



## Qualitative comparative analysis: Crisp and fuzzy sets in business and management<sup>☆</sup>



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### ABSTRACT

This special issue discusses qualitative comparative analysis (crisp and fuzzy set) in business and management blending contextual information and cognitive knowledge from the contributions of Global Innovation and Knowledge Academy (GIKA). The GIKA Annual Conference provides a platform for discussing challenges pertaining to contemporary issues in Innovation and Knowledge. The 5th GIKA Annual Conference, held in July 2015 at the University of Valencia, received submissions from more than 62 countries. Journal of Business Research (JBR) is the sponsor journal of the Academy. One of the aims of the GIKA Conference is to select high-quality conference papers for publication in a special issue of the JBR. After undergoing double-blind reviews and revisions, 46 conference papers appear in this special issue, together with the current editorial.

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### 1. Introduction

Multivariate regression analysis (MRA) is more than just a statistical tool. MRA is a method shaping thinking and theory crafting (Woodside, 2013). Tools suggest new theoretical thoughts when they develop from practice (Gigerenzer, 1991). Comments focus on the severe limitations of MRA as well as structural equation modeling (SEM) research using fixed-point five- and seven-point self-report scales to learn cognitive processes (Woodside, 2011). Armstrong (2012) explains the illusions in regression analysis in life and social science. Ioannidis (2005) clarifies why most published findings are false due to the use of MRA. Hence, Woodside, Ko, and Huan (2012) call for a paradigm shift from the conventional empirical-positivistic matrix-algebra dominant logic to case-based Boolean algebra logic for management decision.

Fuzzy set/qualitative comparative analysis (fsQCA), a fuzzy extension of qualitative comparative analysis (QCA), is an analytic tool that uses Boolean algebra to implement principles of comparison. By formalizing the logic of qualitative analysis, fsQCA brings the logic and empirical intensity of qualitative approaches to studies. Ragin (2008) explains the four major differences between fsQCA and MRA: set-theoretic versus

correlations, calibration versus measurement, configurations of conditions versus “independent” variables, and causal complexity versus net effects. First, a contrast is the difference between the correlations, which is symmetrical, and the set relation, which is asymmetrical. Set-theoretic analysis focuses on uniformities, not on general patterns of association. Second, MRA uses the correlation coefficient for correlational analysis, which only requires that measures vary around a sample-specific mean. By contrast, all fuzzy sets need calibration. In other words, scores need calibration according to external standards. Third, MRA takes each independent variable as analytically distinct and separate. Conversely, set-theoretic methods study cases as configurations of conditions. The idea of a causal “recipe” represents a specific combination of causally relevant conditions linked to an outcome. Last, an examination of causal complexity entails considering all logically possible combinations of causal conditions. MRA analyzes separate effects of each individual variable, the “net effect,” instead of the overall effect; whereas fsQCA analyzes the combination of conditions and encourages engaging counterfactual cases via thought experiments, etc.

Woodside (2010) stresses that behavioral science research methods involving decisions and organizational outcomes relate to three purposes: fulfilling generality of findings, achieving accuracy of outcomes, and capturing complexity of conditions. These four contrasts demonstrate that fsQCA is more adequate for social science studies.

The Global Innovation and Knowledge Academy (GIKA) annual conference provides a platform for discussing challenges pertaining to contemporary issues in innovation and knowledge. University of Valencia, Spain, hosts 2015 GIKA Conference from July 14th to 16th. The GIKA

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Conference attracts more than 200 submissions and accepts only 150 papers for presentation. Echoing the call and taking the challenge to a paradigm shift, the GKA conference works with the Journal of Business Research for a special issue on qualitative comparative analysis, crisp and fuzzy set in business and management. The purpose of this special issue is to arouse researchers' attention to this paradigm shift. The GKA Conference recommends the publication of 46 studies in this special issue after two double-blinded reviews.

## 2. Contributions to the special issue

Forty-six articles in this special issue analyze and explore different aspects of QCA in business and management in three sections: entrepreneurial activity, strategy, and management performance.

### 2.1. Entrepreneurial activity

Entrepreneurial activity is receiving increasing attention from scholars because of its potential as an engine of the economy and a source of economic growth (Chaston & Scott, 2012). The identification and exploitation of opportunities are the essence of entrepreneurship. However, the essence of strategic management relies in the transformation of these opportunities into sustainable competitive advantages. (Kraus, Kauranen, & Henning Reschke, 2011; Kuratko, Hornsby, & Covin, 2014; Larrañeta, Zahra, & Galán González, 2014).

First, Coduras, Clemente and Ruiz explore a novel application of fsQCA to analyze the Global Entrepreneurship Monitor data. The aim of the study is to use the fsQCA methodology to examine the Total Entrepreneurship Activity rate and other variables relevant to entrepreneurial attitudes and social values of adult populations toward entrepreneurship. Beynon, Jones and Pickernell conduct country-based comparison analysis using fsQCA to investigate the relationship between entrepreneurial attitudes and activity. The study undertakes a cross-country comparison of the relationship between entrepreneurship attitudes and high and low entrepreneurial activities. Chaparro-Peláez, Agudo-Peregrina and Pascual-Miguel analyze the conjoint relationship of drivers and inhibitors of e-commerce adoption. The study probes the influence of motivations and barriers on electronic commerce behavior from a compilation of 7 motivations (hedonic, product variety, product customization, convenience, price, lack of sociality, and internet exclusive availability) and 3 barriers (in-person, risk, and delivery). Jenson, Leith, Doyle, West, and Miles test the innovation systems theory using QCA. The authors construct sectoral and technological innovation system failure models as theories and test those models using a multiple case study and fsQCA. Kuckertz, Berger, and Mpeqa probe the issue "The more the merrier? Economic freedom and entrepreneurial activity." The authors analyze entrepreneurial activity in the application to factor-driven, efficiency-driven, and innovation-driven economies. Ott and Kimura conduct a set-theoretic analysis of negotiations in Japanese MNEs. The research deals with international negotiations in multinational enterprises by focusing in headquarters subsidiary negotiations. Domenech, Escamilla, and Roig-Tierno explain the knowledge-intensive activities from a regional perspective. The study discusses the environmental factors and presents a causal model to explain how these factors affect knowledge-intensive activities.

Leischnig and Kasper-Brauer analyze how to sell in diverse markets. The study uses a two-level approach to industry factors and selling factors to explain the firm profitability. The authors provide new insights into the complex causal patterns of industry factors and firms' selling approaches. Muñoz and Kibler link the institutional complexity to social entrepreneurship. The authors examine the local institutional complexity of social entrepreneurship and explain under which combinations of local institutional forces social entrepreneurs build opportunity confidence. Lisboa, Skarmeas, and Saridakis present entrepreneurial orientation pathways to performance by a fuzzy-set analysis. Studies probe the relationships between entrepreneurial orientation and the influence

on firm performance. However, in the study, the authors suggest deconstructing entrepreneurial orientation and focusing on the causal mechanisms by which those factors collectively affect performance. Ospina Delgado and Zorio Grima examine innovation at universities. To measure innovation in universities, the authors analyze a new perspective of complex cause-effect relationship between innovation and the supply of university courses. Wang, Yu, and Chiang explore the value relevance of corporate reputation by fsQCA. The authors review the literature about the concept of corporate reputation and discuss the relevance of the value of business reputation in Taiwan. Mozas Moral, Moral Pajares, Medina Viruel, and Bernal Jurado address the manager's educational background and ICT use as determinants of export decisions. The authors propose to increase the investment in human capital so the qualified people can manage more efficiently the organic olive oil sector in Spain. Navarro, Linares-Millán and Garzon explore the relationship between co-creation and satisfaction in spa services using QCA.

### 2.2. Organizational strategy

Some entrepreneurial activities relate to the company's performance, environmental dynamics, and intensifying global competition. Enterprises, regardless of their age or size, must build more organizational strategies to compete and survive (Hoskisson, Hitt, Ireland, & Harrison, 2012; Kraus et al., 2011; Meyer, Neck, & Meeks, 2002). A central interest of researchers in strategic management is to explain the differences of enterprises in their value creation—an increasing interest for researchers in the field of entrepreneurship as well (Ireland, Hitt, Camp, & Sexton, 2001). Zahra and Dess (2001) argue that the integration of different views is key to a more fruitful research in entrepreneurship, and they specifically name strategic management as the most promising area to be part of entrepreneurship research (Kraus et al., 2011).

Benavides Espinosa and Merigo Lindahl present the organizational design as a learning enabler by using a fuzzy-set approach. The authors analyze different design variables and their effect on organizational learning. Wu conducts the international marketing strategy modeling of leisure farm. The author identifies important external environment forces, international marketing strategies, and performance in the leisure farm context. Simón-Moya and Revuelto-Taboada propose revising the predictive capability of business plan quality for new firm survival using QCA. The authors analyze the connection between business plan quality and survival rates of new ventures. Cobo-Benita, Rodríguez-Segura, Ortiz-Marcos, and Ballesteros-Sánchez examine the innovation projects performance by analyzing the impact of organizational characteristics. The authors propose the analysis of a large sample of firms in Spain appearing in the Community Innovation survey to better understand the effect of organizational characteristics on the innovation projects performance. Bergmann, Stechemer, and Guenther propose natural resource dependence theory. The authors conduct a complete investigation on how the extreme weather events affect financial performance, by the natural resource dependence theory. Lassala, Carmona, and Momparler examine the alternative paths to high consulting fees, by exploring the factors that can determine the customer satisfaction, which can generate a competitive advantage for consulting firms. The contribution by Felício, Duarte, and Rodrigues links global mindset to SME internationalization. The study discusses the relationship between SMEs' internationalization behavior and the individual global mindset (IGM) and overall corporate mindset (CGM). The authors use fsQCA to combine various attributes and combinations of IGM and CGM. In "Work-life balance and firms: A matter of women?" Adame, Caplliure, and Miquel test the relationship between women's presence in the workplace and the implementation of work-life balance policies.

Urueña and Hidalgo analyze the successful loyalty in e-complaints. With a sample of e-commerce users who file complaints after shopping online, the authors attempt to analyze the antecedents of customer loyalty. Alegre, Mas-Machuca, and Berbegal-Mirabent address the issue

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