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Entertainment Pricing Decisions

"Managing price is an art, not a science…"
—Ulin *(2014, p. 252)*

At the end of the day, consumers spend money only when the value that they expect to receive from a purchase (product or service) exceeds the value of the resources (money and time) that they have to give up in the transaction (Nagle et al. 2011). Judging by that basic axiom, the huge amount of money that is actually spent by consumers for entertainment products suggests that, on the whole, prices for movies, books, songs, and video games are appealing to customers. Happiness does appear to cost "so little," as the cinema marquee slogan of a neighborhood theater near New Orleans in Walker Percy's novel The Moviegoer told its prospect visitors back in the 1950s.

But let's be careful—maybe there is much more to be gained by lower prices, or higher prices, or even by a combination of both. How can an entertainment manager find out? We find Jeffrey Ulin's quote to be an intriguing start to a chapter in a book entitled *Entertainment Science*—Ulin's argument is based on the huge number of highly complex factors that influence the success of *any* pricing strategy for *any* entertainment product, and it is one that has motivated managers to rely on industry norms and rules-of-thumb (the "artistic" route), rather than attempting to determine the ideal price for a new entertainment product using scientific methods. As a result, pricing has been the least explored part of the entertainment marketing mix for quite a while.

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Whereas we agree that pricing entertainment is indeed a challenge for which no easy algorithmic solution exists, we believe that exploring the knowledge that scholars have compiled regarding pricing is worth the effort. Accordingly, we will explore in this chapter what managers can gain from applying a scientific approach to entertainment pricing. Our starting point are two fundamental questions that entertainment managers face at a strategic level when setting prices:

- Should I stick with the "standard" market price for every movie, book, song, or game I sell—or should I deviate from that price?
- For a single, specific movie, book, song, or game, should I always sell it for the same price—or should I differ its price across audiences or situations?

Because of strong industry norms that carry great inertia, perhaps these questions seem almost irrelevant. But we argue that they do not get the consideration they deserve. Pricing norms for entertainment exist because of the all-too-real challenges of predicting the market reaction to any individual product, i.e., "Nobody Knows Anything." Economists argue that if pricing and product success are "more or less, a total guess," then simply following market norms is not only easy, but may also be rational (McKenzie 2008, p. 173). Whereas some of the norms for pricing entertainment are imposed by external regulations (e.g., the cultural character of books has led to price regulations in several countries such as Germany), most of them result from the industry's acceptance of the Goldman mantra.

Because these norms are so powerful, with market prices often being quite standardized for entertainment products, we had at one time considered *not* including a chapter on pricing in this book. However, because one of our primary goals with *Entertainment Science* is to challenge the Goldman mantra, we decided to tackle pricing anyway—*because* of that industry practice. Theoretical considerations, but also initial empirical findings on the matter, make us believe it is time to take a fresh look at the pricing of entertainment products.

In this chapter, we begin with a review of fundamental pricing theories to articulate how pricing, in an "ideal" entertainment world for which theoretical assumptions hold, should be carried out. Differentiated products offer differential value to customers and those customers should, in turn, be willing to pay different prices across products. For all kinds of consumer products outside of entertainment, consumers' willingness to pay for a specific product differs at least somewhat according to the product's overall appeal. And we are under the distinct impression that some songs/novels/films/

games have more appeal than others and create more value for the listener/reader/watcher/player.

However, in entertainment, variations in prices for individual products have rarely been related to these demand factors. Instead, prices tend to vary by broad categories (new releases versus catalog titles) or by product format (hardcover versus paperback versus Kindle). After a primer on pricing theory, we will explore the pros and cons of differential pricing in its various potential forms, acknowledging insights from innovative empirical studies and settings. These discussions will provide an answer to our first question. We will then turn to our second question, exploring the potential for varying prices for one specific product (or versions of the same) between audience segments and situations. Here, the theoretical concept of price discrimination will guide our analysis of entertainment pricing strategies.

A Primer on Pricing Theory: Customer Value as the True Foundation of Pricing

Let's start with a look at what pricing theory has to say about our first fundamental pricing question, i.e., whether your new entertainment product should simply be priced at the market norm. Many MBA-level treatises on pricing have a central focus on the concept of price *elasticity*—the notion that for most products, a change in price will cause a change in the quantity of the product demanded by a market. They then quickly delve into the derivation of elasticities and discussions of the role of downward sloping demand curves in choosing optimal prices. These topics are certainly critically important to firms and are foundational to making wise pricing decisions.

However, we argue that it is easy to lose sight of what is going on *behind* the elasticity and the demand curve. As Thomas Nagle and his colleagues put it, "[p]rofitable pricing requires looking beneath the demand curve to understand and manage the monetary and psychological value" created by products and that affect the customer's decision of whether to buy an offering at a certain price (Nagle et al. 2011, p. xiii). Scientific labels, like marginal utility and price elasticity, are actually descriptions of very real consumer appraisals, judgments, and behaviors that occur when humans attempt to address their needs through market exchanges and by allocating their limited resources. We, as consumers, turn to the market to purchase

products or services that help us preserve our teeth, shelter our bodies, transport us to different locations, or—to entertain us. Because most of us have limited resources to meet all acquisition needs and desires, we make allocation decisions by judging the "value" that a product would provide us with. This value, when converted (consciously or subconsciously) to currency amounts, represents the maximum price (sometimes called the "reservation price") that the customer would be willing to pay for a product.

Because customers differ quite strongly in their needs, priorities, and resource levels, their willingness to pay for a product will also differ across individuals. If the price of the product is higher than the customer's estimation of the value that would be created, the consumer will seek out alternatives that provide the desired benefit at an acceptable price, or do without a solution from the market. As a producer lowers the price of a product or service, this "asking price" will likely fall within the acceptable range of willingness to pay for a larger number of consumers; as the price rises, it will exceed the value created for (and become unacceptable to) more and more consumers. This is why demand curves slope downward and price elasticities generally carry a negative sign.

Panel A of Fig. 14.1 shows the standard course of such a downward-sloping demand function. Panels B and C illustrate constellations in which consumers respond less or more strongly to changes in price. In Panel B, changes in price do not translate to substantial changes of the demand for a

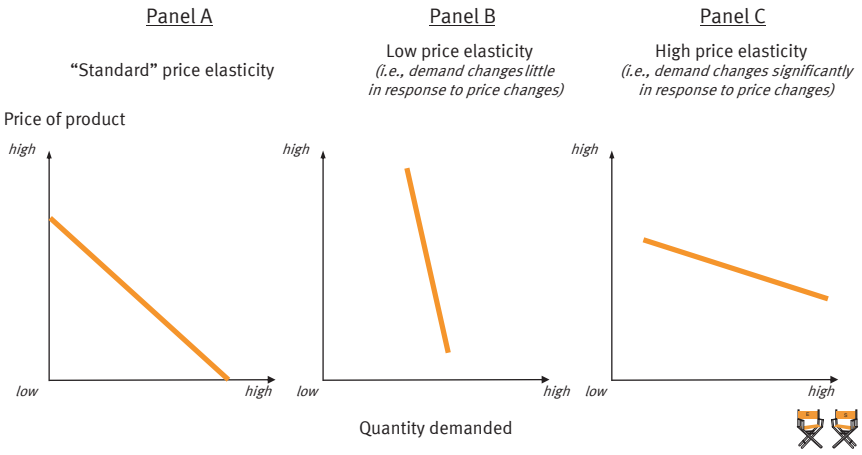

Fig. 14.1 "Standard," low, and high price elasticities
Note: Authors' own illustration.

product—the (absolute) price elasticity is "low."[422] A low price elasticity is typical for products that consumers perceive to be vital and for which substitute solutions are unavailable (their markets are often strongly regulated because of the lack of alternatives—such as electricity or health care in many countries). It is also the case for products that are only liked by a small part of the population and for which others would not pay even a very low price. This could be argued to be the case for at least some media and entertainment products—certain people would just not watch the next Michael Haneke film, regardless the price. Would you? Panel C then describes a market where the product's price elasticity is "high"—small price changes result in large changes in the overall quantity demanded. Such a high price elasticity is usual for products where many highly similar alternatives are available to which consumers can easily switch—something that is the case for most grocery products and news sources. And for standard entertainment offerings?

Demand curves and price elasticities are aggregates of many individual consumers, who often differ strongly in their psychological traits, goals, levels of risk aversion, etc. Often, the demand function is also not linear—whereas Apple's core customers are highly inelastic regarding the prices of iPhones etc. (but maybe only to a certain price point), those who are looking for a good phone other than an Apple product will demonstrate a much higher price elasticity.

The consumer's willingness to pay should be the critical metric for pricing any product if the producer's goal is to maximize revenues or profit. Traditional supply-focused pricing strategies, such as benchmarking against competitors, crafting elegant cost-plus pricing formulas, and setting prices according to firm strategy, can all be "a blueprint for mediocre financial performance" if—at the end of the day—the customer judges that your product or service fails to create the needed value *or* is priced at a level above the worth of the value created (Nagle et al. 2011, p. 2). But to cite one of Hollywood's own creations, It's Complicated to price a product according to consumers' willingness to pay, because this willingness to pay is influenced by a large number of factors in addition to the product's inherent characteristics.

Consumers' willingness to pay varies with available alternatives. First, there is specific competition, which we have discussed in the context of

[422]Please note that when we use the terms high or low price elasticities, we always refer to the *absolute* value of the elasticity, leaving out the negative sign (if we won't do so, an elasticity of minus 3 would be much *lower* than one of minus 0.5, which would be counterintuitive).

distribution decisions. The value a consumer anticipates from reading a novel, such as John Grisham's The Rooster Bar, when it is released depends on the value offered by similar novels that contend for the customer's attention at the same point in time. But, as we have shown, competition is not binary; it is continuous and, to a certain degree, generic—as consumers, we are trying to optimize the *total* benefits that we can gain from our *total* pool of resources. And so we make trade-off decisions across many product categories that address many different, more general needs (e.g., "If I read Grisham's novel over the next few days, I cannot watch the new Netflix series that has gotten such great reviews." Or: "If I save the money that I would have spent on the novel, I can afford to buy those new headphones."). All of this influences what the new novel is worth to us and how much we would be willing to spend for it. The market price may be well within the consumer's willingness-to-pay range *in general*, but he or she will not buy it nevertheless.

Costs must also be considered when setting prices based on consumers' willingness to pay. The price for a product should cover the *variable* costs of the product (i.e., those costs that vary relatively directly with the number of units sold, such as the actual materials for a physical product or the supplies to support a service) and provide a reasonable contribution toward covering the *fixed* costs that have been incurred (i.e., those costs that do not vary with the number of products and services produced). We have discussed the specific cost structures for entertainment products as informational products, and particularly those formats that are fully digital, which offer producers enormous flexibility in pricing decisions.

Finally, a firm's market-related strategy will also affect the final price chosen. For example, the goal of deeply penetrating a market would imply a relatively lower price to maximize market share, while the goal of selling first to technophiles implies a high price. Remember that the success of entertainment products often depends on network effects, which can make it reasonable to set a low price when a new product is introduced, even if it does not match the variable costs.

This discussion has presented the essence of pricing according to theory. We will now use these insights to find answers to the two basic questions of this chapter: should all products be priced in a uniform way? And should prices for one specific product be uniform across all conditions? Let's start with the first question, addressing what some consider to be the "pricing puzzle" of entertainment.

The Uniform Versus Differential Pricing Puzzle of Entertainment

> "One of the more perplexing examples of the triumph of convention over rationality is movie theatres, where it costs you as much to see a total dog that's limping its way through its last week of release as it does to see a hugely popular film on opening night."
>
> —Surowiecki *(2004, p. 99)*

Our review of pricing fundamentals points to the importance of understanding a product's value for consumers and consumers' willingness to pay. Are entertainment products priced according to such a demand-focused approach?

It's hard to think of an entertainment manager who would argue that all books are of equal quality and appeal, all games of equal fun and challenge, all songs of equal ability to move the soul (or body), or all movies of equal impact. Yet, current pricing strategies in each product category do not reflect differences in the value to customers of one book over another, one game over another, one song over another, or one movie over another. Not all prices are equal, but differential pricing occurs mainly across supply factors (a hard copy book costs more to produce than does a paperback) or format characteristics (e.g., a movie in DVD is cheaper than a movie in Blu-ray; a set of songs in digital format versus a physical CD), not demand factors.

Examining over 1,100 books that were released by Yale University Press in both hardcover and paperback, Clerides (2002) finds that "prices are rarely changed over time regardless of demand fluctuations;" he also concludes that "once we control for observable physical characteristics, such as size and binding quality, there is little price variation left." The scholar labels this situation a "puzzle: why do prices depend on cost-related demand shifters but not on 'pure' (not cost-related) demand shifters?" (p. 1386). Orbach and Einav (2007) use the same term when they consider the price of theatrical movie tickets.

In situations in which demand-side characteristics are indeed used as a basis for differential pricing of entertainment, they are applied at a broad category level versus considering quality differences between individual products. For example, new releases are priced more highly than catalog titles (in movies, games, and books; less so in music). But you still pay the same price at the theater to watch the new release of the new hyper-branded Star Wars blockbuster as you do for the original studio production of The Greatest Showman, as well as for small-budgeted arthouse films, regardless of whether the critics love them (A Fantastic Woman, for instance) or loath them (such as The Dancer). Nearly all songs are $0.99 per track on iTunes, and all

songs included in Spotify are the same price because they are included in the general subscription fee. Courty (2011) calls this "unpriced quality."

When Orbach and Einav (2007) examine the legalities and economic structure of the movie industry to explain the existence of uniform pricing, they conclude that, other than the regulatory prohibition against vertical distribution arrangements (i.e., studios cannot own theaters), there are no other external constraints. Some industry experts have told us simply that "it has to be this way, because it was always this way." Apart from this being a rather disappointing argument, it is also wrong: in the early days of the movies, differential pricing was standard practice, with ticket prices varying with regard to a film's popularity and stars, among other factors. "For three decades until the 1940s, one theater would have the rights to each movie within a certain zone, and movies received grades (A, B, or C) that corresponded with ticket prices at those theaters. If the rules of the 1920s ruled today, Mission Impossible might be $15 and Young Adult [a $12-million comedy-drama] might be $7" (Thompson 2012).

Why then was that established practice abandoned? Orbach and Einav (2007) are among those who consider the Supreme Court decision *United States v. Paramount* in 1948, which prohibited movie studios from being involved in the exhibition business, as the seminal historical event in the return to uniform pricing of movies. Afterward, there could no longer be carefully crafted vertical arrangements that made it easier for a portfolio of products of different grades to be sold by a studio to exhibitors at differing prices (McKenzie 2008). But Thompson (2012) notes that a rudimentary version of differential pricing survived until 1972, as consumers were still charged a premium price to see "event" movies by theaters. The practice was then dropped in conjunction with the release of The Godfather at the behest of the studios, as Pearlstein (2006) argues.[423]

In summary, consumer pricing in entertainment markets is fundamentally different than consumer pricing in nearly every other consumer products category in which higher (versus lower) quality products are able to command higher prices. Uniform pricing exists despite the significant potential for variable pricing for entertainment products, which are information goods with high first-copy costs, but negligible marginal costs for each additional unit sold. So, are there fundamental economic justifications for these differences? Or should uniform pricing be discarded? In the next section, we examine the pros and cons of differentiated pricing for entertainment.

[423]With tongue-in-cheek, Pearlstein calls the fact that this exertion of power happened for Francis Ford Coppola's mafia movie a "coincidence" that would have made a mobster proud.

Theoretical Arguments for Differential Pricing—and Against It

A variety of logics and arguments have been brought forward to explain and/or justify uniform pricing; these need to be contrasted with arguments for differential pricing.

The fundamental argument for uniform prices is that when "Nobody Knows Anything," there is just no basis for charging different prices for different products—because consumers' willingness to pay is unknown a priori (McKenzie 2008). This idea has received support by some scholars—De Vany (2006) argued that "You only know after a movie runs that demand is so high that a premium price could be charged" (p. 626), and Srinivasan (2009) claimed that when "stripped to the barebones, all movies are perceived as the same by customers."

We, however, have stressed our denial of the Goldman mantra from this book's first page on, and this applies also to its use as a legitimation for uniform pricing. First, it would hardly make any sense for a producer to spend hundreds of millions of dollars developing a product if he or she could achieve the same success for much less. But second, our book offers extensive empirical evidence that success predictions for entertainment are possible and informative; studies make use of the rich data that exists for entertainment products in our digital times.[424] As details about a new product's distribution are usually only made available in the days or week prior to the launch, the predictive fit of such models should be rather excellent.

Another key argument that is brought up to justify uniform pricing is that there is just not enough variation in consumers' willingness to pay, the essential requirement for differential prices being meaningful. We have to admit that because entertainment producers have practiced uniform pricing for so long, we simply do not have the (secondary) data to mathematically calculate consumer responses to differential pricing of a specific product (Orbach and Einav 2007). But economic logic shows that setting prices according to consumers' willingness to pay is preferable under most realistic market conditions (Varian 1995), and we have shown that large quality differences exist across products, along with differences in consumer preferences.[425] So we do not see any reason why willingness to pay for entertainment should not vary between products. In fact, we will show in the following section that price elasticities for entertainment, based on other variations, are far from trivial.

[424]See, for example, the section about prediction models in the innovation chapter of this book.

[425]We discuss systematic differences in consumer preferences and the reasons for them in our section on taste, and our review of entertainment markets in the business models chapter shows the heterogeneity of available products and types.

But how would consumers react to differential prices, beyond willingness to pay? Some have noted that consumers would be confused by differential pricing or perceive them to be unfair, as uniform pricing having existed for so long. Orbach and Einav (2007) explain why consumers likely would *not* see differential pricing as unfair. Remember that we, as consumers, are accustomed to paying different prices according to quality in most other product categories. Lower prices could potentially stigmatize products as being of lesser quality, triggering negative feedback effects and turning potential hits into flops merely based on their lower ticket price. But, whereas a lower price might indeed signal a lack of quality to some, others will be less influenced by the quality signal the price would send—remember that uninformed action-based cascades compete with informed cascades. In addition, producers might even benefit from such signals in the case of high-priced films. Would customers rely on prices as quality signals at all, once they have become familiar with their strategic use by producers? We have all learned that the most expensive brand is not necessarily the best one (at least not for *us*) in many other product and service categories, so why shouldn't we be able to learn that when it comes to entertainment?

Other arguments address the challenges of implementing a differential pricing scheme. If platforms would be in charge of setting prices in a way that differ between products, they might have diverging interests and follow different logics/economic models—which might be to the disadvantage of the producer. For instance, if lower prices for some movies would increase admissions, theaters might benefit from additional concessions revenues (which are high margin and are not shared with studios; Davis 2006).[426] But such higher admissions might be obtained at the cost of reducing box-office revenues and thus could hurt the producer. Also, policing costs of differential pricing models could be high. Given the structure of most multi-screen movie theaters today, people might purchase tickets for a low-price movie but, once inside the theater complex, sneak into more expensive movies (Thompson 2012).

These arguments have to be taken seriously—but they are essentially about the *implementation* of the differential pricing model rather than general arguments against differential pricing, per se. The implementation could be influenced by the producer to a large degree; producers might insist on participating in concession revenues, for example. But there might indeed be conditions under which implementing such a pricing model might not

[426]Thompson (2012) reports about a case when in 1970 "some D.C. theaters cut weekday tickets by two-thirds and saw popcorn sales double. That's a huge boost for theaters, since half of theaters' income comes from amenities like popcorn." He provides no details about the occurrence, though.

be economically reasonable—such as when strong distrust exists between producers and distributors and inflates control costs.

In essence, our weighing of arguments regarding the advantages and disadvantages of differential pricing cannot definitively demonstrate the strategy's superiority. But if channel partners can find constructive ways to address implementation challenges, pricing theory suggests that a producer (and the distributor) should gain from offering different products at different prices, at least to some degree (Courty 2011; Orbach and Einav 2007). The conditions for which economists have demonstrated analytically that uniform pricing can be optimal are quite restrictive (some consumer heterogeneity, but not too much; particular assignments of products; e.g., Courty 2011) and do not seem to apply to most entertainment products.

Some scholars have shed additional light on the issue by conducting empirical studies, using contexts which indeed practice variations of differential pricing. But before we report their insights, let us first look how elastic consumers of entertainment products have been found to respond to other kind of price variations than those for one and the same product.

Consumer Reactions to Entertainment Product Prices in General

Can we say something about the elasticity of consumers' responses to price differences in general when it comes to shopping for entertainment? Even in today's market conditions in which products are largely uniformly priced, scholars have compiled evidence that consumers tend to buy more entertainment when prices go down and less when they go up. From where do these variations come, when few systematic differences exist based on consumers' willingness to pay? In addition to timid approaches toward demand-based pricing (fresh albums cost more than catalogue ones; e.g., Mixon and Ressler 2000), some are situational (the discount tickets for Tuesday nights at the movie theater), and others are cost-based (thicker books cost more). We will take a look at findings for the different forms of entertainment.

Books. Clerides (2002) examines sales of 549 paperback books and finds a price elasticity of −3.9 when the paperback is released simultaneously with a hardcover (i.e., a 1% increase in price translates to a 4.5% decrease in demand) and an elasticity of −3.0 for paperbacks that are released sequentially after the hardcover version. Others have found less large elasticities, though still above 1 in absolute terms, indicating a highly elastic price reaction. Chevalier and Mayzlin (2006) estimate an elasticity for book

sales at Amazon.com of between −1.5 and −2.1 (and reactions of Amazon sales to price changes at Barnes and Nobles of between 1.8 and 2.7), and Bittlingmayer (1992) reports elasticities ranging from −1.5 to −3.0 for the German book market, probably associated with the government-mandated lack of price competition between retailers.

Music. With music prices being largely uniform these days, the room for studies to explore consumer reactions to price changes is even more limited than for books. Using a sample of 1,457 "best-selling songs" from 286 albums in 2009, Danaher et al. (2014) worked with a major music label and were able to systematically vary the prices of the songs, though only between $0.99 and $1.29. When they put the price change in relation to changes in sales, they found that a 1% increase in the price of a song corresponded with a 0.48% drop in sales, indicating a relatively low elasticity for music. This is also what Chen et al. (2015) report when they examine music sales on Amazon (physical and digital): price elasticity is significant, but relatively low for music. But they find differences between *types* of music: for lesser-known artists, consumer reactions to prices are stronger.[427] Such a difference is well-known by brand managers—strong brands increase loyalty and restrict switching to alternatives, allowing managers to charge higher prices for their products.

Movies—in theaters. Theater prices again show very limited variation. But some scholars have used creative methods to circumvent this limitation when estimating price elasticities. Their results show high consistency: the demand for movies shown in theaters is highly elastic. Davis (2002) cooperated with six U.S. theaters to conduct an experiment. Over a period of three weeks in 1998, the theaters "substantially reduced adult evening admission prices (from $7.75 to $5), and subsequently raised the adult admission price to $8" (p. 82). For his sample of 47 films, Davis finds price elasticities for the six theaters that range from −2.30 to −4.11, which means that a 1% increase in the admission price would result in a 2.5% to nearly 5% decline in demand. Why then were theaters able to raise the ticket price so dramatically (in the U.S., the price increased by 30% from 2007 to 2017)? Because, unlike in Davis' experiment, prices were raised by basically *all* theaters to a similar degree, which left moviegoers with the only alternative of not going at all.

de Roos and McKenzie (2011) use another way to circumvent the problem: they exploit situational price differences. Movie ticket prices are

[427]The scholars' VAR results do not allow us to report any elasticities.

reduced in Australia on Tuesdays. Based on the assumption that the demand for movies is essentially the same on Tuesdays as for regular weekdays, they apply a random coefficients discrete choice model for 314 movies released in 2007 from the Sydney area and find a highly elastic reaction of consumers to the discounting of films—they estimate the median elasticity to be higher than 2.5. And Gazley et al. (2011) use a conjoint analysis approach to determine the price reactions. Using a design that also varied other movie characteristics, such as genre, country of origin, and stars, they test how consumers react to $8 versus $15 ticket prices in a more complex design. Evidence from 225 consumers in New Zealand demonstrate that ticket price is a strong determinant of consumers' choice decisions—its impact is as strong as the participation of their "favorite actor" or "favorite director."

Movies—at home. And there is evidence that consumer demand for movies is also elastic for channels other than theaters. Gong et al. (2015) used an experimental design in which they systematically vary the digital EST prices for 299 catalog movies by a major studio at a digital movie retailer. They find that consumers are highly sensitive to price promotions in that channel. Specifically, their regression results suggest that a $1 drop in a movie's EST price corresponds with increases ranging from 35 to 47% in expected EST sales. Corresponding calculations of elasticities to price show a range from −1.9 to −3.8, or between 20 and 44%, depending upon other promotional activities (such as placement). Finally, Luan and Sudhir (2010), in their study of 526 DVDs, use an approach in which they adjust for retailers' tendency to set lower prices for movies that were hits in theaters (another strategic pricing move); they estimate a price elasticity of about −1.8.

Are there any studies about games and prices? Marchand (2016) shows that prices are positively correlated with the attractions that a game has to offer—although only across very few, very basic pricing levels (e.g., $70, $50, and $30 for console games). He argues that "usually the bestselling video games … are AAA games that offer the highest technological standard currently available, combined with high production budgets, at high retail prices" (p. 147). In his analysis, in which he uses the price of a game only as a control and does not correct for its endogenous nature, he finds a positive association between price and game sales.

We have shown that for those forms of entertainment for which sufficient variation in prices exists or scholars have found ways to overcome the lack of variation, consumer responses are quite elastic to price changes. Let us now complement this fundamental insight with what explorations of differential pricing in entertainment can show us.

What We Know About Consumer Reactions to Differential Pricing for Entertainment Products

Let us start with some anecdotal evidence for movies, Thompson (2012) reports (without offering any details, though) that when tickets in Japan were sold for a premium of 67% for Jurassic Park while those for Austin Powers were discounted by 45%, both experiences were "profitable." We can learn additional insights, however, from scholarly studies.

We have already noted Danaher et al.'s (2014) study with regard to the general price elasticity for music the authors calculated. But the scholars' insights reach well beyond those general elasticities. The systematic design of their study allowed them to see how these price *changes* affect not only each song's sales, but also the sales of albums and the other songs on them. Based on a structural model in which they examine the impact of different scenarios, the scholars recommend that the price of the highest-ranked (i.e., most popular) six songs for a typical album should be $1.29, less popular songs (ranked from 7 to 10) should be priced at $1.09, and the least popular three songs' optimal price is $0.89. The logic behind this "tiered pricing" approach is twofold:

- Danaher et al. find that demand for popular songs is relatively inelastic (increased prices do not reduce sales to the same degree), and
- the price increase for a highly popular song has a positive effect on album sales, whereas price changes of less popular songs do not trigger album sales. The positive utility gained from a lower price of a less popular song is just not enough for consumers to justify purchasing the whole album, despite its relatively higher value.

Another study that tests the success potential of heterogeneous prices is Shiller and Waldfogel (2011) who measured the willingness to pay of about 500 Wharton undergraduates for each of 50 popular songs in 2008 and 2009. They compare uniform pricing with "component pricing" (a different price for each song) and find that the latter increases producer surplus by about 3%. They find that more elaborate price discrimination schemes (bundling, etc.) provide higher payoffs—we will get back to this in a moment.

The richest study in a movie context so far is by Ho et al. (2017), who make use of a rare actual application of differential pricing by movie theaters. They draw on real pricing data from Hong Kong theaters that introduced

full-blown differential pricing as a response to the particularly strong effect that home video piracy had on visits to local theaters by the end of the 1990s. The authors obtained daily ticket sales over a three-month period in 2012 from Hong Kong's five leading theater chains and, on that basis, estimated the impact of price differences using a GMM model. Their simulation analyses show that film-specific pricing generated 37% higher admissions and a 24% higher profit for theaters compared to uniform pricing. A large part of this admission and profit increase, however, is captured by the higher prices for 3D versus 2D versions of films in a theater. Nevertheless, an increase in admissions of 24% and a profit increase of almost 8% is generated by forms of differential pricing that reach beyond 3D/2D differences.

It's still somewhat unclear to what extent these Asian findings apply to Western movie audiences, and a true experimental design would be desirable over the use of instrumental variables to get rid of a managerial bias. Recently, the Regal Cinema chain in the U.S. announced that the firm will experiment with premium pricing for blockbusters (and lower prices for flops) in several pilot markets in 2018. And AMC's German subsidiary UCI Kinowelt announced that the chain will from 2018 on employ differential pricing for all its 23 German theaters and 203 screens for at least five years in cooperation with consulting firm Smart Pricer, based on the results of a two-year field test in a limited number of venues. The press release stated that revenues were "above average" and received well by moviegoers, in line with our arguments (*Smart Pricer* 2018). It is our hope that this (and hopefully other field experiments and additional scholarly explorations) will provide scholars with data that can offer generalizable insights.

Let us keep in mind though that differential pricing is only a label for widely varying ways to set prices differently between products, and the approach's effect will vary with the accuracy with which consumer demand and willingness to pay are determined. General popularity and demand must be balanced with information about target groups' specific elasticities. Should arthouse movies be cheaper than blockbusters because demand is lower? Or is the demand tied to a unique segment of consumers who have a high willingness to pay, whereas very few others are willing to watch an Almodóvar movie, regardless the price? In the case of UCI Kinowelt, we found that price variations were quite small and tended to be upward biased, an approach that minimizes conflict with producers. Would larger differences also pay? So the real question is less whether differential pricing for entertainment works, but *how* it should be done.

Price Discrimination: Different Prices for Different Customers (and Products)

We began the chapter by posing two fundamental questions that face the entertainment product manager who is setting pricing strategies. After having discussed whether different products should be priced differently, let us now explore whether the price for *one specific* product should differ across audiences or situations. Our finding that there is substantial elasticity among price variations for entertainment even under conditions of uniform pricing, along with our earlier insight that taste and preferences differ among consumers, points to the usefulness of such price differences—a strategy known by marketers as *price discrimination*.

In its strictest sense, price discrimination refers to the practice of selling the same product to distinct consumers at different prices. But there are other forms of price discrimination in which the product (or product availability) is varied across price levels by firms. In the U.S., the Robinson-Patman Act from 1936 emerged over concerns that price discrimination could harm competition, but it has little practical effect on pricing to consumers. Consumers do not have standing to sue under the act (thus most cases are brought by businesses), and there are three powerful defenses for discriminating certain segments: cost justification (i.e., different costs to serve), meeting competition (i.e., price matching, volume discounts), and changing conditions (in the market or for the firm) (Nagle et al. 2011).

Theory distinguishes between three types of price discrimination around which we will structure this section; we illustrate them in Fig. 14.2. We begin with the "purest" form of price discrimination, or "first-degree" price discrimination, then move to forms in which customers self-select among differing offers that correspond to varying levels of willingness to pay ("second-degree" price discrimination), and conclude with approaches that are familiar ground for most marketers—they involve segmenting markets by manifest or latent customer characteristics ("third-degree" price discrimination).

First-Degree Discrimination: "Perfect" Price Discrimination

First-degree price discrimination (sometimes called "perfect" price discrimination) is making to each customer a separate offer that is priced according to that customer's willingness to pay. Because of the difficulty of knowing each customer's true reservation price and because of the implementation

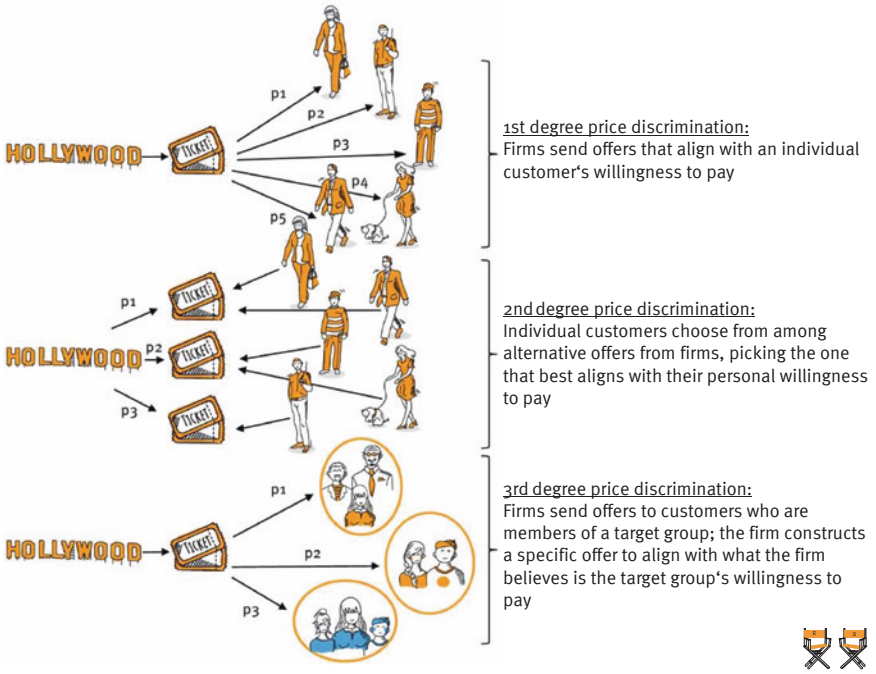

Fig. 14.2 Three types of price discrimination
Notes: Authors' own illustration based on information by Linde (2009). Graphical contributions by Studio Tense.

complexities of managing each offer separately in entertainment, this type of price discrimination is primarily theoretical (e.g., Shiller and Waldfogel 2011).

But entertainment products may actually have an advantage in this regard because of their nature as an information good, and thus entertainment producers have been among the few who experiment with pricing approaches that approximate first-degree price discrimination. Since it is hard to determine an individual consumer's "true" willingness to pay and only then make an offer, an alternative approach is to make an offer that allows the customer to choose the amount he or she *wants* to pay—an approach named "voluntary payments," "participative pricing," or simply "Pay What You Want" (PWYW). A prominent example for such a pricing model was the pre-release of the album In Rainbows by the popular British alternative-rock band Radiohead on their own Internet site in 2007, for which the band asked their fans to name their own price for the digital download.[428]

[428]A screenshot of the website at that time can be found on various sites on the Internet, such as at https://goo.gl/e9KZ7F.

As PWYW essentially lets consumers set the price for an entertainment product, one might think that it just cannot work—won't every rational customer take it for free? But consider the cultural nature of entertainment products and the degree to which consumers identify (and perhaps perceive some form of "relationship") with their favorite musicians, actors, and authors, or the loyalty they feel to a gaming community. In the case of the Radiohead album, 62% of those who downloaded In Rainbows did so without paying anything. But that means that 38% of the people who downloaded the album voluntarily paid some amount: 17% paid up to $4, 6% between $4 and $8, 12% between $8 and $12, and the remaining 4% paid more than $12. The average amount of those who paid *something* was $6, and among all downloaders it was $2.26 (*comScore* 2007).

Since the Radiohead offer, the approach has been used by a number of other musicians (e.g., via the indie-music website Bandcamp.com, which claims to have collected $237 million for artists via PWYW in its ten years of existence), as well as for the pricing of games. For example, the World of Goo video game brought in over $100,000 in revenues for game developer 2D Boy during a two-week PWYW experiment in 2009 (Groening and Mills 2017), and websites like Humblebundle.com have made PWYW a regular feature for games.

Why do some consumers pay for a product that they can get for free? Kim et al. (2009) argue that voluntary payment models dissolve the distinction between "money-market relations" (in which a monetary value metric regulates the exchange) and "social-market relations" (in which a *social* value metric, based on social norms—such as fairness—regulates the exchange). In short, consumers receive powerful "social utility" that compensates for any monetary utility that is given up by volunteering to pay a non-zero price. Consistent with this line of thought, the scholars found in an experimental study of PWYW that the amount paid by customers was positively influenced by their fairness perceptions and satisfaction, among other factors. Why do you tip the waiter or waitress? The reasons might be similar to those that encourage consumers to pay as part of a PWYW offer.

Other scholars agree. Waskow et al. (2016) state that the main motivation is "the power of social norms, which may outweigh explicit market norms," and Gneezy et al. (2012) suggest that violating these social norms may threaten a customer's self-identity: "voluntary payments may signal a prosocial identity and buyers may tend to avoid to purchase at all when they feel that their [willingness to pay] might be 'too low'." One implication is that firms thus might want to strategically emphasize those social aspects (e.g., concern for seller, norms, reciprocity, equity) via promotional messages to achieve higher PWYW revenues (Groening and Mills 2017).

So, is PWYW a viable strategy? Does it work, and, if so, under what conditions? Gerpott (2016) conducted a meta-analysis of empirical studies conducted on PWYW with data from an entertainment context and a range of other products, from food and beverage (the largest category), to low-priced goods. He concluded that "economic evaluations of economic PWYW outcomes in comparison to those of fixed prices or free giveaways are more often positive than negative" (Gerpott 2016, p. 588), but also noted that most studies only look at short-term effects.

More detailed insights can be derived from those studies that examine only entertainment products. Kim et al. (2009) conduct a field study in a movie theater. For three days (Monday-Wednesday), the management offered cinema tickets under PWYW conditions. The multiplex theater consisted of eight different movie screens that provide seats for 99–355 guests, with a maximum total capacity of almost 1,500 guests. The scholars compared the PWYW revenues with a baseline of regular sales which they calculated from 53 weeks of daily data. Kim et al. found that, on average, consumers paid more than zero, but less than the regular price. On standard days the average PWYW price paid was €4.87 (compared to a "normal" average ticket price of €6.81) and €3.11 on the "discount day" (where the "normal" average price is €4.43). Figure 14.3 shows the distribution of prices paid by customers in their study.

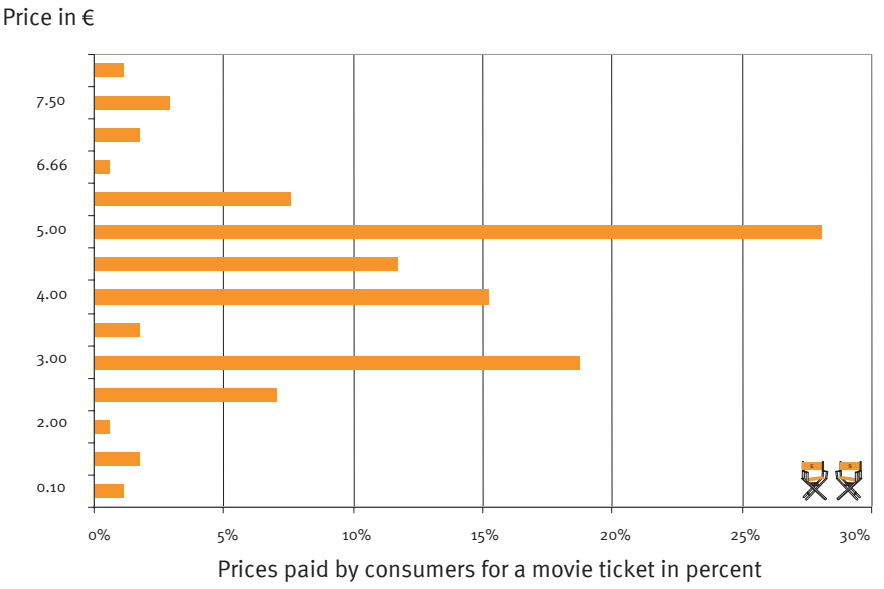

Fig. 14.3 Prices paid by customers under "Pay What You Want" (PWYW) at a movie theater
Source: Reprinted with minor adjustments with permission from Journal of Marketing, published by the American Marketing Association, Kim et al. (2009) Pay What You Want: A New Participative Pricing Mechanism, January 2009, Vol. 73, No. 1, pp. 44–58.

In their experiment, the lower prices did not drive higher volumes of ticket sales, so the overall impact of PWYW on box-office revenues was negative. It would have been interesting to learn whether audiences used some of their savings for spending more at the concession stand, but those revenues were not measured by the scholars. In another entertainment experiment of PWYW, Waskow et al. (2016) analyzed voluntary payments for music albums by 25 participants. Their findings are similar to those by Kim et al., with average prices being higher than zero, but about 20% lower than full payment prices. Interestingly, from studying their participants' neural structures the authors derived that PWYW music purchases triggered stronger neural activity "in brain areas involved in reward-processing" than the control group that was only offered the music for the regular "full" price.

Overall, from the empirical evidence, it is unclear if a PWYW pricing approach can be profitable in real-life settings, at least in terms of short-term generation of voluntary revenues. But there is at least suggestive evidence that the most important value contribution of PWYW may be the creation of attention and consumer buzz. The offer by Radiohead was available for eight weeks only, after which the band released the album via the usual distribution channels, both digitally and in CD (Leeds 2007). And in the first year after its regular release, Radiohead's album sold 3 million times, including 1.75 million CDs (Thompson 2008).

Bourreau et al. (2015) took a closer analytical look at the Radiohead release, using weekly music sales data in the U.S. between 2004 and 2012 to examine the effect of Radiohead's approach on subsequent sales of the band's albums. They concluded that the PWYW offer "had a positive impact on sales revenues, even if one assumes no revenues were obtained directly" through PWYW. Instead, higher-than-usual digital album sales were due to the vast media attention generated by the offer strategy. However, Bourreau et al. find that when Nine Inch Nails decided to provide their new album, The Slip, for free, digital album sales were hurt, not increased. So the successful nature of PWYW at least partly depends on whether the pricing approach is able to trigger the interest of consumers and initiates buzz cascades.

Second-Degree Discrimination: Versioning and Bundling

The other two kinds of a price discrimination are based on the realization that a consumer's willingness to pay is hard to observe; it rarely correlates with demographic characteristics, for example. Second-degree discrimination

means that variants of a product are offered for different prices. The underlying idea is that a consumer's latent willingness to pay will lead the customer to self-select the appropriate purchase option.

Practical ways to implement second-degree discrimination include varying the price for a product (a) by the quantity purchased (something also known as "non-linear pricing"), (b) by the version of the product chosen (i.e., "versioning"), or (c) by combining a certain product with other products or services, a strategy referred to as "bundling"). Let us take a quick look at each of those three options.

Non-Linear Pricing: Quantity-Based Pricing

Non-linear pricing refers to the practice of charging different prices based on the quantity purchased by the customer. These practices are common in our local supermarket where, for example, we can buy one bag of Lay's Classic Potato Chips for $3.99 or "Two for $6!" In entertainment, McKenzie (2008, p. 95) refers to this exercise as "walking your patron down the demand curve;" he describes the high price of a "small" movie theater popcorn and the small marginal price increases to get the medium and the large: "They aren't so much lowering the marginal price of the additional ounces as they are hiking the price on the first few ounces." This effectively creates a "floor" price for access to popcorn.

But popcorn is an ancillary product. Can firms engage in quantity-based pricing for their primary entertainment products? The entertainment industry's history shows few occasions where producers or distributors have offered different prices based on the quantity of products a consumer accesses, but recent attempts from industry outsiders to set prices according to the consumer's quantity of usage across a *portfolio of products* have turned out to be quite successful, if not disruptive. Keep in mind that this is not exactly the same as offering multiple "copies" of one specific product (like in the potato chips example above), but the information good nature of entertainment deems the latter approach irrelevant—I can watch a movie I have purchased as often as I want anyway.[429]

[429]In some ways, some kinds of versioning (which we discuss below) could be interpreted as a quantity-based pricing strategy—whereas the rented version only allows repeated consumption in a restricted time frame, the purchase version gives us unlimited consumption opportunities. In addition, one might also consider digital rights management measures (DRM) that reduce the number of consumption acts as implementations of quantity-based pricing. But such DRM, with reduced consumption quantity, is usually not offered for a discounted price.

These quantity-based offers take two forms. *Usage-based pricing* consists of different prices depending on the usage levels: Netflix has different subscription prices that determine the number of movies a customer can stream at the same time. The marginal price a consumer pays for access to a higher-usage tier is usually at a lower-per-unit rate than the lower-usage plans. Usage-based pricing shifts the burden of controlling usage to the consumer, but the seller still incurs significant costs for monitoring, billing, and settlement (i.e., higher "transaction costs," Sundarajan 2004, p. 1661).

But it is *fixed-fee pricing* (or subscription) models that have brought so much change to entertainment consumption recently. Such models take the form of one price in exchange for "all you want to listen to" (à la Spotify) or "all you can watch" (à la Netflix and Amazon Prime Video). Even in movie theaters, such "flat rates" are becoming popular; whereas some theaters have experimented with the idea before, it is larger scale services (such as MoviePass) which do not limit consumers' access to a single theater that seem to appeal to substantial numbers of consumers (D'Alessandro 2018).

In fixed-fee pricing, the prices for a single product or consumption act vary because each customer's per-unit price can be calculated as "Price/Number of Units Consumed" (or P/N). Thus, if P is constant across customers, the customer who consumes less (versus more) N pays a higher price per-unit (although the "objective" price he or she pays remains the same). Because of this logic, consumers sense an incentive to consume more (as it reduces their "average" consumption price), so that the strategy makes only sense economically if marginal costs are low—which makes the strategy well suited for entertainment's information-good nature.[430]

Which non-linear pricing scheme is best for producers? Classic findings suggested that usage-based pricing was optimal (e.g., Wilson 1993), but these conclusions were based on economic analyses with some assumptions that are fairly unrealistic for entertainment goods (e.g., pure monopoly, no transaction costs). Relaxing these assumptions, Arun Sundararajan (2004) used sophisticated analytical modeling and concluded (for information goods, in general) that a combination of fixed-fee pricing and usage-based pricing scheme "is always profit improving in the presence of nonzero transaction costs, and there may be markets in which a pure fixed-fee is optimal" (p. 1661). He recommended that early in the life of a category of information good (e.g., when streaming was first introduced), the usage-based/fixed-fee balance should be tipped in favor of fixed-fee, because a low-priced

[430]That is also why it would be less-well suited for non-digital/information-good offers such as concessions in a movie theater.

fixed-fee pricing scheme can be emphasized as a penetration strategy to build consumer usage. High penetration helps to develop market power and adds value for users because of network effects (e.g., via better recommendations).

And findings by Wlömert and Papies (2016) on music streaming services, based on their tracking of the actual behavior of a panel of 2,500 music consumers over more than a year, support the idea that fixed-fee streaming subscriptions can have positive effects in the long run for producer-level and industry-level revenues. But such models also involve other kinds of second-degree price discrimination, namely versioning and bundling—we will get to the scholars' findings when discussing these strategies.

Versioning: Let the Consumer Pick!

Versioning is also a second-degree pricing approach—here a seller offers various "versions" of his or her product to the market. These versions differ by price according to their likely appeal to consumers (and thus their expected higher willingness to pay), i.e., versions with higher quality, more features, and/or extra benefits are priced higher. Consumers then "self-select" the version that they most prefer, paying what they are willing to, instead of dropping out if a product is considered to be too expensive. A classic example from outside of entertainment is the airline practice of offering tiered tickets on the same airplane, such as first-class, business-class, and economy/coach seats, which come with varying space and benefits at different prices.

Versioning is also referred to as "indirect" price discrimination because the alternatives between which the consumer chooses differ not only in terms of price, but also in their quality—which is also why another label for the approach is second-degree *quality* discrimination. The main challenge for the producer is to design the versions so as to induce the consumers to pick an appropriate version—offering a version for everyone, but preventing those who have a high willingness to pay from switching to the cheaper versions.

Versioning is widely used by entertainment firms. Hardcover books, paperbacks, and electronic formats are versions of the same book title that are usually offered at different prices. Theatrical screenings, a DVD, and a VOD/EST stream are versions of the same movie that differ in quality, context, and time of availability. And even within each of these formats, often various versions exist for the consumer to choose from: consider all the different versions of a movie such as Blade Runner, from plain DVD to "Deluxe Collector's Edition," as well as the different "seat versions" sold in European and Asian theaters. Versions of video games are the different

formats for which different prices reflect differences in resolution and scale (PC version, console version, mobile version etc.) In addition, players can often choose between a free version that offers limited functionality and a "premium" version with full functionality that provides advantages over those who are playing the game for free—a kind of versioning referred to as "freemium" (we return to the economics of this approach below). And for music albums, a standard version is often complemented with "special" versions that contain additional material and sometimes a unique package.[431]

Empirical findings on versioning effects suggest that producers in entertainment are able to capture significantly different margins with versioning. In the book data set analyzed by Clerides (2002, p. 1395), he finds that "hardcover margins are between 80% and 396% higher than paperback margins," with the difference being statistically significant. And using a data set of more than 5,000 pre-owned games released prior to 2010 and analyzing the determinants of game prices (i.e., an indicator of what consumers were willing to pay for a game) with an OLS regression, Cox (2016) finds that whether a game is a "special edition" is among the main drivers of price variation. The coefficient for the "special edition" variable is 0.39—in other words, special edition versions of games command prices that are, on average, about $\left(e^{0.39} =\right)$ 48% higher than those for standard games. Adding interactions to the analysis reveals that special editions of high-quality titles (those which were positively reviewed by critics) tend to be sold for systematically higher prices than special editions of less highly rated titles, and that the price advantage of special editions tends to decline with the age of a game.

What do we know about "freemium" models, a quite popular kind of versioning? An underlying strategy of the free offer is often to build up the user base of the product and increase its social relevance, essentially harvesting network effects. When the Lego Universe MMOG was first launched, only a paid-only version was available, but it failed to attract sufficient user numbers. Lego then switched to free-to-play, which, as intended, attracted additional interest and players, as can be seen by examining the search volume for the game, over time, in Fig. 14.4. But in this case, no noticeable feedback effects and sustainable upward trend could be sustained, and Lego decided to discontinue the game only a few months later.

[431] See also our discussion of packaging in the context of owned entertainment communication.

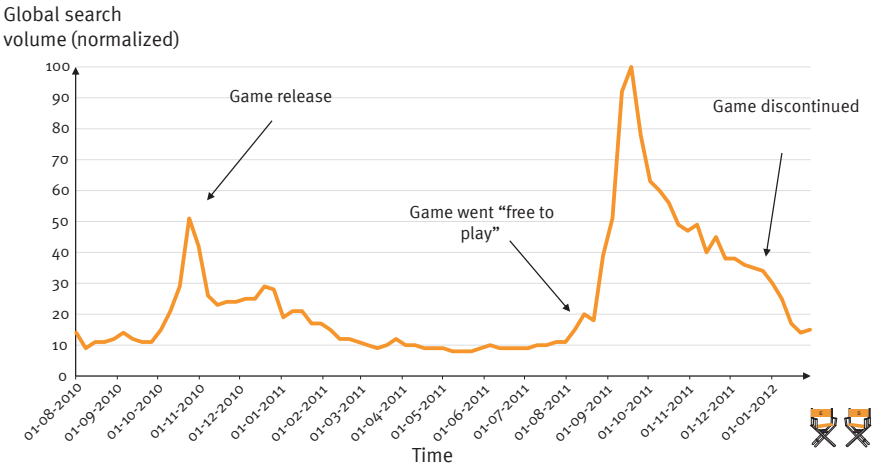

Fig. 14.4 Search volume for LEGO UNIVERSE MMOG over time
Notes: Authors' own illustration based on search data from Google Trends. The measure is the normalized global Google search volume.

For music, Papies et al. (2011) find, in a latent-class, choice-based conjoint experiment, that free song versions (which include advertising in this case) have the *potential* to attract consumers who would otherwise refrain from paying for music at all. Switching between the two versions (from free music with advertising to paid music) does not happen often, though. In their data, ad-sponsored music appears to appeal only to a clear-cut segment that is very price-sensitive and would drop out of the market completely if the only option was to pay. Versioning thus allows the firm to draw revenues (via advertisers) from a segment whose low willingness to pay would otherwise keep them away.

How can a manager determine the right value of the "free" versus the paid version in such models, then? In essence, the net contribution of any user of the "free" version is the incremental advertising revenues he or she generates, plus the potential network value the user creates for those who have subscribed to the paid version. Spotify, for example, can provide their paying users better playlists and recommendations based on the information they get from their "free" users. But one factor still has to be subtracted: the loss in potential subscription fees of any user of the "free" version. If a consumer would subscribe to the paid version if no free version was available, offering him the free version creates "opportunity costs" in the amount of the subscription fee. Entertainment providers thus have to design the value of the

"free" version for users in a way that maximizes this net contribution.[432] Let us note that this value can be dynamic—when 70 million people already use the "free" version of a service (as was the case with Spotify in early 2018), the incremental network value of an additional user is less than it was when the service only had one million.

In an analytical model, Wu et al. (2013) examine freemium video games in which the "pay" version is one in which players spend money for in-game purchases, such as "accessory selling." The general idea behind this approach is that the installed base of "free" players generates value via those who switch to the pay version (i.e., buy accessories) and via increasing the attractiveness of the game for existing and new players (i.e., direct network effects of the "installed base" of game players). In the case of the Lego Universe game, the development of direct network effects was systematically hampered by the fact that the "free" version included only two levels of the game that were actually free to play; everything else was behind a paywall.

The core challenge in such "accessory-selling" models is to determine the "right" level of attractiveness of the paid features. The scholars show that the advantages of the paid features can induce people to pay—because players want to compete, they invest in accessories that increase their capabilities. They call this the "competitiveness effect." However, highly advantageous paid features can also turn existing and prospective "free" consumers away from the game when free users feel inferior to those who have stocked up their armory with purchased weapons, etc.—the "inferiority effect," as Wu et al. name it.

Managers must try to determine the direct network value of a consumer who plays the "free" version of the game for those who pay for accessories (in addition to his or her own basic switching probability), and then weigh this value against the net effect of the "competitiveness effect" minus the "inferiority effect" of any accessory offer for the user. In this context, it might be helpful to know that Wu et al. report that competitiveness and inferiority effects vary between different types of accessories: whereas weapons can exert a negative network effect on the number of players (because of the "inferiority effect" they cause), this is not the case for decorative accessories. If your avatar looks great in a game, that bothers very few other players.

Let us note that the "inferiority effect" of in-game sales can not only drive free consumers away, but the costs of accessories can also add up to levels

[432]If the *total* net contribution of the "free" version across users is negative, it does not make sense to offer the "free" version at all.

that make the pricing of a game unattractive to those who have *already paid* for it. EA is among those firms who combine fixed fees for a game with the temptations of in-game offers—but the firm had to learn that the "market will only handle so much" (TV host Joe Vargas, quoted in Kim 2017), as part of a major public social media firestorm against its pricing for the game Star Wars Battlefront II.[433] Customers calculated that accessing the game's most popular characters would require more money than the upfront payment of $60 and that playing the game successfully without such extra payments would take *years*—or was even not possible at all. These calculations were posted online and then shared widely through the network of gamers. The Battlefront case shows that using such "pay-to-win" elements can hurt a game's performance and, because they violate the fairness perceptions of several consumers, also negatively influence the company brand's image.[434]

Varian (1997) concludes his summary of research about the versioning of information goods with practical implications. He recommends that (a) producers should design products in a way that make it easy to create versions; (b) it is easier to first create a product with the right quality or right number of features to appeal to the customer segment with high willingness to pay and then downgrade the product or remove features to get the price down to the level to appeal to other segments; and (c) having three versions of a product is better than just two—because consumers may have an "extremeness aversion" (Simonson and Tversky 1992). If you offer two versions (small vs. large; low-speed vs. high-speed), some customers who are indifferent between the two will naturally choose the lower option to avoid being extreme. Adding a third option enables the indifferent or uncertain customer to compromise by selecting the middle option. In practice, according to Varian (1997), the middle option is often identical to the original highest option in the two-option condition (e.g., the new "medium" is the former "large").

Finally, Varian also notes that versioning is particularly effective if "unobservable" consumer characteristics exist that determine his or her willingness to pay to a larger degree than observable characteristics (such as senior or student status) do. Such a constellation makes the setting of segment-specific prices based on observable features (i.e., *third*-degree price discrimination) ineffective.

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[433]See also discussion of the social media firestorm that resulted from EA's pricing of the game in the context of "pinball" communication.

[434]In the case of Battlefront and other games, the value of in-game purchases is further reduced by their combination with so-called "loot boxes," which dispense rewards. So even if you pay for Darth Vader, you can't be sure to get him. Lindbergh (2017) provides an anecdotal report about how consumers react to this kind of pricing model.

Bundling: A Special Case of Versioning

A final kind of second-degree ("indirect") price discrimination is bundling, with the bundle of two or more products being akin to another "version" of a product offered to the consumer. Bundling makes sense economically when consumer segments differ in their willingness to pay for individual products, but the seller cannot erect fences to differentiate the price for each segment, so that all consumers, regardless of their willingness to pay, would end up buying the version with the lowest price. "By creating the bundle, the producer can sell at the average willingness to pay, and this will typically be more profitable" (Varian 1995, p. 5).

How does bundling work? Take the example of a live music entertainment venue that serves two fairly distinct segments (Nagle et al. 2011). First, a large, mass "general entertainment segment" loves major headliner acts (e.g., Jay Z or Kenny Chesney) and will pay up to $60 a ticket for such events, but is less enthusiastic about innovative/cutting-edge, but lesser-known artists—consumers in this segment will generally pay only about $25 for such acts. In contrast, "music aficionados" absolutely love discovering innovative new artists, while also enjoying headliners; this segment would pay around $40 a ticket for either type of concert. We illustrate this constellation in Fig. 14.5, with Panel A showing the willingness to pay for the "general entertainment segment" and Panel B for the "music aficionados."

Faced with these customer segments, the concert hall could price concerts separately, charging $40 for headliners and $25 for innovative acts. These prices would assure that both segments would attend both events. But this approach leaves a lot of money on the table, potentially threatening the concert halls' economic viability to hire attractive performers: whereas a customer who attends both types of concerts would pay a total of $65 (i.e., $40 + $25) for the two tickets, the total willingness to pay for aficionados is $80 (i.e., $40 + $40) and for general entertainment customers is even $85 (i.e., $60 + $25)—these are the orange bars in the figure. Setting each concert price at the level of the *highest* willingness-to-pay segment (i.e., charging $60 for headliners and $40 for innovative new artists) would generate even less revenues, as the general entertainment consumers would buy only tickets for headliners (total spending of the segment: $60), while music aficionados buy only tickets for new artists (total spending: $40).

Now consider bundling: if the venue would simultaneously offer a bundle that consists of one concert of each type for $80, such a bundle aligns with the total willingness to pay of *both* segments and could capture the

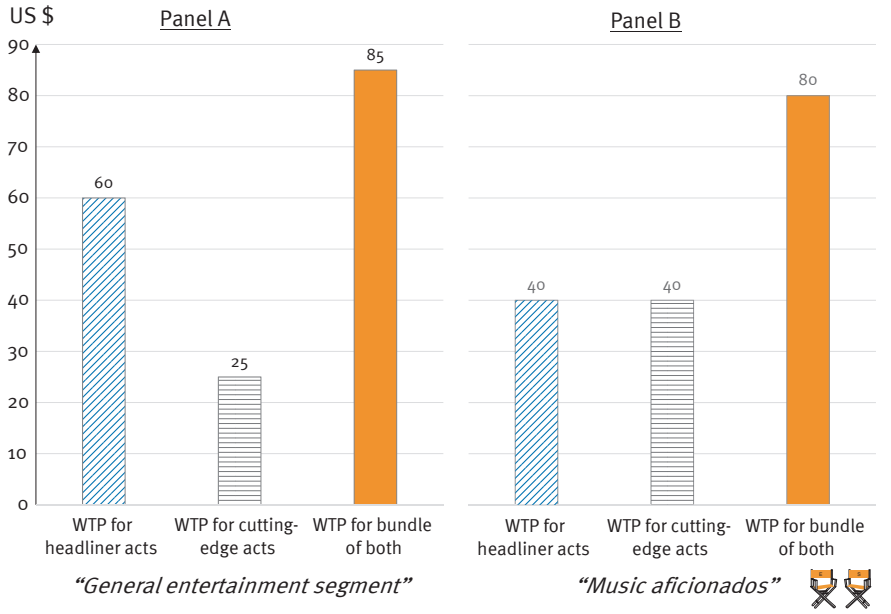

Fig. 14.5 Willingness to pay for concerts by customer segment
Notes: Authors' own illustration based on information in Nagle et al. (2011). WTP in the figure means consumers' "willingness to pay."

entire market, generating total revenues of $160 versus $130 or $100, respectively.[435] In practice, this approach of offering individual products *and* bundles is referred to as "mixed bundling."

Is bundling effective for entertainment products? In entertainment, bundling is often offered by distributors such as the music venue in our example; Spotify offers "bundles" of songs for a monthly price and Netflix and Hulu do the same for movies and TV shows. But entertainment producers also have a long tradition in using bundling—every music album is a bundle of songs that are offered to the customer for a bundle price, with "singles" having mainly served as promotional tools for album sales. In contrast to the mixed bundling approach in our example, music producers have often restricted consumers' choice to the bundle, granting no opportunity to access its elements (except for the notorious hit single on the album).

Such a "pure" bundling approach carries the risk of turning consumers away from buying bundles (and products in general) because they do not

[435]In this simple example, each segment consists of one member only—but multiplying segment revenues with an arbitrary number of segment members does not change the logic of our calculation.

perceive the bundle price as sufficiently attractive; the approach can be lucrative when consumers are forced to buy bundles instead of those individual products they are interested in for a much higher price, but it also drives demand for alternatives ways to access the overpriced content (e.g., if Sean Parker comes along with Napster).

Let's take a look at what scholarly research can tell us about the effectiveness of bundling entertainment. In a foundational study, Bakos and Brynjolfson (1999) demonstrate analytically that, under the assumptions of their study, the low marginal costs of entertainment products provide the opportunity to generate greater sales and profits by offering bundles of entertainment products, compared to when the same products are only sold independently. One reason the scholars name for this advantage is that it is much easier to accurately predict consumers' valuations for a bundle of products than it is to predict valuations for each product individually. This is an important factor because uncertainty about consumers' willingness to pay is "the enemy of effective pricing" (p. 1614), as we have highlighted in our analysis of uniforms versus differential pricing above. They also provide analytical evidence that mixed bundling should be preferred over pure bundling in general.

Hitt and Chen (2005) extended Bakos and Brynjolfson's analysis of bundling's profitability for a kind of bundles in which customers can, for a fixed price, select a defined number of products from a larger pool of options—so-called "customized" bundles. The scholars show that, for low-marginal-cost products such as information goods, customized bundling improves both producer welfare and consumer welfare more than "pure" bundling—and constitutes an economically preferred kind of mixed bundling.

In addition to those analytical investigations, scholars have also shed light on bundling's effectiveness using empirical data from the music industry; the bundling of songs, as we mentioned, has a long tradition. Elberse (2010) determines the effects of unbundling music while controlling for legal and illegal downloading activities. She studies sales of digital versions of individual songs (i.e., "digital tracks") and albums (i.e., "digital albums"), using weekly sales data from 2005 to 2007; she also measures weekly sales of physical albums for *all* titles released by a sample of 224 randomly selected artists. Elberse finds that mixed bundling (i.e., making individual songs available for sale in addition to albums) has *negative* consequences for music revenues—essentially because the differences in margins between individual song sales and album sales is larger than the growth in music demand that results from the unbundling. Piracy plays a large role for her effects; she attributes a reduction of about "one-third of the average weekly mixed-bundle sales … to increased [illegal] digital music downloading activity."

Whereas Elberse examines data from a time of transition, more recent results from Danaher et al. (2014) let us feel less pessimistic regarding unbundling for music. In their study, the scholars systematically varied the prices for a label's music and studied sales of songs and the albums of which they are a part. From simulations, they conclude that an album-only policy (i.e., bundles only) leads to lower revenue compared to the current mixed-bundle practice (in which customers can buy albums or individual songs). Even when album prices were set quite low (e.g., $6.00 instead of $9.99), overall revenues were less when only albums are available.[436] Mixed bundling leads to lower album unit sales, but "the joint revenue from both singles and albums will increase"—mainly because several consumers only enter the market when unbundled offers are available.

Danaher et al.'s simulations also suggest that the mixed-bundle practices that are currently in place might not be optimal. They find that album prices are too high and individual song prices are too low, which tempts customers to simply cherry-pick a few desired songs and not try the other songs as part of the bundle. The "optimal" solution that provided maximum revenue for the record label in their analysis involved an album price of $7.00 and tiered pricing for individual songs ($1.29 for the six most highly rated songs on an album, $1.09 for songs 7–10, and $.89 for the remaining songs)—thus combining bundling (as second-degree price discrimination) with differential pricing, as discussed above.

The logic is that a higher song price deters few customers, but does steer a larger percentage of customers to go ahead and buy the album instead of only the individual song. Even without the differential pricing element, the scholars find a lower album price and higher individual song price to be better than current pricing schemes; the standard $0.99 price-per-song was not economically optimal in *any* condition.[437]

Flat-rate models, as offered by Netflix and Spotify, constitute a special kind of large-scale bundling. In their multi-survey study of more than 2,500 music consumers over the course of a year (from 2012 to 2013), Wlömert

[436]Though album unit sales nearly doubled when only albums are available and the price for them was low, this did not make up for the lack of sales for individual tracks. Keep in mind that marginal costs are zero for digital music.

[437]Papies and van Heerde (2017), using data from 2003 to 2010 (thus spanning the periods studied by both Elberse and Danaher et al.) point at a different negative effect caused by mixed bundling: they find that the availability of individual songs dampens the positive impact live concert sales have on recorded music sales. Many people who go to a concert then want to acquire a digital or physical copy of the music to listen to later—it seems that, when consumers have the option to cherry-pick only the tracks they most want rather than having to buy the full album, customers tend to spend less on recorded music.

and Papies (2016) use the entry of Spotify into the German market as a natural experiment to test how the offering of a massive bundle affects music industry revenue. They find that the bundling by Spotify cannibalizes consumers' other expenditures on music, such as paying for digital downloads and CDs, regardless of whether the bundle is available for a (monthly) subscription fee or "for free" (i.e., advertising-based). But for paid streaming, the *net* effect on label revenue is clearly positive—a finding that is in line with the growth recently noted for *total* music revenues.

For the "free" bundle, though, they find the net effect on revenue to be negative, even when accounting for advertising revenues; the availability of such a bundle has a positive effect on expenditures only for those consumers who were relatively inactive before the adoption, whereas for others it leads to lower overall spending for music. This is consistent with Spotify's revenue sources: whereas three out of four Spotify customers signed up for the "free" (i.e., advertising-based) streaming in 2014, only 9% of Spotify's revenues were generated through this model (see *Mediabiz* 2015). The share of "free" users has declined since then, a trend we link with efforts by Spotify to lower the user value of the "free" version compared to the paid version.

Cross-Subsidization (or Informal Bundling)

> "Every element in the lobby is designed to focus the attention of the customers on its [concession stand] menu board."
>
> —Thomas W. Stephenson, *as CEO of Hollywood Theaters (quoted in* Epstein *2010, p. 33)*

Entertainment firms cross-subsidize some of their products with other products. Such a practice can be considered a special kind of bundling—one in which the bundle is not formally defined by the seller, but is a de facto element of its pricing strategy.[438]

Luan and Sudhir (2010) study the determinants of DVD prices as part of their investigation of advertising effectiveness. They show empirically that retailers discount the DVDs for hit movies at their release and argue that doing so "is consistent with a loss-leader pricing strategy that takes advantage of the release of popular DVDs to boost store traffic" (p. 451f.). In other words, the biggest films serve as "key value items" for retailers whose reduced prices lead consumers to buy other products (also). Kocas et al.

[438]Informal bundling shares some similarities with the concept of "customized" bundling, as analyzed by Hitt and Chen (2005).

(2018) make similar observations for books—retailers in the U.S. often price bestsellers at large discounts with the hope that consumers attracted by the deal will purchase other higher-margin goods. Based on the estimation of VAR models with several thousand books at Amazon.com, they find that multi-category retailers (versus pure bookstores) tend to use and benefit from this strategy more often. They have more to gain from subsidizing their bestseller attractions.

McKenzie (2008) argues that a similar cross-subsidization model is standard practice for movie theaters, which make most of their profits from concession sales rather than movie tickets. Popcorn and other concessions have a *very* high profit margin, which suggests that theaters would benefit from subsidizing popcorn et al. by keeping the ticket prices lower than might be optimal if determined in isolation (i.e., without considering the profits from concession sales). By doing so, theaters can gain additional buyers for their high-margin popcorn.

Figure 14.6 illustrates this cross-subsidization approach with 1997 data from Hollywood Theaters, then a 450-screens U.S. theater chain, as reported by Epstein (2010). Although concession revenues were only about

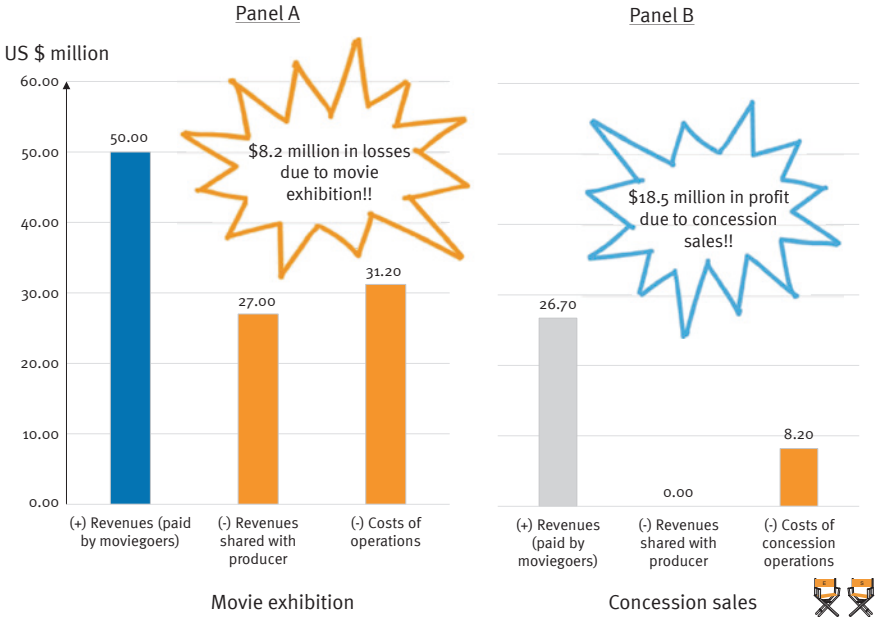

Fig. 14.6 Cross-subsidization of movie theaters. Or: It's the salt, stupid!
Notes: Authors' own illustration based on information reported in Epstein (2010). With graphical contributions by Studio Tense.

half of ticket revenues, the much higher margins for theater owners turn a $8.2 million loss from tickets into a profitable business.

A look at the record-breaking ticket prices in most parts of the world (*inflation-adjusted* prices are now almost 30% higher than 20 years ago!) and the quite high elasticities measured by scholars for movie tickets (that suggest that lower prices would attract *many* additional moviegoers) cause us to doubt that theater owners are currently making full use of the economic potential that cross-subsidization offers. Instead, it seems that they focus too much on revenues from their focal, but low-margin, product.

Third-Degree Discrimination: Segment Pricing

Third-degree price discrimination is a segmentation approach in which the seller charges different prices for a specific product to different groups of customers. These groups can be defined based on measurable (i.e., "manifest") customer characteristics, such as age, region, employment status, and previous purchases. For example, movie theaters frequently offer discounts for students or senior citizens, and Amazon offers special deals to their "Prime" customer segment. In contrast to versioning as "indirect" price discrimination, third-degree discrimination is referred to as "direct" price discrimination (Mortimer 2007)—it is the seller who *directly* assigns customers to different price offers.

The idea underlying this strategy is that the customer groups that are offered the different prices *differ also in their willingness to pay*. Just like second-degree price discrimination, it is an approach to overcome the implementation difficulties of first-degree discrimination. Its effectiveness depends on how closely the segmentation criteria are linked to the underlying willingness to pay. In addition to picking powerful segmentation criteria, challenges for third-degree price discrimination are to erect "fences" that (a) reduce the likelihood of gray market "arbitrage" transactions (e.g., a student buys a movie ticket for $5 and re-sells it to an adult for $7.50 who avoids paying the $10 adult price), and (b) reduce the likelihood of cannibalization (e.g., a price-insensitive person happens to have the afternoon off work and goes to the reduced price matinee showing of Rogue One instead of seeing it at full-price, as she would have done normally).

A special kind of third-degree discrimination is to base the pricing on *latent* characteristics instead of manifest ones and to approach the different segments by adjusting the product price over time. A key distinction here is between product enthusiasts who are less sensitive to the price of a beloved

product and other consumers who are more price-sensitive. Assuming that enthusiasts are also eager to access a new entertainment product early, the strategy suggests releasing the product for a "premium" price first (appealing to enthusiasts) and then lowering the price afterward—a price skimming strategy.[439] For example, premium video games are usually priced highly during the first weeks or months of release to capture higher per-unit revenues from enthusiasts.

In this special case, "cannibalization" between segments (i.e., enthusiasts delaying their consumption, waiting for the lower price) not only reduces revenues, but also has a secondary consequence: the reduction in early sales might also hurt the product's success by suppressing success-breeds-success effects. If enough of the fan boys of a new film are price sensitive and know that prices will come down in two weeks, they might skip opening weekend and wait for the price change. The film might then be perceived as a flop by the media and other customers might stay away. Theaters might even stop showing the film based on the small demand, which then further limits the film's success potential.

In addition to games, skimming is common for the home entertainment versions of films.[440] In the case of books, skimming is mostly done through versioning rather than pure life-cycle price management. But *reducing* the price over time is not always adequate—instead, prices should follow the development of consumers' willingness to pay over time in a given context. Scholars have suggested that *increasing* product prices in later stages of the life cycle might be an appropriate strategy for certain music, for example. Mixon and Ressler (2000) argue that, for music, "the typical customer of older CDs is more likely to be a devoted fan of the artist than purchasers of new releases," so that the "demand curve for older material will … be significantly less elastic than that of new material—which corresponds with a higher willingness to pay" (p. 466). In an empirical study of 118 records with OLS regressions, the researchers find tentative support for their arguments.

A second alternative scheme for pricing differently over time is to set prices at different levels at peak versus non-peak demand (times of day or days of week). The logic would be that enough "additional" customers could

[439]Such segmenting by *latent* consumer characteristics somewhat overlaps with the self-selection element of second-degree price discrimination. Whereas the latter practice involves changing the product (the quantity, the version, or by creating a bundle), segmenting according to latent traits means that the exact same product is offered at different prices based on *time*.

[440]As Mortimer (2007) points out, the dynamic part of this pricing approach was necessary in the U.S., as copyright law prevented producers from prohibiting rental firms from renting the cheaper "sell-through" versions to consumers.

be gained to more than offset the lower revenues per transaction and the cannibalization of customers who would have paid full price, but switched to the low-priced time slot. Theater managers in Asia and Europe, having embraced such approaches, obviously have come to a different conclusion regarding their profitability than have the clear majority of their North American colleagues, who predominantly avoid such price variations over time. Who is right? Or are both right, with cultural differences to blame? Similar logic could be applied to offering film or music streaming at different prices at times of the day, week, season, or year in which demand is likely to be particularly high.

Concluding Comments

In this chapter, we have challenged managers (and scholars) to think critically about pricing practices in entertainment—accepting that managing prices requires some artistry, but can genuinely gain from scholarly insights. As with the other areas of entertainment decision making, our discussion has shown that existing *Entertainment Science* studies can shed light on several pressing issues surrounding the pricing of entertainment, while in this dynamic field several issues require additional investigation and testing.

After reviewing pricing theory and comparing it to entertainment practice, our discussion of the pros and cons of differential pricing in entertainment led us conclude that offering different products at different price points in situations in which those products differ in appeal to customers is an idea that deserves closer attention. We are certainly not naïve enough to underestimate the barriers to implementation of such differential pricing; this is a far-from-trivial exercise, given the structure and financial incentives of producers and distributors, combined with the conservatism and traditionalism of many firms in entertainment. We hope that forward-thinking managers and *Entertainment Science* scholars will continue to push the boundaries of pricing strategy.

We also made the case for looking for ways to price an individual product differently, considering three broad categories of price discrimination approaches and illustrating their applications in the context of entertainment. We dedicated particular room to the analysis of different kinds of "freemium" pricing models, a special kind of versioning.

We will now end our analysis of the individual managerial decisions and tackle one last, important quest: how should managers coordinate the different areas of decision making and integrate product, communication,

distribution, and pricing decisions? Let us take a look at integrated strategic approaches of entertainment marketing, in general, and the blockbuster and niche concepts, in particular. This analysis will then allow us to end the book with a critical look into current economic developments that we observe in entertainment.

References

Bakos, Y., & Brynjolfsson, E. (1999). Bundling information goods: Pricing, profits, and efficiency. *Management Science, 45*, 1613–1630.

Bittlingmayer, G. (1992). The elasticity of demand for books, resale price maintenance and the Lerner index. *Journal of Institutional and Theoretical Economics, 148*, 588–606.

Bourreau, M., Dogan, P., & Hong, S. (2015). Making money by giving it for free: Radiohead's pre-release strategy for In Rainbows. *Information Economics and Policy, 32*, 77–93.

Chen, H., De, P., & Yu Jeffrey, H. (2015). IT-enabled broadcasting in social media: An empirical study of artists' activities and music sales. *Information Systems Research, 26*, 513–531.

Chevalier, J. A., & Mayzlin, D. (2006). The effect of word of mouth on sales: Online book reviews. *Journal of Marketing Research, 43*, 345–354.

Clerides, S. K. (2002). Book value: Intertemporal pricing and quality discrimination in the US market for books. *International Journal of Industrial Organization, 20*, 1385–1408.

comScore (2007). For Radiohead fans, does 'Free' + 'Download' = 'Freeload'?, November 5, https://goo.gl/amcD3A.

Courty, P. (2011). Unpriced quality. *Economics Letters, 111*, 13–15.

Cox, J. (2016). Play it again, Sam? Versioning in the market for second-hand video game software. *Managerial and Decision Economics, 38*, 526–533.

D'Alessandro, A. (2018). MoviePass jumps past 1.5M subscribers in the post-holiday period at the B.O., January 9, *Deadline*, https://goo.gl/HyNLXe.

Danaher, B., Huang, Y., Smith, M. D., & Telang, R. (2014). An empirical analysis of digital music bundling strategies. *Management Science, 60*, 1413–1433.

Davis, P. (2002). Estimating multi-way error components models with unbalanced data structures. *Journal of Econometrics, 106*, 67–95.

Davis, P. (2006). Spatial competition in retail markets: Movie theaters. *The Rand Journal of Economics, 37*, 964–982.

De Roos, N., & McKenzie, J. (2011). Cheap Tuesdays and the demand for cinema. Working Paper, Sydney University.

De Vany, A. (2006). The movies. In V. A. Ginsburgh & D. Throsby (Eds.), *Handbook of the economics of art and culture* (pp. 615–665). Amsterdam: Elsevier.

Elberse, A. (2010). Bye-bye bundles: The unbundling of music in digital channels. *Journal of Marketing, 74*, 107–123.

Epstein, E. J. (2010). *The Hollywood economist—The hidden financial reality behind the movies*. Brooklyn: MelvilleHouse.

Gazley, A., Clark, G., & Sinha, A. (2011). Understanding preferences for motion pictures. *Journal of Business Research, 64*, 854–861.

Gerpott, T. J. (2016). A review of the empirical literature on pay-what-you-want price setting. *Management & Marketing, 11*, 566–596.

Gneezy, A., Gneezy, U., Riener, G., & Nelson, L. D. (2012). Pay-what-you-want, identity, and self-signaling in markets. *Proceedings of the National Academy of Sciences, 109*, 7236–7240.

Gong, J., Smith, M. D., & Telang R. (2015). Substitution or promotion? The impact of price discounts on cross-channel sales of digital movies. *Journal of Retailing, 91*, 343–357.

Groening, C., & Mills, P. (2017). A guide to pay-what-you-wish pricing from the consumer's viewpoint. *Business Horizons, 60*, 441–445.

Hitt, L. M., & Chen, P. (2005). Bundling with customer self-selection: A simple approach to bundling low-marginal-cost goods. *Management Science, 51*, 1481–1493.

Ho, J., Liang, Y., Weinberg, C., & Yan, J. (2017). Uniform and differential pricing in the movie industry: An empirical analysis. *Journal of Marketing Research*, forthcoming.

Kim, J.-Y., Natter, M., & Spann, M. (2009). Pay what you want: A new participative pricing mechanism. *Journal of Marketing, 73*, 44–58.

Kim, T. (2017). EA's day of reckoning is here after 'Star Wars' game uproar, $3 billion in stock value wiped out. *CNBC*, November 28, https://goo.gl/4dZpFo.

Kocas, C., Pauwels, K., & Bohlmann, J. D. (2018). Pricing best sellers and traffic generators: The role of asymmetric cross-selling. *Journal of Interactive Marketing, 41,* 28–43.

Leeds, J. (2007). In Radiohead price plan, some see a movement. *The New York Times*, October 11, https://goo.gl/nehN5E.

Lindbergh, B. (2017). Battlefront, Reddit: The video game pricing wars that might reshape the industry. *The Ringer*, December 2, https://goo.gl/BJ8tiV.

Linde, F. (2009). Pricing information goods. *Journal of Product & Brand Management, 18*, 379–384.

Luan, Y. J., & Sudhir, K. (2010). Forecasting marketing-mix responsiveness for new products. *Journal of Marketing Research, 47*, 444–457.

Marchand, A. (2016). The power of an installed base to combat lifecycle decline: The case of video games. *International Journal of Research in Marketing, 33*, 140–154.

McKenzie, R. B. (2008). *Why popcorn costs so much at the movies*. Leipzig: Springer.

Mediabiz (2015). Spotify weist Spekulationen um neue Fensterpolitik zurück. *Musikwoche*, December 9, https://goo.gl/c5nFHM.

Mixon Jr., F. G., & Ressler, R. W. (2000). A note on elasticity and price dispersions in the music recording industry. *Review of Industrial Organization, 17*, 465–470.
Mortimer, J. H. (2007). Price discrimination, copyright law, and technological innovation: Evidence from the introduction of DVDs. *Quarterly Journal of Economics, 122*, 1307–1350.
Nagle, T. T., Hogan, J. E., & Zale, J. (2011). *The strategy and tactics of pricing*. New York: Routledge.
Orbach, B. Y., & Einav, L. (2007). Uniform prices for differentiated goods: The case of the movie-theater industry. *International Review of Law and Economics, 27*, 129–153.
Papies, D., & van Heerde, H. (2017). The dynamic interplay between recorded music and live concerts: The role of piracy, unbundling and artist characteristics. *Journal of Marketing, 81*, 67–87.
Papies, D., Eggers, F., & Wlömert, N. (2011). Music for free? How free ad-funded downloads affect consumer choice. *Journal of the Academy of Marketing Science, 39*, 777–794.
Pearlstein, S. (2006). It was better with Bonzo. *Washington Post*, November 24, https://goo.gl/86sVPW.
Shiller, B., & Waldfogel, J. (2011). Music for a song: An empirical look at uniform pricing and its alternatives. *The Journal of Industrial Economics, 59*, 630–660.
Simonson, I., & Tversky, A. (1992). Choice in context: Tradeoff contrast and extremeness aversion. *Journal of Marketing Research, 29*, 281–295.
Sims, D. (2017). Hollywood has a bad-movie problem. *The Atlantic*, July 5, https://goo.gl/BxMfAE.
Smart Pricer (2018). UCI Kinowelt weitet Dynamisches Pricing mit Smart Pricer auf alle Kinos in Deutschland aus, January 8, https://goo.gl/BKVfGX.
Srinivasan, R. (2009). Pricing different movies differently, November 28, https://goo.gl/U3zs7h.
Sundararajan, A. (2004). Nonlinear pricing of information goods. *Management Science, 50*, 1660–1673.
Surowiecki, J. (2004). *The wisdom of crowds*. New York: Random House.
Thompson, D. (2012). Why do all movie tickets cost the same? *The Atlantic*, January 3, https://goo.gl/dF1ohW.
Thompson, P. (2008). Radiohead's In Rainbows successes revealed. *Pitchfork*, October 15, https://goo.gl/vUv355.
Ulin, J. C. (2014). *The business of media distribution* (2nd ed.). New York: Focal Press.
Varian, H. R. (1995). Pricing information goods. Working Paper, University of Michigan.
Varian, H. R. (1997). Versioning information goods. Working Paper, University of California, Berkeley.

Waskow, S., Markett, S., Montag, C., Weber, B., & Trautner, P., Kramarz, V., & Reuter, M. (2016). Pay what you want! A pilot study on neural correlates of voluntary payments for music. *Frontiers in Psychology, 7*, 1–10.

Wilson, R. B. (1993). *Nonlinear pricing*. New York: Oxford University Press.

Wlömert, N., & Papies, D. (2016). On-demand streaming services and music industry revenues—Insights from Spotify's market entry. *International Journal of Research in Marketing, 33*, 314–327.

Wu, C.-C., Chen, Y.-J., & Cho, Y.-J. (2013). Nested network effects in online free games with accessory selling. *Journal of Interactive Marketing, 27*, 158–171.