Presentation Structure

I. Some Related Ideas in 3 Presentations
II. Presentation Introduction
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Motivation

Repercussions of the Gilleleje meeting

- Dynamics of full-scale forests
- The Volvo Theorem
- Discussion of inheritance taxes

I. Some Related Ideas in Three Presentations

- Goal: To examine the impacts of alternative harvesting strategies on temporal and spatial dynamics of forests
  - Faustmann Harvest Rule
  - New Rules: Dynamic, Stochastic and Spatial
  - Impacts of inheritance taxes
II. Presentation Introduction

How can forests be managed to help meet inheritance taxes?

What are the magnitude of the losses from managing forests for inheritance taxes?

Previous Presentations

- Justification
- Basic questions for each strategy
- Relevant Literature
III. Assumptions

- Single landowner
- Fixed land area
- Homogenous land
- Single output
- No thinning
- Deterministic parameters

Problem Defining Assumptions

- Landowners must pay a large inheritance tax at periodic intervals
- Some or all of the inheritance tax payments come from the estate’s forests
- Borrowing is constrained
- Stumpage is undervalued relative to financial assets for tax purposes
IV. Strategies

Strategy 1: Split Forest Faustmann Model

- Divide the forest into two sections
  - One section provides a relatively even cash flow
  - One section helps meet estate inheritance taxes

- Use the Faustmann Formula to manage both sections
Split Forest Faustmann Model

Payment and Rotation Periodicity

- What is the relationship between the rotation length and the periodicity of the tax payments?
- Periodicity of the tax payments maybe shorter or longer than the optimal rotation age.
- Difficulties arise when optimal rotation length is not close to a multiple or divisor of tax periodicity.
Strategy 2: Multiple Species

- Landowners may choose to plant 2 or more different species to meet the tax.
- The species may or may not be geographically separate.
- The periodicity of the tax payment maybe deterministic or stochastic.

2 Species Model

The 2 Species Model diagram shows a significant portion (80%) of one species and another smaller portion (20%) of another species.
What is the relationship between the rotation age of each species and the periodicity of the tax payments?

Periodicity of the tax payments maybe shorter or longer than the optimal rotation age of

Difficulties arise when optimal rotation length is not close to a multiple or divisor of tax periodicity.

If inheritance tax is paid at stochastic intervals species that hold their value for a relatively long time are useful
Strategy 3: Buffer Stocks

- Landowners manage to have a certain value of stock that may be harvested almost immediately to meet the tax.
- The value of the stock may change over time.
- The periodicity of the tax payment is stochastic.

Buffer Stocks needed and added
Payment and Rotation Periodicity

- What is the relationship between the rotation age of each species and the required buffer stock?
- Is the required buffer stock feasible?
- What are the costs of maintaining a buffer stock?

Strategy 4: Mixed Strategies

- Simultaneous use of at least 2 of the Split Faustmann Model, Multiple Species and Buffer Stock
V. Summary

- Defined an inheritance tax problem for forest managers
- Started to develop strategies for the inheritance tax problem
- Difficulties remain for each strategy