.4. Methodology

The data were obtained through semistructured interviews, thus monitoring 70 farms by applying a questionnaire to measure social well-being, which was adapted from Keyes (1998). Questions were related to social integration, social acceptance; social contribution, social update and cohesion of producers of bovine, porcine, ovine and poultry from the community of San Miguel Coatlinchan, Texcoco, State of Mexico, Mexico.

Only sixty-nine answers were registered. The questionnaire has several items, which are related to each dimension, as discussed in section 8.5.

In this work, we construct each of the described dimensions based on categorical principal component (CATPCA), after which the well-being indicator, based on these components, is constructed by an SEM. It allows us to analyze how each component contributes to well-being as it will be described in the following section.

## 8.5. Results

On the basis of obtained components by CATPCA, a model was formulated by SEM in order to verify the impact of each of these components on welfare.
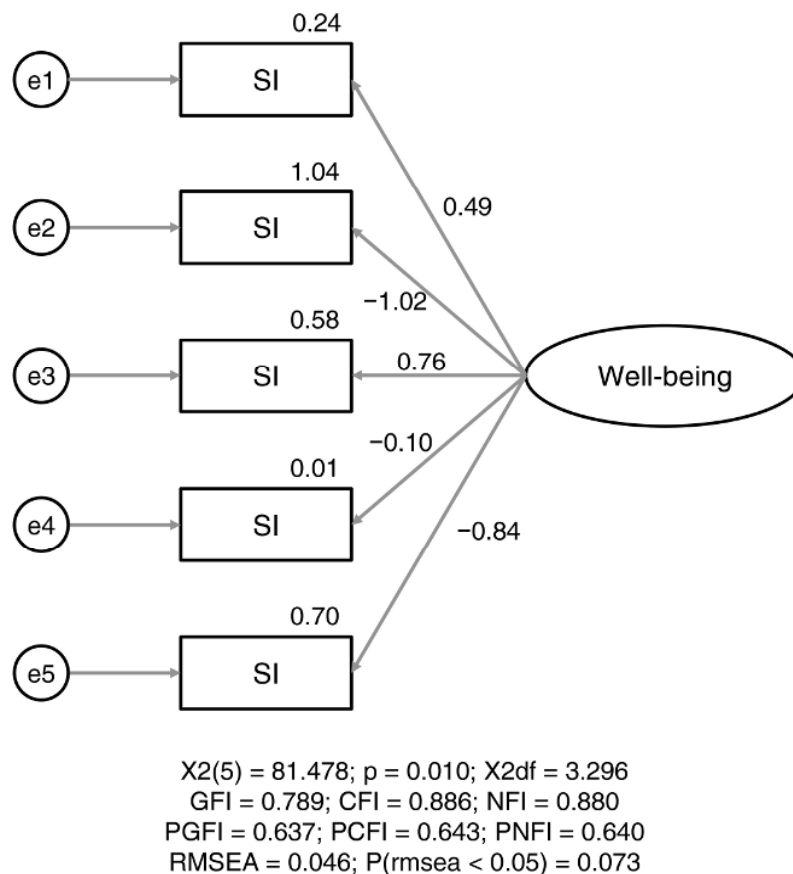
The obtained model is shown in Figure 8.1.



$X2(5) = 81.478$; $p = 0.010$; $X2df = 3.296$
$GFI = 0.789$; $CFI = 0.886$; $NFI = 0.880$
$PGFI = 0.637$; $PCFI = 0.643$; $PNFI = 0.640$
$RMSEA = 0.046$; $P(rmsea < 0.05) = 0.073$

**Figure 8.1.** *The structural equation model based on the constructed components*

The fundamental principle on which the model is presented is based on the covariance/correlation between the manifest variables, which is the result of the existence of a common factor between them.

As pointed out by Kenny *et al.* (2011), McIntosh (2007) and Mulaik *et al.* (1998), there is no real consensus regarding the quality evaluation of SEMs. Nevertheless, some indicators considered relevant were analyzed.

Using the absolute indices, the quality of the model (X2/df) and the covariance ratio, observed among the manifested variables, explained by the adjusted model (Goodness of Fit Index) were analyzed.

Using the relative indices, it was possible to analyze the percentage increase in the quality of the adjustment of the adjusted model in relation with the model of total independence (normed fit index).

Likewise, the comparative fit index was used in order to correct the underestimation that usually occurs when normal fit index (NFI) is used with small samples.

The use of the parsimony indexes (parsimony goodness of fit index (PGFI), parsimony comparative fit index (PCFI) and parsimony normed fit index (PNFI)) aimed to compensate the "artificial" improvement in the model.

Finally, the root mean square error of approximation (RMSEA) statistic was used in order to compare the adjustment of the obtained model with the sample moments in relation to what would have been obtained with the population moments.

The results obtained through the mentioned indicators allow us to affirm that the model obtained presents a quality of adjustment, meeting the minimum acceptable conditions to proceed with the analysis.

Well-being factor scores will be obtained by the following formula:

$$\text{Well-being} = -0.017 \times SI - 0.612 \times SA - 0.047 \times SC + 0.003 \times SU + 0.072 \times SCo$$

where:

- SI is the social integration;

- SA is the social acceptance;

- SC is the social contribution;

- SU is the social update;

- SCo is the social coherence.

Table 8.1 illustrates how the issues were grouped in order to construct the mentioned factors/variables.

| Variables | Items | CATPCA | |
|---|---|---|---|
| | | Cronbach's alpha | Percentage variance |
| Social integration | I feel like I am an important part of society. | 0.796 | 55.015 |
| | I believe that people value me. | | |
| | If I have something to say, everyone hears. | | |
| | I am close to people. | | |
| | If I had something to say, I do not think people take it seriously. | | |
| Social acceptance | I think people are not trustworthy. | 0.668 | 42.936 |
| | I believe that people only think about themselves. | | |
| | I think we should not trust people. | | |
| | People are becoming more selfish. | | |
| | People are becoming more dishonest. | | |
| | People do not care about others. | | |
| Social contribution | I can contribute to the world. | 0.722 | 47.375 |
| | I have nothing to contribute from the world. | | |
| | My activities do not contribute to society. | | |
| | I do not have the time or energy to contribute to society. | | |
| | I think what I do is important to society. | | |
| Social update | For me there is no social progress. | 0.768 | 51.921 |
| | Society offers no incentives for people like me. | | |
| | I see that society is constantly evolving. | | |
| | I do not believe that institutions such as justice and government improve my life. | | |
| | Society shows no progress. | | |
| Social coherence | I do not understand what's happening in the world. | 0.760 | 51.025 |
| | The world is too complicated for me. | | |
| | The world is not worth it. | | |
| | Many cultures seem strange and I do not understand them. | | |

**Table 8.1.** *Components obtained by CATPCA*

## 8.6. Discussion

Blanco and Diaz (2005) mentioned that Keyes assessment is not strong enough and they recommended to include other variables such as social action, recent social action and satisfaction. Martínez *et al*. (2016) only used three components of Keyes theory: SI, SC and SU. In the present study, SI, SA and SC were negative and SU and SCo were positive; all components had Cronbach's alpha of greater than 0.66.

## 8.7. Conclusions

On the basis of this particular study applied to 69 farms, we constructed a well-being indicator using an SEM, where the components obtained by principal components analysis, SI, SA and SC contributed negatively to well-being, whereas SU and SCo contributed positively.

## 8.8. References

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