

Putting the magnifying glass on minorities groups in entrepreneurship: What can we observe?

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Abstract

Although entrepreneurship plays a critical role in fostering economic development, erasing inequality, and generating more balanced societies, a gap concerning the course, nature, and state-of-the-art of minority entrepreneurship scientific literature need to be fulfilled. A hybrid methodology, combining bibliometric methods and topic models (latent Dirichlet allocation) is used to perform a thematic analysis of the minority entrepreneurship research stream. The analysis provides insight into the most relevant research themes as well as further research agenda.

KEYWORDS

bibliometric analysis, ethnic entrepreneurship, migrant entrepreneurship, minorities entrepreneurship, women entrepreneurship

JEL CLASSIFICATION

L26, L31, J15.

1 | INTRODUCTION

There are multiple definitions for entrepreneurship, yet, most agree that it implies the introduction of innovations, including the provision of capital (Hoselitz, 1952), to carry out new combinations of firm organization, to produce new products and services, using new sources of raw materials, new production methods, markets, and forms of organization (Schumpeter, 1934).

Ultimately, the entrepreneurial process implies planning, investing, producing, and providing markets with what they need, leading to customer spending and economic growth. This process faces several constraints that minority entrepreneurs suffer particularly. Minority access to financing, product markets, educational and training opportunities are among the main barriers faced by minority entrepreneurs (Bates, 2011), usually fostered by stereotypes about minorities' ability to succeed under some business circumstances (Blanchard et al., 2005) and can only be surpassed, through preferential procurement programs, including government set-asides contracts and supplier diversity initiatives (Shelton & Minniti, 2018) or government financial programs targeting minority entrepreneurs.

Despite the barriers faced by minority entrepreneurs, entrepreneurship is critical in delivering continued productivity improvement,

wealth creation, and new jobs (OECD, 1996). Therefore, many governments, across the world, implement measures toward creating entrepreneurship-friendly conditions (World Economic Forum, 2021), ultimately seeking to foster economic growth, derived from minority entrepreneurs, for example, the European Union (European Commission, 2013).

Entrepreneurship consequences can be seen in several fields, yet its role in fostering economic growth, reducing economic inequalities, and empowering people are among the most relevant. For instance, a recent report about minority entrepreneurs in the United Kingdom (UK) found that increasingly women as well men, young and old, succeed against odds, despite facing challenges such as discrimination, disconnection from relevant business networks, and lack of self-confidence (Legrain & Fitzgerald, 2021). On the other hand, in 2018, 18.3% of the employer firms in the United States of America (US) were owned by minority groups and 19.9% of all businesses were owned by women (United States Census Bureau, 2021), which leads to the same consequences.

Migrants tend to be slightly more entrepreneurial individuals than natives (OECD, 2010) and self-employment people is higher among migrants than among natives ones (Dana & Vorobeva, 2021; OECD, 2010), which highlights the relevance of the research

stream as well as the critical role of minorities in fostering economic development.

A broad range of topics related to minority entrepreneurs has been focused on scientific literature, particularly aspects such as gender and women entrepreneurs, (e.g., Smith-Hunter & Boyd, 2004; Thaher et al., 2021; Verduijn & Essers, 2013; Wang, 2019) and migrant or ethnic entrepreneurship (e.g., Aldrich & Waldinger, 1990; Howell, 2019; Levie, 2007; Mickiewicz et al., 2019). Nevertheless, entrepreneurship depends on the entrepreneur's personal traits, and aspects such as entrepreneurship among the overall minority groups are a valuable research topic.

Previous studies focused on depicting the minority entrepreneurship research field have used mostly a literature review approach (e.g., Aliaga-Isla & Rialp, 2013; Chreim et al., 2018; Dabić et al., 2020; Dheer, 2018) and were mainly focused on immigrants. Furthermore, bibliometric studies on minority entrepreneurs are scarce. Indarti et al. (2021) used a bibliometric approach to study this research stream, yet, it focuses on ethnic entrepreneurship, particularly in growing markets.

Consequently, due to the critical role of entrepreneurship in creating wealth, reducing economic inequality, and sustainable development, the overall picture of minority entrepreneurs appears as a relevant research field yet to be studied, and topics such as what has been done, what are the most relevant topics and what will be the future trends into the research agenda are questions to be answered.

Minority entrepreneurship can be a powerful tool to create and construct an integrated, diverse, and inclusive economic development, and programs focused on promoting entrepreneurship among minorities should be promoted. Therefore, in this context, this study uses a bibliometric approach to assess the state-of-the-art of minority entrepreneurship, focusing on a broader stream than a particular minority group. It aims to offer the reader a better ability to interpret and understand the roots and development of the phenomenon associated with Minorities Groups in Entrepreneurship. In this sense, it fills a gap in minority entrepreneurship literature providing insights about the research stream, using a bibliometric approach mixed with Latent Dirichlet allocation (LDA), to produce insights about future research lines.

In terms of structure, this article has five sections. The following section portrays the theoretical framework, section three describes the used methods, section four shows the obtained results, and finally, the discussion and conclusion appear in section five.

2 | THEORETICAL FRAMEWORK

There is an agreement surrounding a set of underlying common elements characterizing entrepreneurship, such as creative innovation; resource identification, acquisition, and marshaling; economic organization; and an opportunity for gain, under some degree of risk and uncertainty (Dollinger, 2008), implying the creation of a new enterprise (Low & MacMillan, 1988).

Thus, entrepreneurs assume some degree of risk to obtain an expected gain. In this process, resources, such as materials, capital, equipment, and people are used to satisfy any kind of market need, present or latent, leading to economic and social progress.

Aiming to support entrepreneurship, governments use several types of measures to create an economic, social, and business-friendly entrepreneurial environment. For instance, European Union (EU) settled several measures targeting to support entrepreneurial capacity among European citizens and organizations (European Commission, 2021), fostering entrepreneurial learning and entrepreneurial mindset, as settled in the European Entrepreneurship Competence Framework (Bacigalupo et al., 2016) and, overall, in the EU entrepreneurship 2020 action plan (European Commission, 2013). Moreover, governments support is mostly targeted at financial support (Bai et al., 2021; Lerner, 2020), particularly during the current COVID-19 pandemic. In fact, despite the major disruption it caused, some interesting results were found in entrepreneurial activity, particularly in the US, where an unparalleled spike in new business creation happened during the third quarter of 2020, due to the combined effect of the support to the financial sector unemployment subsidies to laid-off workers (Schwab & Zahidi, 2020).

Despite the available forms of government support for entrepreneurs and entrepreneurship, the source of entrepreneurship resides in each person's perspective and ability (Kuratko et al., 2020) and depends on their cognitive perspective. Evolving to face novel and highly uncertain situations that tend to usually overload their information-processing, taking to the edge their capacity to deal with pressure (Baron, 1998). Therefore, the right entrepreneurial mindset (Naumann, 2017), depends on the way individuals act under uncertain and riskier conditions (McGrath & MacMillan, 2000) and think and act about business (Dhliwayo & Van Vuuren, 2007).

In this sense, the individual traits, including personal background and beliefs, are essential in forming the entrepreneurial mindset and critical to the entrepreneurship process, once it involves the identification of opportunities and their exploitation processes (Shane & Venkataraman, 2000).

Furthermore, the motivations to launch a business may drive by opportunity or necessity (Malerba & Ferreira, 2020), and the context surrounding the potential entrepreneur plays a relevant role in developing the entrepreneurial process. Therefore, once entrepreneurship depends on the entrepreneur's traits, and despite data showing that immigrants tend to be more entrepreneurial individuals than natives, there is not a straight answer when evaluating the role of ethnicity in fostering entrepreneurship in the host countries. Empirical evidence shows that neither the diversity of national or religious backgrounds is a key factor in identifying the more entrepreneurial individuals, once there is a large variation of self-employed people within immigrant and ethnic groups, yet the gender and the marital status are strong factors in determining self-employment (Portes & Yiu, 2013).

Immigrants are people that move from their local of birth to another country during their lives (Malerba & Ferreira, 2020; Wadhwa et al., 2007). Usually, this process of leaving the place of birth and departing on a journey to another country, or place, with the same or

different culture, represents some degree of risk-taking, once the result, many times is uncertain. Similarly, enrolling in an entrepreneurial process involves high uncertainty as well as the right mindset to adapt and accept a multitude of potential risks. Thus, despite empirical data showing that ethnicity or religion does not affect the number of self-employed people in each minority (Portes & Yiu, 2013), migrants seem to be highly prone to being self-employed than native ones (Dana & Vorobeva, 2021; OECD, 2010).

Among the most relevant topics on minority entrepreneurs, are women entrepreneurs. For instance, according to Legrain and Fitzgerald (2021), 8 of the 23 UK tech were co-founded by minority entrepreneurs, although any of them were women (Nicol-Schwarz, 2021). In fact, despite literature about women entrepreneurs showing that entrepreneurship education on entrepreneurial self-efficacy is stronger for women than for men (Wilson et al., 2007), women tend to report less entrepreneurial intentions (Zhao et al., 2005), perceive themselves and the entrepreneurial environment in a less positive way than men (Langowitz & Minniti, 2007), which can be the source for women-owned ventures being less likely to grow (Cooper et al., 1994).

To surpass the minority entrepreneurial barriers, entrepreneurship training programs can provide the tools for individual entrepreneurial activity. Concerning minority groups, training programs seem to have a positive effect on their attitude to entrepreneurship (Lyons & Zhang, 2017). On the other hand, employers have an ideal candidate to fill job vacancies. For instance, white, male, and heterosexual norm, tend to be the ideal candidate to fill job positions in banks (Woodward & Ozbilgin, 1999) and minorities tend to experience discrimination in the workplace, leading to a decrease in physical and emotional well-being (DeSouza et al., 2017).

Therefore, minorities entrepreneurship can be a powerful tool to create and construct an integrated, diverse, and inclusive economic development, and programs focused on promoting entrepreneurship among minorities should be fostered. EU settled several programs seeking to promote a more diverse entrepreneurship targeting, for instance, women entrepreneurs or migrants as an important pool of entrepreneurs, that need equitable support as the receivable by the remaining entrepreneurial groups (European Commission, 2021).

3 | METHODS

Bibliometric analysis seeks to provide insights into a specific research stream over some time (Leung et al., 2017). Bibliographic methods can be used from the point of view of science mapping to identify the structure and dynamics of a search field. (Cobo et al., 2011; Zupic & Čater, 2015).

Science mapping is defined by Small (1999) as a spatial representation of how keywords, articles, authors, institutions, journals and other actors relate to each other which is done through complex networks where large groups called “thematic clusters” (Kovács et al., 2015) are interconnected by nodes, thus allowing to identify the

conceptual, intellectual and social structure of a research field (Cobo et al., 2011; Mora et al., 2019).

In addition, topic models allow the probabilistic modeling of frequency occurrences of terms in documents. Using this methodology, it is possible to estimate similarities between documents and between a set of specified keywords using latent variables (Grün & Hornik, 2011).

There are several specific methods that can be used within topic models. Blei et al. (2003) presents a discussion of these methods and introduces the latent Dirichlet allocation (LDA) that will be used in this work to identify keywords from the titles and abstracts of publications.

The study of the temporal evolution of the conceptual structure of the research field related to “Minorities groups in entrepreneurship” was carried out using the information available in the Web of Science database through the following personalized search terms:

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“(TS = (Entrepre* AND (women OR younger OR "third age" OR "retired people" OR migrants OR "disabled people" OR "minority ethnic" OR "indigenous populations" OR gay OR lesbian OR transgender)) AND (WC=Business OR WC=Business, Finance OR WC=Management) )
LANGUAGE: (English)
DOCUMENT TYPES: (Article OR Early Access OR Proceedings Paper)
Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=All year
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The choice for the search terms was inspired by the work of Dana (2007) and for the database, it was due to the recognized quality of the published articles on the Web of Science (Morais & Ferreira, 2020). The search parameter “TS” allows identifying all publications that contain the desired terms in fields: Author Keyword, Keyword Plus, Title or Abstract. The database search was carried out in July 2021.

R Core Team (2020) software was used, supplemented with “tidytext” package (Silge & Robinson, 2016) for text mining actions, “bibliometrix” package (Aria & Cuccurullo, 2017) for the application of bibliometric methods and “topicmodels” package (Grün & Hornik, 2011) for the implementation of LDA.

After obtaining the records, a database was created in which, for each publication, information related to author keywords, keywords plus, keywords extracted from titles and abstracts using the LDA were gathered.

In Silge and Robinson (2017) there is an empirical and simplistic description of some important concepts that allow a better understanding of the LDA methodology. According to these authors, LDA is guided by two principles: “documents are mixtures of topics” and “topics are mixtures of words/terms”. The objective of this methodology is to simultaneously find mathematical models that allow estimating the levels of mixture between documents and topics and between topics and words/terms. There are several implementations of the algorithm that allows estimating these models. In this article variational EM (VEM) will be used, see Blei et al. (2003) for more details.

After applying the LDA, it is possible to determine two types of quantities: β represents the probability of a term being generated from a topic, and γ represents the percentage of words/terms in a document generated by a given topic.

Considering that the search terms used to obtain the data require at least two words, LDA based on bigrams (two consecutive word terms) was used. The identified terms also went through a process of filtering stop words and lemmatizing (the process of grouping inflected forms together as a single base form) using the “textstem” package (Rinker, 2018).

Additionally, it is also required to define in advance the number of topics to be considered. In the works of Cao et al. (2009) and Arun et al. (2010) there are methods that indicate the way to estimate the ideal number of topics to be used in LDA. These methods “follow the same idea of computing similarities (or distances) between pairs of topics over several instances of the model, while varying the number of topics” (Deveaud et al., 2014, p. 67). Initially, was estimated the number of topics based on the data obtained through the abstracts. Evaluating together the results produced by the two methodologies (Nikita, 2020), and considering that the objective will be to find a value that empirically minimizes the lines in Figure 1, it seems to be consensual to use 25 topics. In this way and generalizing the information obtained from the titles, it was assumed in both cases (abstracts and titles) the use of 25 topics in LDA.

LDA was performed by taking as document units the abstract and titles of individual publications. The respective β values are presented in Appendices A and B. These values allow obtaining a thematic characterization of the 25 topics identified for the abstracts and the titles. Topics were defined by the words “ab_topic” and “ti_topic”, followed by their number, whether they are topics related to abstracts or titles respectively. Next, γ values were used to associate documents with topics. A cut-off rule of γ values greater than 30% was applied, that is, any topic with a gamma value greater than 30% will be associated as a keyword to that document. These operations allowed to create a wide range of keywords that contain the original author keywords, the keyword plus, and the keywords that with the model described above were identified from the abstract and titles.

From this generalized set of keywords, bibliometric methods were then applied, specifically, the co-word analysis. Co-word analysis is based on the co-occurrence frequency of pairs of words, and it is a technique that analyses the corpus of texts to identify the

relationships between ideas and the main underlying themes related to a subject (He, 1999). “The output of co-word analysis is a network of themes and their relations that represent the conceptual space of a field.” (Zupic & Čater, 2015, P. 435). The interpretation of the links between themes identified on the network is often difficult to understand by visual inspection alone. In the literature, there are objective methods that can quantify the strength of relationships. Callon et al. (1991) define centrality as a measure of the intensity that a cluster links with other clusters. Therefore, the more numerous and stronger the links, the more the cluster designates a set of research questions considered critical for the research stream. On the other hand, density refers to the strength of the links between the words that integrate the cluster. The stronger these links, the more the underlying subject corresponding to the cluster represents a coherent and integrated whole. Groups of words aggregated into clusters can be placed in four quadrants of a plane where the x-axis represents centrality, and the y-axis represents density. This diagram is called a thematic map (Cobo et al., 2011) and specifies that, themes positioned at:

- upper-right quadrant: (high centrality and density), are transversal and well developed and classified as “Motor themes”;
- upper-left quadrant: (low centrality and high density), are developed but weakly related externally and classified as “Niche themes”;
- lower-left quadrant: (low centrality and density), are undeveloped and poorly externally related and classified as “Emerging or declining themes”;
- lower-right quadrant: (high centrality and low density), are transversal but undeveloped and classified as “Basic themes”.

The thematic map is the main instrument that will be used to study the conceptual structure of the research field. As co-word analysis uses the current content of documents to characterize the field of investigation (Zupic & Čater, 2015), the results of this investigation will be obtained through thematic maps in several sequential and exclusive time spaces. An empirical approach was used to define these periods. It was considered an initial period with publications until the year 2010, then a period of 5 years (2011–2015), the next considered was the pre-COVID period (2016–2019) and the last (2020–2021). As the periods are not homogeneous in terms of the number of years, all articles published up to July 2021 were considered.

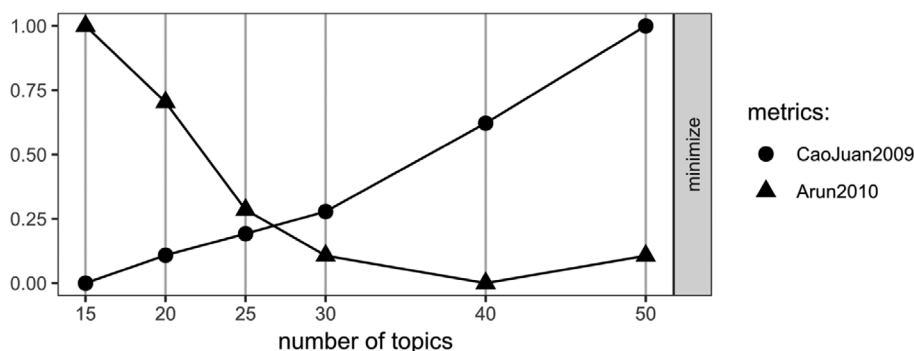


FIGURE 1 Number of topics in Latent Dirichlet allocation

For each of these periods was created a thematic map (from Figure 2 to Figure 5) and, for each cluster identified in the maps, the top 10 term occurrences are presented in Appendices C–F.

4 | RESULTS

4.1 | Descriptive analysis

In this section, the extracted data are summarized. It presents descriptive statistics about data collected in the Web of Science database. The search resulted in 2831 publications over the timeline 1988–2021, involving 5400 authors, 2684 Keyword Plus, and 5784 Author's Keywords (Table 1).

Figure 2 shows the number of papers and published and their evolution over the years. During the WoS search, all the available documents published over the analyzed period were retrieved. Nevertheless, to provide a more consistent analysis of the number of papers published per year data from the year 2021 were removed from Figure 2.

The results show that the first document about minority entrepreneurship was published in 1988. Nevertheless, the research stream remained relatively unstressed in literature until the 2000s when a push on published documents happened. Departing 2005–2006 and, particularly after 2013, the research field became increasingly popular. The number of published documents passed from 85 in 2013 to 353 in 2019. In 2020 the number of papers diminished, yet 2020 was a particularly difficult year due to the COVID-19 pandemic which affects all types of human activities including research.

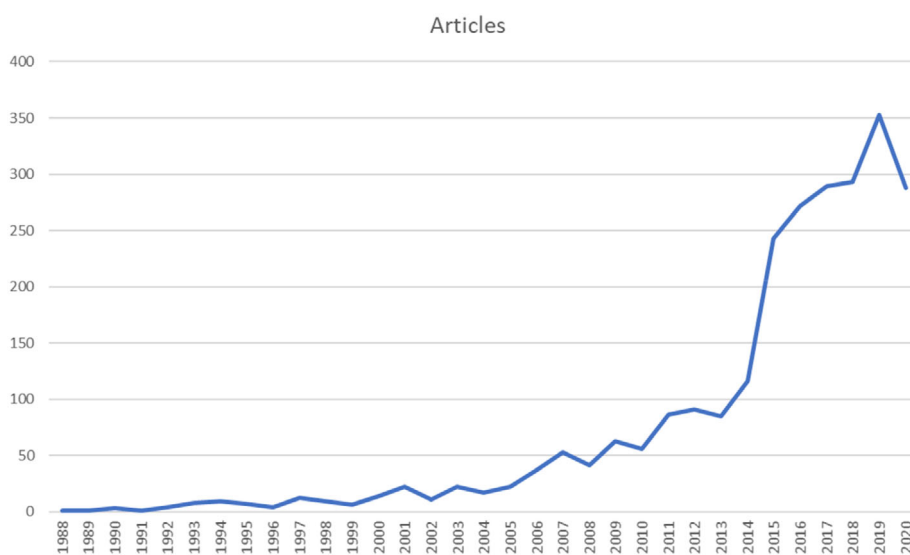


FIGURE 2 Published documents [Color figure can be viewed at wileyonlinelibrary.com]

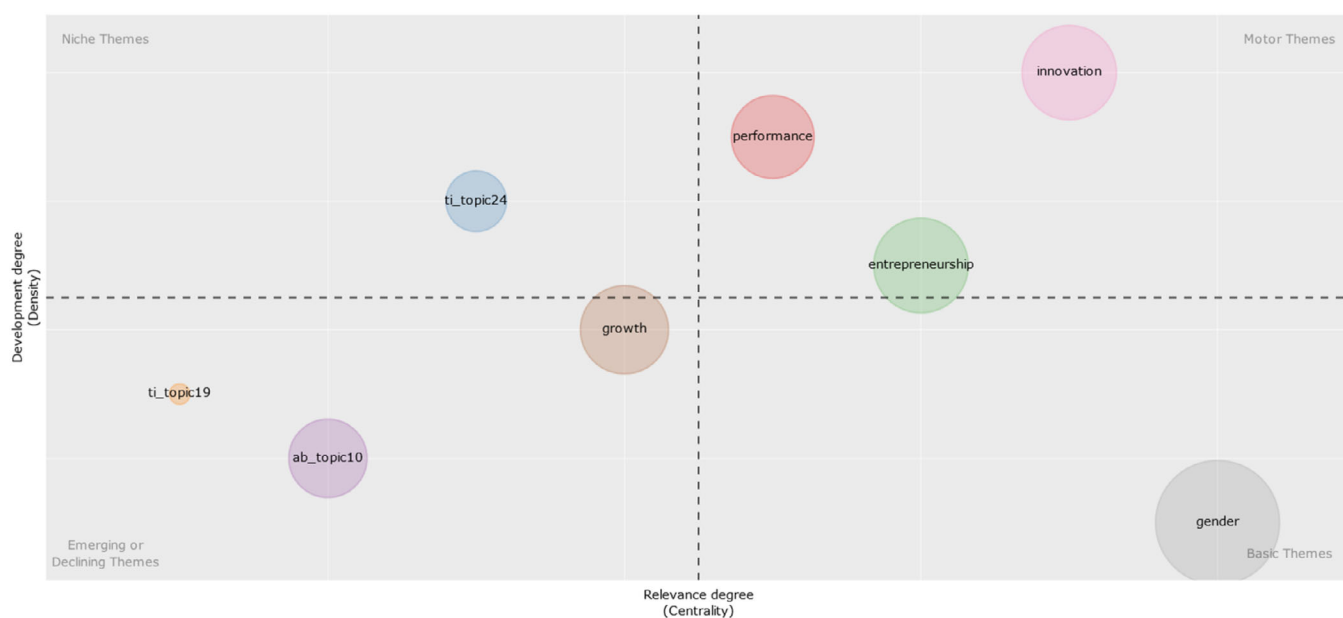


FIGURE 3 Thematic map (period 1988–2010) [Color figure can be viewed at wileyonlinelibrary.com]

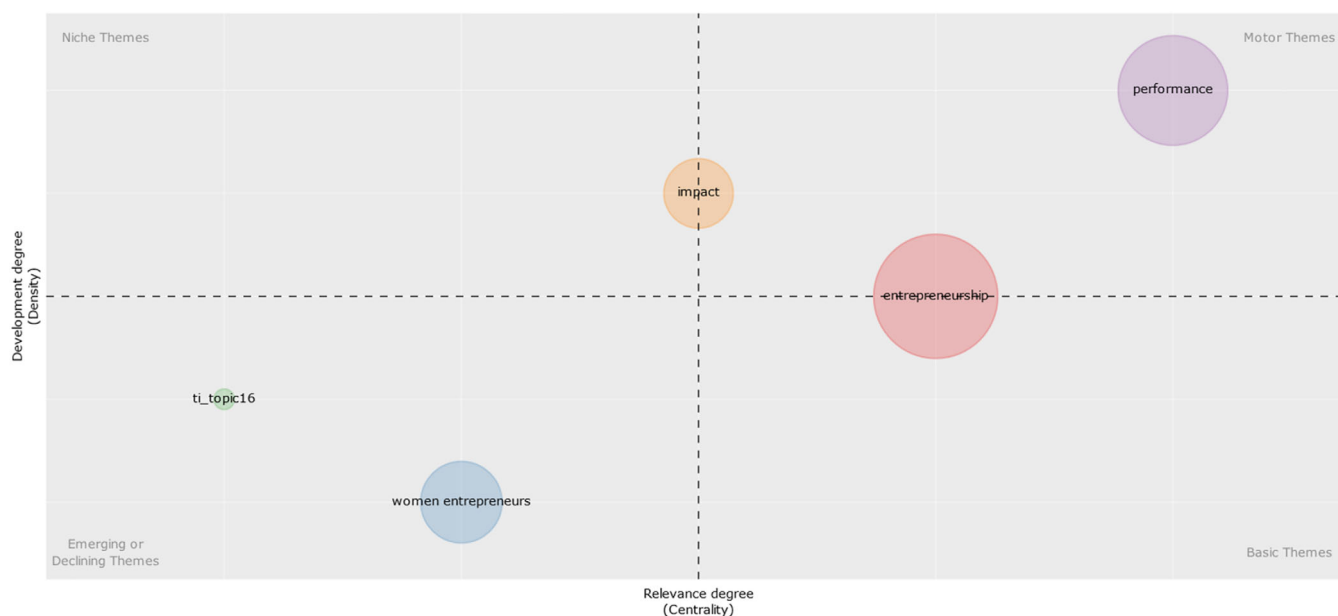


FIGURE 4 Thematic map (period 2011–2015) [Color figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com/doi/10.1002/jsc.2510)]

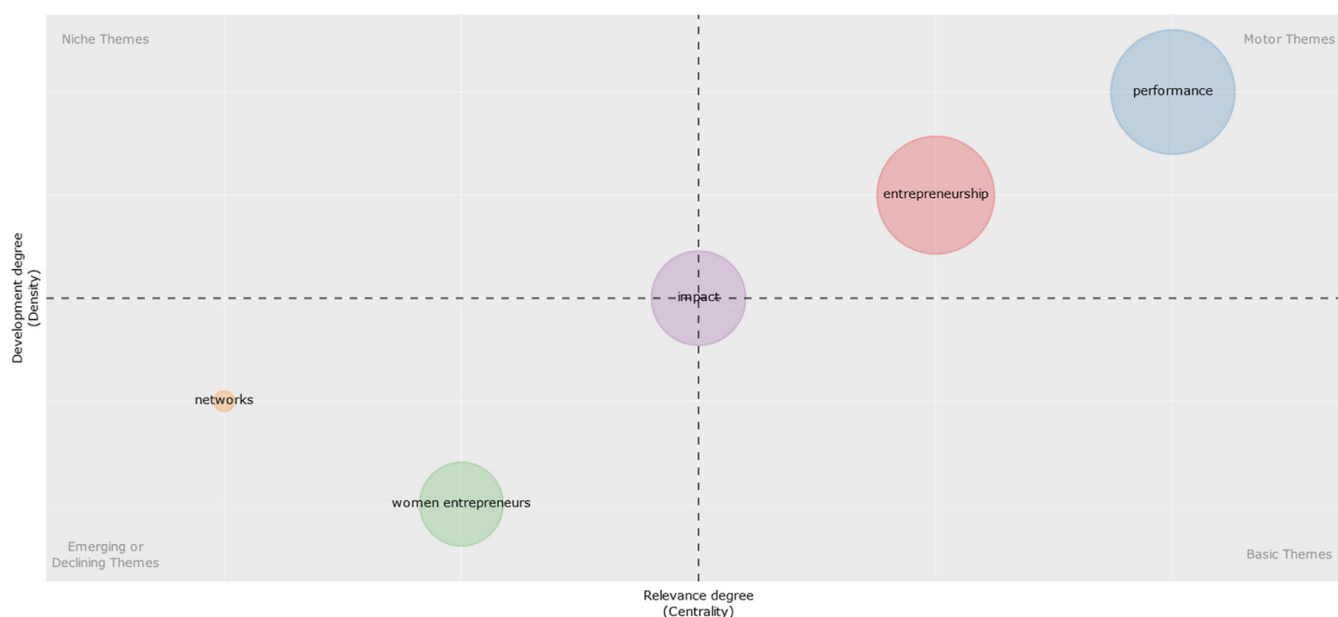


FIGURE 5 Thematic map (period 2016–2019) [Color figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com/doi/10.1002/jsc.2510)]

Regarding the most relevant documents, the direct citation is found to be the more accurate among the citation analysis techniques, providing a more precise representation of the taxonomy of the scientific field (Klavans & Boyack, 2017). Following this argument, Table 2 shows the top 15 most relevant documents, including a brief key point about the underlying theme.

Regarding the most relevant journals, Table 3 presents the top 15 most relevant, according to the number of published papers.

The results show that the journals *Small Business Economics*, *International Journal of Gender and Entrepreneurship*, and *Journal of Business Venturing* represent the top three most relevant sources,

publishing 150, 102, and 91 papers, respectively. Nevertheless, among the most cited documents (Table 2), only two (Chen et al., 1998; Cooper et al., 1994) were published in a journal ranked in the top 15 most relevant sources, precisely the *Journal of Business Venturing*.

4.2 | Thematic analysis

To produce a more consistent evaluation, address the study's main goal, and provide insights about the course and evolution of the

TABLE 1 Data summary

Description	Results
Main information about data	
Timespan	1988:2021
Sources (Journals, Books, etc)	653
Documents	2831
Average years from publication	5.88
Average citations per document	23.09
Average citations per year per doc	2.496
References	94,463
Document types	
Article	2101
Article; book chapter	2
Article; early access	129
Article; proceedings paper	33
Proceedings paper	563
Review; early access	3
Document contents	
Keywords Plus (ID)	2684
Author's Keywords (DE)	5784
Authors	
Authors	5400
Author Appearances	6910
Authors of single-authored documents	499
Authors of multi-authored documents	4901

minority groups' entrepreneurship research stream, data were split into four time-slices according to the papers' publishing year.

Based on the development degree of and the relevance degree of the themes under study, Figure 3 shows the thematic map for the period 1988–2010.

According to these results, over the timespan 1988–2010, there were three main motor themes: “performance”, “Innovation”, and “entrepreneurship”, associated with the central concepts of “gender and woman entrepreneurship”. Overall, these three motor themes were closely connected and represent the backbone of the research stream.

The themes “performance” and “entrepreneurship” came up together connected in literature. An analysis of the most cited documents addressing these motor themes enable to find a link between the motor themes with aspects surrounding entrepreneurship strategies (Knight & Cavusgil, 2004), entrepreneurs traits and intentions (Colombo & Grilli, 2005; Cooper et al., 1994; Zhao et al., 2005), inter-organizational relations (Gulati & Higgins, 2003), internationalization and “performance” (McDougall & Oviatt, 1996), costs and benefits of self-employment and work–family conflict (Parasuraman & Simmers, 2001), as well as “performance” differential between male-headed and female-headed firms as well as entrepreneurial practices (Bruni et al., 2004; Jennings & McDougald, 2007), male and female entrepreneurial intentions (Zhao et al., 2005), improvisational processes and issues permeate entrepreneurial activity with implications

for emergent firm strategies and competencies (Baker et al., 2003), and differences on how male and female entrepreneurs settle a maximum business size threshold (Cliff, 1998).

“Innovation” represents a highly developed and relevant theme, being critical to the research field over the period 1988 to 2010. The most cited documents show “innovation” enrolled aspects such as the synergistic gains from the combination of the complementary capabilities of founders (Colombo & Grilli, 2005), emergent firm strategies and competencies (Baker et al., 2003), and women entrepreneurial intentions compared with their male counterparts (Cliff, 1998; Langowitz & Minniti, 2007).

Regarding the emerging or declining themes, due to their low density (development degree) and low centrality (relevance degree), the research terms “gender difference” arise, associated with “cultural context” and “entrepreneurial intention.” In another plan, the theme “social entrepreneurship” stands out, related to the themes “business incubator” and “venture performance,” closely related to the term “growth.” As niche themes, emerge “migrant entrepreneurship,” “immigrant generation,” or “entrepreneurial business.”

Figure 4 shows the thematic map for the period 2011–2015, highlighting the most relevant themes during this period.

An analysis of the most cited papers regarding the thematic map in motor themes shows that “performance” appears linked with aspects such as “innovation,” “growth,” “knowledge,” “entrepreneurs,” and “networks.” These topics are further framed within the effect of exclusion and poverty on women's access to the market (Mair et al., 2012), the effect of the number of women on corporate boards on firm innovation (Torchia et al., 2011), the role of the entrepreneurial degree of women versus men (Ahl & Marlow, 2012; Robb & Watson, 2012).

Results show “Entrepreneurship” as a relevant, although less developed term than “performance.” According to the most cited documents within the analyzed period, it appears to aggregates with “gender” and “female entrepreneurship,” “innovation,” and “female entrepreneurial performance” (Ahl & Marlow, 2012; Cruz et al., 2012; Hughes et al., 2012; Jennings & Brush, 2013; Mair et al., 2012; Robb & Watson, 2012; Torchia et al., 2011). On the other hand, the term “impact” appears less central, although more developed, and linked with aspects such “female entrepreneurship,” “innovation,” and “female entrepreneurial performance” (Torchia et al., 2011), “female-ventures” (Robb & Watson, 2012), “women-led firms,” and household income (Cruz et al., 2012), access to external finance by women-led firms (Cowling et al., 2012); “female leadership,” “firm performance,” and corporate governance” (Strøm et al., 2014); women and men “entrepreneurial intentions” (Davis & Shaver, 2012) and “gender inequality” in “business start-up” (Thébaud, 2015).

Regarding the emerging or declining themes, “women entrepreneurs” appear within a scope of the overall motor themes “performance,” “entrepreneurship,” and “impact,” associated with the concepts of “technology base,” “entrepreneurship research,” “immigrant entrepreneur,” “economic crises,” and “ethnic minority.”

Figure 5 shows the most relevant theme over the period 2016–2019. Two highly central and dense motor themes are shown: “performance” and “entrepreneurship.”

TABLE 2 Most relevant papers (1988–2021)

Paper	Total citations	Citations per year	Theme
Stuart et al. (1999)	1346	58.5	Interorganizational networks of young companies and their effect on the ability to acquire the resources necessary for survival and growth
Knight and Cavusgil (2004)	1261	70.1	Distinctive mix of orientations and strategies that allow born-global firms to use succeed in diverse international markets
Chen et al. (1998)	1096	45.7	Proposes an entrepreneurial self-efficacy construct aimed to predict the likelihood of an individual being an entrepreneur
Cooper et al. (1994)	1055	37.7	Aimes to predict the performance of new ventures based on observed factors at the time of start-up, including human capital (entrepreneur's education, gender, and race, may reflect), industry-specific know-how reflects management know-how and financial capital
Zhao et al. (2005)	1046	61.5	Investigates the mediating role of self-efficacy in the development of students' intentions to become entrepreneurs, finding that women have lower entrepreneurial career intentions
Wilson et al. (2007)	728	48.5	Examines the relationships between gender, entrepreneurial self-efficacy, and entrepreneurial intentions
Greve and Salaff (2003)	693	36.5	Examines the network activities of entrepreneurs in establish a firm. Finds that women use their kin to a larger extent than men, particularly when they take over an existing firm
Peterman and Kennedy (2003)	689	36.3	Examines the effect of participation in an enterprise education program on perceptions of the desirability and feasibility of starting a business
Van Stel et al. (2005)	537	31.6	Investigates the relationship between total entrepreneurial activity and GDP growth, finding that entrepreneurship varies according to different stages of countries' economic development
Colombo and Grilli (2005)	497	29.2	Analyses e relationship between the growth of new technology-based firms and the human capital of founders and finds that there are synergistic gains from the combination of the complementary capabilities of founders
Zahra (2005)	457	26.9	Literature review about International New Ventures
Baker et al. (2003)	448	23.6	Examines the existence, channels, and implications of strategic improvisation in knowledge-intensive new businesses
Langowitz and Minniti (2007)	441	29.4	Compares female/male involvement in entrepreneurial activity and finds that women tend to perceive themselves and the entrepreneurial environment in a less favorable light than men
Mair et al. (2012)	440	44.0	Argues that poverty prevents women from participating in and accessing markets and argues that institutional voids are the source of market exclusion
Gulati and Higgins (2003)	437	23.0	Investigates the contingent value of interorganizational relationships at the time of a young firm's initial public offering

“Performance” represents the most relevant and developed theme, followed by “entrepreneurship.” The most cited documents concerning these terms over the period 2016–2019 connect both terms with aspects such as stress and high levels of psychological capital and well-being among entrepreneurs (Baron et al., 2016), men and women “entrepreneurship intentions” (Santos et al., 2016), the role of “opportunity and necessity” among entrepreneurs (van der Zwan et al., 2016), venture funding, particularly comparing women and men (Greenberg & Mollick, 2017; Kanze et al., 2018), an innovative business process that facilitates women's economic activity (Haugh & Talwar, 2016); “migrant entrepreneurship,” particularly aspects such as the role of regulation, the incorporation of racist exclusion and gendered structures

of migration and labour market processes, market ghettoization, and greater sensitivity to historical context (Ram et al., 2017).

The term “impact” displays some degree of development and relevance and could be labeled as a motor theme in the timespan 2016–2019. It emerges linked with the social environment in the formation of “entrepreneurial intentions,” particularly comparing “men and women” entrepreneurial intentions (Santos et al., 2016), business owners' motivations regarding the opportunity and necessity (van der Zwan et al., 2016), comparing venture funding between women and men (Greenberg & Mollick, 2017), entrepreneurship education and entrepreneurial intentions of women (Westhead & Solesvik, 2016), and gender and cultural values of post-materialism impact on kinds of value creation emphasized by entrepreneurs (Hechavarría et al., 2017).

“Women entrepreneurs” and “networks” show both low degrees of centrality and density, shaped on the emerging or declining themes quadrant. Nevertheless, these themes came out connected with the timespan motor themes.

Figure 6 shows the most relevant themes over the period 2020–2021. Once again, “performance” and “entrepreneurship” came out as motor themes, and “women entrepreneurs” gained centrality, becoming a basic theme. One of the novelties in this period is the emergence of a “niche theme,” associated with the topic “future,” highlighting here the topic “family conflict.” In addition, at the level of

“emerging or declining themes” there are some changes compared with the previous period—the topics “gender stereotype” or “right reserve” seem to emerge in this period.

Overall, the results from the thematic map reveal that “entrepreneurship” as well as “performance” appear connected with “men and women entrepreneurial passion” (Murnieks et al., 2020), “gender entrepreneurship” and “likelihood of acquiring entrepreneurship-relevant resources” (Murnieks et al., 2020; Tonoyan et al., 2020), “stereotypes” associated with the lead founder’s and “gender incongruity” (Yang, Kher, & Newbert, 2020; Yang, Li, & Wang, 2020), “female and male” “future,” “entrepreneurial choices” (Rocha & van Praag, 2020), how “intangible assets” available to “women entrepreneurs” contribute to the business “performance” (Sallah & Caesar, 2020), “personality traits” of “entrepreneurial self-efficacy” (Yang, Kher, & Newbert, 2020; Yang, Li, & Wang, 2020), and “capital raises” by “minority entrepreneurs” (Cumming et al., 2021).

TABLE 3 Most relevant sources

Sources	Articles
Small Business Economics	150
International Journal of Gender and Entrepreneurship	102
Journal of Business Venturing	91
Entrepreneurship and Regional Development	75
Journal of Small Business Management	73
International Entrepreneurship and Management Journal	62
International Journal of Entrepreneurial Behavior Research	60
International Small Business Journal-Researching Entrepreneurship	57
Entrepreneurship Theory and Practice	54
Journal of Enterprising Communities-People and Places in the Global Economy	49
Gender in Management	45
Gender Work and Organization	45
Journal of Small Business and Enterprise Development	38
Journal of Entrepreneurship in Emerging Economies	35
Journal of Business Research	34

5 | DISCUSSION AND CONCLUSION AND FUTURE RESEARCH AGENDA

Figure 7 depicts the evolution of the overall themes over the timespan 1988 to 2021. It puts together the four time-slices (1988–2010, 2011–2015, 2016–2019, and 2020–2021) and shows few changes in the motor themes across the four periods.

Overall, the thematic evolution shows that “performance” and “entrepreneurship” remained major themes across the four periods, highly relevant and developed. “Gender”-related issues start being relevant over the timespan 1988–2010, diminished their centrality, and became “women entrepreneurs” in the periods 2011–2015 and 2016–2019 and became a basic theme in the period 2019–2020. It is worth mentioning the theme “impact” that appeared highly

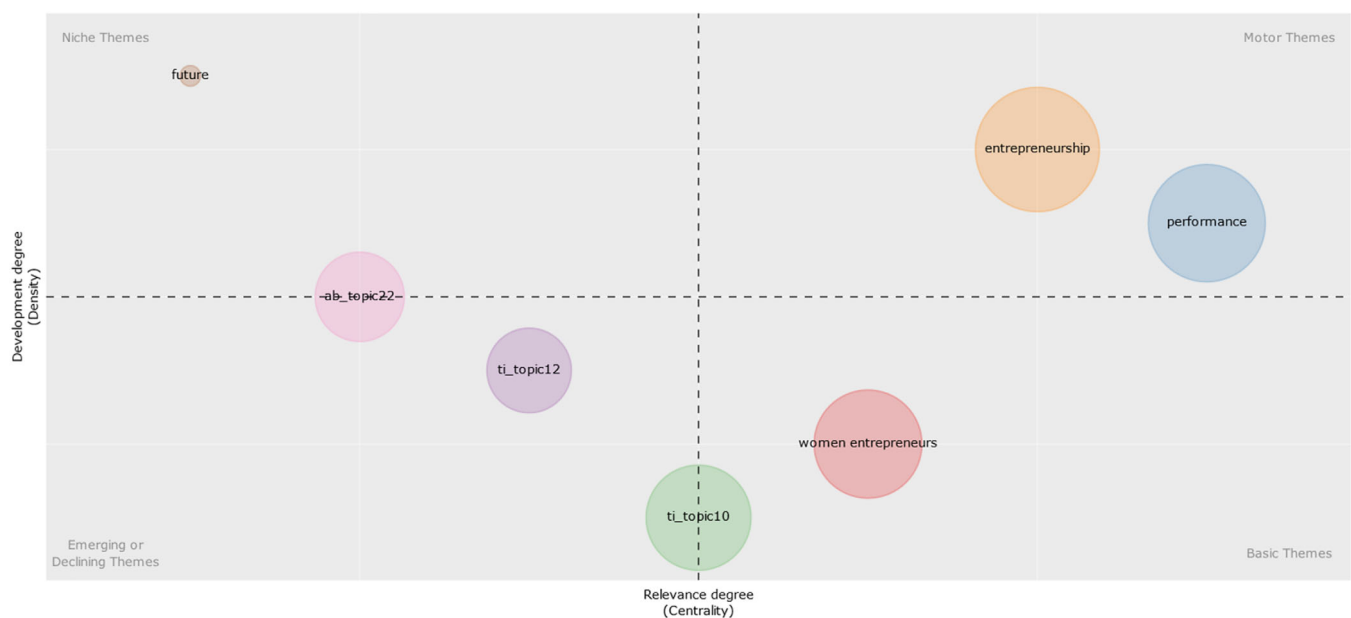


FIGURE 6 Thematic map (period 2020–2021) [Color figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com/doi/10.1002/jbc.25101)]

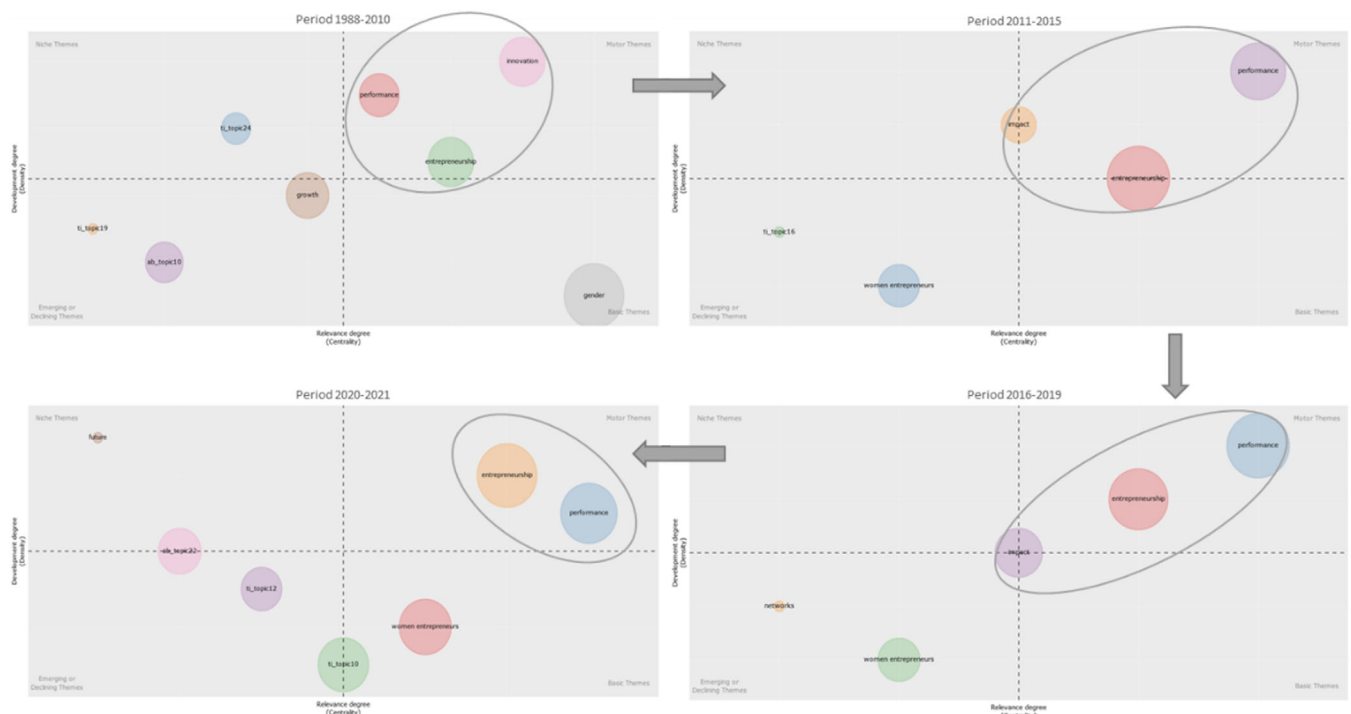


FIGURE 7 Thematic map evolution [Color figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com/doi/10.1002/jsc.2510)]

developed, firstly in the period 2011–2015, losing density over the period 2016–2019.

Several insights arise from this study. Results show that the main underlying themes surrounding the minority entrepreneurship research field are “entrepreneurship” and “performance.” This result is not surprising once, overall, firms aim to achieve a higher level of performance. Furthermore, particularly in the early stages of their ventures, entrepreneurs can be worried about the future of the firms due to a lack of resources and capital which a higher level of business “performance” can solve. On the other hand, increasing business “performance” is one of the main goals of any company.

Despite being focused on minority groups, results show that the research field has been mostly focused on gender and female entrepreneurship. Nevertheless, data show women and particularly ethnic and migrant women are a minority group among entrepreneurs.

Literature shows early insights on several minority groups, particularly on aspects such as race, migrants, and ethnic race (e.g., Bates, 2011; Cooper et al., 1994). However, literature analysis of the most cited documents, shows that ethnic migrants became more relevant only recently (e.g., Aliaga-Isla & Rialp, 2013; Chreim et al., 2018; Dabić et al., 2020; Dheer, 2018). Developed countries, particularly Western Europe faced an increasing flow of migrants trying to reach EU borders. News about deceased migrants in the Mediterranean Sea or migrants trying to cross Southeast European countries' borders were/are a cause of concern. Furthermore, the integration of migrants in host countries is a matter of public interest once the faster they integrate the faster, they contribute to the overall welfare.

Consequently, given the results framework, the main topics for future research agenda on minority groups entrepreneurship would

be related to business “performance,” “entrepreneurial intentions,” and the “impact” of integration politics, including education programs, access to finance, and preferential programs targeted minority groups entrepreneurial opportunities. Moreover, migrants, race as well as gender, are expected to be among the main relevant themes.

It is also worth mentioning the effect of the COVID-19 pandemic. The asymmetric impact of the pandemic on society and its effect on the entrepreneurial intentions of minority groups, including women, are set to be among future research topics.

This paper relied on a single database as a source of data for the experiment. WoS is one of the largest and most relevant databases publishing scientific research. Despite most papers being also in databases such as SCOPUS and Google Scholar, it is possible that relevant papers are missing. The authors are confident that this issue does not change results, yet readers must be aware of this issue.

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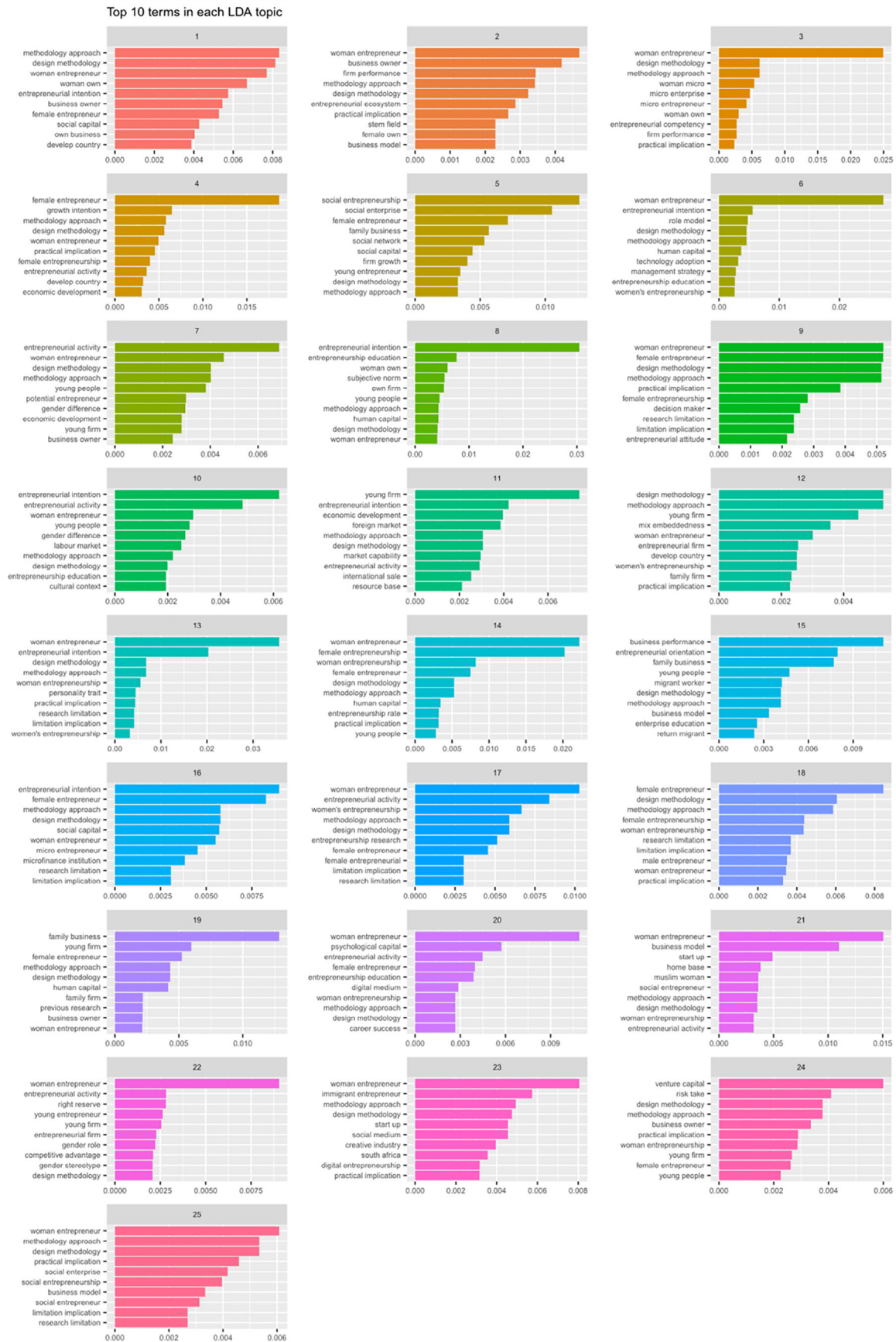
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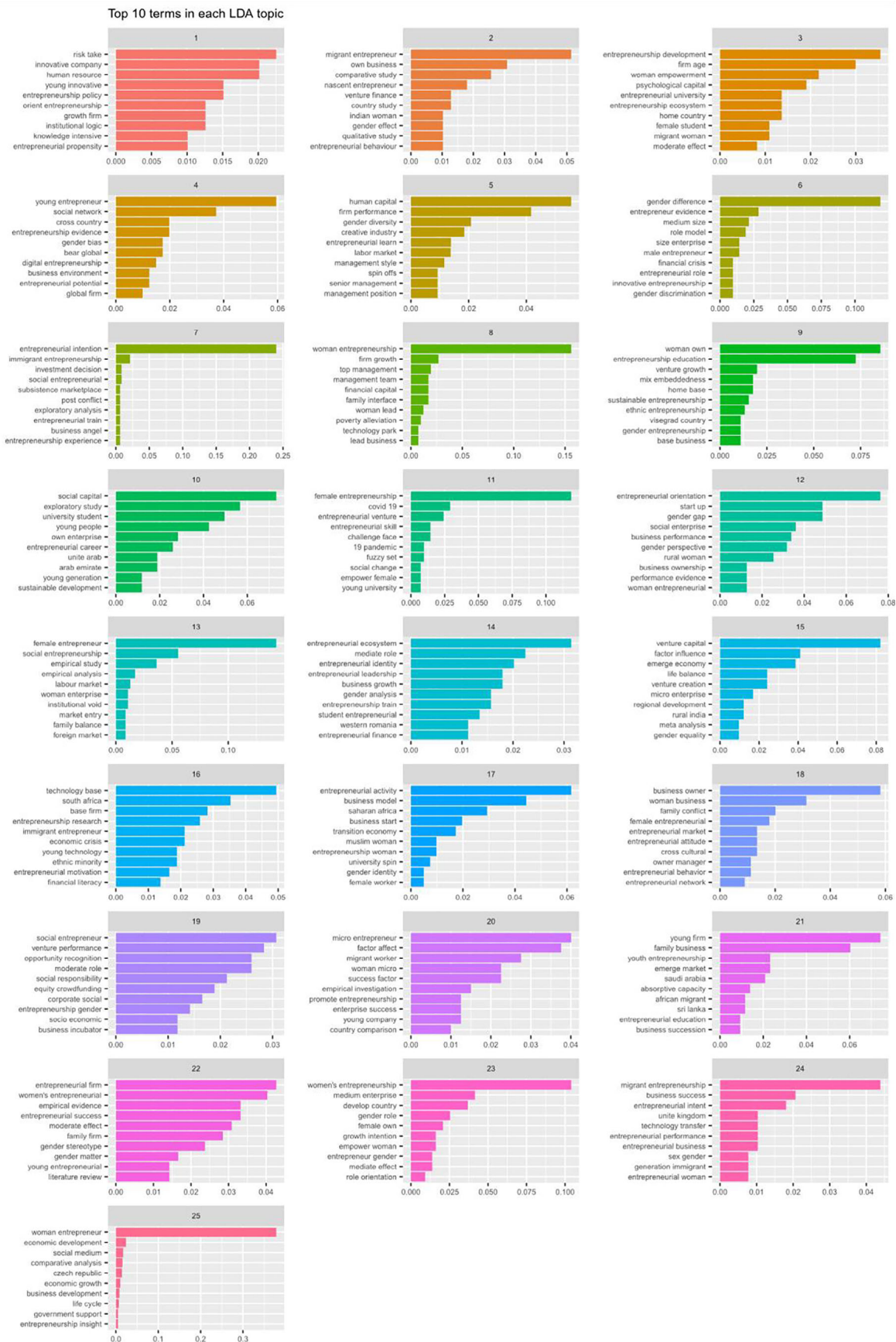
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APPENDIX A: Top 10 terms in each Latent Dirichlet allocation topic for abstracts



APPENDIX B: Top 10 terms in each Latent Dirichlet allocation topic for titles



APPENDIX C: Top 10 term occurrences in Thematic Maps (period 1988–2010)

Cluster	Words	Occurrences
performance	performance	70
	ab_topic21	19
	ti_topic11	19
	ti_topic20	16
	ab_topic18	13
	perspective	12
	entry	11
	competitive advantage	6
	international entrepreneurship	6
	strategies	6
ti_topic24	ti_topic24	29
	ti_topic16	19
	ab_topic12	16
	ab_topic23	11
	migration	8
	immigrants	6
	culture	6
	dynamics	6
	policy	6
	careers	5
entrepreneurship	entrepreneurship	110
	management	21
	ti_topic14	21
	strategy	19
	ti_topic3	17
	ab_topic17	15
	ti_topic1	15
	determinants	14
	ab_topic4	13
	ab_topic5	13
ventures	ventures	13
	technology	12
	ab_topic6	11
	ab_topic16	10
	internationalization	6
	venture	4
ab_topic10	ab_topic10	25
	ab_topic8	21

(Continues)

Cluster	Words	Occurrences
	ti_topic15	21
	ti_topic10	18
	ti_topic7	18
	ti_topic6	16
	ab_topic24	14
	behavior	12
	venture capital	12
	attitudes	9
ti_topic19	ti_topic19	14
	ab_topic3	13
	economic development	6
growth	growth	45
	firms	31
	ti_topic5	24
	survival	22
	ab_topic11	20
	ab_topic19	19
	impact	9
	liquidity constraints	9
	evolution	8
	investment	8
innovation	innovation	35
	ti_topic12	24
	model	23
	ab_topic22	22
	ti_topic21	20
	ti_topic23	20
	knowledge	19
	networks	18
ab_topic15	17	
ab_topic25	16	
gender	gender	67
	women	54
	ti_topic25	48
	self-employment	36
	ti_topic13	33
	entrepreneurs	26
	ti_topic2	25
	business	24
	men	24
	ti_topic8	24

APPENDIX D: Top 10 term occurrences in thematic maps (period 2011–2015)

Cluster	Words	Occurrences
entrepreneurship	entrepreneurship	215
	gender	139
	women	104
	ti_topic13	53
	self-employment	45
	ti_topic6	42
	ab_topic4	36
	ab_topic8	36
	business	36
	ti_topic23	33
women entrepreneurs	women entrepreneurs	59
	ti_topic25	54
	ti_topic8	35
	management	34
	ti_topic11	34
	ti_topic24	31
	ti_topic9	30
	ab_topic23	26
	ab_topic13	25
	ab_topic9	24
ti_topic16	ti_topic16	44
	ab_topic7	28
	ab_topic15	20
	migration	9
	investment	8
	mixed embeddedness	7
	ethnic entrepreneurship	6
	migrant entrepreneurship	6
performance	performance	118
	innovation	67
	growth	58
	knowledge	43
	entrepreneurs	37
	ab_topic22	35
	ti_topic17	35
	networks	30
	ab_topic5	29
	ti_topic21	29
impact	impact	41
	ti_topic14	39
	ti_topic15	32
	ti_topic22	30
	ab_topic12	29

Cluster	Words	Occurrences
	ab_topic24	29
	determinants	27
	firm performance	20
	behavior	19
	ab_topic18	15

APPENDIX E: Top 10 term occurrences in thematic maps (period 2016–2019)

Cluster	Words	Occurrences
entrepreneurship	entrepreneurship	374
	gender	319
	women	174
	business	126
	self-employment	85
	ti_topic9	76
	ti_topic21	69
	ti_topic13	66
	ti_topic14	65
ti_topic23	64	
performance	performance	197
	growth	132
	innovation	128
	management	88
	ti_topic19	78
	determinants	75
	ti_topic12	74
	ab_topic5	63
	ti_topic20	61
	ab_topic12	60
women entrepreneurs	women entrepreneurs	156
	ti_topic25	101
	ti_topic8	66
	ti_topic11	59
	female entrepreneurship	55
	ab_topic14	53
	ab_topic3	53
	intentions	53
	ti_topic16	53
	men	49
impact	impact	115
	ti_topic7	81
	ti_topic6	75
	education	69
	ti_topic10	67
	ti_topic3	66
	self-efficacy	65
	ab_topic13	57
	behavior	55
	ab_topic1	54
networks	networks	65
	ti_topic2	56
	ab_topic24	49

Cluster	Words	Occurrences	
	perspective	37	
	embeddedness	34	
	migration	32	
	mixed embeddedness	28	
	policy	25	
	social capital	24	
	businesses	21	
	opportunity	opportunity	21
		immigrant entrepreneurs	20
		international entrepreneurship	19
ethnic entrepreneurship		18	
migrant entrepreneurship		16	
immigrants		14	
social-structure		14	
migrants		13	
intersectionality		11	
immigration		11	

(Continues)

APPENDIX F: Top 10 term occurrences in thematic maps (period 2020–2021)

Cluster	Words	Occurrences
women entrepreneurs	women entrepreneurs	60
	impact	59
	ti_topic25	35
	female entrepreneurship	31
	ab_topic3	24
	ti_topic3	23
	institutions	21
	gender-differences	20
	ab_topic5	18
	ti_topic20	18
performance	performance	87
	innovation	57
	growth	53
	networks	31
	ti_topic17	30
	knowledge	26
	management	25
	ti_topic15	25
	ti_topic24	25
	ti_topic21	23
ti_topic10	ti_topic10	28
	ti_topic7	28
	ti_topic4	26
	self-efficacy	24
	ti_topic5	24
	ab_topic7	22
	ab_topic8	20
	ti_topic19	20
	determinants	19
	education	19
ti_topic12	ti_topic12	24
	ab_topic17	18
	ab_topic10	17
	firm performance	17
	entrepreneurial orientation	14
	ti_topic16	13
	capabilities	12
	business performance	10
	resources	10
	strategies	10
entrepreneurship	entrepreneurship	145
	gender	129

Cluster	Words	Occurrences	
	women	72	
	business	55	
	self-employment	34	
	ab_topic2	28	
	work	28	
	ti_topic13	25	
	ti_topic23	24	
	ti_topic11	23	
	future	future	9
		family conflict	6
ab_topic22	ab_topic22	26	
	entrepreneurs	23	
	ab_topic16	21	
	female	19	
	ti_topic6	19	
	ti_topic8	19	
	perceptions	15	
	men	14	
	ab_topic9	11	
	access	11	