INFLUENCE OF CHARITY MOTIVATION OF FAMILY BUSINESS ON CHARITY BEHAVIOUR: AN ANALYSIS BASED ON PSYCHOLOGICAL DISTANCE

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Abstract

The landscape environment should provide necessary survival, development, protection and participation opportunities and conditions for children. Faced with children’s psychological and physical problems, the landscape environment should not only have basic aesthetic and ecological functions, but also possess the function of psychological cure and physical rehabilitation. In this paper, the need for the construction of kid-friendly landscape environment is comprehended through bibliographic retrieval. Besides, under the construction orientation of psychological cure and physical rehabilitation, a discussion is made from the perspectives of landscape policy, landscape planning, landscape design, and landscape technology and facilities. Besides, key indexes under each perspective are analyzed.

Key words: Family Business, Charity Motivation, Charity Behaviour, Psychological Distance, Grey Target Theory.

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INTRODUCTION

For a long time, family business has been studied mainly based on the theory of other fields, resulting in overlapping terms, simple models, scattered theoretical explanations, and contradictory empirical results (Sakuma-Keck & Hensmans, 2013). In response to these problems, some scholars have proposed a new theory to explain family business governance and strategic issues. The core concept of this theory is “social emotional wealth” (Yu, Ding, & Chung, 2015).

The grey target theory can be used to study the relationship between family charity motivation and charity behaviour based on the psychological distance. It is to generate a set of pattern sequences, establish a standard target point with the data closest to the target value, place the standard targets and the pattern sequence of each target in the grey space of difference information, and calculate the approaching degree. In the grey target decision-making process, charity motivation has an impact on charity behaviours, causing psychological differences between them under the influencing factors such as time, space, society, and probability, and further resulting in deviations in charity behaviour (Sakuma-Keck & Hensmans, 2013). Therefore, the grey target decision under the psychological distance can truly reflect the decision-making effect and provide a more reliable theoretical basis for multi-objective decision-making.

In view of this, this study aims to eliminate the decision error generated by the psychological distance. To this end, based on the previous research, it considers the psychological relationship between charity motivation and...
charity behaviour, and integrates the psychological preference of charity motivation for decision indicators, to generate a two-dimensional multi-objective decision coordinate system. Then it constructs a multi-objective weighted grey target based on psychological distance, and calculate the measurement value of decision-making effect under the psychological distance condition. This shall provide a practical and reliable theoretical basis for multi-objective decision-making.

**MODEL ESTABLISHMENT**

**Psychological distance**

Charity motivation is the cognition and judgment of things from two aspects of direct experience and indirect experience: first, based on the cognitive level of evaluation indicators, the direct experience in actual production is combined to obtain objective judgment on decision indicators; second, when using non-direct experience to make predictions, direct experience is compared to generate the judgment values of indirect experience (Parsons & Broadbridge, 2006). When making decisions for each program, the charity motivation makes initial evaluation of the evaluation indicators under each scheme based on direct experience and indirect experience. Due to the anisotropy among different schemes, during the evaluation of indicators the charity motivation will have different psychological effects on the same evaluation indicators of different schemes (Scharf, 2014).

The previous studies on risk decision-making and inter-period decision-making respectively explored the interaction among the probability attribute, time attribute interacts with the social attribute of the results. However, the psychological distance theory believes that the probability, time, space, and social attributes of the charity behaviour all essentially can be characterized as the psychological distance of the results in the mind of charity motivation (Vaugeois, 2007). Psychological distance is formed by the combination of time, space, society, probability and other factors. With the psychological distance value increasing, the decision bias shall be more obvious, resulting in a reduction in the proportion of rational judgment and an increase in perceptual understanding in the whole decision-making, thus affecting the authenticity and accuracy of the decision.

Psychological distance is generated from the distribution of psychological space from the different dimensions in the psychological space based on the current self. It is the psychological preference of charity motivation for decision indicators (Liberman, Trope, & Stephan, 2007), and also the psychological deviation of charity motivation generated in time, space, society and probability distance. Psychological distance mainly analyses the influence of time distance, social distance, spatial distance and probability distance on charity motivation. These four kinds of distances have similar effects on the weights of index representation and index characteristics. Therefore, it’s believed that these distances have similar effects on weights of charity behaviour. The specific hypotheses were made as follows (Soja & Weistroffer, 2016):

Hypothesis 1: in the case of a longer time distance for charity motivation, there forms a deeper understanding of things with a less psychological preference for this; in the case of a shorter time distance, there forms a shallower understanding of things, with a greater psychological preference.

Hypothesis 2: in the case of a larger spatial distance for charity motivation, there forms a lower cognition of things, with a greater psychological preference; in the case of a smaller spatial distance, there forms a higher cognition of things, with a less psychological preference.

Hypothesis 3: in the case of a longer social distance for charity motivation, there forms a lower perception of things, with a greater psychological preference for the objects; in the case of a shorter social distance, there forms a higher perception of things, with a less psychological preference.

Hypothesis 4: in the case of a larger probability for charity motivation, there forms a deeper understanding of things’ risk, with a less psychological preference for this; in the case of a smaller time distance, there forms a shallower understanding of the risk, with a greater psychological preference.

Since there is no specific statistical equivalent of psychological distance, the questionnaire survey is commonly used to measure the psychological distance. According to the objective evaluation of the decision indicators, the specific investigation questions were designed for the evaluation object, and the
time distance T, the spatial distance K, the social distance C, and the probability distance R between the charity motivation and the charity behaviour were calculated to achieve the psychological distance factor set \( E = \{T, K, C, R\} \). Then, based on the similarity characteristics of the four types of distance weights, the final size set \( \overline{E} \) of psychological distance was obtained after averaged weighting these four influencing factors:

\[
\overline{E} = \frac{K + T + C + R}{4}
\]

**Problem description**

Assuming there are \( n \) decision-making targets, and \( m \) evaluation indicator, then its decision-making set is \( B = \{b_1, b_2, b_3, ..., b_m\} \), and the indicator set is \( B = \{b_1, b_2, b_3, ..., b_m\} \). In the process of decision-making, the charity motivation evaluates the indicator from a subjective and objective perspective, and generates an evaluation effect value \( s_{ij} (i=1,2,...,n) (j=1,2,...,m) \), which is the evaluation value of the \( j \)-th indicator for the \( i \)-th decision target; after calculating the distance of the charity motivation, the psychological distance of the charity motivation to each evaluation index was obtained (Gollwitzer & Oettingen, 2001).

In the grey target decision, using the evaluation effect value and the psychological distance above, the coordinate point of two-dimensional spatial decision attribute was established. Then substituting the coordinate points into the attribute set \( U \), the following matrix was obtained:

\[
U(A, B) = \begin{bmatrix}
(s_{11}, e_{11}) & (s_{12}, e_{12}) & L & (s_{1m-1}, e_{1m-1}) & (s_{1m}, e_{1m}) \\
(s_{21}, e_{21}) & (s_{22}, e_{22}) & L & (s_{2m-1}, e_{2m-1}) & (s_{2m}, e_{2m}) \\
L & L & L & L & L \\
(s_{n-11}, e_{n-11}) & (s_{n-12}, e_{n-12}) & L & (s_{n-1m-1}, e_{n-1m-1}) & (s_{n-1m}, e_{n-1m}) \\
(s_{n1}, e_{n1}) & (s_{n2}, e_{n2}) & L & (s_{nm-1}, e_{nm-1}) & (s_{nm}, e_{nm})
\end{bmatrix}
\]

The coordinate points of each attribute were normalized for systematically integrating the psychological distance and the evaluation effect value and eliminating the dimension difference of the coordinate point data. It’s shown as:

\[
\begin{align*}
    s' &= \frac{s}{\sqrt{s^2 + e^2}} \\
    e' &= \frac{e}{\sqrt{s^2 + e^2}}
\end{align*}
\]

The normalized attribute set is derived as:

\[
U'(A, B) = \begin{bmatrix}
(s'_{11}, e'_{11}) & (s'_{12}, e'_{12}) & L & (s'_{1m-1}, e'_{1m-1}) & (s'_{1m}, e'_{1m}) \\
(s'_{21}, e'_{21}) & (s'_{22}, e'_{22}) & L & (s'_{2m-1}, e'_{2m-1}) & (s'_{2m}, e'_{2m}) \\
L & L & L & L & L \\
(s'_{n-11}, e'_{n-11}) & (s'_{n-12}, e'_{n-12}) & L & (s'_{n-1m-1}, e'_{n-1m-1}) & (s'_{n-1m}, e'_{n-1m}) \\
(s'_{n1}, e'_{n1}) & (s'_{n2}, e'_{n2}) & L & (s'_{nm-1}, e'_{nm-1}) & (s'_{nm}, e'_{nm})
\end{bmatrix}
\]

Centring on the origin, the vector value of the attribute coordinate point was defined. Then the trigonometric function theorem was used to obtain the cotangent value of the attribute vector and the x axis angle, as shown in Figure 1.

\[
w = \tan \theta = \frac{s'}{e'}
\]
According to the grey target theory, the decision indicators were divided into cost-oriented targets, benefit-oriented targets, and moderate-oriented targets. For cost-oriented targets, the more the better; for the benefit-based targets, the less the better; for the moderate targets, the attribute values of all moderate decision indicator were ranked in ascending order, to select the medians:

$$w_{oj} = \begin{cases} \max(w_{ij}) \text{ beneficial result} \\ \text{mix}(w_{ij}) \text{ cost} \\ \text{mix}\{w_{ij} - \bar{w}\} \text{ moderation} \end{cases}$$

(7)

Grey target decision model based on psychological distance

Different from the traditional grey target theory, the psychological distance-based grey target theory is more suitable for the actual decision-making process. The psychological distance reflects the psychological changes of charity motivation in time, space, probability and society into the decision model, and can accurately quantify the psychological process of charitable motivation. This shall avoid the inaccuracy of charity behaviour caused by personal preferences or psychological effects, making the decision-making form closer to reality.

Combining the coordinate points of the decision attribute with the target point, the Euclidean plane was designed. The coordinate points were then input into the Euclidean space. According to the result of the formula (8), based on the target point of the Euclidean space, the Euclidean space distance calculation method was adopted to calculate the distance $d$ between the indicator attribute coordinate point and the target coordinate, as shown in Figure 2:

$$d_{ij} = \sqrt{(s'_{ij}, e'_{ij})^2 + (e'_{ij}, e'_{ij})^2}$$

(9)

According to the Euclidean space distance corresponding to each index, the target core coefficient $\xi$ of each attribute coordinate point was obtained:

$$\xi_{ij} = d_{ij}$$

(10)

Combining $\xi$ of each attribute coordinate point, the effect measure matrix is given as:

$$\xi = \begin{bmatrix} s_{11} & s_{12} & L & s_{1m-1} & s_{1m} \\ s_{21} & s_{22} & L & s_{2m-1} & s_{2m} \\ \vdots & \vdots & \ddots & \vdots & \vdots \\ s_{n-1} & s_{n-2} & L & s_{nm-1} & s_{nm} \end{bmatrix}$$

(11)

Figure 1. Vectorization of coordinate points

Figure 2. Distance between each index coordinate point and target center point
In the two-dimensional space, the weighted sum of distance between the coordinate points of the decision indicator attribute and the target point represents the degree of similarity between the decision set and the decision target. Using the weight of each indicator in the decision process, the indicators in the matrix were summed to obtain a comprehensive effect measure vector:

$$r_i = \sum_{j=1}^{m} \eta_j \xi_{ij} (i = 1, 2, \ldots, n)(j = 1, 2, \ldots, m)$$

(12)

The smaller $r_i$ indicates that a closer distance between the attribute coordinate point and the target, and a better decision target.

**CASE ANALYSIS**

Taking a city in Jiangsu Province of China as an example, the 480 enterprises were selected for survey. Among them, the number of enterprises with charitable donations exceeding 10,000 yuan accounted for 55.2% of the total samples, and the logarithmic standard deviation of charitable donations was 3.021, indicating a large difference in the amount of donations between enterprises; the average shareholding ratio of the family was as high as 92.1%; the number of companies with family members entering the board of directors was 40.2%; the average duration of family control was 7 years, and the standard deviation was 5.992. In response to this, it developed four different schemes, relevant countermeasures, $b_1, b_2, b_3, b_4$ and the countermeasure set $\mathcal{B} = \{b_1, b_2, b_3, b_4\}$. The following six indicators were determined: feasibility, mobility, universality, economy, risk, and rehabilitation, where feasibility, motivation, economy, and rehabilitation are effective-based indicators based on the principle of "the bigger the better"; the risk is the cost-based indicator, so in the safety emergency process, the risk should be reduced as much as possible; the universality is the moderate indicator, the more the university, the less targeted it may be, while the less the universality, the less general it shall be, and therefore the universality is a moderate indicator (Roux, Goldsmith, & Bonezzi, 2015).

Based on the effect evaluation value and psychological distance of each indicator, the attribute values were statically determined, as shown in Table 1.

Through integration, the two-dimensional spatial decision attribute matrix was obtained:

$$U(A, B) = \begin{pmatrix}
(66,12) & (74,18) & L & (74,55) & (67,22) \\
(72,11) & (65,23) & L & (66,39) & (79,42) \\
(81,8) & (72,43) & L & (77,32) & (70,30) \\
(76,12) & (79,27) & L & (70,24) & (83,40)
\end{pmatrix}$$

By normalization, the decision attribute matrix is given as:

| Decision | Feasibility | Mobility | Universality | Economy | Risk | Rehabilitation |
|----------|-------------|----------|--------------|---------|------|----------------|
| Case 1   | 66          | 12       | 74           | 18      | 75   | 36            |
| Case 2   | 72          | 11       | 65           | 23      | 70   | 26            |
| Case 3   | 81          | 8        | 72           | 43      | 75   | 30            |
| Case 4   | 76          | 12       | 79           | 27      | 74   | 29            |

Note: Replace evaluation with $E$; Replace Psychology with $P$.  

Table 1. Decision attribute statistics
As above, using the traditional multi-objective grey target theory considering psychological distance. For this, on the basis of traditional grey target theory, it analyses the psychological distance between charity motivation and decision indicators, and collect the distance data of charity motivation from time, space, probability and social understanding of charity behaviour, so as to form psychological distances of different sizes. This shall finally result in different decision-making preferences, and an increase in the decision errors. Psychological distance quantifies the information processing patterns of charity motivations, mathematicalizes the relationship between charity motivation and charity behaviours, and obtains more realistic charity behaviours.

CONCLUSIONS

(1) This paper studies the multi-objective grey target theory considering psychological distance. For this, on the basis of traditional grey target theory, it analyses the psychological distance between charity motivation and decision indicators, and collect the distance data of charity motivation from time, space, probability and social dimension. Then, combining the charity motivation evaluation effect value, a two-dimensional Euclidean coordinate system was established by transforming each evaluation value into a spatial coordinate point. After determining the ideal targets in the coordinate system and obtaining the final weighted sum of distance, it constructs
a multi-objective and multi-dimensional grey target decision model. This model based on grey decision and psychological distance concretizes the grey information, solves the multi-objective decision-making problem from the psychological point of view, improves the decision-making depth of charity motivation, and makes the charity behaviour more realistic and reliable.

(2) Taking a city in Jiangsu Province of China as an example, the multi-target grey target theory considering psychological distance was applied to analyse the 4 schemes and 6 evaluation indicators, collect the psychological distance and effect evaluation values of charity motivation for evaluation indicators under different schemes, and obtain the charity behaviour under the psychological distance. According to the traditional grey target theory, the scheme 4 was the optimal, because some charitable motives prefer the scheme 4, giving a higher score and a higher effect measurement value, which proved that the psychological distance can affect the overall judgment result. But the fact shows that the scheme 1 was better than 4. The scheme 1 was given when the charity motivation distance was relatively stable. At this time, the charity motivation has no psychological preference, and the psychological distance value is more reasonable so that the opinions of charitable motives are more informative and the results of decision-making are more operable.

(3) When making decisions on charity motivation, in addition to psychological factors, charity motivation decision-making habits and methods will also affect charity behaviour. Based on these factors, a multi-dimensional spatial decision model can be established.

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