

# Preface

THIS VOLUME is the result of the first in a series of lectures to honor one of Columbia University's most outstanding graduates, Kenneth J. Arrow, who received his Ph.D. from Columbia in 1951. His thesis, later published as *Individual Choice and Social Values*, was a landmark in economics, philosophy, and political science. In the more than sixty years that followed, Ken went on to become a giant in economics, political science, organization theory, and operations research.

Columbia University has had a long line of distinguished graduates and faculty—including six Nobel Prizes in the past thirteen years. The faculty list for economics includes Milton Friedman, who taught at Columbia for ten years; Arthur Burns, who served on President Eisenhower's Council of Economic Advisers from 1953 to 1956 and as chair of the Federal Reserve Board from 1970 to 1978; and Wesley Mitchell, who along with Burns played a central role in founding the National Bureau of Economic Research, one of the nation's most important think tanks, which focused in its earlier years on enhancing understanding of economic fluctuations. There are a host of other greats, known more to those within the economics profession than those outside, including Harold Hotelling, Albert Hart, and John Bates Clark (whose namesake medal is awarded every year to the economist under forty who has made the most significant contribution to economics; Arrow was the fifth recipient of the honor.)

With all of these potential luminaries, our decision to honor Kenneth Arrow was easy: No individual has done more to change how we think about economics—and about society beyond economics—during the past six decades. In a sense, virtually all theorists—and

most policymakers—of our generation are students of Arrow (and, it might be added, our students can be considered their “grandstudents”). Ideas that he first put forward a half-century ago have permeated our thinking.

A lecture series like this provides the opportunity to approach issues a little bit more expansively than one is able to in journal articles. When we initiated the series, we had hoped that it would open up a lively discussion about a variety of areas within economics, political science, and philosophy. The Committee of Global Thought spans multiple disciplines, and Arrow is one of the few scholars of recent decades whose work has cut across fields, having profound implications on each. One of the reasons why it is a particular pleasure to have Ken Arrow as the honoree of this lecture series is that we hoped to focus every year on one aspect of Ken’s work. Since Ken has written about so many different areas, this would make the lecture series broad, engaging people from throughout the university community.

The lecture series has lived up to our hopes. In the first lecture, in late 2008, Bruce Greenwald and I focused on one aspect of Arrow’s contribution to our understanding of growth: how technological progress is related to what we do. It was, in a sense, the founding paper in what has since blossomed into a huge literature on endogenous growth, where the pace of innovation is the central object of study.

The second lecture took up Arrow’s seminal thesis, in which he asked a question of greater generality than had ever been posed—and academia has struggled to come to terms with the disturbing answer that he provided. Nearly two hundred years earlier, the great French mathematician Nicolas de Condorcet had shown that a democracy, making a choice among three alternatives by a majority vote, might not be able to reach a determinate answer. Alternative A might be preferred over B by a majority, B over C by a majority, and C over A by a majority. Under a set of plausible hypotheses, Arrow showed that this problem could arise with any voting mechanism (with the obvious exception of giving all decision-making power to a single individual).

The implications of this—and the conditions in which this seeming paradox might not hold—were discussed in the Second Annual Arrow Lecture, delivered at Columbia University on December 11, 2009, by two distinguished Nobel Prize winners who have devoted considerable intellectual energies to understanding the Arrow Impossibility Theorem, Eric Maskin and Amartya Sen.

In 2010, we turned to his contributions to financial markets, with a lecture by Jose Scheinkman, then of Princeton University and now of Columbia (with discussions from Patrick Bolton of Columbia University and Sanford Grossman).

The 2011 lecture focused on Arrow's contributions to the environment, and climate change in particular, with a lecture by Sir Partha Dasgupta, and discussions by Geoffrey Heal and Scott Barrett, both of Columbia University. In 2012, Amy Finkelstein of MIT, along with discussant and MIT colleague Jonathon Gruber, continued Ken Arrow's pathbreaking work in the economics of health, a paper written forty-seven years earlier, whose influence continues today, and which was also a pathbreaking paper in the broader area of the theory of moral hazard.

In 2013, we returned once again to climate change, with a lecture by Christian Gollier of the Toulouse School of Economics entitled "Pricing the Planet's Future: The Economics of Discounting in an Uncertain World," with discussions by Bernard Salanié of Columbia, Stiglitz, and Arrow.

What made each of these occasions so exciting—and moving—was Arrow's participation and his reactions to these lectures inspired by his own work.

What also made these occasions moving was that the speakers had not only a strong intellectual bond with Arrow but also close personal ties—sometimes as students, often as colleagues. No one that we have approached to give the Arrow Lecture has ever turned us down—everyone, as busy as they are, went to great lengths to rearrange their schedules so they could have this opportunity to show their respect and honor for one of the century's great economists. Each delivered a lecture worthy of the person they were honoring.

The inaugural lecture of the series, on November 12, 2008, was an especially important event, because it brought together Ken Arrow and Robert Solow, two of the economists who were responsible for creating a new field of economics—growth theory—perhaps the most important area in the decades immediately after World War II. The events gave them an opportunity to reflect on what has happened to the subject in the half-century since their seminal contributions. Philippe Aghion of Harvard supplemented his comments on the lecture by offering his observations on industrial policy (one of the main topics of the talk) in the paper published here, "The Case for Industrial Policy."

The original lecture has been extended (partly at the suggestion of Solow and Arrow) into a fuller treatment of the subject. In the original lecture, Bruce Greenwald and I had focused our attention on showing how Arrow's insights into learning necessitated rethinking one of the most fundamental tenets of modern economics, the virtues of free trade. We showed that there was an infant-economy argument for protection. Solow and Arrow observed that our analysis showing the desirability of government intervention into the market applied equally forcefully to a closed economy, without trade. We publish here their comments on our original lecture. The research that we did subsequently, and report here, shows how right they were.

This volume begins with introductory remarks by Bruce Greenwald and me, our personal tribute to Ken, showing our affection and respect.

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