Journal of Management and Science

13(3) 2023 5-8

OPEN ACCESS

RESEARCH ARTICLE

DOI: https://doi.org/10.26524/jms.13.28

# Decision satisfaction and the evaluation of post purchase

Hui-Hsin Huang [a*]

## Abstract

The customers purchase decision process and the related satisfaction is always an important issue in marketing management. This paper investigates the impact of satisfaction with customers' decision process on evaluating their post purchase performance. When customers feel dissatisfied in purchase decision, the positive or negative perceive value will occur event the post purchase evaluation is satisfaction or dissatisfaction. The author proposes a stochastic model to describe the contradiction situation. The conditional probability is used to construct different scenarios with decision process and post purchase evaluation. The empirical data is provided to estimate the parameters of the proposed model. It is also used to make model calibration. Finally, the research results and application are demonstrated.

**Keywords**: Decision Satisfaction, the evaluation of post purchase, stochastic model, conditional probability.

**Author Affiliation:** [a] Department of Advertising &Public Relations, Fu Jen Catholic University, New Taipei City, Taiwan, China.

**Corresponding Author:** Hui-Hsin Huang. Department of ,Advertising &Public Relations, Fu Jen Catholic University, New Taipei City, Taiwan, China.

**Email:** hoyasophia@gmail.com

**How to cite this article:** Hui-Hsin Huang, Decision Satisfaction and the Evaluation of Post Purchase, Journal of Management and Science, 13(3) 2023 5-8. Retrieved from https://jmseleyon.com/index.php/jms/article/view/679

**Received:** 21 June 2023 **Revised:** 28 July 2023 **Accepted:** 5 September 2023

## 1. Introduction

In the rapid changing marketing environment, customers' satisfaction is always an important issue in academic and industrial area. Before customer evaluates their product purchasing, the purchase process is also a curial element to influence satisfaction feeling. Many previous researches [1,2,3,4,5] found when consumers can effectively screen information and distinguish alternatives, choice-process satisfaction increases The increased satisfaction of choice or purchase process will case more satisfied in post purchase evaluation when the product performance is similar[3]. Thus, the marketing managers not only improve the product performance or functions to increase customer's prefects. They can also achieve the same goal to obtain the outcome of customers' satisfaction through controlling some variables in customers' purchase process. The later method is more effectiveness and cost less marketing budge. The company can use less source but earn the same customers' satisfaction [3,5].

Thus, this research focuses on the relations between decision satisfaction and the evaluation of the post purchase.There are four parts of this article. First, the literature of decision satisfaction and evaluation of post purchase are demonstrated. Then, the conditional probability model is proposed. Four different scenarios(decision process (dis)satisfaction *post purchase (dis)satisfaction) are introduce through stochastic model construction. The empirical data is shown in the third part of this paper. This customer purchase data is used to parameters estimation in the proposed model. In order to making model calibration, this data is divided into two parts. Finally , the results of analysis and marketing application are demonstrated in the end of this research.

## 2. Literature Review

The degree of satisfaction with the choice process pertains to the characteristics of a choice set, such as the availability of choices, assortment alignability, and decision quality[1]. When consumers can effectively screen information and distinguish alternatives, choice-process satisfaction increases[2,4].

When consumers can effectively screen information and distinguish alternatives, choice-process satisfaction increases. However, when consumers have little knowledge of the product category or are faced with a large number of alternatives, they find it hard to identify a satisfying decision strategy [3,5].

Thus, we make a table matrix to show the relations of decision satisfaction and product performance evaluation.

Table 1 The scenarios description of decision process and post purchase evaluation

| | Decision process | |
|---|---|---|
| Post purchase evaluation | Feel satisfied | Feel dissatisfied |
| Feel satisfied | --- (Scenario 3) | Discussed(Scenario 1) |
| Feel dissatisfied | ---( Scenario 4) | Discussed(Scenario 2) |

In table 1, the two variables: decision process and post purchase evaluation cause a two ways matrix as four different scenarios. They respectively are(1) feeling dissatisfied in decision process with feeling satisfied in post purchase evaluation (Scenario 1).(2) feeling dissatisfied in decision process with feeling dissatisfied in post purchase evaluation (Scenario 2).(3) feeling satisfied in decision process with feeling satisfied in post purchase evaluation (Scenario 3). (4) feeling satisfied in decision process with feeling dissatisfied in post purchase evaluation (Scenario 4). It can find that there is a contradiction situation. When customers feel dissatisfied in purchase decision, the positive or negative perceive value will occur event the post purchase evaluation is satisfaction or dissatisfaction (Scenario 3 and 4). It is an interesting phenomena and worth to study. This paper will construct a stochastic model to portray these four scenarios but make a marketing application focus on the situations of decision dissatisfaction with (dis)satisfaction of post purchase evaluation.

## 3. The model

Based on the table of scenarios description of decision process and post purchase evaluation (see table 1). The stochastic model can be constructing to portray these four scenarios. We use conditional probability to consider measuring the (dis)satisfaction of decision process is a random variable d. The (dis) satisfaction of post purchase evaluation is a random variable e. We consider a threshold value of decision process s. If customers feel satisfies in decision process, then the variable d will higher than threshold value, s. We also denote another threshold value of post purchase evaluation, r. If customers feel satisfies in post purchase evaluation, then the post purchase evaluation variable e will higher than threshold value r.

The conditional probability of four different scenarios can be demonstrated as table 2.

Table 2 The conditional probability of four different scenarios

| | Decision process | |
|---|---|---|
| Post purchase evaluation (e) | Feel satisfied | Feel dissatisfied |
| Feel satisfied | --- (Scenario 3) | Discussed(Scenario 1) |
| Feel dissatisfied | ---( Scenario 4) | Discussed(Scenario 2) |

The probability density function and cumulative distribution function

We consider the (dis)satisfaction of decision process(random variable d) follows log normal distribution with its probability density function (p.d.f. )as

$$f_D(d) = \frac{1}{d\sigma\sqrt{2\pi}} \exp\left[-\frac{(\log d - \mu)^2}{2\sigma^2}\right], \quad d > 0 \tag{1}$$

And its cumulative distribution function (c.d.f.) as

$$F_D(d) = \Phi\left[\frac{(\log d - \mu)}{\sigma}\right], \quad D > 0 \tag{2}$$

We also consider the (dis)satisfaction of post purchase evaluation( random variable e) follows another log normal distribution with its probability density function (p.d.f. ) ge(e).

$$g_E(e) = \frac{1}{e\eta\sqrt{2\pi}} \exp\left[-\frac{(\log e - \theta)^2}{2\eta^2}\right], \quad e > 0 \tag{3}$$

And its cumulative distribution function (c.d.f.) Ge(e).

$$G_G(g) = \Phi\left[\frac{(\log g - \theta)}{\eta}\right], \quad G > 0 \tag{4}$$

Then we can calculate the joint density of (dis) satisfaction of decision process(random variable d) and (dis)satisfaction of post purchase evaluation( random variable e) as

$$j_{D,E}(d,e) = \frac{1}{2\pi d\,e\,\sigma\eta\sqrt{1-\delta^2}} \times \left\{\exp\left[-\frac{1}{2(1-\delta^2)}\right] \times \left[\left(\frac{\log d - \mu}{2\sigma}\right)^2 - 2\delta\left(\frac{\log d - \mu}{2\sigma}\right)\left(\frac{\log e - \theta}{2\eta}\right) + \left(\frac{\log e - \theta}{2\eta}\right)^2\right]\right\} \tag{5}$$

In equation(5), δ is the correlation coefficient of d and e and is estimate by

$$\delta = \frac{E[(d-\mu)(e-\theta)]}{\sigma\eta} \tag{6}$$

Then the conditional probability density function of E given by D is

$$h(e|d) = \frac{1}{e\eta_{e|d}\sqrt{2\pi}} \exp\left[-\frac{(\log e - \theta_{e|d})^2}{2\eta_{e|d}^2}\right] \tag{7}$$

It can be demonstrate as

$$h(e|d) = \frac{1}{e\sqrt{2\pi\eta^2(1-\delta^2)}}\exp\left\{-\frac{1}{2(1-\delta^2)}\left[\frac{(\log e-\theta)^2}{\eta^2}+\frac{\delta^2(\log d-\mu)^2}{\sigma^4}-\frac{2\delta^2(\log d-\mu)(\log e-\theta)}{\sigma^2\eta}\right]\right\} \quad (8)$$

**The conditional probabilities in four scenarios**

According to equation (1)-(8), we can calculate the conditional probabilities in four scenarios.

**Scenario 1: feeling dissatisfied in decision process with feeling satisfied in post purchase evaluation.**

In scenario 1, we can calculate the probability of satisfied post purchase evaluation given by dissatisfied decision process. According to the proposed model, it can demonstrated as post purchase evaluation(random variable e) is larger than the threshold value r, given by decision process(random variable d) is smaller than threshold value s.

$$P(\mathrm{E}>\mathrm{r}\mid \mathrm{D}<\mathrm{s}) = \frac{P(\mathrm{D}<\mathrm{s},\mathrm{E}>\mathrm{r})}{P(\mathrm{D}<\mathrm{s})} = \frac{\frac{1}{2\pi d\sigma\eta\sqrt{1-\delta^2}}\int_0^s\int_r^\infty k(d,e)\,de\,dd}{\int_0^s \frac{1}{d\sigma\sqrt{2\pi}}\exp\left[-\frac{(\log d-\mu)^2}{2\sigma^2}\right]} \quad (9)$$

Where

$$k(d,e)=\left\{\exp\left[-\frac{1}{2(1-\delta^2)}\right]\times\left[\left(\frac{\log d-\mu}{2\sigma}\right)^2-2\delta\left(\frac{\log d-\mu}{2\sigma}\right)\left(\frac{\log e-\theta}{2\eta}\right)+\left(\frac{\log e-\theta}{2\eta}\right)^2\right]\right\} \quad (10)$$

**Scenario 2:feeling dissatisfied in decision process with feeling dissatisfied in post purchase evaluation**

In scenario 2, we can calculate the probability of dissatisfied post purchase evaluation given by dissatisfied decision process. According to the proposed model, it can demonstrated as post purchase evaluation(random variable e) is smaller than the threshold value r, given by decision process(random variable d) is smaller than threshold value s.

$$P(\mathrm{E}<\mathrm{r}\mid \mathrm{D}<\mathrm{s}) = \frac{P(\mathrm{D}<\mathrm{s},\mathrm{E}<\mathrm{r})}{P(\mathrm{D}<\mathrm{s})} = \frac{\frac{1}{2\pi d\sigma\eta\sqrt{1-\delta^2}}\int_0^s\int_0^r k(d,e)\,de\,dd}{\int_0^s \frac{1}{d\sigma\sqrt{2\pi}}\exp\left[-\frac{(\log d-\mu)^2}{2\sigma^2}\right]} \quad (11)$$

**Scenario 3: feeling satisfied in decision process with feeling satisfied in post purchase evaluation**

In scenario 3, we can calculate the probability of satisfied post purchase evaluation given by satisfied decision process. According to the proposed model, it can demonstrated as post purchase evaluation(random variable e) is larger than the threshold value r, given by decision process(random variable d) is larger than threshold value s.

$$P(\mathrm{E}<\mathrm{r}\mid \mathrm{D}>\mathrm{s}) = \frac{P(\mathrm{D}>\mathrm{s},\mathrm{E}<\mathrm{r})}{P(\mathrm{D}>\mathrm{s})} = \frac{\frac{1}{2\pi d\sigma\eta\sqrt{1-\delta^2}}\int_s^\infty\int_0^r k(d,e)\,de\,dd}{1-\int_0^s \frac{1}{d\sigma\sqrt{2\pi}}\exp\left[-\frac{(\log d-\mu)^2}{2\sigma^2}\right]} \quad (11)$$

## 4. The empirical data

We use the empirical data to estimate the parameters and make model application. These empirical data is from a marketing survey of an on-line shopping company. The total sample size are 326 customers to investigate their purchase decision on a specific shopping experiments and their post purchase evaluation. The questionnaires of decision satisfaction of this one time shopping is based on Jinhyung et al [3]. The measurement is used Likert five scale from very satisfied to very dissatisfied. The questionnaires of post purchase evaluation is based on Sainfort and Booske[6]. The measurement is used Likert five scale from very satisfied to very dissatisfied. The reliability of Cronbach's α in decision satisfaction is 0.921. The Cronbach's α in post purchase evaluation is 0.954. The duration of survey is from April 1 to 30 in 2020.

## 5. The results of parameters estimation

According to the data collection and the results of survey, both threshold value s (from decision satisfaction) and r (from post purchase evaluation) are set up as 3. It is because we use Likert five scale(from 1 to 5) to measure. And the median is 3. And the Pearson correlation is used to calculate the relationship between decision satisfaction and post purchase evaluation. The result shows 0.658(p<.00). Thus, the δ (correlation coefficient of d and e) in equation (5)-(6) and (8) is 0.658.

## 6. The results of model calibration and application

The 326 data is used to calculate the probability of scenario 1 to scenario 4. The results show in table 3.

| | Decision process | |
|---|---|---|
| Post purchase evaluation | Feel satisfied | Feel dissatisfied |
| Feel satisfied | --- (Scenario 3) | Discussed(Scenario 1) |
| Feel dissatisfied | ---( Scenario 4) | Discussed(Scenario 2) |

The chi-square testing is conducted to test the fitness of proposed model and empirical data. It shows X2=1758 (p=0.787). It is not significant difference between the expected frequencies and the observed frequencies which means it is good fitness between proposed model and empirical(real) data.

## 7. Conclusion

### Application

From the empirical analysis, it can be find that it is positive correlations between decision satisfaction and post purchase evaluation. It means more satisfied in purchase decision process causes higher satisfaction of post purchase evaluation. And the numbers of people who feel satisfied in decision process but feel dissatisfied in post purchase evaluation are higher than people who feel dissatisfied in decision process but feel satisfied in post purchase evaluation. Thus, the satisfaction of decision process plays a prime role on post purchase evaluation making. For marketing application, the managers should first ameliorate the decision process such as provide more service and product information to help make decision.

This paper constructs a mathematical model to portray the relations between customers' satisfaction in their purchase decision processes and the outcome of their post purchase evaluations. It makes easier to predict customers' final satisfaction and provides more information for company to improve performance of post purchase evaluation from customers' purchase decision processes. The marketing managers can investigate the impact factors of decision process to increase final satisfaction.

In the future, other statistic model can be proposed such as to denote the satisfaction as other type of probability density. And other type of method on empirical data collection can be used. For example, the experiment design or data-ming can be tried to compare the difference of model calibration and application from different sources of data.

### Acknowledgement

Nill

### Funding

No funding was received to carry out this study.

### References

1. G. J. Fitzsimons, Consumer Response to Stockouts, Journal of Consumer Research, 2000, 27, 249–266.
2. G.-H. Huang, N. Korfiatis and C.-T. Chang, Mobile shopping cart abandonment: The roles of conflicts, ambivalence, and hesitation, Journal of Business Research, 2018, 85, 165–174.
3. J. Kim, A. G. Christy, G. N. Rivera, J. A. Hicks and R. J. Schlegel, Is the Illusion of Authenticity Beneficial? Merely Perceiving Decisions as Guided by the True Self Enhances Decision Satisfaction, Social Psychological and Personality Science, 2020, 12, 80–90.
4. M. D. Kokkoris, E. Hoelzl and C. Alós-Ferrer, True to which self? Lay rationalism and decision satisfaction in self-control conflicts., Journal of Personality and Social Psychology, 2019, 117, 417–447.
5. F. Sainfort and B. C. Booske, Measuring Post-decision Satisfaction, Medical Decision Making, 2000, 20, 51–61.
6. M. Song, W. S. Lee and J. Moon, Exploring effective price presentation format to reduce decision difficulty and increase decision satisfaction, Tourism Management Perspectives, 2019, 32, 100572.