

Quasi-random Comments on:
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Adaptation – Prices vs. Quantities

- A price change (eg, gasoline)
 - No change in habits brings greatest harm
 - Adaptation I: Consumers cut back on consumption which moderates impact
 - Adaptation II: OECD members invest in R&D to make energy saving easier in the future
- Private adaptation happens automatically
- Public adaptation may suffer from inefficient public policies
- A quantity change (eg, climate)
 - No change in habits brings greatest harm
 - Adaptation I: Private adaptation by individuals and firms moderates damages but at a cost
 - Adaptation II: Public action, such as added investment in infrastructure, moderates some consequences of change
- Adaptation is not usually considered as a separate action but the normal response to changed circumstances
- Total damage: Cost of adaptation plus residual damage

Transients – prices vs. quantities

When something changes, there are temporary dislocations while economy and society adjusts

- A price change (eg gasoline)
 - Consumers can initially do little
 - Over time, consumers change habits
 - Over even more time, consumers buy different energy saving capital
 - Eventually, much of the impact may be moderated
- There are costs incurred in adjusting to the prices change
 - permanent costs even though eventually the consumer adapts
- A quantity change (eg, climate)
 - Consumers initially can do little
 - Over time, consumers and producers make adjustments and adapt
 - Over even more time, much of the effect may be ameliorated (eg, at-risk capital is moved away from rising oceans)
- There is a cost that is incurred during the transient period as the economy adjusts to the changed climate, even if ultimately we compensate completely for the change

Uncertainty in the small and in the large

- Small uncertainty is really life as we know it
 - Risk of a house fire
 - Risk of an auto accident (where the effects may be catastrophic to the victim)
- Climate risks and insurance
 - To what extent can climate risk be handled by insurance?
 - Eg, flooding, weather damage
 - Even with insurance, there is still damage
- For what risks should nations be risk averse?
 - Precautionary principle is not necessarily widely accepted
 - Standard economic party line is that nations are generally risk neutral
 - Should the US have been risk neutral with regard to preparing for Katrina? (risk seeking or incompetent are the actual models)
 - Not clear what climate risks are dramatic enough that countries should be risk averse.
- From a public policy perspective, do irreversibilities simply increase the perceived magnitude of the damage?
 - Empirical work in climate change suggest irreversibilities should have little effect on current policy

Gridded Economic Data

or Monty Python and the Search for the Holy Grail of Regional Economics

- Procedure consists of three parts
 - 1) Determine economic output at the level of the cell
 - 2) Determine how climate change affects output at the cell level
 - 3) Evaluate the consequences of a particular scenario of climate change – “damage”
- Climate change analysis plagued by the mismatch between data defined by political boundaries and biogeophysical data.
- A very important and ambitious undertaking
- Most of my comments pertain to step #2

A review of the assumptions of the Ricardian approach to agricultural damage

- For a geographically defined activity (eg, agriculture in a cell), must be possible to define output as:
 - $Y = f(p, C, X)$
Where p =prices, C =climate, X =other exogenous factors
- For example, agriculture depends on
 - Input and output prices, including labor
 - Land and land quality
 - Weather
 - Distribution of weather; ie climate
- Then it becomes sensible to calculate
 - $Y + \Delta Y = f(p, C + \Delta C, X)$
- For agriculture, land price is endogenous – a capitalization of the value of marginal product of the land
- Model should be able to explain the economic differences between a farm in the midwest US and France
- Still omits the problem of general equilibrium effects such as wheat prices rising worldwide from climate change

Extension to gross output of a cell

- Posit gross output of a cell is

$$Y = f(C,L,D,CFE)$$

where C is climate

L is quality of land

D is distance from ocean

CFE are country fixed effects

- For this to work, this representation must be able to explain the difference in output
 - Las Vegas vs. Manhattan vs. Pierre, SD or
 - Paris vs. Loire Valley
- Bold step; skeptics need some evidence

An alternative – focus on explaining output of a cell

- Disaggregate to sectoral level
- Include far more fixed effects and other explanatory variables – draw on the economic geography literature
- Determine for which sectors this works and for which it doesn't
- Onus is on researcher to substantiate effectiveness of approach