Review Article

How DoWe Perceive Prices? A Three-Category Taxonomy of Reference Price Effect on Consumers' Price Judgments

ABSTRACT

Aims: Price is one of the pivotal determinants when consumers make purchasing decisions. An unresolved issue in extant literature regarding factors that affect price referencing remains. The difficulty is in identifying types of price references that consumers will use in any given purchasing situation. This study hence proposed a new scheme of three-category taxonomy of reference price model and can be used as a conceptual framework for examining the effects of various reference prices on consumers' price judgments.
Methodology:A literature review and theoretical background lead to propositions.
Conclusion: This research not only fills the literature gaps of referencing prices on consumer price judgments but also a three-category reference price model is developed. The present study goes beyond previous work in this field and a comprehensive set of reference price cues that influence consumers' final reference price formation. This new model gives future research a direction to test and refine relationships proposed in the present study.

Keywords: Inference-based reference prices,point-of-purchase reference prices, price judgments, recalled-based reference prices,reference price

1. INTRODUCTION

[(Arial, normal, 10 font, justified)Price is one of the pivotal determinants of consumers' purchasing decisions. Research in consumer behaviors has yielded many explanations of how consumers process the price information and make purchase decisions. Studies have suggested that for many products, consumers do not evaluate the price of a product independently, but rather judge the price relative to several reference prices [1, 2, 3, 4]. According to Rajendran and Tellis (1994), reference prices can be viewed as a value amount that consumers use as the standard for judging the actual price of a product they are assessing at the point of purchase [5].

A variety of price or price-related information could be processed and used as reference before or during the purchase. Many researchers agree with the general proposition that reference prices are derived from experiences with the product and/or price information in the environment [5, 7]. However, there is no consensus in the literature reviewed on which price or price-related information within consumer experiences and/or purchasing environment is most likely used as reference for the purpose of price evaluations [7, 8, 9, 10, 11, 12, 13]. One reason for this problem is the multidimensionality of reference prices [8, 10]. In addition to the possibility that consumers use multiple reference prices, another difficulty is in determining the relative strength of different reference prices on consumer purchasing decisions [10].

This study proposes a model that can be used as a conceptual framework for examining the type and nature of reference price cues; then, consumers use them to form a final reference price level that influences their subsequent price judgment tasks. In this model, a scheme of three categories of reference prices that encompass various price cues is developed. Their effects on the final reference price level which consumers use to judge the advertised selling price of a product of purchase interest are proposed.

2. LITERATURE REVIEW AND PROPOSITIONS

A review of reference price literatures indicates that there are a wide variety of conceptual and operational definitions. A common conception of the reference price is the past prices for a brand or product category [1]. The past prices then served as a frame of references for consumers' next purchase of the same or similar product. Empirical studies have supported the notion that past prices have been used by consumers to form a reference level that influences their perceptions of current prices [5, 14, 15].

Other researchers have demonstrated that for many products consumers have some sort of "fair price" in mind for a given product and are willing to pay this price or below [2, 16]. This "fair price" is the price that consumers observe for a brand or product category at the point-of-purchase and hence can be viewed as a reference price. The reference prices, such as the highest market price, average market price, normal price perceptions, and lowest market price, have been used by many researchers in comparative pricing studies [5, 17, 18, 19, 20, 21, 22]. Researchers believe consumers have preconceived ideas about what are the highest, average, normal, and lowest market prices in town and they will use these price perceptions as references for price evaluations. While most of the aforementioned reference prices are measured by asking subjects directly, other types of reference prices used in brand choice decision models are measured indirectly by using scanner data [3].

Literatures of reference prices effect on brand choice decisions has been well examined. However, researchers have also differed in their conceptualization of reference price and hence in their modeling of brand choice decisions. A review of literatures in this area shows that researchers have modeled reference price as past prices of the brand or "a weighted average of past prices with varying carryover weights" [10, 23, 24]. Other researchers use current price(s) of a certain brand at the point-of-purchase as a surrogate for reference price [24, 25,26]. Rajendran and Tellis (1994) found a brand's own past prices and the lowest-price brand at the point of purchase are significant reference prices in consumers' brand choice decisions [4,25].

Winer (1988) included a reference price termed "anticipated price" in his brand choice model [3]. The "anticipated price" is defined as the price a consumer is likely to observe at the point of purchase. A similar reference price, "expected price," was proposed by other scholars [27]. They posited that consumers may apply the price they are likely to pay for a brand on a given buying event as a reference for price judgments. They concluded that expected price is dependent upon past prices and many contextual factors such as the number of occurrences of sales promotions, deal proneness, economic conditions, and the type of store shopped [27]. Jacobson and Obermiller (1990) proposed another experience-based reference price termed "expected future price" that implies the effect on consumers' reactions to price related promotions and brand choice decisions [28]. They defined expected future price as a reference price that arises from past experiences or other price information and these two perceptions merge together to form a context for consumer decision making. They found that current price information and other unobserved factors determine a brand's expected future price [29].

In addition, Briesch et al. (1997) conceptualized reference prices as a continuum of price information structure in which at one extreme, consumers fully rely on price information stored in either short or long-term memory; at the other extreme, consumers form their reference prices based on the price information observed at the point-of-purchase [30]. Using scanner panel data, they found that the best reference price model is the one that is grounded on the brand's particular price history. In addition, the current price of a previously chosen brand is found to predict consumer brand choice decision fairly well.

Finally, reference price has largely been assumed to be a point estimate in judgment tasks. Various studies, however, have suggested that reference price not only may exist as a point but also as a range of values [1, 2, 6, 31]. For instance, Lichtenstein et al. (1988) contended that price judgments comprise of a comparison with a range of acceptable prices stored in memory [31]. The acceptable price range encompasses upper and lower price limits. Prices above the upper price limit are conceived as being high, while prices below the lower price limit are classified as being low. Between these two limits are the region of price indifferences where consumers believe the price of the product is "fair" or "reasonable." Some researchers have found empirically that there is a range of prices around the reference price point within which consumers are not sensitive to the deviations between the observed price and the reference price point [32, 33].

Based on the theoretical and empirical research, a model that provides a conceptual framework for examining the type and nature of reference price cues that consumers use to form a reference price level and influences their subsequent price judgment tasks is developed and shown in Figure 1.

In this model, three categories of reference prices are considered influential on consumers' formation of the final reference price; they are recall-based reference prices (RBRP's), inference-based reference prices (IBRP's), and point-of-purchase reference prices (POPRP's). The final reference price used by consumers to judge the advertised selling price includes two dimensions: the acceptable price range and the most appropriate price. The acceptable price range refers to the prices that are perceived to be adequate and fair for a product of purchase interest. The most appropriate price, which represents a point estimate, is the price that a consumer considers being right for the product of purchase interest. In addition, it is a point for the price range that consumers considered most appropriate. Thus, the amount that is perceived to be most appropriate for a product must fall within the acceptable price range.

Consumers' perception of the acceptable price and the most appropriate price range for a particular product has an implication for price judgment. Price judgment refers to consumers' judgments of whether the advertised selling price of a product is truthful and fair. Advertised selling prices judged to be honest and fair are most likely to be close to the most appropriate price and within the acceptable price range. Consequently, consumers with a higher level of the most appropriate price and wider latitudes of the acceptable prices for a particular product are more likely to judge the advertised selling price of the product of purchase interest to be fair. Hence, we propose:

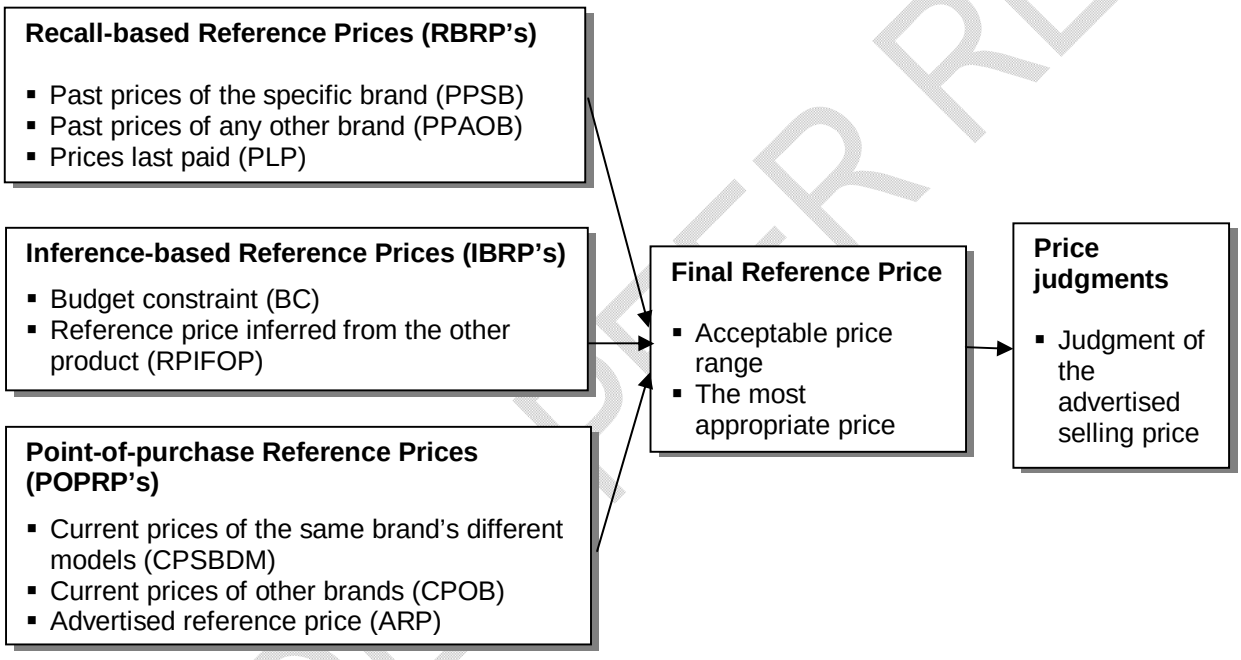

Figure 1 A Model of Reference Price Effect

P1: The wide range of the acceptable price has a positive influence on consumers' price judgments. That is, consumers who have a wider acceptable price range will judge the advertised selling price fairer than those who have a narrower acceptable price range.

P2: The level of the most appropriate price has a positive influence on consumers' price judgments. That is, consumers who have a higher level of the most appropriate price will judge the advertised selling price fairer than those who have a lower level of the most appropriate price.

The first category of reference price, RBRP's, refers to the price, or price-related information, for a given product that is stored in either the short or long-term memory of a consumer, prior to the point of purchase. It is argued that any price information that is received, prior to the point of purchase, should have been internalized to become part of the short or long-term memory by the time of purchase. Consequently, in this model, any product related price information obtained

and retained prior to the point of purchase is considered RBRP's. Among other RBRP's, three are specifically identified in this model: past prices of the specific brand (PPSB), past prices of any other brand (PPAOB), and prices last paid (PLP).

Past Prices of the Specific Brand (PPSB): PPSB refers to the price(s) of a specific brand consumers recall seeing or hearing from the media at the point of purchase. This type of RBRP's assumes that consumers are able to recall (accurately or inaccurately) the price of a specific brand and use it as a reference for judging the fairness of the price of the same brand at the moment of purchase. Based on this assumption, the price of a prospective brand is compared against its own price history.

Past Prices of any Other Brand (PPAOB): PPAOB is defined as the price(s) of any other brand consumers recall seeing or hearing from the media at the point of purchase, as well the brand of purchase interest. This type of RBRP's posits that consumers use the price(s) of any other brand as a reference to judge the fairness of the price of a specific brand. The rationale behind is that (1) some consumers have the price(s) of a preferred brand in mind, hence use this price as an anchor for judging the price of a specific brand, and (2) some consumers are not able to recall the price of a specific brand, but do remember seeing or hearing the price(s) of any other brand from the media.

Prices Last Paid (PLP): PLP refers to the price(s) of a particular product that consumers remember they or somebody they know purchased. This type of RBRP's assumes that consumers have a strong memory for the price(s) they, or somebody they know, paid for a particular product. The price(s) consumers previously paid then serves as a frame of reference for the next purchase of the same or similar product. Hence, we propose:

P3: PPSB influences consumers' formation of the final reference price, where the final reference price contains (a) the acceptable price range and (b) the most appropriate price.

P4: PPAOB influences consumers' formation of the final reference price, where the final reference price contains (a) the acceptable price range and (b) the most appropriate price.

P5: PLP influences consumers' formation of the final reference price, where the final reference price contains (a) the acceptable price range and (b) the most appropriate price.

The second category of reference prices, IBRP's, are references inferred from information not directly related to the specific product of purchase interest. Similar to the RBRP's, these reference prices are generated internally in the mind of a consumer. They differ from the RBRP's in that they are not product specific reference price directly recalled from the consumer's memory; yet, rather they are formed at/or before the point of purchase with some form of inferences drawn from information that are indirectly related to the specific product of interest. They are the references inferred from the judgments by association. Among various information a consumer can draw inferences from, two are specifically identified in this model: budget constraint (BC) and reference price inferred from the other product (RPIFOP).

Budget Constraint (BC): Budget constraint refers to the maximum amount of money allowed consumers to spend on a given product. It can be assumed that consumers typically set budgets in advance of actual consumption. A budget constraint, thus, tends to set a ceiling or limit on the acceptability of the price [28]. To illustrate, consumers may compare the price of a watch to a reference price of $130, which signifies the upper limit of the budget the consumer has set to spend on a watch. While this ceiling or limit may or may not be a "hard" constraint, and that it may or may not be product dependent, consumers would typically consider it as a reference point for a particular purchasing situation.

In forming the final reference price for the subsequent price judgments, it is assumed that consumers who have higher budgets for purchasing a particular product are more likely to have a higher estimate of the acceptable price range and the most appropriate price and hence are more likely to judge the advertised selling price fairer than those who had lower budgets.

Reference Price Inferred from the Other Product (RPIFOP): RPIFOP refers to the reference price inferred from the other related product, which is considered to have influence on consumers' formation of the final reference price for a given product [5, 34]. This can be seen in that consumers may infer the price of a TV from the other related electronics product, such as DVD, VCR, or stereo. The inferred price information is then used by consumers to form bases or anchor for price judgments. This phenomenon may typically occur when consumers are unfamiliar with the product or uncertain about its value. In some situations, the inferred price may or may not be used as a direct reference for the price comparison purpose; it could still be used as a frame by consumers to form a sense of "fairness" or "acceptability" for the price of the product of interest. Hence, we propose:

P6: BC has a positive impact on consumers' formation of the final reference price, when the final reference price contains (a) the acceptable price range and (b) the most appropriate price.

P7: RPIFOP influences consumers' formation of the final reference price, when the final reference price contains (a) the acceptable price range and (b) the most appropriate price.

The last category of reference prices is the POPRP's, which can be defined as the contextual prices at the point of purchase for the specific product category. This category of reference prices is believed to be the most prominent and instant frame of reference directed to consumers' price judgments [5]. For a given product, when consumers have limited information about the price, or when the purchase takes place spontaneously, the price paid at the point of purchase for the product naturally serves a (if not the) reference point for evaluating the value or price acceptability of the product.

In a typical purchasing situation, a consumer may encounter several alternative brands, models as well as promotional discounts and allowances at the point of purchase, with each having a separate price. This price information can potentially be used by consumers as reference for price judgments. Consequently, among other things, information in this category includes: current prices of the same brand's different models (CPSBDM), current prices of other brands (CPOB), as well as advertised reference price (ARP) for a given product.

Current Prices of the Same Brand's Different Models (CPSBDM): CPSBDM is defined as the current prices of the same brand's other models presented at the point of purchase. This type of POPRP's assumes that consumers tend to use the prices of the same brand's other models as references to compare the price of a specific model of interest. The rationale behind this is that (1) consumers desire a particular brand over other brands; therefore, the price of that particular brand's line products is used for the price evaluation, and (2) consumers are likely to discovery the price differences among the same brand's line products; logically the price in the same line products serves as the reference for judging the fairness of the price of the specific model of interest.

Current Prices of Other Brands (CPOB): CPOB refers to the current prices of other brands accessible at the point-of-purchase as well as a specific brand a consumer is interested. This type of POPRP's is similar to the one used by Briesch et al. in 1997 [30]. The notion is based on that consumers have no information about the past prices of a particular brand; then, they are likely to select any available brand at the point of purchase and thus use the price as a reference for the price judgement at moment. In some situations, consumers may also use a known brand's price as a reference; in other, they may simply choice a brand accessible in the aisle and take that price as a reference.

Advertised Reference Price (ARP): Among various schemes of discounts and allowances used by retailers to promote their products, ARP is of particular interest in this study. ARP is generally a higher price stated in an advertising along with a sale price. For instance, a cloth at a regular price $29.99 but now at a sale price $15.99. The application of ARP is to provide price information for consumers who may or may not aware a product's price or value. When consumers see the relatively higher ARP, they are likely to use it as a reference to compare with the sale price [36]. The assessment of the two prices is likely to have a favorable result, making the sale price appealing and acceptable.

Previous studies have found that ARP (plausible and implausible) has positive effect on consumers' internal reference prices and variables related to their purchase decisions such as shop-around saving, perception of savings, and value of the offer [14, 15, 17, 18, 35]. In this study, it is assumed that, in the presence of other POPRP's, ARP still has a significant and positive influence on consumers' formation of the final reference price. That is, a higher magnitude of ARP is associated with a wider range of acceptable prices and a higher level of the most appropriate price. Hence, we propose:

P8: CPSBDM influences consumers' formation of the final reference price, where the final reference price contains (a) the acceptable price range and (b) the most appropriate price.

P9: CPOB influences consumers' formation of the final reference price, where the final reference price contains (a) the acceptable price range and (b) the most appropriate price.

P10: ARP has a positive influence on consumers' formation of the final reference price, where the final reference price contains (a) the acceptable price range and (b) the most appropriate price.

4. CONCLUSION

Theoretical implications

This studyintegrates various schools of thoughts to form a three-category taxonomy (i.e., RBRP's, IBRP's, and POPRP's)of reference price effect on consumers' formation of the final reference price (in terms of the acceptable price range and the most appropriate price) that influences the subsequent price judgments. Theholistic three-category reference price model can be used as a conceptual framework for examining the effects of various reference prices on consumers' price judgments. As a result, the present study goes beyond previous work in this field as it proposes a comprehensive set of reference price cues that influence consumers' final reference price formation.

Future Research

Future research is suggested to test and refine relationships (the model) proposed in the study. Researchers are encouraged to test these relationships across different product categories and/or different types of products. In addition, research should also try to determine whether other factors, such as the purpose of purchase, store price image, and price search behavior, may moderate the relationship among reference price cues, the final reference price formations, and price judgments. In summary, it is hoped that the proposed final reference price formation and accompanying tests will stimulate effort in the area of reference price effect.

REFERENCES

1. Monroe KB. Pricing: Making profitable decisions. New York: McGraw-Hill BookCompany. 1990.
2. Thaler R. Mental accounting and consumer choice. Marketing Science. 1985; 4(3): 199-214.3.
3. Winer R. Behavioral perspectives on pricing: Buyers' subjective perceptions of price revisited" in Issues in Pricing: theory and Research, ed. Timothy Devinney, Lexington, MA: Lexington Books. 1988: 35-57.
4. Dye CY, Yang CT. Optimal dynamic pricing and preservation technology investment for deteriorating products with reference price effects. Omega. 2016; 62: 52-67.
5. Rajendran KN, Tellis GJ. Contextual and temporal components of reference price. Journal of Marketing. 1994; 58(1): 22-34.
6. Klein NM, Oglethorpe JE. Cognitive reference points in consumer decision making. Advances in Consumer Research. 1987; 14(1):183-187.
7. Martín-Herrán G, Sigué SP. An integrative framework of cooperative advertising with reference price effects. Journal of Retailing and Consumer Services. 2023; 70(1): 103166. https://doi.org/10.1016/j.jretconser.2022.103166
8. Krishnan BC, Dutta S, Jha S. Effectiveness of exaggerated advertised reference prices: The role of decision time pressure, Journal of Retailing. 2013; 89(1): 105-113, https://doi.org/10.1016/j.jretai.2012.11.001.
9. Biswas A, Wilson EJ, Licata JW. Reference pricing studies in marketing: A synthesis of research results. Journal of Business Research. 1993; 27(3):239-256.
10. Kalyanaram G, Winer RS. Empirical generalizations from reference price research. Marketing Science. 1995; 14(3): 161-169.
11. Compeau LD, Grewal D. Comparative price advertising: An integrative review. Journal of Public Policy & Marketing. 1998; 17(2): 257-273.
12. Yadav MS, Seiders K. Is the price right? Understanding contingent processing in reference price formation. Journal of Retailing. 1998; 74(3), 311–329. https://doi.org/10.1016/S0022-4359(99)80098-0
13. Biswas A., Pulling C., Krishnan BC., Burton S. Consumer evaluation of reference price advertisement: Effects of other brands' prices and semantic cues. Journal of Public Policy & Marketing. 1999; 18(1): 52-65.
14. Della Bitta AJ, Monroe KB, McGinnis JM. Consumer perceptions of comparative price advertisement. Journal of Marketing Research. 1981; 18(4): 416-427.
15. Grewal D, Monroe KB, Krishnan R. The effects of price-comparison advertising on buyers' perceptions of acquisition value and transaction value. Marketing Science Institute. 1996; Report No. 96-103:1-34.
16. Lichtenstein DR, Bloch PH, Black WC. Correlates of price acceptability. Journal of Consumer Research. 1988; 15(2): 243-252.
17. Blair EA, Landon EL. The effects of reference prices in retail advertisements. Journal of Marketing. 1981; 45(1): 61-69.
18. Urbany JE, Bearden WO, Weilbaker DC. The effect of plausible and exaggerated reference prices on consumer perceptions and price search. Journal of Consumer Research. 1988; 15(1): 95-110.
19. Biswas A, Blair EA. Contextual effects of reference prices in retail advertisements. Journal of Marketing. 1991; 55(3):1-12.
20. Lynch J, John G, Chakravarti D, Mitra A. Contrast effects in consumer judgments: Changes in mental representations or in the anchoring of rating scales? Journal of Consumer Research. 1991; 18(3): 284-297.
21. Biswas A. The moderating role of brand familiarity in reference price perceptions. Journal of Business Research.

1992; 25(3): 251-262.
22. Biswas A, Sherrell DL. The influence of product knowledge and brand name on internal price standards and confidence. Psychology and Marketing. 1993; 10(1): 31-45.
23. Krishnamurthi L, Mazumdar T, Raj SP. Asymmetric response to price in consumer choice and purchase quantity decisions. Journal of Consumer Research. 1992; 19(3): 387-400. https://doi.org/10.1086/209309
24. Mazumdar T, Papatla P. Loyalty difference in the use of internal and external reference prices. Marketing Letters. 1995; 6(2): 111-122.
25. Caputo V, Lusk JL. Am I getting a good deal? Reference-dependent decision making when the reference price is uncertain. American Journal of Agricultural Economics. 2019; 102(1): 132-153.
26. Hardie BGS, Johnson EJ, Fader PS. Modeling loss aversion and reference dependence effects on brand choice. Marketing Science. 1993; 12(4): 378-394.
27. Kalwani MU, Yim CK, Rinne HJ, Yoshi Sugita. A price expectations model of customer brand choice. Journal of Marketing Research. 1990; 27(3): 251-262
28. Jacobson R, Obermiller C. The formation of expected future price: A reference price for forward-looking consumers. Journal of Consumer Research. 1990; 16(4): 420-432.
29. Chen K, Zha Y, Alwan LC, Zhang L. Dynamic pricing in the presence of reference price effect and consumer strategic behaviour. International Journal of Production Research. 2020; 58(2): 546-561.
30. Briesch RA, Krishnamurthi L, Mazumdar T, Raj SP. A comparative analysis of reference price models. Journal of Consumer Research. 1997; 24(2): 202-214.
31. Lichtenstein DR, Bearden WO. Contextual influence on perceptions of merchant-supplied reference prices. Journal of Consumer Research. 1989; 16(1): 55-66.
32. Kalyanaram G, Little JDC. An empirical analysis of latitude of price acceptance in consumer package goods. Journal of Consumer Research. 1994; 21(3): 408-418.
33. Lattin JM, Bucklin RE. Reference effects of price and promotion on brand choice behavior. Journal of Marketing Research. 1989; 26(3): 299-310.
34. Hou W, Zeng Y. Strategic analysis of the pricing mechanisms in an online book supply chain in the presence of reference price effects. Journal of Theoretical and Applied Electronic Commerce Research. 2021; 16: 1492-1516.
35. Monroe KB, Chapman JD. Framing effects on buyer's subjective product evaluations. Advances in Consumer Research. 1987; 5(14): 193-197.
36. Vaidyanathan R, Aggarwal P. Does MSRP impact women differently? Exploring gender-based differences in the effectiveness of retailer-provided reference prices. Journal of Retailing and Consumer Services. 2020; 54: 102049.