MEASURING GROCERY STORES SERVICE QUALITY IN INDONESIA: A RETAIL SERVICE QUALITY SCALE APPROACH

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Abstract
The growing number of modern grocery stores in Indonesia is a challenge for each grocery store to maintain and increase their number of consumers. The success of maintaining and improving service quality will affect long-term profitability and business sustainability. Therefore, in this study, we examined consumer perceptions of service quality in one of modern grocery stores in Indonesia. Data were collected from 387 consumers of grocery stores in Jakarta, Bogor, Depok, Bekasi, Cibubur, and Subang. Structural Equation Modeling (SEM) through Maximum likelihood and Bayesian estimation was employed to analyze the data. The finding indicated that the five indicators of the retail service quality scale consisting of physical aspects, reliability, personal interactions, problem solving and policies provided valid multi-item instruments in measuring consumer perceptions of service quality in grocery stores.

Keywords
service quality; retail service quality approach; grocery stores; SEM

JEL Classification
L81

Introduction
Lifestyle changes and demands of a more efficient and fast shopping process lead to changes in consumer shopping transactions from traditional markets to modern markets. Modern grocery stores are preferred, especially by upper middle class people and living in urban areas. This is because consumers do not only want quality products at competitive prices, but also the quality and convenience of the shopping process. In addition, the provision and arrangement of various products in one place make the efficiency of shopping time can be achieved (Torlak, Uzkurt, & Özmen, 2010); (Canada, 2011); (Terano, binti Yahya, Mohamed, & bin Saimin, 2015). The higher consumer preference for shopping in modern grocery stores makes this business competition even higher (Sirohi, McLaughlin, & Wittink, 1998). In addition, the liberalization of the government since 1998 through the signing of a letter of intent with the IMF provides a great opportunity for foreign investors to open a modern retail business in Indonesia (KPPU, 2007). This has led to the growing brand of modern grocery stores in Indonesia.

The growing number of modern grocery stores is a challenge for each grocery store to maintain and increase their number of consumers. The success of maintaining and increasing the number of consumers will affect the level of corporate profits and long-term business sustainability that will contribute to the national income and also contribute to absorbing the national workforce (Soliha, 2008).

The fundamental strategy that modern grocery stores applied to maintain and increase their customers is by improving service quality (Hummel & Savitt, 1988). According to (Vazquez, Rodríguez-Del Bosque, Díaz, & Ruiz, 2001), service quality is the

consumer's perception of the overall service quality they receive and adjust the effort to achieve the subjective service quality with the cost incurred by the service provider. In this study, examined consumer perceptions of service quality in one of the modern grocery stores in Indonesia. Prior research on service quality has been widely practiced, but there is still little evidence in term of service quality in modern grocery stores (Lewis & Thomas, 1990); (Vazquez et al., 2001); (Siu & Chow, 2004); (Torlak et al., 2010). In addition, the differences in the method of service quality analysis, creating different contribution of each study to the literature.

Service quality in modern grocery stores

Various strategies are carried out by modern grocery stores to maintain and to enhance consumer perceptions of their service qualities. Some of them offer a large and diverse range of products, while others offer a variety of pricing policies (Levy, Weitz, & Grewal, 1998), attractive and convenient store interior conditions to increase consumer time around (Andreu, Bigné, Chumpitaz, & Swaen, 2006) and provide shop assistants who are ready to help and promote certain products (Torlak et al., 2010). (Siu & Chow, 2004) analyzed service quality in Japanese grocery retailing in Hong Kong by using a retail service quality scale consisting of physical aspects, reliability, personal interactions, problem solving and policies, following (Dabholkar, Thorpe, & Rentz, 1996). The findings indicated that personal interaction and trustworthiness was the most influential service quality indicator. Moreover, (Vazquez et al., 2001); (Ahmad, Ihtiyar, & Omar, 2014); (Ibrahim et al., 2013) also analyzed service quality by using the same indicators. According to the prior studies, the indicators of the retail service quality scale were more extensive in capturing service quality in retailing stores compared to SERVQUAL indicators used in companies that offer services in general (Vazquez et al., 2001). The first indicator of retail service quality scale proposed by (Dabholkar et al., 1996) was physical aspects. This indicator embodied a broader understanding than tangible indicators in SERVQUAL which consists of physical appearance, store layout, design, and product shelf arrangement. The second indicator was reliability. This indicator consisted of the ability of grocery stores to keep their promises and to set services rightly. The third indicator was personal interaction. This indicator embodied the ability of personnel to be courteous, to be helpful and to treat customers in a good manner. The fourth indicator was problem solving. This indicator embodied the ability of employees to handle returns and exchanges and to resolve customers' problems and complaints. The last indicator was policies. These indicators indicated the specific policies on retail stores on products quality, parking, operation hours, and method of payment, pricing strategy and brand setting (Dabholkar et al., 1996); (Vazquez et al., 2001); (Abu, 2004); (Torlak et al., 2010). All of those indicators cannot be measured when we analyze service quality in retail stores by using SERVQUAL. More details about the indicators of the retail service quality scale used in this study are denoted in Appendix A1.

Data and measurement

To analyze service quality in grocery stores, service quality indicators (Dabholkar et al., 1996) were adapted. The indicators consisted of physical aspects, reliability, personal interactions, problem solving and policies. A face to face interview was conducted with 387 consumers of grocery stores in Jakarta, Bogor, Depok, Bekasi, Cibubur, and Subang. The questionnaire items were measured by using a Likert scale. The data were analyzed by using Structural Equation Modeling (SEM) method and

processed by using Amos 24 statistical package through Maximum likelihood and Bayesian estimation technique.

Findings

Characteristics of respondents

The result of descriptive analysis in table 1 indicated that the majority of local grocery stores consumers was female (53.23%) and the rest was male (46.77%). Then, judging from the frequency of shopping, as many as 97% of respondents said they had carried out shopping more than 3 times and 92% of respondents said they had been shopping monthly. Thus, it can be concluded that almost all respondents in this study were consumers who were loyal to the grocery stores.

Tabel 1. Respondents' characteristics

Respondents' characteristics	N	%
Gender		
Female	206	53.23 %
Male	181	46.77 %
Shopping frequency		
> 3 times		
Yes	374	97%
No	13	3%
Monthly shopping		
Yes	356	92%
No	31	8%

The result of parameter estimation using maximum likelihood

The results of descriptive statistics on the indicators used in the model were denoted in table 2.

Table 2. Measurement descriptives

Variables		Means	Std. errors	Std. deviations
Tangible				
Q2	The store provides a sufficient number of cashiers	2.84331	.047168	.927901
Q3	Facilities and store services make it easy for me to shop	3.57718	.044207	.854944
Q4	Facilities and store services made me comfortable to shop	3.32529	.044703	.927901
Q5	High cleanliness and tidiness provided in the store when I am shopping	3.45757	.044674	.854944
Reliability				
Q6	The store provides the items I need	3.39535	.028638	.927901
Q7	Promotions in the store as promised	3.88149	.041541	.854944

Q8	The price written on the label is consistent with the cashier's payment	3.75036	.042540	.927901
Q9	The store never sells expired products	3.51296	.043090	.854944
Q10	The products sold are always fit in size	3.75036	.041610	.927901
Q11	The products sold are safe for consumption	3.88149	.041544	.854944
Personal interaction				
Q15	The store always pays attention to my needs	2.93621	.040922	.927901
Q16	Store employees can always help me to shop	3.88149	.043732	.854944
Q18	Store employees always work on the best service	3.88149	.042080	.927901
Problem solving				
Q19	Cashiers in the store always act quickly when there is a long queue	3.28889	.046003	.854944
Q20	Cashiers in the store have reliable abilities	3.75036	.041777	.927901
Policies				
Q23	Adequate parking space available in store	2.70456	.047057	.854944
Q24	The store has clear and interesting promotional instructions and designs	3.88149	.043459	.927901

Furthermore, the assumption of univariate normality of the data indicated that, critical skewness value (c.r) of all indicators was between the values of $-2{,}58 \leq c.r \leq 2.58$. however, the coefficient of multivariate kurtosis was 84.280 (> 2.58). Thus, it could be concluded that based on multivariate normality assumption, the data were not normally distributed (Ghozali, 2008).

The evaluation of maximum likelihood estimation on goodness of fit model indicated that Chi-square value = 292.904, DF = 109, RMSEA = 0.066, GFI = 0.919, PGFI = 0.654, CFI = 0.922, PCFI = 0, 739, and TLI = 0.903. Therefore, the overall indicators indicated that the model has reached conformity (Arbuckle, 2009; Browne & Cudeck, 1993; Ghozali, 2008; Moss, 2009). All indicator coefficients were positive and significant at alpha 5% (Table 3).

All standardized loadings were > 0.50 and C.R. value > 2.00 indicated that all indicators of latent variables employed in the model were valid and significant at alpha 1%. The main indicator of the physical aspects was Q4, i.e. facilities and services make consumers comfortable to shop (std. loading = 0.825). The main indicator of reliability was Q8, i.e. The price written on the label was consistent with the cashier's payment (std. loading = 0.821). The main indicator of personal interaction was Q18 (std. loading = 0.650), i.e. store employees worked on the best service. The main indicator of problem solving was Q20 (std. loading = 0.754), i.e. cashiers in the store had a reliable abilities. The main indicator of policies was Q23 (std. loading = 0.551), i.e. adequate parking space available in store.

Table 3. Exploratory Factor Analysis Results

Variables		Coeff.	Standardized loadings	C.R.	KMO	% Variance extracted
Physical aspects						
Q2	The store provides a sufficient number of cashiers	1.032	0.553***	8.516	0.731	59.390
Q3	Facilities and store services make it easy for me to shop	1.419	0.811***	10.801		
Q4	Facilities and store services made me comfortable to shop	1.460	0.825***	10.878		
Q5	High cleanliness and tidiness provided in the store when I am shopping	1.000	0.566***			
Reliability						
Q6	The store provides the items I need	0.557	0.581***	10.454	0.867	57.319
Q7	Promotions in the store as promised	0.942	0.677***	11.918		
Q8	The price written on the label is consistent with the cashier's payment	0.995	0.699***	12.403		
Q9	The store never sells expired products	0.988	0.685***	12.458		
Q10	The products sold are always fit in size	1.144	0.821***	14.865		
Q11	The products sold are safe for consumption	1.000	0.719***			
Personal interaction						
Q15	The store always pays attention to my needs	0.864	0.577***	9.851	0.644	57.855
Q16	Store employees can always help me to shop	0.953	0.596***	10.280		
Q18	Store employees always work on the best service	1.000	0.650***			
Problem solving						
Q19	Cashiers in the store always act quickly when there is a long queue	0.942	0.645***	9.622	0.500	74.288
Q20	Cashiers in the store have reliable abilities	1.000	0.754***			
Policies						
Q23	Adequate parking space available in store	1.183	0.551***	7.688	0.500	63.873
Q24	The store has clear and interesting promotional instructions and designs	1.000	0.504***			

*** Significant at alpha 1%

The relationship between each latent variable was displayed in figure 2.

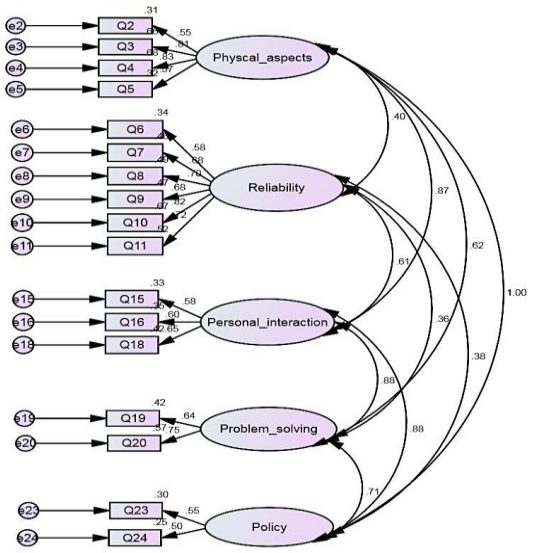

Figure 1. The relationship between the indicators of the variable

Since the multivariate normality assumption was not confirmed in the data, then the estimation was continued by employing the Bayesian estimation technique. This technique is one alternative that can be used on data that is not normally distributed (Ghozali, 2008).

Estimation of parameters using Bayesian confirmatory factor analysis (CFA)

The estimation results using a Bayesian SEM technique were converging on an iteration of the sample number of 63,000 (500 + 62,500). The indicators of Q5, Q11, Q18, Q20, and Q24 did not appear on the output because the model was given constraint 1 (Ghozali, 2008). All indicators were significant at alpha 5%. This could be inferred from the 95% credible internal lower bound and 95% credible internal upper bound that did not contain value of 0 (Table 4).

Table 4. Estimation of service quality indicators

Variables		Coeff.	95 % lower bound	95 % upper bound	
Physical aspects					
Q2	The store provides a sufficient number of cashiers	1.023	0.804	1.282	significant
Q3	Facilities and store services make it easy for me to shop	1.411	10.801	1.183	significant
Q4	Facilities and store services made me comfortable to shop	1.448	10.878	1.216	significant
Q5	High cleanliness and tidiness provided in the store when I am shopping				

Reliability					
Q6	The store provides the items I need	0.557	0.458	0.672	significant
Q7	Promotions in the store as promised	0.942	0.800	1.115	significant
Q8	The price written on the label is consistent with the cashier's payment	0.995	0.851	1.176	significant
Q9	The store never sells expired products	0.988	0.844	1.161	significant
Q10	The products sold are always fit in size	1.144	0.690	1.480	significant
Q11	The products sold are safe for consumption	1.000			
Personal interaction					
Q15	The store always pays attention to my needs	0.864	0.694	1.037	significant
Q16	Store employees can always help me to shop	0.953	0.763	1.129	
Q18	Store employees always work on the best service	1.000			
Problem solving					
Q19	Cashiers in the store always act quickly when there is a long queue	0.942	0.740	1.143	significant
Q20	Cashiers in the store have reliable abilities	1.000			
Policies					
Q23	Adequate parking space available in store	1.183	0.885	1.480	significant
Q24	The store has clear and interesting promotional instructions and designs	1.000			

The validity of each dimension was demonstrated through the posterior distribution of first and last of each loading factor, where we expect the distribution of loading factor did not contain the value 0 (Figure 2 through figure 13).

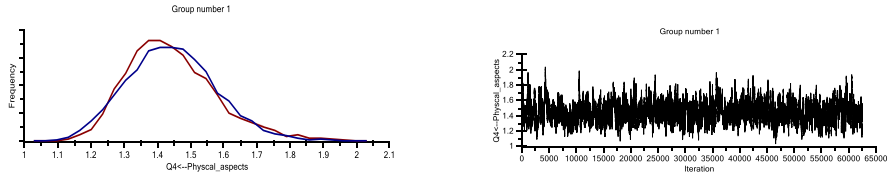

Figure 2. Posterior distribution of Q4

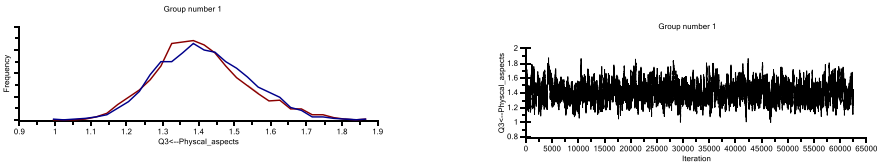

Figure 3. Posterior distribution of Q3

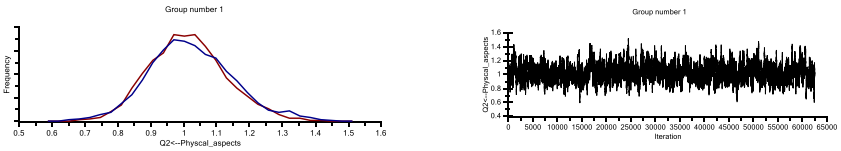

Figure 4. Posterior distribution of Q2

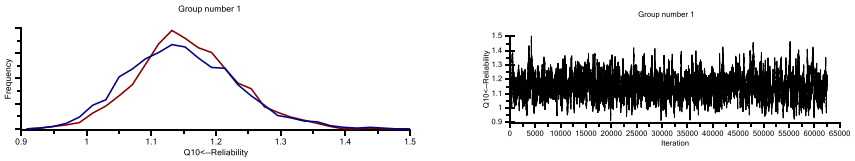

Figure 5. Posterior distribution of Q10

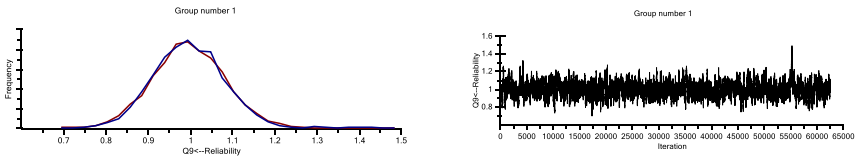

Figure 6. Posterior distribution of Q9

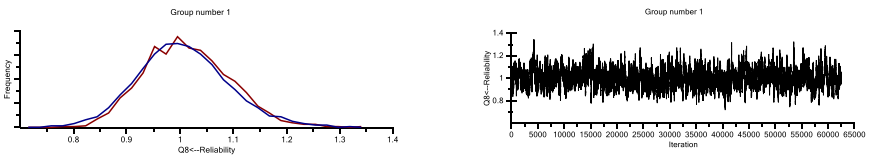

Figure 7. Posterior distribution of Q8

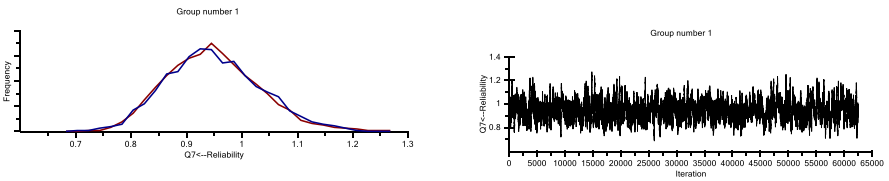

Figure 8. Posterior distribution of Q7

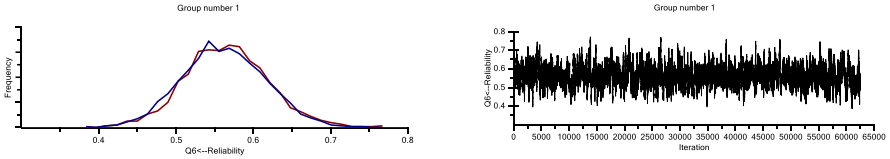

Figure 9. Posterior distribution Q6

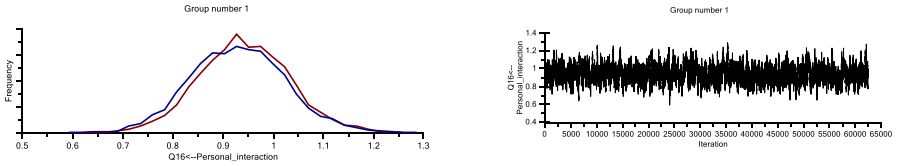

Figure 10. Posterior distribution of Q16

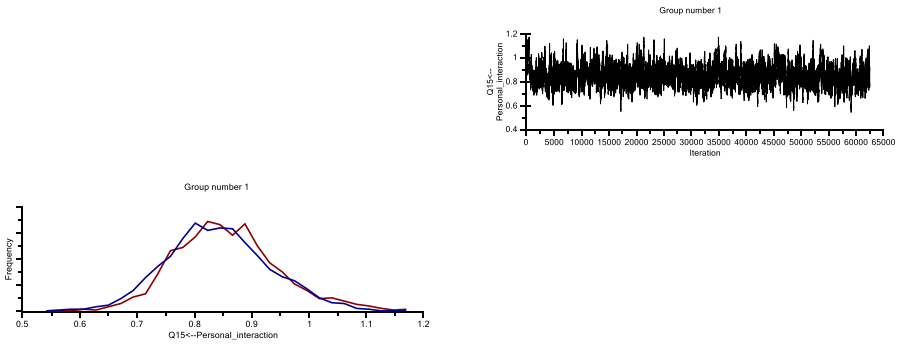

Figure 11. Posterior distribution of Q15

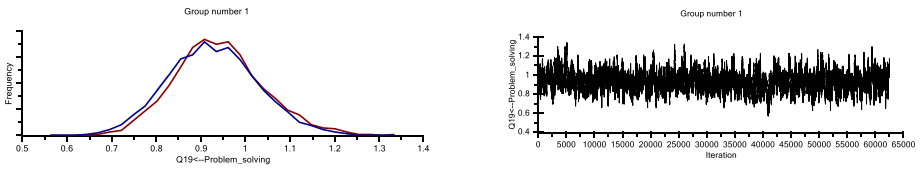

Figure 12. Posterior distribution of Q19

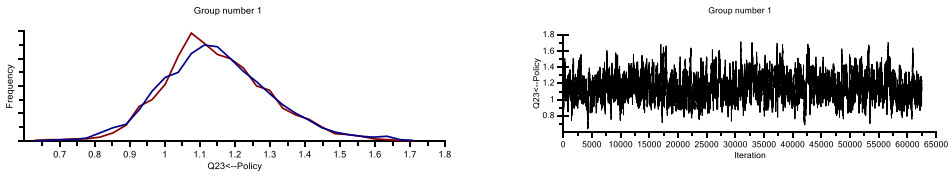

Figure 13. Posterior distribution of Q23

Direct, indirect, and total effects

The relationship of each indicator with the latent variable is denoted in table 5. The relationship formed between each indicator with the latent variable was the direct relationship only, without any indirect relationship. The effect of Q19 on problem solving was 0.640, while the effect of Q20 was 0.761. The effect of Q20 was greater than the effect of indicator Q19. This result was consistent with the results from maximum likelihood estimation. Furthermore, the greatest effect of the indicator of the personal interaction was given by Q18 (0.657). In reliability, Q10 had the highest effect (0.819). In physical aspects, Q4 had the highest effect (0.825), and finally in the policies, Q23 had the highest effect (0.547). All inter-dimensional relationships with each latent variable were consistent with the maximum likelihood estimation results.

Tabel 5. Standardized direct effects

	Problem solving	Personal interaction	Reliability	Physical aspects	Policies
Q23					0.547
Q24					0.514
Q19	0.640				
Q20	0.761				
Q15		0.577			
Q16		0.595			
Q18		0.657			
Q6			0.583		
Q7			0.678		
Q8			0.701		
Q9			0.689		
Q10			0.819		
Q11			0.718		
Q2				0.554	
Q3				0.812	
Q4				0.825	
Q5				0.575	

Discussion

The empirical findings in this study indicated the importance of each indicator in giving influence to the latent variables. In the physical aspects, the most important indicator affecting consumer perceptions of grocery stores physical condition was the ability of facilities and store services in providing convenient shopping for consumers (Q4). In the reliability, the most important indicator influencing consumer perceptions on the reliability of grocery stores was the products sold were always fit in size (Q10) and the price written on the label is consistent with the cashier's payment (Q8). These two indicators indicated a huge consumer interest in capabilities of stores in maintaining consumer confidence in the size and price of their products. In the personal interaction, indicator of store employees worked on the best service was dimension which most influence consumer perception of personal interaction (Q18). In the problem solving, the indicator of cashiers in the store had a reliable ability was the indicator that most affected consumer perceptions of the ability of problem solving in grocery stores (Q20). Finally, in the policy variables, the indicator of adequate parking space available in stores was the indicator that most affected the consumer's perspective on grocery store specific policies (Q23). Providing a large and convenient parking space would

influence consumers' desire to shop at grocery stores because the majority of consumers were middle to upper income groups who brought their own vehicles when shopping. Overall, all of the above results are in accordance with the retail service quality scale as proposed by (Dabholkar et al., 1996) and proven empirically by (Abu, 2004); (Torlak et al., 2010); (Vazquez et al., 2001); (Ahmad et al., 2014).

The implications for store managers are to maintain and improve services and facilities in stores that make consumers comfortable for long shopping. This convenience is positively related to consumers' desire to increase the amount of goods and services into their shopping lists (Glanz & Yaroch, 2004). In addition, the fit product size, the exact weight of fresh products and the appropriateness of the price on the shelf with the price at the checkout is a must-pay task for the store managers. To maintain this issue, the need for strict training and supervision of store employees who handle these tasks is a requisite. In addition, all store employees must also be prepared to always pay attention to personal relationships with consumers. Since cashiers become a resource that is considered important in overcoming consumer problems, the placement of human resources to be placed as a cashier requires serious attention by managers. In addition, the cashier needs to be trained to handle problems during long queues, as well as the ability to complete consumer payment transactions efficiently. Finally, store managers need to add locations for parking. This can be an important consideration as well when the store wants to open branches elsewhere. The availability of a large parking lot is one dimension that ensures customer satisfaction.

Conclusions and suggestion for future studies

The empirical results from this study indicate that the five indicators of the retail service quality scale provide a valid multi-item instrument in measuring consumer perceptions of service quality in grocery stores. However, some suggestions for further research are differentiating consumer perceptions based on demographic and store location differences. In addition, adding questionable items in the questionnaire consisting of consumer perceptions of service quality and the actual performance of service quality is suggested to measure the importance of each latent variable of a retail service quality scale.

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Appendix A

Table A.1. Variables and Indicators employed in the Analysis

Indicators	**Attributes**
Physical aspects	The store provides a sufficient number of cashiers
	Facilities and store services make it easy for me to shop
	Facilities and store services made me comfortable to shop
	High cleanliness and tidiness provided in the store when I am shopping
Reliability	The store provides the items I need

	Promotions in the store as promised
	The price written on the label is consistent with the cashier's payment
	The store never sells expired products
	The products sold are always fit in size
	The products sold are safe for consumption
Personal interaction	The store always pays attention to my needs
	Store employees can always help me to shop
	Store employees always work on the best service
Problem solving	Cashiers in the store always act quickly when there is a long queue
	Cashiers in the store have reliable abilities
Policies	Adequate parking space available in store
	The store has clear and interesting promotional instructions and designs