Management Science

Publication details, including instructions for authors and subscription information:
http://pubsonline.informs.org

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To cite this article:
Michael F. Gorman, (2010) Management Insights. Management Science 56(12):iv-vi. https://doi.org/10.1287/mnsc.1100.1291

MANAGEMENT SCIENCE
Vol. 56, No. 12, December 2010, pp. iv–vi
ISSN 0025-1909 | EISSN 1526-5501 | 10 | 5612 | 00iv

informs

DOI 10.1287/mnsc.1100.1291

Management Insights

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Maximizing the Efficiency of the U.S. Liver Allocation System Through Region Design (p. 2111)
Nan Kong, Andrew J. Schaefer, Brady Hunsaker, Mark S. Roberts

The 12th-leading cause of death in the United States is liver disease such as cirrhosis or hepatitis. The only viable solution to this disease is liver transplantation, but the supply of donors is far lower than the demand for livers. Liver allocation is a tricky business; competing interests of recipient prioritization (who needs it most, the probability of finding a good match), keeping the recipient options open, and expedited transport from donor to recipient (quick delivery of the liver to maintain high viability) must be balanced to allocate this scarce and valuable resource. To help with this allocation, the United Network of Organ Sharing, which operates the organ transplantation system in the United States, developed a local, regional, and national prioritization plan to try to balance these objectives. The authors developed a methodology that reconfigures donor regions to better balance these objectives, and they suggest that their regional configuration could improve liver allocation and save more lives than the current system. The insight for management: Through redesign of liver allocation regions mathematical methods can save lives.

The End of the Robinson-Patman Act? Evidence from Legal Case Data (p. 2123)
Ryan Luchs, Tansev Geylani, Anthony Dukes, Kannan Srinivasan

The Robinson-Patman Act (RP) of 1936 is an antitrust statute aimed at protecting small businesses by limiting price setting in distribution channels. But how likely is a court to find a defendant guilty of violating the RP? The authors find that this likelihood has dropped drastically as a result of recent Supreme Court rulings from more than 1 in 3 before 1993 to less than 1 in 20 for the period 2006–2010. The analysis also points to an increased success of the "no harm to competition" defense, which reflects the view that the courts have raised the hurdle for plaintiffs to establish competitive harm. Ironically, their results indicate that smaller plaintiffs over time have fared worse than larger ones, a trend that challenges the notion that RP protects small businesses. The insight for management: RP has recently not been well enforced, nor has it seemingly helped the small retailer, as was originally intended.

What Makes Them Tick? Employee Motives and Firm Innovation (p. 2134)
Henry Sauermann, Wesley M. Cohen

What makes innovators more innovative? The authors examine data on more than 1,700 Ph.D. scientists and engineers to address this question. They find that motivation is a strong factor, but not all motivators have similar impact. More aggressive motives regarding intellectual challenge, independence, and money have a strong positive relationship with innovative output, whereas conservative, risk-averse motives regarding job security and responsibility tend to have a negative relationship. The insight for management: Innovators tend to be risk takers; innovation is better induced through more aggressive indicators. Choose incentives for your innovators well and reap the benefits of increased innovation.

Integrating Dynamic Pricing and Replenishment Decisions Under Supply Capacity Uncertainty (p. 2154)
Qi Feng

In the face of uncertain demand and supply, what are the optimal pricing and stocking strategies? The author shows that the optimal stocking policy is characterized by two simple but critical values: a reorder point and a target safety stock. Under this policy, a positive order is issued if the inventory level is below the reorder point. For the pricing question, the author suggests that a simple list price policy fails to achieve optimality even under known demand. The author characterizes the profit improvement obtained from deploying dynamic pricing as opposed to static pricing, and finds that uncertain or constrained supply may induce a significant benefit from dynamic pricing. With excess supply, dynamic pricing is more valuable when procurement cost is high or when demand is more sensitive to price. With limited supply, however, the capacity restriction tends to be relaxed, reducing the value of dynamic pricing. The insight for management: In the face of uncertain supply and demand, dynamic pricing policies can be used to improve profitability.

Selling with Binding Reservations in the Presence of Strategic Consumers (p. 2173)
Nikolay Osadchiy, Gustavo Vulcano

Is there an alternative to markdown pricing in retail, given that customers anticipate that items will eventually be marked down? It is well known that retailers often use

price markdowns to discriminate between early buyers, who are price insensitive, and later buyers, who are willing to wait for a discount. But, because buyers can anticipate a markdown, some will wait to purchase, costing the retailer revenue. The authors analyze a binding reservations strategy: Upon arrival, each consumer must decide either to buy at the full price and get the item immediately or to place a binding reservation at a discount price and wait until the end of the sales season. They find that the proposed mechanism delivers 12% higher revenues in their analysis. The insight for management: Revenues may increase markdown strategy through binding reservations.

The Firm as a Socialization Device (p. 2191)
Abhijit Ramalingam, Michael T. Rauh

Why do firms exist? What is their function? What do managers do? What is the role, if any, of social motivation in the market? The authors address these questions with a new theory of the firm, which unites some major themes in management, principal-agent theory, and economic sociology. They show that, although the market is a superior incentive mechanism, the firm has a comparative advantage with respect to social motivation. They then show that the market is efficient in environments that favor the provision of incentives, such as when subjective risk is low and performance is easy to measure. The firm is efficient in other environments where incentives are costly and/or ineffective. The insight for management: Both economic and social incentives are important to behavior; social elements of the organization may drive behaviors in environments where performance is difficult to measure.

Bundling Strategies When Products Are Vertically Differentiated and Capacities Are Limited (p. 2207)
Mihai Banciu, Esther Gal-Or, Prakash Mirchandani

Should a mall space owner, or any owner of multiple capacity-constrained resources, offer space in different malls individually, as a bundled package, or sometimes bundled and sometimes not? Previous research found an unambiguous dominance of the mixed bundling strategy. These authors provide a new answer: all of the above, depending on the availabilities of the two resources. The authors find that the possible strategies that can arise as equilibrium behavior include a pure components strategy, a partial- or full-spectrum mixed bundling strategy, and a pure bundling strategy. The insight for management: Bundling strategies depend on the capacity and differentiation of the products being bundled.

Optimal Bundling of Technological Products with Network Externality (p. 2224)
Ashutosh Prasad, R. Venkatesh, Vijay Mahajan

Facebook is an example of an Internet community that faces a positive network externality: The more people who belong, the more valuable the community becomes, with very little or no incremental cost. On the other hand, a handheld device that delivers Facebook to its members has convenience value (and cost) to the individual user, but not to the community as a whole. To leverage externalities, Facebook might like to bundle its product with a handheld device, but not vice versa. The authors suggest that mixed bundling is most appropriate in this situation; that is, a firm should bundle the network product with the purchase of the product with fewer network externalities, but not vice versa. If both products have low marginal costs and/or high positive network externalities, a pure bundling strategy makes sense. The asymmetry of the two products drives this varied result. The insight for management: The appropriate bundling strategy depends on individual products' network externalities and costs; in many cases, a mixed bundling strategy is appropriate.

Imperfect Competition in Financial Markets: An Empirical Study of Island and Nasdaq (p. 2237)
Bruno Biais, Christophe Bisière, Chester Spatt

How does granularity of asset pricing affect liquidity? The grid is the increments of price acceptable in a trading market; a finer grid ostensibly could create more liquidity. The competition between Island and Nasdaq markets at the beginning of the century offers a natural laboratory to study competition between and within trading platforms and its consequences for liquidity supply. The authors studied the difference between the pricing grids used on Island and Nasdaq markets. Using the finer grid prevailing on the Island market, Island limit order traders undercut Nasdaq quotes much more than they undercut one another. A drop in the Nasdaq tick size triggered a drop in Island spreads despite the Island tick's already being very thin before Nasdaq decimalization. The insight for management: Perfect competition cannot be taken for granted, even on transparent open limit order books with a very thin pricing grid.

The Behavior of Risk and Market Prices of Risk Over the Nasdaq Bubble Period (p. 2251)
Gurdip Bakshi, Liuren Wu

What were the harbingers of the Nasdaq bubble burst in the early 2000s? In their statistical analysis, the authors control for fluctuations in both risk levels and market prices of different sources of risk, and they estimate the model using the time-series returns and option prices on the Nasdaq during the period from March 1999 to March 2001. Their analysis reveals three key variations that may have signaled a burst. First, return volatility increased together with the rising Nasdaq index level, even though the two tend to move in opposite directions. Second, although the market price of diffusion return risk averages approximately 1.82 over the whole sample, the estimates reached negative territory at the end of 1999. The estimates reverted back to highly positive values after the collapse of the Nasdaq market. Third, the market price of

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Management Science 56(12), pp. iv–vi, © 2010 INFORMS

jump risk increased with the rising Nasdaq valuation, and this increase in market price coincided with an increased imbalance in open interest between put and call options. The insight for management: Perhaps there are statistical signals that foretold the Nasdaq collapse.

A Dynamic Inventory Model with the Right of Refusal (p. 2265)
Sreekumar Bhaskaran, Karthik Ramachandran, John Semple

When should a firm stop selling? Production and orders tend to lag behind sales, and inventory is used to buffer the difference. When inventory falls short, the firm can backlog demand at some backlog cost or refuse to service it (i.e., stop selling) resulting in a lost sale. When, then, is a backlog cost more than the lost sale? Each period, a firm must determine the optimal order and sales strategy. The authors show that the optimal policy is characterized by an optimal buy-up-to level that increases with the initial inventory level and an order quantity that decreases with the initial inventory level. More importantly, the authors show that the optimal sales strategy is characterized by a critical threshold, a backlog limit, that dictates when to stop selling. They show that, as demand increases, the amount purchased increases but the amount backlogged decreases, reflecting a shift in the way that excess demand is managed toward more refusals. The insight for management: In some cases, refusing an order and losing altogether may be preferable to backlogging it and servicing it later.

Bargaining Chains (p. 2282)
William S. Lovejoy

In most supply chains, each firm negotiates with its immediately upstream and downstream partners to provide a product or service. In each stage, a firm might bargain with its immediate suppliers, who do the same with their suppliers, and so on. How does the structure of such "bargaining chains" affect supply chain performance? The author develops a model to generate chainwide predictions for efficiency and profitability in supply chains that follow such pairwise negotiations. The author further investigates the implications of his results for investments in process improvements or supplier development. The insight for management: Negotiations with suppliers directly affect the entire supply chain performance.

An Exact Algorithm for Finding Extreme Supported Nondominated Points of Multiobjective Mixed Integer Programs (p. 2302)
Özgür Özpeynirci, Murat Köksalan

Some classic problems in operations research can be multiobjective, such as the knapsack problem and the traveling salesman problem. The authors present an algorithm to find all nondominated solution points of such problems. The algorithm finds all the desired points in a finite number of steps by changing the weights of the objective functions in a systematic way. The insight for management: New approaches to traditional problems may expedite their solutions, allowing more complex problems to be more readily solved.

Reassessing Data Quality for Information Products (p. 2316)
Debabrata Dey, Subodha Kumar

How trustworthy is your database, and how reliable are the reports that emanate from it? The direct cost of poor data quality has been estimated to be in the billions of dollars per year for U.S. businesses. Poor data quality leads to several other intangible losses such as customer dissatisfaction, less effective decision making, and the reduced ability to execute business strategies. The authors advance recent theory on database quality and evaluate database accuracy and completeness as they relate to typical queries in their assessment of the impact of database problems on businesses. The insight for management: The report guiding your decisions is only as good as the database it comes from; research on database quality helps to clarify the costs of bad data.

Design for Location? The Impact of Manufacturing Offshore on Technology Competitiveness in the Optoelectronics Industry (p. 2323)
Erica Fuchs, Randolph Kirchain

Today, only 28% of manufacturing value-added production occurs within the United States. Is product design affected by the trend toward offshoring? The authors present a case study of the impact of manufacturing offshore on technology competitiveness in the optoelectronics industry. It examines a critical design/facility location decision being faced by optoelectronic component manufacturers. The authors show that production location changes the relative production economics of the two competing designs—one emerging, one prevailing. Specifically, if optoelectronic component firms shift production from the United States to countries in developing East Asia, the emerging designs that were developed in the United States may not be appropriate. Production characteristics are different abroad, and the prevailing design can be more cost effective in developing country production environments. The insight for management: Product design and production facility location decisions are intertwined and perhaps should not be treated independently.