"This book is an absolute must-read for any business owner or marketer."
- Brian Tracy, Author, "The Psychology of Selling"

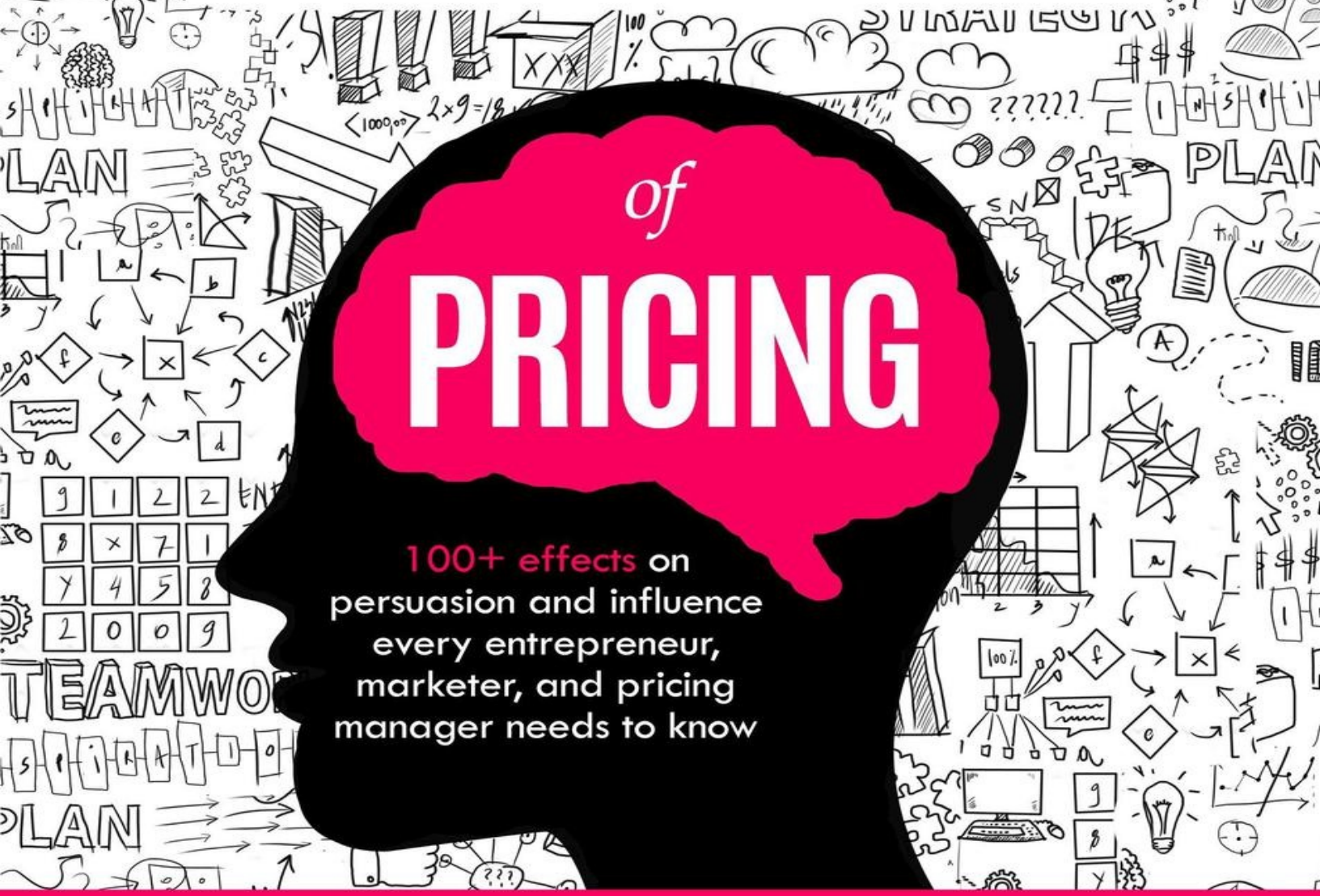
HANDBOOK

on the

P$YCHOLOGY

of

PRICING



100+ effects on persuasion and influence every entrepreneur, marketer, and pricing manager needs to know

DR. MARKUS HUSEMANN-KOPETZKY

Handbook on the Psychology of Pricing

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“Dr. Markus Husemann-Kopetzky has written a book that will be of immense, practical help to everyone involved in selling or price setting. The *Handbook on the Psychology of Pricing* clearly presents over one-hundred psychological pricing effects backed by solid research. This book is an absolute must-read for any business owner or marketer.”

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Best-Selling Author
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“The author packed decades of research into a readable, comprehensive manual on pricing psychology. This book is an absolute must-read for every manager interested in exciting customers, driving growth, and increasing profits.”

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“This book is packed with intriguing, powerful insights that will expand your perspective on pricing. A must-read for all managers who have to make profitable pricing decisions.”

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“The *Handbook on the Psychology of Pricing* breaks new ground in the breadth and depth on psychological pricing. This book is a must-read for anyone who want to realize the powerful forces psychological pricing has on a company’s financial performance of any size.”

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“The author does a brilliant job in distilling the practical core of academic research. The *Handbook on the Psychology of Pricing* offers a new perspective on how pricing innovations impact customer behavior and grow business. The insights in this book are priceless."

Prof. Dr. Mike Hoffmeister
Founder of the International Trend Forum
Marketing Professor
Ostfalia University of Applied Sciences

Contents

To Sabine, Sophia and Luisa

Reality is merely an illusion, albeit a very persistent one.
—ALBERT EINSTEIN

Foreword

To Busy Marketers

W

hen I began sketching this book three years ago, I sought to write for you – a business owner, marketing manager, pricing expert or business student with a time-constrained schedule and a vivid interest in the value psychological pricing can add to the business you are working in and your personal skill profile in particular.

As an academic researcher passionate about the field of psychological pricing, I have read literally hundreds of studies comprised of thousands of pages that unearth findings and recommendations, which could be summarized in a few sentences. This book aims at providing these summaries, the managerially relevant nuggets. To ensure that recommendations and insights are based on solid, replicable research methods, this book solely refers to academic sources. You do not find any anecdotal business wisdom, case studies, war stories or trade secrets in this book. Most importantly, I want to point out that this book is written as part of my academic endeavor and is 100% independent from my current corporate position at Amazon.

Academic pricing research has generated a plethora of insights but buried the lead for professionals. This book assumes a business perspective when analyzing academic papers and tries to give a most concise answer to your imaginative question I always kept in mind: “Interesting study, but so what?”

This book distills 100+ insights and effects on psychological pricing from hundreds of research papers and translates respective findings into actionable recommendations.

The following book is structured in four parts. The first chapter highlights the importance of pricing in general and the contribution of psychological pricing in particular. It proceeds with introducing a framework that provides structure and guidance from a business angle. Chapters two to four are devoted to separate sets of pricing parameters that marketing managers can adjust to optimize prices from a psychological point of view.

Within the latter three chapters, psychological pricing effects are grouped under common themes. For each effect, an overview on the research projects that unearthed a particular effect provides relevant background information, and a short summary distills its key takeaway.

Research on psychological pricing is continuously evolving. New studies and insights are published virtually every month or quarter. To help you stay up to

date, I grant you exclusive access to bi-annual updates on psychological pricing research. You are cordially invited to check out your free updates here:

Link: *www.PsychologyOfPricing.com/readersarea*

Password: freeforreaders

As research is evolving so should this book be. Please share your comments, feedback, or your review of this book with me. Also, if you notice important effects that appear to be missed or if you have ideas on research projects that might uncover interesting effects, please let me know at

Markus@PsychologyOfPricing.com

I hope you enjoy this book and take away valuable ideas and inspiration on how to approach pricing through psychological lenses.

Chapter 1

Introduction

Pricing Matters

PRICING IS THE MOST important arrow marketers hold in their quivers. Among all marketing decisions, pricing exerts a strong influence on customers, directly impacts revenue and profit, and, hence, is critical to business success (Nagle, Hogan, and Zale 2014, p. 15; Winer 2005, p. 3).

To remind ourselves of the four profit drivers managers have at hand: Profit is the difference between revenue and costs. Revenue is the product of *price* and *sold units*. Costs consists of *fixed costs* and *variable costs*, where the latter is the product of *unit cost* and *sold units*. A numerical example borrowed from Hermann Simon (2015), the grand seigneur of pricing consulting, gives an answer to the question on which of the four profit levers managers should focus their attention. Assuming Acme Company builds a product that costs $60 to make and sells it for $100. Currently, it is selling one million units per year. Each year fixed costs incur of $30 million. Hence, total revenues are $100 million, total costs sum up to $90 million leaving $10 million in profit.

Now, you are charged with the task of improving profit. On which profit lever should you give highest priority – variable costs, fixed costs, sales volume, or price? A way to answer this question is to look on the individual impact of improving each profit driver by 5%, leaving all other levers untouched.

A cost-cutting project aiming at decreasing fixed costs or variable costs by 5% increases profits by 15% or 30%, respectively. In comparison, pushing volume in a sales optimization project by 5% improves profits by 20%. Finally, a price increase by 5% generates the largest uplift among all profit levers – 50% in additional profit. Table 1 summarizes this example.

Profit driver	Current value	5% improvement	Impact on profit
Price	$100	$105	+$5 Mio. / +50%
Unit sales	1 Mio.	1.05 Mio.	+$2 Mio. / +20%
Variable costs	$60	$57	+$3 Mio. / +30%
Fixed costs	$30 Mio.	$28.5 Mio.	+$1.5 Mio. / +15%
Profit	$10 Mio.		

Table 1: Illustrative example, impact of improving various profit levers

THIS EXAMPLE SHOWS that price has a strong leverage on profit and profitability – but is it representative for the majority of the business world?

In an often-cited study, Marn and Rosiello (1992) from McKinsey analyzed 2,463 companies and calculated an increase in profit assuming a 1% improvement in each of the four profit drivers. Here is what they found: 1%

improvement to fixed cost or variable costs increases profits by 2.3% or 7.8%, respectively. Raising sales volume by 1% raises profits by 3.3%. However, the largest leverage effect has a price increase of 1%: it boosts profits by 11.1%.

Table 2 summarizes findings from an updated version of this classic study covering the 1,200 largest global companies (Baker, Marn, and Zawada 2010) and also looks at the results from a different angle: How much does a profit lever need to improve to double profits?

Profit driver	Impact on profit of 1% improvement	Improvement required to double profit
Price	11.0%	9.1%
Unit sales	3.7%	27.1%
Variable costs	7.2%	13.7%
Fixed costs	2.7%	37.1%

Table 2: Market data, impact of improving various profit levers (Kohli and Suri 2011)

KNOWING THAT PRICING is an effective lever to increase profitability is the first step toward success. The second step is to develop pricing skills to actually put theory into practice. Liozu and Hinterhuber (2013) surveyed 1,800+ pricing professionals, marketers, sales experts, and top managers on their company's pricing capabilities and financial performance. The researchers confirmed that pricing competency directly impacts firms' overall top line and bottom line performance.

This book is written to serve as a stepping-stone to inspire your pricing practice and to further strengthen your pricing skills in the space of psychological pricing.

Psychological Pricing Matters

PRICING DETERMINES a company's profitability. Thus, understanding how customers react toward different prices becomes crucial.

Two theories aim at explaining consumer behavior in light of prices: economics and psychology. In the late 19th century, the economist Alfred Marshall (1890) developed a theory of a solely rationally deciding individual who evaluates the value – what an economist calls "utility" – a purchase delivers relative to the amount of wealth he needs to sacrifice. Ideally, this rationalist would allocate his resources across purchases – i.e. pay prices – so that total utility maximizes. This perspective would become known as neoclassical theory.

Neoclassical theory holds some strong assumptions that actual consumer behavior contradicts. For example, one study explicitly compares how economics and marketing researchers treat "pricing" differently (Skouras, Avlonitis, and Indounas 2005). To illustrate this point, we focus on one core assumption: customers receive less value from a purchase with increasing prices, so demand steadily decreases with higher prices and increases with lower prices. In reality, consumer behavior refutes this straightforward relationship – and psychology explains why.

Lower is not always better: Researchers found that consumers associate low prices with low-quality so that consumers do not buy a product if its price drops below a price which indicates a minimum acceptable quality (Monroe 1971a; Stoetzel, Sauerwein, and de Vulpian 1954).

Higher is not always worse: Conversely, at higher prices consumers conclude that products are of better quality so that purchase likelihood increases (Scitovszky 1944). In other cases, people buy products not despite but because they are priced at higher price levels to signal status and wealth to their social peers – an effect known as prestige effect or Veblen effect (Veblen 1899, p. 36): "In order to gain and to hold the esteem of men, it is not sufficient merely to possess wealth or power. The wealth or power must be put in evidence, for esteem is awarded only on evidence."

Price changes do not always matter: Monroe (1973) found that consumers require price changes to pass a perceptual threshold to be recognized as such. This "just noticeable difference" leads to ranges of prices being perceived as identical so that customer purchase behavior does not change with higher prices.

Economics assumes a demand curve with a monotonous downward slope. Psychological pricing research suggests that the shape of a demand curve can (i)

follow the shape of a rectangular triangle (“minimum price effect”), (ii) resemble a turned-over U (“price quality inference”) and/or (iii) remain parallel to the price axis (“price indifference”). Figure 1 depicts differences in demand curves between neoclassical theory and findings in psychological pricing research.

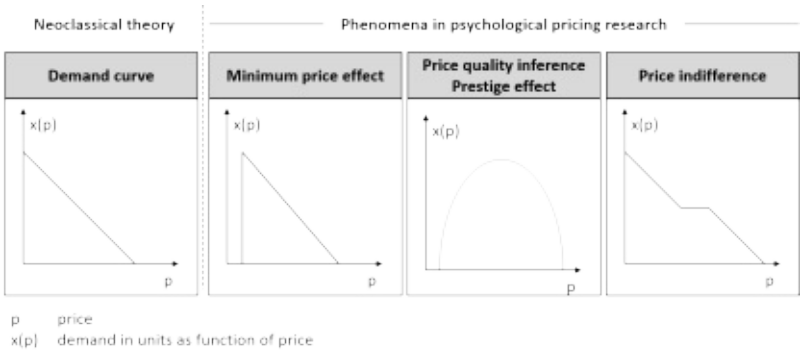

Figure 1: Demand curve in neoclassical theory vs. psychological pricing research

TO SUMMARIZE, THESE three examples demonstrate that psychological or behavioral pricing research predicts and explains consumer behavior better than traditional economics at least under specific circumstances.

In the following, we discuss more than 100 such behavioral pricing effects that neoclassical theory defines as anomalies.

4-P Model of Psychological Pricing Management

THE PURPOSE OF THIS book is to help decision-makers apply a wide variety of pricing research findings to concrete pricing decisions. Many discussions with fellow researchers and pricing managers revealed that a framework adds value here. A few organizing schemes have been proposed in pricing research. These schemes either structure research findings according to different stages during which customers process price information (e.g. price information acquisition, price evaluation, price storage, spending and consumption behavior; see Koschate-Fischer and Wüllner 2017) or cluster past studies more or less arbitrarily by a common theme (e.g. “reference price” or “price fairness”; see Somervuori 2014).

This book is written for managers dealing with pricing decisions. Consequently, the following model starts and ends with the decision-maker. At the starting point are various pricing options; at the end point are financial implications of the decision for the company. The part in between sheds light on psychological processes explaining differences in consumer behavior. The 4-P model of psychological pricing management breaks down the causal chain from pricing options to financial impact into four components each building upon the preceding: parameters, processes, phenomena, and profits.

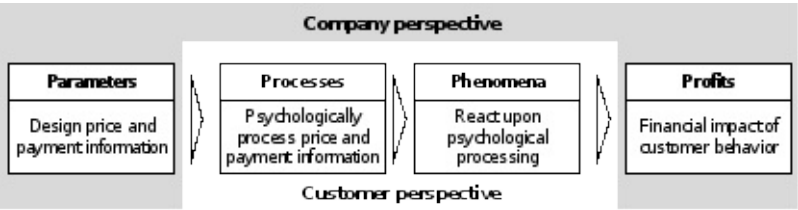

Figure 2: 4-P model of psychological pricing management

PARAMETERS summarize all levers that marketers and pricing experts can pull to design price and payment information. The following chapters differentiate these price parameters into price design parameters, price context parameters and price payment parameters. Price design parameters refer to the focal price of a specific offering (e.g. odd price effect). Price context parameters consider all other factors that impact customers’ price perception beyond the focal price (e.g. decoy effect). And, finally, price payment parameters design the actual money transfer from the customer to the company, which influences how the former perceives prices in the first place (e.g. credit card effect).

Processes explain how consumers process and evaluate price and payment information as designed by parameters in step 1.

Phenomena describe and predict consumers' reactions and behaviors as a result of their psychological processing.

Profits quantify customer behavior that was initially triggered by price parameters and driven by psychological processing.

The present book focusses on academic research that shows how consumers react to different price and payment information and explains the theoretical underpinnings of the respective customer behavior. Hence, this book stresses the first three p's: parameters, processes and phenomena. As we will usually cover all three p's in conjunction when we discuss a specific price parameter, their differentiation may not seem to be useful. However, mentally separating these categories is valuable as it structures our thinking when considering changes to prices.

Guiding questions are always: What can we change in terms of prices, contextual information, and payment process? How will customers perceive this information? How will customers react upon their perception?

Two other important questions need to be left to another book placing more emphasis on research methods, experimental designs, and financial modelling: How to (statistically) relate changes in actual customer behavior to differently designed price parameters? How to quantify the financial impact of changes in customer behavior due to changes in price parameters?

One word on the way effects are categorized and labelled: As you will see in the following sections, assigning a specific effect to just a single category is sometimes rather a matter of taste than a clear-cut decision. Pricing is as much art as it is science.

Chapter 2

Price Design Parameters

Price design parameters are at the core of a pricing decision. Studies summarized in this chapter reveal how consumers respond to subtle changes in the number of a price or its presentation. These effects reveal different options that you use to set a price.

Grouped into eight categories, we will cover 65 effects on how to design a focal price

1. *Number Design* shows how consumers recognize and perceive numerical values of prices.
2. *Phonetic Design* reveals the impact of differences in pronounced number words on price perception.
3. *Visual Design* demonstrates how individuals react differently to visual cues of the same numerical price.
4. *Sale Prices and Discounts* summarizes studies that guide pricing decisions when presenting the current price as a sale price.
5. *Partitioned Pricing* provides an overview on studies of how to best present prices when the total price of one product consists of various components (e.g. product price plus shipping and handling fees).
6. *Price Bundling* summarizes strategies on presenting prices for multiple products bundled together (e.g. PC plus printer or multipacks of the same product).
7. *Price Changes* sheds light on how consumers perceive adjustments to prices.
8. *Price Level & Price Mechanisms* summarizes how consumers react to higher price levels and specific pricing methods (flat rate tariffs or trade-in pricing).

Number Design

Odd Price Effect

PRICE ENDINGS IN NINE are among the most well-known and longest researched effects in psychological pricing. But do odd prices – i.e. prices just below even figures, e. g. $1.99 instead of $2 or $299 instead of $300 – drive demand in comparison to their round counterparts?

In an early report, Ginzberg (1936) briefly described an experiment in which a catalog retailer mailed catalogs with round prices and "just under" prices. Results from this experiment were mixed; demand increased for a few products and remained the same or dropped for others. Some later studies also delivered inconsistent results. However, Schindler and Kibarian (1996) attributed these to inadequate methods applied in the research conducted.

To overcome methodological issues, these researchers ran an experiment in cooperation with a direct-mail women's clothing retailer. They distributed three versions of an otherwise identical catalog to three customer segments of 30,000 each. In the catalog, they set prices either at a round amount (e.g. $23), one cent below (e.g. $22.99), or 12 cents below (e.g. $22.88). The last option was included as it reflected the past practice of the retailer. Schindler and Kibarian (1996) found that all three versions would make roughly the same number of customers buy (no statistical difference) but lead to higher per-capita spending for 88 and 99 endings compared to 00 endings with 99 endings being more effective.

Anderson and Simester (2003) collaborated with a mail-order retailer and distributed catalogs with different price versions to more than 140,000 customers. The researchers found, first, that prices ending in nine increase demand, second, that this effect is stronger for new compared to established products and, third, that this effect is reduced when an "on sale" claim was attached to the respective product.

The reasons why consumers react to price endings appear to be threefold.

First, a level effect occurs when consumers process price figures from left to right placing more weight on the left most digits. Stiving and Winer (1997) showed that participants in an experiment prefer a sale price of $0.79 compared to a regular price of $0.93 much more than a sale price of $0.75 next to a regular price of $0.89 although the absolute discount was the same and the relative discount in the latter case was actually larger. Processing numbers from left to right explains this effect: in the first sale price example, the difference between the left-most price digits is two (9–7); in the second example, it's just one (8–7).

More details on the cognitive explanation of odd prices are given in the section on the left digit effect.

Second, an image effect suggests that consumers infer a special meaning from prices ending in nine. As retailers use odd prices more often than even when promoting sales and discounts, consumers have "learned" to associate odd prices with discounts (Schindler 2006). Therefore, odd prices carry a connotation of low prices for consumers and convey messages like "cannot find this item at a lower price," "the item is on sale," or "price has not been recently raised," among other inferences people make (Schindler 1991; Schindler and Kibarian 2001).

Third, a perceived-gain effect results when consumers take a round price as the reference price and consider the difference to the odd-price as a gain. As the value function – according to prospect theory – is relatively steep for small gains (due to convex shape) these small gains receive a disproportionately high value despite their little monetary value (Schindler and Kirby 1997).

What are potential caveats with odd pricing? For retailers whose products are of high quality, "99" price endings could potentially hurt consumers' perception of product quality (Schindler and Kibarian 2001).

Use odd prices by default but consider implications on quality perceptions.

Odd Price Effect Refined: 95 vs. 99

YOU ARE ABOUT TO BUY a fly spray. Does it matter whether it is priced at $3.95 or $3.99?

Gendall, Fox, and Wilton (1998) ran an experiment with fast-moving consumer goods (fly spray, cheese) and durables (electric kettles). They found that prices with endings in 99 cents are more attractive for low-priced, fast-moving consumer goods (FMCG) than 95 endings, whereas prices that end in 95 cents have a stronger impact on demand for higher priced products (in this experiment, $50) than endings in 99 cents. These results are particularly interesting for low-priced items as consumers actually prefer slightly higher prices.

The effectiveness of odd-price endings depends on price level. For low-priced products, it's better to use 99; for high-priced products, let prices end in 95.

Left Digit Effect: Why Do Odd Price Endings Work

IMAGINE YOU NEED TO buy shampoo. Two of your favorite brands are on sale: brand A: $2.99 instead of $4, brand B: $3.10 instead of $4.10. Which deal is more appealing?

When comparing a price that ends with a nine to a round price, consumers evaluate the odd price differently only if the first – the left – digit also changes (Thomas and Morwitz 2005), i.e. $2.99 vs. $3, but not $2.79 vs. $2.80.

Numerical cognition explains this process. People tend to evaluate multi-digit numbers holistically by mapping them on a mental line (Restle 1970). As we read Arabic numbers from left to right, consumers might be anchored at the first digit. This anchoring causes respondents to perceive the distance on their mental line between two prices starting with different digits (two vs. three) to be larger than between two prices of the same first digit despite sharing the same mathematical difference of one cent (Thomas and Morwitz 2005).

To test this "left digit effect," Thomas and Morwitz (2005) showed participants pairs of ads for pens. They kept the price for one pen fixed at $4 (standard price) and changed the price for the other pen (target price). Then participants were asked to rate their magnitude perception on a five-point scale. The researchers found that participants evaluate a target price of $2.99 as significantly lower than a price of $3 whereas they do not rate a price of $2.79 vs. $2.80 or $3.19 vs. $3.20 being any different.

What are boundary conditions of this effect? With increasing distance between two numbers, people can more easily differentiate the magnitude of two numbers being compared (Moyer and Landauer 1967) – an effect called distance effect, which was repeatedly confirmed for prices as well (Xia 2003). This distance effect causes the left-digit effect to diminish as both numbers become easier to discriminate (Thomas and Morwitz 2005). In another experiment, the researchers set the standard price $1 and $2 higher and lower than the target price and chose target prices of $3.99 or $4. When the difference between the standard and target price was $1, participants perceived the target prices that end in nine ($5 vs. $3.99) as significantly lower than its round version ($5 vs. $4). However, when the distance increased to $2 people rated differences in the odd price condition ($6 vs. $3.99) and the round price condition ($6 vs. $4) as the same.

Lin and Wang (2017) followed up on these findings and looked at the impact of number of digits on the left-digit effect. They found that for low three-digit prices (e.g. NT$200 vs. NT$199) the left-digit effect was stronger than for high three-digit price (e.g. NT$800 vs. NT$799) but diminished for four-digit prices (e.g. NT$2,000 vs. NT$1,999).

When comparing two prices, consumers evaluate a price that ends with a nine as significantly lower than a slightly higher round price only if the left digit changes. This effect diminishes with increasing distance between regular price and sales price and for high-priced products (high three-digit prices and four-digit prices).