

Article

Explore the Buffering Effects of Perceived Hidden Inflation on Survival of Mobile Phone Service Providers in Taiwan

Sheng-Wen Liu ¹, Ying-Chieh Yang ^{2,*} and Ralph Norcio ³

¹ Department of Marketing Management, Transworld University, Jen-Nang Rd., Chia-Tong Li, Douliou 1221, Yunlin, Taiwan; a0929538829@gmail.com

² Finance Department, Fuzhou University of International Studies and Trade, 28, Yuhuan Road, Shouzhuan New District, Changle, Fuzhou 350202, China

³ College of Business and Management, Lynn University, 3601 North Military Trail, Boca Raton, FL 33431, USA; rnorcio@lynn.edu

* Correspondence: ying-chieh@hotmail.com; Tel.: +88-698-011-8986

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Abstract: The purpose of this study is to examine the moderating role of perceived hidden inflation on the relationships between service quality, brand trust and brand loyalty. All data collected from the target population are analyzed through two-step structural equation modeling (SEM) and moderated multiple regression (MMR) to examine the hypotheses. 1,050 questionnaires are randomly distributed at 21 telecommunication service stores in Taiwan. Findings indicated that service quality has no direct impact on behavioral loyalty but it has a significant indirect impact on behavioral loyalty through brand trust or attitudinal loyalty. Moreover, findings identify perceived hidden inflation as the moderating role in the service quality–brand trust–brand loyalty chain. Besides the need for empirical confirmation of the hypotheses given, finally, there are several practical implications for service marketers and future research directions for scholars.

Keywords: perceived hidden Inflation; brand loyalty; service quality; brand trust

1. Introduction

In today's highly competitive marketplace, it is not surprising that building a sustainable relationship with customers becomes the priority of merchants and service providers. Developing and maintaining a loyal customer base is viewed as the single most important driver of long-term corporate performance, due to lower marketing expenditures, stronger competitiveness, greater market shares, positive referral and greater extension opportunities [1–8]. As such, the development of customer brand loyalty has attracted great researcher and practitioner interest across many industries. However, loyalty is a double-edged sword [9]. This is because companies must act continuously to gain and retain their customers; otherwise the company's success can turn into failure [6].

To enhance customer brand loyalty, companies make great efforts to provide their customers with better products and services and then hope they are willing to purchase more frequently, spend money on new products or services, recommend products and services to others and give companies sincere suggestions [10]. On the other hand, building stronger customer brand loyalty will more likely lead to an increase in corporate costs and therefore directly or indirectly decrease corporate profits. In a competitive marketplace, a low-cost strategy has become one of crucial factors enhancing corporate performance. Therefore, companies try to re-package products or offer relatively poorer service quality in order to reduce corporate costs and not to raise the commodity price simultaneously. In this context,

this phenomenon is referred to hidden inflation and is in line with Baghestani [11] and Devin [12], who explore the link between inflation and consumer behavior. Numerous studies have contributed to effects of inflation in the macroeconomic field, but relatively little research has focused on service quality–brand trust–brand loyalty chain under individuals' perceived hidden inflation [12]. However, consumer markets are full of perceived hidden inflation. This is because there has been an increase in deflationary pressure from wages as unemployment continues to increase and average hourly earnings are stagnant. Additionally, consumers believe that companies keep the commodity price the same, but the commodity itself has been changed. To bridge this gap, this study attempts to integrate and examine empirically the moderating role of perceived hidden inflation and the possible links between service quality, brand trust and brand loyalty.

An empirical illustration of this study is focused on the mobile phone service market in Taiwan. As of March 2016, the number of mobile phone users has reached 29.19 million with 124% of penetration rate and indicates that mobile phones in Taiwan are very prevalent [13]. Therefore, it is of great interest to marketing researchers not only for its rapid growth, but also for its implications to customer loyalty management in the competitive mobile phone service market. Based on official statistic data [14], however, the average regular labor income in Taiwan has been stagnant and about NT\$37,000 or US\$1218.3 based on the US\$/NT\$ exchange rate of NT\$30.37 since 2008. On January 2017, the average regular labor income was NT\$37,632 or US\$1240 after removing inflation factors and 0.13% less than the previous month. On the other hand, the annual average Consumer Price Index (or CPI) is moderately increasing, and the unemployment rate is almost up to 3.85. Under this situation of stagnant labor wage and relatively higher commodity price, therefore, mobile phone service providers are more likely to adopt relatively poor service quality to their customers in order to maintain corporate profits. To accomplish these objectives, the present paper is organized as follows: through literature review and integration in several relevant fields, first of all, the paper derives research hypotheses and develops a conceptual model. Through structural equation modeling (SEM) and moderated multiple regression (MMR), next, all data collected from the target population in Taiwan are analyzed. Finally, the findings are presented, followed by conclusions and discussions of the findings including several managerial implications and future research directions.

2. Theoretical Background and Hypotheses

2.1. Brand Trust and Brand Loyalty

Not only is brand loyalty defined as a deeply held commitment to rebuy or repatronize a preferred product or service consistently in the future, despite situational influences and marketing efforts having potential to cause switching behavior [15], but is also viewed as a measure of the attachment that “a customer has to a brand” [16] (p. 50). Oliver [17] points out brand loyalty is formed in a gradual, sequential manner from cognitive loyalty to affective loyalty to conative loyalty and, finally, to behavioral loyalty. These different aspects of loyalty do not emerge simultaneously, but rather consecutively over time [17,18]. Oliver's definition suggests that brand loyalty should be categorized into attitudinal loyalty (including cognitive, affective and conative loyalty) and behavioral loyalty. In the marketing literature, moreover, if the companies make it possible to put more emphasis on the cognitive dimension by offering customized products or services to their customers, then the results will strengthen the affective dimension, followed by conative dimension and, finally, increase behavioral loyalty of their customers. This is because once customer attitude towards a brand is positive, highly loyal buyers tend to stay loyal [2,4,7,18–20]. Therefore, it is recommended that customer attitude has a significant impact on behavioral loyalty. In the mobile phone service field, therefore, the following hypothesis is proposed:

Hypothesis 1 (H₁). *Attitudinal loyalty is positively related to behavioral loyalty.*

In the commitment-trust literature, brand trust is defined as “the willingness of the average consumer to rely on the ability of the brand to perform its stated function” [3] (p. 82). Riegelsberger et al. [21] classify trust as cognitive and affective/emotional trust. Cognitive trust based on evaluating the competence, reliability and predictability of the trusted object reflects the economic understanding of trust as rational choice, while affective trust is the emotion-driven form of trust originating from immediate affective reactions, attractiveness, aesthetics and signals of benevolence. The authors point out a mix of cognitive and affective trust leads to frequent trust-based behavior. In order to build brand trust, therefore, products or services have to meet or even exceed expectations of the customers [22].

Prior studies also consider brand trust as a key factor building long-term relationships between a company and its consumers. This is because if a consumer trusts a company providing highly valuable products/services, then he/she will more likely develop some form of positive behavioral intention towards this company [23,24]. As a result, brand loyalty as an important outcome of brand trust has been conceptualized either as behavioral intention towards the brand or as actual pattern of purchase behavior, or both [7]. Under uncertain or ambiguous circumstances, especially, not only do higher trust ratings reduce psychological anxiety and may positively affect consumer decision-making process, but they also impact positively with attitudinal and behavioral loyalty [25]. In the mobile phone service context, therefore, the two hypotheses are proposed as follows:

Hypothesis 2a (H_{2a}). *Brand trust positively influences attitudinal loyalty.*

Hypothesis 2b (H_{2b}). *Brand trust positively influences behavioral loyalty.*

2.2. Service Quality, Brand Trust and Brand Loyalty

Previous studies have proposed perceived quality as an important antecedent of customer-based factors, including customer satisfaction, brand equity, customer trust and customer loyalty [1,26–29]. Quality in services has received little discussion, even though quality in the products field has prevalently contributed [26]. Moreover, perceived quality is highly subjective in how the consumer judges the product’s overall superiority. In a turbulent marketplace, for example, it is uncertain whether service quality has any impact on customer-based factors [30]. Based on studies by Parasuraman et al. [29], not only is service quality defined as a global judgment or attitude related to the superiority of the service, but it is also composed of five dimensions, including tangibility, reliability, responsiveness, assurance and empathy. Many studies in different industries indicate that better service quality has a positive impact on customer trust and brand loyalty [28,31–34].

As mentioned above, cognitive trust is based on evaluating the competence, reliability and predictability of the trusted object. As a result, good service quality more likely triggers customer cognitive trust because good service quality is able to provide a utilitarian value to consumers [3,6,35]. Affective trust, on the other hand, is based on affective reactions, attractiveness and aesthetics. Through offering high service quality, service providers are able to enhance customer satisfaction in its brand and further strengthen customer affective trust. This is because high service quality more likely offers hedonic value to consumers [3,6,34,35]. Therefore, service quality is viewed as a driver of brand trust. In the mobile phone service context, therefore, the relationship between service quality and brand trust are proposed as follows:

Hypothesis 3a (H_{3a}). *Service quality has a positive impact on customer brand trust.*

Based on the study by Oliver [17], cognitive loyalty only based on information regarding the product offering, such as price, quality and so on, is directed at the costs and benefits of the product and not the actual brand. Therefore, service quality meeting or exceeding expectations of customers more likely triggers customers’ cognitive brand loyalty. The higher service quality, the more satisfied customers are, and the more comfortable customers feel. As a result, high service quality has a positive

impact on affective loyalty referring to feelings, moods or emotional responses. Next, experiencing frequently good services increases customer conative loyalty referring to behavioral intentions [2,34,36]. Finally, service quality offering increasing customers' values results in behavioral loyalty referring to readiness to act or buy [36]. In the mobile phone service field, therefore, two hypotheses are proposed as follows:

Hypothesis 3b (H_{3b}). *Service quality has a positive impact on attitudinal loyalty.*

Hypothesis 3c (H_{3c}). *Service quality has a positive impact on behavioral loyalty.*

2.3. Moderator: Perceived Hidden Inflation

In the price-consciousness literature, commodity price is an important factor affecting consumer buying behavior [6,11]. Moreover, the commodity price directly or indirectly fluctuates with inflation. Inflation, especially, rising raw material costs, increased labor costs and currency devaluation lead to an increase in production costs and therefore result in raising the commodity price [11]. If the commodity price rises, then consumers with high price consciousness will more likely drive emotional value by looking for even lower prices [37]. This is because highly price-conscious consumers express lower perceptions of value offer and higher price information search intention [6]. Therefore, raising the prices of products or services more likely leads highly price-conscious consumers to purchase competitors' items with lower prices. The cost of production, on the other hand, is also an important factor affecting corporate profits. Therefore, companies will fall into a dilemma of adjusting the commodity price and risking losing their customers at the same time. To overcome this dilemma, companies use hidden ways to simultaneously adjust price and make costumers believe that there is no price increase and consumption is continued. Some companies, for example, announce to the public that they have not raised the commodity price, even though they have changed the product packaging (e.g., a decrease in quantity and quality of a product) or offered relatively poorer service quality to increase corporate profits. These ways will cause a so-called hidden inflation phenomenon. In fact, companies adopt a different (mostly disguised) form, including offering less quantity or downgrading quality of a commodity, to raise the commodity price. In this paper, perceived hidden inflation is defined as a reduction in the purchasing power of money when the product/service stays at the same price but is offered in less quantity or relatively poorer quality [11,12].

When perceiving hidden inflation, to sustain the standard of living, consumers with high price consciousness are motivated to look for more quantity of a commodity with the same price or lower prices. Highly price-conscious consumers, therefore, elaborate their purchase decision instead of relying on a known brand [6]. Consumers with less price consciousness in buying products, on the other hand, perceive that current companies provide poorer quality of products or services due to hidden inflation and therefore are more likely to change their purchase decision to switch other more reliable brands [11,12,38–41]. As loyalty is one strategy of relationship marketing, therefore, perceived hidden inflation may moderate service quality–brand trust–brand loyalty chain. That is, it is recommended that perceived hidden inflation buffers the impact of service quality on brand trust, attitudinal and behavioral loyalty. In the mobile phone service field, therefore, the following hypotheses are proposed:

Hypothesis 4 (H₄). *The relationship between service quality and brand trust is weaker when perceived hidden inflation increases.*

Hypothesis 5 (H₅). *The relationship between service quality and attitudinal loyalty is weaker when perceived hidden inflation increases.*

Hypothesis 6 (H₆). *The relationship between service quality and behavioral loyalty is weaker when perceived hidden inflation increases.*

2.4. Research Model

Based on the earlier literature, not only does the proposed model in this study examine the mediating role of brand trust in the relationships between service quality and brand loyalty, but also explores the buffering effects of perceived hidden inflation on the links between service quality, brand trust, and brand loyalty (see Figure 1).

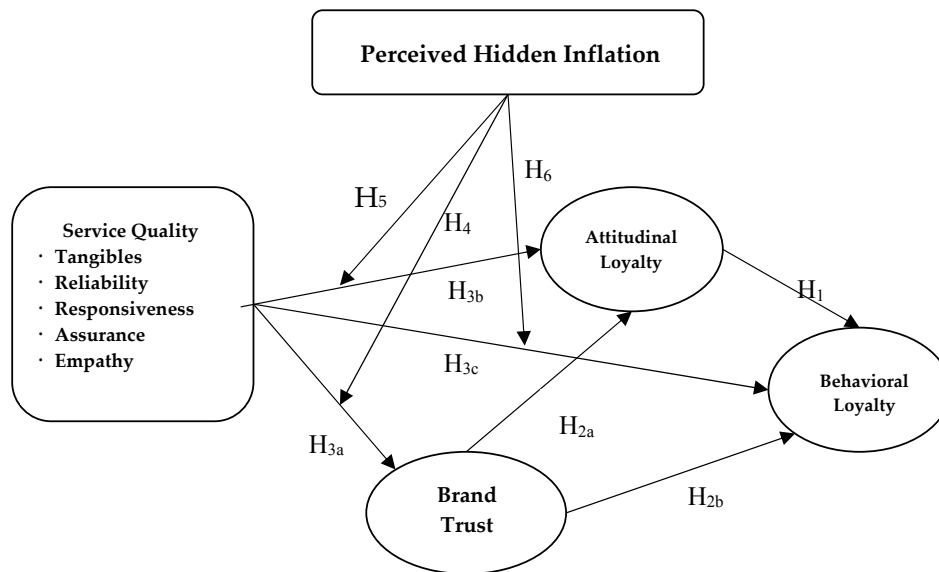


Figure 1. Research model.

3. Data and Method

3.1. The Questionnaire Design and Data Collection

A personally administered questionnaire is used to collect data from the target population. A total of 40 items made-up the questionnaire, which contained six parts: personal characteristics, perceived hidden inflation, service quality, brand trust, attitudinal loyalty and behavioral loyalty. Personal characteristics (6 items) include gender, age, education, occupation, yearly income and marital status. Perceived hidden inflation (4 items) is measured with the following statement: “Did you have an income hike in last six months?”, “Do you feel in the last six months that market prices of commodities have disguised the situation, such as product prices remain unchanged, but the value and service were worse?”, “In the last six months did you have to reduce the consumption of the market transaction?” and “Do you feel that your favorite mobile phone brand disguised inflation in the last six months?”. Brand trust (4 items), attitudinal loyalty (2 items) and behavioral loyalty (2 items) are measured using the scales developed by Chaudhuri and Holbrook [3]. Service quality developed by Parasuraman et al. [29,42] is measured by five constructs, including reliability (4 items), assurance (4 items), tangibles (5 items), empathy (5 items) and responsiveness (4 items).

Lissitz and Green [43] point out Likert-type scales are easily completed by respondents and provide reliability. Therefore, all items in this study are measured on a five-point Likert-scale (1 = strongly agree, 5 = strongly disagree). Based on the recommendation of Hair et al. [44], moreover, a reliable sample size is a minimum of five respondents per survey item. The questionnaire in this

study had 40 items, which means the minimum number of respondents for factor analysis for this study should be 200. A total of 291 respondents completed the questionnaires.

All data collected from the target population are analyzed through two-step structural equation modeling (SEM) a measurement model and a structural model to establish validity of the instrument and examine the hypotheses. Based on the study by Hair et al. [44], the conceptual model comprises two parts, including the measurement model and the structural model. The authors point out that SEM is viewed as an established valuable tool to handle these two parts simultaneously. Moreover, SEM is very flexible, because it deals not only with a single simple or multiple linear regression, but also with a system of regression equations [44]. 1050 questionnaires are randomly distributed at 21 telecommunications service stores of Section 7 of Taichung, Taiwan. The questionnaires are conducted face to face over a two-month period. At the end of the data collection process, from 303 completed participants, the final number of usable questionnaires is 291, giving a response rate of 27.71%. Of the 291 participants, 133 (45.7%) are female and 158 (54.3%) are male. The average age and income of the 291 participants is 32.6 years and about NT\$34,948.

3.2. Analysis of Reliability and Validity

Through confirmatory factor analysis (CFA), measurement validity is first evaluated. It is because the measurement model shows an acceptable model fit to the data: $\chi^2 = 65.799$ ($p = 0.082$); $df = 51$; RMSEA = 0.032 (<0.05); RMR = 0.029 (<0.05); GFI = 0.967 (>0.90); AGFI = 0.941 (>0.90); CFI = 0.994 (>0.90); NFI = 0.975 (>0.90) [44].

Convergent validity assesses the extent to which items designed to measure the same construct are related, while discriminate validity assesses the degree to which items designed to measure different constructs are related [44]. It is found that standardized factor loadings of all items measuring the same constructs are over 0.60 and significantly related ($p < 0.001$) (see Table 1). Moreover, the average variance extracted (AVE) for all reach constructs of this study exceeds 0.50. Therefore, convergent validity is established. Based on the study by Fornell and Larcker [45], finally, discriminant validity is tested by comparing the shared variance among indicators of a construct with the variance shared between constructs. The test for discriminant validity is met when the square root of AVE for the construct is greater than its correlations with other constructs. As a result, correlation values of all items measuring different constructs are significantly low and range from 0.00 to 0.62. Therefore, discriminant validity is established [45].

Reliability of the instrument is assessed with Cronbach alpha. Results illustrate alpha coefficients of all constructs exceed 0.70 (see Table 1). Therefore, the internal consistency and stability of the instrument is acceptable [46].

Table 1. Standardized loadings and reliabilities.

Construct	Indicators	Standardized Loadings	AVE	Cronbach's α
PHI	PHI1	0.64 ***	0.51	0.70
	PHI2	0.78 ***		
	PHI3	0.64 ***		
	PHI4	0.79 ***		
Brand Trust	Trust1	0.77 ***	0.62	0.86
	Trust2	0.58 ***		
	Trust3	0.90 ***		
	Trust4	0.87 ***		
Tangibles	ST1	0.75 ***	0.70	0.83
	ST2	0.96 ***		
	ST3	0.80 ***		
	ST4	0.82 ***		
Reliability	SR1	0.64 ***	0.62	0.89
	SR2	0.82 ***		
	SR3	0.86 ***		
	SR4	0.87 ***		
	SR5	0.73 ***		

Table 1. Cont.

Construct	Indicators	Standardized Loadings	AVE	Cronbach's ff
Responsiveness	SRE1	0.73 ***	0.71	0.91
	SRE2	0.87 ***		
	SRE3	0.90 ***		
	SRE4	0.86 ***		
Assurance	SA1	0.77 ***	0.63	0.87
	SA2	0.75 ***		
	SA3	0.79 ***		
	SA4	0.87 ***		
Empathy	SE1	0.83 ***	0.68	0.91
	SE2	0.77 ***		
	SE3	0.80 ***		
	SE4	0.90 ***		
	SE5	0.82 ***		
Behavioral Loyalty	BL1	0.87 ***	0.78	0.88
	BL2	0.90 ***		
Attitudinal Loyalty	AT1	0.92 ***	0.64	0.75
	AT2	0.66 ***		

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; Goodness-of-fit indices ($N = 291$); $\chi^2(51) = 65.799$ ($p = 0.08$); RMSEA = 0.032; RMR = 0.029; GFI = 0.967; AGFI = 0.941; CFI = 0.994; NFI = 0.975. PHI = perceived hidden inflation.

4. Results

The conceptual model is assessed by examining the path coefficients (the β weight values in Table 2). Overall the structural model fit is acceptable: $\chi^2 = 66.724$ ($p = 0.082$); $df = 52$; RMSEA = 0.031 (< 0.05); RMR = 0.025 (< 0.05); GFI = 0.966 (> 0.90); AGFI = 0.940 (> 0.90); CFI = 0.994 (> 0.90); NFI = 0.975 (> 0.90). All path coefficients and t -statistics for hypothesized relationships are calculated through Maximum Likelihood in AMOS. These findings indicate that the structural model has a good fit [47], and results of hypotheses testing are presented in Table 2.

As shown in Table 2, results indicate that not only does brand trust have direct positive impacts on attitudinal and behavioral loyalty respectively, but it also has an indirect positive impact on behavioral loyalty through attitudinal loyalty. As a result, H_1 , H_{2a} and H_{2b} are supported. The same procedure is conducted to test the effect of service quality on the brand trust, attitudinal and behavioral loyalty respectively. It is found that service quality has no direct impact on behavioral loyalty (thus, H_{3c} is not supported), but service quality has direct positive impacts on brand trust and attitudinal loyalty respectively (thus, H_{3a} and H_{3b} are supported). Findings reveal that service quality is able to influence behavioral loyalty indirectly through brand trust and attitudinal loyalty respectively.

Next, the moderators of perceived hidden inflation between service quality, brand trust, attitudinal and behavioral loyalty are examined through H_4 , H_5 , and H_6 . Aiken and West [48] suggest that moderated multiple regression (MMR) should be an appropriate data analytic strategy for studying moderating variables in this study. As shown in Table 3, results identify as interactions of perceived hidden inflation and service quality on model 1, model 2, and model 3 respectively. That is, perceived hidden inflation moderates the effectiveness of service quality on brand trust, attitudinal loyalty, and behavioral loyalty respectively. For example, the β weight value of 0.061 ($p < 0.001$) for the interaction term between service quality and brand trust indicates that the slope of the regression of brand trust on service quality at levels of perceived hidden inflation decreased by 0.061 unit for every one unit increase in perceived hidden inflation [48]. Additionally, it is found that the effect of service quality on attitudinal loyalty is significantly negatively moderated by perceived hidden inflation because the β weight value of 0.007 ($p < 0.01$) for the interaction term between service quality and perceived hidden inflation indicates that the slope of the regression of attitudinal loyalty on service quality at levels of perceived hidden inflation decreased by 0.007 unit for every one unit increase in perceived hidden inflation [48]. However, there is no moderating effect of perceived hidden inflation on service quality and behavioral loyalty. Therefore, only hypotheses H_4 and H_5 are supported. Results of all hypotheses testing and the research testing are summarized in Table 4 and Figure 2 respectively.

Table 2. Path coefficients and *t* value.

Path	Standardized Coefficients	<i>t</i> Value
Service quality → Attitudinal loyalty	0.185 **	2.693
Service quality → Behavioral loyalty	0.032	0.534
Service quality → Brand trust	0.587 ***	6.590
Brand trust → Attitudinal loyalty	0.511 ***	6.755
Brand trust → Behavioral loyalty	0.164 *	2.297
Attitudinal → Behavioral loyalty	0.744 ***	8.099
Model Fit statistics (N = 291)		
$\chi^2(df)$	66.724(52)	
χ^2/df	1.283	
GFI	0.966	
AGFI	0.940	
RMSEA	0.031	
RMR	0.025	
CFI	0.994	
NFI	0.975	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.**Table 3.** The moderating effects.

	Model 1 Brand Trust	Model 2 Attitudinal Loyalty	Model 3 Behavioral Loyalty
Antecedents			
Service Quality	0.555 ***	0.489 **	0.443
Interaction terms			
PHI × Service Quality	−0.061 ***	−0.007 **	−0.038
Adjust R^2	0.294	0.232	0.186

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, PHI = perceived hidden inflation.**Table 4.** Results of hypotheses testing.

	Hypotheses	Remarks
H ₁	Attitudinal loyalty is positively related to behavioral loyalty.	Supported
H _{2a}	Brand trust positively influences attitudinal loyalty.	Supported
H _{2b}	Brand trust positively influences behavioral loyalty.	Supported
H _{3a}	Service quality has a positive impact on customer brand trust.	Supported
H _{3b}	Service quality has a positive impact on attitudinal loyalty.	Supported
H _{3c}	Service quality has a positive impact on behavioral loyalty.	Unsupported
H ₄	The relationship between service quality and brand trust is weaker when perceived hidden inflation increases.	Supported
H ₅	The relationship between service quality and attitudinal loyalty is weaker when perceived hidden inflation increases.	Supported
H ₆	The relationship between service quality and behavioral loyalty is weaker when perceived hidden inflation increases.	Unsupported

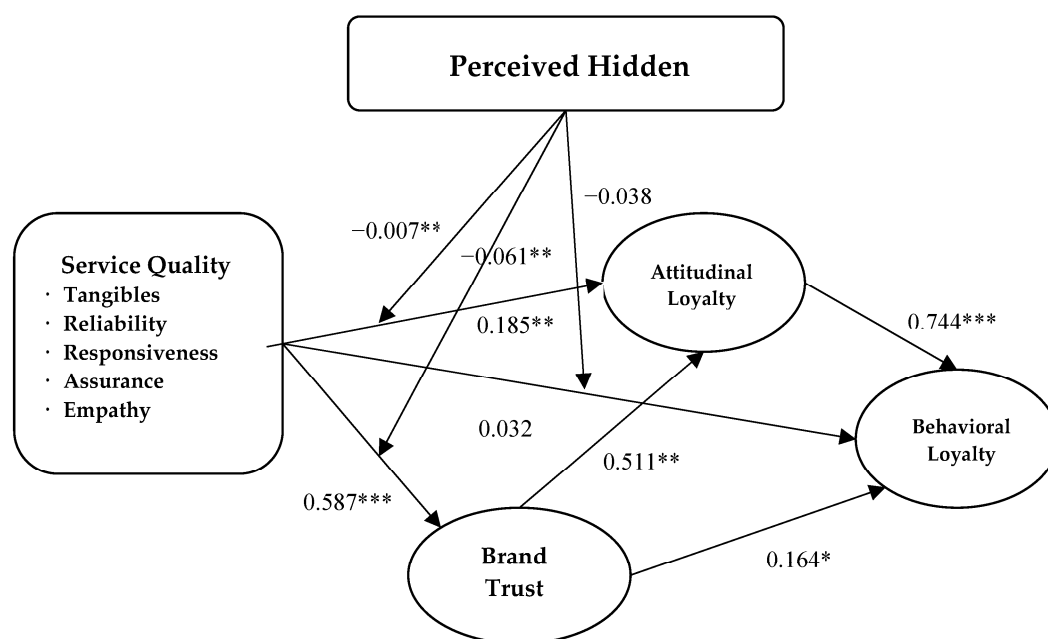


Figure 2. The results of research model testing. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5. Discussion and Conclusions

The purpose of this study is not only to examine service quality–brand trust–brand loyalty link in mobile phone service market, but also to explore how perceived hidden inflation moderates effects of service quality on brand trust and brand loyalty of a customer. The findings demonstrate that when customers have a perception of hidden inflation, the positive effects of service quality are mitigated by customer brand trust and attitudinal loyalty. It is recommended that marketers should avoid adopting different ways to raise the commodity price in order not to lose their customers. This research, however, has shown that no buffering effects of perceived hidden inflation on relationships between service quality and behavioral loyalty. This is probably because a customer's behavioral loyalty to the brand of a commodity does not easily waver in the short run, even though companies likely change the product packaging quality or quantity of products or services they offer.

Not only does this study indicate the positive impact of service quality on customer brand trust and attitudinal loyalty, but also reveals the indirect impact of service quality on behavioral loyalty via brand trust or attitude. Therefore, companies take advantage of higher service quality to enhance customer brand trust or attitude, and further enhance customer actual behavior. As expected, brand trust and attitudinal loyalty play important roles in mediating the relationships between service quality and behavioral loyalty. These findings are in line with prior research about the mediating roles of customer brand trust and attitude [5,6,34,35].

6. Managerial Implications

The present research contributes to a deeper understanding of managerial practice related to buffering effects of perceived hidden inflation on service quality–brand trust–brand loyalty link. As defined by Devin [12], perceived hidden inflation is a phenomenon that companies downgrade quantity or quality of products or service to maintain the same selling price. Under limited resources and the press of an increase in costs, merchants or service providers strive to enhance the value of products or services to meet consumers' needs in order to further increase consumer loyalty. Moreover, they expect consumers in a competitive marketplace to buy their services or products repeatedly. In a mobile phone service context, these service providers may try to increase the commodity price to increase profits, but they are worried that consumers will turn to other competitors to purchase

products or services at the same time. Therefore, these service providers more likely change the product packaging to reduce the products by disguising original quality or services.

Based on studies by Parasuraman et al. [29,42,49,50], service quality is categorized into five constructs, including reliability, assurance, tangibles, empathy, and responsiveness. The findings suggest that marketers strengthen service quality–brand trust or service quality–attitudinal loyalty through the five service quality constructs in order to mitigate buffering effects of customer-perceived hidden inflation. For example, mobile phone service providers enact strategies to increase customer value, rapidly respond to customer complaints, and strengthen the post-sale service behaviors exhibited by salespeople [51]. Finally, this study indicates that service quality has no direct impact on behavioral loyalty, but it has a significant indirect impact on behavioral loyalty through brand trust or attitudinal loyalty. As a result, brand trust and customer attitude in the study are confirmed to mediate a link between service quality and behavioral loyalty. That is, good service does not directly affect customer behavioral loyalty, but it will affect the level of trust and customer attitude towards the brand and therefore affect customer actual behavior. Therefore, mobile phone service providers have to offer better services than competitors' services to improve consumer confidence in the brand, to further enhance consumer loyalty towards the brand. In sum, since levels of service quality are always proportional to the volume of consumption or the purchase frequency, they indirectly strengthen the brand trust–loyalty link and in turn contribute to increased loyalty and customer retention [5,6].

7. Limitations and Future Research

This study provides some insight into the way in which factors affecting consumer perceptions on brand loyalty interact to influence brand loyalty outcomes, but it has several limitations. First of all, the results in this study may not be generalized in all commodities due to only focusing on one type of mobile phone service. Therefore, it is recommended that future studies are needed to examine and validate the generalizability of the findings to more service sectors [34]. Second, the results are limited due to the respondents coming only from one national service context. Consequently, not only could future research replicate the current study with a larger sample, but could also consider that customer loyalty is influenced by other factors, including switching costs, salesperson service behaviors, government relations, and national culture. Moreover, future research can examine the relationship between the mutual influences of these factors and verify the results more accurately. As regards a moderator, third, perceived hidden inflation has been relatively little discussed [11,12]. In the study, moreover, the fact that the authors themselves developed the four-item instrument to measure perceived hidden inflation suggests this construct is not very scientifically measured [44,45]. Therefore, it is recommended that future research should develop a robust instrument to measure hidden inflation. The paper, finally, adopts SEM and MMR to examine the direct/indirect and the moderating effects respectively. Future research can use other statistical tools to simultaneously test the interrelationships among the constructs simultaneously (including the moderating effect).

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References

1. Aaker, D.A. *Managing Brand Equity: Capitalizing on the Value of a Brand Name*; The Free Press: New York, NY, USA, 1991.
2. Agustin, C.J.; Shingh, J. Curvilinear effects of consumer loyalty determinants in relational exchanges. *J. Market. Res.* **2005**, *42*, 96–108. [[CrossRef](#)]

3. Chaudhuri, A.; Holbrook, M.B. The chain of effects from brand trust and brand affect to brand performance: The role of brand loyalty. *J. Market.* **2001**, *65*, 81–93. [CrossRef]
4. Dick, A.; Basu, K. Customer loyalty: Towards an integrated conceptual framework. *J. Acad. Market. Sci.* **1994**, *22*, 99–113. [CrossRef]
5. Lee, J.; Lee, J.; Feick, L. The impact of switching costs on the customer satisfaction-loyalty link: Mobile phone service in France. *J. Serv. Market.* **2001**, *15*, 35–48. [CrossRef]
6. Matzler, K.; Grabner-Krauter, S.; Bidmon, S. The value-brand trust-brand loyalty chain: An analysis of some moderating variables. *Innov. Market.* **2006**, *2*, 76–88.
7. Matzler, K.; Grabner-Krauter, S.; Bidmon, S. Risk aversion and brand loyalty: the mediating role of brand trust and brand affect. *J. Prod. Brand Manag.* **2008**, *17*, 154–162. [CrossRef]
8. Moiesescu, O.I.; Allen, B. The relationship between the dimensions of brand loyalty: An empirical investigation among Romanian urban consumers. *Manag. Market.* **2010**, *5*, 83–98.
9. Nezakati, H.; Yen, C.P.; Akhoundi, M. Antecedents impact on brand loyalty in cosmetics industry. *J. Appl. Sci.* **2013**, *13*, 126–132.
10. Reichheld, F.F.; Sasser, W.E., Jr. Zero defections: Quality comes to services. *Harv. Bus. Rev.* **1990**, *68*, 105–111. [PubMed]
11. Baghestani, H. Interest rate movements and US consumers' inflation forecast errors: Is there a link? *J. Econ. Financ.* **2016**, *40*, 623–630. [CrossRef]
12. Devine, J. The cost of living and hidden inflation. *Challenge* **2001**, *44*, 73–84.
13. National Communications Commission in Taiwan. Available online: <http://www.ncc.gov.tw/english/index.aspx> (accessed on 2 January 2017).
14. Directorate-General of Budget, Accounting and Statistics, Executive Yuan, Taiwan. Available online: <http://www.dgbas.gov.tw/mp.asp?mp=2> (accessed on 24 March 2017).
15. Oliver, R.L. *Satisfaction: A Behavioral Perspective on the Consumer*; McGraw-Hill Irwin: Boston, MA, USA, 1997.
16. Aaker, D.A. *Strategic Market Management*, 7th ed.; John Wiley and Sons, Inc.: Hoboken, NJ, USA, 2005.
17. Oliver, R.L. Whence consumer loyalty? *J. Market.* **1999**, *63*, 33–44. [CrossRef]
18. Adia, A.-A.A.; Kim, H.J.; Abdul, M.R.; Osman, Z.; Razli, I.A.; Ing, G.P. Purchase behavior in advergame and the effect of brand attitude as a mediator. *Asian Soc. Sci.* **2015**, *11*, 249–257.
19. Baldinger, A.; Rubinson, J. Brand loyalty: The link between attitude and Behavior'. *J. Advert. Res.* **1996**, *36*, 22–34.
20. El-Manstrly, D.; Paton, R.; Veloutsou, C.; Moutinho, L. An empirical investigation of the relative effect of trust and switching costs on service loyalty in the UK retail banking industry'. *J. Financ. Serv. Market.* **2011**, *16*, 101–110. [CrossRef]
21. Riegelsberger, J.; Sasse, M.A.; McCarthy, J.D. The mechanics of trust: A framework for research and design. *Int. J. Hum. Comput. Stud.* **2005**, *19*, 412–424. [CrossRef]
22. Orzan, G.; Platon, O.-E.; Stefanescu, C.D.; Orzan, M. Conceptual model regarding the influence of social media marketing communication on brand trust, brand affect and brand loyalty. *Econ. Comput. Econ. Cybern. Stud. Res.* **2016**, *50*, 141–156.
23. Lau, G.-T.; Lee, S.-H. Consumers' trust in a brand and the link to brand loyalty. *J. Mark. Focused Manag.* **1999**, *4*, 341–370. [CrossRef]
24. Morgan, R.; Hunt, S. The commitment-trust theory of relationship marketing. *J. Market.* **1994**, *58*, 20–38. [CrossRef]
25. Reast, D.F. Does trust and brand extension acceptance: The relationship. *J. Prod. Brand Manag.* **2005**, *14*, 4–13. [CrossRef]
26. Ching, F.-C.; Tseng, W.-S. Exploring customer based airline brand equity: Evidence from Taiwan. *Trans. J.* **2010**, *49*, 24–34.
27. Gronroos, C. A service quality model and its marketing implications. *Eur. J. Market.* **1984**, *18*, 36–44. [CrossRef]
28. Mukherjee, S.; Shivani, S. Marketing mix influence on service bank equity and its dimension. *Vision* **2016**, *20*, 9–23.
29. Parasuraman, A.; Zeithaml, V.A.; Berry, L.L. Problems and strategies in services marketing. *J. Market.* **1985**, *49*, 33–46.

30. Alavi, S.; Wieseke, J.; Guba, J.H. Saving on discounts through accurate sensing-salespeople's estimations of customer price importance and their effects on negotiation success. *J. Retail.* **2016**, *92*, 40–55. [[CrossRef](#)]
31. Clouter, K.S.; Clouter, R.A. Determinants of trust in a service provider: The moderating role of length of relationship. *J. Serv. Market.* **2002**, *16*, 35–50. [[CrossRef](#)]
32. Eisingerich, A.B.; Bell, S.J. Customer education increases trust. *MIT Sloan Manag. Rev.* **2008**, *50*, 10–11.
33. Wong, A.; Sohal, A. Service quality and customer loyalty perspectives on two levels of retail relationships. *J. Serv. Market.* **2003**, *17*, 495–513. [[CrossRef](#)]
34. Zhang, L.; Mattila, A.S. An examination of corporate social responsibility and processing fluency in a service context. *J. Serv. Market.* **2015**, *29*, 103–111. [[CrossRef](#)]
35. Chinomona, R.; Mahlangu, D.; Pooe, D. Brand service quality, satisfaction, trust and preference as predictors of customer brand loyalty in the retailing industry. *Mediterr. J. Soc. Sci.* **2013**, *4*, 181–190.
36. Blut, M.; Evanschitzky, H.; Vogel, V. Switching barriers in the four-stage loyalty model. *Adv. Consum. Res.* **2007**, *34*, 726–734.
37. Alford, B.L.; Biswas, A. The effects of discount level price consciousness and sale proneness on consumers' price perception and behavioral intention. *J. Bus. Res.* **2002**, *55*, 775–783. [[CrossRef](#)]
38. Chriatensen, C.M.; Cook, S.; Hall, T. Marketing malpractice: The cause and the cure. *Harv. Bus. Rev.* **2005**, *83*, 72–83.
39. Cronin, J.J.; Brady, M.K.; Hult, G.T. Assessing the effects of quality, value, and customer satisfaction on consumer behavioral intentions in service environments. *J. Retail.* **2000**, *76*, 193–218. [[CrossRef](#)]
40. Harris, L.C.; Ezeh, C. Servicescape and loyalty intentions: An empirical investigation. *Eur. J. Market.* **2008**, *42*, 390–422. [[CrossRef](#)]
41. Voss, G.B.; Parasuraman, A.; Grewal, D. The roles of price, performance, and expectations in determining satisfaction in service exchanges. *J. Market.* **1998**, *62*, 46–61. [[CrossRef](#)]
42. Parasuraman, A.; Zeithaml, V.A.; Berry, L.L. The service quality: A multiple-item scale for measuring consumer perceptions of service quality. *J. Retail.* **1988**, *64*, 12–40.
43. Lissitz, R.W.; Green, S.B. Effect of the number of scale points on reliability: A Monte Carlo approach. *J. Appl. Psychol.* **1975**, *60*, 10–13. [[CrossRef](#)]
44. Hair, J.F., Jr.; Black, W.C.; Babin, B.J.; Anderson, R.E.; Tatham, R.L. *Multivariate Data Analysis*, 6th ed.; Pearson Prentice Hall: Upper Saddle River, NJ, USA, 2006.
45. Fornell, C.; Larcker, D.F. Evaluating structural equation models with unobservable variables and measure error. *J. Market. Res.* **1981**, *18*, 39–50. [[CrossRef](#)]
46. Nunnally, J.C. *Psychometric Theory*; McGraw-Hill: New York, NY, USA, 1978.
47. Bagozzi, R.P.; Yi, Y. On the evaluation of structural equation models. *J. Acad. Market. Sci.* **1988**, *16*, 74–94. [[CrossRef](#)]
48. Aiken, L.S.; West, S.G. *Multiple Regression: Testing and Interpreting Interactions*; Sage Publications: Newbury Park, CA, USA, 1991.
49. Parasuraman, A.; Zeithaml, V.A.; Berry, L.L. *Delivering Service Quality: Balancing Perceptions and Expectations*; Simon & Schuster: New York, NY, USA, 1991.
50. Parasuraman, A.; Zeithaml, V.A.; Berry, L.L. Reassessment of expectations as a comparison standard in measuring service quality: Implications for further research. *J. Market.* **1994**, *58*, 111–124. [[CrossRef](#)]
51. Inyang, A.E. The buffering effects of salesperson services on customer loyalty after service failure and recovery. *J. Manag. Issues* **2015**, *27*, 102–119.

