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An Effective Triangular Fuzzy Neutrosophic Approach for Decision-Making in Efficiency Evaluation of Resource Allocation in University Innovation and Entrepreneurship Education

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Abstract: The evaluation of the efficiency of resource allocation in innovation and entrepreneurship education in universities aims to assess the effectiveness of the use and distribution of resources in this field. By analyzing the allocation of funds, human resources, curriculum design, and practical bases, the evaluation determines whether these resources effectively promote students' innovation abilities and entrepreneurial awareness. Efficient resource allocation should maximize educational investment and student outcomes, improve the quality of education, and enhance societal adaptability, thereby providing strong support for cultivating innovative talent. The efficiency evaluation of resource allocation in university innovation and entrepreneurship education is multiple-attribute decision-making (MADM). Recently, the simple multi-attribute rating technique (SMART) method has been established to cope with MADM issues. The triangular fuzzy neutrosophic sets (TFNSs) are established as a tool for characterizing uncertain data during the efficiency evaluation of resource allocation in university innovation and entrepreneurship education. In this manuscript, the triangular fuzzy neutrosophic number SMART (TFNN-SMART) method is established to solve the MADM under TFNSs. In the end, a numerical case study for efficiency evaluation of resource allocation in university innovation and entrepreneurship education is given to validate the proposed method.

Keywords: MADM; TFNSs; SMART approach; Efficiency evaluation of resource allocation

1. Introduction

The purpose of evaluating the efficiency of resource allocation in innovation and entrepreneurship education in universities is to ensure the rational distribution and efficient utilization of resources, maximizing the output of educational investments. By assessing key resources such as funding, faculty, curriculum, and practical platforms, universities can optimize resource allocation and avoid waste or unnecessary duplication of investments. The goal of the evaluation is not only to measure the efficiency of resource usage but also to identify potential bottlenecks or shortcomings in the educational process and propose improvements. Through this process, universities can better align resources with the actual needs of innovation and entrepreneurship education, ensuring that the curriculum meets societal and market demands while enhancing students' innovation and entrepreneurial skills. Ultimately, this evaluation helps universities improve the overall quality and effectiveness of education, cultivating more competitive, innovative talents and contributing to regional economic and social development. It also provides crucial insights for policymakers and administrators to ensure continued support and improvement of innovation and entrepreneurship education. In modern efficiency evaluation of resource allocation in university innovation and entrepreneurship education, performance evaluation often employs MADM methods such as TODIM [1]and VIKOR [2]. These methods can comprehensively consider multiple evaluation criteria and conduct multidimensional analysis, providing a thorough performance assessment [3, 4]. Additionally, due to the inherent uncertainty and fuzziness in project management data, tools such as Fuzzy Sets and Neutrosophic Sets are widely used. These tools effectively handle uncertain and fuzzy data, enhancing the accuracy and reliability of the evaluation results [5-7]. The efficiency evaluation of resource allocation in university innovation and entrepreneurship education is MADM. Recently, the Exponential TODIM (ExpTODIM) method [8, 9] and the VIKOR method [2, 10] have been developed to address multi-attribute decision-making (MADM) problems. To handle uncertain information in the efficiency evaluation of resource allocation in university innovation and entrepreneurship education, TFNSs [11] have been introduced as a tool for characterizing such uncertainties in light of neutrosophic sets[12-15].

Data and information covering a range of features and attributes are gathered using the SMART technique. By offering the finest options for making the best decisions, the SMART approach addressed the challenge of decision-making. By integrating the values of the solution attribute to introduce the final judgment, the SMART technique leveraged the measuring utility of several characteristics. The SMART technique's main benefit for assessing the usefulness of the solution is that it raises the assertion for the qualities with the highest relevance and weights while lowering the value of the attributes with the lowest priority and weights. Many researchers have used the SMART approach in different domains because of its ease of use [30,31].

In this paper, the TFNN-SMART method is proposed to solve MADM issues in the context of TFNSs. Finally, a numerical case study is presented to validate the effectiveness of the proposed approach in evaluating the efficiency of resource allocation in university innovation and entrepreneurship education.

Here are the five key points of innovation, including the addition of case and comparative analysis:

- **MADM Framework for Resource Allocation**: The manuscript addresses the efficiency evaluation of resource allocation in university innovation and entrepreneurship education as a MADM problem.
- **Use of TFNSs for Uncertainty Handling**: TFNSs are used to characterize and manage uncertain data during the evaluation process, improving the accuracy of resource allocation assessments.
- **Development of TFNN-SMART**: A new method, TFNN-SMART, is proposed to solve MADM problems under TFNSs, offering a novel approach to decision-making in uncertain environments.
- **Case Study and sensitivity analysis**: The proposed method is validated through a numerical case study for efficiency evaluation of resource allocation in university innovation and entrepreneurship education, and sensitivity analysis is conducted to demonstrate its effectiveness and advantages over alternative methods.

2. Literature review

The evaluation of resource allocation efficiency in university innovation and entrepreneurship education aims to assess how well resources are distributed and utilized to support educational goals. This process involves analyzing the effectiveness of various resources such as funding, faculty, curriculum design, and practical platforms to determine if they are being used optimally. Effective resource allocation is vital to fostering students' innovation and entrepreneurial skills, ensuring that educational inputs translate into meaningful outcomes. The evaluation also helps to identify areas where resources may be underutilized or misallocated, allowing for adjustments to improve overall efficiency. Furthermore, it provides insights into how well the resources align with the actual needs of students and the market, ensuring that the education provided is relevant and impactful. By evaluating resource allocation efficiency, universities can better support the development of high-quality, innovative talent and enhance the effectiveness of their innovation and entrepreneurship programs. This process also contributes to the continuous improvement of educational quality and the optimal use of resources. The literature review for efficiency evaluation of resource allocation in university innovation and entrepreneurship education is outlined as follow. In chronological order, the first study by Liu and Lin [16] examined the influence of local government actions on technological innovation in startups, focusing on how government subsidies and tax incentives promoted technological innovation through resource allocation. Next, Rao [17] addressed the allocation of experimental equipment resources in university innovation and entrepreneurship education, emphasizing the importance of reasonable equipment allocation to enhance practical teaching and cultivate students' entrepreneurial skills. Yang, Zhang, Li, Jiang, Teng, Zhang, Zhang and Song [18] constructed an evaluation system for the resource allocation and health of the innovation and entrepreneurship ecosystem in the Lanzhou-Baiyin Technology Innovation Reform Pilot Zone, proposing that optimizing resource allocation could drive regional innovation and sustainable economic growth. In 2018, Balina and Li [19] studied the allocation and utilization of information resources for university students' innovation and entrepreneurship, highlighting the importance of helping students access these resources for their development. Meng [20] explored the role of university innovation and entrepreneurship education in promoting graduate employment from a resource allocation perspective, suggesting that integrating regional and educational resources could enhance students' competitiveness. In 2019, Xu, Zhang, Zhang and Liu [21] suggested that current resource allocation for innovation and entrepreneurship education in universities should rely on policy support, social participation, and investment in hardware facilities to improve resource efficiency. Han [22] pointed out that the resource allocation for innovation and entrepreneurship education in many universities was unreasonable, affecting education quality, and proposed updating resource allocation and training plans to enhance students' innovative abilities. Chen [23] used the Particle Swarm Optimization (PSO) algorithm to optimize the allocation of resources for innovation and entrepreneurship education in universities, showing significant improvements in resource utilization and allocation efficiency. Liu [24] designed a system to assess the innovation and entrepreneurship potential of university students based on resource allocation efficiency, using Bayesian algorithms to optimize the system's accuracy. Jiang, Dong and Liu [25] analyzed the problems in resource allocation for innovation and entrepreneurship in Heilongjiang Province and proposed optimizing resource allocation by strengthening innovation platforms and adjusting financial service models. Song [26] used the BCC model and Malmquist index model to evaluate the efficiency of resource allocation in university innovation and entrepreneurship education in Jiangxi Province, finding that a lack of technical efficiency limited overall improvement. Tan [27] explored the reform of university innovation and entrepreneurship education from the perspective of resource allocation optimization, proposing that integrating and coordinating resources could drive the development of innovation education. Lastly, Cao, Yang and Liu [28] analyzed the impact of digital inclusive finance on regional innovation and entrepreneurship, based on panel data from 31 provinces in China, finding that digital finance significantly promoted innovation, with human capital playing a moderating role in this process.

3. Preliminaries

Biswas et al. [11] established the TFNSs.

Definition 1[11]. The TFNSs are established:

$$FF = \left\{ \left(\theta, FA(\theta), FB(\theta), FC(\theta) \right) \middle| \theta \in \Theta \right\} \tag{1}$$

where $FA(\theta), FB(\theta), FC(\theta) \in [0,1]$ represent truth-membership, indeterminacy-membership and falsity-membership which is established through triangular fuzzy numbers (TFNs).

$$FA(\theta)=\left(FA^{L}(\theta),FA^{M}(\theta),FA^{U}(\theta)\right),0\le FA^{L}(\theta)\le FA^{M}(\theta)\le FA^{U}(\theta)\le 1 \quad (2)$$

$$FB(\theta)=\left(FB^{L}(\theta),FB^{M}(\theta),FB^{U}(\theta)\right),0\le FB^{L}(\theta)\le FB^{M}(\theta)\le FB^{U}(\theta)\le 1 \quad (3)$$

$$FC(\theta)=\left(FC^{L}(\theta),FC^{M}(\theta),FC^{U}(\theta)\right),0\le FC^{L}(\theta)\le FC^{M}(\theta)\le FC^{U}(\theta)\le 1 \quad (4)$$

We let $FF=\left\{\left(FA^{L},FA^{M},FA^{U}\right),\left(FB^{L},FB^{M},FB^{U}\right),\left(FC^{L},FC^{M},FC^{U}\right)\right\}$ be TFNN, $0\le FA^{U}+FB^{U}+FC^{U}\le 3$.

Definition 2[11]. Let TFNNs $FF_1=\left\{\left(FA_1^{L},FA_1^{M},FA_1^{U}\right),\left(FB_1^{L},FB_1^{M},FB_1^{U}\right),\left(FC_1^{L},FC_1^{M},FC_1^{U}\right)\right\}$, $FF_2=\left\{\left(FA_2^{L},FA_2^{M},FA_2^{U}\right),\left(FB_2^{L},FB_2^{M},FB_2^{U}\right),\left(FC_2^{L},FC_2^{M},FC_2^{U}\right)\right\}$ and $FF=\left\{\left(FA^{L},FA^{M},FA^{U}\right),\left(FB^{L},FB^{M},FB^{U}\right),\left(FC^{L},FC^{M},FC^{U}\right)\right\}$ be TFNNs, the operation laws are established:

(1) $$FF_1\oplus FF_2=\left\{\begin{array}{l}\left(FA_1^{L}+FA_2^{L}\text{-}FA_1^{L}FA_2^{L},FA_1^{M}+FA_2^{M}\text{-}FA_1^{M}FA_2^{M},FA_1^{U}+FA_2^{U}\text{-}FA_1^{U}FA_2^{U}\right),\\ \left(FB_1^{L}FB_2^{L},FB_1^{M}FB_2^{M},FB_1^{U}FB_2^{U}\right),\left(FC_1^{L}FC_2^{L},FC_1^{M}FC_2^{M},FC_1^{U}FC_2^{U}\right)\end{array}\right\};$$

(2) $$FF_1\otimes FF_2=\left\{\begin{array}{l}\left(FA_1^{L}FA_2^{L},FA_1^{M}FA_2^{M},FA_1^{U}FA_2^{U}\right),\\ \left(FB_1^{L}+FB_2^{L}\text{-}FB_1^{L}FB_2^{L},FB_1^{M}+FB_2^{M}\text{-}FB_1^{M}FB_2^{M},FB_1^{U}+FB_2^{U}\text{-}FB_1^{U}FB_2^{U}\right),\\ \left(FC_1^{L}+FC_2^{L}\text{-}FC_1^{L}FC_2^{L},FC_1^{M}+FC_2^{M}\text{-}FC_1^{M}FC_2^{M},FC_1^{U}+FC_2^{U}\text{-}FC_1^{U}FC_2^{U}\right)\end{array}\right\};$$

(3) $$\lambda FF=\left\{\begin{array}{l}\left(1-\left(1-FA^{L}\right)^{\lambda},1-\left(1-F^{M}\right)^{\lambda},1-\left(1-FA^{U}\right)^{\lambda}\right),\\ \left(\left(FB^{L}\right)^{\lambda},\left(FB^{M}\right)^{\lambda},\left(FB^{U}\right)^{\lambda}\right),\left(\left(FC^{L}\right)^{\lambda},\left(FC^{M}\right)^{\lambda},\left(FC^{U}\right)^{\lambda}\right)\end{array}\right\},\lambda>0;$$

(4) $$FF^{\lambda}=\left\{\begin{array}{l}\left(\left(FA^{L}\right)^{\lambda},\left(FA^{M}\right)^{\lambda},\left(FA^{U}\right)^{\lambda}\right),\left(1-\left(1-FB^{L}\right)^{\lambda},1-\left(1-FB^{M}\right)^{\lambda},1-\left(1-FB^{U}\right)^{\lambda}\right),\\ \left(1-\left(1-FC^{L}\right)^{\lambda},1-\left(1-FC^{M}\right)^{\lambda},1-\left(1-FC^{U}\right)^{\lambda}\right)\end{array}\right\},\lambda>0.$$

The operation laws have serval properties.

(1) $$FF_1\oplus FF_2=FF_2\oplus FF_1,FF_1\otimes FF_2=FF_2\otimes FF_1,\left(\left(FF_1\right)^{\lambda_1}\right)^{\lambda_2}=\left(FF_1\right)^{\lambda_1\lambda_2}; \quad (5)$$

(2) $$\lambda\left(FF_1\oplus FF_2\right)=\lambda FF_1\oplus\lambda FF_2,\left(FF_1\otimes FF_2\right)^{\lambda}=\left(FF_1\right)^{\lambda}\otimes\left(FF_2\right)^{\lambda}; \quad (6)$$

(3) $\lambda_1 FF_1 \oplus \lambda_2 FF_1 = (\lambda_1 + \lambda_2) FF_1, (FF_1)^{\lambda_1} \otimes (FF_1)^{\lambda_2} = (FF_1)^{(\lambda_1+\lambda_2)}$. (7)

Definition 3[11].

Let $FF = \{(FA^L, FA^M, FA^U), (FB^L, FB^M, FB^U), (FC^L, FC^M, FC^U)\}$ be TFNN, the score and accuracy functions are established:

$$SF(FF) = \frac{1}{12}\begin{bmatrix} 8 + (FA^L + 2FA^M + FA^U) \\ -(FB^L + 2FB^M + FB^U) \\ -(FC^L + 2FC^M + FC^U) \end{bmatrix}, SF(FF) \in [0,1] \tag{8}$$

$$AF(FF) = \frac{1}{4}\begin{bmatrix} (FA^L + 2FA^M + FA^U) \\ -(FB^L + 2FB^M + FB^U) \end{bmatrix}, AF(FF) \in [-1,1] \tag{9}$$

For the TFNNs FF_1 and FF_2, from Definition 3, we have:

(1) $if\ SF(FF_1) \prec SF(FF_2), then\ FF_1 \prec FF_2;$

(2) $if\ SF(FF_1) = SF(FF_2), AF(FF_1) \prec AF(FF_2), then\ FF_1 \prec FF_2;$

(3) $if\ SF(FF_1) = SF(FF), AF(FF_1) = AF(FF_2), then\ FF_1 = FF_2.$

Definition 4[29]. Let $FF_1 = \{(FA_1^L, FA_1^M, FA_1^U), (FB_1^L, FB_1^M, FB_1^U), (FC_1^L, FC_1^M, FC_1^U)\}$, $FF_2 = \{(FA_2^L, FA_2^M, FA_2^U), (FB_2^L, FB_2^M, FB_2^U), (FC_2^L, FC_2^M, FC_2^U)\}$ be TFNNs, the TFNN Hamming distance (TFNNHD) is established:

$$TFNNHD(FF_1, FF_2) = \frac{1}{9}\begin{pmatrix} |FA_1^L - FA_2^L| + |FA_1^M - FA_2^M| + |FA_1^U - FA_2^U| \\ + |FB_1^L - FB_2^L| + |FB_1^M - FB_2^M| + |FB_1^U - FB_2^U| \\ + |FC_1^L - FC_2^L| + |FC_1^M - FC_2^M| + |FC_1^U - FC_2^U| \end{pmatrix} \tag{10}$$

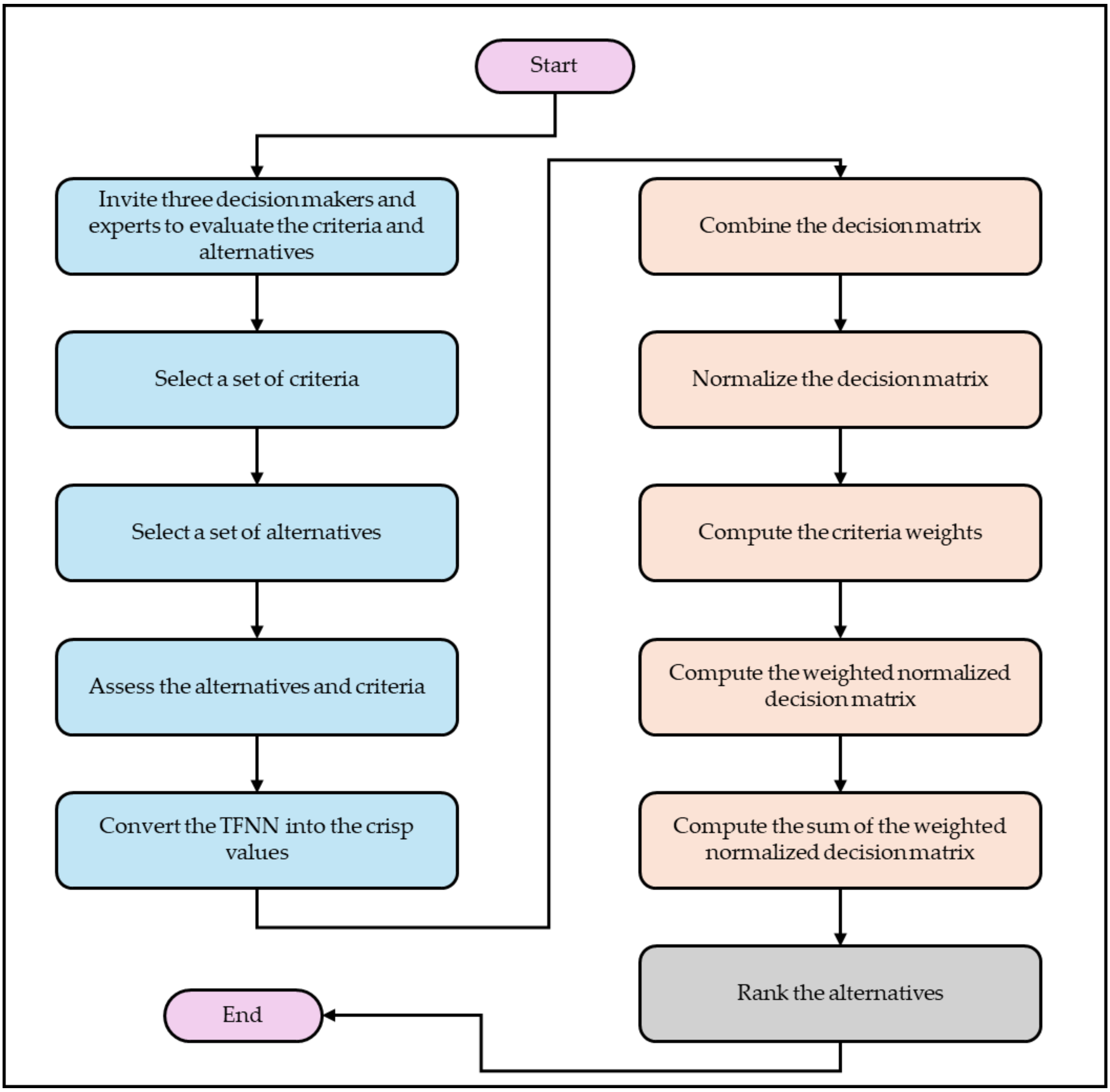

Figure 1. The steps of the TFNN-SMART methodology.

4. TFNN-SMART method

This section shows the steps of the TFNN with the smart method as shown in Figure 1.

1. Invite three decision makers and experts to evaluate the criteria and alternatives.

Three decision makers have expertise in the problem in this study.

2. Select a set of criteria.

3. Select a set of alternatives.

4. Assess the alternatives and criteria based on the TFNN by building the decision matrix.

$$Y_{ij} = \begin{bmatrix} y_{11} & \cdots & y_{1n} \\ \vdots & \ddots & \vdots \\ y_{m1} & \cdots & y_{mn} \end{bmatrix}$$

5. Convert the TFNN into the crisp values.

6. Combine the decision matrix.

7. Normalize the decision matrix.

The decision matrix is normalized as:

$$U_{ij} = \frac{y_{ij} - \min_i y_{ij}}{\max_i y_{ij} - \min_i y_{ij}} \text{ for benefit criteria.}$$

$$U_{ij} = \frac{\max_i y_{ij} - y_{ij}}{\max_i y_{ij} - \min_i y_{ij}} \text{ for cost criteria.}$$

8. Compute the weighted normalized decision matrix.

$$R_{ij} = W_j * U_{ij}$$

9. Compute the sum of the weighted normalized decision matrix.

$$E_i = \sum_{j=1}^{n} R_{ij}$$

10. Rank the alternatives.

5. Numerical example for efficiency evaluation of resource allocation in university innovation and entrepreneurship education

The evaluation of resource allocation efficiency in innovation and entrepreneurship education in universities is a key method for assessing the rationality and effectiveness of resource distribution in this field. With the growing demand for innovative talent in society, universities, as important bases for talent cultivation, are placing increasing emphasis on the quality of innovation and entrepreneurship education. The efficiency of resource allocation directly impacts the effectiveness of such education. During the evaluation process, the efficiency of resource allocation is primarily reflected in areas such as funding, faculty, facilities, curriculum systems, and practical platforms. The rational distribution of these resources must take into account various factors, such as the scale of the institution, the actual needs of students, and the goals of innovation and entrepreneurship education. Funding should be focused on projects that can maximize the improvement of students' innovative and entrepreneurial abilities, avoiding blind investment and resource waste. At the same time, the professional level and teaching ability of faculty are crucial. Building the teaching team should emphasize the recruitment of mentors with rich entrepreneurial experience, while also enhancing the innovation and entrepreneurship teaching abilities of current faculty through training. Additionally, the rationality of curriculum design and the development of practical bases are also important components of the evaluation. Innovation and entrepreneurship courses should be designed to meet the current needs of society and the market, offering targeted and practical content that helps students combine theory with practice. Practical bases, as essential venues for students' hands-on entrepreneurial experience, directly impact the cultivation of students' operational abilities and entrepreneurial awareness. Therefore, the utilization rate and management level of these platforms are critical indicators in evaluating resource allocation efficiency. In conclusion, the evaluation of resource allocation efficiency in university innovation and entrepreneurship education is not only a way to monitor resource usage but also a means to improve the overall quality of such education. It ensures that resources are maximally converted into students' skill development and societal benefits. This evaluation system helps universities optimize resource allocation strategies, enhancing the effectiveness of innovation and entrepreneurship education, and ultimately contributing to the development of more high-quality, innovative talent for society. The efficiency evaluation of resource allocation in university innovation and entrepreneurship education is MADM issue. Six locally well-known universities are evaluated with 28 attributes (Table 1).

Table 1. List of criteria.

C	Criteria
C_1	Job Placement Rates
C_2	Quality of Facilities
C_3	Diversity of Expertise
C_4	Access to Research Funding
C_5	Startup Success Rat
C_6	Availability of Counseling and Mentorship
C_7	Collaboration with Other Universities
C_8	Interdisciplinary Program Integration
C_9	Funding Adequacy
C_{10}	Incubation and Accelerator Access

C_{11}	Accessibility to Technological Tools
C_{12}	Diversity and Inclusion in Program Participation
C_{13}	Learning Outcomes Assessment
C_{14}	Access to External Funding Opportunities
C_{15}	Sustainability of Funding Sources
C_{16}	Innovation Output
C_{17}	Cost-Effectiveness
C_{18}	Relevance of Curriculum to Market Needs
C_{19}	Monitoring and Evaluation System
C_{20}	Student and Stakeholder Feedback Integration
C_{21}	Up-to-Date Technology
C_{22}	Collaboration with Industry
C_{23}	Hands-On Learning Opportunities
C_{24}	Networking and Alumni Support
C_{25}	Equal Access to Resources
C_{26}	Industry Partnerships and Sponsorships
C_{27}	Instructor-to-Student Ratio
C_{28}	Qualified Instructors and Mentors

1. Three experts are involved in evaluating the criteria and alternatives.

2. Six local universities are selected in this study.

3. 28 criteria are selected in this work.

4. We built the decision matrix between criteria and alternatives as shown in Table 2.

5. We converted the TFNN into the crisp values.

6. Then we combined the decision matrix into one matrix.

7. We normalize the decision matrix as shown in Table 3.

8. Figure 2 shows the criteria weights. Then we compute the weighted normalized decision matrix as shown in Table 3.

9. Then we computed the sum of the weighted normalized decision matrix.

10. Figure 3 shows the rank of the alternatives.

Table 2. The decision matrix.

C_{11}	C_{10}	C_9	C_8	C_7	C_6	C_5	C_4	C_3	C_2	C_1	
(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	A_1
(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	A_2
(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	A_3
(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	A_4
(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	A_5
(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	A_6

C_{11}	C_{10}	C_9	C_8	C_7	C_6	C_5	C_4	C_3	C_2	C_1	
(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	A_1
(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	A_2
(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	A_3
(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	A_4
(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	A_5
(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	A_6

C_{11}	C_{10}	C_9	C_8	C_7	C_6	C_5	C_4	C_3	C_2	C_1	
(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	A_1
(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	A_2
(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	A_3
(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	A_4
(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	A_5
(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	A_6

C24	C23	C22	C21	C20	C19	C18	C17	C16	C15	C14	C13	C12
(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)
(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)
(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)
(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)
(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)
(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)

C24	C23	C22	C21	C20	C19	C18	C17	C16	C15	C14	C13	C12
(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)
(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)
(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)
(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)
(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)
(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)

C24	C23	C22	C21	C20	C19	C18	C17	C16	C15	C14	C13	C12
(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)
(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)
(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)
(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)
(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)
(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)

C25	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)
C26	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)
C27	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)
C28	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)

C25	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)
C26	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)
C27	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)
C28	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)

C25	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)
C26	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)	(0.3,0.5,0.6),(0.2,0.4,0.5),(0.5,0.6,0.8)
C27	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)	(0.7,0.8,0.9),(0.2,0.3,0.4),(0.2,0.3,0.4)	(0.4,0.6,0.8),(0.3,0.4,0.5),(0.2,0.3,0.6)
C28	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)	(0.6,0.8,0.9),(0.2,0.3,0.5),(0.1,0.3,0.4)	(0.5,0.6,0.7),(0.4,0.5,0.6),(0.3,0.4,0.5)

Table 3. The normalized and weighted normalized decision matrix.

	A1	A2	A3	A4	A5	A6		A1	A2	A3	A4	A5	A6
C1	0.686047	1	0.313953	0	0.523256	0.313953	C1	0.024147	0.035197	0.01105	0	0.018417	0.01105
C2	0.571429	0.571429	0.057143	1	0.428571	0	C2	0.021191	0.021191	0.002119	0.037084	0.015893	0
C3	0.333333	0	0.641026	0.512821	0.102564	1	C3	0.012227	0	0.023513	0.01881	0.003762	0.03668
C4	0.684211	0.157895	1	0	0.657895	0.526316	C4	0.024691	0.005698	0.036087	0	0.023741	0.018993
C5	0.551724	0.034483	0	1	0.37931	0.344828	C5	0.019196	0.0012	0	0.034793	0.013197	0.011998
C6	0	0.636364	0.381818	1	0.272727	0.636364	C6	0	0.022827	0.013696	0.035871	0.009783	0.022827
C7	0.75	0.45	0.55	0.45	1	0	C7	0.024943	0.014966	0.018291	0.014966	0.033257	0
C8	1	0.966667	0.6	0	0.966667	0.5	C8	0.03641	0.035197	0.021846	0	0.035197	0.018205
C9	0.72	1	0	0.48	0.2	0.24	C9	0.02736	0.038	0	0.01824	0.0076	0.00912
C10	0.444444	0	1	0	0.133333	0.422222	C10	0.015739	0	0.035413	0	0.004722	0.014952
C11	0.724138	0.517241	0	0.965517	0.206897	1	C11	0.026991	0.019279	0	0.035987	0.007712	0.037273
C12	0	0.714286	0.489796	1	0.591837	0.591837	C12	0	0.024679	0.016923	0.034551	0.020448	0.020448
C13	0.391304	0	0	0.391304	1	0.391304	C13	0.013246	0	0	0.013246	0.03385	0.013246
C14	0.508772	0	0.508772	0	1	0	C14	0.016879	0	0.016879	0	0.033176	0
C15	1	0.517241	0.689655	0.724138	0	0.724138	C15	0.037461	0.019377	0.025835	0.027127	0	0.027127
C16	1	0.512821	0.487179	0.512821	0.307692	0	C16	0.035952	0.018437	0.017515	0.018437	0.011062	0
C17	0.770492	0.688525	0.47541	0.672131	0	1	C17	0.029611	0.026461	0.018271	0.025831	0	0.038431
C18	0	0.952381	0.285714	1	0	1	C18	0	0.034702	0.010411	0.036437	0	0.036437
C19	0.517241	0.517241	0	0.517241	1	0.517241	C19	0.01755	0.01755	0	0.01755	0.033931	0.01755
C20	0.603448	0.258621	0.655172	0.155172	1	0	C20	0.020671	0.008859	0.022442	0.005315	0.034254	0
C21	0.391304	0	1	0	0.956522	0	C21	0.01449	0	0.03703	0	0.03542	0
C22	0.416667	0.604167	1	0.729167	0	0.729167	C22	0.015014	0.02177	0.036033	0.026274	0	0.026274
C23	0	0.333333	1	0.333333	0.222222	0.333333	C23	0	0.012038	0.036114	0.012038	0.008025	0.012038
C24	0.155172	1	0.258621	0.982759	0	0.982759	C24	0.005487	0.035359	0.009145	0.034749	0	0.034749
C25	0.391304	0.565217	0	1	0.956522	0.608696	C25	0.013573	0.019605	0	0.034685	0.033177	0.021113
C26	0.5	0.258621	0.155172	0	1	0.258621	C26	0.016736	0.008657	0.005194	0	0.033473	0.008657
C27	1	0.357143	0.809524	0.357143	1	0	C27	0.036491	0.013033	0.02954	0.013033	0.036491	0

C_{28}	1	0.641026	0.74359	0	0.487179	0.666667	C_{28}	0.036707	0.02353	0.027295	0	0.017883	0.024471

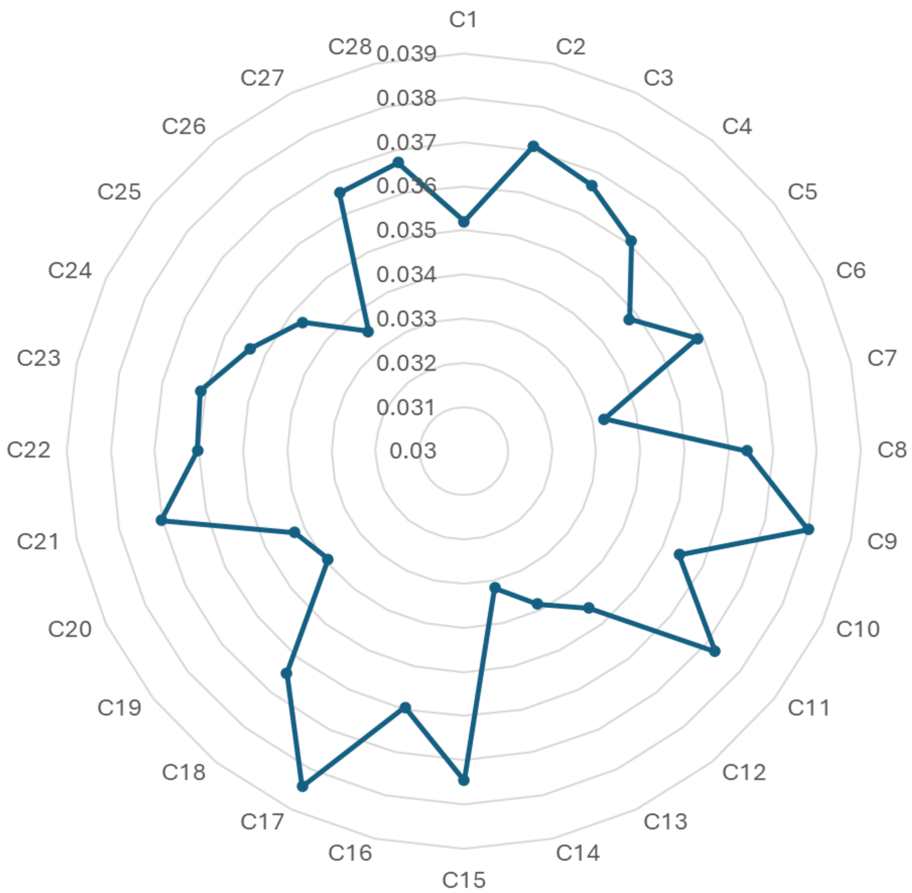

Figure 2. The weights of criteria.

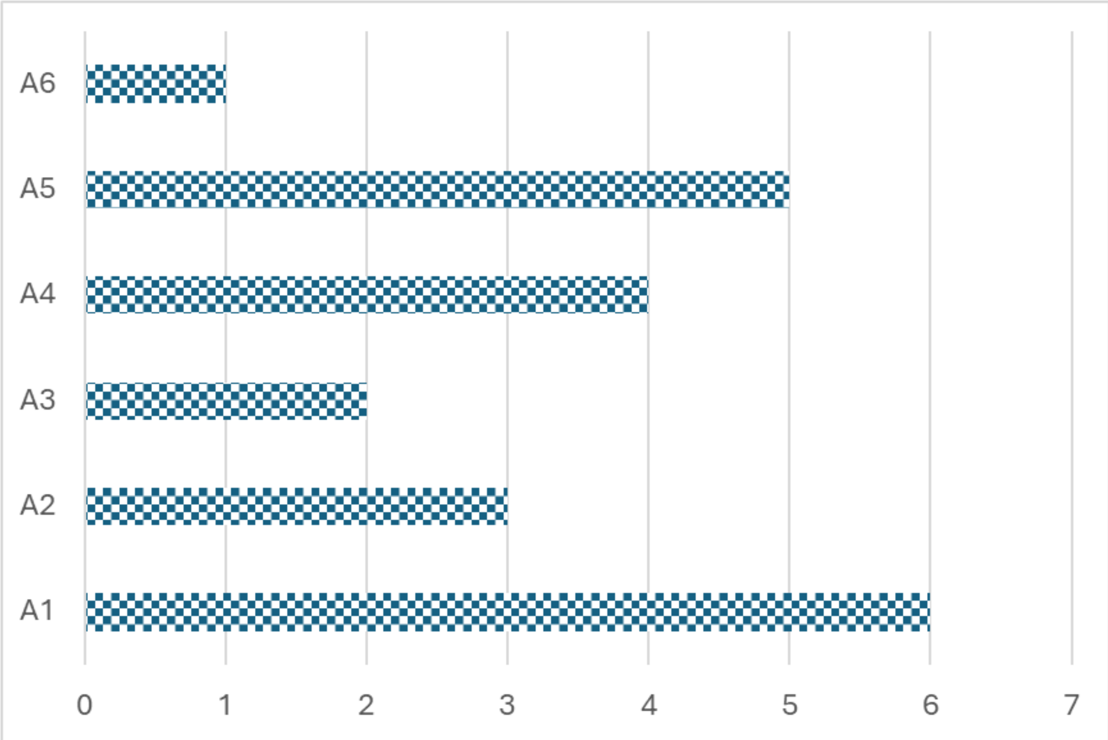

Figure 3. The rank of alternatives.

5.2. Sensitivity analysis

This section shows the stability of the rank of alternatives under different weights of criteria. We change the criteria weights by 29 cases. In the first case, we put all weights with equal weight. In the second case, we put the first criterion with 0.05 and other criteria with equal weight as shown in Figure 4.

Then we applied the SMART method to show the rank of alternatives as shown in Figure 5. We showed that alternative 1 is the best and alternative 6 is the worst.

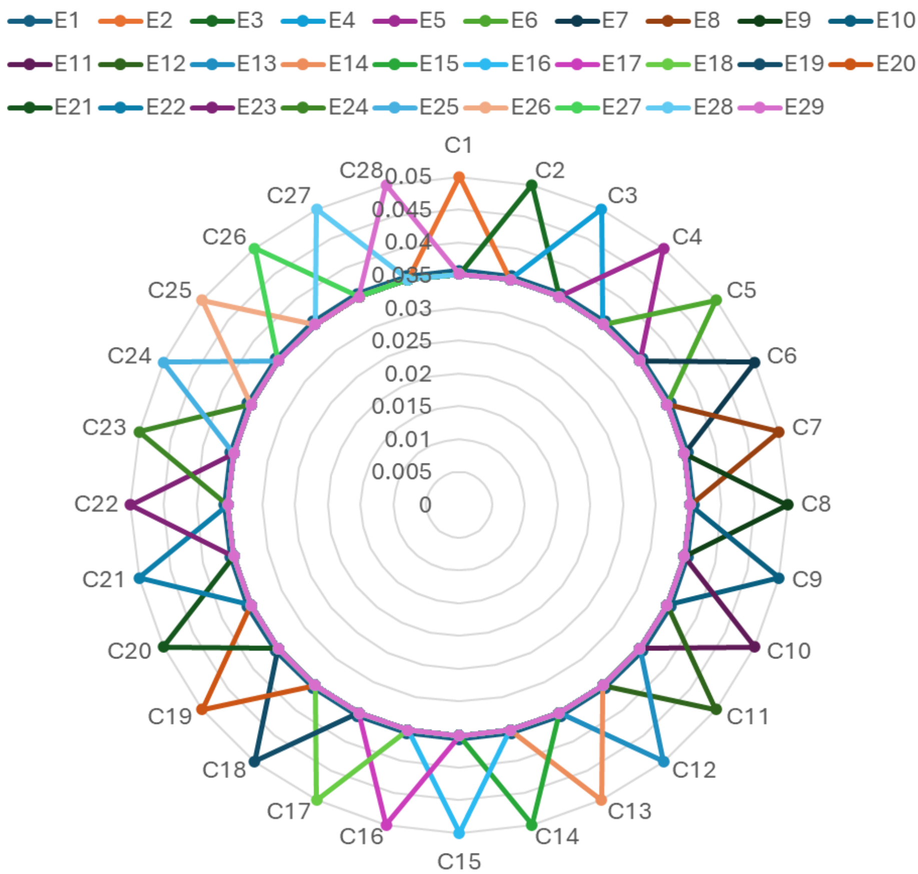

Figure 4. The several weights of criteria.

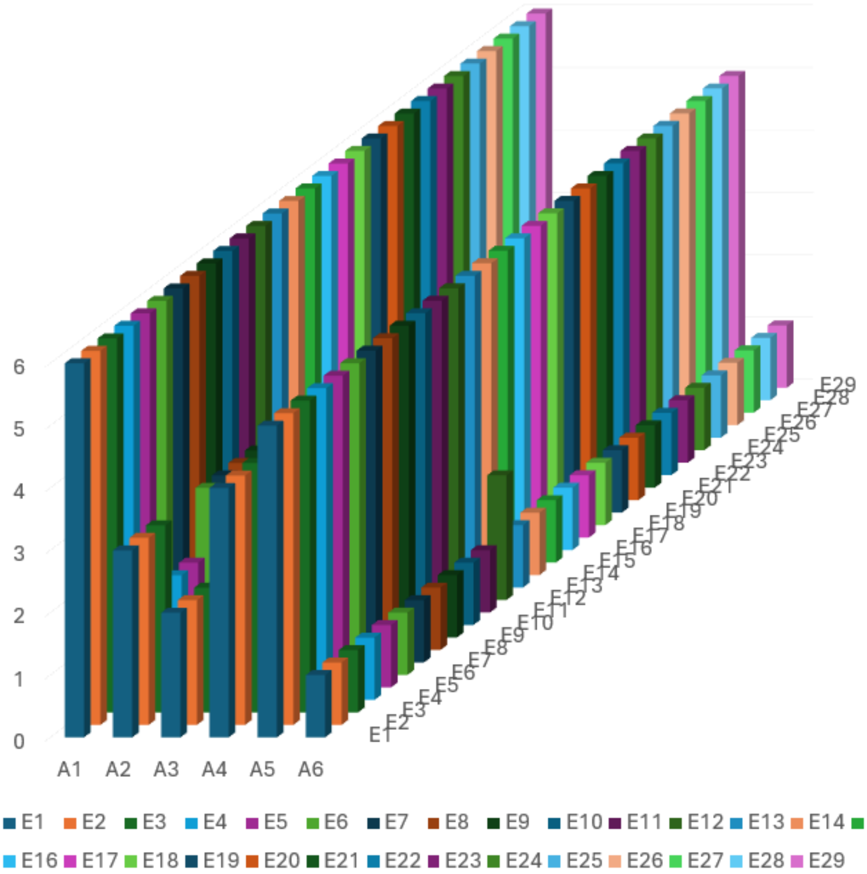

Figure 5. Rank of criteria under different weights.

6. Research limitations and future research directions

Despite the strengths of the TFNN-SMART method in addressing multi-attribute decision-making problems under uncertainty, there are still several limitations that need to be acknowledged: (1) High Computational Complexity: A primary limitation of the proposed method is its high computational complexity. While the combination of TFNSs, SMART provides a comprehensive framework for handling uncertainty and evaluating complex decision-making scenarios, it significantly increases the computational burden. This issue becomes particularly evident when dealing with large-scale datasets or multi-dimensional problems, as the method requires considerable computational resources and time. Consequently, this complexity may limit the method's practical application in real-time or large-scale efficiency evaluation of resource allocation in university innovation and entrepreneurship education. (2) Sensitivity to Parameter Settings: Another important limitation is the method's sensitivity to parameter settings. The performance of the TFNN-SMART approach is highly dependent on several parameters, such as the assigned weights and risk attitude parameters. These parameters can heavily influence the final decision results, and incorrect or suboptimal parameter selection may lead to biased or inaccurate outcomes. As a result, the method's practical implementation requires careful tuning and adjustment of parameters, which can be time-consuming and may introduce the risk of errors, particularly in complex decision environments with high levels of uncertainty. (3) Limited Empirical Validation: Although the paper includes a numerical case study to demonstrate the effectiveness of the proposed method, the scope of empirical validation is relatively narrow. The reliance on a single case study limits the ability to generalize the findings across different types of projects or industries. There is a need for broader empirical testing to assess the method's applicability and reliability in diverse real-world contexts. Without extensive validation, the robustness and adaptability of the method in varying project management scenarios remain uncertain.

7. Conclusion

The evaluation of resource allocation efficiency in innovation and entrepreneurship education in universities primarily examines the input-output ratio of resources used in this educational field. By analyzing the rational distribution of resources such as funding, faculty, curriculum design, and experimental platforms, it assesses their impact on fostering students' innovative thinking and entrepreneurial skills. The core of the evaluation lies in determining whether resource utilization effectively enhances students' innovation and entrepreneurship competencies while maximizing resource efficiency and avoiding waste. Efficient resource allocation requires not only scientific planning of educational resources but also alignment with societal needs and market trends to ensure the cultivation of competitive, innovative talent that contributes to social and economic development. The efficiency evaluation of resource allocation in university innovation and entrepreneurship education is an MADM problem. Recently, the SMART method has been developed to address MADM. TFNSs are used to characterize uncertain data during the evaluation process. In this study, a TFNN-SMART model is proposed to solve MADM under TFNSs. Finally, a numerical case study is provided to validate the effectiveness of the proposed method.

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