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Program Report

Industrial Organization

Liran Einav and Jonathan Levin*

Researchers in the Program on Industrial Organization (IO) study consumer and firm behavior, competition, innovation, and government regulation. This report begins with a brief summary of general developments in the last three decades in the range and focus of program members’ research, then discusses specific examples of recent work.

When the program was launched in the early 1990s, two developments had profoundly shaped IO research. One was development of game-theoretic models of strategic behavior by firms with market power, summarized in Jean Tirole’s classic textbook. The initial wave of research in this vein was focused on applying new insights from economic theory; empirical applications came later. Then came development of econometric methods to estimate demand and supply parameters in imperfectly competitive markets. Founding program members including Timothy Bresnahan, Ariel Pakes, and Robert Porter played a key role in advancing this work.

Underlying both approaches was the idea that individual industries are sufficiently distinct and industry details sufficiently important that one needs to focus on specific markets and industries in order to test specific hypotheses about consumer or firm behavior, or to estimate models that could be used for counterfactual analysis, such as analysis of a merger or regulatory change. The econometric developments in the field, which emphasized structural modeling of demand and supply, ran somewhat counter to the trend in other fields toward the search for natural experiments to illuminate the causal effects of policy changes.

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There were, to be sure, some points of overlap with neighboring fields. A notable example was the role that industrial organization economists played in the activities of the NBER’s Program on Productivity, Innovation, and Entrepreneurship (PRIE), where researchers focused on the estimation of plant-level costs and productivity and the effects of firm and market characteristics on R&D spending and the rate of innovation.

In the last decade, the scope of program members’ research has broadened to encompass more industries and new topics. While studies of traditional manufacturing, service, and retail settings remain an important focus, there has been a rapid growth of research on sectors such as health care, education, financial markets, and the media.6

Expanding the Scope of Research

A nice way to illustrate the increase in the breadth of IO research is to examine the rate at which IO program members cross-list their working papers with other programs. We compiled all NBER working papers since 1990 on which at least one author was an IO program member, then computed the share of these papers that were cross-listed with another program. We considered only programs in which at least 5 percent of the papers by IO researchers were cross-listed with another program.

Figure 1 plots our findings. It shows an interesting evolution of cross-listing behavior in the last 15 years. While productivity remains a nontrivial focus of work in IO, there has been a remarkable increase in the share of IO papers cross-listed in other fields of applied microeconomics. This started in the early 2000s in the context of environmental regulation and energy—especially electricity markets, and continues in the last decade with a sharp rise in research on health care markets, insurance markets, labor markets, and on topics that overlap with public policy. While the cross-listing rate with programs other than PRIE was nearly zero in the program’s first decade, today nearly 20 percent of IO program papers are cross-listed with Public Economics, 20 percent with Health Care, 15 percent with Environment and Energy Economics, and 10 percent with Labor Studies. We think that two general forces have contributed to this new pattern, which in keeping with the program’s emphasis one may label as supply and demand.

On the supply side, econometric methods for studying imperfect competition have matured: From initial “test cases” using retailer scanner data to estimate demand and supply for consumer products such as breakfast cereal and other grocery items, these methods are increasingly applied to more complex products such as health insurance, primary schooling, consumer loans, media consumption, and financial products. The expansion of available data from private sector firms and markets has paralleled and facilitated this expansion.

On the demand side, there has been a large shift in many markets, such as electricity and health care, toward regulated competition. Some of these changes have grown out of changes in U.S. regulatory structure which, starting in the 1980s, prioritized private sector competition as the favored approach to improve efficiency and foster innovation. At the same time, there has been an increasing appreciation of the importance of market power in a wide range of industries, such as health care, financial services, retailing, and media. Indeed, these changes continue to be some of the most significant in the U.S. economy, suggesting bright prospects for the relevance and importance of industrial organization research in coming years.

Examples of Recent Research

To illustrate the broadening of research by industrial organization economists, we now summarize several specific papers. We have chosen these examples to underscore the broadening spectrum of industries and topics addressed by program members and the variety of approaches and tools being used to study competition and markets. These examples are not meant to be a summary of the much broader scope of the current IO program affiliates. All of the recent working papers by program affiliates may be found at www.nber.org/papers/9/10.html. This body of research includes large swaths of work on trade, media, political economy, and energy, as well as traditional competition policy, innovation, and regulation topics.

Competition in Health Insurance Markets

The U.S. health care system increasingly revolves around regulated health care markets. Today, 11 million Americans are enrolled in health plans through Affordable Care Act (ACA) exchanges, 17 million in Medicare Advantage plans, and 41 million in Medicare Part D plans. In each case, insurers are subject to market rules that regulate contract features, pricing, and risk adjustment. Larger employers frequently also sponsor health plan choice, again creating an environment of managed competition. These developments raise important questions about market power, market design, and asymmetric information.

Competition has been a central concern because health insurance markets are heavily concentrated. In the California Health Insurance Exchange, four insurers have 95 percent of the market. Insurer concentration is even higher in many state exchanges and Medicare Advantage regions. In tra-
ditional markets, market power raises consumer prices. This point is some-
times contested in health insurance markets because hospitals and health-care provider systems enjoy consid-
erable market power, and a dominant health insurer may enjoy the ability on consumer prices, lowering costs for consumers. Many recent papers by IO program members have studied this situation. For example, two recent papers examine health plan choice sponsored by CalPERS for California’s roughly 1.2 million state employees.5 Using data on plan choices, medical claims, and prices insurer pays to hospitals, they develop an econometric model of hospital-insurance bargaining, setting plan, and choice, and health care utilization, and simulate the effect of having fewer insurers. Their analysis highlights the importance of both traditional market power and bargaining power following a hypothetical merger. Holding hos-
itals and insurers constant, this paper examines the effects of additional con-
sumer premiums, but in some markets, greater leverage in bargaining not only counteracts this direct effect but leads
to overall lower consumer prices. Ho and Lee show how the magnitude of the competing effects varies across cit-
ies and hospital networks. Another study, by Benjamin Budish, Igal Hendel, and Michael Whinston, examines a key issue in the
Handel, Hendel, and Whinston, explores a key issue in the
demanding sense protects healthy individuals
as they develop an econometric model of
their analysis highlights the

Financial Market Microstructure

The design of market institutions and
the potential for market failures resulting from
designed choices have been among the themes addressed in recent IO pro-
gram meetings. Our second example is drawn from financial markets and
gains illustrates the breadth of indus-
ty focus among NBER IO members
and the diversity of methodological
approaches. The last 15 years or so have seen a
big shift in financial markets toward
electronic trading. One of the phe-
nomena associated with this has been the decrease in frequency of high-frequency trad-
ing and the associated rate for speed, with large financial firms making large
investments in network infrastructure to allow them to access the best possible
outsiders are not allowed to charge differential premiums based on
insurers, which protects individuals with pre-exist-
ing conditions, and in a forward-looking
sense protects healthy individuals who may opt out of paying high premiums, or
choose stripped-down plans. Much
of the debate around the ACA has cen-
tered on these dynamics and how best to address them.

Handel, Hendel, and Whinston
describe an elegant model that allows
them to study this situation empir-
ically, combining the classic adverse
selection theory with detailed plan
choice and claims data from a large
private employer to estimate the key
demand and supply parameters. Among
other things, the model suggests that higher-income employees would do better under health-based
pricing, although not by that much, while community rating, as under the
ACA, is hugely important for lower-
income workers or for workers on
something resembling a fixed income, which may be more representative of the current mix of ACA enrollees.

Both of these studies illustrate the
effect of powerful regulators.

Remarkably, the time for these
arbitrage gaps to close has narrowed
to less than one second for
immediate swaps, and one millisecond
for future trades. The
reason is that if the price
cheats the New York trader by
placing his order five hundred
miles away, it takes the trader
at least five hundred
miles worth of
communications to place it. The
price between the two
banks is then the
same, as
everyone is
creating
arbitrage opportunities. This
is one index point, regardless of how
late it hits the market. There is no
violent price fluctuation, and
the trader’s buy order gets to New
York before the price change, the profit
may see Macy’s advertising in response
to the search. The
resulting rise in
market volume
reduces
transaction
prices, which
are larger at
eBay than
at Amazon. The
prices
are
so
aware of eBay, and potentially of
other large advertisers, that they don’t

The Value of Soft Skills in the Labor Market

David J. Deming

Economists are increasingly focused on the importance of so-called “soft skills” for labor market success. The evidence is overwhelming that these skills—also called “non-cognitive skills”—are important drivers of success in school and in adult life. Yet the very term “soft skills” reveals our lack of understanding of what these skills are, how to measure them, and whether and how they can be developed. And the term “non-cognitive” is simply used to mean “not predicted by IQ or achievement tests.”

The job market is way ahead of the ivory tower in emphasizing soft skills. Employers frequently list teamwork, collaboration, and oral and written communication skills as highly valuable yet hard-to-find qualities in potential new hires. A 2017 survey by the National Association of Colleges and Employers found that “ability to work in a team” was the most commonly desired attribute of new college graduates. Teamwork was followed closely by written and verbal communication skills and was listed ahead of problem-solving skills, analytical or quantitative skills, and other attributes that are emphasized in formal educational settings. Yet, until recently, economists have had very little to say about the importance of soft skills in the workplace.

In contrast, a large body of work in economics focuses broadly on the economics of skill development, education, and the labor market. He received the Early Career Award from the Association for Education Finance and Policy and was named a William T. Grant Scholar in 2013.

Research Summaries

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STEM Jobs and the Slowdown in Demand for Cognitive Skills

While cognitive skills are still important predictors of labor market success, their importance has declined since 2000. An important recent paper finds significantly smaller labor market returns to cognitive skills in the early and mid-2000s, compared with the late 1980s and early 1990s. It computes the returns to cognitive skills across the 1979 and 1997 waves of the National Longitudinal Survey of Youth (NLSY)—the same survey that was used to document the importance of cognitive skills in several influential early papers. In a 2017 study, I replicate this finding and also show that returns to soft skills increased between the 1979 and 1997 NLSY waves. Moreover, recent findings suggest that employment and wage growth for managerial, professional, and technical occupations stalled considerably after 2000, which the researchers argue represents a “great reversal” in the demand for cognitive skills.

The slow overall growth of high-skilled jobs in the 2000s is driven by a decline in science, technology, engineering, and math (STEM) occupations. STEM jobs shrank as a share of all U.S. employment between 2000 and 2012, after growing strongly between 1980 and 2000. This relative decline of STEM jobs preceded the Great Recession. In contrast, between 2000 and 2012 non-STEM professional occupations such as managers, nurses, physicians, and finance and business support occupations grew at a faster rate than during the previous decade. The common thread among these non-STEM professional jobs is that they require strong analytical skills and significant interpersonal interaction. We are not witnessing an end to the importance of cognitive skills—rather, strong cognitive skills are increasingly a necessary—but not a sufficient—condition for obtaining a good, high-paying job. You also need to have social skills.

Between 1980 and 2012, social skill-inten-

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