PRAXIS
RESEARCH THAT IMPACTS BUSINESS

Washington University in St. Louis
OLIN BUSINESS SCHOOL
The Impact of Research

The phrase “workplace surveillance” immediately conjures up visions of Big Brother and sinister taskmasters spying on nervous employees. Yet the Olin Award–winning research in this issue of Praxis dispels that evil scenario and demonstrates how one type of monitoring software benefits the employer, the staff, and, most significantly, the bottom line. The other research in this issue offers equally compelling insights for business leaders.

Praxis is dedicated to sharing Olin faculty research that turns theory into practice and creates new knowledge and tools to improve management. In short, the research presented here and online is research that impacts business.

The executive summaries presented in this fourth edition of Praxis were written by Olin MBA students (now graduates). These talented students also hosted a series of videos featuring interviews with the research authors, a.k.a. their professors. You can find the companion videos on our website at olin.wustl.edu/praxis.

I invite you to let us know how you put Olin research into practice—and how it impacts your business.

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Dean and Geraldine J. and Robert L. Virgil Professor of Accounting and Management
dean@olin.wustl.edu
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Remembering Murray Weidenbaum

Washington University and Olin Business School lost a great scholar and friend early this year, Murray Weidenbaum, the Edward Mallinckrodt Distinguished University Professor in Arts & Sciences and honorary chairman of the Weidenbaum Center on the Economy, Government, and Public Policy.

During a career that spanned more than five decades, Murray was a highly influential economist and policy advisor. He served under or advised five US presidents while remaining dedicated to teaching, writing, and conducting research.

Murray was a dear friend and colleague who also served many times on the distinguished panel of judges for the Olin Award, established in 2007 to encourage academic research that impacts business. The many students and faculty who had the privilege to know Murray Weidenbaum will remember him as an engaged and thoughtful teacher, a true gentleman, and an inquisitive scholar who never stopped learning or helping others seek knowledge.

This issue of Praxis is dedicated to Murray Weidenbaum.

Kate Freihaut, MBA ’14

Kate Freihaut graduated with the MBA class of 2014 with a focus on marketing and organizational behavior. She has a passion for managerial writing and public speaking, and has been actively involved in Olin’s Management Communication Lab. Freihaut was also a member of the Olin Marketing Association and is interested in marketing research and consumer behavior.

Prior to entering business school, Freihaut was employed for five years by Anheuser-Busch InBev. She has experience in hospitality, consumer relations, and risk mitigation. Freihaut assisted with various brands including Stella Artois, Beck’s, and Canada’s Budweiser Red Light.

Freihaut is enthusiastic about ongoing research in her field and assisted Professor Raymond Sparrowe with his research at Washington University over the summer. She earned bachelor of science degrees in psychology and justice systems from Truman State University in 2011.

Vibha Vemana, MBA ’14

Vibha Vemana graduated in 2014 with an MBA focused on entrepreneurship and organizational behavior. As a student, she was actively involved in the Olin community. She served as vice president of the Entrepreneurship and Venture Capital Association and of Olin’s Net Impact Chapter, a national organization that promotes sustainable business. She also chaired the Olin Sustainability Case Competition for the 2013–14 academic year and remains very involved with ongoing research at Olin.

Vemana worked in innovation and brand management for nine years before entering business school. The brands on which she has worked include Olay Skin Care, Chiquita Healthy Snacks, and John Frieda Hair Care.

Vemana is contemplating continuing her education versus returning to marketing with a new perspective on emerging companies. She earned a bachelor of science degree in mechanical engineering from the University of Texas at Austin in 2003.

The Olin Award

Established in 2007 by Richard J. Mahoney, former chairman and CEO of Monsanto Company and Olin distinguished executive in residence, the Olin Award is granted annually to an Olin faculty member or team whose research is selected by a committee of esteemed business executives for its potential impact on business results.

The author of a winning paper receives a $10,000 honorarium.

The 2014 Olin Award–winning paper is featured on pages 4–5.

The Olin Award focuses on research that has practical and performance-enhancing applications to critical management issues. Judges’ criteria require that winning papers:

- Be highly innovative
- Have the potential to significantly advance business results
- Have potentially broad applicability to a wide range of businesses
- Demonstrate findings that could be implemented through practical steps
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The Positive Side of Workplace Surveillance

Employee theft is a widespread problem and on the rise. According to the US Chamber of Commerce, 75 percent of employees steal from their workplace, leading to billions in lost revenue. Surveillance technology promises to help employers detect theft and weed out “bad” employees.

But Lamar Pierce argues that identifying and firing all employees guilty of misconduct is not a smart or even tenable solution. It’s not primarily an issue of “bad people” versus “good people,” according to Pierce. “It’s about whether or not there are ways to set up people to succeed.” In other words, how can management use best practices and new technology to change employee behavior?

Professor Pierce and his colleagues set out to discover if an information technology (IT) solution partnered with pay-for-performance incentives could redirect employees away from theft and improve productivity. The researchers evaluated sales and theft data before and after the implementation of an IT theft monitoring system at 392 casual dining restaurants across five restaurant chains. The IT product, called Restaurant Guard, allowed managers to review theft on an individual employee basis.

Restaurant servers typically earn money through fixed salary and tips. Customers provide tips as a percentage of the total bill and the quality of service provided, so servers can increase their income by selling customers more items, such as drinks or desserts, or providing better service. Servers can steal from their customers or employers by voiding and “comping” sales after customers pay by cash, or by transferring items from customers’ bills after they have paid.

Restaurant Guard reviewed all of these scams and produced a weekly report for the most severe cases. Data collected by the monitoring system, integrated with point-of-sales data, pointed to a 22 percent decrease in detectable theft after system implementation. Total revenue increased by $2,975 per week, or 7 percent of revenue on average per location.

The researchers found that the implementation of the Restaurant Guard product not only reduced theft but also increased employee productivity because server tips increased by $0.58 per hour. These results suggest that without the additional income from theft, the servers focused on increased efforts toward productivity. The results also could reflect servers’ awareness that their performance was being monitored.

Pierce believes these findings can be applied to many other workplaces and industries where managerial solutions such as IT monitoring can realign incentives and dramatically reduce corrupt behavior. Using IT monitoring, managers can focus more on increasing productivity and output, rather than on theft.

The IT system tested was not complex, yet had meaningful results. “This monitoring is not cameras. It is not checking people’s emails. This is a system that does not infringe on privacy and is most equivalent to counting the till. And when you implement this type of monitoring, employees steal less and produce more,” Pierce says.

KEY TAKEAWAYS for Managers
- Simple monitoring tools mixed with managerial practices can improve employee productivity and reduce theft.
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• Simple monitoring tools mixed with managerial practices can improve employee productivity and reduce theft.
• Corrupt employee behaviors can be redirected using smart management tools.
In theory, the economic principle of scarcity makes sense—people perceive products as more valuable when they are less available. In practice, however, purchasing decisions are much more complicated.

When viewing retail shelf displays, consumers are exposed to four factors that have a significant impact on their purchasing decisions:

- Organization
- Product quantity
- Product type
- Brand familiarity

This new research explores the impact that disorganized shelf displays and limited product quantities have on consumer purchase decisions. The findings indicate that in certain cases, shelves that are disorganized and not fully stocked tend to reduce sales; in other cases, however, these same circumstances can increase sales. Brand familiarity also plays a role.

To study these effects, the researchers examined purchasing decisions for two product categories—ingestible products (i.e., juice) and noningestible products (i.e., fabric softener)—and found distinct results for each category.

Unlike noningestible products, ingestible products are susceptible to perceptions of contamination. The research indicated that when consumers believe another shopper has touched an ingestible product, they evaluate the “contaminated” product less favorably even if the product is objectively unharmed. The consumer’s negative perception is called a “disgust reaction.”

It is important to note that for the perception of contamination to be present, the shelf display must be disorganized and contain a limited product quantity. However, the perception of contamination can be moderated by lack of brand familiarity. Uncertainty plays a significant role in the shopping environment, and consumers use retail cues to supplement knowledge they may lack regarding a product.

For products that are not ingested, by contrast, disorganization and limited product quantity signal that the product is popular. However, consumers who are familiar with the brand are less likely to rely on these cues. In fact, they are equally likely to purchase a familiar-brand noningestible product from a disorganized shelf display with a single product as from a fully stocked, organized display.

These findings—which were replicated through both laboratory experiments and field experiments in a retail setting—demonstrate the importance of understanding how consumers perceive and interpret cues in the retail environment in order to manage their overall experience.

KEY TAKEAWAYS for Managers

- Consider reevaluating your restocking process. Instead of restocking the fastest-selling products immediately, address ingestible product displays with familiar brands first to reduce cues that could negatively affect purchase decisions.
- Unfamiliar-brand noningestible products should be assigned the lowest restocking priority because sales of these products may actually benefit from disorganized shelf displays with fewer products.
- Manufacturers of ingestible products that restock their own products or take responsibility for their own shelves and displays without the help of store employees may be taking a risk. Storing and monitoring products on shelves is a full-time job.
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If the consumer is unfamiliar with a particular brand, the disgust reaction will be canceled out by the perception of popularity that the shelf communicates. As a result, the consumer is equally likely to purchase an unfamiliar-brand ingestible product from a disorganized shelf display with a single product as from a fully stocked, organized display.

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Efficient resource allocation depends on the flow of information from a firm's divisions to corporate headquarters. But what if managers are incentivized to distort that information to increase the capital allocated to their division?

This research gauges the internal information disparity between divisions and corporate headquarters and explores the economic consequences on the efficiency of capital allocation and firm value.

Corporate headquarters must rely on several sources of information as part of the capital budgeting process, including information provided by division managers. Yet managers may have incentives to distort that information to increase the capital allocated to their divisions. The resulting information disparity between division managers and corporate headquarters may reduce the efficiency of the internal capital market and firm value.

Professor Martin’s research employs a novel measure to gauge the difference between the internal-trading profits of division managers and top executives to measure information asymmetry within conglomerate firms.

“Differential trading profit between division managers and top executives serves as the empirical measure, where trading profit is computed as buy-and-hold market-adjusted return over the six month period after internal trade,” explains Martin. “The higher the differential trading profit, the greater the information advantage division managers likely have over top executives, the higher internal information asymmetry. On average, division managers trade less profitably than top executives by 2.5 percent, which makes sense because top executives have information about the overall company. However, for about a quarter of conglomerates in our sample, division managers trade more profitably than top executives by 8.5 percent.”

The results show a negative relationship between internal information asymmetry and both internal capital market efficiency and firm value. These results are more pronounced for more diversified and weakly governed conglomerates and for divisions that are geographically farther from corporate headquarters.

The research also found that divisions with greater information asymmetry are more likely to be divested, implying that internal information asymmetry is one of the reasons that drive firms to take restructuring actions.

**KEY TAKEAWAYS for Managers**

- Internal information asymmetry has a measurable economic effect on firm value and the efficiency of internal capital allocation.
- Organizations need to take action to enhance the effectiveness of communication between divisions and corporate headquarters to increase firm value and internal capital market efficiency.
- Stronger corporate governance mitigates the adverse effect of internal information asymmetry by reducing agency conflicts between division managers and top executives.
- If high information asymmetry persists, organizations are more likely to refocus through either divestiture or reorganization in the future.
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Could inspiring creativity in the workplace be as simple as encouraging employees to stand up? This new study finds that teams actually think better on their feet.

Professors Baer and Knight set out to investigate how different workspaces affect groups’ creative productivity. Their evidence-based research suggests that less furniture in a workspace—specifically, the absence of chairs—fosters more creative performance by teams.

There are currently two philosophies of how to design a room to promote innovative group work.

**PHILOSOPHY 1**

Sedentary Space Design: This view suggests that a room should be made as comfortable as possible—a calm environment with soft chairs. A sedentary space allows group members to feel unrushed and safe to explore a variety of new ideas.

**PHILOSOPHY 2**

Non-Sedentary Space Design: This perspective advises removing all chairs to encourage group members to stand during meetings. Standing activates people and encourages a more vigorous exchange among them.

Baer and Knight tested these design philosophies using teams of undergraduate students who were assigned the task of developing a creative university recruitment video. Three types of data were collected during the experiment. Students completed surveys at the end of the process. For an unbiased assessment, external reviewers evaluated the creativity of the video projects and the process each group followed. And perhaps the most novel measurement came from wearable sensors that objectively measured the students’ individual arousal and engagement during the lab sessions.

Wrist sensors worn by participants measured indicators of physiological arousal eight times per second.

“Wearable technology like FitBit and Google Glass is becoming more popular among consumers, but it is still relatively rare in this kind of research,” Knight says. “We think that the future holds great promise for integrating wearable technology into research; our study is one example of how doing so can enrich a study.”

The researchers expected the standing groups to be more collaborative, which proved true. But they were surprised that the chairless environment also reduced group members’ territorial ownership of ideas, which can derail the overall output of a group. Without chairs, participants could move freely through the workspace and embrace a more collective spirit, which, in turn, reduced individual territoriality. The non-sedentary workspace also increased group arousal and yielded better overall performance on the creative task.

Baer and Knight therefore suggest that a simple change in the physical layout of workspaces can positively affect creative outcomes by shaping group dynamics. In fact, when given the opportunity to select new furniture for their offices in Olin’s recently constructed Knight Hall, both professors chose adjustable-height desks so they can sit or stand while they work.

**KEY TAKEAWAYS for Managers**

- Workspace design matters. Layout and types of furniture can encourage collaboration and drive creative output.
- Non-sedentary workspaces reduce territoriality, encourage group members to collaborate with each other, and, as a result, drive creativity.

“Get Up, Stand Up: The Effects of a Non-Sedentary Workspace on Information Elaboration and Group Performance”

**Markus Baer**, Associate Professor of Organizational Behavior, Olin Business School, Washington University in St. Louis

**Andrew P. Knight**, Assistant Professor of Organizational Behavior, Olin Business School, Washington University in St. Louis

**Publication**: Social Psychological and Personality Science (online), June 12, 2014

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Quantity versus price competition theory has been studied in economics and marketing since the 1860s, but two Olin professors thought there was more to be discovered about a firm’s incentives for controlling the quantity of a product it sells in the market.

“One of our big findings challenges the traditional wisdom that claims competing firms will always choose to constrain their output because that reduces price competition,” explains Sherif Nasser. “We have identified cases where virtually identical, competing firms will actually choose opposite strategies for output levels.”

Professors Nasser and Turcic designed a model using game theory to analyze different types of firms, their supply chain options, and the choices they make when it comes to controlling output. Firms fall into one of three categories based on product differentiation in their industry: low, intermediate, or high product differentiation. Findings show that competing firms in an industry with low product differentiation choose rigid supply chain regimes, thus reducing the impact of intense price competition. When high product differentiation is present, firms also choose rigid regimes.

Rigid regimes involve longer lead-time manufacturing that is most often conducted at offshore factories. Retailers like Gap and Walmart utilize rigid regimes with six-to-nine-month manufacturing lead times, with products earmarked for limited selling periods of two to three months. These firms are using quantity as a key driver for their strategic plan.

By contrast, flexible regimes have very short lead times because manufacturing locations are in close proximity to the point of sale. Finished goods are quickly moved via air transport from factory to store. Though this can be expensive, flexible regimes offer complete flexibility on quantity. An example is Zara, a Spanish clothing manufacturer that uses a flexible regime in order to design, produce, deliver, and display a new garment in its stores within 15 days.

In the category of intermediate product differentiation, Nasser and Turcic found an unexpected and interesting variation. Unlike the uniformity seen among firms in the low- and high-differentiation categories, some firms in the intermediate category will choose rigid regimes and others will choose flexible regimes. Firms in the intermediate category maximize profits through mixed-pricing models.

“In our theoretical model, we assume that every firm has the option of choosing either a flexible or rigid regime,” Nasser says. “The question is which option a firm will choose. Which option is optimal? In the intermediate product differentiation range, we find that it’s optimal for firms not to choose the same strategy. It’s optimal for one firm to be flexible and not to constrain its output and for another firm to be rigid and to constrain its output. That’s the contribution of our research.

KEY TAKEAWAYS for Managers

- Product differentiation plays a key role in determining whether a firm should focus on price or quantity competition. A rigid regime is a better option than a flexible regime for low- and high-differentiation markets or production practices that drive cost down with long lead-time manufacturing.
- When firms are competing within industries of intermediate product differentiation, firms will be split on whether to pursue a flexible regime or a rigid regime.
Dueling Supply Chains

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### KEY TAKEAWAYS for Managers

- Product differentiation plays a key role in determining whether a firm should focus on price or quantity competition. A rigid regime is a better option than a flexible regime for low- and high-differentiation markets or production practices that drive cost down with long lead-time manufacturing.
- When firms are competing within industries of intermediate product differentiation, firms will be split on whether to pursue a flexible regime or a rigid regime.

<table>
<thead>
<tr>
<th>Product differentiation categories</th>
<th>Preferred supply chain option</th>
<th>Bottom line impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low commodities like oil, steel</td>
<td>Rigid regime</td>
<td>Reduces impact of intense price competition</td>
</tr>
<tr>
<td>Intermediate Walmart, Gap, Zara</td>
<td>Rigid or flexible regime</td>
<td>Maximizes profits due to mixed-pricing models</td>
</tr>
<tr>
<td>High BMW, Mercedes</td>
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Rigid regimes involve longer lead-time manufacturing that is most often conducted at offshore factories. Retailers like Gap and Walmart utilize rigid regimes with six-to-nine-month manufacturing lead times, with products earmarked for limited selling periods of two to three months. These firms are using quantity as a key driver for their strategic plan.

By contrast, flexible regimes have very short lead times because manufacturing locations are in close proximity to the point of sale. Finished goods are quickly moved via air transport from factory to store. Though this can be expensive, flexible regimes offer complete flexibility on quantity. An example is Zara, a Spanish clothing manufacturer that uses a flexible regime in order to design, produce, deliver, and display a new garment in its stores within 15 days.

In the category of intermediate product differentiation, Nasser and Turcic found an unexpected and interesting variation. Unlike the uniformity seen among firms in the low- and high-differentiation categories, some firms in the intermediate category will choose rigid regimes and others will choose flexible regimes. Firms in the intermediate category maximize profits through mixed-pricing models.

“In our theoretical model, we assume that every firm has the option of choosing either a flexible or rigid regime,” Nasser says. “The question is which option a firm will choose. Which option is optimal? In the intermediate product differentiation range, we find that it’s optimal for firms not to choose the same strategy. It’s optimal for one firm to be flexible and not to constrain its output and for another firm to be rigid and to constrain its output. That’s the contribution of our research.”

Sherif Nasser nasser@wustl.edu | Danko Turcic turcic@wustl.edu

“"To Commit or Not to Commit: Revisiting Quantity vs. Price Competition in a Differentiated Industry”

*Sherif Nasser*, Assistant Professor of Marketing, Olin Business School, Washington University in St. Louis

*Danko Turcic*, Assistant Professor of Operations Management, Olin Business School, Washington University in St. Louis

**Publication:** Under review, Journal of Marketing
Strategists call the successful launch of new, game-changing products like the iPhone "innovation shocks." An innovation shock arises when the specific combination of an innovative product or service leads to a rapid rise in demand in that product or service category. It rocks an entire industry, leaving rival firms scrambling to figure out how to respond. Should rival firms faced with this follower's dilemma try to imitate, reposition, exit, or enter the market in response to an innovation shock? It’s a dilemma that is faced by firms across all industries but that had attracted little research attention before this study.

To understand why a firm would choose to imitate, reposition, exit, or enter a market after the introduction of an innovation shock design (ISD), the researchers examined past ISDs and responses in the early US auto industry. They found rival firms choose to imitate a new blockbuster product for three reasons:

1. To capture a portion of new-found revenue
2. To compete head-to-head with the innovator and take advantage of time needed to adjust supply chain operations and production
3. To prevent the innovator from gaining a long-term competitive advantage

Some firms choose to reposition away from the ISD to avoid decreased consumer demand. If an alternative position exists with adequate demand, firms might consider this a safer option. Exiting the market is an option for firms that cannot compete with the ISD or find differentiated niche positioning. Or, a firm can choose to enter the market if the ISD will create enough new revenue for new firms to enter and compete.

The researchers found that the response a competitor or potential competitor chooses in reaction to an ISD depends on the firm’s comparative adjustment costs. These costs include the total cost and risk of moving from an existing position to imitating, differentiating by repositioning distantly from the innovation, exiting the category, or entering the category.

Comparative adjustment costs are defined as the costs to adjust from one market position to another and fall into three categories:

1. Internal resources, knowledge, and capabilities
   The broader the breadth of these assets, the lower the adjustment costs will be to adapt to an innovation shock.
2. Internal organization, structure, and incentives
   Costs of adjustment might increase if a firm is unable to support new ventures due to hierarchical organization or inadequate flexibility with incentives.
3. Relationship with external partners such as suppliers, buyers, and regulators
   A firm can have low adjustment costs if it is not locked into long-term contracts with suppliers (including employees) and buyers.

The study concludes that:

- Older firms are significantly less likely to exit the market after an innovation shock.
- Larger incumbents are no less likely than other rivals to reposition after an innovation shock.
- Incumbents with broader technical knowledge are more likely to successfully reposition after the innovation shock and focus on different segments.

“It’s difficult for firms to be prepared for innovation shocks,” says Professor Nickerson. “But knowing that comparative adjustment costs are key to the game, firms should invest in strategies such as research and development, tracking rival firms for possible acquisition, and pursuing patents to protect intellectual property as means to lower their comparative adjustment costs.”

**KEY TAKEAWAYS for Managers**

- When challenged by an innovation shock, rival firms have four options: imitate, reposition, exit the market, or enter the market.
- Comparative adjustment costs provide a tangible way to measure a firm’s strengths and abilities to mount a strategic response to an innovation shock.

Nicholas S. Argyres  argyres@wustl.edu | Jackson A. Nickerson nickerson@wustl.edu
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Conventional wisdom dictates that when a company introduces a new product, rival companies will experience reduced profits. However, new research by Professor Raphael Thomadsen indicates that firms may need to reevaluate how they view product expansion.

Typically, when we consider the effect of a company’s introduction of a new product on a rival company, we assume decreased profits for the rival due to lost sales from customers who switch to the new product. In addition, we expect to see decreased market prices as rivals scramble to retain customers. But although it may seem counterintuitive, rival companies may actually benefit.

A rival company is likely to benefit from a competitor adding a new product under the following conditions:

**CONDITION 1**
The new product is a relatively close substitute for the introducing company’s existing products and is a more distant substitute for the rival’s products, which is common among product line extensions.

**CONDITION 2**
The new product attracts a moderate number of customers who were unserved before the new-product introduction.

Thomadsen’s research shows that when a company expands its product line as described in condition 1, it has an incentive to price its existing products less aggressively, thereby extracting the maximum consumer surplus from its newest offering. By softening price competition, rival firms benefit as well.

This phenomenon occurs quite often because a significant portion of new-product introductions are very similar to products the company already produces. If the new product serves customers who were not previously served by any product, it creates a relatively high willingness to pay on the part of these customers. The firm is incentivized to raise prices considerably to extract the highest price premium, and its rivals can follow suit and raise prices (condition 2).

For example, after Yoplait introduced its light yogurt, it raised its prices significantly, allowing Dannon to raise prices as well. Dannon increased prices more than 10 percent, and despite a drop in units sold, revenues increased five percent.

“What happens to number one brands when number two brands add products and vice versa? I find what’s happening often is that revenues are going up instead of down. I suspect that profits will go up a smaller percentage, but given that revenues are going up 40-50-60 percent of the time, we would expect that profits go up a significant fraction of those times, maybe 25 to 30 percent of the time profits are going up as well.”

—Raphael Thomadsen

**KEY TAKEWAYS for Managers**

- Understanding how product line expansion affects the profits of both the expanding firm and rival firms is essential to understanding the nature of competition.
- Managers should not necessarily worry that a competitor’s new offering will be harmful. Profits may even increase if price competition softens.
- Consider how your rival is likely to respond to your new-product introduction. If each of the rival’s products becomes more profitable after the new-product introduction, it’s unlikely that the rival’s response will be to trim its product line.

“Seeking an Expanding Competitor: How Product Line Expansion Can Increase All Firms’ Profits”

Raphael Thomadsen, Associate Professor of Marketing, Olin Business School, Washington University in St. Louis

Publication: Journal of Marketing Research, Volume 49, Number 3, June 2012, pages 349–360
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