

Potential Relevant Recent Work In Environmental Economics

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Impacts of Pollutants on Health

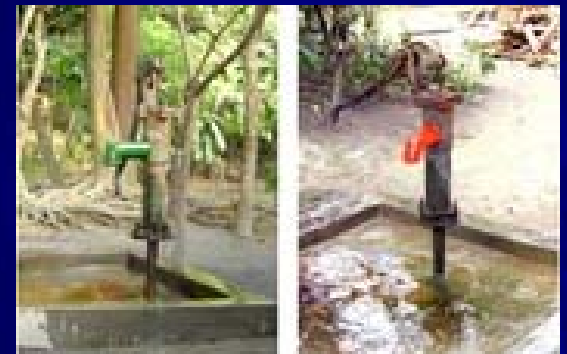
- Long standing work by economists shows a range of health impacts related to pollution
- Newer work often exploits natural experiments to achieve cleaner causal identification
- Shows substantial impacts on mortality and morbidity at lower pollution levels than previously thought
 - Most work done in the United States
 - Valuation usual done using VSL/cost of illness

Impact of Pollution on Labor Supply

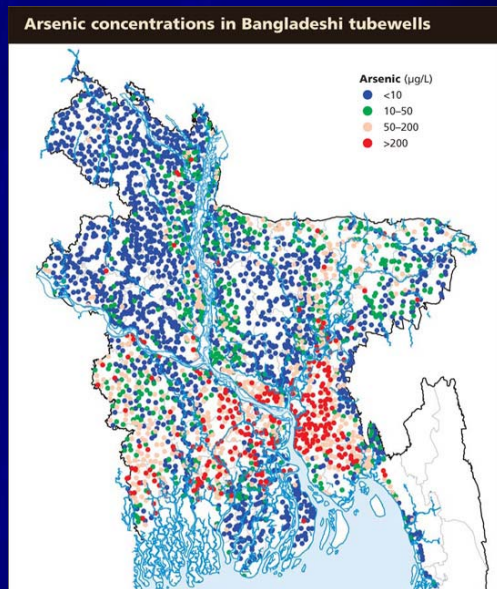
- Farmer workers pick less fruit if ozone levels are higher
- Factory workers pack fewer boxes and textile workers produce less cloth when particulate levels are higher
- Lower skilled workers more likely to be laid off when temperatures abnormally high
- Test scores of 4th and 8th graders and salaries after employment lower with higher in utero particulate exposure
- Crime rates among youth higher with greater lead exposure

Arsenic in Rural Bangladesh

- Over 9 million shallow groundwater wells drilled
 - Favorite project of aid organizations/NGOs
 - Reduced illness from biological contamination and the distance women had to walk to carry water
 - Unknowingly exposed 50 to 70 million people to arsenic contamination above World Health Organization standards
 - WHO calls greatest mass poisoning in history
 - After problem discovered, public health community (and some economists) focused on:
 - Stopping use of contaminated wells
 - Estimating long term health impacts



- Detective work: recognition that the medium term impacts of arsenic should be to impact labor supply
 - Lethargy, sores on hands/feet, headaches, disoriented
- Approach: GIS matching of data from Bangladesh national survey for measuring labor supply to large scale study of arsenic contamination by British Geological Survey
 - Semi-parametric duration model of household labor hours supplied as function of household characteristics, assets & arsenic



- Carson, Koundouri & Nauges (AJAE, 2010) estimate impact: 8% reduction of labor hours supplied relative to counterfactual of no arsenic contamination
 - Larger than increase in U.S. unemployment due to great recession
 - Likely measurement error in arsenic exposure suggests lost labor hours larger
 - Substantial within household patterns of labor substitution
 - Prime age males work (relatively) more while females work less
 - Interactions with age, education, assets such as land holdings

Contingent Valuation

- Over ten thousand studies now exist.
- Wide range of environmental goods valued:
 - Initial applications were to outdoor recreation, air and water quality
 - Current applications include:
 - Ecosystem services, endangered species, ecotourism, environmental infrastructure
- Other major uses: crime, cultural amenities, health programs, and transport
- Studies now conducted in over 130 countries
 - Largest increase in applications is in developing countries
 - Lots of other names: SP, bidding games, choice modeling, conjoint, discrete choice experiments, payment card



Some Lessons Learned

- Implications of underlying economic theory
 - WTP/WTA, price & income effects, substitution/sequence effects
- Realism of description of the good of interest and scenario for providing important
- Incentive structure of different ways of asking preference questions now understood and influences interpretation of responses
- Improved statistical treatment of response to preference questions and experiment designs for collecting such data needed

Four Recent Projects

- Damage assessment for BP oil spill in Gulf of Mexico
 - Example of what can be done substantial resources to carry out a non-market valuation study
 - \$17B estimate of monetary value of injuries to natural resources
- Protecting tropical rainforests in Malaysia
 - Showed substantial WTP by greater Kuala Lumpur residents
 - Separated valuation of impacts of logging from poaching
- Removing copper from recreation boats in San Diego
 - Discovered actual problem very different from original belief
 - Heterogeneity in WTP for alternatives major factor
- Incentives for electric vehicles in California
 - All electric versus plug-in hybrid vehicle use
 - Interaction between incentives, price, and income

Representative Module 1 Choice Set

	Policy C	Policy D	No protection
Logging	300,000 ha	150,000 ha	300,000 ha
	All these species go extinct	Half these species go extinct	All these species go extinct
Poaching	0 ha	150,000 ha	300,000 ha
	None of these species go extinct	Half these species go extinct	All these species go extinct
Floods in Perak	5 per year	3 per year	5 per year
Jobs created in Perak	2,500	5,000	7,500
Cost to you	RM10 per month	RM10 per month	No cost



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