The Relationship among the Dining Constraints, Service Quality, and Customer Satisfaction

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Introduction:

1.1 Background and Motivation

In the next two years, there will be considerable uncertainty in the global economy. Nevertheless, which industry guarantees a steady growth in the long run and stands out in the investment and stock market? The answer is the Food Service Industry. We may ask why the Food Service Industry can grow in such a tough economic environment. As we all know, with the increase of national income and living standards, customers are more likely to eat outside the home. According to statistics from the Executive Yuan, R.O.C Taiwan, the amount of people in Taiwan eating out has exceeded 70%. On the other hand, Food service industry tends to take high-level customization strategy, which makes customers enjoy not only the food, but also the quality of service. The higher the degree of customization is, the more the customers’ needs are met, which maintains the growth of food service industry.

However, some dining constraints still exist. Sometimes, customers regard these restrictions as unreasonable, which may affect the service quality, and thereby the customer satisfaction. In this paper, our goal is to realize how significantly dining constraints influence service quality and customer satisfaction.

1.2 Research Problem Statement

The Relationship among the Dining Constraints, Service Quality, and Customer Satisfaction

1.3 Research Objectives

Our goal is to ascertain which dining constraints affect the service quality and customer satisfaction the most and thus enterprises can apply the result as reference.
Literature Review

2.1 The Overview of the Food Service Industry

According to the classification of the Directorate-General of Budget, Accounting and Statistics, Executive Yuan, R.O.C., Taiwan, the Food Service Industry includes restaurants, venders, canteens, teahouses, coffee shops, fruit shops that provide food and services. Delivery of lunch boxes, pizza, and burgers are included as well. According to the recent survey (Table A.1 and Table A.2), the number of operators and the sales volume of the Food Service Industry are increasing year after year. The competition of food service corporations has become more intense, only by continuous innovation or adjustment of management can they keep growing.

2.2 The Definition of Constraint

Constraint means that when consumers encounter problems and restrictions, perceived risks and time pressure will affect how consumers choose and explain their feelings toward the atmosphere and what the evaluation they’ll have afterwards. (Schellinck, 1983)

2.3 The index of Constraint

a. Minimum Charge: The minimum consumption that customers should pay.

b. Maximum Dining Hours: Stockdale (1978) points out that time restriction makes customers stressed and therefore increase the impact caused by environment on their behaviors to a greater degree.

c. Service Charge: Service charge means that customers are obligated to tip after they finish eating (Azar, 2003). Some customers are willing to pay more money to encourage servers to offer better service (Aynn, 2001).
d. **No Outside Food:** Food consumed elsewhere is not allowed.

e. **No Reservation:** Reservation is an arrangement by which seats in the restaurants are scheduled in advance. No reservation means that customers don’t have the right to book the seats before going to the restaurants.

### 2.4 The Definition of Service Quality

No matter what industry it’s in, service quality is one of the successful key points of enterprises; this shows the importance of service quality. There are many different versions of how the scholars define service quality, and each will be stated as follows: Sasser, et al.(1987), based on the operational characteristics, stated that he defined service quality with three directions which were materials, equipment and person. Oliver (1981) pointed out that service quality was a continuity of evaluation that customers would have. Gronroos(1982;2007) divided service quality into technical quality and functional quality. The former is what the customers actually receive, and the latter is the way how service is delivered. Lehtinen(1982) pointed out that service quality was produced by the interaction between customers and service providers, and divided service quality into two subjects: process and outcome. Lewis & Booms (1983) thought that service quality was a measurement of the degree that the standards of service customers received met the customers’ expectation. Parasuraman, et al. (1985) stated that the evaluation function of service quality was composed of the expectation of consumers, quality of service process and quality of the results. Parasuraman, et al. (1985) three scholars thought that customer was the only judge of service quality, and pointed out that the value of cognitive was the overall evaluation of customer’s cognitive and the actual experience toward products. Booth (1990) also agreed with the point of view stated by Parasuraman, et al. (1985) three scholars, thought that service
quality was judged by customers, and indicated while the service situation cannot be decided, its service quality can be decided by customers. Harvey (1998) thought that service quality was composed of the actual results and the process of achieving that results; the former means that service providers can consistently satisfy the customers, and the quality of the process includes technology and perception. The former general manager of The Landis Hotel Su deemed that upgrade of the service quality must not only meet the customer’s needs but also exceed the expectations of customers (Wang, 2005). Presbury, et al.(2005) held that service quality was determined according to customers’ demand and expectations, and its service quality met customers’ expectations.

2.5 The Index of Service Quality

Parasuraman, et al. (1985) developed a generic instrument called “SERVQUAL” to measure service quality based on input from focused groups. The “SERVQUAL” included ten dimensions, which were as follows: reliability, responsiveness, competence, courtesy, credibility, safety, accessibility, communication, understandability, tangibility. Parasuraman, et al. (1988) stated that since service quality depended on the relationship of customer expectations with customer perceptions, it’s appropriate to calculate service quality by subtracting expected from perceived service. So they further extracted five dimensions from the “SERVQUAL” by factor analysis. Parasuraman, et al. (1991) continued to develop and modify the “SERVQUAL” with a large-scale empirical study, making “SERVQUAL” have a higher reliability and validity.

Stevens, et al. (1995) taking “SERVQUAL” as a reference, proposed a further professional scale for the food service industry to measure its “Service Quality”, which was called “DINESER.” One of our aims is to find out how the service quality in the food service industry influences the customer satisfaction. So we
choose “DINESER” as a reference to design our questionnaire and measure the index of service quality.

Parasuraman, et al. (1988) SERVQUAL

<table>
<thead>
<tr>
<th>Reliability</th>
<th>Reliability means whether consumers can trust the service or not.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangibility</td>
<td>Tangibility means that consumers depend on the environment or the staff uniform to evaluate service quality.</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Responsiveness means whether staff serves customers immediately or not.</td>
</tr>
<tr>
<td>Assurance</td>
<td>Assurance refers to whether staff behavior is polite or not and whether staff communicates efficiently with consumers.</td>
</tr>
<tr>
<td>Empathy</td>
<td>Empathy refers to staff attitude is friendly or sensitive to consumers.</td>
</tr>
</tbody>
</table>

2.6 The Definition of Customer Satisfaction

The definition and research about satisfaction applied to all kinds of industries are extensive; in the prophase, most satisfaction-relevant research regarded satisfaction was determined by the gap between personal expectation and cognition. From the 1990s, scholars attempted to induct past relevant research and developed more proper definitions. Anderson, et al. (1994) explained customer satisfaction from two viewpoints, transaction-specific and cumulative. From the transaction-specific standpoint, customer satisfaction refers to the assessment after consumption in specific occasions or time. As for the cumulative viewpoint, it refers to overall assessment of all purchasing experiences of goods and services. Kotler (1996) indicated customer satisfaction originated from the degree of pleasure or disappointment acquired by comparing the functional properties of products or perception to the consequence with personal anticipation to products. In other words, when the functional properties meet or exceed expectation, customers will have satisfaction, or else they’ll have displeasure. Shankar et al. (2003) distinguished satisfaction into service encounter satisfaction (transactional-oriented, giving evaluation based on the performance of different
service attributes) and overall satisfaction (relationship-oriented, evaluation comprised of a series of service encounters).

2.7 The Index of Customer Satisfaction

In early years, scholars considered satisfaction was a whole concept for customers’ feeling of using the products. For example, Czepiel (1974) considered customer satisfaction was a whole evaluation and that this evaluation could represent the reaction of customers. In addition, Day (1977) indicated that we could realize the outcome of using products through evaluating the degree of satisfaction. This kind of evaluation we called is “The degree of overall satisfaction.” Singh (1991) pointed out that satisfaction was multiple-dimensional. The evaluation of satisfaction would be different from various kinds of industries or people; therefore, we need to conduct with overall satisfaction.

According to the literature, we conduct the evaluation through “satisfaction to properties of products.” Because of the evaluation, we can realize not only the satisfaction of the product in different dimensions, but also the key element of influencing the satisfaction.

Methodology

3.1 Research Framework:
3.2 Research Samples:

Consumers were randomly selected as research objects. We used questionnaires to know the consumers’ experience in each restaurant.

3.3 Statistic Model:

a. Mediation

We tested that dinning constraints would affect customer satisfaction through service quality. We used multiple regression analysis to examine their relationship.

b. Multiple regression analysis

3.4 First, we tested the relationship between dinning constraint and service quality.

We used the multiple regression models as our model defined as follows:

\[ Y_i = X_{ai} + X_{bi} + X_{ci} + X_{di} + \epsilon_i \]

\( Y_i \) is the value of service quality of a specific restaurant. \( X_a \) is the reasonability of the minimum charge of a specific restaurant. \( X_b \) is the reasonability of the maximum dinning hours of a specific restaurant. \( X_c \) is the reasonability of the service charge in specific restaurant. \( X_d \) is the reasonability of the outside food into specific restaurant. \( \epsilon_i \) is restaurant error term.

3.4.1 Definition of Operating Variables:

3.4.1.1 Independent Variables:

The research will take four indexes as our model’s independent variables. The definitions are as follows:

a.  **MCi**: MCi stands for the minimum charge which restaurant i sets for every customer.

b.  **MDHi**: MDHi stands for the maximum dining hours which every customer can stay at restaurant i.

c.  **SCi**: SCi means restaurant i charges additional 10% fee on the money the customer spend.
3.4.1.2 Dependent variable:

SQ: SQ stands for restaurant i’s service quality which customers’ feel.

3.5 Second, we tested the relationship between dinning constraints and customer satisfaction.

We used the multiple regression models as our model defined as follows:

\[ S_i = X_{ai} + X_{bi} + X_{ci} + X_{di} + \epsilon_i \]

Where:
- \( S_i \) is the customer satisfaction of a specific restaurant.
- \( X_{ai} \) is the reasonability of the minimum charge of a specific restaurant.
- \( X_{bi} \) is the reasonability of the maximum dinning hours of a specific restaurant.
- \( X_{ci} \) is the reasonability of the service charge in specific restaurant.
- \( X_{di} \) is the reasonability of the outside food into specific restaurant.
- \( \epsilon_i \) is restaurant error term.

3.5.1 Definition of Operating Variables:

3.5.1.1 Independent Variables:

The research will take four indexes as our model’s independent variables. The definitions are as follows:

e. MCi: MCi stands for the minimum charge which restaurant i sets for every customer.

e. MDHi: MDHi stands for the maximum dining hours which every customer can stay at restaurant i.

g. SCi: SCi means restaurant i charges additional 10% fee on the money the customer spend.

3.5.1.2 Dependent variable:

CS: CS stands for restaurant i’s customer satisfaction.

3.6 Third, we combined the dinning constraints and service quality. We tested the relationship between the two and the customer satisfaction.
We used the multiple regression models as our model defined as follows:

\[ S_i = X_{ai} + X_{bi} + X_{ci} + X_{di} + Y_i + \varepsilon_i \]

\( S_i \) is the customer satisfaction of a specific restaurant. \( Y_i \) is the value of service quality of a specific restaurant. \( X_{ai} \) is the reasonability of the minimum charge of a specific restaurant. \( X_{bi} \) is the reasonability of the maximum dining hours of a specific restaurant. \( X_{ci} \) is the reasonability of the service charge in specific restaurant. \( X_{di} \) is the reasonability of the outside food into specific restaurant. \( \varepsilon_i \) is restaurant error term.

3.6.1 Definition of Operating Variables:

3.6.1.1 Independent Variables:

The research will take four indexes as our model’s independent variables. The definitions are as follows:

i. \( MC_i \): \( MC_i \) stands for the minimum charge which restaurant i sets for every customer.

j. \( MDH_i \): \( MDH_i \) stands for the maximum dining hours which every customer can stay at restaurant i.

k. \( SC_i \): \( SC_i \) means restaurant i charges additional 10% fee on the money the customer spend.

l. \( NOF_i \): \( NOF_i \) represents the food not offered by restaurant i would not be allowed.

m. \( Y_i \) is the value of service quality of a specific restaurant.

3.6.1.2 Dependent variable:

\( CS \): \( CS \) stands for restaurant i’s customer satisfaction.

3.7 Statistical Analysis Step:

a. Basic descriptive statistics analysis:

Analyzing the samples, we will calculate the maximum, minimum, and average value and standard deviation for each index. We briefly conclude the relationship between each independent variable and dependent variable.
b. Factor analysis

In our research, what we want to know is that whether the service quality can be divided into five factors (see literature review) and that whether the customer satisfaction can categorized in one factor. Then the analysis can be continued smoothly. But unexpectedly, we extract only four factors in the Service Quality. So we cut the factors from five to four, and rename some factors to make our research more reasonable. Considering exclusiveness and consistency, the renaming are as follows:

“Tangibility” is divided into two parts, “Comfort” and “Elegance”.

“Empathy” and “Reliability” are combined into one factor, “Responsibility”.

c. Multiple regression analysis

The so-called multiple regression analysis refers to two or more independent variables to predict the value of a dependent variable. In our research, we use the multiple regression analysis to test how well the dining constraints can influence the service quality, and how well the service quality can influence the customer satisfaction. Also, we can understand the common influence of many independent variables on one dependent variable, and find out which independent variable is relatively significant.

Data collection

Before the formal survey, we design the questionnaire on the basis of the essay resources. With these resources, we make modifications to let the questions fit our statistic model. For example, some inappropriate questions are eliminated. To make the dining constraints valuable, we use “reasonability” to calculate them. 1 means “very unreasonable”, 2 means “unreasonable”, 3 means “normal”…etc.

And we put the questionnaire on the “MySurvey” website to obtain the value of the dining constraints, service quality, and customer satisfaction. After our survey on the Internet, we input the collected data to
SPSS and make calculations to find out the unknown values what we need.

The results

4.1 There is a positive correlation between service charge and assurance.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Before standardization</th>
<th>Standard coefficient</th>
<th>t</th>
<th>Significant level</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>3.447</td>
<td>.272</td>
<td>12.672</td>
<td>.000</td>
</tr>
<tr>
<td>Service charge</td>
<td>.107</td>
<td>.049</td>
<td>.156</td>
<td>2.174</td>
</tr>
<tr>
<td>Minimum charge</td>
<td>.016</td>
<td>.050</td>
<td>.024</td>
<td>.321</td>
</tr>
<tr>
<td>No outside food</td>
<td>.007</td>
<td>.051</td>
<td>.011</td>
<td>.144</td>
</tr>
<tr>
<td>Maximum dining time</td>
<td>.028</td>
<td>.048</td>
<td>.044</td>
<td>.580</td>
</tr>
<tr>
<td>No reservation</td>
<td>.019</td>
<td>.045</td>
<td>.031</td>
<td>.423</td>
</tr>
</tbody>
</table>

Dependent Variable: Assurance

If the service charge is reasonable, the waiter/waitress can have better communication with the customers and even be more polite to the customers. On the other hand, when the service charge is not reasonable, the customers might require better service and the restaurant will be more difficult to please the consumers. So the assurance will be really low.

4.2 There is a positive correlation between service charge and responsibility.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Before standardization</th>
<th>Standard coefficient</th>
<th>t</th>
<th>Significant level</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>2.949</td>
<td>.300</td>
<td>9.843</td>
<td>.000</td>
</tr>
<tr>
<td>Service charge</td>
<td>.101</td>
<td>.054</td>
<td>.135</td>
<td>1.875</td>
</tr>
<tr>
<td>Minimum charge</td>
<td>.016</td>
<td>.055</td>
<td>.021</td>
<td>.282</td>
</tr>
<tr>
<td>No outside food</td>
<td>.034</td>
<td>.057</td>
<td>.047</td>
<td>.609</td>
</tr>
<tr>
<td>Maximum dining time</td>
<td>-.007</td>
<td>.053</td>
<td>-.010</td>
<td>-.127</td>
</tr>
<tr>
<td>No reservation</td>
<td>.039</td>
<td>.050</td>
<td>.058</td>
<td>.790</td>
</tr>
</tbody>
</table>

Dependent Variable: Responsibility

The more reasonable on the service charge, the more responsibility they have. The more reasonable of the service
charge, I won’t require them do a lot of service for me, I won’t expect they give me more service, to satisfy my extra needed, But if they do, even a little bit, I can be satisfy easily. For example, if the waiter/waitress take care of my kids.

4.3 There is a positive correlation between service charge and elegance.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Coefficient</th>
<th>Before standardization</th>
<th>Standard coefficient</th>
<th>t</th>
<th>Significant level</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>3.440</td>
<td>.223</td>
<td></td>
<td>15.428</td>
<td>.000</td>
</tr>
<tr>
<td>Service charge</td>
<td>.119</td>
<td>.040</td>
<td>.212</td>
<td>2.967</td>
<td>.003</td>
</tr>
<tr>
<td>Minimum charge</td>
<td>.018</td>
<td>.041</td>
<td>.032</td>
<td>.431</td>
<td>.667</td>
</tr>
<tr>
<td>No outside food</td>
<td>-.005</td>
<td>.042</td>
<td>-.009</td>
<td>-.115</td>
<td>.908</td>
</tr>
<tr>
<td>Maximum dining time</td>
<td>-.016</td>
<td>.039</td>
<td>-.030</td>
<td>-.405</td>
<td>.686</td>
</tr>
<tr>
<td>No reservation</td>
<td>.018</td>
<td>.037</td>
<td>.035</td>
<td>.488</td>
<td>.626</td>
</tr>
</tbody>
</table>

Dependent Variable: Elegance

The more reasonable of the service charge the more elegant of the restaurant environment. Normally the customers are less notice of the part of elegant, so they won’t give bad evaluation on it.

4.4 Service charge and Satisfaction

<table>
<thead>
<tr>
<th>Questions</th>
<th>Coefficient</th>
<th>Before standardization</th>
<th>Standard coefficient</th>
<th>t</th>
<th>Significant level</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>3.483</td>
<td>.207</td>
<td></td>
<td>16.860</td>
<td>.000</td>
</tr>
<tr>
<td>Service charge</td>
<td>.124</td>
<td>.037</td>
<td>.236</td>
<td>3.336</td>
<td>.001</td>
</tr>
<tr>
<td>Minimum charge</td>
<td>.027</td>
<td>.038</td>
<td>.053</td>
<td>.716</td>
<td>.475</td>
</tr>
<tr>
<td>No outside food</td>
<td>.006</td>
<td>.039</td>
<td>.012</td>
<td>.157</td>
<td>.876</td>
</tr>
<tr>
<td>Maximum dining time</td>
<td>-.044</td>
<td>.036</td>
<td>-.091</td>
<td>-1.228</td>
<td>.221</td>
</tr>
<tr>
<td>No reservation</td>
<td>.012</td>
<td>.034</td>
<td>.026</td>
<td>.364</td>
<td>.717</td>
</tr>
</tbody>
</table>

Dependent Variable: CS

The more reasonable of the service charge, the satisfaction will be higher.
## 4.5 Service charge, Service Quality, Customer Satisfaction

<table>
<thead>
<tr>
<th>Questions</th>
<th>Coefficient Before standardization</th>
<th>Standard Coefficient</th>
<th>t</th>
<th>Significant Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>0.826</td>
<td>0.230</td>
<td>3.599</td>
<td>.000</td>
</tr>
<tr>
<td>Service charge</td>
<td>0.058</td>
<td>0.111</td>
<td>2.299</td>
<td>.023</td>
</tr>
<tr>
<td>Minimum charge</td>
<td>0.022</td>
<td>0.043</td>
<td>0.866</td>
<td>.387</td>
</tr>
<tr>
<td>No outside food</td>
<td>-0.007</td>
<td>-0.013</td>
<td>-2.259</td>
<td>.023</td>
</tr>
<tr>
<td>Maximum dining time</td>
<td>-0.033</td>
<td>-0.068</td>
<td>-1.375</td>
<td>.171</td>
</tr>
<tr>
<td>No reservation</td>
<td>-0.007</td>
<td>-0.014</td>
<td>-0.306</td>
<td>.760</td>
</tr>
<tr>
<td>Assurance</td>
<td>0.307</td>
<td>0.398</td>
<td>6.332</td>
<td>.000</td>
</tr>
<tr>
<td>Comfort</td>
<td>0.254</td>
<td>0.286</td>
<td>4.532</td>
<td>.000</td>
</tr>
<tr>
<td>Responsibility</td>
<td>0.095</td>
<td>0.136</td>
<td>2.190</td>
<td>.030</td>
</tr>
<tr>
<td>Elegance</td>
<td>0.092</td>
<td>0.099</td>
<td>1.720</td>
<td>.087</td>
</tr>
<tr>
<td>Dependent Variable: CS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

On the hypothesis of full mediation, we thought that the dining constraints will affect the satisfaction totally through the service quality. But with the result for service charge, there is not only a significant relationship between the service quality (mediator) and the satisfaction, but also some direct relationship between the service charge and satisfaction.

### Conclusion

After analyzing the data and interpreting the results of our research, we have some suggestions enterprises in food service industry may adopt. Since the relationships between service charge and assurance, responsibility, and elegance are all positive, we deem that if a restaurant requires service charge, it must either serve its customers well enough to meet their expectations, or simply cut the service charge. To provide service equivalent to its service charge, corporations may offer employees round training so that they’re able to serve with caution, communicate with customers effectively, and meet consumers’ extra demand. As for elegance, enterprises may enhance dining environment.

Besides, because service charge has direct positive relationship with customer satisfaction, corporations can
merely cut or exempt service charge to increase customer satisfaction. By these means, they can level up the service quality and lead to higher customer satisfaction, which is the main purpose of our research. Through our research on this topic, we hope the outcomes and suggestions can be a beneficial reference to corporations.

Appendix

Table A.1

![Food industry sales volume in Taiwan](chart1.png)

Table A.2

![Food industry number of operator](chart2.png)

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