2019/2020

ECONOMICS
AT MIT
The MIT Economics Department is based in the Morris and Sophie Chang Building (E52) at 50 Memorial Drive, Cambridge, MA. This building, which was completely renovated in 2016, still includes a number of opportunities for major gifts, including conference rooms, faculty offices, and common spaces. For more information on supporting this project, please contact Anne Marie Michel, the Assistant Dean for Development in the MIT School of Humanities, Arts, and Social Sciences, at ammichel@mit.edu.

Opening of Morris and Sophie Chang Building
L to R: Melissa Nobles, Dean, SHASS; L. Rafael Reif, President, MIT; Morris Chang ’52, SM ’53, ME ’55; Sophie Chang; Whitney Newey, Department Head 2011-2016, Economics; Robert Millard ’73, Chair, MIT Corporation.
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Recent Developments

MIT faculty continue to advance economic research and garner widespread accolades and prestigious recognitions for their work. The highlight of the 2018-19 academic year was the designation of Daron Acemoglu, the Elizabeth and James Killian Professor of Economics, as an Institute Professor, the Massachusetts Institute of Technology’s highest faculty honor. Professor Acemoglu has been the leading figure in the development of the modern field of political economy and is also known for groundbreaking work on economic growth, innovation, and labor markets. Acemoglu joins only eleven other professors across the Institute with this designation. Emeritus professors Peter Diamond and Robert Solow are also Institute Professors Emeriti.

We are delighted to welcome two new faculty members to MIT Economics. Stephen Morris, a wide-ranging theorist with influential work in game theory, mechanism design, macroeconomics, and political economy, joins us as a full Professor. Morris previously held professorships at Princeton and Yale. Clare Balboni, an empiricist with innovative work in environmental economics and its connections to international trade and political economy joined the department as the 3M Career Development Assistant Professor of Environmental Economics. She recently completed her PhD at the London School of Economics.

A selection of the many honors and awards of the past year include: Daron Acemoglu received both the Global Economy Prize and the Jean-Jacques Laffont Prize; David Autor was awarded a Carnegie Fellowship; Nikhil Agarwal was awarded a Sloan Research Fellowship; Josh Angrist received the Fama Prize from the University of Chicago and was named a MacVicar Fellow; Glenn Ellison was named a Distinguished Fellow of the Industrial Organization Society; Amy Finkelstein was awarded a MacArthur Fellowship; Bengt Holmstrom received an honorary doctorate from the University of Helsinki; Anna Mikusheva was named a Fellow of the Econometric Society; Parag Pathak was named by The Economist as one of the decade’s eight best young economists; and James Poterba received an honorary doctor of laws from the University of Notre Dame.

MIT faculty extend their professional impact through leadership at top economics journals and of national and international professional societies. Esther Duflo serves as editor of the American Economic Review; Amy Finkelstein is the inaugural editor of the new AEA journal American Economic Review: Insights, intended to promote rapid dissemination of shorter papers in economics; Dave Donaldson and Ben Olken are coeditors of American Economic Journal: Applied Economics; Arnaud Costinot is a coeditor of the Journal of International Economics; and Alexander Wolitzky is a foreign editor for the Review of Economic Studies. Stephen Morris is president of the Econometric Society, with Daron Acemoglu and Whitney Newey serving on the executive committee. Robert Gibbons is the president-elect of the Society for Institutional and Organizational Economics. MIT Economics continues to be well-represented in the leadership of the National Bureau of Economics Research (NBER), headlined by Mitsui Professor of Economics and NBER President James Poterba. David Autor is co-director of the NBER Labor Studies Program, Amy Finkelstein co-directs Public Economics, Robert Gibbons directs the Organizational Economics working group, Jonathan Gruber directs Health Care, Ben Olken co-directs Development Economics, and Parag Pathak co-directs the Market Design working group.

In addition to pursuing their individual research agendas, many department faculty are leading collaborative research initiatives that span a wide range of researchers and research sponsors. Joining the Abdul Latif Jameel Poverty Action Lab (J-PAL and J-PAL North America) and the School Effectiveness and Inequality Initiative (SEII) are a number of new initiatives that focus on the dramatic changes ongoing in labor markets. Daron Acemoglu, David Autor, and John Van Reenen co-direct a department initiative on The Future of Work; and David Autor is co-directing both a J-PAL experiment-based Future of Work initiative and an MIT-wide Task Force on the Work of the Future.

The department’s commitment to advancing leading-edge research is paired with a focus on enhancing the quality of economics education at MIT and beyond. At the graduate level, the department is committed to offering the
Economics at MIT

As this brochure was going to press, Abhijit Banerjee, Esther Duflo (PhD ’99), and former faculty member Michael Kremer were named as this year’s winners of the Nobel Memorial Prize in Economic Sciences. The Nobel citation lauds their “new approach to obtaining reliable answers about the best ways to fight global poverty.”

The new approach, in which randomized controlled trials are used to evaluate policies and improve understanding of the underlying economic forces that make them work well or poorly, transformed the field of development economics. The transformation began with some small-scale projects imagined at MIT – Banerjee and Kremer had arrived as young faculty members in 1993 and Duflo as a graduate student in 1995 – and took off in part with the ambitious 2003 founding of MIT’s Abdul Latif Jameel Poverty Action Lab (J-PAL).

Banerjee and Duflo are the sixth and seventh faculty members to have won the Economics Nobel Prize while at MIT. Duflo is also the 11th graduate of our department to have won. We look forward to telling you more and sharing photos of the induction ceremony in next year’s brochure!

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The department has also built on its investments in transforming undergraduate economics education. Successful collaboration with Course 6 led to the introduction in 2017 of a new undergraduate economics major, 6-14: Computer Science, Economics, and Data Science. Motivation for this was similar to that for the Economics and Statistics PhD program. Student interest in this new offering has been immediate and strong, with 109 majors declared at the start of the 2019-2020 academic year, 42 of whom are in the class of 2022. Individual faculty have also made substantial contributions to MIT undergraduate education. Of particular note, Joshua Angrist was named a 2019 MacVicar Faculty Fellow for excellence in undergraduate teaching.

MIT faculty strive to improve the access and quality of economics education available to learners well beyond the MIT campus. Department faculty have invested in a set of MITx courses that make MIT-level instruction available to thousands of students online. Since its inception, nearly 500,000 students have enrolled in an MITx economics class, including 84,005 in the 2018-2019 academic year. Faculty members have recognized that exposure to economics may begin for many students at the high school level, and in courses that are less technically demanding than those at MIT. The quality of resources and instruction may be uneven across schools for students in these pools. Seizing on this opportunity, Jonathan Gruber has partnered with MITx to develop an online Advanced Placement Microeconomics course.
For over a century, the Department of Economics at MIT has played a leading role in economics education, research, and public service. Francis Amasa Walker, MIT's third president, introduced undergraduate studies in economics at MIT. Walker, who rose to the rank of Brigadier General in the Civil War and directed the 1870 U.S. Census, was a leading economist of his day. He was a founder and president of the American Economic Association. In the early part of the twentieth century, Davis R. Dewey, the editor of the American Economic Review for twenty years and a longtime chairman of the MIT Economics Department, played a major role in preserving and expanding economics at MIT. In 1937, the Department added graduate courses leading to a master's degree. Four years later, in 1941, it introduced its world-renowned PhD program. MIT's approach to graduate training in economics has been widely emulated at other leading institutions.

MIT established its School of Humanities, Arts, and Social Sciences (SHASS) in 1950, with the Economics Department playing a central role within the School. The Economics Department expanded significantly in the years following World War II with entrepreneurial leadership from Rupert MacLaurin and a supportive university administration. By the 1950s, it had established itself as one of the world's leading centers for economic research. Graduates of the MIT Economics Department's doctoral program are now well-represented on the faculties of virtually all leading economics departments.

The MIT Economics Department today is a vibrant collection of faculty and students. The Department's faculty have received numerous awards, including the Nobel Prize. Many are Fellows of the National Academy of Sciences, the American Academy of Arts and Sciences, and the Econometric Society. Numerous faculty members have served in various elected offices of the American Economic Association and the Econometric Society.
The Department offers one of the most rigorous undergraduate economics educations of any U.S. college or university, and its classes attract a large undergraduate student enrollment. During the 2018-2019 academic year, 1,896 undergraduates enrolled in economics courses, 136 undergraduates were majoring in economics, of which 28 were studying economics (14-1), 27 were studying mathematical economics (14-2), and 81 of which were studying computer science, economics, and data science (6-14), 41 were minoring in economics, and another 286 took economics as a concentration. Many undergraduate majors, as well as students from other departments at MIT, participated in research projects supervised by the economics faculty. Many are funded by the Institute's Undergraduate Research Opportunities Program (UROP) and departmental UROP funds donated by generous alumni.

The Department is consistently ranked as a top graduate training institution. Each year the MIT PhD program enrolls twenty to twenty-four candidates, selected from approximately seven hundred applicants. During the 2018-2019 academic year, there were 119 graduate students enrolled in the Department's PhD program. Student dissertation topics span a wide range of issues in microeconomics and macroeconomics, and advance the frontiers of economic theory, data analysis, and econometric methodology. An important development of the last several decades has been a growing international demand for graduate economics training. Currently about half of admitted students have undergraduate degrees from American universities, while the rest have degrees from elsewhere in the world.

Doctoral candidates typically spend five to six years in residence at MIT taking graduate courses and doing research. The first two years of the PhD program are devoted primarily to course work, while the remainder of the program focuses on writing a doctoral dissertation. Graduates of MIT’s PhD program pursue diverse careers. While a majority enter academia, MIT economics PhDs are sought after by governments, domestic and international research and policy organizations, and private sector firms. In recent years, major Internet firms have hired top economics talent to oversee their market strategies and undertake research.

As the Internet has enabled electronic dissemination of information to replace traditional print media, the MIT Economics Department has developed a closely followed web presence. The Department’s web site provides up-to-date information on department courses and seminars. It includes links to the many web pages maintained by faculty, who often post research papers, policy papers, and data sets on their sites. Graduate students and economics researchers from around the world visit these web pages to download current research. Faculty’s research papers are often widely read and cited years before they are published in academic journals.

Many economics courses are also offered online. The undergraduate development economics course 14.73x: “The Challenges of Global Poverty,” made its debut as a full online course through MITx in the Spring of 2013. Since then, online undergraduate economics offerings have expanded to include 14.740x “Foundations of Development Policy: Advanced Development Economics” (Fall 2013), 14.100x “Principles of Microeconomics (Fall 2016), and 14.310x “Data Analysis for Social Scientists” (Fall 2016). The department’s newest online course, 14.750x “Political Economy & Economic Development,” will run for the first time in September 2019. The Abdul Latif Jameel Poverty Action Lab (J-PAL) also launched J-PAL 101x “Evaluating Social Programs” (Spring 2014), J-PAL 350x “Measuring Health Outcomes in Field Surveys” (Fall 2016), and J-PAL 102x “Designing and Running Randomized Evaluations” (Spring 2017). MIT Economics and J-PAL have combined many of these courses to launch the MITx MicroMasters credential in Data, Economics, and Development Policy. Graduates of the MicroMasters program are eligible to apply to a new blended Master’s program in Data, Economics, and Development Policy, which is launching this academic year. The majority of classes offered by the Economics department—seventy-one at last count—have their materials made freely available online through MIT’s heralded Open Course-Ware (OCW) initiative (ocw.mit.edu).
The John Bates Clark Medal is awarded each year by the American Economic Association to the American economist under the age of forty judged to have made the most significant contribution to economic thought and knowledge. Named after the American neoclassical economist John Bates Clark (1847-1938), it is considered one of the two most prestigious awards in the field of economics, alongside the Nobel Prize. Approximately 40 percent of Clark Medal winners have (so far) gone on to win the Nobel Prize in Economics. Seven of the last sixteen Clark Medals were awarded to MIT-trained economists. One graduating class, 1999, included three recent winners. Five current faculty members are Clark Medalists: Daron Acemoglu (awarded ’05), Dave Donaldson (awarded ’17), Esther Duflo (awarded ’10), Amy Finkelstein (awarded ’12), and Parag Pathak (awarded ’18). Two emeritus faculty members—Jerry Hausman and Robert Solow—are Clark Medalists. Franklin Fisher, whose passing the department mourned this year, was also a Clark Medalist and had served on the department’s faculty since 1960. The late Paul Samuelson, who spent his entire academic career on the MIT faculty, was the first and youngest recipient.

Parag Pathak, Awarded 2018

Dave Donaldson, Awarded 2017

Amy Finkelstein, Awarded 2012

Esther Duflo, Awarded 2010

Daron Acemoglu, Awarded 2005

Excellent in Teaching

The Economics Department has long emphasized a commitment to both research and teaching. Throughout its history, many faculty members have made notable pedagogical contributions: for example, Paul Samuelson’s legendary textbook, Economics, was written in the 1940s to enhance the quality of undergraduate economics education at MIT. The Department continues that tradition today, from the textbooks current faculty have written, to the development and delivery of courses that communicate the cutting edge of economic knowledge and draw new generations of students to the study of economics.

Several current faculty members have been recognized for their important contributions as teachers. Josh Angrist, David Autor, and Nancy Rose are Margaret MacVicar Faculty Fellows, a program that annually recognizes three to five of the best undergraduate teachers and mentors across MIT with a ten-year fellowship, honoring the life and devotion to teaching excellence of MIT’s first Dean for Undergraduate Education and founder of MIT’s enormously successful Undergraduate Research Opportunities Program (UROP). Within the Department, students select three faculty members each year for particular recognition. The Undergraduate Economics Association’s (UEA) outstanding teacher of the year in 2019 was Alp Simsek. The Graduate Economics Association (GEA) award for outstanding advising went to Iván Werning, and the GEA award for outstanding teaching went to Daron Acemoglu.

Teaching excellence is not confined to the faculty. MIT graduate students hone their teaching and communication skills through teaching assistantships (TAs), and some of the very best are celebrated each spring. In 2019, the UEA named Cory Smith, who taught in Econometrics (14.32), the outstanding undergraduate TA. The graduate GEA TA Award went to David Hughes for his teaching in Statistics (14.381), Econometrics (14.382), and Nonlinear Econometric Analysis (14.385). The 2019 Robert M. Solow prize, awarded by the faculty to a graduating PhD student for excellence in both teaching and research, was given to Sydnee Caldwell.
Undergraduate Research

Undergraduate students take advantage of numerous opportunities to hone their research skills. One such opportunity is MIT’s Undergraduate Research Opportunities Program (UROP), which fosters close ties between undergraduates and faculty members. Students in the UROP program work with faculty members and graduate students to bring the technical skills of modern economics to bear on questions of economic importance. UROP supplements coursework, and its projects allow undergraduates to participate in ongoing research in the Department and to meet with faculty members outside of class. They perform tasks such as collecting and analyzing economic data, writing computer programs, checking mathematical calculations, and gathering research materials.

MIT senior Manuel Favela and MIT junior Amy Kim worked with Professor Jonathan Gruber on his latest book, Jump-Starting America, co-written with MIT Sloan Ronald A. Kurtz (1954) Professor of Entrepreneurship and Global Economics and Management Simon Johnson. A major component of this book is the proposal to use federal money for research and development to spur growth and create technology hubs throughout the US, outside of cities where the technology sector is already well-established. As part of this project, Favela and Kim coded a user-interface map for the book’s website that allows people to value different criteria and ranks US cities as to which ones are best candidates for being the next technology hub. As part of this, they needed to make sure the map looked aesthetically pleasing while having user input change the map and the ranking of cities based on the user’s specifications. Favela is also involved with finding cost estimates for a proposal for a federal award to bring the research into reality, while Kim contributed some graphics and content for the book itself.

Andrew Komo and Maximilian Porlein worked with Prof. Nikhil Agarwal to develop an improved design for kidney exchange platforms. These platforms can arrange life-saving transplants by arranging matches between patients and living donors that are in different hospitals around the country. However, many hospitals do not participate in these platforms because some of their patients lose out if they do. In fact, hospitals that help others by registering easy to match patients and donors are not rewarded, creating incentives to only register hard to transplant patients and donors. This problem can cripple kidney exchange platforms by limiting the possible transplants they can arrange. Komo and Porlein conducted simulations that helped develop a priority system aimed at encouraging hospitals to participate fully in a kidney exchange platform. This priority system would help patients at hospitals that have contributed more easy-to-match patients and donors to the platform. The influx of such patients and donors on to the platform would allow it to arrange transplants that the platform was otherwise not able to, boosting the total number of kidney transplants performed. This priority system is expected to be implemented in the second-largest kidney exchange platform in the US later this year.

Undergraduate Economics

The Economics Department at MIT has a long tradition of outstanding undergraduate training. The unique analytical skills of the MIT undergraduate student body allow the faculty to offer a rigorous and comprehensive program unlike that of any other U.S. college or university.

Senior professors teach introductory undergraduate courses, and faculty at all levels incorporate the latest economic methods and findings into their electives. The Department’s success in attracting exceptional undergraduates and preparing them for advanced study demonstrates the soundness of this philosophy and the excellence of the program.

Many faculty members have written undergraduate and graduate textbooks that are used in colleges and universities around the world. Paul Samuelson first developed his pioneering economics text in an introductory economics course for MIT undergraduates. Rudiger Dornbush and Stanley Fischer’s intermediate macroeconomics textbook, Macroeconomics, introduced modern macroeconomic analysis to undergraduates. Currently, students are taught from Olivier Blanchard’s textbook, Macroeconomics, Jonathan Gruber’s text, Public Finance and Public Policy, and Michael Whinston’s Microeconomic Theory at both the undergraduate and graduate levels. Daron Acemoglu’s textbook, Introduction to Modern Economic Growth, takes graduate students
on a journey through the theory of economic growth from its neoclassical paradigms to the most recent models of endogenous growth. Joshua Angrist’s *Mostly Harmless Econometrics: An Empiricist’s Companion* has been widely praised for its integration of theory and practice. Abhijit Banerjee and Esther Duflo’s *Poor Economics* grew out of their popular economics development courses and is the primary text assigned for their MITx online MOOC.

The traditional economics major begins with a two-semester introductory sequence that explores theoretical and applied topics in microeconomics and macroeconomics. Additional training in microeconomics, macroeconomics, statistics, and econometrics follows. Majors have a choice of advanced courses spanning economic development, economic theory, health economics, industrial organization, international economics, labor economics, monetary economics, public economics, and others. The level of mathematics mastery among undergraduates allows economics courses to be taught at a high level.

The department also offers two other majors. Mathematical Economics is designed to prepare students interested in pursuing graduate study in economics. Like traditional economics majors, mathematical economics majors start with a two-semester introductory sequence that explores theoretical and applied topics in microeconomics and macroeconomics. Following these introductory classes, the major focuses intensively on technical and mathematical subjects, including a class on mathematical economic modeling. Alongside the most rigorous undergraduate training our department has to offer, students pursuing the mathematical economics degree will take at least four of their twelve required major classes in the mathematics department.

The third undergraduate major, Computer Science, Economics and Data Science, is offered in collaboration with the department of Electrical Engineering and Computer Science. This new offering provides extensive training in data science including both econometric and machine learning methods, producing students with a combination of big data skills that is unusual and highly sought after by both new- and old-economy firms. Students also get a firm foundation in economic theory, providing them with tools to understand the complex interactions and equilibrium forces that shape many new businesses, and are prepared for graduate study in a range of disciplines.

The faculty is committed to innovation in the undergraduate curriculum. New courses are constantly being developed to bring insights from recent research into the undergraduate program. Recent innovations include courses in networks, psychology and economics, financial markets and the macroeconomy, market design, and the effects of globalization and trade on developing countries. As part of an MIT-wide initiative on communication skills, 14.73, The Challenge of World Poverty, was recently redesigned as a communications-intensive subject in the Humanities, Arts, and Social Sciences (CI-H). The course, co-taught by David Atkin, Esther Duflo, and Frank Schilbach, allows freshmen and sophomores to immediately engage in studying specialized topics in economics. The department has also introduced a course designed to expose freshmen to economics through exploratory lectures from a variety of MIT economics faculty. 14.009, Economics and Society’s Toughest Problems, was developed by Ben Olken and is being taught for the first time in Fall 2019. Another communications-intensive course, 14.33, is a capstone experience in each of our majors. Students in this class carry out a series of increasingly independent research projects, exploiting the knowledge and tools they have gained throughout the program and honing their writing and presentation skills.

The Undergraduate Economics Association (UEA) provides an informal forum for students to meet and explore various topics with faculty. Sponsored by the faculty, the UEA is run by and for economics majors to address such issues as career planning and current topics in economic policy. Students and faculty also enjoy the relaxed interactions that the UEA provides.

Undergraduate economics majors go on to graduate work and distinguished careers in academia, global businesses, government, finance, consulting, and law. About 20 percent of MIT economics undergraduate majors enter a graduate program in economics or finance, one of the highest yields of PhD candidates for any undergraduate economics program. Approximately half of the Department’s graduates choose to gain experience in business, government, consulting, and non-profit organizations before seeking out business and public policy schools for post-graduate study. The number of post-graduates choosing to study law remains fairly constant. Growing use of formal economics in law has strengthened this connection.

Whatever their destinations, undergraduate economics majors acquire essential skills for a wide variety of jobs, an excellent foundation in economics, and an opportunity to meet faculty and fellow students in a challenging intellectual environment.
Graduate Economics

The Department’s highly regarded doctoral program enrolls twenty to twenty-four students each year. Doctoral students take required courses in microeconomic theory, macroeconomics, and econometrics. Students are also expected to complete four fields in economics (two major and two minor). The field options include advanced economic theory, econometrics, economic development, financial economics, industrial organization, international economics, labor economics, monetary economics, organizational economics, political economy, and public finance.

Graduates of the PhD program teach in leading economics departments, business schools, and schools of public policy. They work on congressional staffs and government advisory councils, and with organizations such as the World Bank, the International Monetary Fund, the National Economic Council, the Council of Economic Advisers, the Federal Reserve, and the Treasury Department. They are also found among the most influential positions in the market economy, ranging from corporate executives and portfolio managers to economic consultants.

Two members of our most recent PhD cohort, Sydnee Caldwell and Pooya Molavi, took part in the Review of Economic Studies Tour. The tour invites seven of the world’s most promising graduating doctoral students in economics to present their research at three European universities. MIT has a remarkable record of having its students chosen for this honor. Over the past decade 22 MIT economics graduates have been selected. No other PhD program has had more than 8.

Graduate Research

Graduate students work in intense collaboration with faculty to learn the craft of research. This occurs both in theoretical projects and in empirical fields, where learning-by-doing transfers information about data sets, research strategy, and econometric tools. Examples of recent projects include those by graduates Sydnee Caldwell (PhD ’19) and Christina Patterson (PhD ’19).

Sydnee Caldwell studied how changes in workers’ outside labor market opportunities impact their wage growth. In a frictional labor market, workers’ wages may depend both on the characteristics of the firm at which they work and on the characteristics of firms at which they could have worked. Because it is difficult to empirically identify workers’ outside opportunities, Sydnee developed a novel strategy that exploited the fact that workers often learn about job opportunities through friends and coworkers. She found that, in months when an individual’s former coworkers’ firms expanded by more, that individual was more likely to make a job-to-job transition or see a wage change (even if they did not move). Her findings are inconsistent with a competitive labor market. Further, her finding that wage gains for job stayers were concentrated in the top half of the skill distribution suggests that on-the-job renegotiation is less common for lower-skilled workers. Overall, her research suggests that policies that promote competition between firms — including policies that limit the use of non-compete clauses or policies that deter firms from entering into no-poaching agreements — may have a meaningful impact on wage growth.

Sydnee is currently a post-doctoral researcher at Microsoft Research New England. In July 2020 she will join the University of California, Berkeley as an assistant professor with a joint appointment in the Economics Department and the Haas School of Business.
Christina Patterson used administrative data on workers and firms to show that the unequal incidence of recessions in the labor market is a core channel through which business cycles propagate. One mechanism through which demand shocks are amplified is the output multiplier, which captures the feedback loop between drops in demand and drops in worker earnings -- when a worker is laid off, they cut back their spending, which reduces demand for goods and services, inducing further layoffs. This project began from the observation that the aggregate marginal propensity to consume (MPC) is larger when income shocks disproportionately hit high-MPC individuals -- i.e. when the workers whose consumption varies the most with their income (young, low-income, and black workers in particular) are laid off, the hit to demand in the economy is larger. She defined the matching multiplier as the increase in the output multiplier that comes from the matching of workers with different MPCs to jobs that are more or less volatile over the business cycle. Using administrative U.S. Census data, she measured this multiplier and documented that the earnings of individuals with a higher marginal propensity to consume are more exposed to recessions, a source of inequality that is large enough to increase shock amplification by 40 percent over a benchmark in which the earnings of all workers are equally exposed to recessions. Additionally, using the geographic variation available in the administrative earnings data, she showed empirical evidence for this amplification mechanism -- local markets with a higher matching multiplier experience deeper recessions and greater booms. Lastly, she derived the matching multiplier in an incomplete markets model and showed the potential importance of this channel in a class of commonly used business cycle models with heterogeneous agents. Christina is currently a Postdoctoral Fellow at Northwestern University and will join the University of Chicago Booth School of Business as an Assistant Professor of Economics in July 2020.

Workshops & Seminars

Graduate study at MIT consists of much more than taking courses. Regularly scheduled department workshops and seminars offer a forum for students to learn about the latest research in their fields from invited speakers.

In contrast to the more formal nature of seminars, a key component of the dissertation advising system at MIT is a set of informal weekly “field lunches” at which students who have transitioned to thesis-writing test new research ideas. The presentations can range from very early stage research, hardly more than a literature review and a few ideas for future work, to nearly-complete dissertation projects. The informality of these meetings makes it possible for students to explore research topics in a setting where no one is expected to present finished work. Faculty members view attending these lunches as a central departmental responsibility as well as a privilege.

Many past graduates of MIT’s PhD program report that field lunches were invaluable in providing them with a sounding board for new research topics. Since most thesis writers volunteer to present a talk each semester, the field lunches also have the important benefit of setting near-term, but manageable, deadlines for dissertation progress.

All students who have completed their coursework are required to attend at least one workshop each week and to make a presentation in at least one field lunch during the course of the year. Many students present their research in multiple workshops and thereby obtain a range of different faculty and student inputs. First and second year students who are carrying out research are also welcome to participate in these workshops. Second year students also take a year-long course that discusses the research process, fosters support and collaboration within the graduate student community, and culminates in students writing and presenting original research papers.
Economic research, whether abstract or applied, and economic policy advice, is rooted in economic theory. Substantial advances in economic science are usually based on new ways of thinking about and modeling economic phenomena. MIT’s commitment to economic theory is strong and is facilitated by a close collaboration between faculty members and students developing new theoretical insights, those performing empirical research, and those who are interested in framing public policy. Most of the MIT faculty members who work in economic theory also have serious research and teaching interests in one or more applied fields.

Many faculty members teach courses in economic theory, either as part of the core curriculum for graduate students, as graduate electives, or at the undergraduate level. This group includes Glenn Ellison, Drew Fudenberg, Bengt Holmström, Stephen Morris, Parag Pathak, Drazen Prelec, Robert Townsend, Michael Whinston, Alex Wolitzky, and Muhamet Yildiz. Other MIT theorists include Daron Acemoglu, George-Marios Angeletos, Abhijit Banerjee, Ricardo Caballero, Arnaud Costinot, Robert Gibbons, Alp Simsek, and Iván Werning. In addition, many MIT Sloan faculty members, including Alessandro Bonatti and Gonzalo Cisternas, have significant interests in economic theory.

MIT theorists carry out research that bears on both microeconomics and macroeconomics. The range of current research projects is extraordinary. Glenn Ellison is known for his work on learning in games and he also works in theoretical industrial organization. Drew Fudenberg helped shape the fields of game theory and theoretical industrial organization. He is interested in a broad range of theory topics, with recent work on repeated games, learning and evolution, behavioral economics, experimental economics, and decision theory. Robert Gibbons focuses on the economics of organizations. He works most closely on organized activities, especially relational contracts. Bengt Holmström was awarded the Nobel Prize for his seminal work shaping the field of contract theory. Stephen Morris’s work spans a broad range of pure and applied theory topics including work on global games, robust mechanism design, and work in macroeconomics and political economy. Parag Pathak studies the economics of matching in a wide variety of contexts, most notably medical markets and public school choice. Drazen Prelec is actively involved in research and teaching on psychology and economics. Robert Townsend has made fundamental contributions to contract theory and currently works in both mechanism design and general equilibrium modeling. Michael Whinston is a leader in contract theory and antitrust economics. Alexander Wolitzky has worked on a range of topics including repeated games, bargaining, and applications to political economy. Muhamet Yildiz is an expert on games of incomplete information known for his work on delays and breakdowns in bargaining.

The MIT Economics Department is fortunate to have an ongoing visiting faculty arrangement with Nobel Prize winner...
Jean Tirole, an internationally acclaimed scholar who has worked in game theory, industrial organization, and regulation. Tirole regularly teaches a summer course on specialized topics in economic theory that is very popular with graduate students in all stages of the PhD program.

Economic theory is part of the basic undergraduate microeconomics sequence at MIT. Because MIT undergraduates have a good command of mathematical methods and because economic theory relies on formalism and mathematical analysis, MIT's undergraduate economic theory offerings are probably more rigorous than those at any other college or university. MIT's introductory course “Principles of Microeconomics” is taught at the level of the intermediate microeconomics course at most other schools. This enables undergraduates to enroll in follow-up courses in advanced theory. Among the popular undergraduate theory offerings are courses on game theory and behavioral economics that develop theory and discuss applications in a wide range of economic settings. More advanced courses offer sophisticated undergraduate treatments of subjects (including incentives, advanced game theory, market design, and the economics of networks) that even top universities only offer at the graduate level. Many former MIT undergraduates who have gone on to graduate studies in economics report that their undergraduate theory courses provided a firm foundation for their graduate work.

The first year graduate program includes four half-semester core courses in microeconomic theory. The first of these courses emphasizes price theory, the theory of consumers and producers, and general equilibrium analysis. The second focuses on game theory and provides the key equilibrium notions that are needed to analyze interactions between firms in an industry and between agents in many economic environments. The third course examines decision theory and behavioral models of consumer behavior. Finally, the fourth course focuses on information economics and contract theory. It touches on questions of contract design, asymmetric information, moral hazard, and the working of insurance markets. Together, these four courses provide a comprehensive introduction to modern microeconomic theory.

Graduate students who plan to specialize in economic theory, and who expect to write dissertations in this field, select a minimum of two advanced courses on game theory, contract theory, and market design. Other courses cover recent advances within some specialized topics such as bargaining theory, learning, networks, or decision theory. The faculty teaching the advanced theory courses varies from year to year, and the content of these courses often varies with the instructors.

Informal discussions take place at weekly theory lunches where graduate students may discuss current topics or present preliminary research ideas. These meetings provide support for students writing their dissertations in economic theory. Current research developments are presented at weekly MIT-Harvard theory seminars. These seminars, which host outside speakers, provide excellent opportunities for graduate students to learn what leading scholars are currently working on.
Macroeconomics

Macroeconomics studies the forces that shape economic activity and welfare at the aggregate level, with topics that include economic growth, business cycles, financial crises, and related policy questions, such as fiscal and monetary policy.

Macroeconomics is a diverse field, with overlaps in many other areas. Empirical research in macroeconomics draws not only from econometrics but also from empirical work in labor economics and public finance. Macroeconomic theory draws heavily on microeconomic theory, as well as on game theory and contract theory. Students who plan to carry out research in macroeconomics and international economics often find that course work in economic theory is extremely helpful in identifying research topics and in providing analytical tools for potential dissertation research. Conversely, students interested in theoretical work are often motivated by the type of questions that are at the center of macroeconomics. There are important synergies between macroeconomics and other fields, especially international economics, both in international trade and international finance, which are emphasized by our program and represented by our faculty.

The Department offers three undergraduate macroeconomics courses, as well as a year-long graduate macro core and two graduate macro field courses. The undergraduate courses range from the introductory level to advanced seminars in which students assess and participate in current research. The advanced undergraduate macroeconomics course is comparable to the graduate offerings at many economics departments.

All PhD students complete the graduate macroeconomics core, while advanced field courses cover leading edge research and prepare students to write dissertations in macroeconomics.

Many faculty participate actively in macroeconomic research, teaching, advising, student research workshops and seminars. Daron Acemoglu carries out theoretical and empirical research on the determinants of economic growth, the development of political institutions, and the workings of labor markets. Marios Angeletos studies the formation of expectations and the potential of coordination failures within the context of business cycles and financial crises. Martin Beraja works on business cycles, with a focus on empirical identification and estimation using regional data. Ricardo Caballero explores issues at the intersection of macroeconomics and finance, recently focusing on asset market crises and global capital flows. Alp Simsek analyzes financial markets, heterogeneous beliefs, and other topics at the intersection of finance and macroeconomics. Robert Townsend works on the design of financial contracts, institutions and markets and monetary economics. Iván Werning’s work spans a range of policy issues in macro as well as public finance, including monetary, fiscal, and macroprudential stabilization policies, as well as unemployment insurance and capital taxation.

Economics students: Where are they now?

Alexander Shing (SB ’00) is the Chief Executive Officer of Cottonwood Group, a private equity real estate firm headquartered in Los Angeles with offices in Boston and New York. He is also the Vice Chairman of TISCO Financial Group Public Company Limited, a banking group listed on the Stock Exchange of Thailand, and an independent director of Shin Kong Textile Company Limited, a public company on the Taiwan Stock Exchange.

Since founding Cottonwood in 2012, Alex has expanded his firm’s footprint nationally with US$3 billion in assets under management. From financing of the Treasure Island redevelopment in the San Francisco Bay, to the construction funding of Downtown Los Angeles’s Greenland Metropolis third tower, Cottonwood is known for financing and investing in some of the largest and most complex real estate transactions in primary U.S. markets. He also pioneered the Echelon Life™ curated “live, work and play” concept for Cottonwood’s mixed use and residential developments. In MIT’s backyard, Cottonwood is completing EchelonSeaport™, one of New England’s largest real estate developments, in Boston’s Seaport District, which will also be the new home to the Design Salons at Echelon, a jointly curated program with MIT designX. At US$950 million, this 1.3 million square-foot development will deliver more than 700 luxury condos and apartments to Boston’s skyline. With EchelonNoMad in NYC and other developments in the country well underway, Alex has set eyes on Europe as the next market for Cottonwood Group’s international growth.

Alex began his career as an entrepreneur while studying at MIT. In 1999 he took the unconventional path of leaving his summer associate position at Citigroup New York to co-found his first startup, which was acquired at the end of 2000. He returned to MIT soon after to finish his undergraduate economics thesis under the supervision of Lester Thurow, the late Dean of Sloan School of Management and the Jerome and Dorothy Lemelson Professor of Management and Economics, and completed his Bachelor of Science in Economics. Currently, Alex is a member of the MIT Corporation’s Economics Visiting Committee.
Economics students: Where are they now?

Lawrence S. Bacow (SB ’72) is president of Harvard University and president emeritus of Tufts University.

An aspiring math major when he arrived at MIT, Bacow soon discovered that economics enabled him to apply his mathematical talents to a range of interesting policy problems. After graduating from MIT, he earned a JD, an MPP, and a PhD at Harvard—all in the span of six years. His doctoral dissertation studied how the Occupational Health and Safety Act (OSHA, which was passed in 1970) affected workplace injuries and management-labor negotiations regarding health and safety policy.

After graduate school, Bacow joined the faculty in MIT’s Department of Urban Studies and Planning, where he pursued the application of bargaining and negotiation in a range of policy contexts. Beyond teaching and research, he launched and served as the first director of the MIT Center for Real Estate, and then served as chair of the MIT faculty. In 1998, he was appointed chancellor and assumed core responsibilities for undergraduate and graduate education, student life, corporate and international partnerships, and strategic planning.

Three years later, Bacow was tapped to serve as president of Tufts University. Just ten days into his presidency, he guided the university through 9/11 and its aftermath, and later charted its response to the 2008 global financial crisis. Widely acclaimed as an effective, wise, and approachable leader, he advanced efforts to improve undergraduate education and led successful fundraising and faculty recruitment campaigns. After a decade of service to Tufts, Bacow stepped down in 2011. He went on to join the Harvard Corporation, the university’s governing body, and engaged with faculty and students at both the Harvard Graduate School of Education and the Harvard John F. Kennedy School of Government. His deep knowledge of the challenges and opportunities facing all of higher education was instrumental in his selection as the 29th president of Harvard University. He assumed his new role on July 1, 2018.

In addition to this core group, a number of other faculty in the department and MIT Sloan participate in the broader macro community. Arnaud Costinot is a trade economist studying the welfare gains from trade and optimal trade policy. Stephen Morris is a theorist working on how coordination, uncertainty and policy communication influence the macroeconomy. Jonathan Parker has an empirical focus on household behavior. John Van Reenen works on trade, innovation, and productivity. Kristin Forbes and Roberto Rigobon work on international macro. A large group of faculty in the Finance group at Sloan routinely attend macro events and interact with students, including Maryam Farboodi, Daniel Greenwald, Eben Lazarus, Andrew Lo, Deborah Lucas, Lawrence Schmidt, and Antoinette Schoar.
Rebecca Blank (PhD ’83) is Chancellor of the University of Wisconsin – Madison. She is the chief executive of the 44,000 student flagship campus, leading its three-part mission of education, research and outreach.

Blank’s role at Wisconsin is the latest chapter of a remarkable career. She began as an academic economist at Princeton, before moving to posts at Northwestern and the University of Michigan. Blank is highly regarded for her work on the economics of poverty and welfare programs.

Blank also has a distinguished career in public service. She was a Senior Staff Economist in the Council of Economic Advisers during the George H. W. Bush Administration, and returned to the CEA as a Member in the Clinton Administration. She later served as Under Secretary for Economic Affairs, Deputy Secretary of Commerce, and Acting Secretary of Commerce in the Department of Commerce in the Obama Administration.

Blank has been a leader in academic administration. As Dean of the Gerald R. Ford School of Public Policy at the University of Michigan her innovations included interdisciplinary graduate programs and an undergraduate public policy major. She has provided the University of Wisconsin—Madison with a steady hand in challenging times with focuses including expanding and improving educational opportunities to prepare students for a changing economy, maintaining the university’s position as a global leader in innovation and research, and nurturing entrepreneurship and driving economic development.

Blank’s career has been celebrated with numerous recognitions that include election to honorary societies such as the American Academy of Arts and Sciences and several honorary doctorates. She arrived at MIT after completing her BS at the University of Minnesota, and earned her PhD under the direction of Hank Farber.
The “Home Market” Effect

Do countries with larger domestic markets for some products tend to sell more of the same products in foreign markets? The idea that local demand may stimulate exports is an old one. First hypothesized by Staffan Linder and later formalized by Paul Krugman, the so-called home-market effect has become a central tenet of trade theory and the new economic geography literature. In terms of policy, it implies that import protection may be used as export promotion, a view often more popular in business communities than among economists.

To establish the empirical validity of the home-market effect, one must overcome a key challenge. While theory predicts that cross-country differences in demand cause patterns of international specialization, it is hard to draw a causal link between the two. National accounts, for instance, may report how much a country spends on a particular good. But expenditures depend on prices, which themselves depend on supply, not just on demand conditions.

In “The More We Die, The More We Sell? A Simple Test of the Home Market Effect,” faculty members Arnaud Costinot and Dave Donaldson, along with Heidi Williams and Margaret Kyle (PhD ’02), focus on the global pharmaceutical industry as a way to address this empirical challenge. Their strategy builds on the basic observation that countries whose populations are more likely to suffer from particular diseases are also more likely to have high demand for drugs targeting those diseases. This could be related in turn to exogenous demographic characteristics such as the age of the population. Their test of the home-market effect then asks whether countries tend to export more of the drugs for which they have higher predicted disease burdens.

The answer is a resounding yes. Countries which, because of their demographic mix, have more demand for certain types of drugs also are the ones more likely to export those drugs to other countries. In short, the more we die (at home), the more we sell (abroad).
Development Economics

Underdevelopment is one of the most profound problems in economics, and it may be the problem with the greatest human impact. At MIT the study of development economics has a long tradition, beginning during Paul Rosenstein-Rodan’s tenure, continuing through the work of Richard Eckaus, and today represented by a development economics group that is one of the most impressive in the world, with expertise that spans both microeconomic and macroeconomic perspectives on development.

Abhijit Banerjee is both an applied theorist and an empirical economist, with a strong commitment to studying problems in development economics using all tools. He is currently working on issues involving credit, networks, education and political economy. Esther Duflo is primarily interested in empirical issues that arise in the study of poverty alleviation, ranging widely across topics that include education, policy implementation, and livelihood programs. Benjamin Olken is an expert on public sector operations in developing countries, focusing on the challenges that corruption and governance raise for development policy and how to design effective anti-poverty strategies. All three are pioneers in the use of randomized controlled trials in testing and designing policy, and they co-direct MIT’s Abdul Latif Jameel Poverty Action Lab. Frank Schilbach works on behavioral economics and development: how do behavioral limitations interact with poverty and potentially contribute to its persistence? Robert Townsend is an economic theorist with substantial interests in financial issues and the role they play in driving development.

Several faculty members work at the intersection of development economics and related fields. Dave Donaldson and David Atkin, work at the intersection of trade and economic development. Dave Donaldson, for example, has used the expansion of railroads in India to estimate the gains from greater economic integration and data on soil suitability for different crops to examine Ricardo’s theory of comparative advantage. David Atkin, who works with both structural methods and experiments, has explored questions like whether the poorest locations within poor countries benefit more or less from international trade than others and how trade has affected educational attainment. Clare Balboni works at the intersection of environmental economics, development economics, and trade, for example, seeking to understand how climate change should affect infrastructure choices and how governments can prevent farmers from using fires to clear land.

Many of the core issues that confront developing economies have close parallels in developed nations, and the set of MIT faculty who have studied economic policy in developing nations includes many members in addition to the group that teaches development economics. Daron Acemoglu works on a broad set of issues involving economic growth and the political economy of institutions and development. Joshua Angrist has studied education policy in a number of developing nations.

The Department offers a three-semester course for graduate students in development economics, as well as three popular undergraduate courses on economic development. In addition, in 2016-2017 the Department launched an online MicroMasters in Data, Economics, and Development Policy through MITx, and in spring 2020 the Department will welcome the inaugural class of Masters students for the new Masters in Data, Economics, and Development Policy. The Department also hosts a joint seminar with Harvard that attracts faculty interested in development economics from both institutions.

Many alumni of the department work at international organizations, such as the World Bank and the International Monetary Fund, where they help design and implement economic policies for developing nations.
Using Gossips to Spread Information: Theory and Evidence from Two Randomized Controlled Trials

In the corridor of a government building in Orissa, India, once upon a time, there was a sign “Gossiping offends all. Please avoid it now.” Despite the admonition, in the village tea shop and around the water cooler in office buildings, much information is transmitted informally. Can gossip be used for the important social goal of transmitting useful and useable information? This is not an unknown idea. Firms, NGOs and government extension agents often use selective seeding of key informants or influencers to diffuse information. This is how Google spread Gmail, but it is also the idea behind the use of “lead farmers” in agricultural extension, “community health workers” in public health, “village leaders” in microfinance, etc.

This strategy obviously works best when we identify the right people to start the process with. One idea from network theory is that the best seeds are central in the social network in the sense that they have many friends who themselves have many friends. But how to find these people? Mapping the whole network is just too expensive. One simple alternative might be to ask who is the “village (or department) gossip”. Introspection suggests that we often have a pretty clear idea of who that might be.

In “Using Gossips to Spread Information: Theory and Evidence from Two Randomized Controlled Trials”, Abhijit Banerjee and Esther Duflo, along with co-authors Arun Chandrasekhar (PhD ’12) and Matthew Jackson, conducted two field experiments in India to address this question. They first asked a few villagers who the village gossip might be—surprisingly, there seems to be a lot of consensus on this question! Then, in randomly selected villages, they conveyed some information to the village gossip. In the rest, they gave the same information to the same number of randomly selected people. In one of the two locations, Haryana in North India, the seeds received regular text messages reminding them to remind their friends about the importance of immunization.

It turned out that in Haryana, for example, informing random persons was no better than informing nobody in terms of getting children to the immunization camp, but 27% more children went to the immunization camp when a gossip was informed than when a random person was informed. In the second experiment in Karnataka in Southern India, the number of people who showed up for a raffle doubled when a gossip was informed. In Karnataka, where they had data on the network, the paper confirms that the gossip is indeed more “central” in the network. Identifying gossips offers a cheap and effective way to spread information: in Haryana informing the gossips is as effective as providing financial incentives to households and much cheaper!
Econometrics research and teaching at MIT blend the theory and practice of economic data analysis. Econometrics provides fundamental approaches to using data to understand underlying structural and causal relationships and finds application in a wide range of topics in both microeconomics and macroeconomics.

Alberto Abadie’s research interests lie in the areas of econometric methodology and applied econometrics, with special emphasis on causal inference and program evaluation methods. His research has contributed to advances in a variety of topics, including treatment effect models, instrumental variable estimation, matching estimators, difference in differences, and synthetic controls. His current work develops methods to identify and estimate patterns of heterogeneity in treatment effects. Josh Angrist is a leader in developing and applying causal inference for observational data, with path breaking recent work on causal methods for matching models of education. His text with Jörn-Steffen Pischke, Mostly Harmless Econometrics, was awarded the 2018 Fama Prize for Outstanding Contributions to Doctoral Education. Victor Chernozhukov carries out wide-ranging research in econometric theory. Topics include model and variable selection, high dimensional models, shape restrictions, set inference, quasi-Bayesian estimation, endogeneity, and quantile estimation. He applies these methods to novel and classical economic problems, often in collaboration with other MIT faculty or students. Emeritus professor Jerry Hausman has long-standing interests in specification testing, panel data, estimating the effect of taxes, discrete choice, and demand analysis. His ongoing work includes demand analysis with many prices, quantile regression with measurement error, and panel data with varying coefficients. Anna Mikusheva’s recent work concerns weak identification, including conditional inference in GMM and geometric methods with weak identification. She has worked on the problems of statistical inference when time series are nearly nonstationary and weak identification in empirical macroeconomic models. Whitney Newey has worked on nonparametric instrumental variables estimation, correcting for endogeneity in nonseparable models, estimators with a nonparametric first stage, empirical likelihood, nonlinear panel data, and constructing standard errors. His recent interests include machine learning of structural models and econometric models with general unobserved heterogeneity.

Faculty Research

Conditional Inference with a Functional Nuisance Parameter

Economists are often interested in understanding causal relationships between different variables, since such relationships play a central role in determining the impact of economic policy. Unfortunately, however, even the largest datasets sometimes contain little useful information for estimating such relationships. Commonly-used econometric techniques can yield highly misleading conclusions in such contexts, greatly understating uncertainty about the relationships of interest. The features of the data which determine if these conventional techniques will be reliable are themselves difficult to assess, with the result that it can be hard to determine whether many procedures will perform well in a given application. In “Conditional Inference with a Functional Nuisance Parameter,” Anna Mikusheva, along with co-author Isaiah Andrews (PhD ’14), constructs a functional variable which fully captures the ability of the data to inform the relationships of interest, even in complicated, nonlinear generalized method of moments (GMM) models. By taking this variable into account when conducting inference, the authors provide techniques that yield accurate assessments of uncertainty regardless of the amount of information in the data, and at the same time are as informative as conventional techniques when the latter are reliable.

The inaugural 2019 class of Hasuman Dissertation Fellows, named for John and Jennie MacDonald Professor Emeritus Jerry Hausman, shown third from left. The students, left-to-right, are Ivan Badinsky, Ben Deaner, Jeremy Majerovitz, Sophie Sun and Allan Hsiao.
How do We Deter Bad Actors When Information is Imperfect?

In the study of conflict, deterrence theory holds that the credible threat of retaliation in response to an attack prevents forward-looking adversaries from launching attacks in the first place. Deterrence has helped prevent war among the world’s great powers for decades. But recent developments in cyberwarfare present a new set of challenges for deterrence, which raise questions about its future effectiveness.

Central among these new issues is imperfect attribution: the difficulty in determining who is responsible for an attack, or even if an attack occurred at all. As William Lynn, former U.S. Deputy Secretary of Defense, put it in 2010, “Whereas a missile comes with a return address, a computer virus generally does not.” Imperfect attribution weakens deterrence in an obvious way: multiplying a penalty by the probability of correct attribution reduces the expected penalty. But the effects of imperfect attribution on deterrence are much richer than this.

In “Deterrence with Imperfect Attribution,” Alexander Wolitzky, along with Sandeep Baliga and Ethan Bueno de Mesquita, constructs a model to analyze these effects, where multiple potential attackers may attack a defender. The defender receives an imperfect signal of who (if anyone) attacked, and then chooses whether to retaliate against one or more attackers. The defender benefits from retaliating against the right attacker but suffers an additional loss if she retaliates against the wrong one.

They derive three results. First, they show that a kind of strategic complementarity arises among the attackers: when one attacker becomes more aggressive, this makes the defender more suspicious of that attacker after any signal, and hence more likely to retaliate against that attacker. But this necessarily makes the defender less suspicious of any other attacker after any signal, and thus makes other attackers less likely to face retaliation. This in turn makes other attackers more aggressive. For example, if Russia becomes more aggressive in cyberspace, this encourages other potential attackers like China or North Korea to also become more aggressive, because they can effectively “hide behind” Russian aggression.

Second, they study the role of the defender’s information in deterring attacks. Somewhat surprisingly, improving either the defender’s ability to detect attacks or her ability to identify the source of attacks does not always reduce attacks. However, simultaneously improving both detection and identification—in that some attacks which previously went undetected are now both detected and unambiguously attributed—is shown to always reduce attacks.

Finally, they consider the role of commitment to a retaliatory strategy. Deterrence is improved if the defender can commit to retaliate more aggressively (relative to the case without commitment). However, she should retaliate more aggressively only after relatively more informative signals.
Industrial Organization and Regulation

The field of industrial organization and regulation analyzes the strategic behavior of firms, the effect of government policy, and more generally, the structure, behavior, and performance of product and service markets. MIT Economics regularly offers undergraduate courses in industrial organization, e-commerce, health economics, and energy economics. The main PhD field sequence in industrial organization comprises three semester-long courses that develop theoretical and empirical approaches to oligopoly, antitrust, and regulation during the first two semesters, and focuses in the third semester on hands-on experience with structural econometric methods used in industrial organization and other related applied microeconomic research.

The department has a strong and vibrant research presence in industrial organization. Nikhil Agarwal brings skills in economic theory and econometrics to bear on a variety of problems, particularly those involving market design and two-sided markets, including organ donor and school matching programs. Glenn Ellison’s research spans a broad range of theoretical and empirical analyses across the field of industrial organization. His recent work includes analyses of the implications of consumer deviations from neoclassical optimizing behavior for firms and markets, the design and performance of various online markets, and affirmative action policies. Sara Fisher Ellison does important work on the digital economy and the economics of the pharmaceutical industry, and has broad interests in how political and market institutions influence strategic decisions by firms. Nancy Rose is an expert in the economics of regulation who studies the effects of regulation and market competition on performance in a range of energy and transportation markets. Her current research targets questions in competition policy, building on recently-completed service in the leadership of the Department of Justice Antitrust Division. Tobias Salz focuses on the role of intermediaries in markets with imperfect information and costly search by consumers. Michael Whinston has made significant contributions to contract theory, organizational economics, and industrial organization, and his research on antitrust economics has shaped both the academic literature and the practice of competition policy. He is also an author of well-known graduate and undergraduate micro theory texts. His current theoretical and empirical research includes work on horizontal and vertical mergers, health insurance markets, and incentive provision in health care.

In addition to these core faculty, a number of associated faculty enrich the experience of students working in industrial organization. The MIT Economics Department is fortunate to have an ongoing visiting faculty arrangement with recent Nobel Prize winner Jean Tirole, who guest lectures in MIT’s graduate industrial organization courses during each semester’s visit. John Van Reenen studies the causes and consequences of technological and organizational innovation and how these are influenced by public policy, with particular empirical interest in firm productivity. Sloan faculty member Christopher Knittel teaches the department course on energy markets, one of his many research interests that span a range of topics, methods, and industries. Jing Li, also at Sloan, works on energy and environmental economics. Supplementing these teaching faculty are a number of other faculty members in the Economics Department and Sloan School who actively contribute to the workshop and field lunch. These include emeritus professor Paul Joskow, who returned to the department after a decade as President of the Alfred P. Sloan Foundation, and Sloan Applied Economics faculty members Richard Schmalensee, Robert Pindyck and Ernst Berndt.
Faculty Research

Labor in the Boardroom

Many countries in continental Europe, but not the United States, grant workers formal authority in firms’ decision-making. Such shared governance institutions include worker-elected directors on company boards. The consequences of granting workers such authority and voice remain highly debated and policy proposals are currently under consideration in the US. By the influential hold-up hypothesis, granting workers control rights will discourage capital formation, as capitalists anticipate that labor will grab a larger share of the fruits from investments.

However, in “Labor in the Boardroom”, Simon Jäger and co-authors Benjamin Schoefer and Jörg Heining show that, in fact, granting workers board seats actually increases capital formation. They study a 1994 reform in Germany that locked in shared governance in some firms and abolished it in others, allowing for a quasi-experimental analysis of outcomes of the two groups of firms. The authors find that shared-governance firms shifted their production process towards higher capital intensity and that these firms produce a higher share of revenue in-house. In addition, the authors document a moderate compositional shift towards skilled labor and find no effects on wages. They argue that shared governance may crowd in investment by facilitating cooperation, for example by institutionalizing communication and repeated interactions between labor and capital.

Does such shared governance only “work” when unions are moderate as in the German context? The authors entertain that it may be the institution of shared governance and minority participation of workers in corporate boards that may facilitate cooperative labor relations in the first place. In particular, radical labor representatives with demands perceived as excessive could always be outvoted by shareholders since the capital side generally holds a majority of board seats in most countries with shared governance. Thus, in order to exert influence, labor representatives may have to be moderates in order to successfully build coalitions with the shareholder representatives. As a consequence, shared governance may be one root cause of cooperative labor relations.

Economics students: Where are they now?

Christina D. Romer (Ph.D. ’85) is the Class of 1957-Garff B. Wilson Professor of Economics at the University of California, Berkeley. She has been a member of the Berkeley faculty since 1988. Romer served as Chair of the U.S. Council of Economic Advisors from January 2009 until September 2010, one of the most challenging macroeconomic periods in the last half century, and she played a key role in the design of the fiscal stimulus package that was enacted in the aftermath of the 2008 financial crisis.

Romer’s research focuses primarily on macroeconomic fluctuations and the effects of monetary and fiscal policies on economic activity. Her doctoral dissertation challenged the conventional wisdom that output volatility was substantially lower in the years after World War II than in previous decades, and she has studied the role of the Great Crash of the stock market in 1929 in causing the Great Depression. Her recent research, which has been conducted in collaboration with her husband and Berkeley colleague, David H. Romer (also Ph.D. ’85), uses the “narrative approach” to develop new evidence on how tax cuts, transfer payments, and monetary shocks affect national output. This approach blends information from the narrative record—presidential speeches, transcripts of Federal Reserve meetings, and Congressional reports—with conventional statistics to help identify causal relationships.

In March 2018, Romer received MIT’s Robert A. Muh Award in the Humanities, Arts, and Social Sciences, recognizing her contributions in both scholarship and public service. In a lecture at the award ceremony, “The Aftermath of Financial Crises: What Happens and Why?” Romer demonstrated that financial crises last longer, and are associated with greater cumulative declines in output, in countries that have little capacity for expansive monetary or fiscal policy at the start of the crisis than in countries that have substantial capacity.

In 2006, Romer served as Vice President of the American Economic Association, and for more than a decade she and David Romer were co-directors of the Monetary Economics Program at the National Bureau of Economic Research. Romer is a fellow of the American Academy of Arts and Sciences, has been a contributor to the New York Times, and has received the Council for Economic Education’s Visionary Award. She holds an honorary doctorate from the College of William and Mary, her undergraduate alma mater.
Labor Economics

Labor economists study the economic forces that determine wages and employment. The undergraduate labor course provides an overview of supply and demand in the labor market, human capital, and the distribution of income and wages. This course emphasizes the power of microeconomic reasoning and simple econometric tools to answer important economic questions. Graduate students may take a two-semester course on modern empirical and theoretical labor economics, as well as more advanced courses on labor topics and on the econometric methods that are of special interest to labor economists.

A distinguished group of MIT faculty specializes in labor economics. Daron Acemoglu has addressed core theoretical questions in labor economics, including the effects of training, the design of optimal unemployment insurance, and the links between skill, technology, and the wage structure. Joshua Angrist, a leader in labor econometrics, studies human capital, immigration, and a host of public policies. His current research focuses on econometric methods for program and policy evaluation and the effects of schools and school reform on human capital and earnings. David Autor's work analyzes the effects of technological change and international trade on the labor market. It has shaped the national debate on the distributional consequences of trade across workers and local labor markets. Simon Jäger, the most recent addition to our labor team, works across domains, fielding large-scale randomized experiments, crafting ingenious quasi-experiments, and contributing to applied econometrics. Thematically, he focuses on understanding the role of firms and labor market frictions in shaping wages and employment. Parag Pathak uses economic theory to design school choice mechanisms—including those now used in Boston, New Orleans, New York, and Chicago. In ongoing work with Angrist and many students, Pathak has been developing sophisticated econometric strategies that leverage the quasi-experimental variation embedded in modern school assignment schemes for policy evaluation.

Many other colleagues are interested in labor topics and interact regularly with the core labor team. Public finance economists Amy Finkelstein and Jonathan Gruber study the impact of health insurance, disability programs, and other government policies on labor markets, while development economists Abhijit Banerjee, Esther Duflo, and Frank Schilbach study labor markets in developing countries. Econometricians Alberto Abadie, Victor Chernozhukov, Anna Mikusheva, and Whitney Newey teach and advise labor students, keeping them on the econometric frontier.

Faculty Research

Democracy Does Cause Growth

Democracy has had many powerful critics over the ages. Plato equated democracy with anarchy, instability or even mob rule, and claimed that it is the second worst form of government after tyranny. Aristotle wrote: “it is not safe to trust them [the people] with the first offices in the state.” Today, many commentators blame democracy for the economic and social problems in the West and look favorably upon the “Chinese model” for spearheading economic growth.

In recent work, “Democracy Does Cause Growth” (Journal of Political Economy, February 2019), Daron Acemoglu and co-authors Suresh Naidu, Pascual Restrepo (PhD ‘15) and James Robinson show that, the critics notwithstanding, democracy appears to be quite good for economic growth. Countries that democratize—switch from a nondemocratic regime such as a military dictatorship, monarchy or autocracy to a democratic regime—grow more rapidly in the following 20 years or so, and end up with 20% higher income (gross domestic product) per capita.

South Korea illustrates this. The country’s growth miracle is often credited to authoritarian leaders in the 1960s, such as General Park Chung-hee, who directed South Korean state-based industrialization. But growth had slowed down by 1980 when the country had reached an income per capita of only about one third of Japan’s. Large student, trade union and pro-democracy protests during the decade finally brought down the military government in June 1987, and the economy achieved a 5% annual growth in the next two decades, almost catching up with Japan’s per capita income.

If democracy is so good for growth, why has the past literature not identified this? One reason is that many previous studies focus on cross-country variation, making it difficult or impossible to tease out the effects of democracy on subsequent growth. Moreover, because democratization often happens when autocratic regimes face economic hardship, exploiting within-country variation requires careful modeling of the dynamics of income per capita. Finally, countries that democratize may have other differences from those that remain in autocracy, a problem Acemoglu and co-authors overcome by exploiting regional waves of democratization.

Though the evidence suggests that democracy is good for economic growth, this doesn’t imply that sustaining democracy is easy. The authors’ sample includes many democracies that fail and are overthrown, even if this is costly for economic growth.
Environmental Economics Program

Environmental economics investigates the interaction between economic forces and the environment. This includes both how economic incentives and policies affect the environment and the impact of environmental degradation and climate change on health, well-being, and productivity. The department regularly offers both undergraduate and graduate courses in environmental economics.

Clare Balboni’s primary research interest is environmental economics. Her innovative work on global warming has brought a broad perspective to the topic. This includes adapting empirical techniques from the field of international trade to provide insight the potential effects of sea level rise on infrastructure investments in Vietnam, and exploring the political economy of Indonesian deforestation. The field of environmental economics overlaps with several others. Ben Olken’s work in development economics includes work on deforestation and the impact of climate shocks on developing economies. Paul Joskow’s vast body of work on electricity generation includes work on conservation, nuclear, and renewable energy as well as studies of environmental regulations. Joskow organized MIT’s 2019-2020 series of climate symposia.

The economics department also benefits from a broad MIT environmental community. The Sloan School faculty with interests in environmental economics include Namrata Kala, Chris Knittel, Jing Li, Jacquelyn Pless, and emeritus professors Jake Jacoby and Richard Schmalensee. The Center for Energy and Environmental Policy Research supports research in energy and environmental economics. Affiliates in our department include Paul Joskow, Nancy Rose, and Jim Poterba. The MIT Energy Initiative brings together social scientists and engineers.

Strengthening Schools and Building Skills through Research

SEII researchers address major policy questions related to education and the workplace. Co-directed by Professors Joshua Angrist, David Autor, and Parag Pathak, SEII focuses on the economics of education and the connections between human capital and the American income distribution.

Partnerships

SEII works with education policy-makers at the state and district level. Partners include the Massachusetts Department of Elementary and Secondary Education, the Boston Public Schools, the New York and Denver Public School Districts, and the Recovery School District in New Orleans. SEII also works with leaders and teachers at dozens of charter schools. The team’s higher education partners include Nebraska’s state and community colleges and universities and the Susan Thompson Buffet Foundation. SEII’s work is supported by government grants from the National Science Foundation and the Institute for Education Sciences, as well as many foundation partners, including the Arnold Foundation, the Sloan Foundation, and the Spencer Foundation.

Research and Impact

The debate over the effects of school choice and school reform is one of the most vigorous and exciting in the human capital policy arena. The discussion in this context often compares alternative school models, such as charter schools and voucher-funded private schools, with traditional public schools. The SEII team provided the first rigorous lottery-based (randomized) impact evaluation of the iconic KIPP charter school network. The SEII team also produced the first randomized evaluation of Boston’s charter and pilot schools. Many school districts rely on formal game-theoretic matching schemes to give their students a choice of schools. SEII researchers helped to design and implement these matching mechanisms in Boston, Chicago, Denver, New York, and New Orleans. SEII researchers use these mechanisms, which typically include an element of random assignment, to provide credible measures of school quality and to assess the broader effects of school choice. SEII research also looks at the effects of college outreach, financial aid, and academic support services on large numbers of public college and university applicants. In a recent evaluation, SEII researchers have shown how a small increase — adding one additional score report for ACT test takers – can boost college application rates for low-income students.

Over the last decade, research on the labor market consequences of workplace automation and rising international trade has shaped the national debate on the causes of U.S. and international income inequality. SEII’s publications and reports have illuminated the role of computerization in catalyzing employment ‘polarization’ — the simultaneous growth of high-education, high-wage and low-education, low-wage jobs — by substituting robots for workers performing routine job tasks. Overturning conventional wisdom, SEII’s recent work on trade has documented the profoundly disruptive impact of international competition on U.S. manufacturing workers. Most recently, SEII researchers have explored the central role of education and skills in determining the lifetime earnings of workers at all levels of the income distribution.

In addition to cutting edge research, the SEII mission includes education and training, SEII hosts post-docs; provides data access, mentoring, and financial support for many graduate students; and offers research assistantships to talented undergraduates interested in empirical economics.
Public Economics

Public economics explores the economic effects of government tax and expenditure policies, as well as the optimal design of these policies. The field studies questions such as the impact of income taxation on the behavior of individuals and firms, the rationale for and impact of social insurance programs such as Social Security, Medicare, Medicaid, unemployment insurance, and food stamps, as well as the effects of direct government spending programs in areas such as education, defense, infrastructure, and healthcare.

Undergraduate offerings include an introductory course in public economics as well as a course in environmental economics. Graduate students enroll in a two-semester public economics sequence that covers core material on taxation and social insurance programs; an additional course on health economics with particular reference to the public sector is taught periodically.

Six faculty members have substantial research programs in public economics. Amy Finkelstein works on market failures in insurance markets and government intervention in health care markets. Jonathan Gruber studies a range of government-provided social insurance programs, also with a focus on health issues. Jeffrey Harris is a health economist whose work touches on issues in public economics. Simon Jäger analyzes the labor market consequences of social insurance programs. James Poterba specializes in the economics of tax policy, with a focus on policies that affect retirement security. Iván Werning works on optimal tax and social insurance design, including the taxation of high-income households, capital and estate taxation, and unemployment insurance. Emeritus Professor Peter Diamond continues an active research program on public pensions.

Undergraduate Majors in Economics

Nancy Wang graduated from MIT in June 2019, double majoring in mathematical economics and chemical-biological engineering.

Wang’s most memorable course 14 experience was her Economics Research and Communication (14.33) class, where she investigated the effect of the 2017 Women’s March on the 2018 primary election outcomes. She used precipitation on the date of the march as an instrument for the attendance at various marches, and was interested in the effect of the marches on the proportion of women candidates in the primaries and their success rates. Wang found it satisfying to work on her own research question, and she felt there was a genuine camaraderie between the students in the class.

Outside the classroom, Wang was heavily involved with extracurricular activities. She served as the president of La Maison Française, and was on the Undergraduate Student Advisory Board for the Department of Chemical Engineering. She also traveled extensively as part of her MIT experience. Through MISTI, she visited Belgium, Germany, Israel, Hong Kong, and China.

After graduation, Wang became an employee of the National Bureau of Economic Research, and plans to attend graduate school in economics in the future.
Political Economy

Political economy is the subfield of economics that studies the interplay of political factors, political institutions, and economic incentives. It focuses both on the determination of a broad range of policies and the implications of political factors on economic outcomes. Daron Acemoglu studies the theoretical and empirical links between institutions and economic growth and development as well as the dynamics of political institutions, the interplay between conflict and cooperation, and the role of state capacity. Abhijit Banerjee works on various issues at the intersection of political economy and economic development. Benjamin Olken studies the role of political leaders in affecting policy outcomes and economic growth and the implications of corruption in developing economies. Daron Acemoglu, Abhijit Banerjee, and Benjamin Olken offer a graduate course on the political economy of institutions and development. The department also offers a second graduate course on theoretical and empirical approaches to political economy. Other faculty working on political economy issues include Esther Duflo, who has worked on the effect of village-level political institutions on women’s representation, Alex Wolitzky, who has examined conflict, repression, coercion and foundations of societal cooperation, and Stephen Morris, who has written on the theory of policy-making and political inefficiencies. Simon Johnson, a member of the MIT Sloan faculty, works on the links between political institutions and economic development. Graduate students interested in political economy can also enroll in a number of other courses that are offered by the Political Science Department.

Health Economics

Healthcare is a rapidly growing sector of the economy, and health economics is a rapidly growing area of research interest. The continued growth in health care costs, and the availability of high quality data, have prompted a large number of students to carry out research in health economics. Their work is supported by a large faculty group with strong interests in health economics. Nikhil Agarwal works on matching in medical markets both for medical students and human organs. Amy Finkelstein studies private market failures and government intervention in health insurance markets and the economics of healthcare delivery. Jonathan Gruber studies public policy towards health insurance in a variety of contexts, such as tax subsidies to employer sponsored insurance, expansions of Medicaid, and the use of choice-based exchanges to promote insurance coverage. Jeffrey Harris, who holds an M.D. as well as a PhD in economics, works on the economics of health issues ranging from AIDS to smoking. The Economics Department offers an undergraduate course in health economics.

J-PAL North America

Developing successful public policies to combat poverty, improve schools, promote health, and address other social issues is a difficult and complex task. Policymakers often lack credible evidence on the efficacy of social programs. J-PAL North America was launched at MIT in 2013 to advance J-PAL’s goal of reducing poverty by ensuring that policy is informed by scientific evidence. Drawing on J-PAL’s established credibility in conducting randomized evaluations in the international sphere, J-PAL North America brings J-PAL’s proven model to the region. J-PAL affiliated researchers have conducted over 240 ongoing and completed randomized evaluations in North America.

J-PAL North America runs five major initiatives to catalyze policy-relevant research and promote evidence-informed policymaking:

- The Health Care Delivery Initiative generates rigorous evidence on strategies that make health care delivery in the US more efficient, effective, and equitable.
- The Education, Technology, and Opportunity Initiative identifies effective uses of technology that improve student learning.
- The State and Local Innovation Initiative provides government leaders with funding, technical support, and opportunities to collaborate with preeminent researchers to answer high-priority policy questions.
- The Work of the Future Initiative identifies effective, evidence-based strategies to increase opportunities for workers and reduce the economic barriers and social challenges associated with the changing nature of work. This initiative is co-led by David Autor (MIT) and Matthew Notowidigdo (’03, MA ’04, PhD ’10) (Northwestern).
- The Social Policy Research Initiative supports randomized evaluations across a broad range of sectors, including consumer finance, crime and violence prevention, environment, homelessness, and government efficiency.

J-PAL North America staff build the capacity of researchers and practitioners to conduct randomized evaluations through trainings and accessible research resources. Policy staff also translate research into policy lessons, help partners apply research insights to local contexts, and support the replication and expansion of successful evaluated programs.

J-PAL North America is led by two Co-Scientific Directors. Amy Finkelstein (PhD ’01) (MIT) is a leading health economist and one of the principal investigators of the Oregon Health Insurance Experiment. Lawrence Katz (PhD ’86) (Harvard) served as Chief Economist for the U.S. Department of Labor during the Clinton Administration and is the principal investigator of the long-term evaluation of the Moving to Opportunity housing mobility program. Affiliated professors at MIT include Economics Professor David Autor and Sloan Professor Joseph Doyle, the Co-Chair of J-PAL’s Health sector.
Faculty Research

The Economic Impact of Hospital Admissions

Poor health is a major source of economic risk for adults in the United States. As a result of major expansions of public and private health insurance coverage through the 2010 Affordable Care Act, the vast majority of Americans now have health insurance. But little is known about their remaining exposure to economic risk from adverse health events.

In “The Economic Impact of Hospital Admissions”, Amy Finkelstein (PhD ’01) and co-authors Carlos Dobkin, Ray Kluender (PhD ’18) and Matthew Notowidigdo (’03, MA ’04, PhD ’10) examine the economic consequences of unexpected health shocks (non-pregnancy related hospital admissions) for adults in the United States. They follow individuals before and after a hospital admission in both panel survey data and by linking each of nearly a million hospital admissions records to the 10 years of the patient’s credit reports.

A key finding is that, even when they are covered by health insurance, hospital admissions impose substantial economic costs on non-elderly adults. For non-elderly adults with health insurance, hospital admissions substantially reduce earnings and income. To put these numbers in perspective, they estimate that for 50-59 year olds with health insurance, the approximately 20 percent decline in long-term earnings they experience following a hospital admission is comparable to previous estimates of the long-term economic consequences of job displacement. As a result, they estimate that only about 50 percent of the total economic consequences of the hospital admission (i.e. medical costs plus earnings losses) are covered.

Thus, while the vast majority of Americans have insurance covering much of their medical expenses, they still face substantial exposure to uninsured economic consequences of adverse health shocks. This stands in stark contrast to other countries (such as Denmark), where a combination of public and private insurance programs covers most of the economic repercussions of negative health events.

Economics Department Visiting Committee

Roger Altman, the Chair of the Visiting Committee, is Founder and Senior Chairman of Evercore, which, in most years, is the most active independent investment bank in the United States. He served two stints in the U.S. Treasury Department, initially serving President Carter as Assistant Secretary for Domestic Finance and later serving President Clinton as Deputy Secretary.

Mr. Altman is a Trustee of New York-Presbyterian Hospital, serving on its Finance Committee and is a member of the MIT Corporation. He is also a Director on the Board of New Visions for Public Schools and a member of the Council on Foreign Relations. Altman received an A.B. from Georgetown University and an M.B.A. from the University of Chicago.
Economics students: Where are they now?

José Antonio González Anaya (’89 EC, ME) has had a distinguished career as an economist and public servant.

In the past decade, he has served his native Mexico in several of its most important posts. Most recently, he served in the cabinet of President Peña Nieto as Minister of Finance and Public Credit. In that role, he negotiated and signed a memorandum of understanding strengthening of the US Mexico Exchange Stabilization Agreement. He had previously spent three years as General Director of the Mexican Social Security Institute, which is responsible both for Mexico’s Social Security retirement system and for public health programs.

In the period between these roles, González Anaya was CEO of Petroleos Mexicanos (PEMEX), the oil producer that is one of the world’s largest public companies with over 100,000 employees and annual revenues approaching $100 billion.

González Anaya is a native of Veracruz. He earned his SB at MIT with a double major in economics and mechanical engineering and went on to earn a PhD in Economics from Harvard University. He spent much of the next decade at the World Bank, where he was a Senior Economist for Bolivia, Paraguay, and Peru, and at Stanford University, where he was the Latin American Research Coordinator at the Center for Research on Economic Development and Policy Reform.

Organizational Economics

As one might expect, organizational economics (OE) studies the design and performance of organizations. Three further aspects of the field may be more surprising: (1) these organizations include not just firms but also schools, hospitals, government agencies, and more; (2) a great deal of economic activity occurs not in market transactions but instead within private- and public-sector organizations; and perhaps most surprising (3) there is substantial heterogeneity in the productivity of organizations operating in apparently very similar environments.

This heterogeneity is evident from large-scale datasets in all countries and industries. As a result, there may be opportunities to improve economic welfare and growth by understanding the drivers of performance in organizations. For example, the intense recent interest in the performance of the healthcare sector focuses on (a) how healthcare organizations should be organized and (b) how low performers can improve. Other fields of economics—including development, education, IO, labor, macro, political economy, and trade—have also begun to explore organizational issues, including performance heterogeneity.

OE can be divided into two broad topics: “between firms” and “within firms.” Under “between firms,” one of the classic questions is the “make or buy” problem of vertical integration: where should the boundary of the firm be? Other topics include lateral integration (conglomerates, related diversification), contracts between firms (whether court- or self-enforced), and “hybrid” organizational forms (such as alliances, networks, and joint ventures).

By contrast, under “within firms,” classic topics include: employment in organizations (such as pay for performance, skill development, job assignment); structures and processes in organizations (hierarchy, decentralization, resource allocation, transfer pricing); and decision-making in organizations (power, politics, influence). Both within and even between firms, management practices and organizational culture have become frontier topics in OE.

Many of these topics are not the exclusive preserve of OE. To the contrary, within-firm topics are also studied in labor economics (employment) and corporate finance (resource allocation, transfer pricing), and between-firm topics are also studied in industrial organization (vertical integration) and law and economics (contracts between firms). Similarly, many of these topics are studied by other social sciences (such as social psychology, economic sociology, and political economy) and by some management fields (such as corporate strategy, human resource management, marketing, and operations).

The department offers an undergraduate course, as well as a year-long doctoral sequence and seminar, led by core faculty Robert Gibbons, Bengt Holmström, John Van Reenen and Michael Winston. Department faculty with interests that intersect with OE include Daron Acemoglu, David Atkin, David Autor, Abhijit Banerjee, Arnaud Costinot, Glenn Ellison, Amy Finkelstein, Jon Gruber, Parag Pathak, Drazen Prelec, Nancy Rose, Rob Townsend, and Alex Wolitzky.
Financial Economics

Financial economics is a very active field of applied economics research. A close collaboration between the finance group in the Sloan School of Management and the Economics Department provides students with an outstanding opportunity to learn about current insights and state-of-the-art methods in both asset pricing and corporate finance.

The finance group in the Sloan School is widely regarded as one of the premier departments in the world. Undergraduate economics majors can enroll in MIT Sloan’s introductory finance course for masters students. There are five doctoral courses in financial economics, all jointly offered between Economics and Sloan.

The financial economics sequence begins with Asset Pricing (taught by Leonid Kogan and Lawrence Schmidt) in the fall, which covers the basic principles of portfolio choice, asset pricing, options, the economics of uncertainty, and information and efficient markets. The sequence goes on with Corporate Finance (taught by David Thesmar and Antoinette Schoar) in the spring. The course exposes students to the basic theoretical and empirical contributions and the key methodological tools in modern corporate finance.

Students can also choose to enroll in one or more of three advanced courses. Advanced Asset Pricing (14.441J, taught by Daniel Greenwald, Eben Lazarus and Adrien Verdelhan), focuses on the solution, evaluation, and estimation of theories of asset prices and financial markets and their macro- and micro-economic foundations; Advanced Corporate Finance (14.442J, taught by Antoinette Schoar and Maryam Farboodi) builds on the first corporate finance course; and Current Topics in Finance (14.448J) covers advanced research in a variety of areas within finance.

In the Economics department, Ricardo Caballero and Alp Simsek research the interaction between macroeconomy policy and financial markets. Ricardo’s graduate course, 14.454, teaches the canonical macroeconomic models of financial frictions and crises. Alp’s undergraduate course, 14.07 Financial Markets and the Macroeconomy, analyzes the macroeconomic effects of financial markets with emphasis on understanding financial crises.

Economics Computing at MIT

The Economics Department supplements MIT’s computing resources with its own cutting-edge systems designed to support learning and research. The virtual computing lab grants students access to powerful Windows-based virtual machines, which run a full suite of econometric and statistical software packages. The lab systems can be accessed from on-campus terminals or remotely, allowing students to connect using their personal computers from anywhere in the world. Additionally, the department provides multiple Linux-based research computing servers, including a 300 processor high-performance computing cluster. These systems allow students to work with massive data sets and easily manage long-running jobs. This computing infrastructure is backed by a robust and secure fiber-optic data storage system which provides user-accessible backups of datasets and documents.

Full-time professionals Andy Dorner, Meng Chau, and Carl Anderson support the department’s extensive IT operation.

Other important computing resources for MIT economists include MIT’s Geographic Information Systems Laboratory, housed at Rotch Library, and the virtual Harvard-MIT Data Center. The Economics Department has an agreement with the Census Bureau’s Research Data Center (RDC), located at the nearby National Bureau of Economic Research (NBER), allowing students and faculty to access confidential government microdata sources for approved projects.
Genek Kang graduated from MIT in June 2019, double majoring in computer science, economics, and data science (6-14) and management science with a concentration in finance (15). His most memorable class experiences were Intermediate Macroeconomics (14.05) and Research and Communication in Economics: Topics, Methods, and Implementation (14.33), both of which allowed him to pursue his passion of economic research. In 14.05, Kang did a project studying the effect of openness and inequality on economic growth by comparing the economic growth history of South Korea and Philippines. In 14.33, he was able to expand his research skills further in his own research studying the effect of debt type—dependence on corporate bond or bank loan—on firms’ information quality.

Outside of class, Kang participated in the MIT DC Internship Program, which led to his working at the Federal Reserve Board as an intern, studying the effect of ETF ownership on the volatility of the underlying stocks. This summer, Kang returned to the Federal Reserve Board to work as a full-time research assistant in the Financial Stability group. He is responsible for conducting various data analyses and preparing documents necessary for financial market regulations and the FOMC meetings. He plans on pursuing his PhD after his research assistantship.

Economics around the Institute

The Economics Department has a close relationship with many other departments and especially with MIT Sloan. Several faculty members hold joint appointments in the Economics Department and MIT Sloan. Business schools and private-sector investment banks and asset management firms often hire MIT graduates with doctorates in economics who have taken advantage of Sloan’s finance courses and research opportunities.

While the interaction between Economics and Sloan is strongest in the applied economics and finance fields, it is substantially broader. MIT Sloan has assembled a leading group of economics researchers in organizational design, business strategy, marketing, and technological competition. Formal joint seminars in applied microeconomics strengthen these ties among faculty and students. MIT Sloan courses and seminars serve as a window into current economic research by business school faculty at MIT and elsewhere. MIT Sloan doctoral students often find that graduate courses taught in the Economics Department provide a base for their research. Economics PhD students, at the same time, often discover that the issues studied by faculty and students in MIT Sloan provide ideal applications for their research.

The MIT Center for Energy and Environmental Policy Research (CEEPR) is sponsored by the Economics Department, the Sloan School, and the MIT Energy Initiative. The Director of CEEPR is George P. Shultz Professor of Applied Economics Christopher R. Knittel of MIT Sloan, who teaches a jointly-offered energy economics course. The Center investigates economic, regulatory, and technological issues related to energy and the environment and is supported by corporations, trade associations, environmental organizations, and grants from foundations and government agencies. The Center holds bi-annual meetings and conferences to discuss policy issues with business and academic economists.

CEEPR is a co-sponsor of the Joint Program on the Science and Policy of Global Change, which supports research on global warming and related topics by faculty and students in the Economics Department, MIT Sloan, the School of Science, and the School of Engineering. The program provides opportunities for economics and management faculty to work with specialists on climate change in the School of Science, and with emissions control and remediation experts in the School of Engineering.

The MIT Energy Initiative (MITEI) is another important partner in economics research. MITEI has provided significant funding for faculty research projects, supported graduate students, and funded a post-doctoral visitor to the department. Even more importantly, it has facilitated the interdisciplinary interaction that is the hallmark of MIT.

The Economics Department also has ties with MIT’s Political Science Department. Research on political economy straddles the boundary between economics and political science. It emphasizes the use of economic models and economic insights to understand decision making in political settings. Economists in fields such as regulatory economics and public finance have increasingly come to realize that recognizing and analyzing the political factors that underlie current policies can open a rich set of research opportunities. Several recent graduates of the Economics Department’s PhD program are now leading scholars in the field of positive political economy.

The Economics Department has a long-standing relationship with MIT’s Urban Studies and Planning Department. Emeritus professors William Wheaton, whose work focuses on real estate markets, and Frank Levy, who is an expert on income and wealth distribution in the U.S. and its changes over time, have provided important links between the two departments.

MIT’s excellence in engineering, science, and management has created valuable educational and research opportunities for Economics Department faculty and students. The Department in turn has contributed its experience and expertise to research and education throughout the Institute.
Faculty

Alberto Abadie, PhD, MIT; Professor of Economics. Associate Director, Institute for Data, Systems, and Society.

K. Daron Acemoglu, PhD, London School of Economics; Institute Professor.

Nikhil Agarwal, PhD, Harvard; Associate Professor of Economics.

George-Marios Angeletos, PhD, Harvard; Professor of Economics.

Joshua Angrist, PhD, Princeton; MacVicar Faculty Fellow, Ford Professor of Economics.

David Atkin, PhD, Princeton; Professor of Economics.

David Autor, PhD, Harvard; MacVicar Faculty Fellow, Ford Professor of Economics.

Clare Balboni, PhD, London School of Economics; 3M Career Development Assistant Professor of Environmental Economics.

Abhijit Banerjee, PhD, Harvard; Ford International Professor of Economics.

Martin Beraja, PhD, University of Chicago; Pentti Kouri Career Development Assistant Professor of Economics.

Ricardo Caballero, PhD, MIT; Ford International Professor of Economics.

Victor Chernozhukov, PhD, Stanford; Ford International Professor of Economics.

Arnaud Costinot, PhD, Princeton; Professor of Economics.

Dave Donaldson, PhD, London School of Economics; Professor of Economics.

Esther Duflo, PhD, MIT; Abdul Latif Jameel Professor of Poverty Alleviation and Development Economics.

Glenn Ellison, PhD, MIT; Gregory K. Palm (1970) Professor of Economics, Associate Department Head.

Sara Fisher Ellison, PhD, MIT; Senior Lecturer in Economics.

Amy Finkelstein, PhD, MIT; John & Jennie S. MacDonald Professor of Economics.

Drew Fudenberg, PhD, MIT; Paul A. Samuelson Professor of Economics.

Robert Gibbons, PhD, Stanford; Sloan Distinguished Professor of Management and Economics.

Jonathan Gruber, PhD, Harvard; Ford Professor of Economics.

Jeffrey E. Harris, MD, PhD, Pennsylvania; Professor of Economics.
Affiliated Faculty
Jean Tirole, PhD, MIT; Visiting Professor of Economics.

Associated Teaching Faculty
Suzanne Berger, PhD, Harvard; Institute Professor
MIT Department of Political Science.

Hui Chen, PhD, University of Chicago, Graduate School of Business; Associate Professor of Finance, MIT Sloan School of Management.

Maryam Farboodi, PhD Chicago; Jon D. Gruber Career Development Assistant Professor, MIT Sloan School of Management.

Daniel Greenwald, PhD, New York University; Judy C. Lewent (1972) and Mark Shapiro Career Development Assistant Professor of Finance, MIT Sloan School of Management.

Valerie Karplus, PhD MIT; Assistant Professor of Global Economics and Management, MIT Sloan School of Management.

Bengt R. Holmström, PhD, Stanford; Paul A. Samuelson Professor of Economics.

Simon Jäger, PhD, Harvard; Silverman (1968) Family Career Development Assistant Professor of Economics.

Anna Mikusheva, PhD, Harvard; Associate Professor of Economics.

Stephen Morris, PhD, Yale; Professor of Economics.

Whitney Newey, PhD, MIT; Ford Professor of Economics.

Benjamin Olken, PhD, Harvard; Professor of Economics.

Parag Pathak, PhD, Harvard; Jane Berkowitz Carlton and Dennis William Carlton Professor of Microeconomics.

James M. Poterba, D. Phil., Oxford; Mitsui Professor of Economics.

Drazen Prelec, PhD, Harvard; Digital Equipment Corporation Leaders for Global Operations Professor of Management, Professor of Marketing and Management Science, Brain and Cognitive Sciences, and Economics.

Nancy L. Rose, PhD, MIT; MacVicar Faculty Fellow, Charles P. Kindleberger Professor of Applied Economics, Department Head.

Tobias Salz, PhD, New York University; Castle Krob Career Development Assistant Professor of Economics.

Frank Schilbach, PhD, Harvard; Gary Loveman Career Development Assistant Professor of Economics.

Alp Simsek, PhD, MIT; Rudi Dornbusch Career Development Associate Professor of Economics.

Robert Townsend, PhD, Minnesota; Elizabeth and James Killian (1926) Professor of Economics.
David Thesmar, PhD,  
Paris School of Economics;  
Franco Modigliani Professor of Financial  
Economics,  
MIT Sloan School of Management.  

Adrien Verdelhan, PhD, Chicago;  
Associate Professor of Finance,  
MIT Sloan School of Management.  

Jiang Wang, PhD, University of  
Pennsylvania, Wharton School;  
Mizuho Financial Group  
Professor of Finance,  
MIT Sloan School of Management.  

Professors Emeriti  

Olivier J. Blanchard, PhD, MIT;  
Robert M. Solow Professor of  
Economics, Emeritus.  

Peter A. Diamond, PhD, MIT;  
Institute Professor and Professor of  
Economics, Emeritus.  

Richard S. Eckaus, PhD, MIT;  
Ford International Professor of Economics,  
Emeritus.  

Stanley Fischer, PhD, MIT;  
Professor of Economics, Emeritus.  

Jerry A. Hausman, D. Phil., Oxford;  
John and Jennie S. MacDonald Professor of  
Economics, Emeritus.  

Paul L. Joskow, PhD, Yale;  
Elizabeth and James Killian Professor of  
Economics and Management, Emeritus.  

Michael J. Piore, PhD, Harvard;  
David W. Skinner Professor of Political  
Economy, Emeritus.  

Richard L. Schmalensee, PhD, MIT;  
Howard W. Johnson Professor of  
Economics and Management, Emeritus;  
Dean Emeritus.  

Robert M. Solow, PhD, Harvard;  
Institute Professor and Professor of  
Economics, Emeritus.  

Peter Temin, PhD, MIT;  
Elisha Gray II Professor of Economics,  
Emeritus.  

William C. Wheaton, PhD, Pennsylvania;  
Professor of Economics and Urban  
Studies, Emeritus.
Visiting Committee

Every department at MIT has a Visiting Committee that consists of distinguished scholars, department graduates, and several members of the MIT Corporation. These committees typically meet once every two years to hear reports from the Department Head, the faculty, and current students about the department's health and future direction. These committees prepare reports for the President, Provost, and Chancellor that provide an important external evaluation for each department. The members of the MIT Economics Department Visiting Committee as of Fall 2019 are listed below.

Chair

Mr. Roger C. Altman
Founder and Senior Chairman
Evercore

Members

Mr. Frank Ahimaz
'95 AA
Chief Investment Officer, Retired
The Museum of Modern Art

Dr. Persio Arida
EC '92
Senior Partner
BTG Pactual

Mr. Armen A. Avanessians
'82 EE
Managing Director
Goldman Sachs & Company

Dr. Ben S. Bernanke
EC '79
Distinguished Fellow in Residence
The Brookings Institution

Mr. Denis A. Bovin
'69 MG
Senior Advisor
Evercore

Professor David Card
Director, Center for Labor Economics
University of California, Berkeley

Mr. John K. Castle
'63 EC
Chairman and Chief Executive Officer
Castle Harlan, Inc.

Dr. Morris Chang
'52 ME, ME '53, '55
Founder and Chairman, Retired
Taiwan Semiconductor Manufacturing Company, Ltd.

Professor Susan M. Collins
EC '84
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Gerald R. Ford School of Public Policy
Professor of Economics
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