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The effect of the interaction between tariff modulation and transparency on the customer's dissatisfaction: The case of Tunisia

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ABSTRACT

The mechanisms whereby the transparency of tariff information counterbalances the dissatisfaction spawned by the application of tariff modulation in competitive service are unclear. This research examines the idea that transparency on tariff information can reduces dissatisfaction due to tariff modulation through both a negative direct effect and a negative moderation of the effect of tariff modulation. A survey was conducted to examine the conceptual model in the hospitality industry in Tunisia. Our results give credit to the proposed model by highlighting the positive impact of transparency on tariff information. Managerial implications are presented and discussed at the end of the paper.

1. Introduction

With the increasing importance of service industries, marketing scholars tend to develop particular knowledge and tools related to services instead of replicating knowledge and tools developed initially in product marketing. Since the landmark research of Shostack (1977), attention has been drawn to tariff modulation (TM) as one of the tool to be used in service marketing. As the growing competition has emphasized flexibility, TM consideration has changed from an option in the toolkit of the marketer to a *must do* to preserve the competitiveness of a service. Actually, in the era of digital economy, TM is witnessing a renewed interest as part of emerging pricing practices praised for allowing a better use of network resources. Through year, TM appeared to be a heavy tool for service marketing and was subsequently questioned with its side effects offsetting against it. Chief among these is the application of transient tariffs that varies upon a set of factors which is negatively perceived by customers and, consequently, engendering dissatisfaction (DIS) (Kimes, 1994). As DIS is likely to lead to customer defection which in turn run down both profits and market shares, it appears that, in the long run, TM is likely to compromise business viability unless DIS is challenged. Transparency of tariff information (TTI) has been advocated as a way to benefit from the positive outcomes of TM while controlling the concerns raised by DIS, (Kimes and Wirtz, 2002; Stork and Lumingu, 2010; Kennedy, 2016; Mittal and Agrawal, 2016).

Nevertheless, TTI effect on the relation between TM and DIS is still insufficiently investigated. In fact, TTI consistently and uniformly reduces DIS engendered or enhanced by TM. However, it is still unknown whether the conjunction of both effects will result in residual DIS. Managers could focus more on TTI if it could be evidenced that it negatively moderates the positive effect of TM on DIS. One can also argue that for certain levels of transparency, TM can have no more influence on DIS. On the other side, evidences suggest that the direct effects of TM and TTI on DIS are uniform and universal overlooking heterogeneity at the firm level (DeSarbo et al., 2006), as well as at the customer level (*e.g.*, Jedidi et al., 1997). Those assumptions are in contradiction with the contingency theory of strategic management (Ginsberg and Venkatraman, 1985; Hofer, 1975). Accordingly, there are issues to be addressed in relation with TM implementation.

This study aims to fill the gap in literature on the role of TTI as a remedy for DIS resulting from TM. It proposes to understand the process whereby the interaction of TM and TTI affects customer DIS while being rooted in the heterogeneity/contingency debate. This study helps to understand the risks associated with the application of TM, in particular with regard to customer behavior after purchase. We are trying to demonstrate that the moderation (MOD) effect of TTI is itself moderated, in the sense that it is contingent upon idiosyncratic, firm-and-industry-specific, and situational factors. This study is organized in four sections. First, a conceptual model is developed to establish the contingent interaction of TM and tariff transparency to reduce DIS. Next, research

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methodology of empirical investigation is developed. Third, results are presented and discussed. Finally, the managerial implications of the study are outlined before limitations and future research are introduced.

2. Theoretical framework

The conceptual model investigated herein is depicted in Fig. A1. The interrelationships between the focal constructs are substantiated in this section.

2.1. Customer DIS

Customer DIS is the result of a cognitive comparison influenced by affective overtones of what is received to what was expected in line with the disconfirmation paradigm (*e.g.,* Churchill and Surprenant, 1982; Hunt, 1977; Oliver, 2014; Ferguson, Brown and Johnston, 2017). It has been also defined as an abstract and cumulative concept relative to a global experience (*e.g.,* Aurier and Evrard, 1998; Oliver, 1977, 2014). However, the second of the two broad DIS definition categories proposed in marketing literature (Yi, 1990; Arbore, and Busacca, 2009; Veloutsou, 2015) does not fit in with our conceptual framework. Indeed TM is concerned with a concrete attribute (price) in specific service encounters.

2.2. TM as a source of DIS

TM can be considered as a reactive action adjusting price to the momentary conditions in order to maximize revenues in the short run. Profitable in the short run, TM has been argued to have adverse effects in the long run (Mandelbaum, 2016) mainly because it engenders DIS (Kimes, 1994). This argument is based on two theoretical streams: reference price theory and fairness theory (Ferguson and al, 2017).

According to reference price theory (*e.g.,* Kimes and Wirtz, 2003; Oliver, 1977), the price perception by customers depends on their expectations (Ferguson et al., 2017). Prices are generally appraised with reference to past transactions (Lemon and Nowlis, 2002). Comparison of price to a reference price is likely to result in customer defection (Cardozo, 1965; Dussart, 2003; Zhang et al., 2013), probably through the mediation of DIS, inasmuch as it is the upshot of a comparison disconfirming expectations (Ganesh et al., 2000; Lin et al., 2000; Mittal Kamakura, 2001; Ferguson et al., 2017).

Fairness theory states that an exchange is deemed fair depending on the ratio of what is received (the 'gand' component) to what is sacrificed (the 'give' component) is commensurate for both parts (Walster et al., 1978). Commensurability is judged according to idiosyncratic standards (Oliver and DeSarbo, 1988). So when a customer notices that a service provider altered the price he used to charge, he is likely to infer that either the exchange has become unfair or has been unfair, which induces him/her to withdraw (Colombier and Hourcade, 1989; Dussart, 2003). Notably, TM causes DIS, irrespective of whandher it consists of an increase or a decrease in price. Evidence from previous research has shown that TM can be a main source of DIS (Colombier and Hourcade, 1989; Ferguson et al., 2017). These considerations lead us to introduce the first hypothesis as following:

H_1. : Independently of customer profile, there is a positive relationship between TM and DIS.

2.3. TTI as an antagonistic to DIS

TTI has been defined as the extent to which a service provider communicates to its customers the rationale behind the prices being charged (Desmet, 2000; Zollinger and Desmet, 1997). Tariff transparency is advocated for both emerging market and OECD countries as a right for customer and a way for adjusting market imperfection in order to protect customer and to avoid providers' free riding. It has been found to be a strong lever to promote an emerging industry and to make it attractive to customer.

TTI has been argued to reduce DIS through enhancing fairness (Kimes, 1994; Kennedy, 2016). For Kahneman et al. (1986), whenever a customer has no ground for the price modulation, he/she tends to act consider it as unfair as well as unjustified offence. This leads to formulate our second research hypothesis as following:

H_2. : There is a negative relationship bandween TTI and DIS.

In addition, one could argue that TTI may reduce DIS by negatively moderating the impact of TM, although, this claim has never been directly made in the literature. Indeed prior evidences have shown that among the nine factors affecting the relationship bandween TM and DIS, five are related to the quality of the tariff information (McKinney et al., 2002). As TTI is an irreducible indicator of information quality (Kimes, 1989, 1994), it is susceptible of affecting the relationship between TM and DIS. When TTI reaches a certain level the relation between TM on DIS becomes negative meaning that TM reduces DIS, or, symmetrically, enhances satisfaction. This crucial argument to the TM managerial dilemma is based on the idea of indirect discrimination when offering a service (Zollinger and Desmet, 1997). Assuming that the offer is comprised of various assortments matching the needs of a mixture of demand segments is common in service industries, the service provider can make it clear that as the charged price gets higher, more advantages and distinctive features are offered (Desmet, 1999). Accordingly, customers can opt for the offer that best fits to their own needs and that is to be adjusted to their financial resources (Desmet, 2000).

Likewise, if TM is coupled with full TTI, the customer is unlikely to select an offer unless he/she is convinced of both its value and fairness. Stated differently, full TTI obliges customers to update their expectations so that subsequent disconfirmation of expectations is challenged and prevent them from accepting an offer they would consider as unfair. Once both disconfirmation and unfairness are overwhelmed, the TM spawning of DIS is controlled, leaving room for satisfaction. This leads us to conjecture our third research hypothesis as following:

H_3. : TTI negatively moderates the relationship between TM and DIS.

2.4. The contingency of the DIS control process

The arguments presented above can be opposed to other arguments found in some previous research. First, customers are often heterogeneous with respect to their idiosyncratic traits, perceptions, and cultural background. Accordingly, it's very unlikely that a specific evidence would be valid across all customers. For instance, El Ansari et al. (2000) showed that there are no significant determinants of satisfaction but there are groups of consumers for which specific determinants are important. Similarly, it has been demonstrated that firms are also heterogeneous with respect to their strategic capabilities and the way they are put in practice (DeSarbo et al., 2006). For certain categories of service, the range of TM may be restricted enough to contain DIS. This may lead to the mistaken conclusion that TM has no effect on DIS. Heterogeneity is also consistent with the contingency theory holding that the success of strategies is contingent depending on situational factors (*e.g.,* Ginsberg and Venkatraman, 1985; Hofer, 1975; Shariff et al., 2016). Situational factors include an array of factors (i.e: costumer'mood, reason for purchase, physical and time situation…) that can influence costumer behavior.

2.4.1. Such argument can be used to explain the ineffectiveness of TTI

Sources of handerogeneity and contingency are often unobserved. Thus, we can assume the existence of a latent variable moderating the hypothesized relationships bandween the study constructs (Schoonhoven, 1981). This can lead to a model-based clustering of observations into latent segments (Jedidi et al., 1997). Generaly, when using real-world data, the true number of segments in a mark and is unknown. Evidence from simulation studies suggests that the accuracy of a given criteria for determining the number of segments in a market depends on the usage context and on the characteristics of the market. Independently of the number of latent segments, we expect the relationship between our variables to vary across the different latent segment to be uncovered by the survey. Accordingly, our last research hypothesis can be formulated as following:

H_4. : The relationships between TM, TTI and DIS vary across latent segments.

3. Research method

3.1. Sample and data collection

The hospitality industry has been chosen as a context for the empirical study for several reasons. First, TM is common in the hospitality service. Second, this sector has a strategic importance to Tunisian economy. Third, customers of hospitality service are generally open to survey participation, as they are involved in a leisure experience with low cognitive burden.

Empirical data were gathered through a cross-sectional survey of customers of Tunisian hotels. Three conditions were considered for selecting participant to the survey. First, the respondent had to be a customer of a Tunisian hotel who have effectively paid the price charged, as opposed to a customer who had been offered the journey. Second, to ensure that the respondent was likely to have experienced a TM, he or she had should have stayed at least twice in the hotel (Rothschild and Gaidis, 1981). Third, to ensure comparability across origins of TM, the respondent had to be a Tunisian resident, since hotel customers residing abroad usually have more competitive price due to tour operator mediation. Moreover, to ensure that the TM variable would exhibit enough variability, a list of 100 hotels throughout Tunisia, differing with respect to the scope of the TM practice, was established based on in-depth interviews conducted with 100 hotels managers. Therefore, customers of the hotels belonging to this list who can be accessed during the period of the study were administered a questionnaire containing the focal constructs measures. 2400 questionnaires were administered of which 918 were used for the survey resulting in a response rate of 38.25%. This rate slightly exceeds what is typical in a survey where no incentives are provided to respondent (Malhotra, 1999; Rose et al., 2007). Because it was the first time the research model has been tested, non-response bias is not arguable in this research (Hunt, 1990).

This research has some characteristics; the measurement of the model variables is flawed. This is why Structural Equation Modeling has been considered. The hypothetical presence of a moderate effect encouraged to use the non-linear multiplicative model (Ping (1995) approach in a single step with estimation of structural averages). Unobservable heterogeneity and contingency explains the mixing density / mixed model (Finite Mixture).

The mixed multiplicative model of structural equations were chosen as the data analysis method (algorithm E-M, 500 sets of initial values, solutions of 1–5latent segments). Analysis was performed using Lisrel.

3.2. Measures

DIS has been measured by the four-item scale validated by Sabadie (2003) in a service context. TTI has been measured by the five-item perceived TTI scale of Sabadie (2003). TM was measured with a single item (MOD) assessing the respondents' evaluation of the differences between the prices they were charged for the two last journeys. This measure has been considered for the TM as it corresponds to the concrete type of the attribute to be measured (Rossiter, 2002). The scales considered are available in the French literature. After selecting the appropriate scales of measurement, drawing up and distributing the questionnaire, we determined the dimensional structure of the different scales of measurement.

Table A1 displays the Pearson correlations and descriptive statistics of the measures. To meet the requirements of subsequent estimation procedures, all variables were mean-centered. The formal omnibus tests of univariate normality (DeCarlo, 1997; Doornik and Hansen, 2008) led to its rejection for most variables (D'Agostino and Pearson's K^2 statistic and Doornik and Hansen's D-H statistic are significant at $\alpha = 0.005$ for all indicators but TTI1, TTI2, and TTI4) and consequently to rejection of multivariate normality (*e.g.*, D-H = 85.2535, $p < 0.0001$).

The psychometric properties of all scales and measures were assessed following guidelines sand forth by Anderson and Gerbing (1988), Bagozzi and Yi (1988) and Fornelland Larcker (1981), enhanced by an inferential approach (Raykov, 1998). Thus, all measures were subject to a three-factor confirmatory factor analysis (CFA) model. The error variance of MOD was fixed at 0.117, based on a reliability estimate following Wanous and Michael, 2001. Moreover, the variance error of the two negatively-worded indicators of DIS were allowed to covary as a proxy of the factor arising from theim (Lance et al., 2002; Podsakoff et al., 2003). Finally, the weighted least squares (WLS) fit function (Browne, 1984) was chosen as the estimation method. This methods is adequate in the case where there are no assumptions about the distributions of the variables with sample sizes above 500 (Curran et al., 1996; West et al., 1995). It is also the most appropriate method for the estimation of aggregate moderated structural model (Baumgartner and Bagozzi, 1995).

Table A2 summarizes the information needed to appraise the psychometric properties of the scales. French scales have the same factorial structure as in the original version. The chi-square test of overall fit was significant ($\text{Chi-square}_{WLS}(32) = 129.325$; $p = 0$). Unidimensionality of the measures was not biased as the measurement model achieved close fit according to the conservative guidelines of Hu and Bentler (1999) (CFI = 0.953, RMSEA = 0.058, $p = 0.108 > 0.05$ for H_0: RMSEA < 0.05) and no significant modification index was reported in association with a large expected parameter change (Kaplan, 1990). Squared multiple correlations (SMC) exceed the threshold of 0.5 (Bollen, 1989) for all indicators and the bootstrap 90% percentile confidence intervals (CI) calculated from 10,000 replications have a lower bound greater than 0.5.

Construct reliabilities (CR) was assessed through Cronbach's alphas and average variance extracted (AVE) that exceed for all constructs the thresholds of 0.6, 0.7, and 0.5. The bootstrap 90% percentile CI (for alpha, see Iacobucci and Duhachek, 2003) was satisfacting with 0.6 (90% CI(CR) = [0.833;0.869] for DIS, [0.867;0.896] for TM, and [0.881;0.919] for TTI), 0.7 and 0.5 (90% CI(AVE) = [0.560; 0.630] for DIS, [0.867;0.896] for TM, and [0.607; 0.683] for TTI).

All factor loadings were highly significant. These findings support the reliability and convergent validity of the constructs. As for discriminant validity, Table A3 showed so low correlations between the constructs that discriminant validity has not to be investigated. The 90% percentile CIs for the correlations do not contain unity; the smallest AVE for every pair of constructs exceeds their squared correlation; and the chi-square difference statistics are significantly high. In sum, our results demonstrated that the scales and measures have adequate psychometric properties.

3.3. Estimation method

Since it involves an interaction between two latent variables, the research model is a multiplicative nonlinear structural equation model (MSEM). In light of the literature on MSEM (Li et al., 1998; Marsh et al., 2004), the one-step version of the Ping (1995) approach to MSEM was adopted except for the adjunction of structural means (Algina and Moulder, 2001). To account for heterogeneity, the model draws on finite-mixture methodology and requires the specification of a structural equation mixture model (SEMM, see Jedidi et al., 1997 for technical details).

Invariance of the measurement model was assumed as per Bauer (2005). The ensuing MSEMM was estimated with the MLR estimator in MPLUS 3 (Muthén and Muthén, 2004). Several MSEMMs were estimated with the number of segments S ranging from 1 to 5. Each MSEMM was estimated from 500 random starts.

4. Results and discussion

4.1. Model selection and fit

The Bayesian Information Criterion (BIC) was chosen as the main heuristic for model selection (Nylund et al., 2007). Statistics for model selections are displayed in Appendix A. Although BIC keeps decreasing with S (so that the minimum obtains with $S=5$) both the four-segment and the five-segment solutions lead to inadmissible solutions and should not be considered (Bauer, 2005). Thus, the results point to the three-segment solution which was retained. The entropy E_3 of 0.635 indicates that the centroids for the 3 segments are reasonably well separated (DeSarbo et al., 2001).

Since the aggregate model shows acceptable fit (chi-square$_{WLS}$(45) = 168.887, p = 0; CFI = 0.942; RMSEA = 0.055), it can be deducted that the fit of three-segment solution can be retained and fit to the measure for MSEM (Klein and Muthén, 2007).

4.2. Parameter estimates

Table A4 reports the parameter estimates from both the aggregate and three-segment solutions. Despite high power (Satorra, 1989), the interaction between TM and TTI is significant in all segments, with difference in sign and magnitude, and the interplay of TM and TTI explains a significative amount of the variation of TM ranging from 45% to 56%. For segment 2 constituted by 41% of the sample, the interaction is negative in consistance with H_3, which is then only partly supported. Similarly, for the same segment, the main effects are significant and have the expected sign. For segments 1 and 3, the interactions share the same positive sign and the same magnitude. However, while the main effect of TM is not significant in either segment, the main effect of TTI is significant only in segment 1. In conclusion, H_1 and H_2 are also partly supported.

If the analysis was based on the results of the aggregate model, one would have mistakenly concluded that TTI does not moderate the TM spawning of DIS, and that TM and TTI have only a marginal role, if any, in the genesis of DIS, since they explain less than 10% of the variance. Due to heterogeneity, H_4 could not be rejected. According to our results, our hypotheses have been rejected or just partially accepted. This is mainly due to the differences of behavior between the different customer segments that has been studied. To gain further insights aid in the interpretation of the dissonant findings in segments 1 and 3, we need to test the interaction through examination of simple slopes, region of significance, and confidence bets.

4.3. Interaction test

Based on Preacher et al. (2006)), Appendix B plots the regression lines of DIS on TM at low, medium and high TTI (Aiken and West, 1991). The second panel of Appendix B depicts the most important outcome since it shows that as TTI increases. The adverse effect of TM on DIS (simple slope = 0.6642, p = 0) diminishes until it turns into a virtuous satisfaction-building positive effects for high TTI (simple slope = −0.3282, p = 0.0155). That is why the mean of DIS is relatively low in segment 2. However, the reverse might also hold, in the sense the virtuous effect of TTI conditional on DIS being confined to moderate levels. When DIS is relatively high, TM is damaging even when TTI is high, as depicted in the first panel. However, while it is shown that TM reduces DIS for low TTI, this relationship is not significant (simple slope = −0.2034, p = 0.1832). As the simple intercepts are significant across all levels of TTI in segment 1 and keep decreasing with TTI, we can conclude that when DIS is extreme, TTI is not effective, whereas it is slightly effective when DIS is high, reducing it without offsetting against the adverse effect of TM. It might also be conjectured that segment 1 is comprised of previously loyal customers who feel that their loyalty is not duly requited leading to some negative affect toward the service provider regardless of the rationale underpinning its pricing decisions. Following this logic, the DIS process of customers in segment 1 seems to be predominantly cognitive, while it is predominantly affective in segment 2. As for customers in segment 3, they display a contrasting pattern of relationships, although the third panel of the interaction plots suggests, they are akin to customers in segment 1. Only in segment 3 when TTI is low is the relationship between TM and DIS is significant (simple slope = −0.2334, p = 0.0022).

The counterintuitive finding of a negative impact of TM on DIS possibly arises from the transactional attitude of customers in segment 3. Consequently, in the absence of TTI, a favorable TM could be regarded as a reward as the simple intercepts keep rising significantly in this segment when TTI shifts from low to high through medium and the purported reward proves illusory. A caution in this interpretation should be noted as the choice of the values of TTI at which the main effect of TM appears is arbitrary. That is why we determined the region of significance (Johnson and Neyman, 1936) which shows that the main effect of TM is significant for values of TTI falling outside [−1.0944; 0.6176] for segment 1, [0.1204; 0.5585] for segment 2, and [−0.498; 0.9824]. Thus, it might be deducted that the findings of segment 2 correspond to a fairly general and quite "normal" circumstances since it spans a wide range of TTI levels, while the circumstances underlying the findings in segments 1 and 3 seem rather rare and extreme situations. The confidence bets (*e.g.*, Rogosa, 1980) in Appendix C support this argument for the simple slope's CI as it does not contain zero for quite the whole range of possible values of TTI in segment 2 in contrast to segments 1 and 3 wherein the lower bound exceeds zero for exceptional level of TTI. Thus we can argue that except for rare circumstances TTI is an effective remedy to TM's spawning of DIS.

5. Analysis

This study shows that the interplay between TM and TTI is so complex that TTI should not be considered as a universal remedy for tariff DIS. Such finding has major marketing implications and offers venues for future research. By assuming the importance of customer dynamic segmentation, our study highlighted the scope of TM and TTI to be adapted to time and customers' characteristics. Our finding emphasized the relevance of TM as an effective marketing practice in the service industry if an endeavor in customer segmentation is realized. Again, the segmentation criteria are not universal and the critical factors can be chosen using a three-step approach. First, qualitative research can explicit the factors relevant for a given service context. Second, a model-based segmentation can be carried out to group representative customers into homogeneous segments. Third, the customer profile of each segment can be draw out based on the factors uncovered in the first step. Adopting different segment specific TM with related level of transparency on tariff information can, thus, limit customer defection due to TM.

Study limitations are due to the potential selection bias and method bias due to the sampling design we adopted. Indeed, a sampling framework reflecting the particularity of the customers of the hospitality industry is prone to selection bias. The significant error covariance between the first two indicators of DIS controls only for systematic variance arising from negative wording. It is also noticeable that contaminating sources may be present, such as demand characteristics and fatigue, which have not been included to avoid overloading the model. Moreover, other variables, such as the application of relationship marketing, were not included in the model and can be the reason for which half of the variability in DIS remains unexplained in each segment.

To enhance external validity, this study needs replications to control the selection bias. The replication might extend the conceptual framework proposed in this study by specifying an integrated model of the occurrence of tariff DIS within the services industry. To estimate such a model, the quasi-maximum likelihood approach of Klein and Muthén (2007) might be preferred since it allows several latent multiplicative and quadratic effects while obviating the need to specify indicators for them. Such an approach can diminish the risk of indicators multicollinearity and the constraint of the null structural means of the main-effect latent variables can be relaxed. Estimation of the means of TM and TTI in each segment should further aid in the interpretation of the relationships, instead of being limited to the mean of DIS.

Appendix A. Summary Statistics for Model Selection

S	Q_S[i]	- Ln L[ii]	BIC	AIC	Admissibility	E_S[iii]
1	30	13524.354	27253.374	27108.708	Yes	na
2	35	13501.300	27241.377	27072.600	Yes	0.895
3	44	13309.807	26919.790	26707.614	Yes	0.635
4	51	13251.036	26850.005	26604.073	No	0.736
5	54	13226.865	26822.128	26561.730	No	0.702

See Appendix Tables A1–A4 and Fig. A1.

Table A1
Univariate and bivariate summary statistics of the construct indicators.

	1	2	3	4	5	6	7	8	9	10
MOD	1									
DIS1	− 0.085[a]	1								
DIS2	− 0.081[a]	0.872[a]	1							
DIS3	− 0.077[a]	0.668[a]	0.631[a]	1						
DIS4	− 0.028	0.649[a]	0.66[a]	0.866[a]	1					
TTI1	0.145[a]	− 0.168[a]	− 0.125[a]	− 0.154[a]	− 0.193[a]	1				
TTT2	0.19[a]	− 0.203[a]	− 0.191[a]	− .18[a]	− 0.208[a]	0.623[a]	1			
TTI3	0.2[a]	− 0.235[a]	− 0.213[a]	− 0.191[a]	− 0.222[a]	0.647[a]	0.686[a]	1		
TTI4	0.033	− 0.237[a]	− 0.232[a]	− .17[a]	− 0.223	0.458[a]	0.525[a]	0.517[a]	1	
TTI5	0.031	− 0.19[a]	− 0.174[a]	− 0.152[a]	− 0.222[a]	0.482[a]	0.54[a]	0.592[a]	0.647[a]	1
S.D.	1.018	1.263	1.207	1.223	1.208	0.983	0.905	1.022	0.916	0.946
Skewness[b]	0.300[c]	− 0.168	− 0.289[c]	− 0.170	− 0.283[c]	0.157	0.130	0.125	0.239[c]	0.347[c]
Kurtosis[d]	− 0.491[e]	− 1.016[e]	− 0.837[e]	− 0.931[e]	− 0.875[e]	− 0.183	0.217	− 0.636[e]	0.206	0.017[e]

[a] $P < 0.05$ for H_0: $\rho = 0$.
[b] $\sqrt{b_1}$ computed according to DeCarlo (1997).
[c] $P < 0.005$ level for H_0: $\sqrt{\beta_1} = 0$.
[d] $b_2 - 3$ computed according to DeCarlo (1997).
[e] $P < 0.005$ level for H_0: $\beta_2 - 3 = 0$.

Table A2
Psychomandric Properties of Measures and Constructs Based upon the Results of a CFA of the Measurement Model (n = 918; $\text{Chi-square}_{WLS}(32) = 129.325$; p = 0; CFI = 0.953; RMSEA = 0.058 (p = 0.108 > 0.05 for H_0: RMSEA < $0._05$)).

Construct/Indicator	*SFL*[a]	*t-value*[b]	*Reliability*[c]	*Lower*[d]	*Upper*[e]	*CR*[f]	*AVE*[g]
Dissatisfaction			0.913	0.905	0.921	0.851	0.593
DIS1[h]	0.709	na	0.503	0.474	0.539		
DIS2	0.707	46.442	0.500	0.469	0.533		
DIS3	0.941	27.369	0.886	0.865	0.917		
DIS4	0.956	26.105	0.914	0.893	0.938		
TM			Na			0.884	0.884
MOD[b]	0.940	na	0.884	0.873	0.891		
TTI			0.87	0.858	0.881	0.902	0.643
TTI1[b]	0.773	na	0.597	0.551	0.646		
TTI2	0.809	23.198	0.654	0.612	0.704		
TTI3	0.852	23.206	0.726	0.689	0.765		
TTI4	0.761	20.132	0.579	0.531	0.629		
TTI5	0.799	19.733	0.639	0.595	0.694		

[a] Standardized Factor Loading.
[b] If $t > 1.96$, $p < 0.05$ for H_0: Factor Loading = 0.
[c] Cronbach's alpha for the constructs, and squared multiple correlations (SMC) for indicators.
[d] Lower bound of the 90% CI for reliability, based on asymptotic standard error for alpha, and on bootstrap for SMC.
[e] Upper bound of the 90% CI for reliability, based on asymptotic standard error for alpha, and on bootstrap for SMC.
[f] Composite Reliability calculated by formulae given by Fornell and Larcker (1981) for the uncorrelated errors case, and by Zimmerman (1972) for the correlated errors case.
[g] Average Variance Extracted calculated by the formula given by Fornell and Larcker (1981)).
[h] Reference Indicator whose unstandardized factor loading is set to one for identification pourposes.

Table A3
Correlations bandween and variances of the study constructs and Chi-square differences bandween measurement model and models with correlations constrained to unity[e].

Construct	*Dissatisfaction*	*TM*	*TTI*
Dissatisfaction	0.783[a]	1091.516[b]	270.711[c]
TM	− 0.042[c][− 0.104;0.015][d]	0.889[b]	354.439[c]
TTI	− 0.287[− 0.359;− 0.224][e]	0.220[0.150;0.294][e]	0.560[b]

[a] $P < 0.05$ for H_0: Variance = 0.
[b] $P < 0.05$ for H_0: Correlation = 1.
[c] $P > 0.05$ for H_0: Correlation = 0.
[d] 90% percentile CI for correlation coefficient based on 10000 replications.
[e] Correlations are below the main diagonal, Variances are on the diagonal, and chi-square-difference statistics are above the diagonal.

Table A4
Parameter estimates for the aggregate and three-segment solutions.

Paramander	*Aggregate solution*	*Segme3nt 1*	*Segment 2*	*Segment 3*
TM- > DIS	0.007[a]	0.085	0.168[a]	0.055
TTI- > DIS	− 0.313[a]	− 0.620[a]	− 0.281[a]	0.122
Interaction TMxTTI	− 0.019	0.383[a]	− 0.659[a]	0.383[a]
Mean (DIS)	3.600[a]	3.258[a]	2.245[a]	4.228[a]
Power (interaction)	0.082	0.950	0.948	0.790
R^2(DIS)	0.098	0.448	0.560	0.559
Mixing proportions	Na	0.290	0.410	0.300

[a] Significant at the 0.05 level.

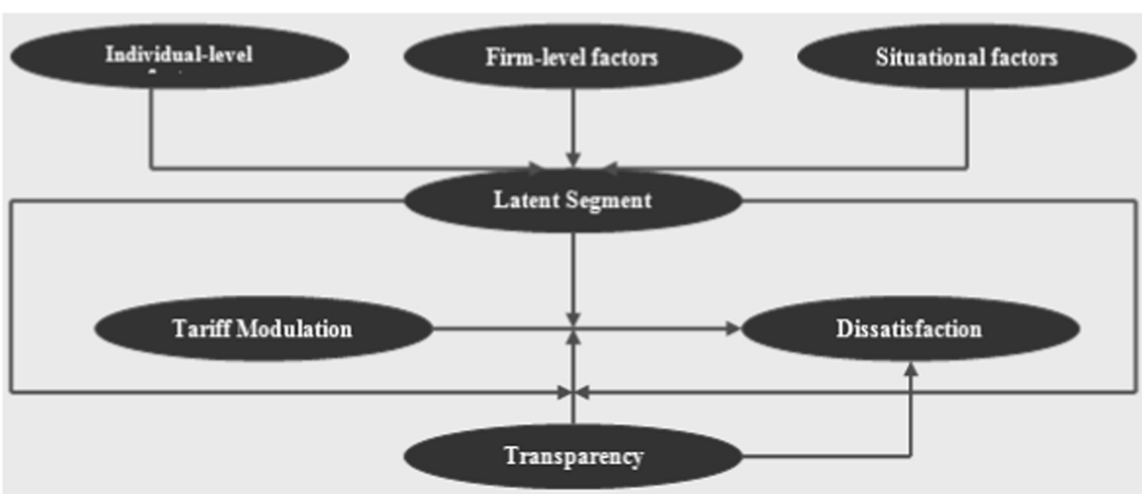
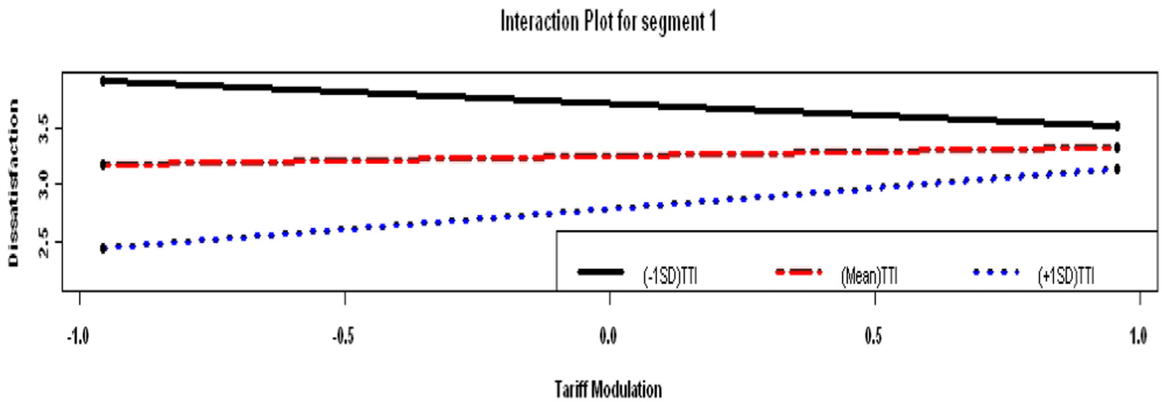
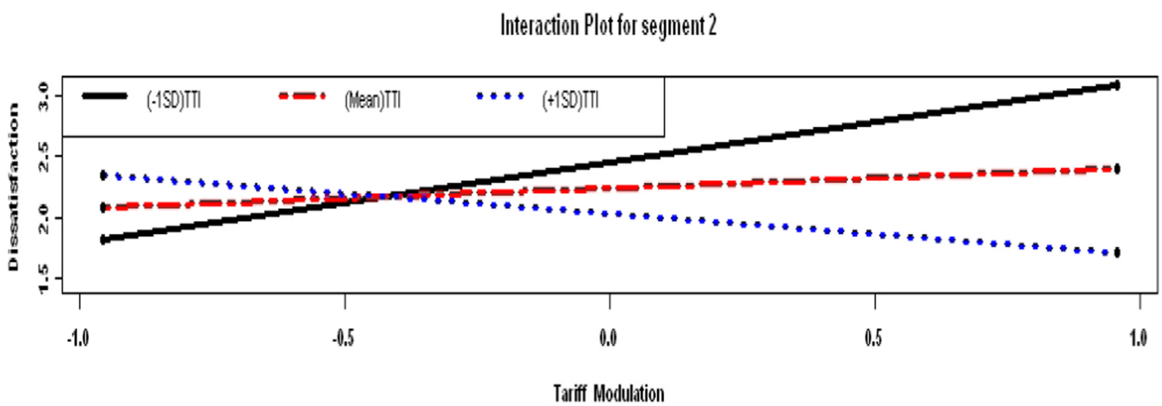
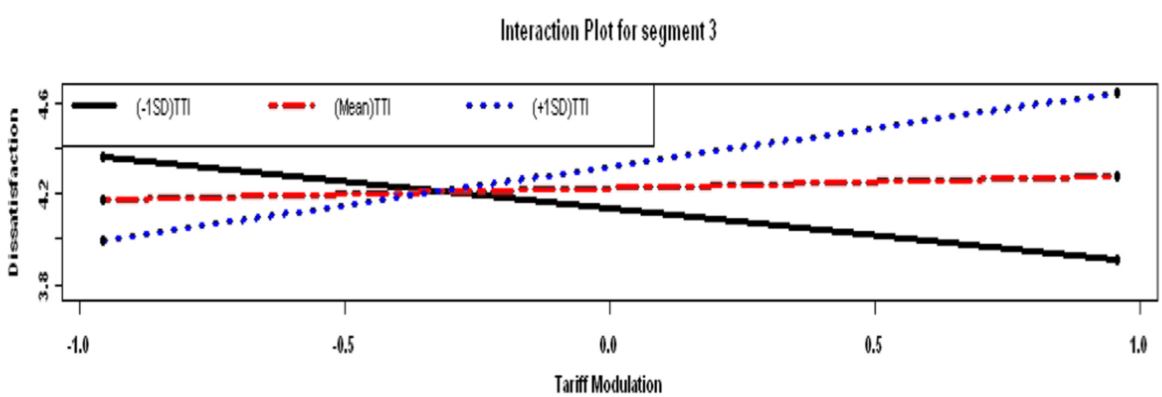


Fig. A1. The research conceptual model.

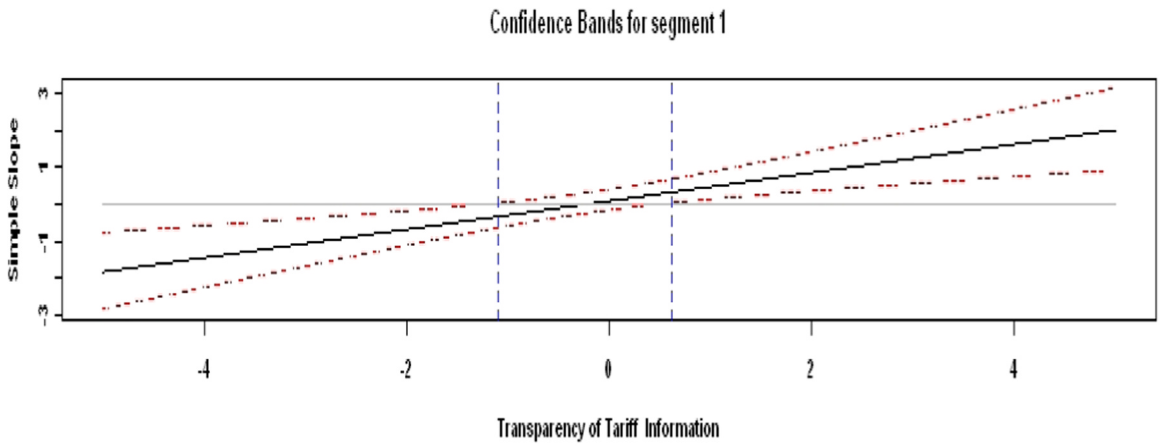
Appendix B. Interaction plots for all three segments

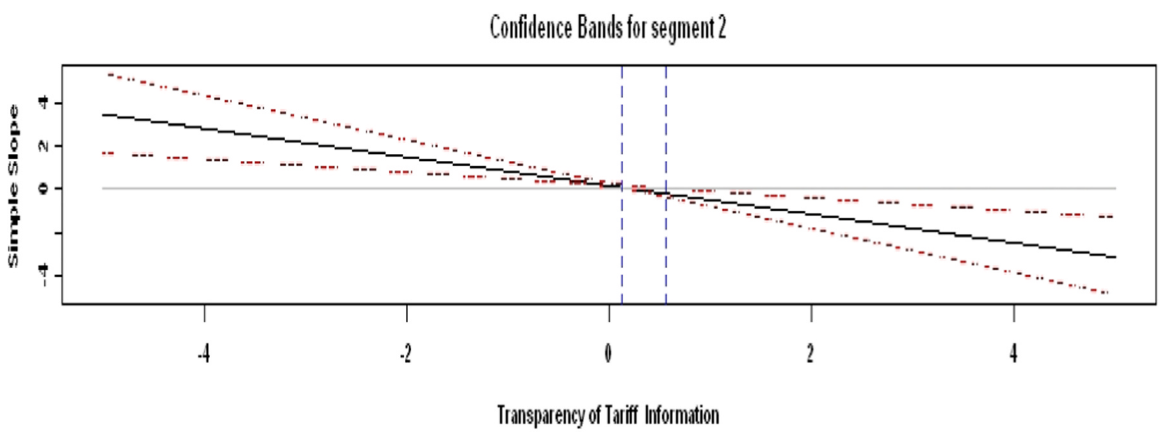


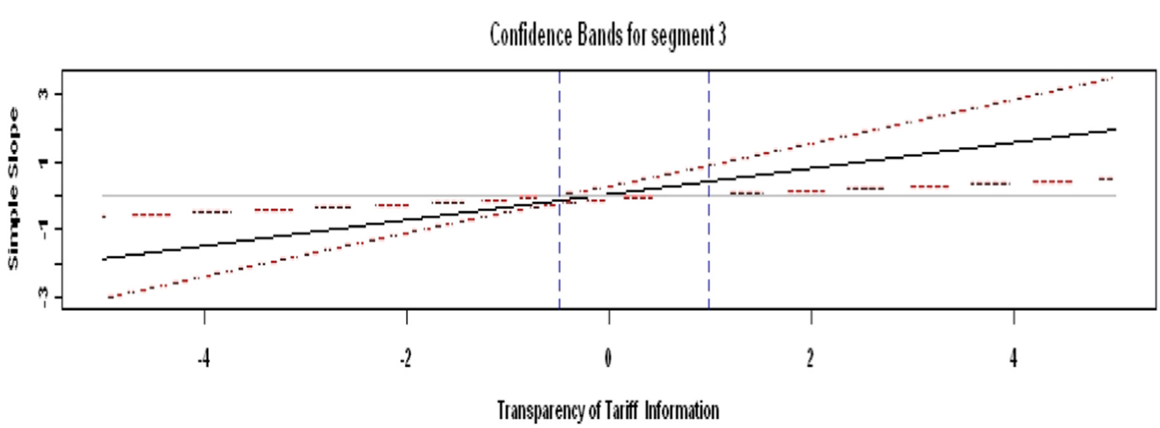




Appendix C. Confidence bands for all three segments







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