

Chapter 3

Multivariate Sustainability Profile of Global Fortune 500 Companies Using GRI–G4 Database

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ABSTRACT

The main objective of this research is to find the sustainability gradients of Global Fortune 500 companies and sort them as a function of economic, environmental, and social components using multivariate statistical methods to establish the foundations for better knowledge of the trends and sustainability reporting habits. A combined approach, comprising principal coordinates analysis (PCoA) and logistic regression model (LRM), is proposed to build an external logistics biplot (ELB). Moreover, HJ-Biplot and parallel coordinates are applied. This chapter helps to understand why many companies view their corporate social responsibility (CSR) reports as a way to guarantee the credibility of the published information. In particular, based on the Global Reporting Initiative, the sustainability gradients of the Global Fortune 500 companies are obtained and statistically exploited to analyze how the companies can make improvements in terms of sustainability.

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INTRODUCTION

The growing and constant increase in the population and the search to satisfy their needs without compromising the environment and society, have been leading to the creation of the concept of *sustainable development*, which beyond just focusing on environmental matters, integrates economic and social aspects. Nowadays, it would be difficult to think of societies where companies are just entities exclusively oriented to the generation of profits for their shareholders. Corporate Social Responsibility (CSR) has gradually become relevant along with the creation of economic value (Tejedor-Flores, Galindo-Villardón, & Vicente-Galindo, 2017).

A sustainable company is one that creates economic, social, and environmental value in the short and long term, hence contributing to the increase in the welfare of society and the progress of present and future generations. Sustainable development in a company is essential to maintain the economic profitability of its activities, taking into account new concepts of risk and opportunity. These are associated with environmental aspects and the social impact of production or the quality of labour relations (Rodríguez Rojas, 2015). The demand for information and transparency from companies has increased over the last few years. Public awareness and interest in social, environmental, and ethical issues and increased attention from the mass media have resulted in more companies making social disclosures about themselves (Ho & Taylor, 2007; Rouf, 2011; Patten, 1991). To defend a company's sustainability management, it is of the main importance that it shows this in its sustainability reports. The management of the company should try to meet the expectations of all stakeholders (investors, consumers, government, among others). This is why companies produce this type of publication, to be transparent and make themselves known in terms of sustainability.

To satisfy these expectations and clearly and openly inform about sustainability, the Global Reporting Initiative (GRI) was founded in 1997. Its roots lay in the US non-profit organizations the Coalition for Environmentally Responsible Economies (CERES) and the Tellus Institute. GRI is an international independent organization that helps businesses, governments, and other organizations understand and communicate the impact of business on critical sustainability issues such as climate change, human rights, corruption, and many others (Global Reporting Initiative, 2013).

This chapter addresses the G4 Guideline reports corresponding to the four-generation of the GRI. This Guideline envision a sustainable global economy that combines long-term profitability with social justice and environmental care. The G4 Guidelines are organized into three categories: Economic, Environment, and Social. The Social category is extended into the following subcategories: labour, human rights, society, and product responsibility (Global Reporting Initiative, 2013). This chapter attempts to analyze, using multivariate statistical techniques, a group of companies with the highest income worldwide to find out their reporting characteristics. Using the GRI-G4 database, questions as following are study targets: What are the most relevant and frequently reported indicators? How to identifying sustainability gradients of these companies and similar groups of companies? Besides, these multivariate techniques are allowing the analysis of the sustainable development by sector, region, and country, and consequently, the findings of the sustainability characteristics of the companies corresponding to these areas.

The chapter is structured as follows: Section 1: Theoretical framework, this section presents the main definitions of sustainable development and sustainability, as well as a summary of the development of these concepts. This section also presents a brief history of the Global Reporting Initiative (GRI) as a pioneer in sustainability reporting worldwide. Section 2: Fundamental theory of multivariate statistic, this section contains the fundamental theory on the statistical techniques used, like External Logistics

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