

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Essays in the Economics of Crime and Punishment

Volume Author/Editor: Gary S. Becker and William M. Landes, eds.

Volume Publisher: NBER

Volume ISBN: 0-87014-263-1

Volume URL: <http://www.nber.org/books/beck74-1>

Publication Date: 1974

Chapter Title: Front matter, Essays in the Economics of Crime and Punishment

Chapter Author: Gary S. Becker, William M. Landes

Chapter URL: <http://www.nber.org/chapters/c3624>

Chapter pages in book: (p. -20 - 0)

**ESSAYS IN THE
ECONOMICS OF CRIME
AND PUNISHMENT**

NATIONAL BUREAU OF ECONOMIC RESEARCH

Human Behavior and Social Institutions

1. *The Economics of Health and Medical Care*, Victor R. Fuchs, Editor
2. *Schooling, Experience, and Earnings*, by Jacob Mincer
3. *Essays in the Economics of Crime and Punishment*, Gary S. Becker and William M. Landes, Editors

ESSAYS IN THE ECONOMICS OF CRIME AND PUNISHMENT

Edited by

GARY S. BECKER

University of Chicago and
National Bureau of Economic Research

and

WILLIAM M. LANDES

University of Chicago and
National Bureau of Economic Research



NATIONAL BUREAU OF ECONOMIC RESEARCH

New York 1974

Distributed by COLUMBIA UNIVERSITY PRESS

New York and London

Copyright © 1974 by the National Bureau of Economic Research, Inc.
All Rights Reserved
Library of Congress Card Number: 73-88507
ISBN: 0-87014-263-1
Printed in the United States of America

NATIONAL BUREAU OF ECONOMIC RESEARCH

OFFICERS

Arthur F. Burns, *Honorary Chairman*
 Walter W. Heller, *Chairman*
 J. Wilson Newman, *Vice Chairman*
 John R. Meyer, *President*
 Thomas D. Flynn, *Treasurer*
 Douglas H. Eldridge, *Vice President—Executive Secretary*

Victor R. Fuchs, *Vice President—Research; Co-director NBER-West*
 Edwin Kuh, *Director, Computer Research Center*
 Hal B. Lary, *Vice President—Research*
 Robert E. Lipsey, *Vice President—Research*
 Sherman J. Maisel, *Co-director NBER-West*
 Geoffrey H. Moore, *Vice President—Research*

Edward K. Smith, *Vice President*

DIRECTORS AT LARGE

Atherton Bean, *International Multifoods Corporation*
 Joseph A. Beirne, *Communications Workers of America*
 Arthur F. Burns, *Board of Governors of the Federal Reserve System*
 Wallace J. Campbell, *Foundation for Cooperative Housing*
 Erwin D. Canham, *Christian Science Monitor*
 Emilio G. Collado, *Exxon Corporation*
 Solomon Fabricant, *New York University*
 Eugene P. Foley, *Montrose Securities, Inc.*
 David L. Grove, *International Business Machines Corporation*
 Walter W. Heller, *University of Minnesota*
 Vivian W. Henderson, *Clark College*
 John R. Meyer, *Harvard University*

J. Irwin Miller, *Cummins Engine Company, Inc.*
 Geoffrey H. Moore, *National Bureau of Economic Research*
 J. Wilson Newman, *Dun & Bradstreet, Inc.*
 James J. O'Leary, *United States Trust Company of New York*
 Alice M. Rivlin, *Brookings Institution*
 Robert V. Roosa, *Brown Brothers Harriman & Co.*
 Eli Shapiro, *The Travelers Corporation*
 Boris Shishkin, *Washington, D.C.*
 Arnold M. Soloway, *Jamaicaway Tower, Boston, Massachusetts*
 Lazare Teper, *International Ladies' Garment Workers' Union*
 Donald B. Woodward, *Riverside, Connecticut*
 Theodore O. Yntema, *Oakland University*

DIRECTORS BY UNIVERSITY APPOINTMENT

Moses Abramovitz, *Stanford*
 Gardner Ackley, *Michigan*
 Charles H. Berry, *Princeton*
 Francis M. Boddy, *Minnesota*
 Otto Eckstein, *Harvard*
 Walter D. Fisher, *Northwestern*
 R. A. Gordon, *California*
 Robert J. Lampman, *Wisconsin*

Maurice W. Lee, *North Carolina*
 Almarin Phillips, *Pennsylvania*
 Lloyd G. Reynolds, *Yale*
 Robert M. Solow, *Massachusetts Institute of Technology*
 Henri Theil, *Chicago*
 William S. Vickrey, *Columbia*
 Thomas A. Wilson, *Toronto*

DIRECTORS BY APPOINTMENT OF OTHER ORGANIZATIONS

Eugene A. Birnbaum, *American Management Association*
 Thomas D. Flynn, *American Institute of Certified Public Accountants*
 Nathaniel Goldfinger, *American Federation of Labor and Congress of Industrial Organizations*
 Harold G. Halcrow, *American Agricultural Economics Association*
 Walter E. Hoadley, *American Finance Association*

Philip M. Klutznick, *Committee for Economic Development*
 Roy E. Moor, *National Association of Business Economists*
 Douglass C. North, *Economic History Association*
 Willard L. Thorp, *American Economic Association*
 W. Allen Wallis, *American Statistical Association*
 Robert M. Will, *Canadian Economics Association*

DIRECTORS EMERITI

Percival F. Brundage
 Frank W. Fetter

Gottfried Haberler
 Albert J. Hettinger, Jr.

George B. Roberts
 Murray Shields

Joseph H. Willits

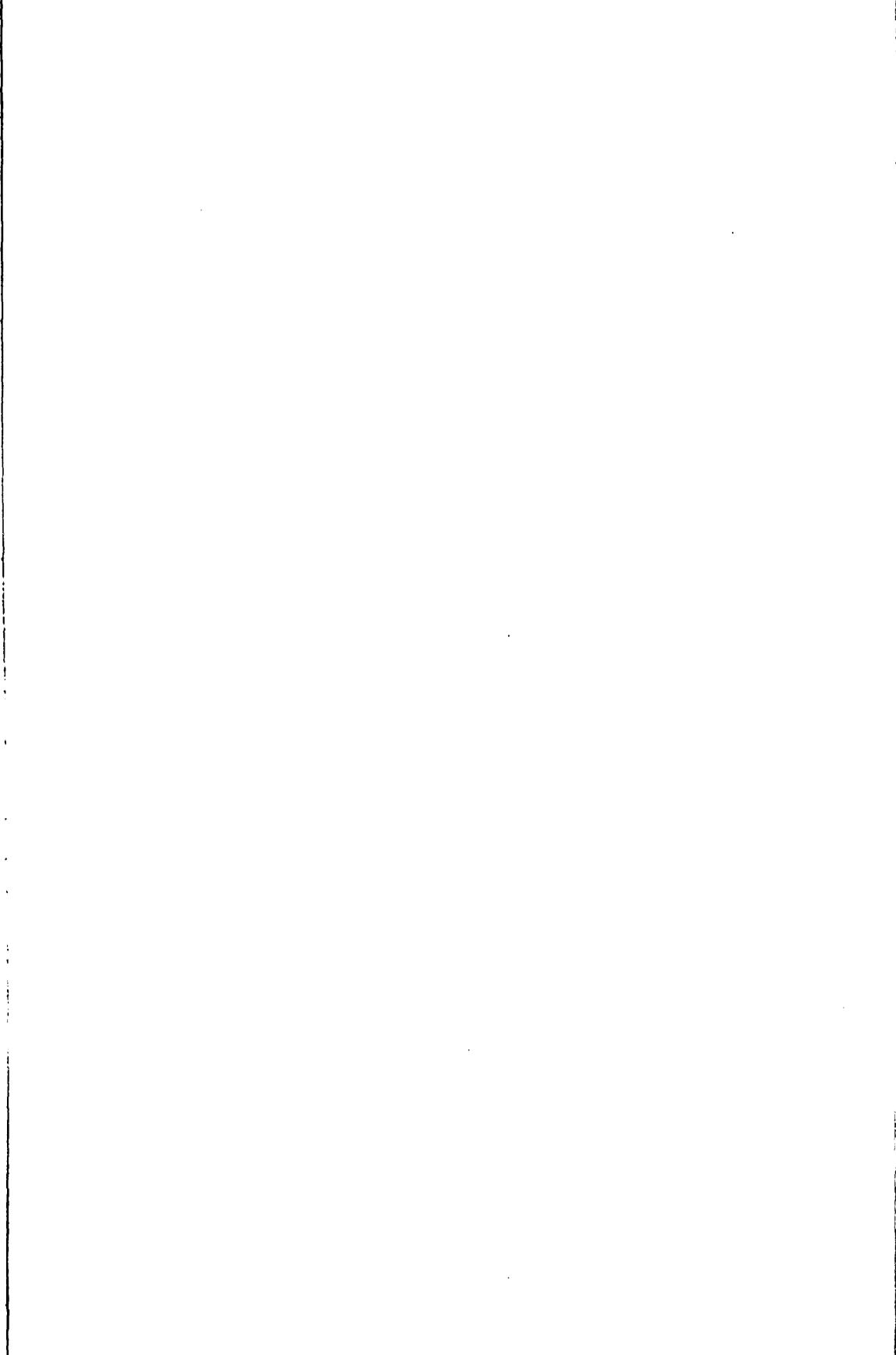
SENIOR RESEARCH STAFF

Gary S. Becker
 Charlotte Boschan
 Phillip Cagan
 Stanley Diller
 Solomon Fabricant
 Milton Friedman
 Gary Fromm
 Victor R. Fuchs
 J. Royce Ginn

Raymond W. Goldsmith
 Michael Gort
 Michael Grossman
 F. Thomas Juster
 John F. Kain
 John W. Kendrick
 Irving B. Kravis
 Edwin Kuh
 William M. Landes

Hal B. Lary
 Robert E. Lipsey
 Sherman J. Maisel
 Benoit B. Mandelbrot
 John R. Meyer
 Robert T. Michael
 Jacob Mincer
 Ilse Mintz
 Geoffrey H. Moore

M. Ishaq Nadiri
 Nancy Ruggles
 Richard Ruggles
 Anna J. Schwartz
 Robert P. Shay
 Edward K. Smith
 George J. Stigler
 Victor Zarnowitz



Relation of the Directors to the Work and Publications
of the National Bureau of Economic Research

1. The object of the National Bureau of Economic Research is to ascertain and to present to the public important economic facts and their interpretation in a scientific and impartial manner. The Board of Directors is charged with the responsibility of ensuring that the work of the National Bureau is carried on in strict conformity with this object.

2. The President of the National Bureau shall submit to the Board of Directors, or to its Executive Committee, for their formal adoption all specific proposals for research to be instituted.

3. No research report shall be published until the President shall have submitted to each member of the Board the manuscript proposed for publication, and such information as will, in his opinion and in the opinion of the author, serve to determine the suitability of the report for publication in accordance with the principles of the National Bureau. Each manuscript shall contain a summary drawing attention to the nature and treatment of the problem studied, the character of the data and their utilization in the report, and the main conclusions reached.

4. For each manuscript so submitted, a special committee of the Directors (including Directors Emeriti) shall be appointed by majority agreement of the President and Vice Presidents (or by the Executive Committee in case of inability to decide on the part of the President and Vice Presidents), consisting of three Directors selected as nearly as may be one from each general division of the Board. The names of the special manuscript committee shall be stated to each Director when the manuscript is submitted to him. It shall be the duty of each member of the special manuscript committee to read the manuscript. If each member of the manuscript committee signifies his approval within thirty days of the transmittal of the manuscript, the report may be published. If at the end of that period any member of the manuscript committee withholds his approval, the President shall then notify each member of the Board, requesting approval or disapproval of publication, and thirty days additional shall be granted for this purpose. The manuscript shall then not be published unless at least a majority of the entire Board who shall have voted on the proposal within the time fixed for the receipt of votes shall have approved.

5. No manuscript may be published, though approved by each member of the special manuscript committee, until forty-five days have elapsed from the transmittal of the report in manuscript form. The interval is allowed for the receipt of any memorandum of dissent or reservation, together with a brief statement of his reasons, that any member may wish to express; and such memorandum of dissent or reservation shall be published with the manuscript if he so desires. Publication does not, however, imply that each member of the Board has read the manuscript, or that either members of the Board in general or the special committee have passed on its validity in every detail.

6. Publications of the National Bureau issued for informational purposes concerning the work of the Bureau and its staff, or issued to inform the public of activities of Bureau staff, and volumes issued as a result of various conferences involving the National Bureau shall contain a specific disclaimer noting that such publication has not passed through the normal review procedures required in this resolution. The Executive Committee of the Board is charged with review of all such publications from time to time to ensure that they do not take on the character of formal research reports of the National Bureau, requiring formal Board approval.

7. Unless otherwise determined by the Board or exempted by the terms of paragraph 6, a copy of this resolution shall be printed in each National Bureau publication.

*(Resolution adopted October 25, 1926, and revised February 6, 1933,
February 24, 1941, April 20, 1968, and September 17, 1973)*

Acknowledgments

Many individuals contributed to the entire manuscript and we should like to thank them for their efforts. Robert Michael, in his capacity as Acting Director in 1972-73 of the National Bureau's Center for Economic Analysis of Human Behavior and Social Institutions, actively encouraged the collection of these essays into a single volume and gave valuable advice on the organization of the manuscript. Bruce Ackerman of the University of Pennsylvania Law School and Guido Calabresi of the Yale University Law School generously gave their time in reviewing all the essays. Eugene P. Foley, J. Wilson Newman, and Alice M. Rivlin made helpful comments as members of the Board of Directors' reading committee. Skillful assistance in the preparation of the manuscript was provided by Ruth Ridler in editing the essays, H. Irving Forman in charting the graphs, and Elisabeth Parshley in typing.

The program of research in law and economics at the National Bureau has been funded from its inception in 1971 by the National Science Foundation, whose support we gratefully acknowledge. The views expressed in these essays are, of course, not attributable to the National Science Foundation.

GARY S. BECKER and WILLIAM M. LANDES

Permissions

Our thanks to the following journals for permission to reprint material previously published by them. From *The Journal of Political Economy*, we have chosen three articles: Gary S. Becker, "Crime and Punishment: An Economic Approach," in Volume 76, No. 2, March/April 1968; copyright 1968 by the University of Chicago, all rights reserved, and printed in the United States. George J. Stigler, "The Optimum Enforcement of Laws," in Volume 78, No. 2, March/April 1970; copyright 1970 by the University of Chicago, all rights reserved, and printed in the United States. Isaac Ehrlich, "Participation in Illegitimate Activities: A Theoretical and Empirical Investigation," in Volume 81, No. 3, May/June 1973; copyright 1973 by the University of Chicago, all rights reserved, and printed in the United States. This last, somewhat revised and expanded, appears here as "Participation in Illegitimate Activities: An Economic Analysis." From *The Journal of Legal Studies*, we have chosen two articles: Richard A. Posner, "The Behavior of Administrative Agencies," in Volume I(2), June 1972; copyright 1972 by the University of Chicago, all rights reserved, and printed in the United States. William M. Landes, "The Bail System: An Economic Approach," in Volume II(1), January 1973; copyright 1973 by the University of Chicago, all rights reserved, and printed in the United States. From *The Journal of Law and Economics* we have chosen one article: William M. Landes, "An Economic Analysis of the Courts," Volume XIV(1), April 1971; copyright 1971 by the University of Chicago, all rights reserved, and printed in the United States.



Contents

Preface	<i>William M. Landes</i>	xiii
Crime and Punishment: An Economic Approach	<i>Gary S. Becker</i>	1
The Optimum Enforcement of Laws	<i>George J. Stigler</i>	55
Participation in Illegitimate Activities: An Economic Analysis	<i>Isaac Ehrlich</i>	68
The Bail System: An Economic Approach	<i>William M. Landes</i>	135
An Economic Analysis of the Courts	<i>William M. Landes</i>	164
The Behavior of Administrative Agencies	<i>Richard A. Posner</i>	215
Index		263



Preface

The relationship between law and economics has long been a subject of study by economists. At least since the time of Adam Smith's analysis of the Navigation Act in England, economists have used the tools of economic theory to understand and to evaluate the effects of laws and alternative legal arrangements on the workings of an economic system. Moreover, with the rapid growth of empirical methods in recent years, economists have produced a large number of studies that attempt to quantify the actual effects of the laws. However, both the theoretical and quantitative investigations have generally taken for granted the question of enforcement. Laws are assumed to be enforced, or incomplete enforcement is acknowledged but viewed as beyond the expertise of the economist. This failure to study enforcement has been a serious deficiency, because enforcement is an essential link in the relationship between a legal and an economic system.

The distinguishing and unifying feature of the essays in this volume is the systematic study of enforcement as an economic problem. The core of the economic approach to enforcement is the application of the principle of scarcity. Because enforcement of legal rules and regulations and the adaptation to them by individuals use scarce resources, choices must be made concerning the nature of the rules to be enforced, the methods to be used in detecting violations, the types of sanctions to be imposed on violators, and the procedures to be employed in adjudicating disputes on whether violations have occurred. Taking the fundamental notion of scarcity, combined with the specification of decision rules for governments and individuals, the economic theory of resource allocation can be used to analyze enforcement, to provide insights into the operation of the legal system, and to derive testable hypotheses for empirical analysis.

All the studies in this volume embody the essentials of the economic approach, although they differ in the emphasis placed on theoretical and empirical analysis. The studies cover a variety of subjects on enforcement, including the design of optimal rules for enforcing laws, quantitative estimates of the deterrent effect of law enforcement, the role of the bail and court system in the enforcement of laws, and the behavior of adminis-

trative agencies in enforcing violations. The following is a brief description of the material presented here.

In the first essay, Gary Becker utilizes the economic theory of resource allocation to develop optimal public and private policies to combat illegal activities. Optimal policies are defined as those that minimize the social loss from crime. That loss depends on the net damage to victims; the resource costs of discovering, apprehending, and convicting offenders; and the costs of punishment itself. These components of the loss, in turn, depend upon the number of criminal offenders, the probability of apprehending and convicting offenders, the size and form of punishments, the potential legal incomes of offenders, and several other variables. The optimal supply of criminal offenses—in essence, the optimal amount of crime—is then determined by selecting values for the probability of conviction, the penalty, and other variables determined by society that minimize the social loss from crime. Within this framework, theorems are derived that relate the optimal probability of conviction, the optimal punishments, and the optimal supply of criminal offenses to such factors as the size of the damages from various types of crimes, changes in the overall costs of apprehending and convicting offenders, and differences in the relative responsiveness of offenders to conviction probabilities and to penalties. The form of the punishment is analyzed as well, with particular reference to the choice between fines and other methods.

Optimal enforcement is also the subject of the second essay. Here, George Stigler considers (a) the effects on enforcement of cost limitations; (b) the appropriate definition of enforcement costs; (c) the optimal structure of penalties and probabilities of conviction for crimes of varying severity; and (d) the determinants of supply of offenses. He shows, among other things, that an optimal enforcement policy must incorporate the principle of marginal deterrence—the setting of higher penalties and conviction probabilities for more serious offenses—to account for the offender's ability to substitute more serious for less serious offenses. In the final part of his paper, Stigler develops a model for determining the optimum enforcement policy for agencies charged with economic regulation. He provides some evidence indicating that maximum statutory penalties for violations of economic regulations have little relationship to optimal penalties.

The third essay, by Isaac Ehrlich, develops in greater detail the supply function for criminal activities that is central to Becker's and Stigler's models of optimal law enforcement. In Ehrlich's model, legal and illegal activities both yield earnings, but the distinguishing feature of illegal activities is assumed to be their uncertain outcome due to possible

punishment. Individuals may specialize in illegal or legal activities or participate in both, depending upon the alternative that maximizes their expected utility. Increases in punishments and probabilities of conviction, other things remaining constant, will lower the return from illegal activities and thereby reduce the incentive to participate in them. The main contribution of Ehrlich's study is his empirical analysis of deterrence. The continuing debate over whether punishments and conviction probabilities deter illegal behavior has been conducted with little evidence presented by either side. Using data from the 1940, 1950, and 1960 Uniform Crime Reports, and employing several statistical techniques, Ehrlich is able to measure across states, at different points in time, the response of specific felony rates to changes in variables reflecting deterrents and gains to crime. Ehrlich's results support the basic hypotheses of the economic model: crime rates appear to vary inversely with estimates of penalties, probabilities of conviction, and legal opportunities.

In the fourth essay, William Landes develops a model of an optimal bail system, using the same basic framework as Becker. Landes derives a social benefit function for the bail system that incorporates both the gains to defendants from being released on bail and the costs and gains to the rest of the community from the release of defendants. The optimal level of resource expenditures on the bail system and the optimal number of defendants to be released are determined by maximizing the social benefit. The main contribution of this essay, however, is the development of alternative methods for selecting defendants for release. Two basic methods and variations on them are analyzed. Both are consistent with the criterion of maximizing the social benefit function. The first, which corresponds to most existing bail systems, requires defendants to pay for their release. The second compensates defendants for their detention by means of monetary or other payment. There are several advantages to a system in which defendants are paid. The major advantage is a reduction in the punitive aspect of the bail system (since those detained are compensated for their losses from detention) that still allows the detention of persons in cases in which the potential damage to the community exceeds the gains from their release. Other advantages include reduced discrimination against low-income defendants and greater economic incentive for the state to improve pretrial detention facilities. The final part of Landes' paper considers the advantage of crediting a defendant's pretrial detention against his eventual sentence, the possibility of tort suits by detained defendants who are acquitted, and the role of bail bonds and bondsmen.

The development of a positive theory of legal decision-making as

applied to enforcement decisions is the common theme of the remaining two essays. In Landes' study of the court system, a utility-maximization model is developed that explains the determinants of the choice between a trial and pretrial settlement in both criminal and civil cases, the terms of a settlement, and the outcome of a trial. For criminal cases, these decisions are shown to depend on such factors as estimates of the probability of conviction by trial, the severity of the crime, the availability and productivity of resources allocated to the resolution of legal disputes, trial versus settlement costs, and attitudes toward risk. The effects of the existing bail system and court delay are analyzed within the framework of the model, as well as the likely effects of a variety of proposals designed to improve the bail system and reduce court delay. Multiple regression techniques are used on data from both state and federal courts to test several hypotheses derived from the model. Considerable empirical evidence is adduced to support the hypothesis that the cost differential between a trial and settlement in criminal cases is a significant determinant of the choice between going to trial and settling. Cost differentials, which include the implicit value of time, were measured by court queues, pretrial detention, and the subsidization of legal fees. Landes also undertakes an empirical analysis of conviction rates in criminal cases, and of the trial versus settlement choice in civil cases.

Richard Posner's study of administrative agencies employs a model similar to the one used by Landes to analyze the court system. Posner assumes that an agency maximizes expected utility subject to a budget constraint. The agency's expected utility is defined to be a positive function of both the expected number of successful prosecutions and the public benefit from winning various types of cases. Posner's model is used to predict an agency's budgetary allocation across classes of cases, the agency's dismissal rate and successful prosecution rate for different types of cases, and the effects of assigning to a single agency both prosecution and adjudication functions. The major part of the empirical analysis is devoted to examining the thesis that an agency that both initiates and decides cases will bias adjudication in favor of the agency, as compared with an agency in which these functions are separated. In the context of the model, Posner derives numerous testable implications of the "bias" hypothesis. Using data from the National Labor Relations Board, which after 1947 no longer initiated complaints, and the Federal Trade Commission, Posner finds little evidence in support of the bias hypothesis.

The essays in this volume were written by members of the National Bureau's program of basic research in law and economics. This research program, begun in 1971, applies analytical and quantitative techniques of

economics to the study of the deterrent effects of criminal sanctions, the functioning of the court and bail systems, the behavioral effects of legislation, and legal decision-making. These essays represent part of the research output of this project; each has been published over the past few years in one of several professional journals. We feel that the publication of the volume provides convincing evidence of the power of economic tools in analyzing the enforcement of law. We expect this to be the first of several volumes reporting the results of this program of research to National Bureau subscribers and to students of legal behavior and institutions. The law and economics research program is one of several housed within the National Bureau's new Center for Economic Analysis of Human Behavior and Social Institutions.

William M. Landes



**ESSAYS IN THE
ECONOMICS OF CRIME
AND PUNISHMENT**

