

# Agricultural and Environmental Policies

Economics of Production, Technology, Risk  
Agriculture and the Environment

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class notes from the ARE 242 course, Spring 1998  
edited by: Carlo Cafiero

(draft: July 24, 1998)

# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Outline . . . . .	1
1.2	Reading List . . . . .	2
<b>2</b>	<b>Optimization</b>	<b>5</b>
2.1	Kuhn-Tucker Conditions . . . . .	5
2.2	Constrained Optimization . . . . .	7
2.2.1	Primal vs. Dual . . . . .	7
2.2.2	The bordered Hessian and its applications . . . . .	8
2.2.3	Example of Application . . . . .	9
2.3	Decision Making Over Time . . . . .	11
2.3.1	The Decomposition of Interest Rates . . . . .	13
2.3.2	Dynamic Systems . . . . .	16
2.3.3	Optimal Control . . . . .	17
2.3.4	Continuous Optimal Control . . . . .	19
2.3.5	Optimal Control Techniques and Applications . . . . .	20
2.3.6	The Simple Model of Economic Growth . . . . .	21
2.3.7	The Dynamics of Consumption . . . . .	22
2.3.8	Steady State . . . . .	23
<b>3</b>	<b>Review of Production Economics</b>	<b>25</b>
3.1	Production function and its parameters . . . . .	25
3.1.1	Production Function under Perfect Competition . . . . .	28
3.1.2	Duality and its implications . . . . .	29
3.2	Inputs in the Production Process . . . . .	32
3.3	Input application technology . . . . .	33
3.3.1	Comparison of Input Use and Output Under the Two Technologies . . . . .	35
3.3.2	Implication for Cobb-Douglas . . . . .	36

3.3.3	Quality and Technology Choices . . . . .	39
3.3.4	Aggregation . . . . .	42
3.3.5	Impact of Pollution Tax . . . . .	42
3.4	The economics of pesticides . . . . .	43
3.4.1	A Brief History of Pesticide use . . . . .	43
3.4.2	Pesticides in a Damage Control framework . . . . .	43
3.4.3	Model of pesticide use with known pest population and pest control alternatives . . . . .	44
3.5	Economic Analysis of Investments . . . . .	57
3.5.1	The Cambridge Controversy . . . . .	59
3.5.2	Putty–Clay Models . . . . .	60
3.5.3	Aggregation From Micro to Macro . . . . .	66
<b>4</b>	<b>Family Production Function</b>	<b>77</b>
4.1	Demand Analysis . . . . .	77
4.1.1	Criticism of Existing Demand Theory . . . . .	78
4.2	Alternative Approaches to Demand Analysis . . . . .	80
4.3	Becker Model . . . . .	86
4.4	The Lancaster model when $M = N = L$ . . . . .	88
4.5	Strauss Model . . . . .	90
4.6	Hedonic Prices . . . . .	91
<b>5</b>	<b>Risk</b>	<b>93</b>
5.1	Introduction: an overview . . . . .	93
5.2	Risk aversion . . . . .	94
5.2.1	Absolute Risk Aversion . . . . .	95
5.2.2	Relative Risk Aversion . . . . .	97
5.2.3	Hypotheses about Risk Preferences . . . . .	98
5.2.4	The Implications of Risk Preferences for Empirical Specification of Utility Functions . . . . .	98
5.2.5	Estimation of Risk Aversion Coefficient . . . . .	100
5.3	Expected Utility . . . . .	104
5.4	Uncertainty in Production . . . . .	104
5.4.1	Introduction . . . . .	104
5.4.2	Risk Specification . . . . .	105
5.4.3	The Sandmo-Leland Model . . . . .	105
5.4.4	Sandmo’s Model . . . . .	106
5.4.5	The Mean–Variance Approach . . . . .	109
5.4.6	Stochastic Dominance . . . . .	116
5.5	Measuring risk . . . . .	116

5.5.1	Introduction . . . . .	116
5.5.2	Mean-Preserving Spread . . . . .	117
5.5.3	Stochastic Dominance . . . . .	119
5.5.4	Variance as a Measure of Risk . . . . .	120
5.5.5	Just and Pope Production Model . . . . .	121
5.5.6	Exponential Utility . . . . .	121
5.5.7	Summary . . . . .	122
5.6	Alternatives to Expected Utility: safety rules . . . . .	123
5.7	Safety Rules . . . . .	124
5.7.1	Introduction . . . . .	124
5.7.2	Roy Minimum Probability Rule . . . . .	125
5.7.3	Telser Safety-First Rule . . . . .	126
5.7.4	Safety Fixed . . . . .	126
5.7.5	Safety Rules and Expected Utility . . . . .	127
5.8	Prospect Theory . . . . .	128
5.9	The Validity of the Expected Utility (EU) Model . . . . .	129
5.9.1	Background: The EU Model's Critical Implications for Behavior	130



# Lecture 1

## Introduction

This set of notes will cover major bodies of literature in agricultural resource economics pertaining to **production, risk, agricultural inputs** –water and pesticides–, **technology adoption**, and **agricultural and resource policy**. Many of the topics are pertinent for resource and development economics, and much of the presentations will rely on work that was done in the Department of Agricultural and Resource Economics of the University of California at Berkeley, addressing California agricultural and resource problems.

Some of the lectures will be quite technical and present widely used models in detail. Other lectures will be more general and overview several important bodies of literature and their relation to policy and historical development.

### 1.1 Outline

1. Overview
  - (a) Overview of U. S. Agricultural and Resource Policy (2 lectures)
  - (b) Industrialization of Agriculture and Its Implication
  - (c) Productivity of Agricultural Research and the Land - Grant System
2. Economics of Production
  - (a) Alternative Approach to Analyzing Production and Productivity
  - (b) Putty-Clay Models
  - (c) Aggregation from Micro to Macro
  - (d) Family Production Function

3. Economics of Decision Making Under Uncertainty
  - (a) Economic Modeling of Behavior under Risk
  - (b) Measures of Risk Aversion and Their Interpretation
  - (c) Measuring Risk: Mean-preserving Spread and Stochastic Dominance
  - (d) Safety rules
  - (e) Uncertainty in Production
  - (f) Mean Variance Models
  - (g) Estimation of the Risk Aversion Coefficient
  - (h) Validity of the EU Model
4. Economics of Technological Change
  - (a) Induced innovation
  - (b) Technology Adoption
  - (c) Diffusion
5. Practical Policy Analysis
6. Student Presentations
7. Economics of Agricultural Resources
  - (a) Pesticides
  - (b) Water
  - (c) Endangered species
  - (d) Purchasing funds
8. Sustainable Development

## 1.2 Reading List

1. Overview of U. S. Agricultural and Resource Policy  
Gardner (1992)  
Carlson and Zilberman (1993)

2. Economics of Production
  - Just, Zilberman, Hochman, and Bar-Shira (1990)
  - Just, Zilberman, and Hochman (1983)
  - Lancaster (1966)
  - Michael and Becker (1973)
  - Rosen (1974)
  - Salter (1960)
  - Zilberman (1989)
  
3. Economics of Decision Making Under Uncertainty
  - Arrow (1971)
  - Buschena and Zilberman (1994)
  - Roumasset, Boussard, and Singh (1973)
  - Saha (1993)
  - Sandmo (1971)
  
4. Economics of Technological Change
  - Binswanger (1974)
  - Carlson, Zilberman, and Miranowsky (1993)
  - Feder, Just, and Zilberman (1985)
  - Griliches (1958)
  - Just and Zilberman (1983)
  - Mansfield (1961)
  
5. Policy Analysis
  - Rausser (1982)
  - Rausser (1992)
  - Rausser (1994)
  - Rausser and de Gorter (1991)
  - Taylor and Howitt (1993)
  
6. Economics of Agricultural Resources
  - (a) Pesticides
    - Carlson and Wetzstein (1993)
    - Cropper (1992)
    - Feder and Regev (1975)



Hueth and Regev (1974)

Zilberman, Schmitz, Casterline, Lichtenberg, and Siebert (1991)

(b) Water

Boggess, Lacewell, and Zilberman (1993)

Burness and Quirk (1979)

Chakravorty, Hochman, and Zilberman (1991)

Gisser (1983)

Gisser and Sanchez (1980)

Shah and Zilberman ( )

Sunding, Zilberman, Howitt, Dinar, and MacDougall (1994)

Tsur (1991)

7. Sustainable Development

Carlson and Zilberman (1993)

Chavas (1993)

Howarth and Norgaard (1990)

Ruttan (1991)

Solow (1992)