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THE MOTIVATION CONFLICT AND INDECISION BEHAVIOR

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Abstract
This paper discusses three different kinds of motivation conflicts influence the customers' indecision behavior. Based on previous literature review, the author proposed a stochastic model to predict indecision behavior respectively by approach–approach, avoidance–avoidance and approach–avoidance conflict situations. The duration time of decision making is used as measuring indecision behavior which is considered as Weibull distribution. Simulation data and empirical data are both conduct to compare the fitness between the proposed model and real decision process. The application is demonstrated in the conclusion.
Keywords: Motivation conflict; Indecision behavior; Weibull distribution; Decision process.

INTRODUCTION

In the customer purchase decision process, different trait of behavior may demonstrate different clue which cases different pro-purchase results. Such as consumer may avoid getting into the decision process, may slow down the process while evaluating the alternative options, or may be unable to act on the decision. This decision trait calls indecision. Customers' indecision will influence their satisfaction evaluation of purchase process or product performance. It is a psychological mechanism which plays an important role on consumer decision process.

This paper explores three different kinds of motivation conflict will case different time duration of customer induction. Also, the predicting model with probability will be proposed. After the

mathematical model constructing, the empirical data is provided to parameters estimation in the model.

LITERATURE REVIEW

Definition of Indecision

Potworowski (2010) defines indecision" and "indecisiveness" by distilling from previous research (Bacanli, 2006; Callanan&Greenhaus, 1992; Chartrand et al., 1990; Danan&Ziegelmeyer, 2006; Elyadi, 2006; Ferrari & Dovidio, 2001; Germeijs & De Boeck, 2002; Mann et al., 1997; Milgram & Tenne, 2000; Rassin & Muris, 2005a, 2005b) as Prolonged decision latency (in deciding or implementing decisions), Putting off decisions, Aversion to decision responsibility, Inability to decide, Difficulty deciding, Decision impasse while experiencing negative affect, Experience of negative decision-related emotions before, during, and after deciding, Fear of commitment, Fear of commitment, Unstable/changing commitments.

Potworowski (2010) thinks that some definitions of indecision are not measurable or non-exclusive (mutual affiliation), so he proposes to classify the result of the behavior as an indecision definition, which is both operable (operational definition) and useful experimental measurement. By further specifying when action indecisiveness occurs during the decision episode one for each phase of the decision episode 1) "commitment indecisiveness," 2) "initiation indecisiveness," 3) completion indecisiveness," and 4) "post-completion indecisiveness." Specifically, one kind of indecisiveness was predicted to occur before the point of commitment and three others after the point of commitment. Those after the point of commitment were distinguished by occurring before, during, and after enacting a decision. This research is based on this view of point to measure indecision depending on the duration of time in the decision process. The indecision component is based on the action control theory, which proposes procrastination due to state orientation (Darpy, 2000; Kuhl, 1994).

The avoidance component is based on the conflict decision theory (Darpy, 2000) and can be considered a consequence of the first indecision component. In this view, procrastination is a way to avoid a decisional situation that the individual views as conflicting. The decision is avoided until stress is lowered. Delaying tasks is a way to avoid a decisional situation that the individual views as conflicting. The decision is avoided until stress is lowered. Delaying tasks is a way to avoid a decisional situation that the individual views as conflicting. The decision is avoided until stress is lowered. Delaying tasks is then a way to protect vulnerable self-esteem (Darpy, 2000).

Motivation conflict

Depending on the valences of the choice alternatives, Miller (1944) proposed that conflict situations emerge that have been classified as approach–approach conflict situations, avoidance–avoidance conflict situations, or approach–avoidance conflict situations (Diederich, 2003). In an approach-approach conflict situation, a decision is made between desirable alternatives; in an avoidance-avoidance conflict situation, the choice alternatives are undesirable; in an approach-avoidance conflict situation, the choice alternatives possess both desirable and undesirable features (Diederich, 2003).

Indecision and motivation conflict

Tversky and Shafir (1992) pointed out that there is no standard definition of conflict and generally accepted procedure for measuring conflict. Thus, they suggested the deferring of a decision as an indicator of conflict. Because the decision making in conflict situations is more difficult than in no conflict situations. Some experimental findings indicate that it takes longer to reach a decision in avoidance–avoidance conflict situations than in approach–approach conflict situations (Diederich, 2003).

THE MODEL

Diederich (2003) proposes a multiattribute decision field theory model to predict indecision behavior depending on the three conflict situations (approach-approach, avoidance-avoidance, and approach-avoidance). The decision time pattern to measure is used to measure the indecision behavior. Because in a risky decision-making experiment with multiattribute choice alternatives, decision time is investigated as a possible measure of conflict strength. He designs an experiment scenario to assume that there are four medical treatment alternatives with three attributes (cost, pain intensity, and recovery time variance). Each attribute has two levels (high or low). Then, if the subjects prefer one alternative to another, the conflict situation will be demonstrated (approach-approach, avoidance-avoidance, and approach-avoidance).

He denotes t as a decision time, P (t) is a strength of preference for choosing one alternative over the other. Then, the dynamics of the preference process can be demonstrated as

$$P(t+\tau) = (1-\tau\cdot\gamma_i)\, P(t) + V_i(t+\tau).$$

in which τ is a short time unit, γi determines the growth or decay of the preference process with respect to attribute I and is related to the distinction between approach and avoidance conflicts. V_i (t) is a specific input valence for each attribute comparison. When γ> 0, the preference process decays over time; it describes an avoidance-avoidance conflict situation. When γ< 0, the preference process accelerates over time, demonstrating an approach-approach conflict situation. E[V_i (t)]is the mean valence for each attribute comparison. E[V_i (t)] =$\delta_{it,}$ in which δ_i is a drift rate, indicates the direction toward choosing. wij is a particular rate in the process switches (attention shift) from attribute i to attribute j. Attention switches according to a mixture of two subprocesses, W_1 (t) and W_2 (t). During the next moment, attention either continues to operate under process W_1 (t) with a probability of w_{11} or switches with a probability of w_{12} = 1 - w_{11} and starts operating based on W_2 (t).

The proposed model

According to the literature review, we use the duration of decision-making to measure indecision behavior. We consider it a random variable t that follows a Weibull distribution with parameters α, β, γ.

$$f(t,\alpha,\beta,\gamma) = \gamma\beta^{-1}\left\{\frac{(t-\alpha)}{\beta}\right\}^{\gamma-1} exp\left[-\left(\frac{(t-\alpha)}{\beta}\right)^{\gamma}\right]$$

We consider the motivation α, is one of the parameter in Weibull distribution and consider the Bayesian from in which α is a random variable with marginal distribution as

$$g(\alpha) = \frac{1}{\varepsilon\sqrt{2\pi}}\exp\left[-\frac{(\alpha-\theta)^2}{2\varepsilon^2}\right]$$

We also denote that if α is larger than a threshold value δ, the approach-approach conflict situation happens. If the motivation α is smaller than δ, the avoidance–avoidance conflict situation happens. Otherwise, if the motivation α is equal to δ, the approach–avoidance conflict situation happens. Then we can calculate these three kinds distribution.

1. Approach-approach conflict situation

$$P(\alpha|\ \ \alpha > \delta\ \ ) = \int_{\delta}^{b} \frac{1}{\varepsilon\sqrt{2\pi}} \exp\left[-\frac{(\alpha-\theta)^2}{2\varepsilon^2}\right] d\alpha$$

2. Avoidance–avoidance of conflict situation

$$P(\alpha|\ \ \alpha < \delta\ \ ) = \int_{0}^{\delta+\Delta} \frac{1}{\varepsilon\sqrt{2\pi}} \exp\left[-\frac{(\alpha-\theta)^2}{2\varepsilon^2}\right] d\alpha$$

In which δ+Δ is demonstrated, the volume that δ is not equal to α. It shows the difference from approach–avoidance conflict situation.

3. Approach–avoidance of conflict situation

$$P(\alpha|\ \ \alpha = \delta\ \ ) = \int_{0}^{\delta} \frac{1}{\varepsilon\sqrt{2\pi}} \exp\left[-\frac{(\alpha-\theta)^2}{2\varepsilon^2}\right] d\alpha$$

The parameters estimation

The MLE (maximum likelihood estimate, MLE) is used to estimate the parameters in the proposed models in three situations (approach-approach conflict, avoidance–avoidance conflict, approach–avoidance conflict) respectively.

Let x_{ij} is the j^{th} subject who exposes to the i^{th} stimulate of motive conflict. And L_i is the likelihood function of the ith in decision-making.

$$L_i(\varepsilon,\theta,\beta,\gamma) = \prod_{j=1}^{m} f_{x_i}(logx_{ij})$$

Then, L is the full likelihood function, which is demonstrated as

$$L\ \ (\varepsilon,\theta,\beta,\gamma) = \prod_{i=1}^{3}\ \ \prod_{j=1}^{m} f_{x_i}(logx_{ij})$$

Then, to differentiate L (ε, θ, β,γ) respectively regarding ε, θ, β,γ and set them equal to zero.

METHOD

The empirical data

This paper uses experiment method to design three motivation conflict scenarios (approach - approach, avoidance-avoidance, and approach -avoidance) to obtain the empirical data.

The participants are 300 college students from a university's business school. They were randomly assigned to three experimental situations, and after pre-testing, there was no significant difference in age, gender, or grade among the three groups of subjects.

Experiment design

1. *The approach-approach scenario*

In the scenario design of approach-approach motivation conflict, the subjects (participants) will be told that they will carry out a weight loss plan and will be on a sugar-reduced diet for a month. However, a week before the end, they suddenly receive a dinner invitation from friends who have not returned from abroad for a long time. The restaurant chosen is the well-known buffet all-you-can-eat; the subject has already paid the money, and the price is not cheap. For the subjects (participants), losing weight and wanting to have a buffet dinner are both approach–approach conflict motivation.

2. *The avoidance-avoidance scenario*

In the scenario design of avoidance-avoidance motivation conflict, the subjects (participants) will told that suddenly, there will be a quiz on the subject statistics. If the quiz is not passed, the whole class may be thrown out, but the subjects (participants) have only recently been preparing for the mid-term reports of other courses and have been writing day and night. The subjects (participants) feel very tired and have no desire to study anymore, so they have a double avoidance conflict when they do not want to fail statistics but do not want to prepare for study.

3. *The approach-avoidance scenario*

In the scenario design of approach-avoidance motivation conflict, the subjects (participants) will told that they feel cold symptoms due to the cold current, coughing, and sore throat, followed by fever symptoms, and were extremely uncomfortable. However, they would wait in the cold wind because the nearby hospitals and clinics were full of flu patients. It takes 30 minutes to go to the nearest clinic by motorcycle and two or three hours to wait in line for registration. Therefore, it causes an approach-avoidance conflict situation in which the subjects (participants) hope their bodies to recover but do not want to see what the doctor creates.

The process of experiment

The subjects (participants) are asked to watch one of the three conflicting situations randomly assigned to them. After they are fully integrated into the situation, they are measured to be indecisive in their choice. The level of indecision is measured by the duration of decision-making when they encounter the conflict situation.

FINDINGS AND DISCUSSION

According to the experiment method data, the descriptive statistics of three scenarios are in table 1

Table 1
The descriptive statistics.

	Approach-approach conflict	*Avoidance-avoidance conflict*	*Approach-avoidance conflict*
Man of the decision time	17.235mins	3.445mins	10.869 mins
Variance of the decision time	9.567	5.039	5.989

Source: Research data.

The mean of decision time of total data is 10.516 mins. It is found that the largest variance is approach-approach conflict situation which is also the longest time of decision making. The results demonstrate people are more indecision in approach-approach conflict and feel less indecision in

avoida Then we will use the empirical data to estimate the parameters. The threshold level of motivation conflict (δ) is the mean of the experiment data. The results of parameter estimation are in table 2.

Table 2
The results of parameter estimation.

ε	θ	β	γ
10. 356	11.475	0.375	1.023

Source: Research data.

The model calibration

According to the parameter estimation results, we make a simulation from the proposed model to get the simulation data and compare this data with empirical data. We use root-mean-square deviation (RMSD) to find the distance between real data (empirical data) and simulation data to show the goodness fit of the proposed model. The result is 0. 402, which is smaller than 0. 5. It demonstrates the acceptable goodness fit of the proposed model.

CONCLUSIONS

This paper models the concept of motivational conflict in consumer psychology research. It provides a concrete quantitative formula to calculate the probability of the duration of decision time when customers encounter motivation conflict. This paper also demonstrates three kinds of motivation conflict and its probability density function, which can help managers predict the level of customer indecision. The results show that the proposed model is a good fit for model calibration. The empirical data this research collects is from the experiment design. Unlike the database, the experiment method can confirm the cause-effect and make simulations of three motivational conflict situations more concrete. The results also demonstrate that there is less difference between the empirical data from experimentation and simulation.

In the future, other type of probability density function such as log normal distribution can be considered. Other relationship between motivation conflict and indecision such as linear model can be used to describe the customer's psychological process more closely.

Research ethic statement

The authors declare that this study no submitted for evaluation in another journal simultaneously with the CBR or previously published in another journal.

Author contribution statement

The author contributed equally to the paper.

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