

## **CHAPTER II**

### **REVIEW OF RELATED LITERATURE**

In this chapter, the previous relevant literature were reviewed to provide an understanding concerning the strong points of the previous studies. It provided several insights on different perspective about the indicators and the analyses used. It also contributed knowledge on how the data, method, and procedures used were applicable to the clarification of the problem.

Dr. V. Krishnan (2010) reviewed methods to create a socioeconomic index that apply standardization procedures and factor scores, and discussed the advantages and disadvantages among methods. He said that in the absence of individual data, ecological or contextual measures of socioeconomic status are frequently used to draw the relationship between socioeconomic inequalities and health outcomes. The paper focused on the development of a socioeconomic index that can be used to differentiate disadvantaged areas from more privileged ones in a multivariate context. The index was derived from a Principal Components Analysis (PCA) of 2006 national census data from Alberta, at the Dissemination Area level. Data on 26 variables measuring multiple aspects of socioeconomic status (e.g., income, education, occupation, housing, family and household, ethnicity) were utilized to extract their underlying constructs. Several statistical tests (e.g., KMO, Bartlett's Test of Sphericity) were used to assess the

appropriateness of using PCA. Five factors were discovered which together explained 56 percent of the total variation. Factor scores were utilized to derive standardized indices and quintiles. The PCA-based index suggested a simple and robust measure where values and groupings can only be moderately affected by changes in the socioeconomic landscapes.

I. Meirelles (2010) wrote a research paper examining the graphical alternatives for the Human Development Index (HDI). The project was commissioned to César A. Hidalgo by the Human Development Report office and developed in collaboration with three senior Northeastern University students (Geoff House, David Landry and Alex Simoes) during the Spring 2010 prior to their graduation. Mr. Hidalgo introduced five graphical statistical methods (Rankings, Values, Distributions, Visual Metaphors or the Development Tree, and Partial Ordering Networks) which were used to introduce the concept of Development Reference Groups (DRG) and to compare countries level of development relative to other countries and across time. For this, seven panels of data on the Human Development Index and its components were used. These contained information on more than 100 countries for more than 35 years. The objective was to explore ways to simplify and communicate the HDI using visual rather than numerical representations. Here, the design process of developing graphical metaphors and the diagrammatic representations for the HDI and its components was described, the concepts behind the metaphor were discussed, and the two selected visualizations were

analyzed. The team concluded by examining how the Development Tree can be used in visual narratives for educational and outreach purposes.

According to V. Khramov and J.R. Lee (2013), existing economic indicators and indexes assessed economic activity but no single indicator measured the general macro-economic performance of a nation, state, or region in a methodologically simple and intuitive way. So a simple yet informative metric called the Economic Performance Index (EPI) was proposed. The EPI represented a step toward clarity by combining data on inflation, unemployment, government deficit, and GDP growth into a single indicator. In contrast to other indexes, the EPI does not use complicated mathematical procedures but was designed for simplicity, making it easier for professionals and laypeople alike to understand and apply to the economy. To maximize ease of understanding, a descriptive grading system was adopted. In addition to a raw EPI that gives equal weights to its components, a weighted EPI was constructed and shown that both indexes perform similarly for U.S. data. To demonstrate the validity of the EPI, a review of U.S. history from 1790 to 2012 was conducted. The EPI reflected the major events in U.S. history, including wars, periods of economic prosperity and booms along with economic depressions, recessions, and even panics. Furthermore, the EPI not only captured official recessions over the past century but also allowed measuring and comparing their relative severity. Even though the EPI was made simple by construction, its dynamics are similar to those of the Chicago Fed National Activity Index (CFNAI) and The Conference Board Coincident Economic Index (CEI).

L. Abebe, et.al. (2016) conducted a research study that analyzes intra-household gender differences and women empowerment in agricultural index. A combination of multi-stage and random sampling technique was used in the study. A total of 60 husbands and 60 wives from 4 Kebeles proportional to the 2 numbers of beneficiaries in a Kebele were selected and included in this study. Descriptive statistics, t-test, and agricultural index were used for the analysis. Based on the results obtained, there was disparity between women and men; women were less empowered than men. Women's empowerment index in agriculture was 27%. Meanwhile, the overall gender parity index was 68% and the empowerment gap was 32%. The study suggested different areas of intervention that could bridge the gap and help future improvement in reducing major contributors to the disempowerment of women in agricultural extension services.

The studies mentioned above were used as a guide in conducting this research especially the use of economic indicators as the variables and multidimensional scaling (MDS) analysis as the weighing method for constructing a statistical index in every region of the Philippines.