Climate Change and Agriculture

Robert Mendelsohn Camp Resources Asheville

How to measure impacts?

- Laboratory experiments
- Field experiments
- Agronomic models
- Intertemporal data
- Cross sectional data

Ricardian Methodology

- Cross sectional analysis of a set of farms in different climates
- Regress land value or net income on climate and other control variables
- Trace out locus of most profitable choices for each condition
- Infer long-term value of climate change as movement along this locus

Adaptation Captured by Ricardian Method

- Farmers adapt to the climate they live in
- Comparing farmers across climates automatically captures these adaptations
- The adaptations are not explicitly modeled, they are implicit in the technique
- For example, crop switching is captured

Crop Switching



The Marginal Impact of Temperature on Land Value in the United States (percentage).



The Marginal Impact of Precipitations on Land Value in the United States (percentage).



Marginal impacts of Temperature and Precipitation



Marginal temperature effect on rainfed farms in China



Marginal temperature effect on irrigated farms in China



