

Applying Hierarchical Linear Models to Customer Satisfaction Analysis

黃建豪、陳偉星

E-mail: 9511003@mail.dyu.edu.tw

ABSTRACT

The customer satisfaction is effected by many factors, moreover, the customer satisfaction questionnaire data usually exhibit some form of nested clustering or hierarchical structure because of the sampling (customers within sub-classes) or other longitudinal or nested designs such as measurements of subjects over different units, In the past, the customers are not distinguished by some characteristics, such as locations of customer 's company, scale of customer 's company and type of customer 's business into some heterogeneous units; therefore, all customers are treated as a homogeneous group during the process of satisfaction analysis. Since the result could cause some variance aggregation bias, this resulting complex variance structure may require the analysis models such as the regression models that also take into account multiple sources of variability. Hierarchical linear modeling, also known as multilevel analysis, has been applied extensively in studying the multilevel nature of organizational data. This thesis studies a case of customer satisfaction analysis from a local machinery company by using this approach. This purpose of this thesis is to study whether the overall satisfaction and repurchase-intention vary according to the type of area, scale of customer 's company and type of customer 's business or not. Finally, the real case data sets were analyzed by using three methods of HLM, the outcome of this study will offer management as a selection guideline.

Keywords : Customer Satisfaction ; Hierarchical Linear Models

Table of Contents

封面內頁 簽名頁 授權書 iii 中文摘要 iv ABSTRACT v 誌謝 vi 目錄 vii 圖目錄 x 表目錄 xi 第一章 緒論 1 1.1 研究背景與動機 1 1.2 研究目的 4 1.3 研究流程 5 第二章 文獻探討 6 2.1 顧客滿意度的定義 6 2.2 顧客滿意度的衡量構面 10 2.3 顧客滿意度的衡量問項 11 第三章 研究方法 13 3.1 研究架構 13 3.2 問卷設計 14 3.2.1 顧客滿意度評估因子與指標 15 3.2.2 總體顧客滿意度 15 3.2.3 客戶基本資料 15 3.2.4 客戶購買相關行為 16 3.3 變數的操作性定義 16 3.3.1 因子及定義 16 3.3.2 因子問項蒐集與發展 17 3.4 研究對象與抽樣方法 19 3.5 研究方法 19 3.5.1 因素分析 19 3.5.2 信度分析 20 3.5.3 敘述性統計 20 3.5.4 階層線性模式 20 第四章 案例分析與探討 38 4.1 客戶問卷回收狀況 38 4.2 敘述性統計 38 4.3 因素分析 41 4.4 滿意度量表信度分析 45 4.5 滿意度階層線性模式分析 47 4.5.1 隨機效果的單因子ANOVA模式 48 4.5.2 means-as-outcomes regression model 57 4.5.3 隨機係數的迴歸模式 64 4.5.4 模式分析結果 76 第五章 結論與建議 80 5.1 研究結論 80 5.2 研究建議 86 參考文獻 88

REFERENCES

- [1] 高新建與吳幼吾(1997), "線性模式在內屬結構教育資料上的應用", 教育研究資訊, 第5卷第2期, 頁31-50.
- [2] 陳正昌、程炳林、陳新豐與劉子鍵(2003), "多變量分析方法:統計軟體應用", 五南出版社, 頁423-452.
- [3] 賴富山(1993), "遊客遊憩因子之研究 階層線性模式之運用", 私立朝陽科技大學企業管理研究所碩士論文。
- [4] Anderson, Eugene W. and Sullivan Mary W. (1993), "The Antecedents and Consequences of Customer Satisfaction for Firms," Marketing Science, Vol.16, No.2, pp.129-145.
- [5] Anderson, Eugene W., Fornell, Claes, and Lehmann Donald R. (1994), "Customer Satisfaction, Market Share, and Profitability: Findings from Sweden," Journal of Marketing, Vol.58, No.3, pp.53-66.
- [6] Anderson, Eugene W., Fornell, Claes, and Rust Roland T. (1997), "Customer Satisfaction, Productivity, and Profitability: Differences between Goods and Services," Marketing Science, Vol.16, No.2, pp.129-45.
- [7] Anderson, Eugene W. and Mittal Vikas (2000), "Strengthening the Satisfaction- Profit Chain," Journal of Service Research, Vol.3, No.2, pp.107-20.
- [8] Bolton, Ruth N. (1998), "A Dynamic Model of the Duration of Customer 's Relationship with a Continuous Service Provider: The Role of Satisfaction," Marketing Science, Vol.17, No.1, pp.45-65.
- [9] Burstein, L. (1980). "The analysis of multilevel data in educational research and evaluation," Review of Research in Education, Vol.8, pp.158-233.
- [10] Bryk, Anthony S. and Raudenbush Stephen W. (1992), Hierarchical Linear Models. Newbury Park, CA: Sage.
- [11] Cardozo, R. N., (1965) "An experimental study of customer effort, expectation and satisfaction," Journal of Marketing Research, Vol.1,

No.2, pp.244-249.

- [12] Cronin, J. J. & Taylor S. A (1992), " Measuring Service Quality:Reexamination and Extension, " *Journal of Marketing*, Vol.56, pp.55-68.
- [13] De Leeuw, J. (1992). " Serious editors ' introduction to hierarchical linear models, " In Bryk A. S. & Raudenbush S. W., *Hierarchical Linear Models*(pp.xiii-xvi). Newbury Park, CA: Sage.
- [14] Drucker, Peter F. (1954), *The Practice of Management*. New York: arper & Row.
- [15] Finn, J. D. (1993). *School engagement & student at risk*. Washington, DC: NCES.
- [16] Fornell, Claes (1992), " A National Customer Satisfaction Barometer: The Swedish Experience, " *Journal of Marketing*, Vol.56, NO.1, pp.6-21.
- [17] Fornell, Claes, Johnson Michael D., Anderson, Eugene W., Jaesung Cha, and Bryant Barbara Everitt (1996), " The American Customer Satisfaction Index: Nature, Purpose, and Findings, " *Journal of Marketing*, Vol.60, No.4, pp.7-18.
- [18] Garbarino, Ellen and Johnson Mark S. (1999), " The Different Roles of Satisfaction, Trust, and Commitment in Customer Relationships, " *Journal of Marketing*, Vol.63, No.2, pp.70-87.
- [19] Guieford, J. P. (1965), *Fundamental Statistics in Psychology and Education*, 4th ed., N. Y.:McGraw-Hill.
- [20] Malthouse, Edward C., Oakley James L., Calder Bobby J., and Dawn Iacobucci (2004), " Customer Satisfaction Across Organization Units " *Journal of Service Research*, Vol.6, No.3, pp.231-242.
- [21] Oliver Richaard L. (1980) , " A Cognitive Model of the Antecede nts and Conseqences of Satisfaction Decisions, " *Journal of Marketing Research*, Vol.17, No.11, pp.460-469.
- [22] Oliver, Richard L. (1993), " Cognitive, Affective, and Attribute Bases of the Satisfaction Response, " *Journal of Consumer Research*, Vol.20, No.3, pp.418-30.
- [23] Parasuraman, A., Zeithaml V. A. and Berry L. L. (1988), " SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality, " *Journal of Retailing*, Vol.64, No.1, pp.12-40.
- [24] Reichheld, Frederick (1996), *The Loyalty Effect*. Cambridge, MA: Harvard Business School Press.
- [25] Srivastava, Rajendra K., Shervani Tasadduq A., and Fahey Liam (1998), " Market-Based Assets and Shareholder Value: A Framework for Analysis, " *Journal of Marketing*, Vol.62, No.1, pp.2-18.
- [26] Summer, A. A., Wolfe B. L. (1997) " Do schools make a difference, " *The American Economic Review*,Vol.67, No.4, pp.639-652.
- [27] Zeithaml, Valarie A., Berry Leonard L., and Parasuraman, A., (1996), " The Behavioral Consequences of Service Quality, " *Journal of Marketing*, Vol.60,No.2, pp.31-46.