Analysis of Entrepreneurship Using The TOPSIS Method

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Abstract: *The field of entrepreneurship has recently experienced a shift, with scholars from various backgrounds such as sociology, anthropology, and business strategy incorporating their discipline-specific ideas into the study of what leads to and results from the establishment of new ventures. Whether in the context of established companies or startup enterprises, much of the motivation behind this transformation stems from the recognition that entrepreneurship is a driving force behind business growth, the generation of fresh employment opportunities, and the stimulation of economic progress. Our research contribution involves the development of an assessment methodology for evaluating normalization techniques. In this context, our focus is on six widely recognized normalization techniques and the application of the TOPSIS method for evaluation purposes. International comparative research is widely utilized by governmental policymakers across the globe, and this is particularly relevant given the growing interest in entrepreneurship among business leaders. It pertains to the geographical boundaries of a nation and involves the promotion or inhibition of the establishment of new businesses, influenced by various psychological, social, and economic factors. This research, which has recently gained an international dimension, is increasingly crucial in the domain of international entrepreneurship studies. The predilection for entrepreneurship in specific societies, as well as the inclination towards it, underscores the significant role that culture plays in entrepreneurship theory. In a cross-national study conducted across nine different countries, approximately 1800 fourth-year university students were surveyed. The sample for this research was drawn from this dataset. The survey instrument administered to the students was specifically designed to elicit their attitudes and opinions regarding free markets, competition, and the contribution of entrepreneurship to economic growth. This study employs integrated entropy weighting to select information systems and proposes the use of the TOPSIS method. Evaluation Criteria and Objective Weights: The text mentions the need to evaluate alternatives based on certain criteria and calculate their objective weights. This suggests a structured approach to decision-making. Information Entropy Information entropy is used as a tool for calculating these objective weights. Information entropy is a concept from information theory that measures the uncertainty or randomness associated with a set of data. In this context, it is used to quantify the significance of different evaluation criteria. Modified TOPSIS Method The text indicates that the modified TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) method is employed. The TOPSIS method is a multi-criteria decision-making technique used to determine the ranking of alternatives based on their proximity to the ideal solution. Ranking of Alternatives, the modified TOPSIS method is applied to rank the alternatives based on the calculated objective weights and the evaluation criteria. Decision Support The purpose of this approach is to support the decision-making process. By using information entropy and the modified TOPSIS method, decision-makers can select the most suitable option among the alternatives based on relevant information. The provided text discusses how cultural differences between the United States and other cultures can impact control orientation, particularly regarding internal location, leading to an increase in a specific slope. However, the text is quite concise, and additional context is needed to fully understand the implications and details of this statement. Conversely, the likelihood of this internal locus of control orientation diminishes. These findings point to the fact that as one's cultural distance from America grows, their perceived control over their own fate decreases. The primary aim of this thesis is not to propose a new definition for entrepreneurship as a research field, as that would be both impractical and redundant, given the numerous existing definitions. Instead, it seeks to contribute to the field by reevaluating and refining the concepts and proposals already put forth by researchers. Its goal is to promote theoretical integration that can benefit the broader scientific community. This proposal is grounded in a thorough examination of published literature, particularly the work of Gardner (1990), to gain a deeper understanding of the conceptions that researchers in the entrepreneurship field have. It serves the purpose of providing a more detailed definition*

of what is explored within the realm of entrepreneurship. The introduction of a new perspective on defining the entrepreneurship sector carries significant implications, some of which we will delve into in the following paragraphs. Importantly, this new perspective aligns with the viewpoints of many scholars in the field. In the realm of Strategic Management, the connection between innovation and entrepreneurship is well-established. Researchers in this area are actively working to demystify the intricacies of this relationship. However, it's essential to note that the subject matter they investigate differs. Some researchers are naturally more inclined towards exploring the aspects of venture creation, often focusing on the small business sector, while others; the provided text mentions that the statement is particularly relevant within the context of strategic management. This implies that the discussion about control orientation and its relationship to the cultural gap is important when it comes to making strategic decisions and managing organizations effectively. However, the text remains quite abstract, and specific details or examples are needed to understand the exact nature of this relevance in strategic management. are primarily interested in innovation? The field of entrepreneurship serves as a common ground for researchers who might not find their niche in more established or "noble" fields or disciplines. This perspective aligns with the notion that entrepreneurship acts as a convergence point for researchers from diverse disciplines. Although entrepreneurship has a historical precedent dating back to human history, as seen in ancient Babylon where cuneiform tablets recorded business transactions involving entrepreneurs, its formal existence as an academic discipline is relatively recent. When compared to long-standing fields, it is akin to the fruits of scholarly labor over several decades. Drawing a parallel between older disciplines and entrepreneurship is like comparing a railway station with an airport; the railway station was constructed a long time ago, emphasizing the relatively recent development of entrepreneurship as an academic field. The primary purpose of developing the TOPSIS method was to handle real-valued data exclusively. In many instances, it can be challenging to provide precise assessments of alternatives based on local criteria, leading to the consideration of these assessments as intervals. There have been a limited number of papers dedicated to extending the TOPSIS method to accommodate interval data. However, these extensions differ in their definitions of positive and negative optimal solutions and rely on heuristic approaches. When exploring certain critical aspects of entrepreneurship, we leverage longitudinal data to facilitate a more detailed investigation. This approach yields results that challenge conventional wisdom and the models of occupational choice based on imperfect information. Entrepreneurs can elucidate this relationship, and behavioral models of selection prove to be invaluable. To address this inquiry, we assessed entrepreneurship metrics used in prior longitudinal studies. We then aimed to construct a new longitudinal dataset based on Hawley's (1907) entrepreneurship theory, providing the foundation for testing the model of entrepreneurship. This new dataset was created in collaboration with the United Nations. The measurement introduced in this article is considered a more suitable gauge for tracking entrepreneurship trends over time at the individual level. Measurement of Entrepreneurship over Time: The text suggests that measuring the evolution of entrepreneurship over time is a challenging task. It points out that there is no single definitive measure for this purpose. Limitations of Longitudinal Measures Regardless of the nature of longitudinal measures used to assess Entrepreneurship; the text mentions that they are unable to fully capture the complex nuances associated with entrepreneurship. It implies that entrepreneurship is a multifaceted concept that is difficult to measure comprehensively. Convergent Validity The text refers to the challenge of establishing convergent validity between various measures of entrepreneurship. Convergent validity is a statistical concept that relates to the extent to which different measures should be related in a meaningful way. Scholarly Debate The text suggests that the article's focus on the conceptualization and measurement of entrepreneurship will stimulate debates among scholars. This indicates that there are ongoing discussions and disagreements in the academic community regarding how entrepreneurship should be defined and measured. Use of TOPSIS Method The article mentions the use of the traditional TOPSIS method for analysis. TOPSIS is a decision-making technique used to determine the best choice among a set of alternatives based on specific criteria. Empirical Explanation The text notes that the article aims to provide an empirical explanation using a simulation technique. This implies that the study uses data and simulations to address issues related to entrepreneurship measurement and analysis. Theoretical Foundations the article also aims to deepen understanding of the theoretical foundations of the TOPSIS method. This suggests a focus on refining the methodology and contributing to its further development in the context of entrepreneurship research. Before delving into a theoretical examination of the TOPSIS method, we will provide a thorough literature review encompassing various iterations and versions of the method. It's worth noting that the identified drawbacks of the TOPSIS method have prompted numerous researchers to devise new adaptations and enhancements to the method. Canada, Ireland, Germany, Belgium, China, Singapore.Sample Size, Cultural Distance, Risk-Taking Propensity, Energy Level. China is ranked number one, with Ireland ranked lowest.

Keywords: *Canada, Ireland, Germany, Belgium, China, Singapore.*

1. INTRODUCTION

This thesis aids in triangulating research findings. Culture and Industry the text indicates that there is a connection between culture and industry when it comes to entrepreneurial motivation. It suggests that cultural factors and industry characteristics can influence a person's motivation to become an entrepreneur. Common Personality Traits The research examines the relationship between entrepreneurial motivation and four common personality traits. These traits may be relevant in understanding what drives individuals to pursue entrepreneurial ventures. Variations in Different Cultures the text implies that these personality traits may manifest differently in individuals from different cultures. Cultural variations can play a role in shaping how these traits influence entrepreneurial motivation. International Entrepreneurs The research seems to be relevant for international entrepreneurs. It may shed light on how cultural and industry factors impact international entrepreneurs and their motivation. Frontiers of Research the study is expected to push the frontiers of research in the field of entrepreneurial motivation, culture, and industry. It aims to contribute to a deeper understanding of these dynamics. Overcoming Obstacles, the text suggests that the research may address obstacles faced by international entrepreneurs, implying that the findings could provide insights into challenges they encounter. Raising Important Questions, the research may raise important questions related to the relationship between culture, industry, and entrepreneurial activities. It may prompt further inquiries and discussions in this area. Growing Interest There is a growing interest in international entrepreneurs and fostering entrepreneurial activities in various countries and regions. This indicates the relevance and significance of understanding these dynamics. This underscores the necessity for comparative studies that scrutinize both the supply conditions and the demands for entrepreneurs. The very essence of entrepreneurship, marked by the initiation of new ventures that often transcend conventional boundaries, means that environmental factors can exert a substantial influence. We anticipate that such impacts are likely. In their haste to stimulate entrepreneurial activities, policymakers often highlight success stories in the literature, but a persistent issue remains the dearth of research conducted in different contextual settings when applying entrepreneurship theory internationally. Most social science research, especially recent entrepreneurship research, has predominantly emanated from the United States and Western Europe. The notion that certain societies exhibit a stronger predisposition or propensity for entrepreneurship underscores the implicit role of culture in shaping entrepreneurship theory. Entrepreneurial skills, and their frequency, have been shown to be more prevalent in connection with certain culturally specific factors. Understanding how culture influences the development of entrepreneurial competence is crucial for the internationalization of entrepreneurship theory. It underscores the importance of formulating and implementing policy initiatives that foster entrepreneurship in diverse regions across the globe. As anticipated, the findings of this study generate more questions than they provide answers regarding the similarities and distinctions among entrepreneurs worldwide. Notably, this encompasses the core aspects of entrepreneurship and the defining characteristics of entrepreneurs, questioning whether these are perceived through a racial lens. To be beneficial within the field of social science, a conceptual framework must not merely describe or predict empirical phenomena but offer a comprehensive framework that elucidates and predicts a distinct set of empirical phenomena. In the realm of entrepreneurship, such a conceptual framework remains notably absent. Entrepreneurship, as a term, has become a broad umbrella encompassing a mix of research endeavors, as a diverse and extensive population engages in the multifaceted process of entrepreneurship. It's important to acknowledge that entrepreneurial behavior is not a constant trait that inherently sets certain individuals apart from others in all situations. Rather, it relates to the propensity of some individuals to respond to contextual cues of opportunity. We emphasize that entrepreneurs must hold distinct beliefs about the value of resources for two key reasons. Firstly, entrepreneurship involves collaborative production, necessitating the integration of diverse resources to create novel products or services.

This paper serves as an introduction to JPV's special issue on the economics of entrepreneurship. Entrepreneurship has been acknowledged as significant in economics since the early 18th century, encompassing both microeconomics and macroeconomics. This paper delves into the economics of entrepreneurship, reviewing recent developments and exploring the fundamental principles that have given rise to a new dimension of diversity within the field of economics. Introduction of New Principles: The text refers to the introduction of new principles in the field of entrepreneurship. These principles are expected to have a significant impact on how entrepreneurial behavior is understood and studied. Improving Understanding the new principles are intended to enhance our understanding of entrepreneurship. They are likely to provide substantial evidence and insights into entrepreneurial activities and decision-making. Special Issue The text mentions a "special issue," which suggests a publication or collection of articles or research papers that focus on a specific topic. In this case, it seems to be related to the new principles in entrepreneurship. Featured Contributions the special issue includes featured contributions, likely referring to articles or research papers that explore and discuss the impact of these new principles on entrepreneurship research. Review of Entrepreneurship Research The article concludes with a review of entrepreneurship research, situating it in the context of recent developments. This review likely helps to summarize

and integrate the new principles into the broader field of entrepreneurship. Five Basic Principles the text mentions "five basic principles" that seem to underlie recent research on entrepreneurship in economics. These principles include bounded rationality, rule-following, institutions, cognition, and evolution. Substantial and Growing System the mentioned principles are described as substantial and foundational, contributing to the growth of the system of entrepreneurship research. These principles have led to the emergence of various economic sectors, each grounded in one or more of these principles. Behavioral economics and the new organizational economics have proven particularly valuable in fostering research on entrepreneurship.

This research poses important implications for scholars in terms of developing and teaching comprehensive and pertinent theory that pertains to the distinct domain of entrepreneurship. To address the theoretical concerns raised by the information provided by respondents, entrepreneurial educators can take steps to assess their teaching methods. Historically, discussions on economic development after the post-war era emphasized the critical role of entrepreneurship in underdeveloped countries. Entrepreneurship was essential for achieving innovation and structural transformation, which required investment for economic growth. However, it became evident that entrepreneurship posed significant challenges for underdeveloped countries, both in terms of its supply and demand. Less Developed Countries the text refers to "less developed countries," indicating nations that may be struggling with economic and social development. Ethnic Disparities In these countries, it is common for the political leaders in power to come from ethnic, social, or tribal backgrounds that differ from the majority of the population. Policy Impact The text suggests that due to these disparities, government policies are sometimes put in place that act as barriers to entrepreneurship. These policies may be restrictive or detrimental to entrepreneurial activities. This was exemplified by restrictions on overseas Chinese minorities in Asian countries, East Asians and Lebanese in various African nations, and entrepreneurial tribes such as the Ibos within their own country, leading to expulsions and massacres. The questions of political integration raised earlier suggest that there will be significant areas of interest for economists in future research concerning entrepreneurship and development. In particular, if one seeks to explore entrepreneurship within or across countries, the broader nexus involving entrepreneurship, economic development, and organizations becomes a crucial field of investigation. Understanding why the relative impact of entrepreneurship can vary significantly across different countries and regions is a pivotal aspect that needs elucidation. Given the pivotal role of entrepreneurship in contemporary economic practice, it is imperative to address its role in economic theory and trace its historical development. To gain insights into this, I will review major historical contributions to entrepreneurship theory that commenced in the mid-eighteenth century. The responses to the first three questions predominantly aim to establish a definition and comprehension of each author's concept of an 'entrepreneur.' The multitude of definitions reflects the diverse perspectives within entrepreneurship theory, and relying on the concept itself makes sense. Economists exhibit considerable variance in their definitions of the role and position of entrepreneurship within the economy. This variance mirrors their distinct perceptions of entrepreneurial behavior and attitude. Some, like Cantillon and Kirzner, highlight consciousness and foresight in identifying profit opportunities, while others like Say and Marshall emphasize management, leadership, and specific career-related skills. Successful entrepreneurship, according to Schumpeter, depends on the willingness to exhibit innovative behavior, integrating psychological attributes with classical skills. Profit remains a common thread in all six theories, as it represents the entrepreneur's return on investment. Motivation to undertake the task also plays a role, although Chey and Marshall refer to it as payoff, and Marshall underscores the high value that successful entrepreneurs attach to their business returns. In Schumpeter's view, profit isn't the primary driver; rather, it's measured by success in terms of profit and social recognition. Many scholars include in their understanding of entrepreneurship the criterion that the outcome must be in some way successful or influential. While some entrepreneurs operate under genuine uncertainty, the definition must be centered on behavior rather than the outcome, which can be influenced by luck. Diverse Decision-Making Methods: The text mentions that over recent decades, a range of decision-making methods has been employed to aid decision makers in choosing the most suitable solutions for complex problems. Support for Multifaceted Decisions These methods are designed to support decision makers in handling multifaceted decisions, which can involve various criteria and factors. Criticism in Literature The text notes that these decision-making methods have faced criticism in academic literature. The criticism likely pertains to their limitations and challenges in certain situations. Rank Reversal The text points out that one of the issues associated with these methods is "rank reversal." Rank reversal occurs when the relative ranking of alternatives changes as new alternatives are introduced or the criteria are modified. TOPSIS Method Specifically, the text mentions the TOPSIS method, which is a widely used multivariate decision analysis technique. However, it highlights that there has been relatively little analysis of the rank reversal issue in relation to the TOPSIS method.

2. MATERIALS AND METHOD

Sample Size: The sample size guideline suggests that, for continuous data, it's advisable to gather a minimum of 30 data points for each group, and for attribute data, at least 50 points should be collected. While these sample

sizes might seem relatively small, in general, they provide a solid foundation for making more informed decisions based on the collected data. The provided text defines the term "sample size" in the context of research and market research. It refers to the number of individuals or subjects included in a study or experiment. This term is commonly used in market research to indicate the size of the sample population being studied. Sample size is a crucial factor in determining the statistical significance and generalizability of research findings.

Cultural Distance: Geographical separation results in significant dissimilarity between countries, making it an example of what we term as "cultural distance. The provided text explains the concept of "cultural distance." It refers to the extent to which norms and values differ between one country and another. Cultural distance is a measure of the dissimilarity in cultural attributes, which can include language, customs, traditions, social norms, and values. It is a useful concept in various fields, including international business, as it helps assess the potential challenges and opportunities when dealing with different cultures and markets. Some researchers opt to use the term "cultural proximity" in their studies, which implies a shared cultural identity between two or more nations. An entrepreneurial culture is one in which individuals are inclined to innovate and is characterized by an environment that fosters creativity and risk-taking. In a business context, having an entrepreneurial culture entails promoting new ideas and encouraging employees to engage in brainstorming sessions to generate innovative products**.**

Risk-Taking Propensity: Risk-taking propensity refers to an individual's inclination or orientation towards taking risks. This component of an entrepreneur's personality is considered vital when making the decision to venture into entrepreneurship. Risk propensity, also known as the tendency or willingness to take risks, represents an individual's current disposition to either embrace or avoid risks. It directly impacts decisions related to starting a business or investing in unpredictable markets. Conversely, risk tolerance pertains to how one manages potential losses. When an individual has a low tolerance for risk, it tends to result in more cautious and conservative outcomes.

Energy Level: Requirement for Business succession various aspects of your business requires having the necessary power and energy to drive your initiatives forward. Entrepreneurial Journey Entrepreneurship is described as a tumultuous and unpredictable journey with its fair share of ups and downs and everything in between. It's a wild ride. High Energy Levels for Entrepreneurs As an entrepreneur, it's crucial to create and maintain high energy levels. Your potential for success is closely tied to your ability to sustain high energy. Definition of an Entrepreneur An entrepreneur is characterized as a person with high energy, someone who possesses the vigor and drive required for business activities. Finite Nature of Energy is acknowledged as a finite resource, meaning it has its limits. To maintain and increase energy, entrepreneurs are advised to consider factors such as sleep, diet, exercise, and other relevant practices. Energy Management Entrepreneurs are aware that there are ways to increase and manage their energy levels. This can be achieved through practices like sleep, dietary choices, and regular exercise.

3. RESULTS AND DISCUSSION

TABLE 1. Entrepreneurship data set

	Sample Size	Cultural Distance	Risk-Taking Propensity	Energy Level
Canada	253	15	0.24	0.49
Ireland	90	27	0.34	0.5
Germany	84	31	0.38	0.42
Belgium	271	57	0.25	0.57
China	172	78	0.3	0.29
Singapore	99	88	0.28	0.25

Table 1 shows the Entrepreneurship data set using the TOPSIS Method. Evaluation parameters are Sample Size, Cultural Distance, Risk-Taking Propensity, Energy Level. And Alternative value is Canada, Ireland, Germany, Belgium, China, and Singapore shown on table 1.
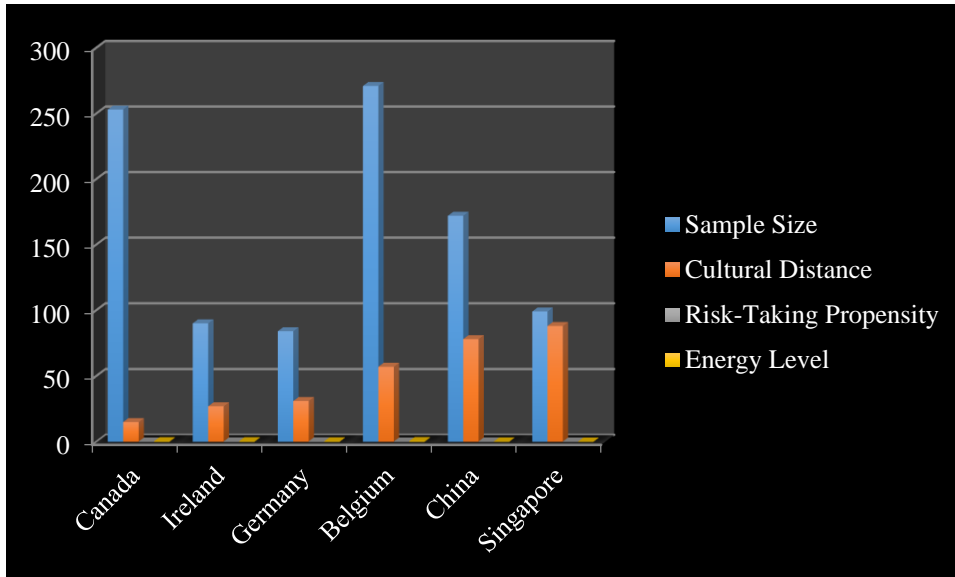
FIGURE 1. Entrepreneurship

Figure 1. Shows on Entrepreneurship data set graph. Evaluation parameters are Sample Size, Cultural Distance, Risk-Taking Propensity, and Energy Level. And Alternative value is Canada, Ireland, Germany, Belgium, China, and Singapore shown FIGURE 1. The figure 1 and table 1 it is seen that Belgium is showing the Highest Value for Sample Size and Germany is showing the lowest value. Singapore is showing the Highest Value for Cultural Distance and Canada is showing the lowest value. Germany is showing the Highest Value for Risk-Taking Propensity and Canada is showing the lowest value. Belgium is showing the Highest Value for Energy Level and Singapore is showing the lowest value

TABLE 2. Normalized Data

Normalized Data			
Sample Size	Cultural Distance	Risk-Taking Propensity	Energy Level
0.5774	0.1088	0.3241	0.4593
0.2054	0.1959	0.4591	0.4687
0.1917	0.2249	0.5131	0.3937
0.6185	0.4136	0.3376	0.5343
0.3925	0.5660	0.4051	0.2718
0.2259	0.6386	0.3781	0.2344

Table 2 shows the various Normalized Data for Entrepreneurship, in Sample Size¸ Cultural Distance, Risk-Taking Propensity, and Energy Level Normalized value is obtained by using the formula. We take same weights for all the parameters for the analysis.
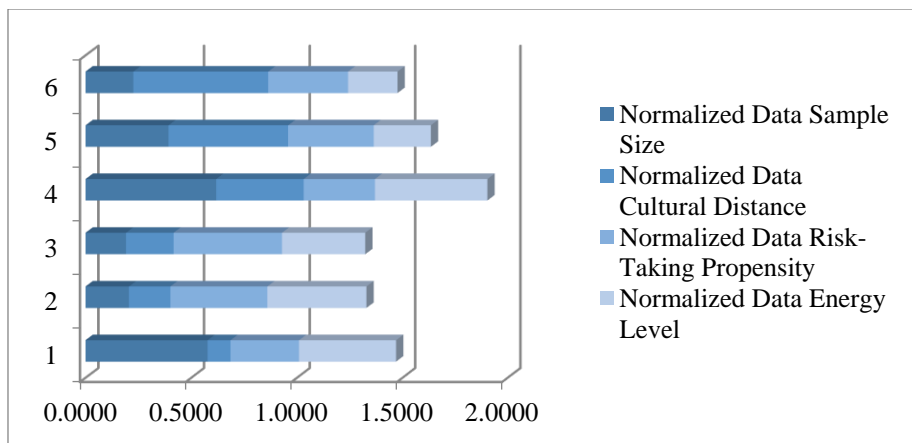

FIGURE 2. Normalized Data

Figure 2 shows the various Normalized Data for Sample Size¸ Cultural Distance, Risk-Taking Propensity, and Energy Level Normalized value is obtained by using the formula. We took same weights for all the parameters for the analysis.

TABLE 3. Weightages

Weight			
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25

Table 3 shows the weight all are same values.

TABLE 4. Weighted normalized decision matrix

Weighted normalized decision matrix			
0.1444	0.0272	0.0810	0.1148
0.0514	0.0490	0.1148	0.1172
0.0479	0.0562	0.1283	0.0984
0.1546	0.1034	0.0844	0.1336
0.0981	0.1415	0.1013	0.0680
0.0565	0.1596	0.0945	0.0586

Table 4 shows weighted normalized decision matrix for Sample Size¸ Cultural Distance, Risk-Taking Propensity, and Energy Level to figure out the weighted normalized decision matrix, we used the formulas.
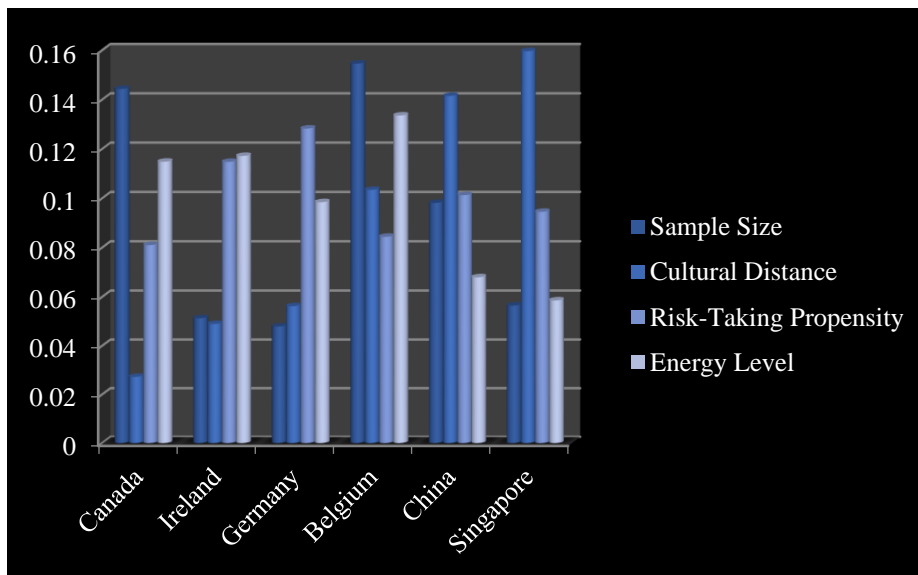

FIGURE 3. Weighted normalized decision matrix

Figure 3 shows weighted normalized decision matrix for Sample Size¸ Cultural Distance, Risk-Taking Propensity, and Energy Level to figure out the weighted normalized decision matrix, we used the formula.

TABLE 5. Positive and Negative Matrix

Positive Matrix				Negative matrix			
0.1546	0.1596	0.0810	0.0586	0.0479	0.0272	0.1283	0.1336
0.1546	0.1596	0.0810	0.0586	0.0479	0.0272	0.1283	0.1336
0.1546	0.1596	0.0810	0.0586	0.0479	0.0272	0.1283	0.1336
0.1546	0.1596	0.0810	0.0586	0.0479	0.0272	0.1283	0.1336
0.1546	0.1596	0.0810	0.0586	0.0479	0.0272	0.1283	0.1336
0.1546	0.1596	0.0810	0.0586	0.0479	0.0272	0.1283	0.1336

Table 5 shows Positive and Negative Matrix for Canada, Ireland, Germany, Belgium, China, Singapore, in different values for Sample Size, Cultural Distance, Risk-Taking Propensity, Energy Level. In various Positive Matrix in Maximum value 0.1596, and Minimum value 0.0586is taken and for Negative matrix the Minimum value 0.0272, and Maximum value 0.1336, is taken.

TABLE 6. Final Result of Entrepreneurship

	SI Plus	Si Negative	Ci	Rank
Canada	0.144	0.1090069	0.43	4
Ireland	0.166	0.030611	0.156	6
Germany	0.161	0.0455871	0.221	5
Belgium	0.094	0.138255	0.596	3
China	0.063	0.1435877	0.694	1
Singapore	0.099	0.1561205	0.612	2

Table 6 shows the final result of TOPSIS for Entrepreneurship. Figure 3 shows the TOPSIS Analysis Result of Entrepreneurship. In Table 6,Si positive is calculated using the TOPSIS method. From figure 4, In Si positive, Ireland is having is Higher Value and China is having Lower value. Si Negative is calculated using the TOPSIS Analysis Result of Entrepreneurship. In Si Negative, Singapore is having is Higher Value and Ireland is having Lower value. Ci is calculated using the TOPSIS method. In Ci, China is having is Higher Value and Ireland is having Lower value.
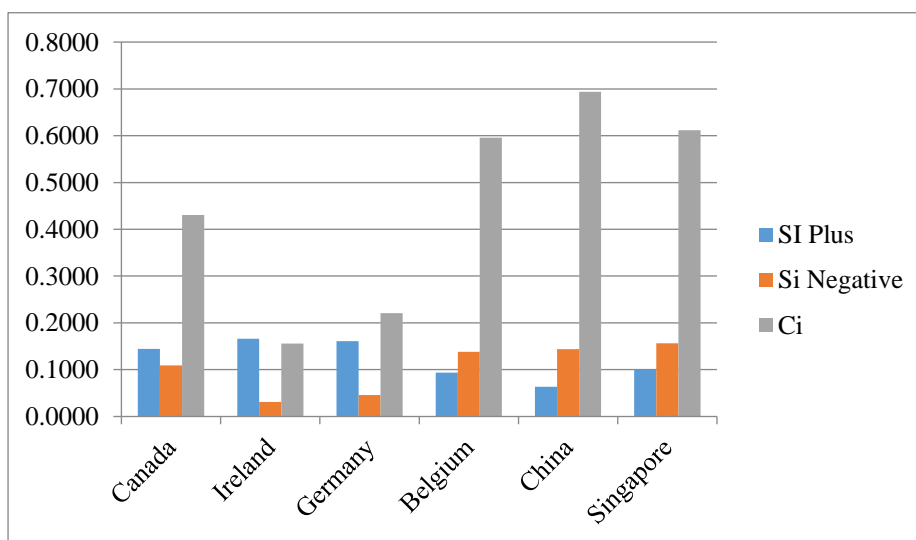

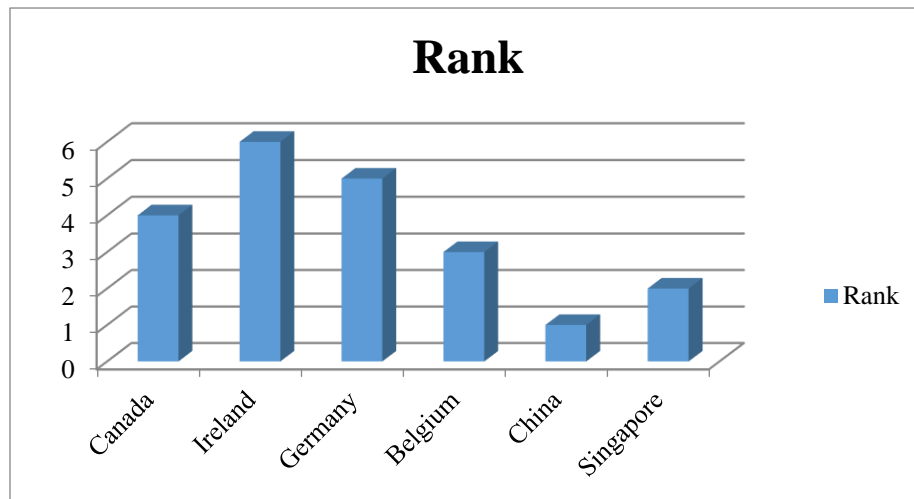**FIGURE 4**. Result of Entrepreneurship

Rank

FIGURE 5. Shown The Rank

Figure 5 Shows the Ranking of Entrepreneurship. China is got the first rank where as is the Ireland is having the Lowest rank. The TOPSIS method is a technique for order preference by similarity to ideal solution.

4. CONCLUSION

Entrepreneurship Programs in Universities Entrepreneurship programs are highlighted as a valuable resource offered by modern universities. These programs help individuals who aspire to start their own entrepreneurial projects or establish entrepreneurship centers. Entrepreneurial Ecosystem The text mentions that such programs contribute to the development of an "entrepreneurial ecosystem. The provided text discusses the entrepreneurial ecosystem and its role in expansion and support for entrepreneurs. It also highlights the impact of entrepreneurship on economic growth, emphasizing its contribution to factors like employment, innovation, and productivity. Additionally, it mentions the historical significance of entrepreneurship in economic activity and recognizes entrepreneurs as key drivers. Finally, it references Cantillon as one of the early scholars who attempted to describe the role of entrepreneurs. Entrepreneurship in the 1990s the text notes that in the 1990s, the term "entrepreneurship" gained significant attention in the media and political debate. Success stories of billionaires and political support for entrepreneurship were prevalent during this period. The provided text mentions the support and encouragement of both small and medium enterprises (SMEs) and self-employed individuals, often referred to as "do-it-yourself entrepreneurs." The purpose of such support is to benefit these groups. In other words, policies and initiatives aim to assist SMEs and self-employed individuals in their business activities and promote their growth and success. Statistics indicate a high level of involvement in these sectors. Ambiguity in Entrepreneurship The text closes by highlighting a level of ambiguity in entrepreneurship-related statistics, indicating that despite the attention and support, there might be uncertainty or inconsistency in how entrepreneurship is defined and measured. Challenges for Policy Makers the text starts by acknowledging the challenges faced by policy makers, particularly in Europe, when it comes to entrepreneurship-related policies. International Comparisons to formulate effective policies and learn from international best practices, there is a need for international comparisons in entrepreneurship. However, the text suggests that there is a lack of clear and comparable definitions for entrepreneurship. Deficits in policy Domain the text highlights the growing importance of entrepreneurship in the policy domain. It notes that there's a demand for internationally comparable entrepreneurship indicators to provide a better basis for policy-making. Complexity in Measuring Entrepreneurship Measuring entrepreneurship involves not only understanding the activities and structure of entrepreneurial ventures but also the stages of entrepreneurship and the various factors that influence these activities. The text implies that the impact and role of entrepreneurship in achieving policy goals should also be considered. Entrepreneurship and Economic Growth the text briefly addresses the question of how entrepreneurship contributes to economic growth. While the simple answer is that entrepreneurs create new businesses, jobs, intensify competition, and lead to technological change, the text suggests that the reality is more complex, indicating that there might be nuances and intricacies in this relationship. Entrepreneurship and Economic Impact Entrepreneurship, including informal self-employment, is suggested to be substantial in the context of building new businesses. The text implies that bureaucratic hurdles or insufficient regular wages in the economy may lead people to opt for self-employment. Economic Impact of High Entrepreneurship The text

suggests that a high level of entrepreneurship could either correlate with economic growth or hinder it, depending on the context and circumstances. Purpose of the Paper The primary aim of the paper is to utilize the TOPSIS method for decision problems and expand its applicability. Evaluation and Weighting of Alternatives the paper is centered on the evaluation of alternatives using the TOPSIS method. It involves assessing alternatives based on specific criteria and assigning weights to these criteria. Use of Trigonometric Numbers the weights for each criterion are expressed using trigonometric numbers. This is a mathematical approach to represent the importance or relevance of each criterion. Calculation of Normal Numbers The paper involves calculating normal numbers using a concept called "a-intercepts." Normalization is often employed in decision-making processes to make different criteria comparable. Numerical Test The text mentions the use of a numerical test as a way to illustrate the proposed approach. This implies that the paper includes a practical demonstration of the method or concept discussed. Entrepreneurship in China The text mentions that China tops the list of entrepreneurs, while Ireland has the lowest ranking. This may be a reference to entrepreneurship activity levels in these countries. Paper Organization The text outlines the structure of the paper, indicating that it is organized into sections covering topics such as the introduction of TOPSIS, examination of rank inversion issues, solutions for changing ranks, and the presentation of results.

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