
The New Palgrave Dictionary of Economics

The New Palgrave Dictionary of Economics

Third Edition

With 754 Figures and 231 Tables

palgrave
macmillan

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Publishing History

First edition of *Dictionary of Political Economy*, edited by Robert Harry Inglis Palgrave, in three volumes:

Volume I, printed 1894.

Reprinted pages 1–256 with corrections, 1901, 1909.

Reprinted with corrections, 1915, 1919.

Volume II, printed 1896.

Reprinted 1900.

Reprinted with corrections, 1910, 1915.

Volume III, printed 1899.

Reprinted 1901.

Corrected with appendix, 1908.

Reprinted with corrections, 1910, 1913.

Reprinted, 1918.

New edition, retitled *Palgrave's Dictionary of Political Economy*, edited by Henry Higgs, in three volumes:

Volume I, printed 1925.

Reprinted 1926.

Volume II, printed 1923.

Reprinted 1925, 1926.

Volume III, printed February 1926.

Reprinted May 1926.

The New Palgrave: A Dictionary of Economics,
edited by John Eatwell, Murray Milgate and Peter Newman.
Published in four volumes.

First published 1987.

Reprinted 1988 (twice).

Reprinted with corrections 1991.

Reprinted 1994, 1996.

First published in paperback 1998.

Reprinted 1999, 2003, 2004.

The New Palgrave Dictionary of Economics, Second edition,
edited by Steven N. Durlauf and Lawrence E. Blume.

First published in 2008 in eight volumes

The New Palgrave Dictionary of Economics, Online Edition
Continuously updated between 2008 and 2016

The New Palgrave Dictionary of Economics, Third edition
First published in 2018

Preface

‘During recent years the course of economic study has extended so widely that it was obviously impossible to restrict the work to the old and formerly well-recognized boundaries’. That’s Inglis Palgrave in 1893 describing the first volume of his *Dictionary of Political Economy*.

One hundred and twenty four years later, with this third edition of *The New Palgrave Dictionary of Economics*, those boundaries have extended further still. While Palgrave noted that his three volume dictionary – what we would now call an encyclopedia – obviously needed to cover ‘banking, the foreign exchanges, and the operations of the mint’, he also noted it needed to cover ‘questions of a philosophical character. . .ethics. . .reasoning. . .and the ways in which diagrams and mathematical processes may lend assistance to economic inquiry’. Today, the boundaries of economics include the analysis of laboratory experiments, brain scans and computer simulations, investigations of cultural diversity, management methods and public health interventions, and in the realm of theory it includes innovations in games, econometrics and asset pricing. This third edition of The New Palgrave includes entries that review innovations in all of these areas and many, many more.

Since the second edition of The New Palgrave was published in 2008, the *Dictionary of Economics* has added hundreds of new entries in every area of economics. Just to note a subset:

Extensive coverage of the global financial crisis, from theoretical, econometric and historical perspectives. LIBOR, Lehman, Fannie Mae and Freddie Mac all have their entries, and additional entries, draw multiple theoretical lessons from the crisis. The new entry by Charles Goodhart (CBE, FBA and author of Goodhart’s Law), ‘The Run on Northern Rock’, is not to be missed, an analytical take on an early event in the crisis.

Coverage of the euro crisis and its aftermath, including two entries on the Greek crisis by former Greek Minister of Economics and Finance Nicos Christodoulakis.

Entries with a focus on China, including Diego Restuccia’s entry on factor misallocation and Gao Haihong’s entry on the growing internationalization of the renminbi.

Entries in the areas of health economics, the economics of gender and Internet economics all play a growing role in this third edition.

One of the great pleasures and honors of serving as an associate editor for The New Palgrave is that one can recruit the finest minds in economics to write so many of these entries. In total, this edition contains entries by 36 Nobel

laureates. And since laureates Elinor Ostrom, Vernon Smith, Angus Deaton and many others contributed well before their trips to Stockholm, it is safe to predict that this edition, like earlier ones, includes entries by future Nobel laureates.

Many hands and many minds have contributed to making possible this new edition, the first in print since the 2008 edition edited by Steven Durlauf and Lawrence Blume. Two names deserve particular mention for their valuable work since 2008: Alison Howson and Rachel Sangster, both of whom oversaw The New Palgrave as it continued to add entries over the past decade.

On a personal note, I recommend an entry by Francis Ysidro Edgeworth – he of the Edgeworth Box – carried over from the 1893 edition. In ‘Mathematical Methods in Political Economy’, he begins:

The idea of applying mathematics to human affairs may appear at first sight an absurdity worthy of Swift’s [magnetically flying island] Laputa.

It only gets better from there. Edgeworth himself descended from a line of boundary-free thinkers. As John Creedy’s biographical entry in this edition notes, Edgeworth’s grandfather had been an inventor, a member of the famed Lunar Society of Birmingham, an informal club which included ‘Watt, Bolton, Wedgwood, Priestley, Darwin and Galton’. And the family inclination to expand one’s boundaries shows up in Francis’s aunt Maria’s novel *Belinda*, where one foolish character mocks the wise heroine Belinda for wasting her time reading the book that Adam Smith held was the better of his two: *The Theory of Moral Sentiments*.

May future editions of The New Palgrave continue to expand the boundaries of economics and continue to lend wisdom to economic inquiry.

July 2017

Garett Jones
Associate Editor

Preface to the Second Edition of *The New Palgrave Dictionary of Economics*

The second edition of *The New Palgrave: A Dictionary of Economics* shares R.H. Inglis Palgrave's original goal, '... to provide the student with such assistance as may enable him to understand the position of economic thought at the present time'. That goal was certainly within reach (and achieved) in Palgrave's time and that of his successor, Henry Higgs. Some 60 years later, it was a much more daunting achievement for John Eatwell, Murray Milgate and Peter Newman, the editors of *The New Palgrave: A Dictionary of Economics*. A mere 21 years later, the task is nearly insuperable. When Eatwell, Milgate and Newman began commissioning entries for their Dictionary in 1983, the IBM PC with 16K of ram was 2 years old. Econometrics was still largely the estimation of linear models on mainframe computers. Sequential equilibrium had been formally introduced to the profession only the year before, and the Bayesian revolution, indeed the modern revival of game theory, had just begun. Economists and psychologists had already been talking for some time, but the field of behavioral economics was still in gestation. Only a few farsighted economists saw anything more to sociology than James Duesenberry's famous quip that 'Economics is all about how people make choices; sociology is all about how they don't have any choices to make'. Since the appearance of *The New Palgrave: A Dictionary of Economics* in 1987, the discipline of economics has grown enormously both in analytical and technical sophistication and in the scope of the subject. The growth of economics is reflected in the expansion of the Dictionary. This edition has grown to eight volumes from the four of its predecessor, although many entries from the previous edition were either removed or electronically archived. Furthermore, the Dictionary has shed much of its historical character: from providing a record of the development of economic thought, it has become more a snapshot of contemporary economics. Whereas the first edition emphasized economic method, this edition reports equally on what those methods have found. It places more emphasis on empirical work than have any of its predecessors, reflecting the significant empirical advances that have occurred in the microeconomic fields in particular. But a static snapshot could not pretend to be contemporary for long. Our publishers have recognized not just the magnitude of the change in the stock of knowledge between the last edition and the present, but also the increased growth rate of economics' intellectual capital. They have made the Dictionary dynamic. With this edition,

The New Palgrave Dictionary of Economics moves online, with the expectation of regular updates to keep the Dictionary current in 'real time'. It is no longer possible to produce a reference work that aspires to be comprehensive on the small editorial scale of the lone Palgrave or the Eatwell-Milgate-Newman trio. The present edition has benefitted from two editorial boards. We were pleased to have access to a board of advisory editors, many of whose members' work has defined the methodological and subject matter transformation of the last 20 years. A board of area editors took on the responsibility of constructing large parts of the Dictionary, choosing topics, commissioning writers and editing the entries. This edition simply could not have been produced without their expertise and efforts. By any measure of sweat equity, they own much of this book. This edition of the Dictionary has come to print only through the efforts of people too numerous to properly acknowledge, but some names must be celebrated. In particular, we cannot thank enough Ruth Lefevre in London and Susan Nelson in Madison, who organized every nut and bolt of this project and kept track of manuscripts on five continents. Economists do not write as well as our Dictionary entries suggest. Every author benefitted from superb copy-editing by Michael James and Elizabeth Stone. Finally, it is the job of the editors to keep the writers in line; it was the job of Alison Jones to keep the editors in line. We deeply appreciate both the velvet glove and the iron fist it encloses. The huge effort required to bring this edition to print is compensated for by the opportunity to have contemporary economics laid out before us. What joy to have the ability to commission an explanation by any expert of anything we wanted to know. But even this is second order to our discovery of the warmth and generosity of the community in which we work. We are deeply appreciative of the support we have received from our colleagues: those who wrote for the Dictionary, those who helped us sort out editorial issues and those who just stepped forward to wish us well. More than just a subject matter, economics is a community of scholars, of which we are proud to be a part.

February 2008

Steven Durlauf
Lawrence Blume

Preface to the First Edition of *The New Palgrave: A Dictionary of Economics*

In the preface to the first volume of his *Dictionary of Political Economy* (1894), R.H. Inglis Palgrave said that its 'primary object. . . is to provide the student with such assistance as may enable him to understand the position of economic thought at the present time'. Although appearing almost a century later, when economics has changed and grown beyond anything imagined in his time, still much the same claim can be made for *The New Palgrave*. In order to accommodate this growth, much that interested Inglis Palgrave has been jettisoned. Such topics as the administration of public exchequers, foreign coinage, land tenure systems, legal and business terms, social institutions, and many others, are all of interest but are, as Henry Higgs said in his preface to the second edition of the Dictionary, 'only remotely connected with economics'. Their place has been taken by whole disciplines unknown to the original editor (econometrics, game theory, Keynesian economics, optimization theory, risk and uncertainty and its application, social choice theory, urban economics), as well as by vast expansions of subjects which were in their infancy in his time (business cycle theory, general equilibrium theory, growth theory, industrial organization, labour economics, welfare economics). There is so little remaining here of the original Dictionary that it would be disingenuous to call this its third edition. But just as the editor of *The New Grove* 'tried to ensure that something of the fine humane traditions of the earlier editions of *Grove* are to be seen in our pages', so we would like to believe that *The New Palgrave* has retained some of the liberal and scholarly spirit of Palgrave's enterprise. At least it is like its predecessor in dealing with economics mainly in its theoretical and applied aspects rather than in descriptive and institutional detail. The latter becomes outdated within a very few years, depreciating too rapidly for a publication meant for a longer shelf life than that. Although it is not intended to contain a directory of economists, over 700 of the nearly 2000 entries in *The New Palgrave* are in fact biographical. We have aimed at reasonably complete coverage of the more important economists who have written primarily in English, especially in Britain itself, and a substantial treatment of major economists who have written in other languages. Palgrave, perhaps hoodwinked by his contributor C.P. Sanger, chose only Walras from economists living at that time, on the distinctly odd ground that 'he so closely carried on the work of his father Prof. Antoine Walras that it was not possible to mention the latter without also describing the works of his son'. We, however,

have included a substantial number of living economists, arguing that economics has grown so much in this century that not to include many of its most eminent living practitioners would seriously limit the usefulness and scope of the work. To reduce obvious problems of evaluation we imposed a cut-off date: a necessary condition for inclusion is to have reached the age of seventy before 1 January 1986. On many non-biographical subjects, large and small, we have tried to capture diversity and vivacity of view by having multiple entries, under similar but different titles. In this way, we hoped to obtain entries that present the results and methods of research with fairness and accuracy, but not necessarily from a 'balanced' point of view. Such a view in these cases should be sought externally, as it were, using the system of cross-references to consult other relevant entries. This means more work for the reader but should yield correspondingly greater reward. There is obviously a rough and ready correlation between the size of entry and the importance which the editors attach to the person or subject concerned, but the correlation is very far from perfect. The actual realization of the project did not always turn out in accord with our original plans. And fortunately so, for we learned a great deal in the process of editing and as a consequence made continual revisions of those plans. Such adjustments have made for a better product, but not for one that displays perfect consistency. In this regard, there can be no reader who will not wish that the Dictionary were different in some respects, a lot more here, rather less there, that tired or tiresome topic omitted, that important omission made good. While it is unrealistic to expect that all such errors of omission and commission can be avoided, our hope is that the reader will find that those which remain are unbiased, in almost every sense of the word. There is, however, one major bias. We wanted not only to provide a thorough account of contemporary economic thought but also, like Palgrave himself, to have it set in historical perspective. So we asked authors to write accordingly, discussing for any particular subject its past and its prospects for the future, as well as its problems of the moment. Some topics are naturally more apt for this approach than others, and some contributors were of course more in sympathy with our aims than others. In the main, however, they responded very well indeed to our request, in some cases remarkably so. Palgrave was the sole editor of his Dictionary, a labour of love for his subject over many years. Several of his authors did more than just write for him, however, by suggesting entries and contributors and by helping the work through the press. We have tried to preserve Palgrave's small editorial scale, but like him could not have done so without the generous and friendly help (far more than could be reasonably expected) of very many contributors, so many indeed that it would be invidious to acknowledge them all by name. We must, however, recognize the key part played by Margot Levy, the publishers' managing editor, whose enthusiasm and attention to detail contributed essentially to the timely completion of the work. It is also only simple justice to acknowledge, with gratitude, how much we have depended on the assistance of Ann Lesley in Cambridge and Donna Hall at Johns Hopkins, always cheerfully given and expertly rendered. Editing this Dictionary has left us with a very strong sense, quite contrary to the layman's accepted view, of the solidarity of economics as a profession. This has been shown in many ways, not least by the extremely favourable response to our invitations to contribute,

which were extended to economists of widely varying ideological and methodological persuasions. Over eighty per cent of those whom we asked agreed to write, and almost all of those who declined did so with words of regret and encouragement. Looking back, the hard work of editing subsides into the background, overwhelmed by the sheer enjoyment of putting it all together, by the continued pleasure of managing the flow of usually good and sometimes superlative copy from nearly a thousand authors. We hope that the reader will experience most of this enjoyment and less of the work.

January 1987

John Eatwell
Murray Milgate
Peter Newman

Note from the Publisher

Now in its third edition, but with a history stretching back to 1894, *The New Palgrave Dictionary of Economics* has been the go-to reference work for generations of economists.

Since the publication of the second edition 10 years ago, much has happened in the world and in economics, in particular the tumultuous years of the financial crisis and its aftermath. As Garrett Jones's preface illustrates, the current edition includes substantial new content covering these events alongside entries reviewing growing areas of research which will be of interest to readers and researchers across the spectrum of economic enquiry. In addition, and in keeping with Palgrave tradition, classic entries of perennial importance are maintained. Whether summarizing the economics behind the headlines or as an entry point into an established topic, the reader can be assured that the Dictionary provides reliable, vetted content that is authoritative and informative.

Over 1,700 authors, including 36 Nobel Laureates, have contributed to this third edition which includes more than 3,000 chapters and nine million words making this the most comprehensive economic reference resource available and one that we are proud to publish.

Introduction to the First Edition of the *Dictionary of Political Economy*

The primary object of the *Dictionary of Political Economy* is to provide the student with such assistance as may enable him to understand the position of economic thought at the present time, and to pursue such branches of inquiry as may be necessary for that end. The table of the contents of the work shows how large is the range of investigation which the student must follow at the present time. During recent years, the course of economic study has extended so widely that it was obviously impossible to restrict the work to the old and formerly well-recognized boundaries. The development of the historical school has opened out new and fertile fields, while the wants of those who follow the mathematical method of study have also to be considered. These two main lines of treatment are here but mentioned as examples. They are far from exhausting the countless ramifications of inquiry now rightly thought necessary for the complete investigation of a study bounded only by the requirements of human life in every social relation. In making the selection necessitated by the limits of space, the requirements of different classes of students have throughout been borne in mind. On the one side purely business matters, such as banking, the foreign exchanges and the operations of the mint, come in; on the other, subjects of a philosophical character have been dealt with, such as questions of ethics and methods of definition, analysis and reasoning, and the ways in which diagrams and mathematical processes may lend assistance to economic inquiry have also been discussed. Again those interested in historical studies require an explanation of words found in early works, and those derived from classical and medieval times, also of legal phrases, now archaic, together with the modern correlative terms, for only thus can it be understood how ancient usage has influenced present habit. Life in the present day, even in the most modern settlements in the United States, in our British colonies and in the new countries coming into existence in different parts of the world, is influenced largely by the past. The stream of existence, if the simile may be permitted, reaches us deeply coloured by the soil of the fields through which it has flowed by the varied strata of the cliffs – some of them undermined by it – that have bounded its long and devious course. Considerations of space have necessarily confined the scope of the work mainly to the developments of economic study in England, the United States and our English-speaking colonies – and, in regard to these, an endeavour has been made to present under all the subjects treated an account of the best and most recent authorities, whilst the opinions held in other countries have also, as far

as the required limits allowed, been considered and mentioned. The biographies introduced have been selected with the same end. They show what has actually been written in former times, and hence will enable the reader to trace the progress of economic thought. Much attention has been given to the less-known writers. It is difficult for the student under ordinary circumstances to trace out when such authors lived, the surroundings which influenced their lives and the opinions they held. While the oversights in science are sometimes as remarkable as the discoveries, these earlier labourers have not unfrequently been the precursors of other and better-known men, and have sometimes anticipated opinions that have held sway for long periods after them. The different economic schools in the principal countries of the world are also described. Thus, this volume contains notices of the American, Austrian, Dutch and English schools, and the French, German, Italian and Spanish schools will follow in due course. A work extending over so wide a range of subjects is, necessarily, the production of many minds, of writers whose pursuits, occupations and studies are very diverse and varied. I desire to record my warm thanks to the contributors to the book, which is, I think, in itself an almost unique example of economic co-operation. Where all have assisted so heartily, it is less easy to select individual names; but I wish to be allowed to express my special thanks to Professor Dunbar, Dr. Keynes, Professor Marshall, Professor Montague, Professor Nicholson, Signor M. Pantaleoni, Mr. L.R. Phelps, Mr. L.L. Price, Mr. E. Schuster, Professor H. Sidgwick and General Walker for valuable assistance in different directions, and particularly to Dr. Bonar, Professor Edgeworth, Mr. Henry Higgs and Mr. H.R. Tedder, who have kindly helped in the more arduous labour of the preparation of the work for the press. This is but an act of justice, that readers may know to whom they are specially indebted.

R.H. Inglis Palgrave
Belton, near Great Yarmouth
Christmas 1893

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