The 2016-2017 academic year marked the Economics Department’s first complete year back in its long-time home. Building E52, now named the Morris and Sophie Chang Building, underwent an architectural and structural transformation during a three-year renovation. The department’s faculty, students, and staff returned in January 2016 to spacious, community-building interior workspaces filled with natural light. These spaces have been enthusiastically embraced by the MIT Economics community for use in its research and education missions.

The students and faculty in the Economics Department are deeply grateful to the many donors who have already supported this transformative project. There are still a number of opportunities for major gifts, including conference rooms, faculty offices, and common spaces associated with the E52 renovation. 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.
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* The ROTC programs at MIT are operated under Department of Defense (DoD) policies and regulations, and do not comply fully with MIT’s policy of nondiscrimination with regard to gender identity. MIT continues to advocate for a change in DoD policies and regulations concerning gender identity, and will replace scholarships of students who lose ROTC financial aid because of these DoD policies and regulations.

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Recent Developments

The high point of the past year for MIT Economics came when Bengt Holmström was awarded the Nobel Prize in Economics. The prize, formally the 2016 Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel, was awarded jointly to Holmström and to Oliver Hart of Harvard University for their research on contract theory. Their pioneering work opened up a broad field of inquiry that studies incentives within organizations, the optimal design of contracts between employers and employees, and the role of asymmetric information in many other settings.

Two other MIT Economics faculty members received particularly notable honors in the past year. Dave Donaldson, an expert on international trade who was an MIT faculty member from 2009 until 2014, and who rejoined the MIT faculty in July 2017, was selected as this year’s John Bates Clark Medalist by the American Economic Association. The award recognizes the outstanding American economist under the age of 40.

Daron Acemoglu, who studies political economy, technical change, and economic growth, received the 2017 BBVA Foundation Frontiers of Knowledge Award for Economics, Finance, and Management. This award, a relatively recent honor that recognizes an important contribution to economics, has rapidly emerged as one of the most competitive and highly-regarded in economics.

There were many other faculty honors during the year. Alberto Abadie, Jonathan Gruber, and Parag Pathak were elected Fellows of the Econometric Society. Isaiah Andrews and Alp Simsek were awarded NSF CAREER grants. Esther Duflo was elected to the National Academy of Sciences. John Van Reenen was named an officer of the Order of the British Empire (OBE). This short list excludes a wide range of other recognitions.

In July 2017, Nancy Rose (PhD ’85) succeeded Glenn Ellison (PhD ’92) as Department Head. Rose, who taught at the MIT Sloan School prior to joining the Economics faculty in 1994, is a distinguished scholar of industrial organization and regulatory economics. She served as Deputy Assistant Attorney General for Economic Analysis in the U.S. Department of Justice Antitrust Division from 2014 through 2016. David Autor continues as Associate Department Head.

In addition to welcoming Dave Donaldson’s return from Stanford, the department added two new faculty members and promoted two others in 2017. Martin Beraja, a macroeconomist who received his PhD from the University of Chicago, and Simon Jäger, a labor economist who received his PhD from Harvard University, joined the department as assistant professors. Isaiah Andrews was promoted to the rank of Associate Professor without Tenure, and David Atkin was promoted to the rank of Associate Professor with Tenure.
Unfortunately, not all our news of the past year was happy. The MIT Economics and Sloan communities were deeply saddened when Stephen Ross, a long-time member of both faculties and the holder of the Franco Modigliani Professorship of Financial Economics, passed away unexpectedly in early 2017.

The Economics Department introduced two new undergraduate initiatives during the past two years. In the Fall of 2016, it launched a new major in Mathematical Economics (14-2), which offers deep and broad training in both economics and mathematics, and highlights the synergies between the two fields. This new major offers empirically-minded students the opportunity to master frontier “big data” tools while also enabling theoretically-minded students to explore the nexus between economic theory and pure mathematics. Many students will probably choose to do both.

In the Fall of 2017, the Economics department launched a new undergraduate major in Computer Science, Economics and Data Science, run in collaboration with the department of Electrical Engineering and Computer Science (EECS, or Course 6). This new offering capitalizes on the rapid growth of collaborative scholarship among economists, computer scientists, and engineers. The major builds on research areas including online markets, crowdsourcing platforms, spectrum auctions, crypto-currencies, and large-scale matching/allocation systems such as kidney exchanges and public school choice systems. These electronically-mediated platforms combine complex human decisions with intensive computation and data processing, all operating within an engineered economic environment. Students are already expressing substantial interest in this new major.

Many faculty members are engaged in substantial service to the economics profession. Two in particularly prominent current roles are Olivier Blanchard and Drew Fudenberg. Blanchard, now an emeritus faculty member, was elected President of the American Economic Association in 2016. He was a key member of the MIT macroeconomics faculty for nearly 25 years, and then served for eight years as the Economic Counselor and Director of the Research Department at the International Monetary Fund. Fudenberg, a member of the MIT faculty in the 1980s, who taught at Harvard for several decades before returning to MIT in 2016, is currently serving as President of the Econometric Society.

Many other faculty members also play significant professional leadership roles. David Autor directs the National Bureau of Economic Research (NBER) Disability Research Center and is an executive committee member of the American Economic Association. Arnaud Costinot serves as Foreign Editor for the Review of Economic Studies and Co-Editor of the Journal of International Economics. Esther Duflo is the Director of the Development Program at the Center for Economic Policy Research (CEPR) and the Editor in Chief of the American Economic Review. Amy Finkelstein and Jon Gruber serve as program directors for public economics and health care respectively, Robert Gibbons and Parag Pathak direct working groups on organizational economics and market design, and James Poterba serves as president, at the NBER. Jon Gruber is the President-elect of the American Society of Health Economists. Whitney Newey serves on the Executive Committee of the Econometric Society; he and Rob Townsend are members of the society’s North America Council. Townsend is also the president of the Society for the Advancement of Economic Theory. Ben Olken is a Co-Editor for the American Economic Journal: Applied Economics.

Other faculty continue the department's tradition of broader public service. David Autor and James Poterba serve on the Panel of Economic Advisers, and Amy Finkelstein serves on the Panel of Health Advisers, for the Congressional Budget Office. Parag Pathak serves as a member of the Scientific Board at the Institute for Innovation in Public School Choice.
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 inaugurated the PhD program that is renowned worldwide. 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 was established 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 2016-2017 academic year, 1,751 undergraduates enrolled in economics courses, 53 undergraduates were majoring in economics, of which 37 were studying economics (14-1) and 16 were studying mathematical economics (14-2),

**Hal Varian Visiting Professor**

In 2013, Economics Visiting Committee member Hal R. Varian (SB ’69) endowed a Fund for Economics which supports visiting faculty. In 2017/18, Gabriel Chodorow-Reich, an economist whose research focuses on macroeconomics, finance, and labor markets, is serving as the Hal Varian Visiting Professor. The opportunity to invite leading scholars to spend a year at MIT contributes to the intellectual vitality of the Economics Department and also provides diversity in the course offerings available to graduate students and undergraduates.

**UEA Speaker Series**

The Undergraduate Economics Association (UEA) invites economists in positions of prominence to share their expertise with the MIT community. Maria Jelyescku (SB ’02), Portfolio Manager at Goldman Sachs, and Alan Gerstein (SB ’88), Senior Advisor and Partner at Blue Mountain, kicked off the year’s series with a panel discussion titled “From MIT to Wall Street”. Professor Eric Maskin of Harvard University, the 2007 Nobel Laureate, shared his analysis of “How to Improve Presidential Elections”. Professor Kenneth Rogoff (PhD ’80) of Harvard University presented “The Case for Reducing Cash in Advanced Countries and India’s Demonetization”. In the final event in the last year, Chris Bae (SB ’98), Head of Trading and Quantitative Strategies at UBS Hedge Fund Solutions, and Gerald D. Cohen (SB ’88), former Deputy Assistant Secretary at the US Department of Treasury, held a panel on “The US and the Global Economy, Views from Washington and Wall Street.”

**Department Overview**

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73 were minoring in economics, and another 282 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 eight hundred applicants. During the 2016-2017 academic year, there were 128 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 two decades has been a growing internationalization in the 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 developed and developing world.

Most doctoral candidates spend five 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 design and oversee their market strategies.

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 months or years before they are published in academic journals.

The majority of classes offered by the Economics department—seventy-two at last count—are also made freely available online through MIT’s heralded Open Course-Ware (OCW) initiative (ocw.mit.edu). The undergraduate development economics course 14.73x: “The Challenges of Global Poverty,” made its online debut through MITx in the Spring of 2013. Since then, online economics offerings have expanded to include 14.74x “Foundations of Development Policy: Advanced Development Economics” (Fall 2015), 14.100x “Principles of Microeconomics” (Fall 2016) and 14.310x “Data Analysis for Social Scientists” (Fall 2016).

The Abdul Latif Jameel Poverty Action Lab (J-PAL) also launched J-PAL 102x “Designing and Running Randomized Evaluations” in the Spring of 2017. MIT Economics and J-PAL have combined these courses to launch the MITx MicroMasters credential in Data, Economics, and Development Policy. Graduates of the MicroMasters program will be eligible to apply to a new blended Master’s program in Data, Economics, and Development Policy which will launch in the academic year of 2019.

MIT Economics and the Nobel Prizes in Economic Sciences

2016
Bengt Holmström,
MIT Professor of Economics

2014
Jean Tirole, MIT, PhD 1981
MIT Professor of Economics, 1984-1991

2013
Robert J. Shiller, MIT, SM 1968, PhD 1972

2010
Peter A. Diamond, MIT, PhD 1963
MIT Institute Professor of Economics, Emeritus

2008
Paul R. Krugman, MIT, PhD 1977

2007
Eric S. Maskin
MIT Professor of Economics, 1977-1984

2003
Robert F. Engle
MIT Professor of Economics, 1969-1977

2001
George A. Akerlof, MIT, PhD 1966
Joseph E. Stiglitz, MIT, PhD 1966

2000
Daniel L. McFadden
MIT Professor of Economics, 1978-1991

1999
Robert A. Mundell, MIT, PhD 1956

1997
Robert C. Merton, MIT, PhD 1969

1987
Robert M. Solow
MIT Institute Professor of Economics, Emeritus

1985
Franco Modigliani
MIT Institute Professor of Finance and Economics (deceased)

1980
Lawrence R. Klein, MIT, PhD 1944
(deceased)

1970
Paul A. Samuelson
MIT Institute Professor of Economics (deceased)

The Nobel Prize in Economic Sciences was first awarded in 1969.
MIT and the John Bates Clark Medal

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 fourteen Clark Medals were awarded to MIT-trained economists. One graduating class, 2009, included three recent winners. Four current faculty members are Clark Medalists: Daron Acemoglu (awarded ‘05), Esther Duflo (awarded ‘10), Amy Finkelstein (awarded ‘12), and Dave Donaldson, who will be the 2018 recipient. Three emeritus faculty members—Franklin Fisher, Jerry Hausman, and Robert Solow—are Clark Medalists, as was the late Paul Samuelson, who spent his entire academic career on the MIT faculty and was the first (and youngest) recipient.

Excellence 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. Jonathan Gruber 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 2017 was Josh Angrist. The Graduate Economics Association (GEA) award for outstanding advising went to Alp Simsek, and the GEA award for outstanding teaching went to Heidi Williams.

In May 2017, Esther Duflo and Sara Ellison were named co-winners of the inaugural MITx Prize for Teaching and Research in MOOCs, for their creation of “Data Analysis for Social Scientists” (14.310R), used in both undergraduate studies and the Department’s new MicroMasters program.

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 2017, the UEA named Enrico Cantoni, who taught in Economics of Incentives (14.26), and Research and Communication in Economics (14.33), the outstanding undergraduate TA. The graduate GEA TA Award went to Harry Pei for his teaching in Economic Applications of Game Theory (14.12), Contract Economics (14.281), and Microeconomic Theory III (14.123). The 2017 Robert M. Solow prize, awarded by the faculty to graduating PhD students who have excelled in both teaching and research, was given to Vivek Bhattacharya and Peter Hull.
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 closely 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 gathering and analyzing economic data, writing computer programs, checking mathematical calculations, and gathering research materials.

In one such UROP project, Claire Lazar worked with Prof. David Autor to examine Social Security Disability Insurance. More than ten million Americans depend upon Social Security Disability Insurance (SSDI) payments every month. Once awarded benefits, SSDI recipients receive these payments until they medically recover, reach the full retirement age, or pass away. Because the length of benefits receipt is indeterminate, it is not straightforward to assess the expected fiscal cost of new benefits awards. Lazar and Prof. Autor are working on a tool that analyzes the demographics of current recipients, from past to present, to predict how long they will remain program beneficiaries. These predictions will allow the researchers to project the fiscal commitment the federal government makes in each year to each new cohort of beneficiaries. Autor and Lazar will subsequently launch an interactive web version of this tool that enables researchers, policymakers, journalists, and citizens to perform these calculations.

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.

The Economics faculty is committed to both graduate and undergraduate education. 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 Dornbusch 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 undergraduate 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 additional applied and advanced courses drawn from a menu that includes 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 a second major, mathematical economics, designed to prepare students interested in pursuing graduate study in economics. Like the traditional economics major, 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.

As noted earlier, in the Fall of 2017, the Economics department launched a new undergraduate major in Computer Science, Economics and Data Science, run in collaboration with the department of Electrical Engineering and Computer Science. This new offering will expose students to the economic and computational tools that support online markets, crowdsourcing platforms, spectrum auctions, crypto-currencies, and large-scale matching/allocation systems. These electronically-mediated platforms combine complex human decisions with intensive computation and data processing, all operating within an engineered economic environment.

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 on networks, environmental economics, and the introduction of the first economics MOOCs at MITx. As part of an MIT-wide initiative on communication skills, the department also offers a course in which students carry out a series of increasingly independent research projects and hone their writing and presentation skills. 14.73 The Challenge of World Poverty, newly designated a communications-intensive subject in the Humanities, Arts, and Social Sciences (CI-H), is co-taught by Esther Duflo and Frank Schilbach. This course, which has no prerequisites, allows freshmen and sophomores to immediately engage in development economics.

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 to 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. This is among the highest yields of PhD candidates for an 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 about 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) and to pass general examinations in their major fields. The field options include public finance, industrial organization, international economics, monetary economics, labor economics, economic development, econometrics, financial economics, organizational economics, political economy, and advanced economic theory.

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 hedge fund managers to economic consultants.

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. Some recent projects include those by graduates Vivek Bhattacharya (PhD ’17) and Reshmaan Hussam (PhD ’15).

Vivek Bhattacharya analyzed procurement mechanisms for products that require investment in research and development. He focused on the Small Business Innovation Research program in the Department of Defense, in which firms compete over multiple stages to develop a specific product — usually as part of a major defense acquisition program — and then compete to supply it to the DOD. To study how to improve the design of this program, he developed a structural model of R&D procurement “contests” and showed how to recover the economic primitives — the cost of research, the variation in values and delivery costs, and the profit margins — from data available from the DOD. He used these estimates to suggest a number of simple design counterfactuals that could improve the efficiency of the program and then discussed the tradeoffs between maximizing social efficiency and allowing the DOD to capture the surplus generated by the program. Bhattacharya participated in the Review of Economic Studies Tour in May 2017, an opportunity afforded to only eight of the most promising graduating doctoral students in economics and finance in the world each year. The Tour brings these invitees to present their research at three to four European universities. Bhattacharya is now an assistant professor in the Economics Department of Northwestern University.

Reshmaan Hussam explored the role of habit formation in the adoption of low cost, high return health behaviors in the developing world. How do individuals engage with and cultivate positive health habits in high disease environments? With her coauthors, she considered the context of handwashing with soap, a behavior that is believed to have substantial impacts on child health in the developing world. They designed, implemented, and analyzed a randomized field experiment aimed to test the main predictions of the rational addiction model, the workhorse model with which economists conceptualize habit formation. To reliably measure handwashing, they teamed up...
with the MIT Media Lab to develop a novel soap dispenser embedded with a time-stamped sensor. They then randomized the distribution of these soap dispensers as well as provision of monitoring (feedback reports) or monitoring and incentives for daily handwashing. The key test of rational addiction was implemented by informing a subset of households about a future boost in monitoring or incentives. They found that (1) both monitoring and incentives increase handwashing relative to receiving only a dispenser; (2) these effects persisted after monitoring or incentives were removed; and (3) the anticipation of monitoring increases handwashing rates significantly, implying that individuals internalize the habitual nature of handwashing and accumulate habit stock accordingly. Relative to a control arm in which households received no dispenser, Hussam and coauthors found that all treatments generated substantial improvements in child health: for example, a 40% reduction in diarrhea and a 0.2 standard deviation increase in child height for age. These findings inform the design of optimal incentive campaigns to increase the take-up of handwashing with soap. More broadly, however, they can be applied to many preventative health behaviors that see low adoption rates in the developing world despite their high returns: latrine use, clean cookstove use, and water treatment, among others. Hussam is now an assistant professor in the Business, Government, and the International Economy unit of Harvard Business School.

**Workshops & Seminars**

Graduate study at MIT consists of more than just satisfying the course requirements. 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 workshops at which students who have passed their general exams 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 workshops, also known as “field 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 passed their general examinations 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 input. First and second year students who are carrying out research are also welcome to participate in these workshops. Third year students are required to complete and present a third-year paper.

Students graduating in May 2017
Economic Theory

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, Parag Pathak, Drazen Prelec, Juuso Toikka, 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, Gonzalo Cisternas, and Andrey Malenko also 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 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 this year’s Nobel Prize for his seminal work shaping the field of contract theory. 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. Juuso Toikka works on repeated games and dynamic mechanism design. Robert Townsend (p. 19) has made fundamental contributions to contract theory and currently works in both mechanism design and general equilibrium modeling. Michael Whinston (p. 23) is a leader in contract theory and antitrust economics. Alexander Wolitzky has worked a range of topics including repeated games, bargaining, and applications to political economy. Muhamet Yildiz is an expert on games of incomplete information and has written on delays and breakdowns in bargaining.

The MIT Economics Department is fortunate to have an ongoing visiting faculty arrangement with recent 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. Another popular undergraduate course explores applications of game theory in a wide range of economic settings, including business competition and individual decision-making. More advanced courses offer sophisticated undergraduate treatments of subjects (including incentives, advanced game theory, and market design) that even top universities usually 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 very firm foundation for their graduate work.

Graduate students are required to pass 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 course 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 a variety of more specialized topics such as bargaining theory, networks, decision theory, and dynamic optimization. While not all of these courses are required for students to take general exams in economic theory, most students who study economic theory as a major field enroll in virtually all of the advanced theory courses. The set of faculty members 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 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 other 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 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, who just arrived in our department, 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, heterogenous beliefs, and other topics at the intersection of macroeconomics and international finance.

Economics students: Where are they now?

Ben S. Bernanke (PhD ’79) is a Distinguished Fellow in Residence with the Economic Studies Program at the Brookings Institution and the President-Elect of the American Economic Association. He was the Chairman of the Federal Reserve Board from 2006 to 2014.

Bernanke, a leading monetary economist, is a renowned scholar of the Great Depression and an expert on the role of financial institutions in supporting economic growth. His work famously demonstrated that the depth and duration of the Great Depression were exacerbated by the banking collapse during this period. Recognizing that the relationships banks form with their customers enable them to expertly evaluate when a loan is warranted and when it is excessively risky, he observed that when banks are allowed to fail during an economic downturn, this hard-won expertise is lost and the overall efficiency of bank lending is impaired. Even transitory banking crises can therefore do lasting harm.

Bernanke’s historical knowledge of monetary policy and banking panics proved invaluable when, early in his term as Chairman of the Fed, the U.S. faced the financial crisis that culminated in the Great Recession. For his leadership during that crucial period, Time magazine named Bernanke Person of the Year in 2009 and observed that he “didn’t just reshape U.S. monetary policy; he led an effort to save the world economy.” His 2015 book, The Courage to Act, chronicles the Federal Reserve’s actions during this period.

Bernanke taught at Stanford and Princeton before moving to Washington in 2002 to serve as a member of the Federal Reserve Board. He was the editor of the American Economic Review between 2001 and 2003, and served as the Chairman of the President’s Council on Economic Advisers prior to his appointment as Chairman of the Fed. Bernanke’s MIT dissertation was supervised by Stanley Fischer, who has also served as a distinguished central banker as Governor of the Bank of Israel and Vice-Chairman of the Fed.
Economics students: Where are they now?

Jean Tirole (PhD ’81) received the Nobel Prize in Economics in 2014. He taught at MIT between 1984 and 1991, and has been a visiting professor since 1992, when he and his family settled in Toulouse, France. His annual summer courses are extremely popular with graduate students in the MIT Economics Department.

Tirole has made fundamental contributions to many subfields in economics, including industrial organization, regulatory economics, game theory, innovation, and financial economics. He is widely respected not only for his research contributions, but also for his field-defining monographs, such as Industrial Organization and A Theory of Incentives in Procurement and Regulation (with Jean-Jacques Laffont).

The citation for Tirole’s Nobel Prize emphasized his research on firm competition, market power, and the theory of regulation. Economists have long recognized that in the absence of regulation, market power can lead to welfare losses because established firms may be able to sustain excessively high prices, or may block the socially-productive entry of new firms. Yet the policies that were offered to address these concerns often failed to recognize the fundamental differences across markets. Tirole’s research on firm behavior in the presence of imperfect competition has offered critical insights on antitrust policy and the regulation of monopolies and cartels. He has demonstrated that simple regulatory policies, such as price caps or restrictions on competition, which are beneficial in one setting, can be detrimental in another. Patent pools, for example, which involve cooperation between firms, can sometimes be welfare-enhancing. The prize committee summarized this body of work by saying “desirable competition policies are different from market to market.”

Tirole has received many honors in addition to the Nobel Prize. In 1993, he was awarded the Yrjö Jahnsson Prize of the European Economic Association, for the European economist under the age of 45 who has made a contribution in theoretical and applied research that is significant to economics in Europe. In 2007, he was honoured with the gold medal of the Centre National de la Recherche Scientifique (CNRS, the “National Science Foundation of France”). He is only the second economist – the other was Maurice Allais in 1978 – to receive this award. In 2008 he received the BBVA Frontiers of Knowledge Award, and in 2014, the Nenmers Prize from Northwestern University. Tirole served as president of the European Economic Association in 2001 and of the Econometric Society in 1998. He is a foreign honorary member of the American Academy of Arts and Sciences, the American Economic Association, and the National Academy of Sciences.

finance and macroeconomics. Robert Townsend (p. 19) 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.

In addition to this core group, a number of other faculty in the department and MIT Sloan participate actively in macroeconomic research. Arnaud Costinot is a trade economist studying the welfare gains from trade and optimal trade policy. Jonathan Parker works in finance and macroeconomics, with an empirical focus on household behavior. John Van Reenen works on trade, innovation, and productivity. Andrew Lo and Antoinette Schoar work in finance and corporate finance at Sloan, Kristin Forbes and Roberto Rigobon in international macro. Finally, we are pleased to welcome back emeritus faculty member Olivier Blanchard (previously at IMF, now at the Peterson Institute), who is teaching a course this year on a variety of international and macro policy issues.
Volatility and Gains from Trade

The connections between trade liberalization and income volatility are of great importance to global policymakers. The entire Doha round of global trade negotiations collapsed in 2008 (and remains stalled today) because of India and China’s insistence on special safeguard mechanisms to protect their farmers from excessive price volatility. In India specifically, many are concerned that the substantial fall in trade costs over the past forty years has amplified the risk faced by farmers.

While trade liberalization increases average returns through specialization, it also affects the volatility of returns by reducing the negative correlation between local prices and productivity shocks. When production is risky, producers are risk averse, and insurance markets are incomplete—as is the case for farmers in developing countries—the interaction between trade and volatility may have negative implications for welfare. In “Volatility and the Gains from Trade,” Treb Allen and David Atkin set out to quantify how important these “second moment” effects of trade may be.

Using forty years of agricultural micro-data from India, they show that trade increased farmers’ revenue volatility by reducing the responsiveness of local prices to local rainfall. As a result, farmers shifted production toward crops with less volatile yields. To understand how much these responses helped farmers, they incorporate a portfolio allocation framework—where producers optimally allocate resources (land) across risky production technologies (crops)—into a general equilibrium Ricardian trade model. They find that these planting responses were effective: Indian farmers were able to almost fully avoid the pernicious effects of the increase in volatility from falling trade costs by reallocating their production toward less risky crops. The net result was a gain to farmers of around six percentage points in personal welfare from falling transportation costs.
Currency Wars at the Zero Lower Bound

Following the Subprime and European Sovereign Debt crises, the global economy entered an environment of unprecedented low interest rates across the developed world and in many emerging market economies. Nearly 10 trillion dollars worth of global government bonds currently trade at zero or slightly negative yields. At these low levels, downward interest rate adjustments cease to be feasible or effective expansionary tools. Moreover, with rates so compressed across economies, they no longer are a useful mechanism to pull aggregate demand from stronger economies. How do countries recover their economic mojo in this context, and what is the role played by international linkages and mechanisms?

The importance of these questions was vividly illustrated by the blog exchange between former Fed chairman Ben Bernanke and former Secretary of the Treasury Larry Summers in April 2015. While Summers argued that we may have entered into an age of ‘secular stagnation,’ Bernanke replied that if the U.S. entered into a persistent liquidity trap, capital would flow out of the U.S., depreciating the dollar and boosting U.S. economic activity. In short, Bernanke argued that exchange rates and capital flow would prop up the U.S. economy, at the expense of its partners.

In “Currency Wars at the Zero Lower Bound,” Ricardo Caballero (PhD ’88) and co-authors Emmanuel Farhi (PhD ’06) and Pierre-Olivier Gourinchas (PhD ’96) address these issues systematically with a simple and tractable framework. In their model, the key force behind the global recession is a shortage of assets for store of value. Once real interest rates cannot play their equilibrium role any longer, global output becomes the active margin: lower global output, by reducing income and therefore asset demand more than asset supply, rebalances global asset markets. In this world, liquidity traps emerge naturally and countries drag each other into them.

They use this framework to answer questions such as: How do liquidity traps spread across the world? What is the role played by capital flows and exchange rates in this process? What are the costs of being a reserve currency in a global liquidity trap? How do differential inflation targets and degree of price rigidity influence the distribution of the impact of a global liquidity trap? What is the role of (safe) public debt and government spending in this environment?

To isolate one of these questions, their model uncovers a fundamental degree of indeterminacy in the nominal exchange rate once the world economy is at the zero lower bound. This indeterminacy has substantive implications since money is not neutral. Different values of the nominal exchange rate correspond to different values of the real exchange rate and therefore different levels of output at home and abroad. This means that, via expenditure switching effects, the exchange rate affects the distribution of a global liquidity trap across countries. This implication creates fertile grounds for “beggar-thy-neighbor” devaluations achieved by direct interventions in exchange rate markets.

International Economics

International economics studies the flows of goods, capital and people between locations and the implications of these flows for economic activity and policy. It has a long and distinguished tradition at MIT from the foundational work of Paul Samuelson in international trade to Rudi Dornbusch’s influential research in international macroeconomics and Paul Krugman’s path-breaking work in economic geography.

Today, international economics is a vibrant field that overlaps with many other areas such as development, labor, and macroeconomics. David Atkin works on core empirical questions at the intersection of international trade and development. His recent research analyzes the effects of trade liberalization on nutrition, human capital investment, and firm productivity. Arnaud Costinot focuses on theoretical issues in international trade and international macroeconomics, including the central determinants of trade patterns between nations, the welfare gains from trade, and optimal capital controls. Dave Donaldson’s research spans the fields of international trade, economic history, and development. He has made fundamental contributions to the empirical analysis of within-country market integration and comparative advantage.

In addition to this core group, many faculty members in the department share an interest in international economics. In recent work, Daron Acemoglu and David Autor analyze the impact of China on U.S. labor markets; Abhijit Banerjee is exploring the relationship between trade liberalization and financial frictions; Ricardo Caballero and Alp Simsek focus on capital flows and global liquidity; Rob Townsend investigates the determinants of trade and capital flows between Thai villages; John Van Reenen writes on the connections between trade, information and communications technology (ICT) adoption and managerial practices; and Iván Werning studies fiscal and currency unions, sovereign debt, and trade policy. A number of Sloan faculty often interact with Department students and faculty in International Economics. These include Kristin Forbes, Roberto Rigobon, and Claudia Steinwender.

The department offers one undergraduate and two graduate courses in international economics. The undergraduate course emphasizes how to use formal economic modeling to understand past and current events in the world economy. The two graduate courses cover traditional and modern theories of international trade and finance, incorporating both theory and empirical work. The department also regularly hosts joint seminars with Harvard as well as informal international “tea” gatherings where students can present or discuss preliminary research in international trade, international macroeconomics, or economic geography and urban 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 the behavioral limitations we all have 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.

Two of MIT’s faculty, Dave Donaldson and David Atkin, work at the intersection of trade and economic development. Dave Donaldson (p. 18) combines theory with empirics to answer core questions in trade, from his work using the expansion of railroads in India to estimate the gains from greater economic integration to his papers using data on soil suitability for different crops to test Ricardo’s theory of comparative advantage. David Atkin (p. 18) asks: do the poorest and most remote locations within poor countries benefit more or less from international trade than others? Do firms learn from exporting? He works with both structural methods and experiments.

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 (p. 16) works on a broad set of issues involving economic growth and the political economy of institutions and development. Joshua Angrist (p. 25) has studied education policy in a number of developing nations. David Autor (p. 25) is working on education in Chile.

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. The courses offer students an opportunity to use tools from microeconomic and macroeconomic theory, as well as political economy, to study a range of interesting policy issues in developing nations. 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 to design and implement economic policies for developing nations.
Contracting out the Last-Mile of Service Delivery

Governments around the world are constantly faced with the question of which services they should provide directly, and which ones they should outsource to the private sector. The private sector may be more efficient than the government, but there are risks that firms may shirk on aspects of quality provision that are difficult to rigorously contract. Even when outsourcing may improve outcomes in theory, powerful vested interests, such as public sector workers getting rents from public provision, may seek to block the process – limiting successful privatizations to the cases where the potential gains are smallest.

In “Contracting out the Last-Mile of Service Delivery: Subsidized Food Distribution in Indonesia,” Abhijit Banerjee and Benjamin Olken and their co-authors describe a field experiment they ran in over 550 villages to investigate these issues. Working with the Indonesian government to randomly select a subset of villages, they introduced a procurement process that allowed private citizens to bid to take over the implementation of a subsidized rice distribution program. They found that outsourcing led to efficiency improvements in the form of lower transportation costs. Quality did not suffer; in fact, households reported the quality of the rice improved.

However, the study revealed that outsourcing itself was not sufficient: the efficiency gains were only passed on to consumers in the form of lower prices when there was substantial competition between private providers; otherwise, the private sector just kept the gains for itself. Corrupt officials did seek to undermine the private process, but with only partial success. The results show that – even in a village environment with relatively unsophisticated procurement personnel – outsourcing has the potential to improve performance, though the magnitude of the effects may be partially muted due to push back from powerful elites.
Econometrics

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. Isaiah Andrews has developed powerful new procedures that are reliable in non-standard econometric settings with problems in identification. His recent interests include accounting for publication bias and new approaches to inference from moment inequalities. His current work develops methods to identify and estimate patterns of heterogeneity in treatment effects. Isaiah Andrews has developed powerful new procedures that are reliable in non-standard econometric settings with problems in identification. His recent interests include accounting for publication bias and new approaches to inference from moment inequalities. 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. Jerry Hausman has made fundamental contributions in specification testing, panel data, estimating the effect of taxes, discrete choice, and demand analysis. His work includes important analysis of a variety of applied problems, including patents, energy economics, and telecommunications. 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 demand analysis with many prices and econometric models with general unobserved heterogeneity.

In addition to these core econometrics faculty members, several other faculty members in the Economics Department and MIT Sloan have important interests in econometrics. Joshua Angrist is a leader in developing and applying causal inference for observational data. Andrew Lo of MIT Sloan studies the econometrics of financial markets and is an author of a leading text in this field.

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 applications. In “Conditional Inference with a Functional Nuisance Parameter,” Isaiah Andrews and Anna Mikusheva construct 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, they 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.
Match Quality, Search, and the Internet Market for Used Books

The internet has had a transformative effect on retail, but sometimes in unexpected ways. Take, for instance, price search and its effect on the level and distribution of prices. A pre-internet price search was costly: driving from store to store, talking to sales associates, recording prices, returning for the best price. All of that is now often just a few clicks away. It stands to reason that easier price search would make prices lower and less dispersed. High-priced firms, used to making their living off of ill-informed customers, could never survive in an era where information was so cheap. Empirical economists, however, found that prices on the internet were not much lower and that the “law of one price” was still far from true.

Glenn Ellison (PhD ’92) and Sara Fisher Ellison (PhD ’93) examined a market where this observation is true to an extreme. In “Match Quality, Search, and the Internet Market for Used Books,” they note that online prices for used books are often both higher and more dispersed than offline prices.

A potential answer to this puzzle came to them from a personal recollection: buying a used copy of a beloved book from their childhood. Visiting a used book store in Harvard Square was a fool’s errand—browsing the shelves might turn up something they would be willing to pay 50 cents for, but the chances of finding the particular title they wanted were essentially zero. After used book dealers started listing their inventories online, though, they could easily find a bookseller who had a copy on his shelf. This example suggests that the market for used books is one where internet technology matched the high-valuation buyers with the titles they wanted. Some buyers were suddenly willing to pay more for used books because they could find the books they really wanted, perhaps leading to higher prices. But the internet was also changing the competitive landscape. Even if consumers were willing to pay more, there were now a lot of sellers on the internet with that title competing against each other. The two effects could explain both higher average prices and a lot of price dispersion: customers good at comparing prices might pay lower prices while others end up paying higher prices.

The paper examines a dataset containing information on more than 300 titles: they selected titles at random from physical bookstores; they scraped title-matched online data; and they repeated the online data collection two years later. Recognizing that an economist can come up with many potential explanations for any phenomenon, one focus of the analysis was whether the potential answer was really true. They examined several subtle features of the data, such as the shape of price distributions, to see if they matched the theory’s predictions. The findings suggested a good fit. The second focus was on the welfare consequences of the move online. The paper used structural modeling based on the theory to estimate profits and consumer surplus. The estimates are that both sellers and buyers benefitted from internet search technologies. Sellers were happy to be able to sell books more quickly (often at higher prices), but they estimated that buyers gained even more as they found books they never would have found offline.
Applied Microeconomics

Applied microeconomics is comprised of several areas of study including industrial organization and regulation, labor economics, public economics, political economy, organizational economics, health economics, and financial economics.

Industrial Organization and Regulation

The field of industrial organization and regulation explores 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 the theory of and empirical approaches to oligopoly, antitrust, and regulation during the first two semesters, and focus in the third semester on hands-on experience with structural econometric methods used in industrial organization and applied microeconomic research. The methods course is strongly recommended for students writing dissertations in industrial organization and has been popular among graduate students in related fields as well. Current research papers by local and outside researchers are presented in the Industrial Organization workshop, which meets with the Harvard Industrial Organization seminar several times each year. In addition, there is a weekly lunch at which graduate students present their work-in-progress to faculty and fellow graduate students.

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, such as the medical residency matching program. Glenn Ellison’s (p. 14) 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 internet-based markets, and determinants of firm location decisions and agglomeration. Sara Fisher Ellison has done 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 her recently-completed service in the leadership of the Department of Justice Antitrust Division. 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. His recent work has looked at prices in US hospital markets; spillovers from research and development and the role of product market competition in changing management practices. Sloan faculty member Christopher Knittel teaches the Department’s course on energy markets, one of his many research interests that span a range of topics, methods, and industries. Supplementing these teaching faculty are a number of applied microeconomics faculty members in the Economics Department and Sloan School whose research and advising interests intersect with students working on topics in industrial organization and related fields.
The Fall of the Labor Share and the Rise of Superstar Firms

Labor’s share of economic output, the ratio of wages and compensation to national income, has declined in the last three decades in most developed nations. The falling labor share, coupled with a slowdown of economic growth in industrialized countries, means that workers are getting a shrinking slice of a barely-expanding pie. Research has focused on two potential drivers of the falling labor share: advances in labor-replacing technologies and growing offshoring of labor-intensive tasks.

Drawing on U.S. and international data, research by David Autor and John Van Reenen—along with MIT graduate student Christina Patterson, and David Dorn and Lawrence Katz of the University of Zurich and Harvard University respectively—identifies a third factor: the rise of “superstar firms” that dominate their sectors. They find that on average, the greater the share of an industry’s sales that are concentrated among a small group of leading firms, the larger the decline in labor’s share of that industry’s output. Surprisingly, most firms are not experiencing a fall in the share of their revenues going to labor—which suggests that labor-replacing technologies are probably not the primary driver. Rather, superstar firms with low labor shares are capturing an ever-greater share of the market, thus pushing down the aggregate labor share. Why are superstar firms becoming more prominent? Autor and coauthors document that the growth of concentration and fall in labor share is disproportionately evident in industries with high rates of innovation, measured either by the growth of patent-intensity or total factor productivity. This pattern suggests—though does not prove—that technological dynamism, rather than labor-replacing technologies or canonical anti-competitive forces, may be an important driver of the trend.

Faculty Research

Economics students: Where are they now?

Ilan Goldfajn (PhD ’95) was appointed Governor of the Brazilian Central Bank in June 2016, after Presidential nomination and Senate approval.

Dr. Goldfajn was Deputy Governor for Economic Policy at the Brazilian Central Bank from September 2000 to July 2003, during the presidency of Fernando Henrique Cardoso, the architect of Brazil’s Real Plan that tamed hyperinflation. More recently, he was Chief Economist and Partner at Itaú Unibanco, Brazil’s largest private-sector bank by assets, from April 2009 to May 2016.

Goldfajn was born in Israel. Prior to obtaining his PhD in Economics from MIT, he earned a Master’s degree in Economics from Pontifícia Universidade Católica (PUC) do Rio de Janeiro and a Bachelor’s degree in Economics from Universidade Federal do Rio de Janeiro.

Earlier in his career, Goldfajn worked for three years as an Economist at the International Monetary Fund and also spent time as a consultant at other international organizations such as the World Bank and United Nations.

Goldfajn was a partner at Gavea Investimentos and a founding partner at Ciano Investimentos. He has held academic positions as Professor at Pontifícia Universidade Católica do Rio de Janeiro and at Brandeis University, and was director of several think-tanks in Brazil, including the Center for Public Policy Debate (CDPP) and the Instituto de Ensino e Pesquisa em Economia da Casa das Garças.

In addition to his many executive positions, Goldfajn has written numerous academic papers and co-edited “Inflation Targeting, Debt, and the Brazilian Experience, 1999 to 2003” with Francesco Giavazzi and Santiago Herrera. He frequently contributes articles to Brazilian newspapers such as O Globo.
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 (p. 16) 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 empirical labor economics, studies human capital, immigration, and a host of public policies. His current research focuses on the design of education systems 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. Autor has also been exploring the growing impact of Social Security disability insurance programs. Parag Pathak (p. 14) 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 of our grad students, Pathak has been developing sophisticated econometric strategies that leverage the quasi-experimental variation embedded in modern school assignment schemes for policy evaluation. Heidi Williams (p. 27) studies the determinants of technology and innovation and the many effects of these powerful forces, with a particular focus on technological change in health care. This year we’re pleased to welcome Simon Jäger to the labor group. Jäger combines an interest in empirical labor with strong applied econometrics skills.

Many other colleagues are interested in labor topics and interact regularly with the core labor team. For example, 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. Versatile applied economist John Van Reenen is also an important member of the labor community.

Faculty Research

Does Changing How Kids Are Assigned to School Enlarge the Pie?

Numerous American cities have forms of school choice, where families can apply and send their children to schools outside of their neighborhood. In the last decade, systems in New York, Boston, New Orleans, Washington DC, and elsewhere have been re-designed using ideas from economic theory. These reforms notwithstanding, there has been a concern that new choice systems do little to increase overall welfare and simply redistribute access to different students and neighborhoods.

To understand whether choice reforms increase welfare, it is necessary to understand the extent to which families value different aspects of schools and the heterogeneous nature of preferences over schools. Atila Abdulkadiroglu, Nikhil Agarwal and Parag Pathak (2016) quantify how families’ rankings of schools reflect trade-offs between proximity and school quality. They then evaluate the recent coordination of admissions in New York City’s High School assignment system.

The previous system allowed some families to obtain multiple offers, and left many unassigned, only to be administratively assigned. Approximately one-third of students were not placed in a school to which they had applied, and were instead assigned to struggling large neighborhood high schools. The estimates suggest that the new single-offer system improved overall welfare, most significantly for those likely to be administratively assigned in the old system. This benefit of the new system dominates further improvements that would have been possible from changing the new system’s assignment algorithm.
Undergraduate Majors in Economics

Lisa Ho graduated from MIT in June 2017 with a degree in Mathematical Economics (14-2) and Computer Science and Engineering. Her most memorable Course 14 experience was working on her 14.33 Research and Communications in Economics project. She most enjoyed the process — thinking of ideas and discussing them with others, finding and analyzing relevant data, interpreting results, and getting to present at the end of the semester. Having complete ownership over a project from start to finish was an opportunity she very much appreciated.

Lisa was very involved in MIT undergraduate life during her studies, chairing the Educational Studies Program (ESP), a student group that runs educational enrichment programs for over 3000 students annually, as well as chairing the UA Committee on Education, the student government committee that works on issues related to undergraduate education. In her free time, she goes rock climbing at indoor gyms around Cambridge and Boston and hikes in the White Mountains of New Hampshire.

Lisa is now pursuing a one-year master’s degree in public policy at Tsinghua University in Beijing as a Schwartzman Scholar. She plans on applying to economics PhD programs.

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 Buffett 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 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. Undergraduate offerings include an introductory course in public economics, environmental economics, and innovation policy. The department offers graduate students a two-semester public economics sequence that covers core material on taxation and social insurance programs and a course on health economics that touches on many issues related to the public sector.

Seven 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 (p. 25) 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 (p. 16) works on optimal tax and social insurance design, including the taxation of high-income households, capital and estate taxation, and unemployment insurance. Heidi Williams analyzes public policy toward intellectual property as well as issues in health economics, particularly related to medical innovations.

Undergraduates in Economics Research

Recent MIT graduate, Nadia Lucas (SB ’17), a double-major in Courses 6 and 14 (Computer Science and Economics), began working on a UROP project with Professor James Poterba in the spring of her junior year. She studied the factors that contribute to rising rates of poverty among elderly households as they age. She used the Survey of Consumer Finances (SCF) to create a wealth profile of different age cohorts across time (from 1989-2013). Lucas, aided by Professor Poterba, developed this exploration of how preparation for retirement is affected by interest rates into her undergraduate advanced project. In that project, she examined the effect of the distribution of the interest rate on retirees. By modeling a simple utility function and using stochastic dynamic programming, she was able to project how volatility in the interest rate can affect retirement outcomes.

Lucas enjoyed the opportunity to use coding skills that she acquired in Course 6, alongside the econometric tools she learned in 14.32, in her project. “This UROP has helped me learn how to interpret data, and to use my knowledge of economics and statistics to shed some light on important questions about the financial health of American households,” she says.

Lucas transferred the skills she learned over to her current job as a research assistant at the Energy Policy Institute at The University of Chicago. She is using dynamic discrete choice models, applied to the fracking industry, to find optimal contracts for both oil extraction firms and landowners who own shale deposits.
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 (p. 16) 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 (p. 19) works on various issues at the intersection of political economy and economic development. Benjamin Olken (p. 19) 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, which, together with the political economy of institutions and development course, makes up the political economy general field. 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, and Alex Wolitzky, who has examined conflict, repression, coercion and foundations of societal cooperation. Simon Johnson, a member of the MIT Sloan Faculty, works actively 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

Health Economics is a rapidly growing area of research interest, particularly in the aftermath of the passage of the Affordable Care Act and continuing debates over its future. The continued growth in health care costs, and the availability of high quality data and novel research questions, 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 (p. 23) works on matching in medical markets both for medical students and human organs. Amy Finkelstein (p. 27) studies private market failures in health insurance markets and the role of government interventions to address them through a combination of rich structural models of insurance choice and randomized trials of health interventions. Jonathan Gruber (p. 27) 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 (p. 26), who holds an M.D. as well as a PhD in economics, works on the economics of health issues ranging from smoking to AIDS. Heidi Williams (p. 27) analyzes the development of innovative technologies in medical care and the returns to higher medical spending. The Economics Department offers an undergraduate course in health economics, as well as a graduate course offering, co-taught by Amy Finkelstein, Jonathan Gruber, and Heidi Williams.

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 (NA) 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 the international sphere, J-PAL NA brings J-PAL’s proven model to the region. J-PAL NA’s network of 60 affiliates has completed over 160 randomized evaluations in four countries.

J-PAL North America specializes in helping decision makers generate scientific evidence through the use of randomized controlled trials. J-PAL North America’s work spans a wide variety of areas. Among the major efforts of the organization are to study how the use of health care services affects patient outcomes and costs (through the Health Care Delivery Initiative); a push to develop a better understanding of crime and violence and alternatives to incarceration; and analyses of how technology can allow for personalization of educational content, with a goal of improving learning outcomes. Other areas of study include criminal justice and the courts, the environment, labor markets and homelessness. Through the State & Local Innovation Initiative, the organization works closely with leaders in government to provide funding, technical support, and collaboration with preeminent researchers in order to answer high-priority policy questions. Policy staff also work to share policy lessons, conduct trainings, and encourage evaluation with partners at every level of government and with a variety of social organizations.

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.
Robots and Jobs: Evidence from US Labor Markets

As robots and other computer-assisted technologies continue to spread throughout the economy, many are concerned that we are at the verge of a future without (many) jobs. Yet others draw parallels to previous episodes of rapid technological change which ultimately fueled rapid wage growth and view these concerns as unfounded. What we lack is empirical evidence on the implications of this new wave of technologies. Recent research by Daron Acemoglu and Pascual Restrepo, “Robots and Jobs: Evidence from US Labor Markets,” argues theoretically why new technologies replacing tasks previously performed by labor may reduce employment and wages, and provides empirical evidence that suggests that industrial robots have indeed done so. Their research design compares local labor markets that are more exposed to the spread of robots, because they have historically housed industries where industrial robots are making rapid inroads, to less exposed local labor markets. Their estimates show sizable negative effects on employment and wages. For example, one more robot per 1000 workers, which is approximately the increase in the stock of robots in the United States between 1993 and 2007, is predicted to reduce local employment by about 0.37 percentage points and local wages by about 0.73% during the 18 years straddling this time window. These estimates are robust to controlling for pre-existing trends and various other concurrent economic changes. These implied declines are far from trivial and militate against the view that new technologies always increase labor demand and thus we should have no concerns about the labor market implications of robots. Yet, they do not provide any support for the alarmist view that robots will spell the end of work either; only a small fraction of workers are affected by the spread of works and the implied way declines are small.
Financial Economics is a very active field of applied economics research, and for more than five decades MIT has been one of the centers for this research. Paul Samuelson did path-breaking work on the random walk hypothesis for stock prices in the 1960s. The Black-Scholes-Merton option pricing formula was developed at MIT in the early 1970s, and Franco Modigliani, one of the most important contributors to corporate finance, held a joint professorship in the Economics Department and the Sloan School for nearly forty years. Today, 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. Many MIT Economics graduates from the last several decades have been important contributors to financial economics; that rich tradition continues today.

Faculty members from the Economics Department and the Sloan School of Management play a central role in teaching both undergraduate and graduate finance courses, and in supervising doctoral students. Within the Economics Department, several faculty members, including Daron Acemoglu, Ricardo Caballero, Victor Chernozhukov, Bengt Holmström, Parag Pathak, James Poterba, Alp Simsek, visiting professor Jean Tirole, and Iván Werning have significant interests in financial economics. Some of the core research on liquidity and the financial crisis has been conducted by this group.

The finance group in the Sloan School is widely regarded as one of the premier departments in the world and its faculty work closely with economics department students. Robert Merton (PhD ’69) is the 1997 Nobel Laureate in Economics and is currently the School of Management Distinguished Professor of Finance. His research focuses on risk management issues with particular application to retirement and pension planning. John Cox, whose book on option markets is a standard reference in the finance literature, specializes in asset pricing and derivative markets. Stewart Myers is an expert on corporate finance, whose research focuses on the valuation of real and financial assets, corporate finance and financial aspects of government regulation of business. Paul Asquith focuses on corporate finance and control, dividend policy, and market efficiency. Andrew Lo is an expert on econometric methods and their application in financial economics, and director of the MIT Sloan Laboratory for Financial Engineering, which facilitates quantitative research in financial engineering and computational finance. Jiang Wang specializes in asset pricing and is currently working on the characterization of financial risks and the impact of liquidity on asset prices. Deborah Lucas is an expert on federal credit programs and her recent research has focused on measuring and accounting for the costs and risks of government financial obligations.
Among the other faculty members are Jean-Noel Barrot, Nittai Bergman, Andrey Malenko, Antoinette Schoar, and David Thesmar, whose research focuses on corporate finance and governance issues, and Hui Chen, Daniel Greenwald, Erik Loualiche, Leonid Kogan, Jun Pan, Jonathan Parker, Adrien Verdelhan, and Haoxiang Zhu, whose research covers a wide range of topics in asset pricing, macro-finance, and international finance.

Undergraduate economics majors can enroll in MIT Sloan’s introductory finance course for master’s students; this is a very popular undergraduate elective. There are four doctoral courses in financial economics, all jointly offered between Economics and Sloan. 14.416J, Introduction to Financial Economics, is taught by Leonid Kogan and Jiang Wang. 14.441J, Advanced Corporate Finance, is taught by MIT Sloan’s Antoinette Schoar and Andrey Malenko. 14.440J, Advanced Financial Economics II, is a second course on asset pricing, taught by MIT Sloan faculty member Hui Chen. Finally, 14.442J, Advanced Financial Economics III, focuses on empirical methods in financial economics and econometric tools. It is co-taught by MIT Sloan faculty members Daniel Greenwald, Jonathan Parker, and Adrien Verdelhan. Doctoral students from the Economics Department are also welcome to participate in MIT Sloan’s weekly financial economics seminar. This seminar provides an opportunity for learning about the current state of research in the field of financial economics.

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 Mark Leary 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.
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 William Barton Rogers Professor of Energy 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 also an 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 inter-disciplinary interaction around energy questions 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.

K. Daron Acemoglu, PhD, London School of Economics; Elizabeth and James Killian (1926) Professor of Economics.

Nikhil Agarwal, PhD, Harvard; Castle-Krobb Career Development Assistant Professor of Economics.

Isaiah Andrews, PhD, MIT; Silverman (1968) Family Career Development Associate Professor of Economics.

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

Joshua Angrist, PhD, Princeton; Ford Professor of Economics.

David Atkin, PhD, Princeton; Associate Professor of Economics.

David Autor, PhD, Harvard; Ford Professor of Economics, Associate Department Head.

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

Martin Beraja, PhD, University of Chicago; 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.

David 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.

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; MacVicar Faculty Fellow Ford Professor of Economics.

Jeffrey E. Harris, MD, PhD, Pennsylvania; Professor of Economics.
Economics at MIT

Iván Werning, PhD, Chicago; Robert M. Solow Professor of Economics.

Michael D. Whinston, PhD, MIT; Sloan Fellows Professor of Management; Professor of Economics.

Heidi Williams, PhD, Harvard; Associate Professor of Economics.

Alexander Wolitzky, PhD, MIT; Pentti J. K. Kouri Career Development Associate Professor of Economics.

Muhamet Yildiz, PhD, Stanford; Professor of Economics.

Affiliated Faculty
Jean Tirole, PhD, MIT; Visiting Professor of Economics.

Associated Teaching Faculty
Suzanne Berger, PhD, Harvard; Raphael Dorman and Helen Starbuck Professor of Political Science; MIT Department of Political Science.

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

Christopher Knittel, PhD, University of California, Berkeley; George P. Shultz Professor; Professor of Applied Economics; MIT Sloan School of Management.

Leonid Kogan, PhD, MIT; Nippon Telegraph and Telephone Professor of Management; MIT Sloan School of Management.

Anne McCants, PhD, University of California, Berkeley; MacVicar Faculty Fellow; Professor of History; MIT Department of History.

Jonathan Parker, PhD, MIT; Robert C. Merton (1970) Professor of Finance; MIT Sloan School of Management.

Antoinette Schoar, PhD, Chicago; Michael M. Koerner (1949) Professor of Entrepreneurial Finance; MIT Sloan School of Management.

Devarrat Shah, PhD, Stanford; Jamieson Career Development Associate Professor; MIT Department of Electrical Engineering and Computer Science.

Adrien Verdelhan, PhD, Chicago; Associate 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.

Franklin M. Fisher, PhD, Harvard; Jane Berkowitz Carlton and Dennis William Carlton Professor of Microeconomics, 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, at MIT, 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 source of external evaluation for each department. The members of the MIT Economics Department Visiting Committee as of Fall 2017 are listed below.

Chair

Mr. Roger C. Altman
Founder and Senior Chairman
Evercore

Mr. Frank Altimaz
’95 AA
Chief Investment Officer
The Museum of Modern Art

Dr. Persio Arida
EC ’92
Senior Partner, BTG Pactual

Mr. Armen A. Avanesians
’82 EE
Managing Director
Goldman Sachs & Company

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
Chairman
Taiwan Semiconductor Manufacturing Company, Ltd.

Professor Susan M. Collins
EC ’84
Joan and Sanford Weill Dean of Public Policy
Gerald R. Ford School of Public Policy
University of Michigan

Professor Avinash K. Dixit
EC ’68
Department of Economics
Princeton University

Professor Janice Eberly
EC ’91
James R. and Helen D. Russell Professor of Finance
Kellogg School of Management
Northwestern University

Dr. Bennett W. Golub
Chief Risk Officer
BlackRock, Inc.

Ms. Abigail P. Johnson
Chief Executive Officer
Fidelity Investments

Ms. Grace J. Koo
’92 EC
Managing Director, Global Head of Talent Acquisition
AQR Capital Management

Ms. Judy C. Lewent
GM ’72
Retired, Executive Vice President & CFO
Merck & Co., Inc.

Dr. Shan Li
EC ’94
Chief Executive Officer
Silk Road Finance Corporation

Mr. Charles T. Ong
Co-Chief Executive Officer
RRJ Capital

Mr. Jeffrey L. Silverman
’68 MG
Chairman, Co-Founder, and Managing Director
Agman Partners

Dr. Hal R. Varian
’69 EC
Chief Economist
Google, Inc.
Event Highlights of 2016-2017

Students celebrating the end of general exams at the 2017 Strawberries and Champagne party

The Undergraduate Economics Association’s Outstanding Professor Award winner, Josh Angrist, and Outstanding TA Award winner Enrico Cantoni celebrate with UEA members
New PhD graduates participating in the department’s reception after MIT’s Hooding Ceremony

Members of the department’s hockey team Jerry’s Kids, composed of faculty, graduate students, and J-PAL, SEII, and other affiliates, playing and posing after a match