Dynamic Pricing: A Bibliometric Approach

Fatemeh Goli[1], Manijeh Haghighinasab[2]*

1. Faculty of Social Sciences and Economics, Alzahra University, Tehran, Iran
2. Department of Management, Faculty of Social Sciences and Economics, Alzahra University, Tehran, Iran

Abstract
Dynamic pricing is a field of research that has gained acceptance in the scientific community and management literature. This paper aims to review the citations made in the literature on dynamic pricing and investigate the development of knowledge of this field of research. Bibliometric methods were used to conduct this study, including scientific mapping of dynamic pricing. VOSviewer software was used for scientific mapping. Five clusters in the co-citation were introduced by giving statistical and graphical information. A conceptual framework of perceived price fairness was presented. The results show a growing trend in dynamic pricing. It has been shown that adequate studies have not been there to identify the variables affecting dynamic pricing and to consider all the dimensions affecting the perceived fairness of price, and fewer studies have been conducted in the field of B2B research. The results of the study show that in all bibliographic fields USA is dominant to other countries. This article is the first bibliographic study in the field of dynamic pricing, and it presents the research gap in this area and directs the perspective of future research. This article is useful for researchers and enthusiasts in the field of dynamic pricing.

1. Introduction

The increase in using digital marketing has facilitated broad experiments with dynamic pricing, the process of adjusting prices over time or by customer groups for the same goods (Fang et al., 2019; Liu et al., 2019). The development of digital marketing has led to more use of dynamic pricing, as dynamic pricing will improve both revenue and consumer numbers significantly (Banerjee et al., 2019; Lu et al., 2019; Ulmer, 2020). ZipRecruiter, an online jobs portal, for example, suggests that playing with dynamic and tailored prices will raise revenues by 84 percent (Priester et al., 2020). Dynamic pricing has gained increasing popularity in retail environments and has generated a growing body of academic research in the last decade. in the airline industry, dynamic pricing, over the last 20 years, come to occupy a position of significance (Cao et al., 2019; Chen & Farias, 2018).

Many aspects of dynamic pricing have been explored to date. In revenue management, perceived fairness (Selove, 2019) resulting from price differences, reference prices (Jung et al., 2020), dynamic pricing in services and industries (Khattak et al., 2020; Mitra, 2020), inventory (Liu et al., 2020), and supply and demand (Neijmeijer et al., 2020; Santos et al., 2019) have been examined. A review of dynamic pricing in the field of transportation and electronics (Dutta & Mitra, 2017; Saharan et al., 2020) shows that after the presentation of different models of dynamic pricing, no critical study or evaluation of dynamic pricing has been done.

---

* **Corresponding Author, Email:** haghighinasab@alzahra.ac.ir

Most of the research has examined dynamic pricing as a function of various factors. It should be noted that the dynamic pricing literature has been well studied (e.g., Hu et al., 2015; Saharan et al., 2020). A review of dynamic pricing studies in the field of digital marketing and services shows that no research has been done in this field with a bibliometric approach. A closer look at the direction of the research is needed to understand the future prospects of this concept. This article seeks to fill the research gap expressed by providing the first bibliometric analysis using the criteria of high-cited articles, most important keywords, most influential authors, production of top authors over time, most productive area, and co-citation.

The objectives of this article are to provide a framework for dynamic pricing through bibliographic analysis and to provide a vision for future research. Bibliographic analysis has two major contributions. Firstly, it presents the first bibliographic analysis of dynamic pricing using citation and clustering criteria. Secondly, expanding the scope and relevance of dynamic pricing research allows us to identify emerging research topics that may not have been addressed in dynamic pricing research. This article, while developing dynamic pricing literature, presents topics that have not been addressed and shows the prospects of future research to researchers and those interested in this field.

Figure 1 summarizes the research steps. The next section presents a review of the literature on dynamic pricing in the field of business. Then, we present the method used for the analysis. Following this, we present the specific clustering of VOSviewer, and finally discuss the conclusions, and limitations, and future research directions.
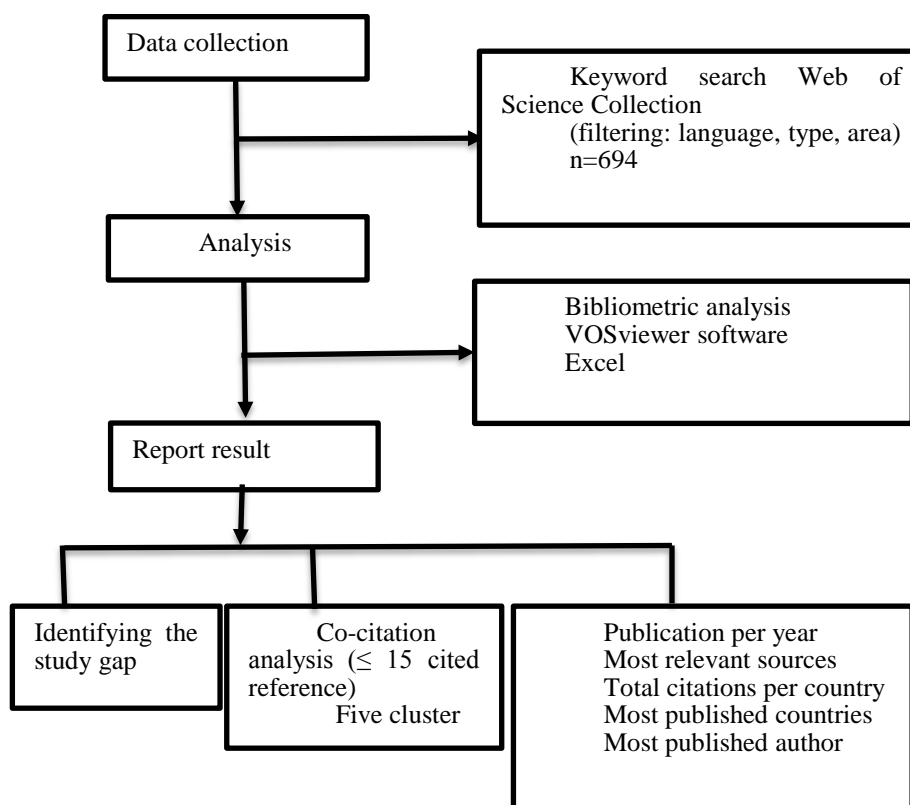

Figure 1. Methodological Approach

2. Literature Review

In the Cambridge Dictionary (2021), dynamic pricing is defined as the practice of changing the price of goods and services in order to change market conditions (especially price increases in times of high demand). Dynamic pricing is a pricing mechanism in which

companies can update their chosen price from time to time. Prices can be weekly, monthly, daily, or several times a day, and from a transaction change to another transaction as a function of buyer information, competitors' offers, or remaining inventory (Wittman & Belobaba, 2019).

Research in the field of dynamic pricing is classified into the fields of economics (e.g., Bergemann & Välimäki, 2006; Borenstein & Shepard, 1993), business (e.g., Bayus, 1992; Hall et al., 2010; Haws & Bearden, 2006), management (e.g., Do Chung et al., 2011; Jayaraman & Baker, 2003), and operation research management science (e.g., Elmaghraby & Keskinocak, 2003; Gallego & Van Ryzin, 1997; Levin et al., 2009). The subject of dynamic pricing was favored by Rothstein (1971) and Littlewood (1972) in airlines and hotels. Dynamic pricing research has found its way into other industries, such as car rentals (Carroll & Grimes, 1995), cruise tickets (Gallego & Van Ryzin, 1994; Ladany & Arbel, 1991), and hotels (Bayoumi et al., 2013; Hayes & Miller, 2011). It has also been used in retail (Kauffman & Wang, 2001; Riseth, 2019), hospitals, (Li & Xing et al., 2015; Viglia et al., 2016) electricity (Faruqui et al., 2013; Garcia et al., 2005), and energy industries since 1990 (Faruqui et al., 2014; Nair & Bapna, 2001).

Due to the multidimensionality of the concept of dynamic pricing (Deksnyte & Lydeka, 2012), various factors in dynamic pricing modeling have been examined. Important factors that have been examined in most studies include demand (Cao et al., 2019; Chen & Chen, 2018; Koch & Klein, 2020; Vives & Jacob, 2020), perceived value (Cong et al., 2018; Lee & Monro, 2008; Sahay., 2007), inventory (Bertsimas & De Boer, 2005; Hu et al., 2019; Li & Zhang et al., 2015), market structure (Chenavaz , 2012; Dimicco et al., 2003; Xiong et al., 2020), customer characteristics and behavior (Chen & Wang , 2009; Pk kannan, 2001; Victor et al., 2018), and price fairness (Lee et al., 2011; Schrage et al., 2020; Škare & Gospić, 2015). With the development of the use of the Internet, the issue of consumer privacy (Chen et al., 2020; Zhang et al., 2019) has recently been considered in dynamic pricing modeling.

Among the challenging issues in the field of dynamic pricing is the issue of price fairness. Past research has shown the negative impact of dynamic pricing on price fairness (e.g., Herrmann et al., 2007; Kaura et al., 2015; Konuk, 2018; Selove, 2019). The passage of time indicates the positive impact of this pricing strategy on the perceived fairness of the customer (e.g., Li et al., 2018; Weisstein et al., 2013). Recent research shows that if individuals participate in pricing (Chung, 2017; Richards et al., 2016) or in the case of transparency (Ferguson & Ellen, 2013) in dynamic pricing, the perceived fairness of the customer increases. If organizations justify price differences for individuals with a reason (Tarrahi et al., 2016), their perceived fairness will increase from the price difference resulting from dynamic pricing. Price fairness depends on factors such as perceived quality (Konuk, 2019), comparisons between different price offers and prices paid by others (Lastner, 2019), dynamic bundling (Li et al., 2018), effect hedonic vs. utilitarian product (Isabella et al., 2017), social comparisons (Malc et al., 2016), corporate social responsibility (Habel et al., 2016; Matute-Vallejo et al., 2011), the role of culture (Bolton et al., 2010), and reference prices, the costs of the seller, the self-interest bias, and the perceived motive of sellers (Gielissen et al., 2008).

As can be seen from Figure 1, dynamic pricing research is initially referred to as price discrimination (Chen & Ross., 1993; Dhar & Hoch., 1996; Garbarino & Lee., 2003). Then the issue of price competition (Bashyam, 2000; Choi & DeSarbo., 1994) was discussed. The researchers then considered dynamic pricing independently. Dynamic pricing is then considered in combination with revenue management (e.g., Boyd & Bilegan, 2003; Feng & Gallego, 2000; Ke et al., 2019; Lieberman, 2016; Maglaras, 2006; Şen, 2013; Tsai & Hung, 2009). Now with the development of big data applications, dynamic pricing research based on

location (e.g., Etebari, 2019; Oztaysi et al., 2020) and one-to-one pricing (e.g., Ban & Keskin, 2020; Priester et al., 2020) is also being explored.
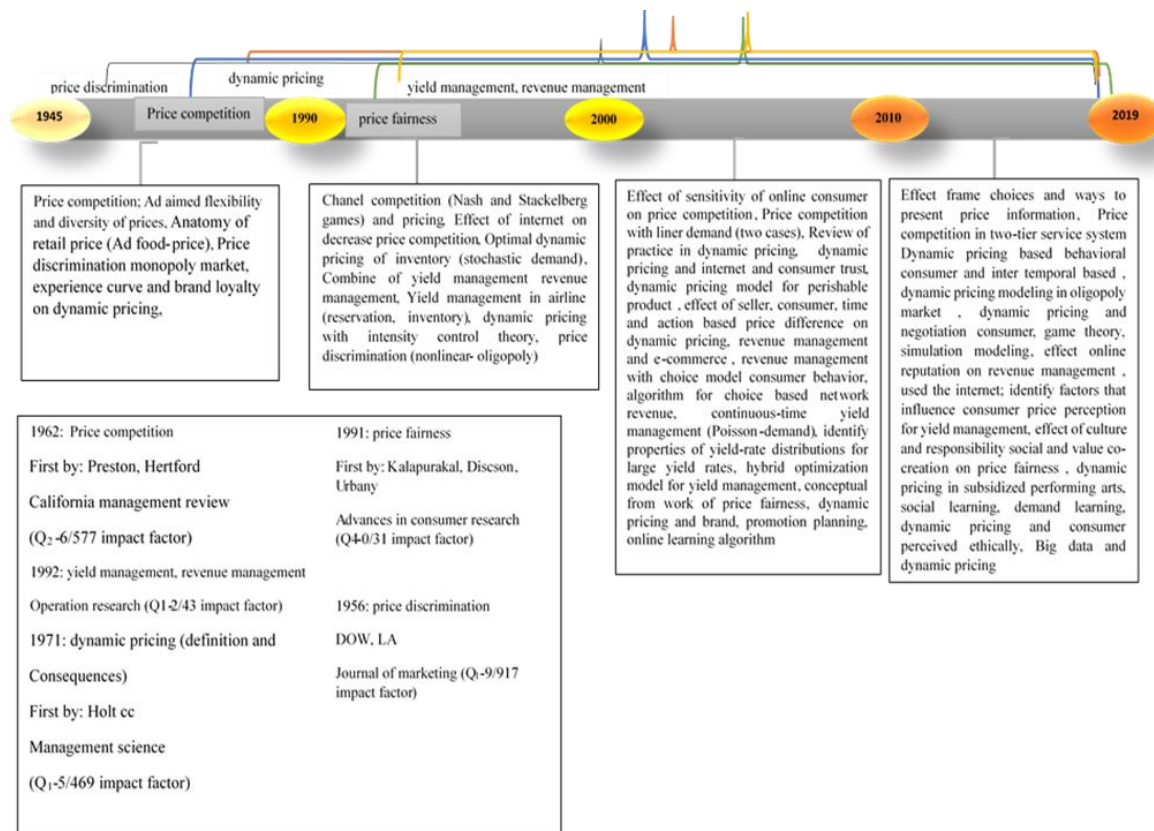

Figure 2. Important Steps on the Development of Dynamic Pricing

3. Methodology

The current study is a descriptive-analytical research with a bibliographic method. The records were extracted from the core collection of the Web of Science database (WOS) from 1976 to 2019. The search formula includes "DYNAMIC* PRICING*" OR "Revenue* Management*" OR "Reference* Price*" OR "Price* Fairness*" OR "Price* Competition*" OR" Yield Management *" and "Pricing* Discrimination*"; it should also be said that "Topic" is the publishing field. By searching these keywords in the topic section, 7822 records were gained. After applying the filter of "Article," the records were 7387, and using the "English language," the filter number of articles reached 7701, and with the document category "business" filter, the number of articles became 694.

The present study considers bibliographic records obtained from the Web of Science (WOS), which belongs to Clarivate Analytics. WOS is considered by bibliometric researchers to be a relevant database because it offers a collection of metadata that is important for this form of study, including abstracts, references, number of citations, lists of authors, institutions, countries, and the impact factor of the journal (Carvalho et al., 2013). The strength of bibliometric method is in creating analytical links between various units of analysis (e.g., citations, keywords and authors) and records, thus enabling a scientific area to be structurally mapped (Agostini et al., 2020). The application of mathematical and methodological methods to books and other means of contact is called bibliometric method (Abbas et al., 2020; Yas et al., 2020). Bibliographic method provides an advanced microscopic instrument for examining particular research areas (Chandra & Walker, 2019).

Bibliometric method is a mathematical tool widely used to assess scholarly literature (Liu et al., 2019). In recent years, bibliometric method has gained attention, and some of its significant analyses (e.g., trend analysis, analysis extraction of thematic scientific fields, and analysis of international cooperation between countries, etc.) have been used (Zanjirchi et al., 2019). The author-level impact is calculated in various ways, including the number of publications, the number of article citations, or the combination of the publication and citation counts for the attainment of a "hybrid indicator" (Harzing & Alakangas, 2016). VOSviewer is used in the bibliometric study for cluster analysis, and thematic analysis, and mapping (Lianos- Herrera, 2019). It is possible to use five ways of bibliometric mapping analysis, namely keyword co-occurrence, co-citation, citation, bibliographic coupling, and co-author. VOSviewer uses a text-mining method for processing the content of names, keywords, and abstracts in keyword analysis (Shah et al., 2019).

In the present work, the citation counts were evaluated. Following this, eight highly cited articles were based on the Essential Science Indicators SM (ESI) presented by Tomson Reuters. Citation rates vary by discipline, and articles with higher citation rates are important articles (ESI, 2015). The following items are presented in the analysis section: high-cited papers, most relevant keywords and drawing, most productive authors, top authors' production over the time, and topmost productive countries.

4. Analysis

From the data collected for descriptive analysis, quantitative knowledge is derived on which other mathematical and computational patterns are based. This data analysis allows the authors to consider the scale of the investigation. As shown in Table 1, explanatory research reveals several functions, including article published annually, total citations per region, most productive nations, and most productive authors.

In this table, a description of our article collection is provided. The table includes the number of articles, h- index, the authors, the number of keywords, average citations, and other quantitative details.

Table 1. Description of Data

Description	Numbers	Rates
Papers	672	
Keywords plus (ID)	234	
Author's keywords (DE)	421	
Period	1970-2019	
Average citations per papers	29.73	
Information about authors		
Authors	1576	
Authors of single-authored papers	131	
Authors of multi-authored papers	1445	
Papers per author		0.426
Authors per papers		2.35
H-Index	68	
Information about papers		
Article	672	
Proceedings paper	21	

Figure 3 represents the number of published items spanning over 23 years (from 1995 to 2019). Generally, the number of publications has incremented over the considered period. In 2002 to 2003, a growth is seen in the number of articles, nearly three times the previous section. In the next period (i.e., 2007 to 2014) we see the up and down trend of publishing

articles. Finally, the third period (i.e., 2016 to 2019), was the one during which the highest number of papers were published. On average, the number of annually published papers was 25.4 with a standard deviation of 15.07. This upward trend can indicate the topic importance that is entering a phase of expansion.
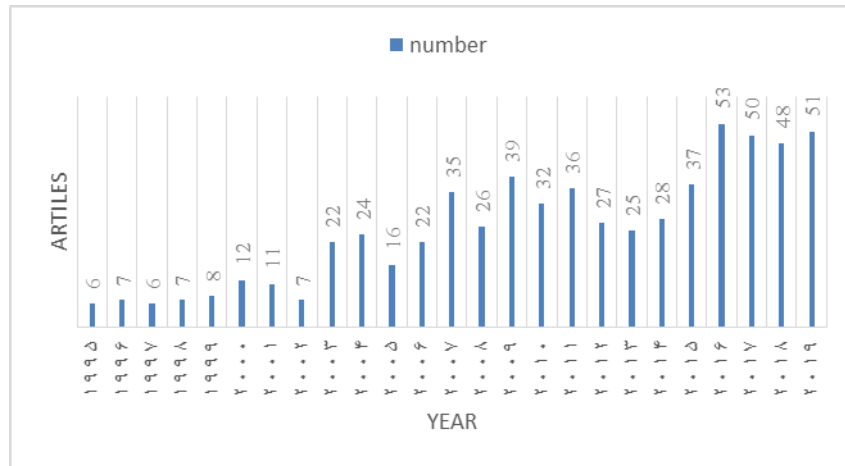

Figure 3. Publication per Year

Table 2. Most Important Sources

	Sources	Articles
1	Marketing Science	141
2	Journal of Business Research	40
3	Quantitative Marketing and Economics	38
4	Journal of Marketing Research	33
5	Journal of Retailing	31
6	International Journal of Research in Marketing	22
7	Electronic Commerce Research and Applications	17
8	Journal of Marketing	15
9	Journal of Retailing and Consumer Services	13
10	Marketing Letters	13

Table 3 is for each country's overall citation. As it is evident, the USA articles have the highest number of citations (15647), followed by those of Canada (1138), China (1043), and France (905). Moreover, the most productive countries in terms of article publication per year are seen in Figure 4. According to this figure, the USA is again the most active country (304), followed by China (54), Canada (36), and England (24). This means that it does not necessarily have a high rate of citations if a country is active in this area. Figure 5 shows the authors who have published more articles in the field of dynamic pricing. Chen XY, Iyer G, and Xie JH have the most published articles, respectively.

Table 3. Total per Region Citations

	Country	Total citations	Average paper citations
1	USA	15647	38.07
4	Canada	1138	27.75
5	China	1043	16.29
2	France	905	53.23
7	Germany	466	14.12
6	South Korea	437	23
8	Spain	404	16.83
3	England	362	10.64
9	Taiwan	315	16.57
10	Singapore	249	20.75
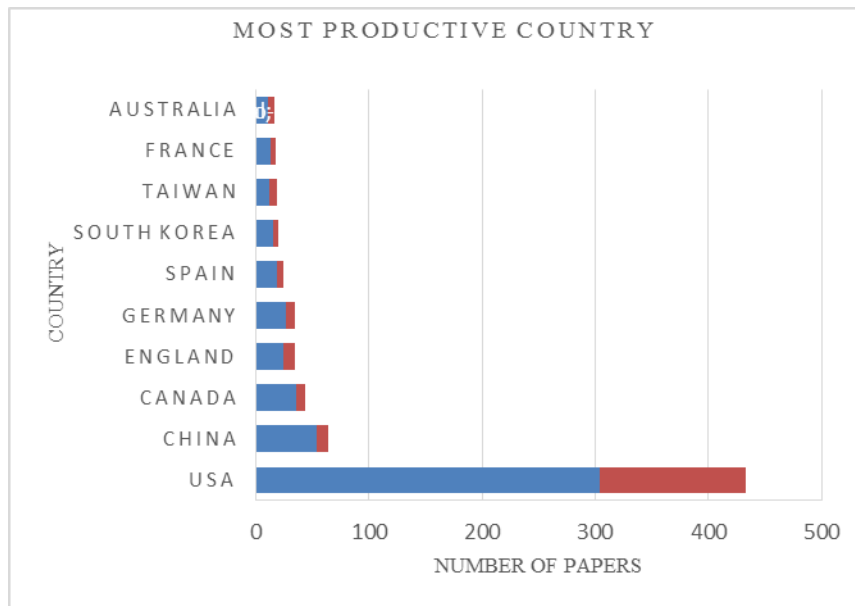
Figure 4. Most Productive Countries
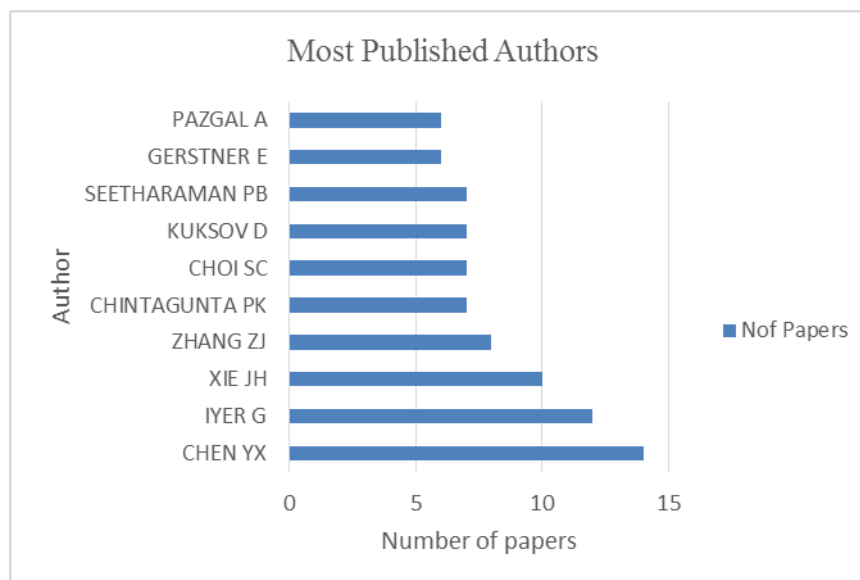
Figure 5. Most Published Authors

One technique to optimize co-citation search performance is to broaden the reach of the target documents by continuously disseminating co-citation relationships (Eto, 2019). This helps with the exploration of the conceptual relations between the leading publications in a field and to chart the intellectual framework of the discipline (Calabretta et al., 2011; Hota et al., 2020). Different units of analysis may be viewed when conducting a co-citation analysis, such as documents or authors (Moral et al., 2019).

With at least 15 Citations, the total number of 18570 cited references was investigated which results in 75 items (46 in cluster 1, 29 in cluster 2), two clusters, 1234 links, and a total links strength of 5574 (See Figure 6).

Figure 6. Co-Citation of the Cited Reference

Cluster 1

Cluster 1, which is also the densest cluster, contains 26 papers. The main focus of this cluster is on the perceived fairness of different prices. Therefore, this cluster is named "PFDP."

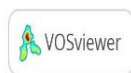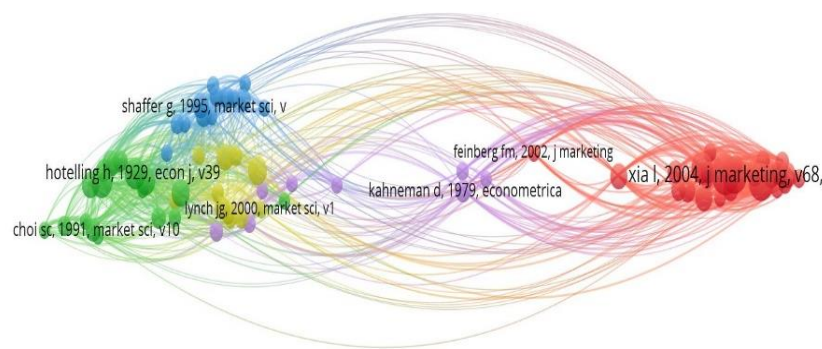Reviewing the literature on PFDP, we found that researchers in this cluster have selected two branches for research, namdly factors related to the company (e.g., company image, company reputation, company strategy, etc.) and factors related to perceived feelings and customer reaction (e.g., perceived value, satisfaction, trust, etc.). Nonetheless, some researches cover both. Adams (1965) argues that both discontent and low morale are connected to the injustice experienced by an individual in social exchanges, and identifies concepts relevant to the understanding of justice and injustice. The perceived fairness of the price rise would often depend on the cost and price peaks, meaning that alienable increases are perceived to be more appropriate than non-alienable rises (Bolton et al., 2003). The influence of cross-consumer price comparison on the perceived justice of markets as a feature of culture has also been analyzed (Bolton et al., 2010). Campbell (1999) demonstrates that incentive and encouragement to process data moderates the impact of the price change on consumer fairness expectations. The internal reference prices of customers are affected by the advertised sales and reference prices as well as the understanding of the quality of the goods by buyers (Grewal et al., 1998). Different phase price effects has a positive effect on the perceived quality, but has a negative impact on the perceived worth and on the desire to purchase (Dodds et al., 1991).

It is found that most subjects prefer to leave the store when inequity is present (Huppertz, 1978). Dynamic pricing increases the profitability of a company. However, it can reduce the perceived fairness of customers. The use of dynamic bundling in combination with dynamic pricing will help reduce the sense of unfairness (Li, 2019). Personal income influences price fairness (Malc et al., 2016). Familiar customers are less sensitive to perceived fairness at dynamic pricing (Ei Haddad et al., 2015). Consumer perceptions of the fairness of dynamic pricing are positively linked to online community engagement (Nguyen et al., 2016). Table 4 presents some of the variables that the authors have used in their research to better understand and explain the price difference on customer's perception of fairness.

Table 4. Variables Tested by the Author(s)

Author(s)	Variables tested														
	Bolton et al. (2003)	Campbell (1999)	Dark and Dahi(2003)	Xia et al. (2004)	Vaidyanathan & Aggarwal (2003)	Maxawell et al. (2002)	Kukar-kinney et al. (2007)	Hamburg et al. (2005)	Haws and Bearden (2006)	Grewal et al. (2004)	Weisstein et al. (2013)	Li et al.(2018)	Malc et al. (2016)	Nguyen et al. (2016)	Ei Haddad et al. (2015)
Historical and reference prices	*	-	-	-	-	*	-	-	-	-	-	-	-	-	*
Store-price image	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Store strategy	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Risk	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cost	*	-	-	-	*	-	-	-	-	-	-	-	-	-	-
Perceived fairness	-	*	-	-	*	*	*	*	*	*	*	*	*	*	*
Firm's reputation	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-
inferred motive	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-
Inferred profit	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-
shopping intention	-	-	*	-	-	-	*	*	*	*	*	-	-	-	*
Barging size	-	-	*	-	-	-	-	-	-	-	-	-	-	-	-
Satisfaction	-	-	*	-	-	-	-	*	-	-	-	-	-	-	-
Loyalty status	-	-	*	-	-	-	-	-	-	-	-	-	-	-	-
Comparative other (social comparison)	-	-	-	-	-	-	-	-	-	-	-	-	*		
Perceived value	-	-	-	*	-	-	-	-	-	-	-	-	-	-	-
Knowledge	-	-	-	*	-	-	-	-	-	-	-	-	-	-	-
controllability	-	-	-	-	*	-	-	-	-	-	-	-	-	-	-
Internal and external versus	-	-	-	-	*	-	-	-	-	-	-	-	-	-	-
Rule and policy price	-	-	-	-	*	*	*	-	-	-	-	-	-	-	-
Attribute toward seller	-	-	-	-	-	*	-	-	-	-	-	-	-	-	-
Different seller, consumer, time	-	-	-	-	-	-	-	-	*	-	-	-	-	-	-
Trust	-	-	-	-	-	-	-	-	-	*	*	-	-	-	-
Perceived transaction dissimilarity	-	-	-	-	-	-	-	-	-	-	*	*	-	-	-
Price-framing tactics	-	-	-	-	-	-	-	-	-	-	*	-	-	-	-
Dynamic bundling	-	-	-	-	-	-	-	-	-	-	-	*	-	-	-
Comparison intentions	-	-	-	-	-	-	-	-	-	-	-	*	-	-	-
The Severity of behavioral repercussions (no action, self-protection, revenge)	-	-	-	-	-	-	-	-	-	-	-	-	*	-	-
Customers income level	-	-	-	-	-	-	-	-	-	-	-	-	*	-	-
Online community engagement	-	-	-	-	-	-	-	-	-	-	-	-	-	*	-
Norms community	-	-	-	-	-	-	-	-	-	-	-	-	-	*	-
Rule familiarity	-	-	-	-	-	-	-	-	-	-	-	-	-	*	-
Customer's online savviness	-	-	-	-	-	-	-	-	-	-	-	-	-	*	-
Perception	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*
Price expectation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*
Familiarity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*
Purpose travel (bye)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*
Recommend, positive WOM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*

Cluster 2

Cluster 2, which had 17 articles, focused mostly on the pricing economic dimension, labeled as "Behavioral Economy." Most authors in this cluster tried to use demand and supply data as well as price strategies in various ways of analysis. The related areas included "demand and pricing equations "(Berry, 1994; Berry et al., 1995; McGuire & Staelin, 1983), channel structure and pricing (Choi, 1991; Coughlan, 1985; Jeuland & Shugan, 1983), quality and taste differentiation (Desai, 2001), and consumer preferences and quality (Moorthy, 1988; Mussa & Rosen, 1978; Shaked & Sutton, 1982).

It can be concluded that most studies have been done on "consumer preferences, sensitivity, and behavior." Moreover, the majority of studies done in this cluster have used game theory to present the models used in their articles (e.g., Daspremont et al., 1979; Moorthy, 1984; Srinivasan et al., 2017; Tang et al., 2019), Economic research in the field of dynamic pricing; Often was focused on supply and demand parameters, channel structure, and multi-channel collaboration methods using Nash equilibrium (e.g., Rao et al., 2013). Demand and time price elasticity (Vives et al., 2020) and social learning (Jing, 2011; Papanastasiou & Savva, 2017) are effective in dynamic price optimization. Dynamic pricing – driven by inventory holding and ordering costs control – contributes to improved operating efficiencies and benefits companies without hurting customers (Stamatopoulos et al., 2019).

Cluster 3

Cluster 3, which included 13 articles, was called "price discrimination." In games with either simultaneous selection of policy and price or sequential choice, price discrimination appears as the special equilibrium result (Thisse & Vives, 1988). Discrimination costs are ex-switching costs, including learning costs, transaction costs, or "artificial" costs imposed by the company, such as repeat purchase discounts (Klemperer, 1987). At the same time, Corts (1997) considers price matching policies and price-beating policies as tools of price discrimination (Corts, 1997).

With reduced advertising costs, product differentiation leads to lower revenues by increasing the intensity of price competition (Grossman & Shapiro, 1984). With overlapping generations of consumers, the equilibrium leads to involving price discrimination, and firms get less profit than if they were not able to recognize their previous customers (Villas-Boas, 2004). This recognition involves learning more about consumer preferences (Villas-Boas, 1999). When customers are individually addressable, one-to-one promotions are accessible. One-to-one promotions often lead to a rise in competition for prices (Shaffer & Zhang, 2002). Customer addressability is essentially a form of first-degree price discrimination, using identity as a signal of willingness-to-pay (Acquisti &Varian, 2005). An equivalent way of interpreting the degree of addressability is that for the mass of consumers at each point on the line, there is a given probability of a consumer being in the firm's database (Chen & Iyer, 2002).

Pricing tactics are changing in the online world of, with shoppers paying varying rates for the same product (Ayadi et al., 2017). Dynamic pricing approach contains second-degree price discrimination, which provides intertemporal consumption packages in the form of purchase options (Razeghian & Weber, 2019). Merging intertemporal price discrimination with complementary prices enhances firm profitability because it attenuates the limits of each pricing method (Li, 2019). Sales models based on customers' intertemporal behavior and price discrimination strategy are more profitable than other models (Cosguner et al., 2017; Jia

et al., 2018). In addition, price discrimination will potentially improve social welfare (Zhao & Jagpal, 2009).

Cluster 4

This cluster, which included 11 articles, was called "competitive price." This section consisted of two sections. The first section focused on the effects of the Internet on the customer and the seller (retailers) in price competition. The second part provided the conditions for creating price differences for customers and the results obtained. Some consequences of the Internet in terms of price competition includes minimal search cost, consumers' easier access, identification of consumer taste, the decrease in seller's power, the increase in the competitive prices, decreased price premiums, increased seller profit margins, smaller increments price, the quick evaluation of digital attributes, the lowered cost of price information acquisition, increased price sensitivity (in similar products) (Alba et al., 1997; Bakos, 1997; Brynjolfsson & Smith, 2000; Lal & Sarvary, 1999; Lynch et al., 2000).

The seller will control the amount of consumer information and regulate the market's competitive taste (Balasubramanian, 1998). Coupons may act as a mechanism for pricing discrimination and provide a specific group of customers with a different price (Narasimhan, 1984). Weaker brands gain more from price competition and promotions (Raju et al., 1990). By not sending information to the consumer, firms explored for profit in the price difference (Varian, 1980).

It is argued that the advent of online services has shifted the nature of competition in the aviation industry from competition in scheduled flight times to price competition (Ater & Orlov, 2015). Price competition affects the behavior of customers and suppliers and market share (Ghasemi et al., 2019). In understanding heterogeneous consumer demand based on distinct customer value, sellers assess their product option decisions and pricing policies. Customer criteria and attitudes have a significant effect on the pricing practices of supply chain participants (Luo et al., 2018).

Cluster 5

"Price optimization according to consumer behavior" was the name of cluster 5, which had eight articles. The articles in this section paid more attention to consumer sensitivity, price, and quality, and examined the impact of consumer sensitivity in homogeneous and heterogeneous sectors in different brands on profitability and revenue management. Consumer brand preference decisions were highly influenced by differences between anticipated and observed prices at the point of purchase, and prices were less relevant in household brand choice compared to ads and product quality based on the comparison price formation processes (Winer, 1986). Consumer perceptions of a relationship between price and quality create a distinctive pattern of both preferences and elasticity (Blattberg & Wisniewski, 1989; Kamkaura & Russel, 1989; Töytäri et al., 2015). In their review of the literature and practices in dynamic pricing, Elmaghraby and Keskinocak (2003) emphasize practicality in most market structures and the increasing use of dynamic pricing. When price-insensitive buyers tend to shop later than price-sensitive users, the yield management system performs well (Desiraju & Shugan, 1999; Shen & Su, 2007; Tian & Xu, 2015). With behavior-based pricing, businesses can gain more profits than without it (Amaldoss & He, 2019; Li & Jain, 2016). Behavior-based optimal pricing is a practice in which businesses gather data from the buying experience of customers, distinguish repeat and current customers from the data, and give

varying rates to them (Esteves & Cerqueira, 2017; Jing, 2017). As Table 5 shows, the methods used in the clusters were simulation and game theory.

Table 5. Description of 5 Cornerstones of Clusters in Dynamic Pricing

Cluster	Fields	Items	Method
1	perceived fairness of different prices	26	Simulation; Game theory
2	Economic analysis of dynamic pricing	17	Game theory
3	price discrimination	13	-
4	competitive prices	11	-
5	Price optimization according to consumer behavior	8	Simulation; Game theory

5. Discussion

Pricing should be modeled by considering effective parameters if we select dynamic pricing as optimal pricing strategy. If the parameters related to the company's visible and invisible factors (such as brand benefit, trust and advertisement, etc.), the parameters related to the product (quality and usefulness, etc.) and the parameters related to the customer (preferences, sensitivity, etc.) can be combined, all stakeholders can benefit from dynamic pricing in practice. These are the companies that should determine their pricing objective by their company's key strategy, and target customers in compliance with dynamic pricing objectives at any time and place. As noted in the literature, consumer reaction varies from price differences resulting from dynamic pricing (e.g., Andrés-Martínez et al., 2014; Konuk, 2018), so attempts should be made to retain customers (high cost of attracting customers) and the firm must be confident that the desired consumer's reaction would be generated by dynamic pricing. Most research in this field has examined the effective factors from two dimensions related to customer cognitive reactions (e.g., Konuk, 2019; Rothenberger, 2015) or customer emotion reactions (e.g., Cropanzano et al., 2008; Radzi et al., 2011), whereas the impact of two reactions on perceived customer fairness can be examined, according to Figure 7.
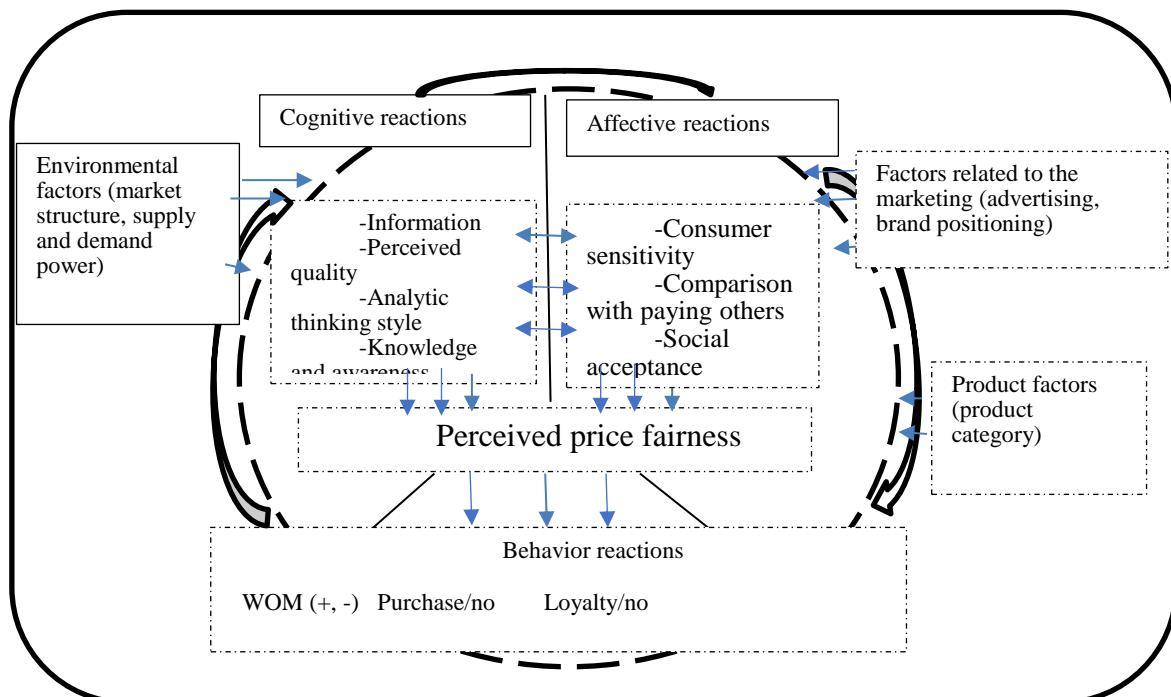

Figure 7. Conceptual Framework of Perceived Price Fairness

Emotional and cognitive reactions and their interrelationships, as can be seen in figure 6, affect perceived price fairness and eventually generate a behavioral response that impacts the profitability of the business. Environment factors (such as market structure, culture, etc.) (Bolton et al., 2010), product-related factors (such as product category and degree of customer engagement, etc.) (Dekhili & Achabou, 2013; Isabella et al., 2017), and company marketing factors (such as company brand position, advertisement, etc.) (Hult at al., 2018; Kwak et al., 2015) affect this cycle of reactions. The broader ecosystem also influences these factors.

6. Conclusion

The purpose of this work was to provide a detailed bibliometric review of the overview of DP research in the areas of business. In this scope, applying the bibliometric method, this research tried to investigate the studies that have been done from 1976 to 2019 in business fields. Quantitative statistics on bibliography was used to extract descriptive analysis. Articles published each year indicate that the number of articles published has increased. The results showed that the USA, Canada, China have the top total citations per country rankings, the USA, China, and Canada are the most productive countries, and the USA is the absolute leader and has the best science situation based on DP analysis. With the help of VOSviewer software, co-citation analysis was mapped, and the five clusters were categorized. Most of the documents in cluster 1 were about perceptual fairness, which examined the drivers and consequences of perceived fairness of price dynamics. In the second cluster, which analyzed dynamic pricing from an econometric point of view, economic factors such as the role of demand elasticity and market structure in the optimal price were examined. From an econometric point of view, the studies were rather quantitative and did not pay attention to the identification of variables using a qualitative approach. A dynamic pricing system is an open system that can be analyzed using Chaos theory, which predicts nonlinear systems. The third cluster described dynamic pricing using price discrimination. The fourth cluster included articles on price competition in dynamic pricing. The articles of the fifth cluster dealt with dynamic pricing according to customer behaviors and showed the need to pay attention to customer movements in the online space.

The results of this paper provide researchers with a comprehensive overview of dynamic pricing study as well as a direct roadmap for more research into the field and the most important research fields.

7. Limitations and Future Research

First of all, the knowledge provided in this work is solely descriptive and offers only a general orientation of the field about the different dimensions studied. Some particular types of scholarly publications obtained from the WOS were investigated, namely articles. Moreover, it is important to bear in mind that there are other, similarly important databases alongside the WOS that may contain excellent publications in other journals that are not indexed in the WOS. Therefore, it is suggested to use different databases. The other limitation was that we only investigated documents in English. Other languages can be investigated in future investigations. Furthermore, this article covered research conducted between 1976 and 2019 and did not include articles after that due to the time the study was carried out. Another factor that is one of the limitations of this article is the criteria for entering articles that are limited to the field of business.

Research on pricing can be examined in two separate sections related to the pre-Internet period and the expansion of e-shopping and beyond. The focal points of suchlike studies can

also be divided into services or products, or just a specific industry area, such as transportation or hospitality. This article does not address these differences.

According to the articles reviewed in the five clusters presented above, suggestions can be made for each cluster according to the gaps in it. In the case of perceptual fairness of price, studies have confirmed the effect of customer sensitivity on price fairness (e.g., Herrmann et al., 2007; Radzi et al., 2011). In future research, the factors affecting this sensitivity can be investigated. It is also possible to comprehensively examine the factors affecting fairness, which are discussed at different levels of factors related to the person, environment, product, or marketing company. Because competitive pricing is a complex and dynamic issue, analyzing it with a comprehensive, multi-step framework can help make the most of it. To track customers' behavior and understand their reaction to price dynamics during campaigns and auctions or price discounts, one might use Google Analytics and use system dynamics to predict behavior and compare it with real behavior. The majority of the papers in each of the five clusters are in the field of B2C. The dynamic price has received relatively little attention in the B2B world.

References

Abbas, A. F., Jusoh, A., Mas'od, A., & Ali, J. (2020). Bibliometric analysis of global research trends on electronic word of mouth using Scopus database. *J. Crit. Rev*, *7*, 405-412.

Acquisti, A., & Varian, H. R. (2005). Conditioning prices on purchase history. *Marketing Science*, *24*(3), 367-381.

Adams, J. S. (1965). Inequity in social exchange. *Advances in experimental social psychology* (Vol. 2, pp. 267-299). Academic Press.

Agostini, L., Nosella, A., Sarala, R., Spender, J. C., & Wegner, D. (2020). Tracing the evolution of the literature on knowledge management in Inter-Organizational contexts: A bibliometric analysis. *Journal of Knowledge Management*, *24*(2), 463-490.

Alba, J., Lynch, J., Weitz, B., Janiszewski, C., Lutz, R., Sawyer, A., & Wood, S. (1997). Interactive home shopping: Consumer, retailer, and manufacturer incentives to participate in electronic marketplaces. *Journal of Marketing*, *61*(3), 38-53.

Amaldoss, W., & He, C. (2019). The charm of behavior-based pricing: When consumers' taste is diverse and the consideration set is limited. *Journal of Marketing Research*, *56*(5), 767-790.

Andrés-Martínez, M. E., Gómez-Borja, M. Á., & Mondéjar-Jiménez, J. A. (2014). A model to evaluate the effects of price fairness perception in online hotel booking. *Electronic Commerce Research*, *14*(2), 171-187.

Ater, I., & Orlov, E. (2015). The effect of the internet on performance and quality: Evidence from the airline industry. *Review of Economics and Statistics*, *97*(1), 180-194.

Ayadi, N., Paraschiv, C., & Rousset, X. (2017). Online dynamic pricing and consumer-perceived ethicality: Synthesis and future research. *Recherche et Applications en Marketing (English Edition)*, *32*(3), 49-70.

Bakos, J. Y. (1997). Reducing buyer search costs: Implications for electronic marketplaces. *Management science*, *43*(12), 1676-1692.

Balasubramanian, S. (1998). Mail versus mall: A strategic analysis of competition between direct marketers and conventional retailers. *Marketing Science*, *17*(3), 181-195.

Ban, G. Y., & Keskin, N. B. (2020). Personalized dynamic pricing with machine learning: High dimensional features and heterogeneous elasticity. *Forthcoming, Management Science*, 67(9), 1-53.

Banerjee, T., Mishra, M., Debnath, N. C., & Choudhury, P. (2019). Implementing e-commerce model for agricultural produce: A research roadmap. *Periodicals of Engineering and Natural Sciences*, *7*(1), 302-310.

Bashyam, T. C. A. (2000). Service design and price competition in business information services. *Operations Research*, *48*(3), 362-375.

Bayoumi, A. E. M., Saleh, M., Atiya, A. F., & Aziz, H. A. (2013). Dynamic pricing for hotel revenue management using price multipliers. *Journal of Revenue and Pricing Management*, *12*(3), 271-285.

Bayus, B. L. (1992). The dynamic pricing of next generation consumer durables. *Marketing Science*, *11*(3), 251-265.

Bergemann, D., & Välimäki, J. (2006). Dynamic pricing of new experience goods. *Journal of Political Economy*, *114*(4), 713-743.

Berry, S. T. (1994). Estimating discrete-choice models of product differentiation. *The RAND Journal of Economics*, 25(2), 242-262.

Berry, S., Levinsohn, J., & Pakes, A. (1995). Automobile prices in market equilibrium. *Econometrica: Journal of the Econometric Society*, 63(4) 841-890.

Bertsimas, D., & De Boer, S. (2005). Special issue papers: Dynamic pricing and inventory control for multiple products. *Journal of Revenue and Pricing Management*, *3*(4), 303-319.

Blattberg, R. C., & Wisniewski, K. J. (1989). Price-Induced patterns of competition. *Marketing Science*, *8*(4), 291-309.

Bolton, L. E., Keh, H. T., & Alba, J. W. (2010). How do price fairness perceptions differ across culture? *Journal of Marketing Research*, *47*(3), 564-576.

Bolton, L. E., Warlop, L., & Alba, J. W. (2003). Consumer perceptions of price (un)fairness. *Journal of Consumer Research*, *29*(4), 474-491.

Borenstein, S., & Shepard, A. (1993). Dynamic pricing in retail gasoline markets (No. w4489). *National Bureau of Economic Research*, 27(3), 429-451.

Boyd, E. A., & Bilegan, I. C. (2003). Revenue management and e-commerce. *Management science*, *49*(10), 1363-1386.

Brynjolfsson, E., & Smith, M. D. (2000). Frictionless commerce? A comparison of Internet and conventional retailers. *Management Science*, *46*(4), 563-585.

Dictionary, C. (2021). Morality. Online: http://www. oxforddictionaries. com/us/definition/american_english/morality. Paris, Jenell Williams, and Rory Anderson."Faith-based Queer Space in.

Calabretta, G., Durisin, B., & Ogliengo, M. (2011). Uncovering the intellectual structure of research in business ethics: A journey through the history, the classics, and the pillars of Journal of Business Ethics. *Journal of Business Ethics*, *104*(4), 499-524.

Campbell, M. C. (1999). Perceptions of price unfairness: Antecedents and consequences. *Journal of Marketing Research*, *36*(2), 187-199.

Cao, P., Zhao, N., & Wu, J. (2019). Dynamic pricing with Bayesian demand learning and reference price effect. *European Journal of Operational Research*, *279*(2), 540-556.

Carroll, W. J., & Grimes, R. C. (1995). Evolutionary change in product management: Experiences in the car rental industry. *Interfaces*, *25*(5), 84-104.

Carvalho, M. M., Fleury, A., Lopes, A. P., (2013). An over view of the literature on technology roadmapping (TRM): Contributions and trends. *Technol. Forecast. Soc. Chang., 80*, 1418–1437.

Chandra, Y., & Walker, R. M. (2019). How does a seminal article in public administration diffuse and influence the field? Bibliometric methods and the case of Hood's "A Public Management for All Seasons?" *International Public Management Journal*, 22(5), 712-742.

Chen, M., & Chen, Z. L. (2018). Robust dynamic pricing with two substitutable products. *Manufacturing & Service Operations Management*, *20*(2), 249-268.

Chen, X., Simchi-Levi, D., & Wang, Y. (2020). *Privacy-preserving dynamic personalized pricing with demand learning*. ArXiv, abs/2009.12920.

Chen, Y., & Farias, V. F. (2018). Robust dynamic pricing with strategic customers. *Mathematics of Operations Research*, *43*(4), 1119-1142.

Chen, Y., & Iyer, G. (2002). Research note consumer addressability and customized pricing. *Marketing Science*, *21*(2), 197-208.

Chen, Y., & Wang, F. (2009, December). A dynamic pricing model for e-commerce based on data mining. In 2009 Second International Symposium on Computational Intelligence and Design (Vol. 1, pp. 363-366). IEEE. Changsha, China.

Chen, Z., & Ross, T. W. (1993). Refusals to deal, price discrimination, and independent service organizations. *Journal of Economics & Management Strategy*, *2*(4), 593-614.

Chenavaz, R. (2012). Dynamic pricing, product and process innovation. *European Journal of Operational Research*, *222*(3), 553-557.

Choi, S. C. (1991). Price competition in a channel structure with a common retailer. *Marketing Science*, *10*(4), 271-296.

Choi, S. C., & DeSarbo, W. S. (1994). A conjoint-based product designing procedure incorporating price competition. *Journal of Product Innovation Management*, *11*(5), 451-459.

Chung, J. Y. (2017). Price fairness and PWYW (pay what you want): A behavioral economics perspective. *Journal of Revenue and Pricing Management*, *16*(1), 40-55.

Cong, P., Li, L., Zhou, J., Cao, K., Wei, T., Chen, M., & Hu, S. (2018). Developing user perceived value based pricing models for cloud markets. *IEEE Transactions on Parallel and Distributed Systems*, *29*(12), 2742-2756.

Corts, K. S. (1997). On the competitive effects of price-matching policies. *International Journal of Industrial Organization*, 15(3), 283-299.

Cosguner, K., Chan, T. Y., & Seetharaman, P. B. (2017). Behavioral price discrimination in the presence of switching costs. *Marketing Science*, *36*(3), 426-435.

Coughlan, A. T. (1985). Competition and cooperation in marketing channel choice: Theory and application. *Marketing Science*, *4*(2), 110-129.

Cropanzano, R., Paddock, L., Rupp, D. E., Bagger, J., & Baldwin, A. (2008). How regulatory focus impacts the process-by-outcome interaction for perceived fairness and emotions. *Organizational Behavior and Human Decision Processes*, *105*(1), 36-51.

Daspremont, C., Gabszewicz, J. J., & Thisse, J. F. (1979). On Hotelling's" Stability in competition." *Econometrica*: *Journal of the Econometric Society*, 1145-1150.

Dekhili, S., & Achabou, M. A. (2013). Price fairness in the case of green products: Enterprises' policies and consumers' perceptions. *Business Strategy and the Environment*, *22*(8), 547-560.

Deksnyte, I., & Lydeka, Z. (2012). Dynamic pricing and its forming factors. *International Journal of Business and Social Science*, *3*(23).

Desai, P. S. (2001). Quality segmentation in spatial markets: When does cannibalization affect product line design? *Marketing Science*, *20*(3), 265-283.

Desiraju, R., & Shugan, S. M. (1999). Strategic service pricing and yield management. *Journal of marketing*, *63*(1), 44-56.

Dhar, S. K., & Hoch, S. J. (1996). Price discrimination using in-Store merchandising. *Journal of Marketing*, *60*(1), 17-30.

DiMicco, J. M., Maes, P., & Greenwald, A. (2003). Learning curve: A Simulation-Based approach to dynamic pricing. *Electronic Commerce Research*, *3*(3), 245-276.

Do Chung, B., Li, J., Yao, T., Kwon, C., & Friesz, T. L. (2011). Demand learning and dynamic pricing under competition in a state-space framework. *IEEE Transactions on Engineering Management*, *59*(2), 240-249.

Dodds, W. B., Monroe, K. B., & Grewal, D. (1991). Effects of price, brand, and store information on buyers' product evaluations. *Journal of Marketing Research*, *28*(3), 307-319.

Dutta, G., & Mitra, K. (2017). A literature review on dynamic pricing of electricity. *Journal of the Operational Research Society*, *68*(10), 1131-1145.

El Haddad, R., Hallak, R., & Assaker, G. (2015). Price fairness perceptions and hotel customers' behavioral intentions. *Journal of Vacation Marketing*, *21*(3), 262-276.

Elmaghraby, W., & Keskinocak, P. (2003). Dynamic pricing in the presence of inventory considerations: Research overview, current practices, and future directions. *Management Science*, *49*(10), 1287-1309.

ESI (2015). Web of science core collection help essential science indicators highly cited papers. http://images.

Esteves, R. B., & Cerqueira, S. (2017). Behavior-Based pricing under imperfectly informed consumers. *Information Economics and Policy*, *40*, 60-70.

Etebari, F. (2019). A simultaneous facility location, vehicle routing and dynamic pricing in a distribution network. *Applied Soft Computing*, *83*, 105647.

Eto, M. (2019). Extended co-citation search: Graph-based document retrieval on a co-citation network containing citation context information. *Information Processing & Management*, *56*(6), 102046.

Fang, Y., Wang, X., Wang, W., & Fan, P. (2019). Dynamic pricing and markdown timing policies for fashion goods with strategic behaviour of consumers. *Current Science*, *116*(10), 1648-1652.

Faruqui, A., Sergici, S., & Akaba, L. (2013). Dynamic pricing of electricity for residential customers: The evidence from Michigan. *Energy Efficiency*, *6*(3), 571-584.

Faruqui, A., Sergici, S., & Akaba, L. (2014). The impact of dynamic pricing on residential and small commercial and industrial usage: New experimental evidence from Connecticut. *The Energy Journal*, *35*(1), 1-35.

Feng, Y., & Gallego, G. (2000). Perishable asset revenue management with Markovian time dependent demand intensities. *Management Science*, *46*(7), 941-956.

Ferguson, J. L., & Ellen, P. S. (2013). Transparency in pricing and its effect on perceived price fairness. *Journal of Product & Brand Management,* 20(5), 404-412.

Gallego, G., & Van Ryzin, G. (1994). Optimal dynamic pricing of inventories with stochastic demand over finite horizons. *Management science*, *40*(8), 999-1020.

Gallego, G., & Van Ryzin, G. (1997). A multiproduct dynamic pricing problem and its applications to network yield management. *Operations Research*, *45*(1), 24-41.

Garbarino, E., & Lee, O. F. (2003). Dynamic pricing in internet retail: Effects on consumer trust. *Psychology & Marketing*, *20*(6), 495-513.

Garcia, A., Campos-Nañez, E., & Reitzes, J. (2005). Dynamic pricing and learning in electricity markets. *Operations Research*, *53*(2), 231-241.

Ghasemi, M., Matta, I., & Esposito, F. (2019). The effect of (non-) competing brokers on the quality and price of differentiated internet services. *Computer Networks*, *160*, 144-164.

Gielissen, R., Dutilh, C. E., & Graafland, J. J. (2008). Perceptions of price fairness: An empirical research. *Business & Society*, *47*(3), 370-389.

Grewal, D., Hardesty, D. M., & Iyer, G. R. (2004). The effects of buyer identification and purchase timing on consumers' perceptions of trust, price fairness, and repurchase intentions. *Journal of Interactive Marketing*, *18*(4), 87-100.

Grewal, D., Monroe, K. B., & Krishnan, R. (1998). The effects of price-comparison advertising on buyers' perceptions of acquisition value, transaction value, and behavioral intentions. *Journal of Marketing*, *62*(2), 46-59.

Grossman, G. M., & Shapiro, C. (1984). Informative advertising with differentiated products. *The Review of Economic Studies*, *51*(1), 63-81.

Habel, J., Schons, L. M., Alavi, S., & Wieseke, J. (2016). Warm glow or extra charge? The ambivalent effect of corporate social responsibility activities on customers' perceived price fairness. *Journal of Marketing*, *80*(1), 84-105.

Hall, J. M., Kopalle, P. K., & Krishna, A. (2010). Retailer dynamic pricing and ordering decisions: Category management versus brand-by-brand approaches. *Journal of Retailing*, *86*(2), 172-183.

Harzing, A.-W., & Alakangas, S. (2016). Google Scholar, Scopus and the Web of Science: A longitudinal and cross-disciplinary comparison. *Scientometrics, 106*, 787–804.

Haws, K. L., & Bearden, W. O. (2006). Dynamic pricing and consumer fairness perceptions. *Journal of Consumer Research*, *33*(3), 304-311.

Hayes, D. K., & Miller, A. A. (2011). *Revenue management for the hospitality industry*. Wiley.

Homburg, C., Hoyer, W. D., & Koschate, N. (2005). Customers' reactions to price increases: do customer satisfaction and perceived motive fairness matter? *Journal of the Academy of Marketing Science*, 33(1), 36-49.

Herrmann, A., Xia, L., Monroe, K. B., & Huber, F. (2007). The influence of price fairness on customer satisfaction: An empirical test in the context of automobile purchases. *Journal of Product & Brand Management,* 16(1),49-58.

Hota, P. K., Subramanian, B., & Narayanamurthy, G. (2020). Mapping the intellectual structure of social entrepreneurship research: A citation/co-citation analysis. *Journal of Business Ethics*, *166*(1), 89-114.

Hu, X., Wan, Z., & Murthy, N. N. (2019). Dynamic pricing of limited inventories with product returns. *Manufacturing & Service Operations Management*, *21*(3), 501-518.

Hu, Z., Kim, J. H., Wang, J., & Byrne, J. (2015). Review of dynamic pricing programs in the US and Europe: Status quo and policy recommendations. *Renewable and Sustainable Energy Reviews*, *42*, 743-751.

Hult, G. T. M., Mena, J. A., Gonzalez-Perez, M. A., Lagerström, K., & Hult, D. T. (2018). A ten country-company study of sustainability and product-market performance: Influences of doing good, warm glow, and price fairness. *Journal of Macromarketing*, *38*(3), 242-261.

Huppertz, J. W., Arenson, S. J., & Evans, R. H. (1978). An application of equity theory to Buyer-Seller exchange situations. *Journal of Marketing Research*, *15*(2), 250-260.

Isabella, G., Mazzon, J. A., & Dimoka, A. (2017). Impacts of product type and representation type on the perception of justice and price fairness. *Journal of Business Research*, *81*, 203-211.

Jayaraman, V., & Baker, T. (2003). The Internet as an enabler for dynamic pricing of goods. *IEEE Transactions on Engineering Management*, *50*(4), 470-477.

Jeuland, A. P., & Shugan, S. M. (1983). Managing channel profits. *Marketing Science*, *2*(3), 239-272.

Jia, K., Liao, X., & Feng, J. (2018). Selling or leasing? Dynamic pricing of software with upgrades. *European Journal of Operational Research*, *266*(3), 1044-1061.

Jing, B. (2011). Social learning and dynamic pricing of durable goods. *Marketing Science*, *30*(5), 851-865.

Jing, B. (2017). Behavior-Based pricing, production efficiency, and quality differentiation. *Management Science*, *63*(7), 2365-2376.

Jung, S., Cho, H. J., & Jin, B. E. (2020). Does effective cost transparency increase price fairness? An analysis of apparel brand strategies. *Journal of Brand Management*, *27*(5), 495-507.

Kamakura, W. A., & Russell, G. J. (1989). A probabilistic choice model for market segmentation and elasticity structure. *Journal of marketing research*, *26*(4), 379-390.

Kauffman, R. J., & Wang, B. (2001). New buyers' arrival under dynamic pricing market microstructure: The case of Group-Buying discounts on the Internet. *Journal of Management Information Systems*, *18*(2), 157-188.

Kaura, V., Prasad, C. S. D., & Sharma, S. (2015). Service quality, service convenience, price and fairness, customer loyalty, and the mediating role of customer satisfaction. *International Journal of Bank Marketing,* 33(4), 404-422.

Ke, J., Zhang, D., & Zheng, H. (2019). An approximate dynamic programming approach to dynamic pricing for network revenue management. *Production and Operations Management*, *28*(11), 2719-2737.

Khattak, H. A., Tehreem, K., Almogren, A., Ameer, Z., Din, I. U., & Adnan, M. (2020). Dynamic pricing in industrial internet of things: Blockchain application for energy management in smart cities. *Journal of Information Security and Applications*, *55*, 102615.

Klemperer, P. (1987). Markets with consumer switching costs. *The Quarterly Journal of Economics*, *102*(2), 375-394.

Koch, S., & Klein, R. (2020). Route-based approximate dynamic programming for dynamic pricing in attended home delivery. *European Journal of Operational Research*, *287*(2), 633-652.

Konuk, F. A. (2018). Price fairness, satisfaction, and trust as antecedents of purchase intentions towards organic food. *Journal of Consumer Behaviour*, *17*(2), 141-148.

Konuk, F. A. (2019). The influence of perceived food quality, price fairness, perceived value and satisfaction on customers' revisit and word-of-mouth intentions towards organic food restaurants. *Journal of Retailing and Consumer Services*, *50*, 103-110.

Kukar-Kinney, M., Xia, L., & Monroe, K. B. (2007). Consumers' perceptions of the fairness of price-matching refund policies. *Journal of Retailing*, *83*(3), 325-337.

Kwak, H., Puzakova, M. and Rocereto, J. F., (2015). Better not smile at the price: The differential role of brand anthropomorphization on perceived price fairness. *Journal of Marketing*, *79*(4), 56-76.

Ladany, S. P., & Arbel, A. (1991). Optimal cruise-liner passenger cabin pricing policy. *European Journal of Operational Research*, *55*(2), 136-147.

Lal, R., & Sarvary, M. (1999). When and how is the Internet likely to decrease price competition? *Marketing Science*, *18*(4), 485-503.

Lastner, M. M., Fennell, P., Folse, J. A., Rice, D. H., & Porter III, M. (2019). I guess that is fair: How the efforts of other customer's influence buyer price fairness perceptions. *Psychology & Marketing*, *36*(7), 700-715.

Lee, F., & Monroe, K. B. (2008). Dynamic pricing on the internet: A price framing approach. In NA - *Advances in Consumer Research*, Volume 35, eds. Angela Y. Lee and Dilip Soman, Duluth, MN: Association for Consumer Research, Pages: 637-638.

Lee, S., Illia, A., & Lawson-Body, A. (2011). Perceived price fairness of dynamic pricing. *Industrial Management & Data Systems,* 111(4),531-550.

Levin, Y., McGill, J., & Nediak, M. (2009). Dynamic pricing in the presence of strategic consumers and oligopolistic competition. *Management Science*, *55*(1), 32-46.

Li, H. (2019). Intertemporal price discrimination with complementary products: E-books and E-Readers. *Management Science,* 65(6), 2665-2694.

Li, K. J., & Jain, S. (2016). Behavior-based pricing: An analysis of the impact of peer-induced fairness. *Management Science*, *62*(9), 2705-2721.

Li, S., Zhang, J., & Tang, W. (2015). Joint dynamic pricing and inventory control policy for a stochastic inventory system with perishable products. *International Journal of Production Research*, *53*(10), 2937-2950.

Li, W., Hardesty, D. M., & Craig, A. W. (2018). The impact of dynamic bundling on price fairness perceptions. *Journal of Retailing and Consumer Services*, *40*, 204-212.

Li, Y., Xing, X., & Li, C. (2015). Dynamic pricing model of medical services in public hospitals in China. *Current Science*, 109(8),1437-1444.

Lieberman, W. (2016). The evolution of market segmentation in revenue management and dynamic pricing. *Journal of Revenue and Pricing Management*, *15*(3), 283-292.

Littlewood, K. (1972). Forecasting and control of passenger bookings. Airline Group International Federation of Operational Research Societies Proceedings ; Peng-Sheng; Japan; *Journal of the Operations Research Society of Japan* (vol. 12, pp. 95-117).

Liu, J., Pang, Z., & Qi, L. (2020). Dynamic pricing and inventory management with demand learning: A bayesian approach. *Computers & Operations Research*, *124*, 105078.

Liu, X., Sun, R., Wang, S., & Wu, Y. J. (2019). The research landscape of big data: A bibliometric analysis. *Library Hi Tech*, *38*(2), 367-384.

Llanos-Herrera, G. R., & Merigo, J. M. (2019). Overview of brand personality research with bibliometric indicators. *Kybernetes*, *48*(3), 546-569.

Lu, S., Oberst, S., Zhang, G., & Luo, Z. (2019). Bifurcation analysis of dynamic pricing processes with nonlinear external reference effects. *Communications in Nonlinear Science and Numerical Simulation*, *79*, 104929.

Luo, Z., Chen, X., & Kai, M. (2018). The effect of customer value and power structure on retail supply chain product choice and pricing decisions. *Omega*, *77*, 115-126.

Lynch Jr., J. G., & Ariely, D. (2000). Wine online: Search costs affect competition on price, quality, and distribution. *Marketing Science*, *19*(1), 83-103.

Maglaras, C. (2006). Revenue management for a multiclass single-server queue via a fluid model analysis. *Operations Research*, *54*(5), 914-932.

Malc, D., Mumel, D., & Pisnik, A. (2016). Exploring price fairness perceptions and their influence on consumer behavior. *Journal of Business Research*, *69*(9), 3693-3697.

Maxwell, S. (2002). Rule-based price fairness and its effect on willingness to purchase. *Journal of economic psychology*, *23*(2), 191-212.

Matute-Vallejo, J., Bravo, R., & Pina, J. M. (2011). The influence of corporate social responsibility and price fairness on customer behaviour: Evidence from the financial sector. *Corporate Social Responsibility and Environmental Management*, *18*(6), 317-331.

McGuire, T. W., & Staelin, R. (1983). An industry equilibrium analysis of downstream vertical integration. *Marketing Science*, *2*(2), 161-191.

Mitra, S. K. (2020). An analysis of asymmetry in dynamic pricing of hospitality industry. *International Journal of Hospitality Management*, *89*, 102406.

Moorthy, K. S. (1984). Market segmentation, self-selection, and product line design. *Marketing Science*, *3*(4), 288-307.

Moorthy, K. S. (1988). Product and price competition in a duopoly. *Marketing Science*, *7*(2), 141-168.

Mora, L., Deakin, M., & Reid, A. (2019). Combining co-citation clustering and text-based analysis to reveal the main development paths of smart cities. *Technological Forecasting and Social Change*, *142*, 56-69.

Mussa, M., & Rosen, S. (1978). Monopoly and product quality. *Journal of Economic Theory*, *18*(2), 301-317.

Nair, S. K., & Bapna, R. (2001). An application of yield management for internet service providers. *Naval Research Logistics (NRL)*, *48*(5), 348-362.

Narasimhan, C. (1984). A price discrimination theory of coupons. *Marketing Science*, *3*(2), 128-147.

Neijmeijer, N., Schulte, F., Tierney, K., Polinder, H., & Negenborn, R. R. (2020, September). Dynamic pricing for user-based rebalancing in free-floating vehicle sharing: A real-world case. *International Conference on Computational Logistics,* Enschede, The Netherlands, Springer, Cham (pp. 443-456).

Negenborn, R. R. (2020). Dynamic Pricing for User-Based Rebalancing in Free-Floating Vehicle Sharing: A Real-World Case. In *Computational Logistics: 11th International Conference, ICCL 2020, , September 28-30, 2020, Proceedings* (Vol. 12433, p. 443). Springer Nature.

Nguyen, L. T., Conduit, J., Lu, V. N., & Rao Hill, S. (2016). Engagement in online communities: Implications for consumer price perceptions. *Journal of Strategic Marketing*, *24*(3-4), 241-260.

Oztaysi, B., Onar, S. C., & Kahraman, C. (2020). A dynamic pricing model for location based systems by using spherical fuzzy AHP scoring. *Journal of Intelligent & Fuzzy Systems*, *39*(5), 6293-6302

Papanastasiou, Y., & Savva, N. (2017). Dynamic pricing in the presence of social learning and strategic consumers. *Management Science*, *63*(4), 919-939.

PK Kannan, P. K. K. (2001). Dynamic pricing on the Internet: Importance and implications for consumer behavior. *International Journal of Electronic Commerce*, *5*(3), 63-83.

Priester, A., Robbert, T., & Roth, S. (2020). A special price just for you: Effects of personalized dynamic pricing on consumer fairness perceptions. *Journal of Revenue and Pricing Management*, 19(1), 1-14.

Radzi, S. M., Zahari, M. S. M., Muhammad, R., Aziz, A. A., & Ahmad, N. A. (2011). The effect of factors influencing the perception of price fairness towards customer response behaviors. *Journal of Global Management*, *2*(1), 22-38.

Raju, J. S., Srinivasan, V., & Lal, R. (1990). The effects of brand loyalty on competitive price promotional strategies. *Management Science*, *36*(3), 276-304.

Rao, R. S., & Schaefer, R. (2013). Conspicuous consumption and dynamic pricing. *Marketing Science*, *32*(5), 786-804.

Razeghian, M., & Weber, T. A. (2019). The advent of the sharing culture and its effect on product pricing. *Electronic Commerce Research and Applications, 33*, 100801.

Richards, T. J., Liaukonyte, J., & Streletskaya, N. A. (2016). Personalized pricing and price fairness. *International Journal of Industrial Organization*, *44*, 138-153.

Riseth, A. N. (2019). Dynamic pricing in retail with diffusion process demand. *IMA Journal of Management Mathematics*, *30*(3), 323-344.

Rothenberger, S. (2015). Fairness through transparency: The influence of price transparency on consumer perceptions of price fairness. *Work. Pap. CEB*, *15*, 1-37.

Rothstein, M. (1971). An airline overbooking model. *Transportation Science*, *5*(2), 180-192.

Saharan, S., Bawa, S., & Kumar, N. (2020). Dynamic pricing techniques for intelligent transportation system in smart cities: A systematic review. *Computer Communications*, *150*, 603-625.

Sahay, A. (2007). How to reap higher profits with dynamic pricing. *MIT Sloan Management Review*, *48*(4), 53-60.

Santos, F. A. D. N., Mayer, V. F., & Marques, O. R. B. (2019). Dynamic pricing and price fairness perceptions: A study of the use of the Uber app in travels. *Turismo: Visão e Ação*, *21*(3), 239-264.

Schrage, R., Pohst, M. C., Grunwald, A., & Kenning, P. (2020). The role of trust for dynamic pricing in retail-An empirical analysis considering the moderating effect of perceived price fairness. *Betriebswirtschaftliche forscung und praxis, 72*(3), 269-281.

Selove, M. (2019). Dynamic pricing with fairness concerns and a capacity constraint. *Quantitative Marketing and Economics*, *17*(4), 385-413.

Şen, A. (2013). A comparison of fixed and dynamic pricing policies in revenue management. *Omega*, *41*(3), 586-597.

Shaffer, G., & Zhang, Z. J. (2002). Competitive one-to-one promotions. *Management Science*, *48*(9), 1143-1160.

Shah, S. H. H., Lei, S., Ali, M., Doronin, D., & Hussain, S. T. (2019). Prosumption: Bibliometric analysis using HistCite and VOSviewer. *Kybernetes*. 49(3), 1020-1045.

Shaked, A., & Sutton, J. (1982). Relaxing price competition through product differentiation. *The Review of Economic Studies*, 49(1), 3-13.

Shen, Z. J. M., & Su, X. (2007). Customer behavior modeling in revenue management and auctions: A review and new research opportunities. *Production and Operations Management*, *16*(6), 713-728.

Škare, V., & Gospić, D. (2015). Dynamic pricing and customers' perceptions of price fairness in the airline industry. *Tourism: An International Interdisciplinary Journal*, *63*(4), 515-528.

Srinivasan, D., Rajgarhia, S., Radhakrishnan, B. M., Sharma, A., & Khincha, H. P. (2017). Game-theory based dynamic pricing strategies for demand side management in smart grids. *Energy*, *126*, 132-143.

Stamatopoulos, I., Chehrazi, N., & Bassamboo, A. (2019). Welfare implications of inventory-driven dynamic pricing. *Management Science*, *65*(12), 5741-5765.

Tang, R., Wang, S., & Li, H. (2019). Game theory based interactive demand side management responding to dynamic pricing in price-based demand response of smart grids. *Applied Energy*, *250*, 118-130.

Tarrahi, F., Eisend, M., & Dost, F. (2016). A meta-analysis of price change fairness perceptions. *International Journal of Research in Marketing*, *33*(1), 199-203.

Thisse, J. F., & Vives, X. (1988). On the strategic choice of spatial price policy. *The American Economic Review*, 78(1), 122-137.

Tian, L., & Xu, Y. F. (2015). Dynamic channel selection and pricing based on customer behavior. *J. Manag. Sci. China*, *18*, 39-51.

Töytäri, P., Rajala, R., & Alejandro, T. B. (2015). Organizational and institutional barriers to value-based pricing in industrial relationships. *Industrial Marketing Management*, *47*, 53-64.

Tsai, W. H., & Hung, S. J. (2009). Dynamic pricing and revenue management process in Internet retailing under uncertainty: An integrated real options approach. *Omega*, *37*(2), 471-481.

Ulmer, M. W. (2020). Dynamic pricing and routing for same-day delivery. *Transportation Science*, *54*(4), 1016-1033.

Vaidyanathan, R., & Aggarwal, P. (2003). Who is the fairest of them all? An attributional approach to price fairness perceptions. *Journal of Business Research*, *56*(6), 453-463.

Varian, H. R. (1980). A model of sales. *The American Economic Review*, *70*(4), 651-659.

Victor, V., Joy Thoppan, J., Jeyakumar Nathan, R., & Farkas Maria, F. (2018). Factors influencing consumer behavior and prospective purchase decisions in a dynamic pricing environment—An exploratory factor analysis approach. *Social Sciences*, *7*(9), 153-167.

Viglia, G., Mauri, A., & Carricano, M. (2016). The exploration of hotel reference prices under dynamic pricing scenarios and different forms of competition. *International Journal of Hospitality Management*, *52*, 46-55.

Villas-Boas, J. M. (1999). Dynamic competition with customer recognition. *The RAND Journal of Economics*, 30(4), 604-631.

Villas-Boas, J. M. (2004). Price cycles in markets with customer recognition. The *RAND Journal of Economics*, 35(3),486-501.

Vives, A., & Jacob, M. (2020). Dynamic pricing for online hotel demand: The case of resort hotels in Majorca. *Journal of Vacation Marketing*, *26*(2), 268-283.

Weisstein, F. L., Monroe, K. B., & Kukar-Kinney, M. (2013). Effects of price framing on consumers' perceptions of online dynamic pricing practices. *Journal of the Academy of Marketing Science*, *41*(5), 501-514.

Winer, R. S. (1986). A reference price model of brand choice for frequently purchased products. *Journal of Consumer Research*, 13(2), 250-256.

Wittman, M. D., & Belobaba, P. P. (2019). Dynamic pricing mechanisms for the airline industry: A definitional framework. *Journal of Revenue and Pricing Management*, *18*(2), 100-106.

Xia, L., Monroe, K. B., & Cox, J. L. (2004). The price is unfair! A conceptual framework of price fairness perceptions. *Journal of Marketing*, *68*(4), 1-15.

Xiong, F., Xu, S., & Zheng, D. (2020). An investigation of the Uber driver reward system in china–An application of a dynamic pricing model. *Technology Analysis & Strategic Management*, 33(1),1-14.

Yas, H., Jusoh, A., Abbas, A. F., Mardani, A., & Nor, K. M. (2020). A review and bibliometric analysis of service quality and customer satisfaction by using Scopus database. *International Journal of Management* (IJM), *11*(8), 459-470.

Zanjirchi, S. M., Abrishami, M. R., & Jalilian, N. (2019). Four decades of fuzzy sets theory in operations management: Application of life-cycle, bibliometrics and content analysis. *Scientometrics*, *119*(3), 1289-1309.

Zhang, M., Chen, J., Yang, L., & Zhang, J. (2019). Dynamic pricing for privacy-preserving mobile crowdsensing: A reinforcement learning approach. *IEEE Network*, *33*(2), 160-165.

Zhao, H., & Jagpal, S. (2009). Upgrade pricing, market growth, and social welfare. *Journal of Business Research, 62*(7), 713-718.