The service-profit chain:
An empirical analysis in the hotel industry

Lars Grønholdt
Department of Marketing, Copenhagen Business School
Solbjerg Plads 3, 2000 Frederiksberg, Denmark
Email: lg.marktg@cbs.dk

Anne Martensen
Department of Marketing, Copenhagen Business School
Solbjerg Plads 3, 2000 Frederiksberg, Denmark
Email: am.marktg@cbs.dk

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Abstract

This paper examines the links between employee attitudes, customer loyalty and company profitability. From a conceptual point of view, this employee-customer-profit chain, also known as the service-profit chain, is well founded and generally accepted. But for many companies, it seems difficult to demonstrate such links, and several issues must be addressed to uncover the links. To investigate these links empirically, a hotel chain provided data matching employee and customer measures with measures of profitability. We have successfully employed a modeling approach, and the paper reports empirical evidence of the employee-customer-profit chain. As it is possible to estimate the links, we have demonstrated their effect on company profitability. The research findings provide a better understanding of the service-profit chain and may help practitioners in improving company financial performance.

Keywords: Service-profit chain, employee attitudes, customer loyalty, company financial performance

Introduction

The service sector is growing rapidly and according to the *World Fact Book* published by the Central Intelligence Agency (2011), the service sector currently accounts for over 63% og the world domestic product (GDP) and over 76% of the US GDP. Of the employees in the manufacturing sector, 65-75% are also doing service tasks (Horwitz and Neville, 1996). Therefore, most companies "view service quality or service excellence as a strategic imperative or, at a minimum, a strategic opportunity" (Schneider, 1990, p. 399).

The Service Management Group at the Harvard Business School (including academics as Heskett, Jones, Loveman, Sasser, and Schlesinger) were the original architects behind the service-profit chain based on analyses of successful service organizations (Heskett et al., 1994, 1997, 2003; 2008; Loveman, 1998). The chain establishes a series of links between company profitability and growth, customer satisfaction and loyalty, and employee satisfaction, loyalty and productivity. The authors argue for the causal links, which should be regarded as propositions, in the chain as follows: Profit is a result of customer loyalty, driven by customer satisfaction. Satisfaction is largely a result of the customers' perceived value of the service they receive. And this service is, in turn, dependent on, on the one hand, the employees' satisfaction and loyalty, and on the other hand, the employees' productivity. The employees' satisfaction and loyalty also have a positive effect on productivity. Furthermore, there exists a feedback link from profitability to the internal employee dimension.

Heskett et al. (1994, 1997, 2003, 2008) have presented empirical evidence for some of these links. The service-profit chain was originally developed for services, but is also applicable for goods marketing (Gummesson, 2002, p. 229).

The service-profit chain model is widely diffused in the service marketing literature (e.g. Kasper et al., 1999, p. 358-359; Lovelock et al., 1996, 569; Lovelock, 2001, p. 152, 483; Palmer, 2001, pp. 210-212). In addition, the service-profit chain framework also has a clear relevance for relationship marketing (e.g. Bruhn, 2003, p. 55-56; Christopher et al., 2002, p. 196-199; Gummesson, 2002, p. 229) and quality management (Dahlgaard et al., 1998, p. 155, 343; Rust et al., 1994, p. 134-135).

Rust et al. (1994, p. 134) argue for the existence of the links as follows: "Satisfied owners are more likely to invest in the company's human resources, not necessarily by paying employees more, but by providing the training, the equipment, and the conditions to make the work more productive and enjoyable. This leads to higher employee satisfaction and a more committed work force, which, in turn, leads to superior products and services, and that leads back to higher customer satisfaction. In short, satisfying customers, employees, and owners is a never-ending chain that reinforces itself - a 'virtuous circle'". This chain has been referred to using many different terms since Heskett et al. (1994) introduced the term service-profit chain, e.g. the employee-customer-profit chain (Brooks, 2000, p. 41; Christopher et al., 2002, p. 196; Rucci et al. 1998, p. 82), the linkage model (Christopher et al., 2002, pp. 196-197; Payne and Frow, 2013, p. 416), the improvement loop (Kristensen, 1996, p. 55; Dahlgaard et al., 1998, p. 155, 343) and the loyalty-based cycle of growth (Reichheld, 1996, p. 20).

The service-profit chain logic is easy to understand and widely accepted in practice, especially in industries characterized by a lot of customer-employee interaction. As Rucci et al. (1998, p. 84) note, "the basic elements of an employee-customer-profit chain model are not difficult to grasp. Any person with even a little experience … understands intuitively that there is a chain of cause and effect running from employee behavior to customer behavior to profits".

It is becoming increasingly difficult for companies to set themselves apart from their competitors where the quality of products is concerned, and thus it is becoming increasingly important to focus on customer service to create a competitive advantage. The quality of the personal service given to customers depends on the employees' attitudes, and therefore employee attitude is continually becoming a more important factor in the employee-customer-profit chain.

There exist empirical studies of the employee-customer link (e.g. Kristensen, 1996; Dahlgaard et al., 1998, p. 157, 354-355) and of the customer-profit link (e.g. Anderson et al., 1993; Reichheld, 1996; Anderson et al., 1997; Eklöf et al., 1999; Anderson and Mittal, 2000; Kristensen et al., 2000) respectively. However, you rarely come across empirical work on both links in the same case (Barber, 1999; Brooks, 2000; Yee et al., 2011). Yee et al. (2011, p. 236) emphasize that "there is little empirical evidence on this proposition".

The purpose of this paper is to examine, simultaneously, two links in the service-profit chain, namely the employee attitude-customer loyalty link, and the customer loyalty-profit link. In the next section, we will be formulating a conceptual model and two testable hypotheses in relation to the two links in the chain. The following sections describe the empirical study conducted to estimate the relationships and test the hypotheses. Finally, the practical and academic implications of the findings will be discussed.

Hypotheses

The general set of equations capturing the links in the employee-customer-profit chain is:

$$\text{Profit}_t = f_1 (\text{Customer loyalty}_{t-1}) \qquad (1)$$
$$\text{Customer loyalty}_t = f_2 (\text{Employee attitudes}_t) \qquad (2)$$

In the above equations, profitability in time period t is a function of past customer loyalty, as loyalty is measured as a repurchase intention and therefore an indicator of the retention itself and thus of future financial performance for the company.

From this conceptual model spring two research hypotheses related to the two links:

Hypothesis 1: Employee attitudes has a positive effect on customer loyalty

Hypothesis 2: Customer loyalty has a positive effect on profitability

The following sections describe the empirical study conducted to test the hypotheses, the results, and their implications.

Data

Data for investigating the preceding issues and testing the hypotheses was available from the four Radisson hotels in Copenhagen.

Radisson Hotels is a global hospitality chain, and the mission of Radisson is based on its three primary stakeholder groups: customers, employees and property owners. "We're in business to create value for our customers, owners and employees… Our basic success formula: operational excellence within the triangle of satisfied customers, employees and owners - aiming at superior value creation" (Radisson, 2000, p.7). This perfectly corresponds to the employee-customer-profit chain.

The Radisson key profitability performance indicator is GOP (gross operating profit, that is total operating revenue less operating expenses), which demonstrates the efficiency of the operation.

The guests' perceived quality, satisfaction and loyalty are constantly measured and monitored company-wide. Delight and willingness to return are two loyalty indicators, based on the same survey question. Delight is defined as the percentage of guests who say that it is 'very likely' (score 5 on a 5-point scale) that they will stay at the hotel (where asked) again, and willingness to return is calculated by adding the percentage of the 'possible', 'likely' and 'very likely' categories (score 3, 4 and 5 on the 5-point scale). Customer loyalty is becoming increasingly important, and delight is the final benchmark.

To maintain the customer orientation, the bonus programs for management and the reward system for staff are both based partly on achieved customer satisfaction and loyalty scores.

Employee attitudes, including perceived working conditions, satisfaction and loyalty, are measured yearly through the Radisson Climate Analysis developed and conducted by a Scandinavian based consulting company that has been specializing in employee and customer analyses (SJP, Stig Jørgensen & Partners, now merged with Rambøll Management Consulting).

The climate analysis questionnaire contains a number of questions on working conditions, e.g. empowerment, commitment, pride in work, telling others about the job, and loyalty. The respondents indicate a degree of agreement or disagreement with a series of statements about these issues on a 5-point scale, where 1 means 'strongly disagree' and 5 means 'strongly agree'. Each question captures different facets of an underlying working climate perception. In combination, the answers to these questions give a reasonably accurate measure of the working climate. A final climate score is calculated by a weighted average of scores from the questions, and the score is transformed to a 0-100 scale. This approach will be more useful than a single measure from one question. The use of multiple questions increases the precision of the estimate compared to the use of a single question. There is empirical support for using such an approach within satisfaction measurements (Fornell et al., 1994; Ryan et al., 1995; Johnson and Gustafsson, 2000). In connection with the study, this measure is the best proxy available for employee attitudes.

Table 1 summarizes the data available for this study. The sample includes the four Radisson hotels Scandinavia Copenhagen, Royal Copenhagen, Falconer Copenhagen and Globetrotter Copenhagen. Data represents quarterly measures in almost three years.

Table 1. Summary of data

	Variable	Mean	Number of observations
Gross operating profit per employee per quarter	GOP	78 000 DKK (10 500 EUR)	43
Customer loyalty: willingness to return	WTR	84.0%	42
Customer loyalty: delight	DELIGHT	31.7%	41
Employee climate score	CLIMATE	74.8	22

The link between employee attitudes and customer loyalty

Previous modelling between customer satisfaction, customer loyalty and their respective drivers are using linear relationships (e.g. Rust et al., 1994, 1995, 1996; Fornell et al., 1996; Johnson and Gustafsson, 2000; Kristensen et al., 2000; Martensen et al., 2000). This is also true for the modelling between employee satisfaction and customer satisfaction (Dahlgaard et al., 1998, pp. 156-157, 354-355). This leads us to formulate a linear specification, which is also supported by the Radisson data. The estimated relationship is:

$$DELIGHT_t = -63.72 + 1.25 CLIMATE_t \qquad (3)$$

where $DELIGHT_t$ = customer delight (in percent) in quarter t
$CLIMATE_t$ = employee climate score (on a 0-100 scale) in quarter t

The relationship is positive and significant at the 1.8% level (n = 19, R^2 = 0.29, t = 2.61, p = 0.018). Equation (3) fits the data better than a specification with WTR_t as the dependent variable (n = 20, R^2 = 0.19, t = 4.12, p = 0.057). Delight is possibly more sensitive, as willingness to return includes both scores 3, 4 and 5 on the above-mentioned loyalty survey question. It appears from equation (3) that a 1 unit change in climate score will result in a 1.25 unit change in customer delight. Hypothesis 1 is thus supported.

The hypothesis that the slope coefficient is 1 cannot be rejected, thus indicating that a 1 unit change in employee attitude will result in roughly the same change in customer loyalty. Dahlgaard et al. (1998, pp. 156-157 and 354-355) come to the same one-to-one result based on the relationship between employee satisfaction and customer satisfaction.

The specification with $CLIMATE_{t-1}$ as the predictor variable was also examined, but the result indicated model (3) as the best suited.

We were able to obtain quarterly employee turnover information at hotel-level from Radisson. As expected, we found negative association between climate score and turnover percentage, and the relationship is significant: the correlation coefficient between climate score and turnover is -0.43 (n = 22, p = 0.04).

The link between customer loyalty and profit

The equation (1) is operationalized in a multiplicative model as follows:

$$GOP_t \; = \; \alpha(DELIGHT_{t-1})^{\beta_1}\varepsilon \qquad\qquad (4)$$

where GOP_t = Gross operating profit (in 000s DKK) per employee in quarter t
        $DELIGHT_t$ = Customer delight (in percent) in quarter t

The model can be linearized by taking logarithms:

$$ln GOP_t = \beta_0 \; + \; \beta_1 ln DELIGHT_{t-1} \; + \; \varepsilon' \qquad \text{with } \beta_0 = ln\alpha \qquad (5)$$

Such a translog specification has been proposed and used in previous modelling of profitability and customer satisfaction (e.g. Anderson et al., 1993, p. 17; Anderson et al., 1997, p. 138). Furthermore, the base model (4) and the translog specification (5) are widely used in market response modelling. The popularity of this model is due to its simplicity and flexibility plus the fact that it is theoretical attractive from an economic viewpoint, considering the parameter β_1 represents an elasticity, in this case, the elasticity of GOP with the changes in DELIGHT, i.e. the loyalty elasticity.

The equation (5) is estimated by ordinary least squares across all four hotels:

$$ln GOP_t = \; 1.915 \; + \; 0.702 ln DELIGHT_{t-1} \qquad\qquad (6)$$

The regression analysis shows that the relationship is positive and strongly significant (n=36, R^2 = 0.46, t = 5.41, p < 0.0005). Thus, hypothesis 2 is supported. The estimated gross operating profit per employee (in 000s DKK) in the quarter t can be expressed as follows:

$$GOP_t = 6.787 DELIGHT_{t-1}^{0.702} \qquad\qquad (7)$$

The estimated regression coefficient 0.702 is the elasticity of GOP with changes in DELIGHT, that is, for every 1% change in DELIGHT GOP changes by 0.7% in the following quarter. If DELIGHT, for example, is changed from 30% to 33%, i.e. by 10%, GOP will increase by 7% in the next quarter. The same GOP increase will occur, if DELIGHT is changed from 40% to 44%.

The relationship (7) has a concave shape, i.e. decreasing returns to increases in loyalty (for $0 < \beta_1 < 1$ in general).

Using WTR as the predictor variable in (6) and (7) has also been attempted, but this is not a good idea. Attempts to include both DELIGHT and WTR in order to reflect the two different degrees of loyalty have also been made. Finally, different transformations, for example WTR-DELIGHT (i.e. the percentage of guests who say it is 'possible' or 'likely' (score 3 and 4 on a 5-point scale) that they will stay at the hotel again) have been attempted. To incorporate both DELIGHT and WTR-DELIGHT in the model is just what Rust et al. (1994, p. 167; 1995, p. 63) did. However, such model revisions do not represent a better goodness of fit. Moreover, WTR and DELIGHT are strongly correlated and the high degree of multicollinearity distorts the results substantially or makes them quite unstable and thus not generalizable.

After controlling for hotel specific effects and season effects, the model type (5) was estimated with the result that R^2 is as high as 0.84.

The specification of the hypothesized lag between loyalty and profit was found significant better than a specification with loyalty and profit in the same quarter.

Combining the two links

That both relationships achieve the best result with DELIGHT as the loyalty indicator corresponds nicely to the fact that "the importance of customer delight (or positive surprise), as opposed to mere satisfaction, has been previously noted by researchers and managerial theorists" (Rust et al., 1995, p. 63). Keiningham et al. (1999, p. 63) found in a case study, that only business practices that caused customer delight were identified as key drivers and key opportunities for bottom line improvement.

Combining the estimated relationships (3) and (7), it is possible to calculate the following across hotels and quarters:
- If employee attitudes increases by 1 unit in one quarter
- then customer loyalty will increase by 1.25 units in the same quarter
- and profit will increase by 0.7% per 1% customer loyalty increase in the next quarter

For example, if employee attitudes (climate score) increases from 75 to 77, the customer loyalty (delight) will increase by 2 x 1.25 = 2.5 units, for example from 30% to 32.5%, and the next quarter the profit will increase by 0.7 x 2.5/30 = 0.7 x 8.3% = 5.8%.

Conclusions and implications for practice

The employee-customer and customer-profit relationships are estimated for the four Radisson hotels in Copenhagen, and the findings confirm the expected positive impact of employee attitudes on customer loyalty and, in turn, on profitability. Although our study is fundamentally descriptive, and other causal relationships exist we still believe that our findings show empirical evidence of the employee-customer-profit chain; in other words, companies that achieve higher employee attitudes also achieve higher customer loyalty and are rewarded by higher profitability. Understanding the employee-customer-profit chain will be more important for allocating resources and implementing quality and loyalty programs regarding profitability impact.

Yee et al. (2009, p. 617) found "that many research issues on the service-profit chain, such as … linearity of the causal relationships had not been addressed in the extant literature".

This paper contributes to the literature in two ways. First, we present evidence on the employee-customer relationship and the customer-profitability relationship in the same case. And second, we analyze and find empirical support for a non-linear customer-profitability relationship.

The logarithmic modelling of the relationship between customer loyalty and profit implies decreasing profit returns to increases in loyalty. For that reason there must be an optimal level of customer loyalty, of course depending on the costs of providing higher employee loyalty and customer loyalty. Experience, however, shows that the costs of improving employee attitudes and customer loyalty are increasing at a growing rate, i.e., "it becomes more and more expensive to increase customer satisfaction [and loyalty (or employee attitudes)], when customer satisfaction [and loyalty (or employee attitudes)] are already at a high level" (Dahlgaard et al., 1998, p. 159). This means that it is possible to use too many resources on quality improvement efforts, resulting in the improvement efforts not being profitable from a financial investment perspective. And thus strategies that request employees to maximize customer loyalty can become unfavorable. This corresponds with the "return on quality" approach, developed by Rust et al. (1994, 1996), which, among other things, is characterized by the proposition that "it is possible to spend too much on quality" (Rust et al., 1996, p. 59). The authors provide a managerial framework that can be used to guide quality improvement efforts in a financial perspective by calculating the financial return generated from the quality improvement expenditure.

Future research may wish to continue the efforts to make the effect of employee attitudes and customer loyalty financially accountable, and examine the optimization of employee attitudes and customer loyalty in a profitability perspective.

The existence of an employee-customer-profit chain makes it important to develop good measurement instruments for all parts of the chain. We especially need better employee attitudes and customer loyalty measures that are more predictive of the economic results of the quality and loyalty programs. Therefore, future research may also wish to develop employee attitudes and customer loyalty measures in this direction.

Finally, we emphasize that this study is based on the hotel industry. Research is also needed to test the generalizability of our findings to other industries.

Acknowledgements

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