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Advertised reference price and sales price as anchors of the latitude of expected price and its impact on purchase intention

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ADVERTISED REFERENCE PRICE (ARP) AND SALES PRICE (SP) AS ANCHORS OF THE LATITUDE OF EXPECTED PRICE AND ITS IMPACT ON PURCHASE INTENTION

ABSTRACT

Purpose: This research investigates the influence of advertised reference price (ARP) and sales price (SP) as anchor points on the latitude of expected price, and subsequently on purchase intention (PI). The research involves the theoretical lens of selective anchoring mechanism, which allows investigation of the influence of ARP and SP in a situation where price estimation task is a 'non-thoughtful processes'.

Design/methodology/approach: Based on quasi-experimental design, the study involves intercept survey of 142 shoppers.

Findings: The study finds that due to anchoring effect, highest and lowest expected prices shift toward ARP and SP respectively. Consequently, it influences the latitude of expected price, which in turn, influences purchase intention. In addition, the study proposes and tests a method to forecast expansion and contraction of the latitude of expected price.

Research limitations/implications: It suggests a new mechanism to understand the simultaneous influence of ARP and SP, provides a mechanism to understand shifts in price latitude's end-points, and investigates a phenomenon with two externally provided anchors.

Practical implications: The study highlights the role of the latitude of expected price in understanding consumers' response. Results suggest that a plausible ARP, when joined with an above-expectation SP, can fetch better consumer responses.

Originality/value: The study uniquely investigates a problem with two anchor points and two estimation targets, and proposes a construct of internal price uncertainty (IPU).

Keywords: Reference price, Advertised Reference Price (ARP), selective anchoring mechanism, price uncertainty

Paper type: Research paper

INTRODUCTION

Reference price (RP) is a well-established concept in marketing discipline (Kalyanaram and Winer, 1995; Mazumdar *et al.*, 2005). Most reference price researches are based on following three theories: assimilation contrast theory (Sherif and Hovland, 1964), adaptation level theory (Helson, 1964), and range theory (Janiszewski and Lichtenstein, 1999). However, all these theories propose thoughtful updating of reference price. In this study, we have investigated a situation where updating of reference price is not explained by any thoughtful process, but by selective anchoring mechanism, which involves judgments based on 'non-thoughtful processes' (Frederick *et al.*, 2010). In this paper, we conceptualize internal reference price (IRP), which is a type of reference price, as latitude charted by highest expected price (HEP) and lowest expected price (LEP). Further, by applying semantic anchoring mechanism (Mussweiler and Strack, 2001; Strack and Mussweiler, 1997), we will demonstrate that upon exposure to price information, consumer's 'updated HEP' will be closer to advertised reference price (ARP) and 'updated LEP' will be closer to sales price (SP). In addition, based on the understanding of price uncertainty (Mazumdar and Jun, 1992; 1993), we propose a new construct of internal price uncertainty (IPU), which is measured in terms of the width of latitude charted by psychologically (internally) evoked HEP-LEP.

Further, we will show that the change in the width of HEP-LEP latitude or IPU is associated with the change in purchase intention (PI). Our results suggest that the change in the width of HEP-LEP latitude or IPU is inversely associated with the change in purchase intention.

Kalyanaram and Little (1994) empirically investigated the latitude of price acceptance and identified some influencers of price latitude. As a step forward, this research investigates the behavior of endpoints of price latitude. Consequently, based on the understanding of the behavior of individual endpoints of price latitude, we propose a method to forecast the expansion and contraction of price latitude. In addition, we have suggested ways in which our findings can help managers and policy makers. Further, this study contributes to the literature by providing a new mechanism to understand the influence of ARP and SP: it investigates the simultaneous influence of two anchor points (i.e., ARP and SP) on two targets of estimation i.e., highest expected price (HEP) and lowest expected price (LEP), and proposes a new construct internal price uncertainty (IPU).

In the next section we provide the conceptual foundation and propose hypotheses, which is followed by the method section. We then describe analysis where we report hypothesis tests, analyzes influences of upper bounds (UBs) that we have used as estimation hints in the research procedure. In addition, the analysis section provides the description and empirical analysis of the method proposed to predict the contraction and expansion of latitude charted by HEP and LEP. The final section of discussion and conclusion provides theoretical and managerial contributions of this study. In addition, it provides limitations and directions for further research.

CONCEPTUAL BACKGROUND AND HYPOTHESES

Advertised reference price (ARP), sales price (SP) and latitude of expected price as internal reference price (IRP)

Reference price (RP) is a price standard used by consumers for evaluating an offer price (Buil, *et al.*, 2013; McKechnie *et al.*, 2012; Roy *et al.*, 2016; Mazumdar *et al.*, 2005). Multiple operational conceptualizations of RP can be found in the literature. Lowengart (2002) identified twenty-six different conceptualizations of RP in the literature. Shirai (2004) identified nine different forms of RP: fair price, reservation price, lowest acceptable price, lowest observed price, highest observed price, average observed price, normal price, expected price, and purchase price. However, all forms of RP can be classified into two categories: external reference price (ERP) and internal reference price (IRP) (Nicolau, 2013). ERP is a price standard that is based on the prices of alternative products present in the immediate purchase environment (e.g., highest or lowest market price); whereas, IRP is a psychological (internal) price standard (e.g., highest or lowest expected price for a product) used by consumers for evaluating offered prices (McKechnie *et al.*, 2012; Nicolau, 2013; Roy *et al.*, 2016).

In this paper, we have conceptualized IRP in terms of price latitude charted by the latitude of highest expected price (HEP) and lowest expected prices (LEP). Similar to our conceptualization, Lichtenstein and Bearden (1989, pp. 56) conceptualized reference price as "a range of expected marketplace prices". Similarly, Janiszewski and Lichtenstein (1999) postulated that consumers evaluate a product's price against the evoked endpoints of the product's price latitude. Kalyanaram and Little (1994) empirically demonstrated the existence of the latitude of acceptable price, which is characterized by an upper and a lower price thresholds. In addition, Mayhew and Winer (1992), considered retailer-provided reference price (RP) as external reference price (ERP), which they termed as advertised reference price (ARP). Various research suggest both positive and negative influence of ERP on prices paid by consumers and, therefore, it is uncertain that whether higher ARP can always induce a consumer to pay more (Roy *et al.*, 2016). The findings of this study offer new insights about ARP's influences on consumers' purchase behavior.

On the issue of formation of IRP for a product, authors diverge into two categories: those who emphasize the memory of a product's past prices, and those who emphasize on product's immediate price information (Alvarez and Vázquez, 2005). We have considered the later view in this study because both ARP and sales price (SP) are pricing information available in the immediate purchase environment. In this study, we consider ARP and SP as externally provided anchors that influence the endpoints of expected price latitude i.e, highest expected price (HEP) and lowest expected price (LEP).

Sematic anchoring effect of advertised reference price (ARP) and sales price (SP) on highest expected price (HEP) and lowest expected price (LEP)

According to Mochon and Frederick (2013, pp. 69), "Anchoring is the term applied to situations in which numeric judgments assimilate towards a previously encountered standard". Anchoring is a non-thoughtful process; it is an automatic associative process involving retrieved information and anchor (Frederick *et al.*, 2010). Anchoring bias, due to its involuntary nature, might disappear by effortful thinking based on appropriate information (Wilson *et al.*, 1996; Mussweiler *et al.*, 2000).

Previous researchers found multiple effects result in anchoring, which is not a unitary phenomenon (Frederick *et al.*, 2010; Sleeth-Keppler, 2013). These researchers proposed multiple mechanisms to explain anchoring effect. Two most recognized mechanisms namely, semantic anchoring mechanism and numeric anchoring mechanism are deemed as distinct anchoring effects (Mussweiler and Strack, 2001; Sleeth-Keppler, 2013). Numeric anchoring involves numeric priming where unrelated numbers existing in the short-term memory can produce anchoring effect (Wilson *et al.*, 1996). According to semantic anchoring mechanism, numeric anchoring effect occurs due to a subject's selective search for anchor consistent semantic knowledge about an estimation target, and in case when evoked knowledge is irrelevant, no anchoring effect including pure numeric anchoring will occur (Mussweiler and Strack, 2001; Strack and Mussweiler, 1997). According to research findings, semantic anchoring mechanism is more potent than pure numeric priming based explanation of anchoring effect (Mussweiler and Strack, 2001; Sleeth-Keppler, 2013). Apart from pure numeric level processing, numerical anchors influence semantic level processing as well. Therefore, in a numerical anchoring process, the decision-maker will search for target related numerical-anchor consistent semantic knowledge (Strack and Mussweiler, 1997). Numbers alone will produce poor anchoring bias, and to get the anchoring effect as found in various anchoring research, simultaneous presence of numerical anchor value and a semantic context, even vague, is essential (Sleeth-Keppler, 2013, Brewer and Chapman, 2002; Birnbaum, 1999). Pure number based anchoring effects lack robustness (Sleeth-Keppler, 2013; Brewer and Chapman, 2002), and hence, presence of both numerical value and semantic context is important to observe robust numerical anchoring effect (Sleeth-Keppler, 2013). Similar numeric anchors, placed in different semantic contexts, produce different anchoring effects (Sleeth-Keppler, 2013), which highlights the importance of semantic context in the processing of numeric information.

For example, we can assign some eatables with different numerical caloric values; however, people will associate those caloric values with some semantic labels, for instance, high or low calorie, or healthy or unhealthy (Chernev, 2011). Similarly, ARP and SP are numbers expressed in monetary units; however, they are not just pure numbers since they have semantic associations in the form of ARP (high) and SP (low). Semantic quantifiers, such as high, expensive, old, etc., may bias the target estimate toward the upper boundary of estimate distribution; similarly, semantic quantifiers, such as low, inexpensive, young, etc., may bias the target estimate toward the lower boundary of estimate distribution (Sleeth-Keppler, 2013). Therefore, due to semantic closeness between ARP-HEP and SP-LEP, we can expect that upon exposure to a set of posted ARP and SP, due to anchoring bias, updated highest expected price (HEP) will shift toward ARP and updated lowest expected price (LEP) will shift toward SP. Thus, we propose the following two hypotheses for investigation:

H1a: Upon exposure to advertised reference price (ARP) and sales price (SP), a consumer's highest expected price (HEP) can shift toward the advertised reference price (ARP).

H1b: Upon exposure to advertised reference price (ARP) and sales price (SP), a consumer's lowest expected price (LEP) can shift toward the sales price (SP).

Change in price latitude and purchase intention (PI)

When the price of a product fluctuates unpredictably, it charts latitude of prices, which results in 'price uncertainty'. Earlier researchers have measured price uncertainty by the width of the latitude (Mazumdar and Jun, 1992; 1993). However, above conceptualization of price uncertainty is based on externally available price information. Therefore, it should be appropriate to term it as external price uncertainty. However, consumers generate their own internal price information as well, which includes internal reference price (IRP) or latitude of expected prices. Therefore, similar to the conceptualization of external price uncertainty, we can conceptualize the latitude of expected price or IRP as the measure of internal price uncertainty (IPU). We conceptualize external price uncertainty and IPU as two distinct concepts and consider change in the latitude of highest expected price (HEP) and lowest expected price (LEP) as the change in IPU.

A consumer's purchase intention (PI) for a product is the likelihood that in a specified time the consumer will buy the product (Brown *et al.*, 2003). However, researchers found that high PI does not entail actual purchase (Brown *et al.*, 2003; Gottlieb *et al.*, 2011). Different cognitive and affective aspects can influence PI (Palazon and Delgado-Ballester, 2013). Researchers have investigated PI in the context of pricing (McKechnie *et al.*, 2012; Gamliel and Herstein, 2012; Buil *et al.*, 2013). Some authors have suggested that uncertainty can influence PI (Laroche *et al.*, 1996; Spreng and Page, 2001). Therefore, we consider the 'change in PI' as the consequent variable, and change in the latitude of highest expected price (HEP) and lowest expected price (LEP) as its regressor. An *increase* in the latitude of HEP and LEP will increase the internal price uncertainty (IPU), and *decrease* of the same will decrease the IPU. Since, uncertainty can influence PI (Laroche *et al.*, 1996; Spreng and Page, 2001); therefore, we suggest that an increase in internal price uncertainty (IPU) will decrease the PI and a decrease in IPU will increase the PI. Therefore, we propose the following hypothesis:

H2: Upon exposure to advertised reference price (ARP) and sales price (SP), the change in purchase intention (PI) can be inversely associated with the change in the latitude of expected price (i.e., latitude of HEP-LEP).

METHOD

Overview

To test the proposed hypotheses, we demonstrated anchoring bias in the judgments of highest expected price (HEP) and lowest expected price (LEP) due to two external anchors: advertised reference price (ARP) and sales price (SP), and consequently, showed the inverse association of the change in the latitude of HEP and LEP with the change in PI. We did it by exposing subjects to four different luxury pens, their ARPs, and SPs. Data collection involved single-group pretest-posttest design. In order to overcome the limitation of absence of control group, we exposed subjects to four different luxury pens with different ARPs and SPs. Use of four different luxury pens allowed us to put each subjects into varied pre-treatment conditions. For each of the four luxury pens, we measured PI, HEP, and LEP twice; that is, before and after the exposure to ARP and SP. Using the data, we found the pattern of shifts in HEP and LEP vis-à-vis ARP and SP. In addition, we calculated the change in internal price uncertainty (IPU) and purchase intention (PI), and found the nature of association between them.

Context, upper bound (UB), and anchoring intervention

We used luxury pens because they are infrequently purchased products, which can ensure low price expertise for them. Low price expertise can ensure better anchoring bias. Researchers suggest that less knowledgeable people are more susceptible to anchoring effect (Chapman and Johnson, 1994; Wilson *et al.*, 1996). However, some authors add that knowledgeable people, due to overconfidence, can demonstrate similar susceptibility as well (Furnham and Boo, 2011).

To elicit usable price estimation from experimental subjects, we provided, as hint, an upper bound (UB) of price for each of the four writing pens. For purposefully influencing the estimation of subjects, anchoring researchers have used somewhat arbitrary UB or lower bound (LB) in their researches (Mochon and Frederick, 2013; Mussweiler and Strack, 2004). However, due to our unique design that involves two points for estimation, we used the UB to serve an important purpose. Previous studies have found that in the case of increase in price uncertainty, acceptable highest expected price (HEP) increases more than lowest expected price (LEP) (Mazumdar and Jun, 1992; 1993). Therefore, in the absence of upper bound, an uncertain consumer is likely to respond with relatively higher HEP and, consequently, upon exposure to a lower level of ARP, updated HEP is likely to come down. Since LEP faces a natural boundary of zero, a relatively unchanged updated LEP in comparison to a variable and decreasing HEP, is likely to provide the scenarios of contraction of price latitude. However, we are interested in investigating both contractions and expansions of price latitude. Thus, by the use of UB we ensured that both contraction and expansion of price latitude could be investigated. We did not provide any lower bound (LB) hint to the subjects, as zero value is already available as a natural LB. However, we cannot rule out the anchoring influence of UB. The analysis section describes the UB's anchoring influence on the latitude of HEP and LEP. Taken from a well-known online retailer, we have used advertised reference price (ARP) and sales price (SP) as the main anchoring intervention. The ARPs of the four luxury pens are 349, 2200, 1800, and 2000; SPs are 139, 1400, 549, and 1575; and their UBs are 500, 3000, 2500, and 2500 (in local currency).

Although, 'classic paradigm' (Tversky and Kahneman, 1974), which involves two stages: comparison with an anchor and absolute estimation, is the most used experimental design in anchoring researches, there could be different possible situations where anchoring effect can occur (Mochon and Frederick, 2013). Marketing scholars have also diverged from 'classic paradigm' owing to their unique research questions (Chernev, 2011, Nunes and Boatwright, 2004). Since our problem is different from the researchers of 'classic paradigm', we did not use 'classic paradigm' for investigating the anchoring effect.

Procedure and sample

Data collection for each luxury pens involved two phases: (i) subjects saw the upper bound (UB) and the image of one of the luxury pens and reported their highest expected price (HEP), lowest expected price (LEP), and purchase intention (PI), and (ii) along with the previous image shown to them, subjects saw ARP, SP; and upon being asked, reported their updated HEP, LEP, and PI. We ensured that respondents could not guess the brand names of the luxury pens to eliminate the chances of their influence on PI. At a shopping mall in South India, in a questionnaire based intercept survey conducted in the year 2015, we gathered 557 responses from 142 subjects. Due to some nonresponses, we obtained 557 responses instead of 568 (142×4 = 568).

Data and measures

Most anchoring experiments involve single question about target estimation (e.g., Mochon and Frederick, 2013; Chernev, 2011). Similarly, since there are only two targets: HEP and LEP, we asked only four price estimation questions; that is, two before and two after the intervention. For measuring price estimations, we draw from an open-ended price estimation scale used by Kopalle and Mullikin (2003). Drawing from the literature, we measured purchase intention (PI) with a three-item and seven-point scale (Gazley *et al.*, 2015; Kozup *et al.*, 2003; McKechnie *et al.*, 2012).

Variables

For testing H1a and H1b, we calculated difference or change in the pre and post-treatment latitude of HEP-ARP, HEP-SP, LEP-ARP, and LEP-SP. For testing H2, we needed the measure of another two variables: the change in latitude charted by HEP and LEP, and the change in PI. We calculated the values of variables from the collected data.

Pretests

Earlier researchers have found that low price expertise can stimulate anchoring bias (Chapman and Johnson, 1994; Wilson *et al.*, 1996). High price expertise can encourage thoughtful processing of information, which can eliminate the anchoring effect from judgments. Therefore, drawing from Kopalle and Mullikin (2003), we measured price expertise using a three-item and five-point scale. We found lower average of price expertise (mean = 1.94; SD = 0.7; n = 557), which indicates strong possibility of observing anchoring bias in the price estimation task.

In another pretest involving 103 students, we tested our conceptualization of internal price uncertainty (IPU). We provided two price latitudes to the subjects, one relatively wider than the other latitude. The mean level for the narrower latitude was higher in comparison to the wider latitude. The latitudes were 150-350 (wider latitude, mean = 250), and 250-350 (narrower latitude, mean = 300). We asked subjects to assume that they are internally evoked price latitudes for a writing-pen. On a seven point scale (1 = strongly disagree; 7 = strongly agree), we asked the subjects that whether they found the wider latitude as more difficult than narrower latitude to figure out the actual price to pay. Our question draws from the available method of measuring price uncertainty due to external stimulus (Mazumdar and Jun, 1992; 1993). We found that notwithstanding higher mean of narrower latitude, subjects overwhelmingly considered wider latitude with lower mean as the more difficult case (mean = 5.40; SD = 1.13; n = 103). It demonstrates that similar to external price uncertainty (EPU), we can measure internal price uncertainty (IPU) in terms of internally evoked latitude of estimated price.

ANALYSIS

Impact of Upper Bound (UB)

Upper bound (UB) indirectly influences the pre-treatment or initial latitude "latitude of expected price (HEP-LEP latitude)". Results suggest that UB exerts significant influence on initial mid-points (MP1) of pre-treatment HEP-LEP latitude (see the second row of table – 1). In other words, higher UB resulted in higher MP1. In turn, MP1 exerts significant influence on pre-treatment HEP-LEP latitude (see the first row of table – 1). In addition, we found that

UB does not have much impact on updated post-treatment mid-point (MP2) (see the third row of table -1). Therefore, we found that the chain of influence starts with UB, followed by initial mid-point (MP1), and ends at the initial latitude of HEP-LEP. In other words, we can say that higher upper bound (UB) will result in higher mid-points (MP1) of HEP-LEP, and higher mid-points (MP1) of HEP-LEP will lead to wider latitude of HEP-LEP. The above-mentioned association between mid-point and the width of latitude is consistent with the findings of Kalyanaram and Little (1994); and the influence of UB on initial mid-points (MP1) suggests UB's role as an anchor.

------------------- "Insert Table 1 about here" ------------------------------

Hypothesis 1

Figure 1a and 1b depict the results of analysis for H1a and H1b. In figure 1a, two lines, dotted and continuous, depict two different situations. Continuous line depicts cases where highest expected price (HEP) – advertised reference price (ARP) latitude is greater than highest expected price (HEP) – sales price (SP) latitude (HEP-SP latitude < HEP-ARP latitude). Dotted line depicts cases where HEP is closer to ARP than SP (HEP-SP latitude > HEP-ARP latitude). We measured HEP twice; that is, before and after the exposure to ARP and SP. Results show that number of cases where HEP is closer to SP has decreased from 242 to 189, whereas number of cases where HEP is closer to ARP has increased from 315 to 368. In addition, the mean of latitude between HEP and ARP decreased from 218.20 to 196.39 (the difference is statistically significant). It shows the tendency of HEP to shift toward ARP.

Similarly, in figure 1(b), dotted line depicts cases where lowest expected price (LEP) is closer to SP than ARP, and continuous line depicts cases where LEP is closer to ARP than SP. Pre and post exposure counts of LEP closer to SP show an increase from 495 to 557, which is whole of the sample. The mean of LEP-SP latitude has also decreased from 384.21 to 221.54 (the difference is statistically significant). In contrast, the continuous line that depicts cases where LEP is closer to ARP, post-exposure to ARP and SP, touches, zero on the y-axis. It shows a strong tendency of LEP to shift toward SP.

The above results show that we cannot reject H1a and H1b. Therefore, we can say that upon exposure to ARP and SP, highest reference price (HEP) will shift toward ARP and lowest reference price (LEP) will shift toward SP.

------------------- "Insert Figure 1 about here" -----------------------------

Hypothesis 2

Table-2 shows that increase in mid-point is associated with the decrease in purchase intention (PI). Although statistically significant, the above impact is small in magnitude. However, when we include the change in the pre and post-exposure latitude of HEP-LEP (i.e., Δ (HEP – LEP) = (HEP2 – LEP2) – (HEP1 – LEP1))[1] into the equation, then the impact of change in the mid-point (i.e., ΔMP = MP2 – MP1) on change in PI (i.e., ΔPI = PI2 – PI1) becomes non-significant (see model-2, table-2). It demonstrates the influence of change in the latitude of

[1] HEP1 and HEP2 are the highest expected prices of pre and post exposures respectively while LEP1 and LEP2 are the lowest expected prices of pre and post exposures respectively. Similarly MP1 and MP2 are the mid-points of latitude of pre and post exposures respectively while PI1 and PI2 are the purchase intentions of pre and post exposures respectively.

HEP-LEP on the change in PI. We perhaps got low beta value due to small overall change in PI (mean ΔPI = PI2 – PI1 = –0.08). In addition, the results show that when MP2 > MP1 then mean change in PI is –0.11, and in cases where MP2 < MP1 then mean change in PI is –0.04 (both means are significantly different). Therefore, results demonstrate minor influence of mid-points of HEP-LEP latitude on PI. In the model 2, significant R-square value and significant and negative beta for the change in the latitude of HEP-LEP demonstrate that we cannot reject H2. Therefore, we can say that the change in internal price uncertainty (IPU) is inversely associated with the change in PI.

------------------- "Insert Table 2 about here" ------------------------------

Forecasting expansion and contraction of price latitude charted by highest expected price (HEP) and lowest expected price (LEP)

Based on the statements of H1a and H1b, this section describes that we can predict expansion and contraction of HEP-LEP latitude, which can help us in predicting the change in purchase intention (PI).

In terms of relative magnitude, we can observe four different arrangements of pre-exposure highest expected price (HEP1), pre-exposure lowest expected price (LEP1), advertised reference price (ARP), and sales price (SP) (see the second column of table 3). The fifth column of table 3 provides the number of cases falling into those four different arrangements or scenarios. Upon exposure to ARP and SP, based on H1a and H1b, HEP1 and LEP1 will be updated with some increase or decrease in their values. Let HEP2 and LEP2 are the updated values of HEP1 and LEP1. Based on H1a and H1b, we have suggested possible increase or decrease in the values of HEP1 and LEP1 (see the column three of table 3).

Although theoretically, we can forecast the direction of shifts in HEP1 and LEP1 (see the column three of table 3); however, we cannot forecast their extent of shifts. As a baseline assumption, we considered that HEP1 will perfectly approach ARP, and similarly, LEP1 will perfectly approach SP. Future research can deploy better assumptions for more accurate predictions; however, we can start with the above baseline assumption. The support for the assumption is enshrined in the H1a and H1b. Based on our assumption, let us consider that $HEP2_T$ and $LEP2_T$ are theoretical updated values of HEP1 and LEP1. Therefore, we can say that:

$HEP2_T = HEP1 \pm |HEP1 - ARP|$ and

$LEP2_T = LEP1 \pm |LEP1 - SP|$

('+' in the case of proposed increase and '–' in the case of proposed decrease; see the column three of table 3)

Therefore, we can find the theoretical updated latitude (UL_T) of expected price with the following equation:

$UL_T = HEP2_T - LEP2_T$

Equations presented in the fourth column of table 3 are devices to compare theoretical updated latitude UL_T with observed updated latitude (i.e., $UL_O = HEP2 - LEP2$). The above-mentioned devises consider 'observed latitude (UL_O)' as dependent variable and 'theoretical latitude (UL_T)' as regressor in four different regression equations that cover four different scenarios. Table 4 provides the results of regression analysis for suggested equations in the column four of table 3.

Based on different initial scenarios, we can predict expansion and contraction of latitude of expected price by applying some simple reasoning. In scenario 1, decrease in HEP1 and increase in LEP1 will bring the two points closer, resulting in contraction of the price latitude. In contrast, scenario 2 will involve increase in HPE1 and decrease in LEP1 resulting in two points moving away from each other. Therefore, we can observe expansion of the price latitude in scenario 2. Scenario 3 and 4 are different as HEP1 and LEP1 will move in the same direction. However, it is implicit in our underpinning assumption that the more will be the latitude of HEP1-ARP and LEP1-SP, the more will be their magnitude of correction. Therefore, in scenarios 3 and 4, based on the relative extent of shifts in HEP1 and LEP1, we can forecast expansion and contraction. Similar magnitude of shifts in HEP1 and LEP1 will keep the updated price latitude somewhat unchanged. However, distinct magnitude of changes in HEP1 and LEP1 can result either in expansion or in contraction. In scenario 3, when shift in HEP1 > LEP1 then contraction will happen and when shift in LEP1 > HEP1 then expansion will take place. This will happen because in scenario 3, both HEP1 and LEP1 will be decreasing: relatively bigger decrease in LEP1 will result in expansion and relatively bigger decrease in HEP1 will result in contraction. Similarly, in scenario 4, just opposite will be the case as both HEP1 and LEP1 will increase. Based on H1a and H1b, results presented in table 4 support our assumptions and reasoning.

------------------- “Insert Table 3 about here” ------------------------------

Table four presents the results for four equations depicting four scenarios (see the fourth column of table 3). Observed updated latitude of expected price (HEP2 – LEP2) is the dependent variable and theoretical updated latitude of expected price ($HEP2_T - LEP2_T$) is the regressor. For all four scenarios, we found significant β coefficients and R-square values, which demonstrate the predictive value of the equations provided in table 3. Scenario1 and scenario 4, show lower R-square values in comparison to scenario 2 and scenario 3. Theoretically, we expected that LEP1 would increase in scenario 1 and scenario 4; however, their extent of increase was not good enough to fetch higher levels of R-square. Nevertheless, table four, shows that above-described mechanism can help us in predicting the contraction and expansion of latitude of expected prices.

------------------- "Insert Table 4 about here" ------------------------------

DISCUSSION AND CONCLUSION

Conceptual contributions

This research offers four major theoretical contributions: (i) it suggests a new mechanism to understand the simultaneous influence of ARP-SP, (ii) it provides a mechanism to understand shifts in expected price latitude's end-points, (iii) it investigates a phenomenon with two externally provided anchors, and (iv) it proposes a construct of internal price uncertainty (IPU).

Advertised reference price (ARP) is a well-researched area (Mazumdar *et al.*, 2005). However, none of the studies explored it by applying one of the anchoring mechanisms.

Researchers treated IRP updates as a thoughtful process that is based on the memory of past prices, adaptations, and contrasts (Mazumdar *et al.*, 2005). However, we demonstrated that IRP updating could happen in a non-thoughtful way owing to anchoring effect. It is relevant to investigate situations where consumers have neither the memory of past prices nor the price expertise to engage into thoughtful processes. This research provides a way to investigate such phenomenon by the application of selective anchoring mechanism. Based on numeric priming and semantic effects, researchers can theorize about subjective price estimations in situations where consumers will have little information apart from externally available numeric price information.

Kalyanaram and Little (1994) investigated different influencers of the latitude of acceptable prices. This study, in addition, provides a mechanism to understand the shifts of end-points of the latitude of expected prices. Such understandings, as elaborated in one of the previous sections, can help in forecasting price latitude's expansion and contraction, which, in turn, can help in better prediction of related consumer responses.

Previous studies, according to our knowledge, at a time investigated influence of one anchor only. This study investigated the simultaneous influence of two anchors on two targets (which form price latitude). The study found that an anchor value becomes relevant when its evoked semantic knowledge has some association with the estimation target. Therefore, in case of two anchors and two targets, semantic knowledge associated with the anchors' numerical value can play a key role in determining the direction of anchoring influences.

Although, researchers have investigated price uncertainty (Mazumdar and Jun, 1992; 1993); however, they consider the width of externally supplied price information as the measure of uncertainty. This study suggests another way to look at the construct of price uncertainty. It suggests that width of internally evoked 'expected price latitude' or internal reference price (IRP) latitude, can be a measure of internal price uncertainty (IPU). It is a relevant conceptualization because researchers investigate both external reference price (ERP) and IRP, where one is external (contextual) and another is internal (psychological). Similarly, we can investigate price uncertainty from two perspectives. The results suggest that internal price uncertainty (IPU) indeed influences the consumer response.

Practical implications

Although, it is obvious that in the case of a price expert consumer, implausible advertised reference price (ARP) will produce no impact and plausible ARP will produce positive impact; however, what would be the nature of consumer response when the price expertise level is low? Literature provides mixed evidences of ARPs' influence on consumer response (Roy *et al.*, 2016). The mixed evidences suggest the need to explore the boundary conditions of ARP influences. Managers can do better with their pricing decisions when they will be aware about the boundary conditions of ARP influences. This study suggests that the width of the latitude of expected price is one such possible boundary condition where decreased width can result in a positive consumer response and vice-versa. The study suggests that managers should try to reduce the width of the latitude of expected price. There can be many ways to do this, but a simple way is to keep the ARP below expectation and sales price (SP) above expectation (scenario 1). Contrary to the above suggestion, below expectation SP may not fetch good response from consumers if paired with above expectation ARP (scenario 2) due to the increase in the width of expected prices.

ARP can be a mode of deceptive pricing (Grewal, and Compeau, 1992). Public policy makers involved in protecting consumers can use the results of this study to identify situations where consumers are more likely to be vulnerable to posted ARP information. The study indicates that plausible ARP can be more deceptive than implausible ARP because plausible ARP can be combined with 'above expectation sales price (SP)' for making the offer more likable, which can increase the likelihood of paying a higher SP. Therefore, in addition to fairness of SP, the policy makers should focus on the plausibility of ARP instead of the magnitude of ARP. We can argue that by frequent or persistent use of a fixed ARP a retailer can easily make it appear plausible. Alternatively, a retailer can post a lower than competitors' ARP alongside higher than competitor's SP and fetch favorable consumer responses.

Limitations and future research

The study involves quasi-experimental design that lacks control group. It offers a weak basis for drawing inferences. However, the study has generated interesting causal hypotheses, which can be investigated with stronger research method. This study involves single data set and single product type; therefore, results are not generalizable. Future researchers can do well by using multiple data sets and by using different product types. Inclusion of different product types can be important for understanding the true implications of the width of price latitude, because the impact of the width may depend on the nature of product type as well. Further, purchase intention (PI) may not be a good dependent variable because it depends on many cognitive and affective aspects (Palazon and Delgado-Ballester, 2013) other than product's price. Therefore, price perception related dependent variables could help in fetching better results from similar investigations. While applying anchoring mechanism, researchers can investigate single target estimation task in the presence of ARP and SP as well.

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APPENDIX

List of acronyms used in the paper

ARP: Advertised reference price

EPU: External price uncertainty

ERP: External reference price

HEP: Highest expected price

HEP1: Observed pre-treatment 'highest expected price' (Before-exposure to ARP and SP)

HEP2: Observed post-treatment or updated 'highest expected price' (Post-exposure to ARP and SP)

$HEP2_T$: Theoretical post-treatment or updated 'highest expected price'

IPU: Internal price uncertainty

IRP: Internal reference price

LB: Lower bound

LEP: Lowest expected price

LEP1: Observed pre-treatment 'highest expected price' (Before-exposure to ARP and SP)

LEP2: Observed post-treatment or updated 'lowest expected price' (Post-exposure to ARP and SP)

$LEP2_T$: Theoretical post-treatment or updated 'lowest expected price'

MP: Mid-point ((HEP + LEP) ÷ 2)

MP1: Observed pre-treatment 'mid-point' ((HEP1 + LEP1) ÷ 2)

MP2: Observed post-treatment 'mid-point' ((HEP2 + LEP2) ÷ 2)

PI: Purchase intention

PI1: Observed pre-treatment 'purchase intention'

PI2: Observed post-treatment 'purchase intention'

RP: Reference price

SP: Sales Price

UB: Upper bound (hint)

UL_O: Updated latitude (Observed) (UL_O = HEP2 – LEP2)

UL_T: Updated latitude (Theoretical) (UL_T = $HEP2_T$ – $LEP2_T$)

Figure 1: Patterns of highest expected price (HEP) and lowest expected price (LEP) updating (H1a and H1b)

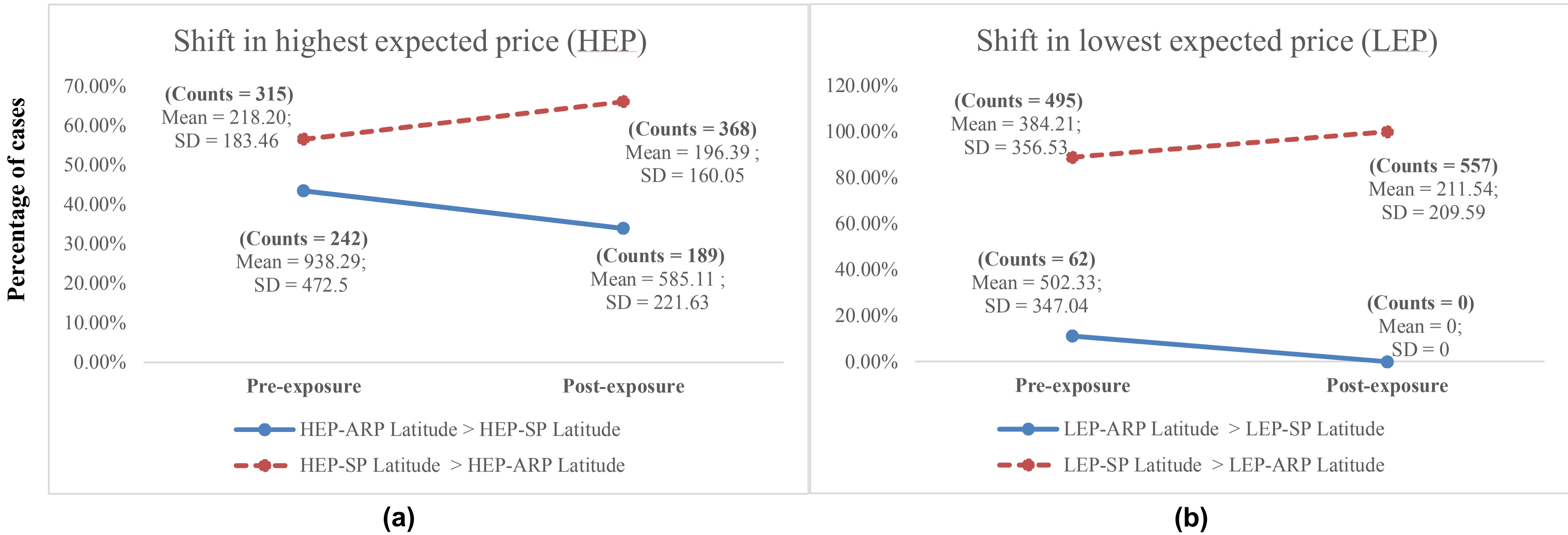

Table – 1: Influence of upper bound (UB) hint

Dependent Variable	*Regressors*	*Model 1*	*Model 2*	*Model 3*
HEP-LEP latitude (Pre-exposure)	Const.	0.58(14.52)ns	33.50(30.34)ns	6.88(19.01)ns
	Mid-point pre	0.49(0.01)***		0.50(0.01)***
	UB		0.20(0.013)***	- 0.00(0.01)ns
	Adjusted R-Sq	**0.73**	**0.31**	**0.73**
Mid-point of price latitude (MP1) (pre-exposure)	Const.	53.34(47.43)ns		
	UB	0.43 (0.020)***		
	Adjusted R-Sq	**0.44**		
Mid-point of price latitude (MP2) (post-exposure)	Const.	22.98(14.07)ns	22.58(14.10)ns	
	ARP	0.63(0.14)***	0.36(0.014)***	
	SP	0.37(0.030)***	0.41(0.018)***	
	UB	- 0.17(0.09)*		
	Adjusted R-Sq	**0.92**	**0.92**	

** Significant at p = 0.1*
*** Significant at p = 0.05*
**** Significant at p = 0.01*
ns: Not significant

Table – 2: Influencers of the change in purchase intention (PI)

Dependent Variable	***Regressors***	***Model 1***	***Model 2***
Change in the purchase intention ***(ΔPI = PI2 –PI1)***	Const.	- 0.079(0.01)***	- 0.05(0.01)***
	Change in the mid-point *(ΔMP = MP2 – MP1)*	- 0.0001(0.00)***	- 0.00(0.00)ns
	Change in the latitude *{Δ(HEP – LEP) = (HEP2 – LEP2) – (HEP1 – LEP1)}*		- 0.00044(0.00)***
	Adjusted R-Sq	0.015	0.157

** Significant at p = 0.1*
*** Significant at p = 0.05*
**** Significant at p = 0.01*
ns: Not significant

Table 3: Change in the latitude of expected price

Scenario	*Initial positions*	*End-points (HEP-LEP)direction of shift*	*Equations for the prediction of 'observed updated latitude of expected prices' (i.e, HEP2 – LEP2)*	*No. of cases*
Scenario (**S1**)	HEP1-ARP-SP-LEP1	Decrease-Increase	$\alpha + \beta$ {(HEP1 – | HEP1 – ARP|) – (LEP1 + | LEP1 – SP|)}	47
Scenario (**S2**)	ARP-HEP1-LEP1-SP	Increase-Decrease	$\alpha + \beta$ {(HEP1 + | HEP1 – ARP|) – (LEP1 – | LEP1 – SP|)}	108
Scenario (**S3**)	HEP1-ARP-LEP1-SP	Decrease-Decrease	$\alpha + \beta$ {(HEP1 – | HEP1 – ARP|) – (LEP1 – | LEP1 – SP|)}	133
Scenario (**S4**)	ARP-HEP1-SP-LEP1	Increase-Increase	$\alpha + \beta$ {(HEP1 + | HEP1 – ARP|) – (LEP1 + | LEP1 – SP|)}	269

Table – 4: Change in the latitude of expected price (analysis results)

Dependent Variable	*Regressors*	*Scenario (S1)*	*Scenario (S2)*	*Scenario (S3)*	*Scenario (S4)*
	Const.	193.80 (99.04) *	14.25 (32.73)ns	82.89 (27.12)***	226.98 (32.78)***
Observed updated latitude of expected price ***(i.e, HEP2 – LEP2)***	Theoretical updated latitude of expected price *($HEP2_T – LEP2_T$)*	0.96 (0.18)***	0.69 (0.03) ***	0.68 (0.03)***	0.43 (0.04)***
	Adjusted R-Sq	0.36	0.78	0.75	0.25
	No. of cases	47	108	133	269

** Significant at p = 0.1*
*** Significant at p = 0.05*
**** Significant at p = 0.01*
ns: Not significant