# The impact of dynamic bundling on price fairness perceptions 

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#### Abstract

With the increased availability of consumer-specific data and the ease of changing prices, firms more frequently use dynamic pricing where products are priced at an individual level based on individual consumer information. Dynamic pricing can effectively extract consumer surplus and increase firm profitability. However, it also arouses consumer unfairness perceptions. Three studies demonstrate that the use of bundling in combination with dynamic pricing (dynamic bundling) can reduce consumer unfairness perceptions. The negative effects of dynamic pricing are mitigated by bundling. A bundle enhances perceived transaction dissimilarity thereby reducing consumers' comparison intentions leading to greater price fairness perceptions.


## 1. Introduction

Dynamic pricing, also called yield management, has been widely practiced in the airline and hotel industries and has been more recently adopted in other industries including sports and entertainment. It is a strategy in which prices are free to adjust across time, consumers, and/ or circumstances based on consumer-specific data (Haws and Bearden, 2006). Dynamic pricing allows firms to price products at the individual level to extract consumer surplus (Grewal et al., 2004). Technology that facilitates consumers' individual viewing (e.g., Amazon's website) further allows firms to specify a unique price for each individual. Electronics, clothing, jewelry, and household items can be priced at a level most likely to attract any particular consumer (Angwin and Mattioli, 2012).

While dynamic pricing can increase profitability up to $25 \%$ (Garbarino and Lee, 2003; Petro, 2015), it also can cause problems for firms. Consumers experience greater perceptions of unfairness and lower levels of trust when prices are different across consumers (Garbarino and Lee, 2003; Grewal et al., 2004; Haws and Bearden, 2006). Relying on its advanced information systems and vast customer database, Amazon.com priced the same DVD movies differently to consumers based on their online profiles and previous purchasing behaviors (Monroe, 2003; Grewal et al., 2004). When consumers found out about Amazon's dynamic pricing strategy, their complaints against the company soon filled the chat boards. Amazon had to publicly claim that they would no longer use dynamic pricing (Streitfeld, 2000). More recently, Apple and Netflix experienced similar situations. In September 2007, Apple dropped its iPhone price by $\$ 200$ within three months of
product launch. Consumers who paid full price were outraged by the price drop. To comfort the livid consumers, Apple apologized and offered a $\$ 100$ credit for Apple products (Mohammed, 2012). In July 2011, Netflix raised its price, but turned a blind eye to its customers' rage. Its stock price dropped more than two-thirds within three months of the price increase (Mohammed, 2012). Thus, firms face a dilemma. They want to implement dynamic pricing to increase profitability. However, they have concerns that this pricing strategy could alienate their customers by arousing unfairness perceptions. Is it possible for retailers to utilize a pricing tactic that reaps the benefit of extracting consumer surplus from using dynamic pricing while not arousing consumer unfairness perceptions? If so, what underlying mechanisms explain the process through which unfairness perceptions could be reduced? The main objective of the present research is to provide firms a novel solution by combining bundling with dynamic pricing to create an alternative pricing strategy, dynamic bundling, defined as a pricing strategy in which the price of a product changes when the focal product is bundled with additional products. More importantly, this is a distinct strategy from product bundling alone. The second objective is to assess the effectiveness of dynamic bundling vs. dynamic pricing in terms of its impact on price fairness perceptions.

In this paper, we conduct three studies to assess whether dynamic bundling can reduce consumer unfairness perceptions associated with dynamic pricing. We find that bundling not only mitigates the negative impact of dynamic pricing on fairness perceptions, but also results in fairness perceptions similar to those aroused by fixed pricing. In doing so, we advance knowledge in several ways. We are the first to introduce the combination of bundling and dynamic pricing as a new pricing

[^0]strategy. By introducing this new pricing strategy, we demonstrate the superiority of dynamic bundling relative to dynamic pricing on fairness perceptions. Unlike dynamic pricing, dynamic bundling helps firms increase their profitability without generating unfairness perceptions.

In addition, we offer a process explanation as to why dynamic bundling reduces price unfairness perceptions. Specifically, we establish a serial mediation model in which perceived transaction dissimilarity and comparison intentions mediate the effect of dynamic bundling on fairness perceptions. Importantly, we find that perceived transaction dissimilarity reduces comparison intentions thereby lessening unfairness perceptions.

Moreover, our research contributes to the bundling literature by demonstrating another benefit of bundling: enhancing fairness perceptions. While bundling reduces searching, sorting, and processing costs (Hayes, 1987), extracts consumer surplus (Janiszewski and Cunha, 2004), increases consumers' purchase intentions and perceived value (Johnson et al., 1999; Arora, 2008), and helps firms differentiate their products and services (Dominique-Ferreira et al., 2016), previous research has not investigated how bundling impacts price fairness perceptions. And while some recent research found that unbundling may increase current revenue (Koschat and Putsis, 2002), potentially reducing the utility of bundling in some conditions, our findings provide firms a new factor to consider when deciding whether to implement bundling.

Additionally, our proposed new pricing strategy has a wide application and can be used for almost any product. In our present research, we will focus on price bundling (vs. product bundling) as it has a wider application than product bundling (Naylor and Frank, 2001; Gilbride et al., 2008). The combination of dynamic pricing with bundling suggests the possibility of a broader strategy for retailers that uniquely tailors offerings to each consumer in a way that reduces perceived similarity and comparison intentions (see Fig. 1 for our conceptual model).

## 2. Theoretical background and hypotheses development

### 2.1. Dynamic pricing

Dynamic pricing is defined as a strategy in which prices are free to adjust over time, consumers, and/or circumstances (Haws and Bearden, 2006). In the current research, the dynamic component of dynamic pricing focuses on the consumer in that different consumers will be charged different prices for the same product. The practice of dynamic pricing is based on the premise that consumers are heterogeneous. Different consumers usually have different maximum prices they are willing to pay for a given product. This maximum price a consumer is willing to pay for a product is called a reservation price (Wang et al.,


Fig. 1. Conceptual model.
2007). As such, fixed pricing, that provides different consumers the same price, might not be an optimal pricing strategy. In fixed pricing, consumers who are willing to pay more for a product will end up paying less than what they are willing to pay. Dynamic pricing specifically addresses these variances among consumers' reservation prices. It allows firms to price discriminate at the individual level based on customer profiles and previous purchasing behavior data (Kannan and Kopalle, 2001). Consumers who are willing to pay more will be charged more. For consumers whose reservation prices are relatively low, they will be provided with prices that match their reservation prices assuming these prices meet the firms' minimum profit margins. Thus, by extracting surplus and bringing in more business, dynamic pricing can help firms increase their profitability up to $25 \%$ (Garbarino and Lee, 2003; Petro, 2015).

Eager to boost their profitability, many firms implement dynamic pricing with the help of advanced technology and the increasing availability of vast consumer databases (Jayaraman and Baker, 2003). While firms prefer to implement dynamic pricing, many of them are also weary of consumer unfairness perceptions often associated with this strategy.

### 2.2. Dynamic pricing and consumers' price fairness perceptions

### 2.2.1. Social comparison theory and price fairness perceptions

Price fairness perceptions refer to consumers' judgments and associated emotions as to whether the price they paid is just, relative to the prices other comparative parties paid (Xia et al., 2004). It is a comparative concept and only evoked when consumers compare different prices (Monroe, 2003). Social comparison theory describes how people fulfill their quest for self-knowledge by comparing themselves with others (Festinger, 1954). Further, comparison can help a person appraise their abilities (Trope, 1983, 1986). According to social comparison theory, people have an automatic tendency to compare two entities (usually people) that share some similarities (Corcoran et al., 2011), but this principle can be applied to the comparison of transactions as consumers will be concerned with what benefit another customer received (Bolton et al., 2003; Xia et al., 2004). Consumers tend to choose transactions similar to theirs when judging the fairness of their own transaction.

The intention to compare similar entities is motivated by the need for accurate evaluations (Taylor et al., 1996). When compared entities are very similar or the same, consumers can simply evaluate the outcomes to determine the justness. For example, if a consumer wants to know whether the price they paid for an airline ticket to Chicago is fair, they are likely to use the purchase of the same airline ticket as the comparative reference. A comparison to a similar transaction can easily reveal whether the price they paid is fair. Not only do people tend to choose a similar transaction to compare, the presence of similarity (between customers or transactions) also makes them pay more attention to it. This phenomenon is known as similarity bias in the social comparison literature (Mussweiler, 2003). The focus on the similarities, in turn, increases comparison intentions. In the current context, it is possible that a reduction in comparison intentions or likelihood may prevent unfairness perceptions.

### 2.2.2. Equity theory and price fairness perceptions

Firms that implement dynamic pricing sell the same products at different prices. The high degree of similarity induces consumers to selectively process information to further support the similarity (Mussweiler, 2003). The enhanced perceptions of similarity increase consumers' comparison intentions. A comparison of two highly similar transactions in the dynamic pricing setting reveals to consumers that they receive the same amount of benefits, the same products, which, in turn, arouses a strong entitlement to pay a similar price (Bolton et al., 2003). However, under the practice of dynamic pricing, consumers pay different prices (different contributions) for the same product (same

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