

## Marketing Science

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Kusum Ailawadi, Tat Chan, Puneet Manchanda, K. Sudhir

To cite this article:

Kusum Ailawadi, Tat Chan, Puneet Manchanda, K. Sudhir (2020) Introduction to the Special Issue on Marketing Science and Health. Marketing Science 39(3):459-464. <https://doi.org/10.1287/mksc.2020.1230>

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# Introduction to the Special Issue on Marketing Science and Health

Kusum Ailawadi,<sup>a</sup> Tat Chan,<sup>b</sup> Puneet Manchanda,<sup>c</sup> K. Sudhir<sup>d</sup>

<sup>a</sup>Tuck School of Business, Dartmouth College, Hanover, New Hampshire 03755; <sup>b</sup>Olin Business School, Washington University in St. Louis, St. Louis, Missouri 63130; <sup>c</sup>Ross School of Business, University of Michigan, Ann Arbor, Michigan 48104; <sup>d</sup>Yale School of Management, Yale University, New Haven, Connecticut 06520

Contact: kusum.ailawadi@dartmouth.edu (KA); chan@wustl.edu (TC); pmanchan@umich.edu (PM); k.sudhir@yale.edu,

 <https://orcid.org/0000-0002-2013-612X> (KS)

<https://doi.org/10.1287/mksc.2020.1230>

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**Abstract.** This editorial introduces the special issue on marketing science and health. We begin by describing the healthcare ecosystem and its many distinguishing features relative to other markets. With its large share of U.S. and world gross domestic product; rapid changes on the demand, supply, and regulatory sides; and a complex ecosystem with many types of participants, healthcare markets provide a rich canvas of novel research opportunities for marketing scholars. We then describe the special issue process and the papers published in the special issue. We summarize key themes that emerge from these papers and conclude with a discussion of future research opportunities in the area.

## 1. Introduction

Global spending on healthcare exceeds \$8 trillion per year, and countries the world over are struggling to provide more effective and affordable healthcare and trying to improve consumers' own health-related behaviors. In the United States alone, the healthcare sector is one of the largest and most complex in the economy, accounting for about 18% of the overall gross domestic product of over \$20 trillion. Healthcare is a particularly challenging and interesting area for research because inputs, expenditures, behaviors, and outcomes are determined in a complex ecosystem, including consumers/patients, physicians, hospitals, pharmaceutical and device manufacturers, group purchasing organizations, retailers, private insurance providers, and national single payers. Marketing science has the potential to touch, influence, and inform every element of this ecosystem.

Over the last decade and a half, marketing researchers have examined topics ranging from consumer wellness and public health (Bublitz et al. 2010, Batra et al. 2011) to pharmaceutical marketing and physician behavior (Manchanda et al. 2005, Manchanda and Honka 2005) as well as firm strategies and innovation in healthcare markets (Burns 2012). Our goal with this special issue and the conference that preceded it is to convene and curate a set of high-quality papers that showcases the multifaceted relevance of marketing science to this important part of the economy.

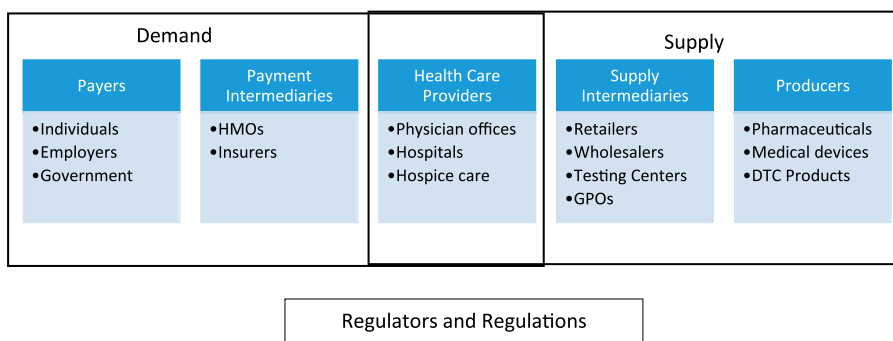
We hope that the special issue encourages more research on topics related to consumer wellness, public health, and the business of healthcare. We also hope that the papers increase the visibility and impact of this research not just for consumers and healthcare

industry marketers but also, for public health professionals and policy makers. The role of marketing and marketing science continues to become critically important as consumers drive more choice themselves in healthcare (e.g., because of Health Savings Accounts and Direct to Consumer (DTC) advertising) and with emergence of new institutions and government regulations that impact choices and outcomes in the sector. Furthermore, there are much more data in the industry, with increased access to data on health-related choices of patients from Internet of Things-type (IOT) devices and electronic medical records and greater availability of organizational and transactional data. All of this makes it very timely for *Marketing Science* as a scholarly journal to both tackle new academic problems and emphasize research at the intersection of marketing science and health.

The rest of the editorial is structured as follows. Section 2 describes the healthcare systems and also serves to organize our thinking on the unique substantive problems and new opportunities at the intersection of marketing science and health. Section 3 discusses the special issue process and summarizes the papers in the special section and how they fit in with the ideas described in Section 2. Section 4 concludes.

## 2. The Healthcare Ecosystem

A useful approach to structure novel research opportunities in the area of marketing and health is to consider the rich and distinguishing features of the healthcare ecosystem. Figure 1 depicts the key elements of the ecosystem. First, the demand side, unlike most standard marketing problems where the payers and the consumers are often the same, only a small

**Figure 1.** (Color online) The Healthcare Ecosystem

Source. Adapted from Burns (2012) and Stremersch (2008).

Note. HMO, health maintenance organization.

fraction of the cost of healthcare is paid out of pocket by consumers. The ultimate cost of care is often paid by employers or governments, typically through various types of insurance providers. This leads to unique challenges in modeling consumer choices in healthcare related to other markets.

Second, on the supply side, not only are there manufacturers but also, a large number of intermediaries, including channels (pharmacies and other channel intermediaries) and service providers (e.g., hospitals). Given the complexity of navigating the ecosystem, there are specialized intermediaries, such as group purchasing organizations, that serve as bargaining agents between manufacturers and hospitals. Often, there are pricing contracts with complicated compliance requirements that are audited by third parties. Even within a hospital, choices in various categories are impacted by interactions that take into account patient needs, surgeon/physician/nursing staff preferences, and hospital administrative staff. Marketing involves pull strategies targeting the direct end consumer or patient and also, push strategies involving the various intermediaries. The relative importance and power of the consumer and the various intermediaries differ across categories, requiring a wide variety of appropriate marketing strategies given the particular structure and characteristics of each market.

Third, given the substantial impact of the industry overall on social welfare, the healthcare ecosystem has a plethora of regulations related to both the demand side and the supply side. There are a variety of regulators for the healthcare ecosystem. For medical and pharmaceutical product innovation, patent regimes provide protections to innovators for reaping the benefits of innovation. Similarly, regulations for clinical trials in medical and pharmaceutical product development serve to ensure the effectiveness and safety of the commercialized products and the safety of participants in the trials. However, there are also costs for these trials. It is critical for marketing scholars to understand the tradeoffs underlying these

patent protections and regulations to inform and improve policy.

We note that, because health also covers preventive care, a large sector of the healthcare business ecosystem involves health choices by consumers without the interventions of healthcare providers. Thus, the business of health includes topics around wellness, health communications, and healthy behavior. This often requires changing longer-term lifestyle habits and behaviors, which are typically harder to change than short-term choice behaviors. Accordingly, there is a growing literature on how to impact and “nudge” such behaviors using various levers. Beyond standard approaches, like provision of information and incentives that impact utility, researchers often assess the use of framing and behavioral nudges of various types to elicit desired behaviors.

### 3. The Special Issue

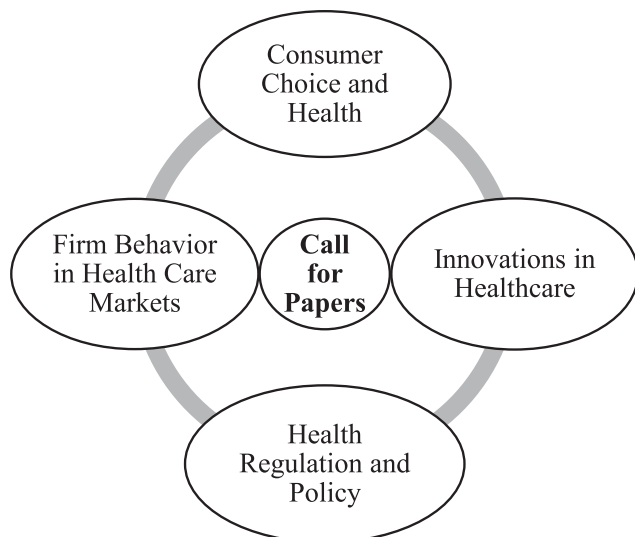
The special issue was accompanied by a companion conference held at Washington University in St. Louis in November 2016 to help showcase research in the area. Of the 42 submissions, 12 papers were selected for presentation at the conference. The special issue submissions went through the standard *Marketing Science* review process separate from the conference. Of 42 submissions, 9 papers were accepted for the special issue.

The call for papers for the special issue captured many of the distinguishing features of the healthcare ecosystem that we noted within the four distinct yet interrelated areas shown in Figure 2. Each of the nine papers that appear in this special issue tackles one or more of these broad topics and takes the perspective of a subset of the interdependent entities that comprise the health ecosystem.

#### 3.1. Consumer Choice and Health

Over the years, the marketing literature has addressed various issues related to consumer choice as it relates to health and wellness. For example, marketing scholars

**Figure 2.** Potential Topic Areas in Call for Papers



have studied consumption changes in response to a chronic illness diagnosis (Ma et al. 2013), self-control for healthy consumption (Huang et al. 2015), increase in risky health behaviors when new treatments become available (Chan et al. 2016), and compliance in prescription drug use (Bowman et al. 2004).

In the special issue, two papers address the issue of consumer wellness and health as it relates to nutrition and weight loss. As described earlier, these behaviors often involve changes to long-term habits and issues of self-control. Cadario and Chandon (2020) conduct a metaanalysis of research that has studied the effects of various healthy eating nudges in the field. They organize seven nudges as cognitively, affectively, or behaviorally oriented; quantify their average effect sizes; and show how the effect sizes vary for different behavior outcomes, choice contexts, and populations.

Uetake and Yang (2020) consider the role of peer effects on the effectiveness of weight loss programs, specifically considering how sharing information about the performance achieved by one's peers affects one's own performance in the context of a weight loss program. They document an interesting effect—participants in the program do better (i.e., lose more weight) when they are given information about how much weight the top performer has lost and they do worse (i.e., lose less weight) when the information is about how much weight their peers have lost on average.

A third paper addresses a public health issue in a marginalized segment of society—sexually transmitted infections (STIs) among sex workers—in a developing country (India). Hui et al. (2020) investigate

the effectiveness of peer outreach programs in controlling STIs. They find that these programs do not directly help in preventing STIs but that they accelerate detection; therefore, they indirectly improve health by improving the ability of sex workers to recognize their symptoms and seek treatments early.

### 3.2. Firm Behavior in Healthcare Markets

Given the complexity of the healthcare ecosystem, this is potentially a very fertile area of research to investigate behavior of (1) individual firms, (2) subsets of firms within the ecosystem (e.g., hospitals and Group Purchasing Organizations (GPOs); hospitals and manufacturers), and (3) intrafirm behavior (e.g., physicians and hospital administrators). This research can potentially draw on and contribute to research in the area of business-to-business marketing, group decision making, etc. In terms of behaviors, one can study the various marketing mix variables (prices, promotions, detailing, and treatment choices) as well as outcomes across different markets.

As discussed in Section 1, there is a rich literature in marketing on how firms use DTC advertising (Wosinska 2005) and physician detailing through pharmaceutical salespeople (Narayanan and Manchanda 2009, Chan et al. 2016). Recent work has begun to carefully model the interactions between entities within the ecosystem on price bargaining (e.g., Grennan (2013, 2014) models prices paid by hospitals to medical device providers based on their bargaining power) and new product adoption (e.g., Mojir and Sudhir (2019) model the decision to contract between hospital administrators and medical device providers as a function of surgeon choice of adoption).

Guo et al. (2020) specifically study physician prescription behavior in response to regulations that make marketing activities and payments to physicians transparent. Exploiting the natural experiment involving the passage of the “Sunshine Act,” they find that such transparency makes physicians extremely sensitive to the semblance of being influenced by marketers and that it lowered their prescriptions significantly. Although they are careful to note that overall prescriptions of generics also went down, it suggests that making physicians aware of their incentives can have an impact on prescribing behavior.

Dai and Singh (2020) also address a similar question about strategic behaviors of physicians that may not be necessarily aligned with patient needs. They study how the ordering of diagnostic tests not only takes into account their diagnostic value for the patient but also, how the physicians will be perceived in terms of their reputation. Using a game theoretical model, they show that high-reputation physicians may order

fewer diagnostic tests to communicate their higher intrinsic abilities.

### 3.3. Innovation

Innovation in the healthcare sector is moderated through a variety of regulatory frameworks, including patent protection and regulations for clinical trials. The impact of the costs of clinical trials on new product development and the benefits of patent protection have been the subject of research in marketing and economics (Ding and Eliashberg 2002, Chatterjee et al. 2015).

In this special issue, Rao (2020) studies the effect of patent protections and a faster Food and Drug Administration approval process on the rate of drug innovations. Interestingly, she finds that such regulations reduce firm profits owing to the increase in competition because the rate of innovation increases. The paper highlights that seemingly firm-friendly protections that may at first sight seem to be at the expense of society can raise societal and consumer welfare when the equilibrium effects are considered.

Much more work needs to be done in the area of marketing and innovation in the area of healthcare. There is interesting variation within and across countries in both the patent regimes and clinical trial regulations that can help marketing scholars learn about the impact of these regulations on the overall innovation process. Furthermore, innovations are often developed with smaller firms (especially in the area of biotechnology) doing the early stages of Research and Development (R&D) and clinical trials before being acquired by larger firms with greater commercialization and marketing skills. Finally, there is an emphasis on drugs that have the potential to be blockbusters, but this ignores illnesses afflicting large numbers of people in many developing countries, where the revenue potential is much lower. Much more research needs to be performed to understand how the costs and benefits of innovation across countries impact the development of innovations in the healthcare sector within both developed and developing countries.

### 3.4. Regulation and Policy

As we have noted, healthcare is one of the most regulated sectors of the economy, and policy makers are keenly interested in the market impact of various regulatory options. Many of the papers in the special issue have regulatory implications (as mentioned). In this section, we highlight the regulatory issues in more detail.

Two papers focus on regulations around advertising for hospitals and health insurance. Kim and Diwas (2020) show that television advertisements make patients more likely to select the advertised hospitals. As a result, they argue that, because the

advertisements drive patients to higher-quality hospitals, banning advertisements will increase hospital readmissions because these patients may end up with lower-quality hospitals in the absence of advertising. Although the flight to higher quality is discussed as a positive in the paper, more work is needed on the long-term equilibrium effects of advertising in the presence of capacity constraints at higher-quality hospitals. One would hope that competition created by advertising would increase quality across all hospitals in order to attract patients. However, if better hospitals target patients from richer neighborhoods who use them even for mundane illnesses, overall welfare can fall because patients from poorer neighborhoods with more serious illnesses cannot receive the high-quality care that they need much more.

Shapiro (2020) evaluates the role of health insurance advertising on the potential for “cream skimming,” an issue of particular relevance in the insurance sector. Because risk pools determine overall insurance cost of insurance to patients, cream skimming by advertising selectively to enroll the healthiest patients can increase insurance costs for customers in riskier pools targeted by other firms that cannot advertise. He finds that this concern is mostly unfounded. In fact, firms do not seem to act on the information on the returns to advertising expenditure. Specifically, using a natural experiment, he finds that the effect of advertising by health insurance firms is essentially zero but that firms continue to spend on advertising. This remains a puzzle and opens up avenues for further research.

Related to the work by Kim and Diwas (2020), Yoon (2020) addresses a situation with hospital capacity and considers how quality information disclosure (instead of advertising) will lead to patient reallocation. He finds that the best healthcare providers are often congested after quality information disclosure. This congestion can lead to the reallocation of urgent patients to low-quality healthcare providers, potentially having a detrimental impact on the overall patient survival rate if sicker patients benefit more from the best providers. This paper provides the first empirical evidence regarding this problem in the context of the publication of cardiac surgery report cards.

Guo et al. (2020) address another aspect of information disclosure. They consider the effect of transparency through information disclosure on market outcomes (prescriptions) that may be potentially impacted by payments to physicians. They show that, when regulation forced pharmaceutical companies to disclose payments to physicians, they (physicians) lowered their prescriptions significantly. However, it is hard to ascribe the drop to a change in payments as a result of disclosure because generic prescriptions

(that are not paid for) also saw drops. It remains unclear if this drop in both branded and generic drug prescriptions is a net positive for patients. This “underprescribing” behavior could lead to poorer health outcomes for patients.

Overall, Guo et al. (2020) and Yoon (2020) show that regulations, like disclosure intended to increase welfare, can have unintended and potentially negative consequences and therefore, should be of interest to regulators and policy makers.

### 3.5. Discussion and Summary

We summarize key features of the papers published in the special issue in Table 1. Beyond the substantive topics discussed, the table highlights that the papers cover a broad range of the health ecosystem participants. Although most papers focus on the United States, the metaanalysis of Cadario and Chandon (2020) uses studies from multiple countries, whereas Hui et al. (2020) study the Indian context.

Given the variations in health systems across countries and especially, the differences in needs across developed and developing countries, research focusing on and exploiting the variations in systems across countries can be immensely useful for understanding the business and regulatory aspects of healthcare. For example, the recent heterogeneous responses and outcomes to the coronavirus across countries could potentially shed light on how the structure of the different ecosystems, their preparedness, incentives, the effective use of data, etc. can impact public health responses and

interventions toward slowing and mitigating epidemic diffusion in an emergency (Barron 2020, Wang et al. 2020).

The research methods across the nine papers in this special issue cover a gamut of methodologies: metaanalysis, quasiexperiments, field experiments, structural modeling, and game theoretic modeling. The quasiexperimental methods used a variety of identification strategies, including difference in differences, border-based discontinuity, and natural experiments. Clearly, good marketing science is about matching the appropriate method to the problem and not about applying the most sophisticated methods. It is gratifying to see a variety of methods appropriately used in the special issue.

One important theme that cuts across many of the studies is how the provision and framing of information and incentives from various sources affect consumer, physician, and firm behavior. Such provision and framing of information and incentives arose in the form of nudges (Cadario and Cardon 2020), mandatory disclosure by regulation (Guo et al. 2020, Yoon 2020), regulations on firms (e.g., advertising bans on insurance as in Shapiro 2020 or on hospitals as in Kim and Diwas 2020 and Dai and Singh 2020), and consumers’ endogenous focus on information (Uetake and Yang 2020). Another theme that links many of the papers is that they directly address the question of how welfare of one or more agents in the health ecosystem can be affected by the actions of marketplace participants or regulators.

**Table 1.** Papers Accepted in the Special Issue

Paper	Focus	Health ecosystem participant	Market	Method
Cadario and Chandon (2020)	Nudges for healthy eating	Consumer	Multiple countries	Metaanalysis of field/laboratory experiments
Dai and Singh (2020)	Use of clinical testing by physicians for patient diagnosis vs. reputation management	Patient/physician	NA	Analytical
Guo et al. (2020)	Effect of payment disclosure on patient prescriptions	Physician/regulation	United States	Quasiexperiment
Hui et al. (2020)	Effect of peer education on prevention/detection of STIs	Patient (sex worker)	India	
Kim and Diwas (2020)	Hospital advertising effect on patient demand and health outcomes	Patient/hospital/regulation	United States	Quasiexperiment/field experiment
Rao (2020)	Effect of patent strength and speed of approval on innovation	Drug manufacturer/regulator	United States	Structural model
Shapiro (2020)	Short- and long-run effects of health insurance advertising on customer acquisition	Consumer/insurance/regulation	United States	Quasiexperiment/natural experiment
Uetake and Yang (2020)	Peer effects in weight loss program outcomes	Consumer	United States	Quasiexperiment
Yoon (2020)	Effects of cardiac surgeon performance disclosure on patient matching and health outcomes	Physician/patient/hospital	United States	Natural experiment

Note. NA, not applicable.

## 4. Conclusion

This special issue includes a diverse set of papers that tackle a range of questions addressing a variety of participants in the healthcare ecosystem using a varied set of methods. Nevertheless, it should be clear that issues addressed here are just the tip of the iceberg.

First, there clearly needs to be more work on how various participants interact *across* the ecosystem and more research in understanding how decisions and choices get made, even within these large organizations. For example, how do the competing interests of various participants (e.g., physicians, surgeons, nurses, and administrators) work together in terms of choice? Second, it is useful to expand the focus to go beyond the United States to understand marketing issues in the healthcare sector across various countries in order to enrich and deepen our academic understanding. Third, in an age of more sensors (IOT, mobile, and even wearables) and big data and as better real-time data become available not just about every element of the ecosystem but also, about the interactions across these elements, new research questions and opportunities emerge. For example, new questions around evidence-based personalized and contextualized care, targeted marketing, etc. become more relevant than ever before. At the same time, questions of privacy, fairness, etc. also come to the fore. We hope the papers in the special issue serve as an impetus to spur much more research on the topic of marketing and health.

## References

- Barron L (2020) What we can learn from Singapore, Taiwan and Hong Kong about handling coronavirus. *Time* (March 13), <https://time.com/5802293/coronavirus-covid19-singapore-hong-kong-taiwan/>.
- Batra R, Keller PA, Strecher VJ, eds. (2011) *Leveraging Consumer Psychology for Effective Health Communications: The Obesity Challenge* (M. E. Sharpe, Abingdon, UK).
- Bowman D, Heilman CM, Seetharaman PB (2004) Determinants of product-use compliance behavior. *J. Marketing Res.* 41(3):324–338.
- Bublitz MG, Peracchio LA, Block LG (2010) Why did I eat that? Perspectives on food decision making and dietary restraint. *J. Consumer Psychol.* 20(3):239–258.
- Burns LR, ed. (2012) *The Business of Healthcare Innovation* (Cambridge University Press, Cambridge, UK).
- Cadario R, Chandon P (2020) Which healthy eating nudges work best? A meta-analysis of field experiments. *Marketing Sci.* 39(3):465–486.
- Chan TY, Hamilton BH, Papageorge NW (2016) Health, risky behaviour and the value of medical innovation for infectious disease. *Rev. Econom. Stud.* 83(4):1465–1510.
- Chatterjee C, Kubo K, Pingali V (2015) The consumer welfare implications of governmental policies and firm strategy in markets for medicines. *J. Health Econom.* 44(2015):255–273.
- Dai T, Singh S (2020) Conspicuous by its absence: Diagnostic expert testing under uncertainty. *Marketing Sci.* 39(3):540–563.
- Ding M, Eliashberg J (2002) Structuring the new product development pipeline. *Management Sci.* 48(3):343–363.
- Grennan M (2013) Price discrimination and bargaining: Empirical evidence from medical devices. *Amer. Econom. Rev.* 103(1):145–177.
- Grennan M (2014) Bargaining ability and competitive advantage: Empirical evidence from medical devices. *Management Sci.* 60(12):3011–3025.
- Guo T, Sriram S, Manchanda P (2020) “Let the sunshine in”: The impact of industry payment disclosure on physician prescription behavior. *Marketing Sci.* 39(3):516–539.
- Huang G, Khwaja A, Sudhir K (2015) Short-run needs and long-term goals: A dynamic model of thirst management. *Marketing Sci.* 34(5):702–721.
- Hui S, Krishnamurthy P, Kumar S, Siddegowda HB, Patel P (2020) Understanding the effectiveness of peer educator outreach on reducing sexually transmitted infections: The role of prevention vs. early detection. *Marketing Sci.* 39(3):500–515.
- Kim T, Diwas KC (2020) The impact of hospital advertising on patient demand and health outcomes. *Marketing Sci.* 39(3):612–635.
- Ma Y, Ailawadi KL, Grewal D (2013) Soda vs. cereal and sugar vs. fat: Drivers of healthful food intake and the impact of diabetes diagnosis. *J. Marketing* 77(3):101–120.
- Manchanda P, Honka E (2005) The effects and role of direct-to-physician marketing in the pharmaceutical industry: An integrative review. *Yale J. Health Policy Law Ethics* 5(2):Article 8.
- Manchanda P, Wittink DR, Ching A, Cleanthous P, Ding M, Dong XJ, Leeflang PS, et al (2005) Understanding firm, physician and consumer choice behavior in the pharmaceutical industry. *Marketing Lett.* 16(3–4):293–308.
- Mojir N, Sudhir K (2019) A structural model of organizational buying: Innovation adoption under share of wallet price contracts. Working paper, Harvard Business School, Boston.
- Narayanan S, Manchanda P (2009) Heterogeneous learning and the targeting of marketing communication for new products. *Marketing Sci.* 28(3):424–441.
- Rao A (2020) Strategic research and development investment decisions in the pharmaceutical industry. *Marketing Sci.* 39(3):564–586.
- Shapiro B (2020) Advertising in health insurance markets. *Marketing Sci.* 39(3):587–611.
- Stremersch S (2008) Health and marketing: The emergence of a new field of research. *Internat. J. Res. Marketing* 25(4):229–233.
- Uetake K, Yang N (2020) Inspiration from the “Biggest Loser”: Social interactions in a weight loss program. *Marketing Sci.* 39(3):487–499.
- Wang CJ, Ng CY, Brook RH (2020) Response to COVID-19 in Taiwan: Big data analytics, new technology, and proactive testing. *JAMA* 323(14):1341–1342.
- Wosinska M (2005) Direct-to-consumer advertising and drug therapy compliance. *J. Marketing Res.* 42(3):323–332.
- Yoon TJ (2020) Quality information disclosure and patient reallocation in the healthcare industry: Evidence from cardiac surgery report cards. *Marketing Sci.* 39(3):636–662.