United States
Department
of Agriculture

Economic
Research
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Technical
Bulletin
Number 1918

February 2008

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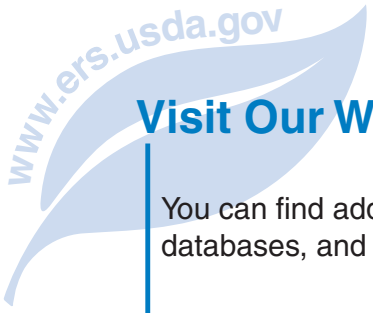
Methodology and a Model of the U.S. Agricultural Sector

David H. Harrington and Robert Dubman



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National Agricultural Library Cataloging Record:

Harrington, David H.

Equilibrium displacement mathematical programming models : methodology and a model of the U.S. agricultural sector.

(Technical bulletin (United States. Dept. of Agriculture); no. 1918)

1. Programming (Mathematics).
2. Agriculture—Economic aspects—United States—Mathematical models.
3. Agriculture—Economic aspects—United States—Computer programs.
4. Agriculture and state—United States.

I. Dubman, Robert.

II. United States. Dept. of Agriculture. Economic Research Service.
III. Title.

QA402.5

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United States Department of Agriculture

Technical Bulletin Number 1918

February 2008

A Report from the Economic Research Service

www.ers.usda.gov

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Abstract

The objective of this research is to extend and generalize the equilibrium displacement methodology by combining it with mathematical programming methods and existing knowledge of farm sector relationships to develop sectoral adjustment models that can operate in pure competition, monopoly/monopsony, or mixed-competition. A model of the U.S. agricultural sector at the national aggregate level is presented to illustrate the methods. An appendix contains a user's manual describing the operation of the model. Further appendices contain documentation of the structure of the spreadsheets, the programming tableau, and the SAS solution program.

Keywords: Equilibrium displacement models, mathematical programming, positive mathematical programming, U.S. agricultural sector, U.S. farm programs, direct payments, counter-cyclical payments, loan deficiency payments, marketing loan gains, conservation reserve program, wetlands reserve program, crop insurance

Contents

Appendix III model spreadsheets are accessible by contacting David Harrington, 202-694-5571, *davidh@ers.usda.gov*