

This PDF is a selection from a published volume  
from the National Bureau of Economic Research

Volume Title: Innovation Policy and the Economy,  
Volume 4

Volume Author/Editor: Adam B. Jaffe, Josh Lerner  
and Scott Stern, editors

Volume Publisher: The MIT Press

Volume ISBN: 0-262-10104-1

Volume URL: <http://www.nber.org/books/jaff04-1>

Conference Date: April 15, 2003

Publication Date: February 2004

Title: Front matter, acknowledgments

Author: Adam B. Jaffe, Josh Lerner, Scott Stern

URL: <http://www.nber.org/chapters/c10796>

---

## **Innovation Policy and the Economy 4**



---

# **Innovation Policy and the Economy 4**

**edited by**  
**Adam B. Jaffe, Josh Lerner, and Scott Stern**

National Bureau of Economic Research  
Cambridge, Massachusetts

The MIT Press  
Cambridge, Massachusetts  
London, England

NBER / *Innovation Policy and the Economy*, Number 4, 2004  
ISSN: 1531-3468  
ISBN: Hardcover 0-262-10104-1  
ISBN: Paperback 0-262-60060-9

Published annually by The MIT Press, Cambridge, Massachusetts 02142-1407

© 2004 by the National Bureau of Economic Research and the Massachusetts Institute of Technology

All rights reserved. No part of this book may be reproduced in any form by any electronic or mechanical means (including photocopying, recording, or information storage and retrieval) without permission in writing from the publisher.

*Standing orders/subscriptions are available.* Inquiries, and changes to subscriptions and addresses should be addressed to MIT Press Standing Order Department/BB, Five Cambridge Center, Cambridge, MA 02142-1407, phone 617-258-1581, fax 617-253-1709, email [standing-orders@mitpress.mit.edu](mailto:standing-orders@mitpress.mit.edu)

*In the United Kingdom, continental Europe, and the Middle East and Africa, send single copy and back volume orders to:* The MIT Press Ltd., Fitzroy House, 11 Chenies Street, London WC1E 7ET England, phone 44-020-7306-0603, fax 44-020-7306-0604, email [info@hup-mitpress.co.uk](mailto:info@hup-mitpress.co.uk), website <http://mitpress.mit.edu>

*In the United States and for all other countries, send single copy and back volume orders to:* The MIT Press c/o Trilateral, 100 Maple Ridge Drive, Cumberland, RI 02864, phone 1-800-405-1619 (U.S. and Canada) or 401-658-4226, fax 1-800-406-9145 (U.S. and Canada) or 401-531-2801, email [mitpress-orders@mit.edu](mailto:mitpress-orders@mit.edu), website <http://mitpress.mit.edu>

This book was set in Palatino by Achorn Graphic Services, Inc., Worcester, Massachusetts, and was printed and bound in the United States of America.

10 9 8 7 6 5 4 3 2 1

---

# National Bureau of Economic Research

## Officers

Michael H. Moskow, *Chairman*  
Elizabeth E. Bailey, *Vice Chairman*  
Martin Feldstein, *President and Chief Executive Officer*  
Susan Colligan, *Vice President for Administration and Budget and Corporate Secretary*  
Robert Mednick, *Treasurer*  
Kelly Horak, *Controller and Assistant Corporate Secretary*  
Gerardine Johnson, *Assistant Corporate Secretary*

## Directors at Large

Peter C. Aldrich  
Elizabeth E. Bailey  
John H. Biggs  
Andrew Brimmer  
John S. Clarkeson  
Don R. Conlan  
George C. Eads  
Martin Feldstein  
Jacob A. Frenkel  
Judith M. Gueron  
Robert S. Hamada  
George Hatsopoulos  
Karen N. Horn  
Judy C. Lewent  
John Lipsky  
Laurence H. Meyer  
Michael H. Moskow  
Alicia H. Munnell  
Rudolph A. Oswald  
Robert T. Parry  
Richard N. Rosett  
Marina v. N. Whitman  
Martin B. Zimmerman

## Directors by University Appointment

George Akerlof, *California, Berkeley*  
Jagdish Bhagwati, *Columbia*  
William C. Brainard, *Yale*  
Michael J. Brennan, *California, Los Angeles*  
Glen G. Cain, *Wisconsin*  
Franklin Fisher, *Massachusetts Institute of Technology*  
Saul H. Hymans, *Michigan*  
Marjorie B. McElroy, *Duke*  
Joel Mokyr, *Northwestern*  
Andrew Postlewaite, *Pennsylvania*  
Uwe E. Reinhardt, *Princeton*  
Nathan Rosenberg, *Stanford*  
Craig Swan, *Minnesota*  
David B. Yoffie, *Harvard*  
Arnold Zellner, *Chicago*

## Directors by Appointment of Other Organizations

Mark Drabentstott, *American Agricultural Economics Association*  
Gail D. Fosler, *The Conference Board*  
A. Ronald Gallant, *American Statistical Association*  
Richard C. Green, *American Finance Association*  
Robert Mednick, *American Institute of Certified Public Accountants*  
Angelo Melino, *Canadian Economics Association*  
Richard D. Rippe, *National Association for Business Economics*  
John J. Siegfried, *American Economic Association*

David A. Smith, *American Federation  
of Labor and Congress of Industrial  
Organizations*

Josh S. Weston, *Committee for  
Economic Development*

Gavin Wright, *Economic History  
Association*

**Directors Emeriti**

Carl F. Christ

Lawrence R. Klein

Franklin A. Lindsay

Paul W. McCracken

Peter G. Peterson

Bert Seidman

Eli Shapiro

---

## Relation of the Directors to the Work and Publications of the NBER

1. The object of the NBER is to ascertain and present to the economics profession, and to the public more generally, important economic facts and their interpretation in a scientific manner without policy recommendations. The Board of Directors is charged with the responsibility of ensuring that the work of the NBER is carried on in strict conformity with this object.
2. The President shall establish an internal review process to ensure that book manuscripts proposed for publication DO NOT contain policy recommendations. This shall apply both to the proceedings of conferences and to manuscripts by a single author or by one or more co-authors but shall not apply to authors of comments at NBER conferences who are not NBER affiliates.
3. No book manuscript reporting research shall be published by the NBER until the President has sent to each member of the Board a notice that a manuscript is recommended for publication and that in the President's opinion it is suitable for publication in accordance with the above principles of the NBER. Such notification will include a table of contents and an abstract or summary of the manuscript's content, a list of contributors if applicable, and a response form for use by Directors who desire a copy of the manuscript for review. Each manuscript shall contain a summary drawing attention to the nature and treatment of the problem studied and the main conclusions reached.
4. No volume shall be published until forty-five days have elapsed from the above notification of intention to publish it. During this period a copy shall be sent to any Director requesting it, and if any Director objects to publication on the grounds that the manuscript contains policy recommendations, the objection will be presented to the author(s) or editor(s). In case of dispute, all members of the Board shall be notified, and the



President shall appoint an ad hoc committee of the Board to decide the matter; thirty days additional shall be granted for this purpose.

5. The President shall present annually to the Board a report describing the internal manuscript review process, any objections made by Directors before publication or by anyone after publication, any disputes about such matters, and how they were handled.

6. Publications of the NBER issued for informational purposes concerning the work of the Bureau, or issued to inform the public of the activities at the Bureau, including but not limited to the NBER Digest and Reporter, shall be consistent with the object stated in paragraph 1. They shall contain a specific disclaimer noting that they have not passed through the review procedures required in this resolution. The Executive Committee of the Board is charged with the review of all such publications from time to time.

7. NBER working papers and manuscripts distributed on the Bureau's web site are not deemed to be publications for the purpose of this resolution, but they shall be consistent with the object stated in paragraph 1. Working papers shall contain a specific disclaimer noting that they have not passed through the review procedures required in this resolution. The NBER's web site shall contain a similar disclaimer. The President shall establish an internal review process to ensure that the working papers and the web site do not contain policy recommendations, and shall report annually to the Board on this process and any concerns raised in connection with it.

8. Unless otherwise determined by the Board or exempted by the terms of paragraphs 6 and 7, a copy of this resolution shall be printed in each NBER publication as described in paragraph 2 above.

---

# Contents

- Introduction xi  
Adam B. Jaffe, Josh Lerner, and Scott Stern
- 1 Crafting Defense R&D Policy in the Anti-Terrorist Era 1**  
Manuel Trajtenberg
- 2 Technology Policy for Energy and the Environment 35**  
Adam B. Jaffe, Richard G. Newell, and Robert N. Stavins
- 3 The Human Resources Revolution: Is It a Productivity Driver? 69**  
Kathryn Shaw
- 4 Prospects for Improving U.S. Patent Quality via Postgrant Opposition 115**  
Bronwyn H. Hall, Stuart Graham, Dietmar Harhoff, and David C. Mowery
- 5 The Gaming of Pharmaceutical Patents 145**  
Jeremy Bulow

