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Entrepreneurial climate and self-perceptions about entrepreneurship: a country comparison using fsQCA with dual outcomes

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ABSTRACT

This study investigated the relationship between entrepreneurial climate (EC) and self-perceptions about entrepreneurship (SPaE). The variables and data were derived from the Global Entrepreneurship Monitor (GEM) dataset and framework. Specifically, the study examined variables closely related to the GEM concepts of entrepreneurial capacity and preferences across 54 countries. Fuzzy-set qualitative comparative analysis (fsQCA) was conducted to investigate associations between EC and SPaE. Three condition variables described EC: economic stage of development, entrepreneurial framework conditions, and entrepreneurial status. Four items described SPaE: perceived start-up opportunities, perceived capabilities, fear of failure, and entrepreneurial intention. Two forms of single outcome measures were constructed from the four items that described SPaE. A standard factor analysis-based score yielded the outcome $SPaE^F$. Fuzzy cluster analysis produced a two-cluster-based outcome $SPaE^C$. Having two outcomes referring to the same concept (SPaE) leads to discussion on what should be done to facilitate "same concept" based analyses using fsQCA. The findings open up discussion on the efficacy of fsQCA as regards its sensitivity to slight changes in the outcome. Practical applied issues surrounding entrepreneurship (EC and SPaE) are also discussed.

1. Introduction

Small and medium-sized enterprises (SMEs) that create innovation, employment, and economic growth are a focus for policymakers globally, particularly in developed economies (Acs, Brooksbank, O'Gorman, & Terjesen, 2012). The general entrepreneurial climate (EC) and individual's self-perceptions about entrepreneurship (SPaE) are therefore of great importance. Evidence of this importance is that the Global Entrepreneurship Monitor (GEM) survey, which is used to research entrepreneurial activity, attitudes, and perceptions in various countries, gathers data on EC and SPaE (Acs et al., 2012; Anwar ul Haq, Usman, Hussain, & Anjum, 2014). In this study, fuzzy-set qualitative comparative analysis (fsQCA) was used to study the relationship between EC and SPaE (Ragin, 2000). FsQCA is suitable for small-n data analysis (Woodside, 2013). Accordingly, it was suited to the country-level study presented here.

Scholars have previously analyzed GEM data using fsQCA-related techniques. For example, Coduras, Clemente, and Ruiz (2016) noted that fsQCA can extend the analysis and understanding of the role of GEM indicators, in their case Total Economic Activity (TEA), and

provide further research insights involving other groups of countries, different combinations of GEM indicators, and geographical configurations. Kuckertz, Berger, and Mpeqa (2016) also used fsQCA with international GEM data to examine how specific components of economic freedom (EF) encourage high levels of entrepreneurial activity (EA) in countries at different levels of economic development. M.J. Beynon, Jones, and Pickernell (2016b) undertook country-based comparison of TEA, using fsQCA with GEM data to investigate the effect of entrepreneurial attitudes.

In the present study, the same four items from the GEM survey (i.e., perceived opportunities, perceived capabilities, fear of failure, and entrepreneurial intentions) were used to model SPaE, although here SPaE was taken as the outcome. This study therefore makes an applied contribution to knowledge, not only by building on the studies cited previously, but also by further evaluating the GEM conceptual framework (discussed later) in terms of the drivers of SPaE.

The condition variables that described each country's economic climate, and subsequently the relationship between EC and SPaE, were derived from the GEM framework. These variables were economic stage of development (ESD), entrepreneurial framework conditions (EFC),

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Table 1
Description of SPaE constituent items.

Variable	Description	Min	Mean	Max
Perceived start-up opportunities (Prcvd_Opps)	Percentage of 18–64 age group who see good opportunities to start a firm in the area where they live	14.2	41.019	70.2
Perceived capabilities (Prcvd_Caps)	Percentage of 18–64 age group who believe they have the necessary skills and knowledge to start a business	25.4	49.711	78.0
Fear of failure (Fr_of_Flr)	Percentage of 18–64 age group with positive perceived opportunities who indicate that fear of failure would prevent them from setting up a business	24.6	63.296	85.3
Entrepreneurial intention (Entrp_Intnt)	Percentage of 18–64 age group (individuals involved in any stage of entrepreneurial activity excluded) who intend to start a business within three years	5.3	21.365	61.9

and entrepreneurial status (ES). The approach of using variables derived from the GEM framework was consistent with the data-gathering instrument, namely the GEM survey itself. The condition variables together represented each country's EC, which was analyzed with respect to the outcome SPaE. Only three condition variables were considered because the study was multidimensional in nature, with two versions of the outcome measure SPaE considered, and because the problem fit within the GEM analysis framework.

This paper also makes a technical contribution by considering and comparing two separate approaches to combining the SPaE constituent items into a single outcome measure. The first approach was based on the factor analysis single factor score (SPaE^F) (Hair Jr., Black, Babin, & Anderson, 2010), whereas the second approach was based on the fuzzy cluster analysis two-cluster solution (SPaE^C) (Bezdek, 1980). Although both SPaE^F and SPaE^C interpret the concept of SPaE, the country specific values vary across the two measures. We therefore developed two separate models using the two SPaE outcome measures (SPaE^F and SPaE^C) but the same condition variables. Comparisons were made between the fsQCA model taking SPaE^F as the outcome and the fsQCA model taking SPaE^C as the outcome. With the same condition variables in both models, the same configurations were considered (with the same country groupings). The variation between the models stemmed from the inherent variation in the outcome values associated with SPaE^F and SPaE^C (both representing SPaE).

Considering different outcomes (i.e., SPaE^F and SPaE^C), but the same constituent data, contributes to the debate on the use of fsQCA. Specifically, our approach explores fsQCA's sensitivity to "the same" outcome derived in two different ways. Indeed, this is a special case of separately considering the same condition variables for multiple outcomes in fsQCA (e.g., Boudet, Jayasundera, & Davis, 2011; David, Shin, Pérez, Anderies, & Janssen, 2016; Lam & Ostrom, 2010, where there is no discussion at the fsQCA level regarding technical assumptions to facilitate this multiple outcome consideration). This raises the following technical question (see Ragin, 2008): When comparing across different fsQCA models, what thought must be given to the consistency thresholds in the sufficiency analyses, across the different models, to be pertinent in the comparisons? To aid comparison between models in this study, we presented the results graphically.

We sought to enable comparison between low-SPaE countries (i.e., ~SPaE^F and ~SPaE^C) and high-SPaE countries (i.e., SPaE^F and SPaE^C) in terms of EC-based recipes. We also sought to identify the most relevant individual conditions that appear consistently in different recipes. This approach enables identification of more robust policies to improve SPaE because of the links between SPaE-type variables and new business creation across countries and genders (Arenius & Minniti, 2005) and because policymakers focus on EC conditions (particularly EFC) when trying to influence entrepreneurship (Freytag & Thurik, 2007). By revealing countries with similar configurations of conditions, the results of this analysis also enable policymakers to identify countries that can potentially serve as a benchmark.

2. Data and method

This section discusses the variables used in the analysis of EC and SPaE and then provides a brief description of fsQCA, including the required pre-processing of the continuous condition and outcome measures.

2.1. Outcome evaluation

In this study, four items (constituent variables) were considered. These same items were used as condition variables for country-based comparison analysis using fsQCA to investigate the effect of entrepreneurial attitudes on TEA (M.J. Beynon et al., 2016b). In the present study, these four items were combined to yield a single outcome describing SPaE. The way these variables were combined was one of the technical issues considered in this study to explore how fsQCA handles variations in outcome measurement. Table 1 presents a description of these variables and descriptive statistics for the data from the 2015 GEM survey for 54 countries.

Perceived start-up opportunities (Prcvd_Opps) are increasingly considered the most distinctive, fundamental characteristic of entrepreneurship (Arenius & Minniti, 2005). Inadequate entrepreneurial activity levels result in deficient opportunities within existing businesses (Krueger, 2000). Perceived opportunity can drive opportunity entrepreneurship, which generates higher economic growth than necessity-driven enterprises (Acs, 2006). *Perceived capabilities* (Prcvd_Caps) also differentiate independent entrepreneurs from entrepreneurial employees (Nyström, 2012). Acs, Desai, and Hessels (2008) posited that the perceptions people have of their environment and themselves drive them toward or away from entrepreneurship. *Fear of failure* (Fr_of_Flr) prevents individuals from starting businesses (Vaillant & Lafuente, 2007) because many individuals are risk adverse (Arenius & Minniti, 2005), though this differs across countries (Anwar ul Haq et al., 2014; Vaillant & Lafuente, 2007). *Entrepreneurial intention* (Entrp_Intnt) is important because individuals' expectations to start a business (Bosma, Wennekers, & Amorós, 2012; Mazzarol, Volery, Doss, & Thein, 1999) are based on several entrepreneurial intent drivers from planned behavior theory (Autio, Keeley, Klofsten, Parker, & Hay, 2001), including personal, social, and cultural drivers.

The question now is if and how these four variables can be grouped into a single measure that describes country SPaE. Two approaches, namely factor analysis and fuzzy cluster analysis, offer alternate ways of grouping these variables. In general, the two approaches differ in the following ways (see Krebs, Berger, & Ferligoj, 2000; Dogruparmak, Keskin, Yaman, & Alkan, 2014, who compare factor analysis and fuzzy clustering for the same problem):

i) Factor analysis focuses on the homogeneity of variables, which results from the similarity of values assigned to variables by respondents. In the case of one factor, this results in a single value measure for that factor. Therefore, factor analysis implies the aspiration of establishing a latent variable (the factor or dimension).
ii) Traditional cluster analysis is characterized not only by