



## Modeling Customer Satisfaction in the Food Industry of Iran

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### ABSTRACT

The aim of this paper is modeling customer satisfaction in the food industry of Iran. Results indicate that there is a significant relation between variables of "customer loyalty", "customer complaints", "customer expectations", "perceived quality", "perceived value" and "corporate image" with "customer satisfaction". Based on above assumptions and PLS method, we introduced the basic model of customer satisfaction in the food industry in Iran. Also, customer satisfaction index in the food industry of Iran is 54.2. Therefore, there is a relative satisfaction of customers in this industry in Iran.

**KEY WORDS:** Customer Satisfaction, Food Industry, PLS Method, Iran.

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### 1. INTRODUCTION

There are many literatures about customer satisfaction. Customer satisfaction is one of the most subjects in management studies. With the ways of improvement customer satisfaction, agents can increase their profit. Customer satisfaction is a common concept with economic and psychology debates. Customer satisfaction is as same concept of consumption utility. [Simon, 1974]

Some basic studies about Customer satisfaction are:

Johnson and Fornell, 1991, Wärneryd, 1988, Fornell et al., 1996, Johnson, Anderson and Fornell, 1995, Grumbkow's 1988, Fornell, 1992, Andreassen and Lervik, 1999, Andreassen and Lindstad, 1998a, de Ruyter, Bloemer and Peeters, 1997.

Eklöf, 2000 investigated Customer satisfaction Index across four industries and 11 countries in the European Union.

The lack studies about Customer satisfaction in developing countries as Iran was incentive for writing this paper. The aim of this paper is modeling customer satisfaction in the food industry of Iran. For do it, we have used Partial Least Square (PLS) method in the food industry of Iran.

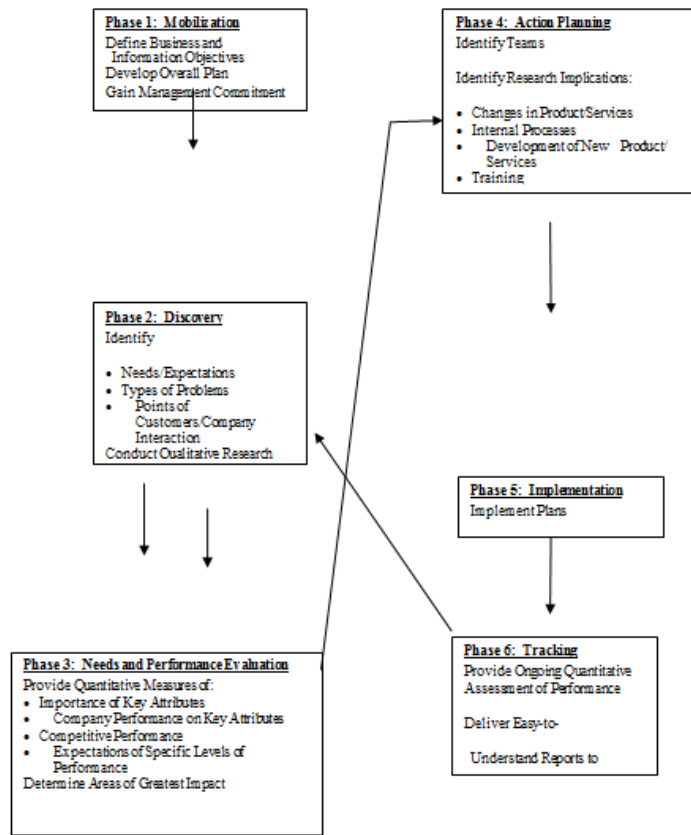
### 2. RESEARCH METHOD

Customer satisfaction and loyalty research allows your customers to communicate with you directly about their needs, assuring you that the quality standards you establish reflect the voice of the customer and not just the company line. Because everyone's needs are different, a specific approach is developed to meet them. However, the overall process can be divided into six interactive phases.

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**Customer Satisfaction Measurement Process**



We have used a questionnaire adopted by food industry of Iran by PLS method.

**Table 1. Mean and standard deviation of the hidden variables**

		CUSTOMER SATISFACTION	PERCEIVED QUALITY	CUSTOMER EXPECTATIONS	PERCEIVED VALUE	CUSTOMER COMPLAINTS	CUSTOMER LOYALTY	IMAGE
N	Valid	52	52	52	52	52	52	52
	Mean	53.8500	61.0500	64.3327	57.9885	54.8288	56.1423	52.2481
	Std. Deviation	15.43449	12.97245	14.46124	14.79174	16.87601	11.58925	15.6172
	Minimum	18.50	25.40	37.00	26.70	16.70	36.10	13.00
	Maximum	88.90	84.10	100.00	82.20	83.30	77.80	100.00

**Relationship between apparent variables and hidden variables:**

The hidden variable  $\mu_{jh}$  is indirectly by a set of variables and each variable can be identified clearly  $X_{jh}$  revealed by a simple regression equation with its hidden variable.  $X_{jh} = \alpha_{jh0} + \alpha_{jh} \cdot \mu_{jh} + \varepsilon_{jh}$

**Relationship between the hidden variables model:**

$$\mu_j = \beta_{j0} + \beta_{ji} \cdot \mu_j + \varepsilon_j$$

$$CustomerExpectation = \beta_{20} + \beta_{21} Image + \varepsilon_{20}$$

$$PerceivedQuality = \beta_{30} + \beta_{31} Image + \beta_{32} CustomerExpectation + \varepsilon_{30}$$

$$PerceivedValue = \beta_{40} + \beta_{41} Image + \beta_{42} CustomerExpectation + \beta_{43} PerceivedQuality + \varepsilon_{40}$$

$$ICSI = \beta_{50} + \beta_{51} Image + \beta_{52} CustomerExpectation + \beta_{53} PerceivedQuality + \beta_{54} PerceivedValue + \varepsilon_{50}$$

$$CustomerLoyalty = \beta_{60} + \beta_{61} Image + \beta_{62} ICSI + \varepsilon_{60}$$

$$CustomerComplain = \beta_{70} + \beta_{71} Image + \beta_{72} ICSI + \varepsilon_{70}$$

### 3. RESULTS

We estimated model by VPLS software as following:

	N	Mean	Std. Deviation	Std. Error Mean
CUSTOMER_SAT	40	7.1082	1.40300	.22183
PERCIEIVED_QUALITY	40	8.3895	.93216	.14739
PERCEIVED_VALUE	40	7.0312	1.35271	.21388
CUS_EXPECTATIONS	40	7.5420	1.29798	.20523
CUS_COMPLAINTS	40	8.0198	1.12501	.17788
CUS_LOYALTY	40	8.0564	1.03202	.16318
IMAGE	40	8.3755	1.36240	.21541

	Test Value = 5					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
CUSTOMER_SAT	9.504	39	.000	2.10825	1.6595	2.5570
PERCIEIVED_QUALITY	22.997	39	.000	3.38950	3.0914	3.6876
PERCEIVED_VALUE	9.497	39	.000	2.03125	1.5986	2.4639
CUS_EXPECTATIONS	12.386	39	.000	2.54200	2.1269	2.9571
CUS_COMPLAINTS	16.976	39	.000	3.01975	2.6600	3.3795
CUS_LOYALTY	18.730	39	.000	3.05637	2.7263	3.3864
IMAGE	15.670	39	.000	3.37550	2.9398	3.8112

**First Hypothesis:**

There is a significant relationship between "customer satisfaction" and "corporate image".

Table 4. Spearman correlation coefficient

	CUSTOMER_SAT	IMAGE		
Spearman's rho	CUSTOMER_SAT	Correlation Coefficient	1.000	.339*
		Sig. (2-tailed)	.	.033
		N	40	40
	IMAGE	Correlation Coefficient	.339*	1.000
		Sig. (2-tailed)	.033	.
		N	40	40

\*. Correlation is significant at the 0.05 level (2-tailed).

Results indicate that there is a significant relationship between "customer satisfaction" and "corporate image".

**Second Hypothesis:**

There is a significant relationship between "customer satisfaction" and "perceived quality".

Table 5. Spearman correlation coefficient

			CUSTOMER_SAT	PERCEIVED_QUALITY
Spearman's rho	CUSTOMER_SAT	Correlation Coefficient	1.000	.494**
		Sig. (2-tailed)	.	.001
		N	40	40
	PERCEIVED_QUALITY	Correlation Coefficient	.494**	1.000
		Sig. (2-tailed)	.001	.
		N	40	40

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Results indicate that there is a significant relationship between "customer satisfaction" and "perceived quality".

**Third Hypothesis:**

There is a significant relationship between "customer satisfaction" and "perceived value".

Table 6. Spearman correlation coefficient

			CUSTOMER_SAT	PERCEIVED_VALUE
Spearman's rho	CUSTOMER_SAT	Correlation Coefficient	1.000	.389*
		Sig. (2-tailed)	.	.013
		N	40	40
	PERCEIVED_VALUE	Correlation Coefficient	.389*	1.000
		Sig. (2-tailed)	.013	.
		N	40	40

\*. Correlation is significant at the 0.05 level (2-tailed).

Results indicate that there is a significant relationship between "customer satisfaction" and "perceived value".

**Fourth Hypothesis:**

There is a significant relationship between "customer satisfaction" and "customer expectations".

Table 7. Spearman correlation coefficient

			CUSTOMER_SAT	CUS_EXPECTATIONS
Spearman's rho	CUSTOMER_SAT	Correlation Coefficient	1.000	.458**
		Sig. (2-tailed)	.	.003
		N	40	40
	CUS_EXPECTATIONS	Correlation Coefficient	.458**	1.000
		Sig. (2-tailed)	.003	.
		N	40	40

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Results indicate that there is a significant relationship between "customer satisfaction" and "customer expectations".

**Fifth Hypothesis:**

There is a significant relationship between "customer satisfaction" and "customer complaints".

Table 8. Spearman correlation coefficient

			CUSTOMER_SAT	CUS_COMPLAINTS
Spearman's rho	CUSTOMER_SAT	Correlation Coefficient	1.000	.343*
		Sig. (2-tailed)	.	.030
		N	40	40
	CUS_COMPLAINTS	Correlation Coefficient	.343*	1.000
		Sig. (2-tailed)	.030	.
		N	40	40

\*. Correlation is significant at the 0.05 level (2-tailed).

Results confirm the hypothesis as there is a significant relationship between "customer satisfaction" and "customer complaints".

**Sixth Hypothesis:**

There is a significant relationship between "customer satisfaction" and "customer loyalty".

Table 9. Spearman correlation coefficient

			CUSTOMER_SAT	CUS_LOYALTY
Spearman's rho	CUSTOMER_SAT	Correlation Coefficient	1.000	.446**
		Sig. (2-tailed)	.	.004
		N	40	40
	CUS_LOYALTY	Correlation Coefficient	.446**	1.000
		Sig. (2-tailed)	.004	.
		N	40	40

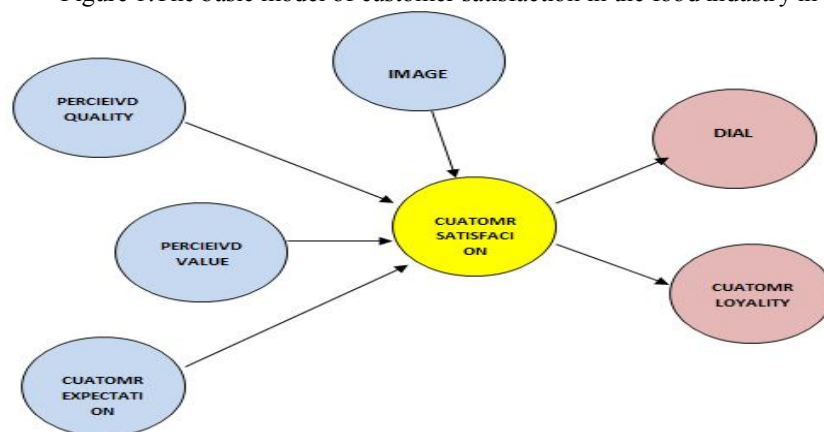
\*\* Correlation is significant at the 0.01 level (2-tailed).

Results confirm the hypothesis as there is a significant relationship between "customer satisfaction" and "customer loyalty".

So there is a significant relation between variables of "customer loyalty", "customer complaints", "customer expectations", "perceived quality", "perceived value" and "corporate image" with "customer satisfaction".

Based on above assumptions, we introduced the basic model of customer satisfaction in the food industry in Iran as following figure.

Figure 1. The basic model of customer satisfaction in the food industry in Iran



**4. Conclusion**

Customer satisfaction is one of the most subjects in management. The aim of this paper is modeling customer satisfaction in the food industry of Iran. We have used spearman correlation coefficient and PLS method for

modeling customer satisfaction in the food industry of Iran. Results indicate that there is a significant relation between variables of "customer loyalty", "customer complaints", "customer expectations", "perceived quality", "perceived value" and "corporate image" with "customer satisfaction". Based on above assumptions, we introduced the basic model of customer satisfaction in the food industry in Iran.

Prioritize the identified variables influencing customer satisfaction in the food industry using a Friedman rank test as following:

Rank of Effectiveness	Coefficient obtained from the test	Index
6	0.282	corporate image
1	0.658	perceived quality
4	0.481	perceived value
2	0.55	customer expectations
5	0.447	customer complaints
3	0.516	customer loyalty

Based on the results, customer satisfaction index in the food industry of Iran is 54.2. Therefore, there is a relative satisfaction of customers in this industry in Iran.

## REFERENCES

- [1]. Andreassen, T. W., Lervik, L., 1999. Perceived relative attractiveness today and tomorrow as predictors of future repurchase intention. *Journal of Service Research* 2, 164-172.
- [2]. Andreassen, T. W., Lindestad, B., 1998a. The effects of corporate image in the formation of customer loyalty. *Journal of Service Marketing* 1, 82-92.
- [3]. De Ruyter, K., Bloemer, J., Peeters, P., 1997. Merging service quality and service satisfaction: An empirical test of an integrative model. *Journal of Economic Psychology* 18, 387-406.
- [4]. Eklöf, J. A., 2000. European Customer Satisfaction Index pan-European telecommunication sector report – Based on the pilot studies 1999. European Organization for Quality and European Foundation for Quality Management, Stockholm, Sweden.
- [5]. Fornell, C., 1992. A national customer satisfaction barometer: The Swedish experience. *Journal of Marketing* 56, 6-21.
- [6]. Fornell, C., Cha, J., 1994. Partial least squares. In: Bagozzi, R. P. (Ed.), *Advanced Methods of Marketing Research*. Blackwell, Cambridge, MA, pp. 52-78.
- [7]. Fornell, C., Johnson, M. D., Anderson, E. W., Cha, J., Bryant, B. E., 1996. The American Customer Satisfaction Index: Nature, purpose and findings. *Journal of Marketing* 60, 7-18.
- [8]. Hackl, P., Scharitzer, D., Zuba, R., 1996. The Austrian Customer Satisfaction Barometer (ACSB): A pilot study. *Der Markt* 35, 86-94.
- [9]. Johnson, M. D., Anderson, E. W., Fornell, C., 1995. Rational and adaptive performance expectations in a customer satisfaction framework. *Journal of Consumer Research* 21, 128-140.
- [10]. Johnson, M. D., Fornell, C., 1991. A framework for comparing customer satisfaction across individuals and product categories. *Journal of Economic Psychology* 12, 267-286.
- [11]. Johnson, M. D., Nader, G., Fornell, C., 1995. Expectations, perceived performance, and customer satisfaction for a complex service: The case of bank loans. *Journal of Economic Psychology* 17, 163-182.
- [12]. Oliver, R. L., 1980. A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research* 17, pp. 460-469.
- [13]. Oliver, R. L., 1993. Cognitive, affective, and attribute bases of the satisfaction response. *Journal of Consumer Research* 20, pp. 418-430.
- [14]. Poiesz, T. B. C., von Grumbkow, J., 1988. Economic well-being, job satisfaction, income evaluation, and consumer satisfaction: An integrative attempt. In: Van Raaij, W. F., Van Veldhoven, G. M., Wärneryd, K.-E. (Eds.), *Handbook of Economic Psychology*. Kluwer Academic Publishers, Dordrecht, The Netherlands, pp. 570-593.
- [15]. Simon, J. L., 1974. Interpersonal welfare comparisons can be made - and used for redistribution decisions. *Kyklos* 27, 63-98.
- [16]. Wärneryd, K.-E., 1988. Economic psychology as a field of study. In: Van Raaij, W. F., Van Veldhoven, G. M., Wärneryd, K.-E. (Eds.), *Handbook of Economic Psychology*. Kluwer Academic Publishers, Dordrecht, The Netherlands, pp. 2-41.
- [17]. Yi, Y., 1991. A critical review of customer satisfaction. In: Zeithaml, V. (Ed.), *Review of Marketing*, 1990. American Marketing Association, Chicago, pp. 68-123.