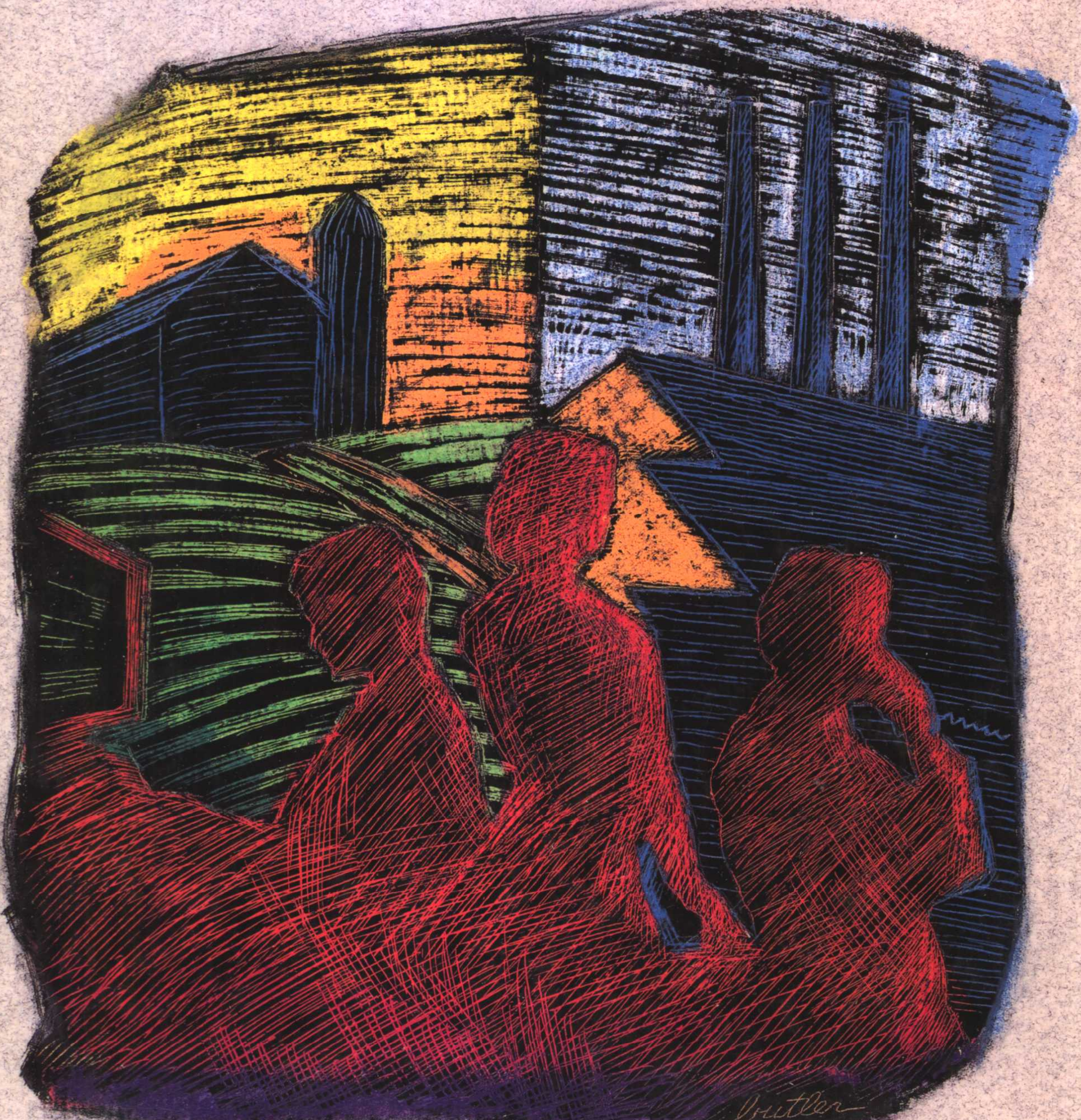
# Labor Economics

GEORGE J. BORJAS



# LABOR ECONOMICS

George J. Borjas
John F. Kennedy School of Government
Harvard University

THE McGRAW-HILL COMPANIES, INC.
New York St. Louis San Francisco Auckland Bogotá Caracas
Lisbon London Madrid Mexico City Milan Montreal New Delhi
San Juan Singapore Sydney Tokyo Toronto

This book was set in Times Roman by Graphic World, Inc.
The editors were Lucille H. Sutton and Sheila H. Gillams;
the production supervisor was Kathryn Porzio.
The cover was designed by Edward Butler.
Quebecor Printing / Fairfield was printer and binder.

**LABOR ECONOMICS**



This book is printed on acid-free paper.

3 4 5 6 7 8 9 0 FGR FGR 9 0 9 8 7

ISBN 0-07-006597-7

Library of Congress Cataloging-in-Publication Data

Borjas, George J.
Labor economics / George J. Borjas.
p. cm.
Includes indexes.
ISBN 0-07-006597-7
1. Labor economics. 2. Labor market—United States. I. Title.
HD4901.B674 1996
331—dc20 95-21464

# ABOUT THE AUTHOR

**George J. Borjas** is a Professor of Public Policy at the John F. Kennedy School of Government, Harvard University. Prior to joining the Harvard faculty in December 1995, he was a Professor of Economics at the University of California, San Diego. He obtained his Bachelor of Science in economics and mathematics from St. Peter's College (1971), and his Ph.D. in economics from Columbia University (1975).

Dr. Borjas has been a Research Associate at the National Bureau of Economic Research since 1983. He is on the editorial boards of the *Quarterly Journal of Economics* and the *International Migration Review.* He has also served as a member of the Advisory Panel in Economics at the National Science Foundation and has testified frequently before congressional committees and government commissions.

Professor Borjas is widely known for his research on labor market issues, particularly the economics of immigration. He has written six books and over eighty scholarly articles in labor economics including *Wage Policy in the Federal Bureaucracy* (American Enterprise Institute, 1980), *Friends or Strangers: The Impact of Immigrants on the U.S. Economy* (Basic Books, 1990), and *Immigration and the Work Force: Economic Consequences for the United States and Source Areas* (University of Chicago Press, 1992).

To My Children,
Sarah, Timothy, and Rebecca

# PREFACE

The seventeenth-century Japanese novelist Ihara Saikaku wrote that "the first consideration of all, throughout life, is the earning of a living." This fact has motivated many economists to understand how labor markets work; why some persons choose to work, while other persons withdraw from the labor market; why some firms expand their employment at the same time that other firms are laying off workers; and why earnings are distributed unequally in most societies.

This book differs from other textbooks in labor economics mainly in its philosophy. I believe that knowing the *story* of how labor markets work is, in the end, more important than "showing off" our skills at constructing elegant models of the labor market or our skills at remembering hundreds of statistics that summarize labor market conditions at a particular point in time. I doubt that many students will (or should!) remember the mechanics of deriving a labor supply curve or the way that the unemployment rate is officially calculated 5 or 10 years after they leave college. If students can remember the *story* of the way the labor market works, however, they will be much better prepared to make informed opinions about such proposed government policies as a "workfare" program requiring that welfare recipients work, or a payroll tax assessed on employers to fund a national health care program. The exposition in this book, therefore, stresses the *ideas* that economists use to understand how the labor market works.

Although the book makes extensive use of labor market statistics, these data provide the "scenery" for our story. The data summarize the stylized facts that a good theory of the labor market should explain, as well as help shape our thinking about the way the labor market works. The main objective of the book, therefore, is to survey the field of labor economics with an emphasis on *both* theory and facts. As a result, the book relies much more heavily on "the economic way of thinking" than other existing textbooks do. I believe this approach gives a better understanding of what labor economics is about than an approach which minimizes the story-telling aspects of economic theory.

## PREREQUISITES

Although this book uses economic analysis throughout the discussion, *all* the theoretical tools are introduced and explained. I only require that the student has been exposed to a course in the principles of microeconomics, particularly supply and demand curves. All other concepts (such as indifference curves, budget lines, production functions, and isoquants) are defined and explained when they first appear in our story. The book does not make use of any mathematical skills beyond those taught in high school algebra (particularly, the notion of a slope). Finally, labor economists make extensive use of econometric analysis in their research. Although the discussion in this book does not require any prior exposure to econometrics, students will get a much better "feel" for the research findings if they know a little about how labor economists manipulate data to reach their conclusions. The appendix to Chapter 1 provides a simple (and very brief) introduction to econometrics, and allows the student to visualize how labor economists conclude, for instance, that wealth reduces labor supply, or that schooling increases earnings.

## ORGANIZATION OF THE BOOK

The book begins with a tour of labor supply. Chapter 2 presents the static theory of labor supply (how workers allocate their time at a point in time), whereas Chapter 3 extends the basic model to analyze how workers allocate their time over time. The book then turns to a discussion of labor demand in Chapter 4. Chapter 5 puts together the supply decisions of workers with the demand decisions of employers and shows how the market "balances out" the conflicting interests of the two parties.

The remainder of the book extends and generalizes the basic supply-demand framework. Chapter 6 stresses that jobs differ in their characteristics, so that jobs which offer unpleasant working conditions may have to offer higher wages in order to attract workers. Chapters 7 and 8 stress that workers are different, either because they differ in their educational attainment (Chapter 7), or because they differ in the volume of on-the-job training they acquire (Chapter 8). These human capital investments help determine the economy's wage distribution. Chapter 9 describes a key mechanism that allows the labor market to balance out the interests of workers and firms, namely labor turnover and migration.

The final chapters of the book discuss a number of distortions and imperfections in labor markets. Chapter 10 analyzes how labor market discrimination affects the earnings and employment opportunities of minority workers and women. Chapter 11 discusses how labor unions affect the relationship between the firm and the worker. Chapter 12 notes that employers often find it difficult to monitor the activities of their workers, so that the workers will want to "shirk" on the job. The chapter discusses how different types of labor market contracts arise to discourage workers from misbehaving. Finally, Chapter 13 discusses how unemployment can arise and persist in labor markets.

The text uses a number of pedagogical devices designed to deepen the student's understanding of labor economics. A chapter typically begins by presenting a number of stylized facts about the labor market, such as wage differentials between blacks and whites or between men and women. Each chapter then presents the story or theory that labor economists have developed to understand why these facts are observed in the labor market and then extends and applies the theory to other labor market phenomena. Each chapter typically contains at least one lengthy application of the material to a major policy issue, as well as presents a number of boxed examples showing the "Theory at Work."

The end-of-chapter material also uses a number of "student-friendly" devices: a chapter summary briefly describing the main lessons of the chapter and a "Key Concepts" section listing the major concepts introduced in the chapter (when a key concept makes its first appearance, it appears in **boldface**). Each chapter also includes "Summary Questions" that the student can use to review the major theoretical and empirical issues. The chapter then ends with a set of problems that test the student's understanding of the material.

## ACKNOWLEDGMENTS

I was extremely fortunate to have learned labor economics from Gary Becker, James Heckman, Jacob Mincer, and Sherwin Rosen. I was greatly influenced by their belief that the study of labor economics can help us understand how "real-world" labor markets work. Their influence, I believe, is evident on every page of this book. I have also benefited greatly from a long professional and personal friendship with Richard Freeman. His approach to "doing" labor economics has had an important impact on my work.

I have learned a great deal from the generations of undergraduate students who have been exposed to various versions of the material contained in this book throughout the past decade. Each generation of students left its mark on the material. The searching questions (and blank stares) of the undergraduates motivated me to search for clearer and more direct examples of the points that I was trying to make.

I am grateful for the very able research assistance of Jeffrey Russell and Lynette Hilton. They prepared the graphs, checked out the problems, reviewed many drafts of each of the chapters, and made numerous comments that improved the exposition of the material.

I have also benefited from the comments made by many colleagues at various institutions. These colleagues include Steven Allen, North Carolina State University; Neil Alper, Northeastern University; Julian Betts, University of California, San Diego; Bernt Bratsberg, Kansas State University; Janet Currie, University of California, Los Angeles; Robert Gitter, Ohio Wesleyan University; Matthew Goldberg, Institute for Defense Analysis; Shoshana Grossbard-Shechtman, San Diego State University; James Henderson, Baylor University; Lawrence Kenny, University of Florida; Mark Killingsworth, Rutgers University; Kenneth McLaughlin, Hunter College; Kathryn Nantz, Fairfield University; Eric Solberg, California State University–Fullerton; and Stephen Trejo, University of California, Santa Barbara.

Finally, I would like to thank my mother, Edita, for encouraging my investments in human capital; my wife, Jane, for her support during the years I was preparing this book; and my children, Sarah, Timothy, and Rebecca, for continuously reminding me of the things that are truly important in life.

*George J. Borjas*

# CONTENTS IN BRIEF

# CONTENTS

CHAPTER

# 1

# INTRODUCTION

*Science is built up with facts, as a house is with stones. But a collection of facts is no more a science than a heap of stones is a house.*

—Jules Henri Poincaré

Most of us will allocate a substantial fraction of our time to the labor market. How we do in the labor market helps determine our wealth, the types of goods we can afford to consume, who we associate with, where we vacation, which schools our children attend, and even the types of persons who find us attractive. As a result, we are all eager to learn how the labor market works. **Labor economics** studies *how* labor markets work.

Our deep interest in labor markets arises not only from our own personal involvement, but also because many of the issues in the debate over social policy concern the labor market experiences of particular groups of workers, or question various aspects of the employment relationship between workers and firms. Among the policy issues examined by modern labor economics are:

1. Why did the labor force participation of women rise steadily throughout the past century?
2. Do welfare programs create work disincentives?
3. What is the impact of immigration on the wage and employment opportunities of native-born workers?
4. Do minimum wages increase the unemployment rate of less-skilled workers?
5. What is the rate of return to schooling, and how does it compare to the rate of return on other investments?
6. Why did wage inequality increase rapidly in the 1980s?
7. What is the impact of affirmative action programs on the earnings of women and minorities?
8. Do unions increase the wages of their members, and by how much?
9. Are the seemingly extravagant salaries paid to executives in large U.S. corporations related to firm performance?
10. Why is unemployment a pervasive characteristic of modern labor markets?

This diverse list of questions clearly illustrates why the study of labor markets is intrinsically more important and more interesting than the study of the market for butter (unless one happens to be in the butter business!). Labor economics helps us understand and address many of the social and economic problems facing modern societies.

## 1-1 AN ECONOMIC STORY OF THE LABOR MARKET

This book tells the "story" of how labor markets work. Telling this story involves much more than simply recounting the history of labor law in the United States and other countries, or presenting tables of statistics summarizing conditions in the labor market. After all, good stories have themes, characters that come alive with vivid personalities, conflicts that have to be resolved, ground rules that limit the set of permissible actions, and events that result inevitably from the interaction among these characters.

The story we will tell about the labor market contains all these features. Labor economists typically assign motives to the various "actors" in the labor market. We typically view workers, for instance, as trying to find the best possible job and assume that firms are trying to make money. We then follow these persons and organizations as they meet, interact, and make exchanges in the labor market. These exchanges determine the types of jobs that are offered, the skills that workers acquire, the extent of labor turnover, the structure of unemployment in the economy, and the observed earnings distribution. The story thus provides a theory, a framework for understanding, analyzing, and predicting a wide array of labor market outcomes.

The underlying philosophy of the book is that modern economics provides a useful story of how the labor market works. In particular, the typical assumptions we make about the behavior of workers and firms, and about the ground rules under which the labor market participants make exchanges, lead to outcomes that often mirror the facts observed in "real-world" labor markets. Labor economics, therefore, helps us understand and predict why some labor market outcomes are more likely to be observed than others.

The discussion is also guided by the belief that learning the story of how labor markets work is as important as knowing basic facts about the labor market. Without understanding how labor markets work—that is, without having a theory of why workers and firms pursue some employment relationships and avoid others—we would be hard pressed to predict the labor market impact of changes in government policies or of changes in the demographic composition of the labor force. Put differently, the study of facts without theory is just as empty as the study of theory without facts.

The question is often asked as to which are more important, ideas or facts? The analysis presented throughout the book stresses a famous philosopher's insight that "ideas *about* facts" are most important.[1] We do not study labor economics so that we can construct elegant theories of the labor market, or so that we can remember how the official unemployment rate is calculated and that the unemployment rate was 6.8 percent in 1993. Rather, we want to understand which economic and social factors generate this level of unemployment, and why.

[1]This reply was given by the English philosopher Alfred North Whitehead.

The main objective of the book, therefore, is to survey the field of labor economics with an emphasis on *both* theory and facts: where the theory helps us understand how the facts are generated; and where the facts can help shape our thinking about the way labor markets work.

## 1-2 THE ACTORS IN THE LABOR MARKET

Throughout the book, we will see that there are three leading actors in the labor market: workers, firms, and the government.

As workers, we receive top casting in the story. Without us, after all, there is no "labor" in the labor market. We decide whether to work or not, how many hours to work, which skills to acquire, when to quit a job, which occupations to enter, whether to join a labor union, and how much effort to allocate to the job. Each of these decisions is motivated by the desire to *optimize,* to choose the best available option from the various choices. Workers in our story, therefore, will act in ways that maximize their well-being, which we will call **utility.** Adding up the decisions of millions of workers generates the economy's **labor supply** not only in terms of the number of persons who enter the labor market, but also in terms of the quantity and quality of skills available to employers. As we will see many times throughout the book, persons who maximize utility tend to supply more time and more effort to those activities that have a higher payoff. The **labor supply curve,** therefore, is often upward-sloping, as illustrated in Figure 1-1.

**FIGURE 1-1 Supply and Demand in the Labor Market**
The labor supply curve gives the number of persons who are willing to supply their services to engineering firms at a given wage. The labor demand curve gives the number of engineers that the firms will hire at that wage. Labor market equilibrium occurs where supply equals demand. In equilibrium, 20,000 engineers are hired at a wage of $40,000.