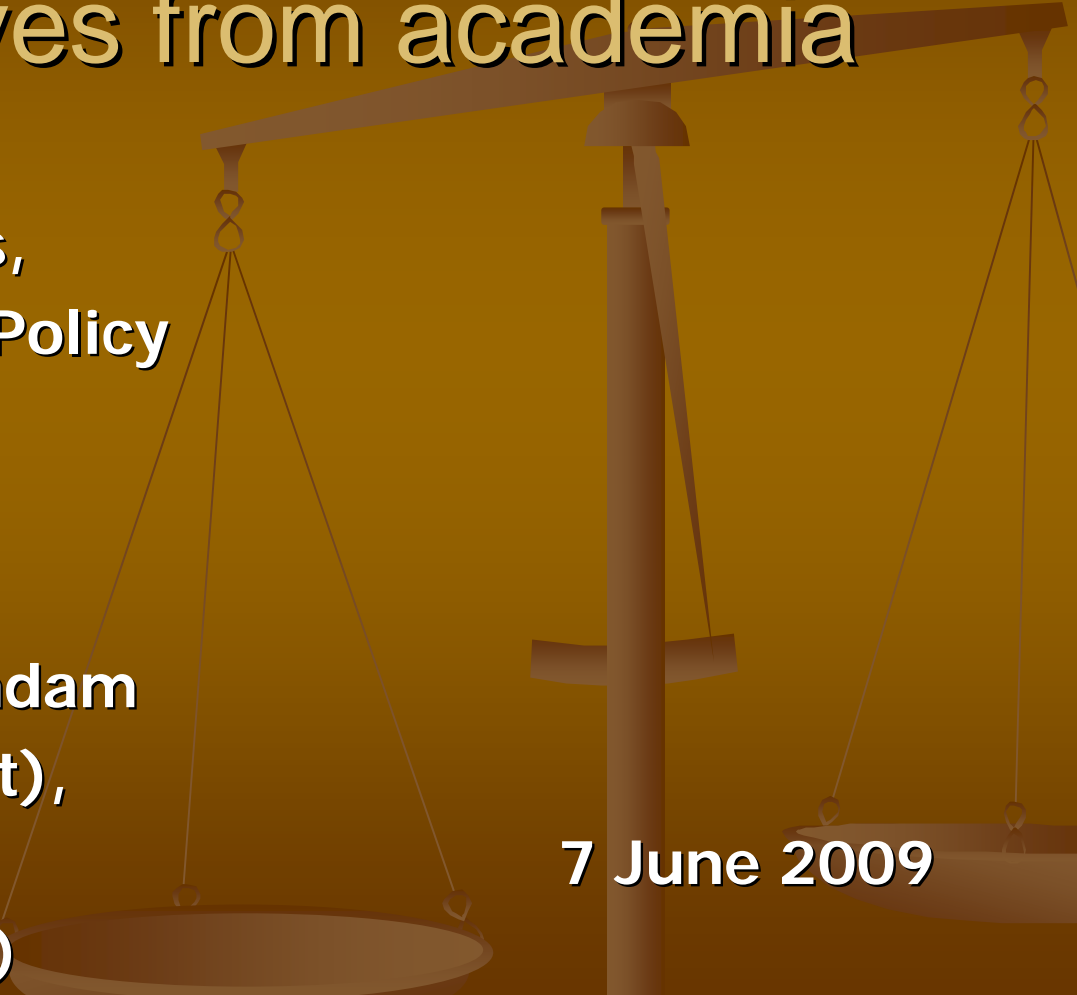


Experimental and Quasi- experimental Evaluation Designs Perspectives from academia

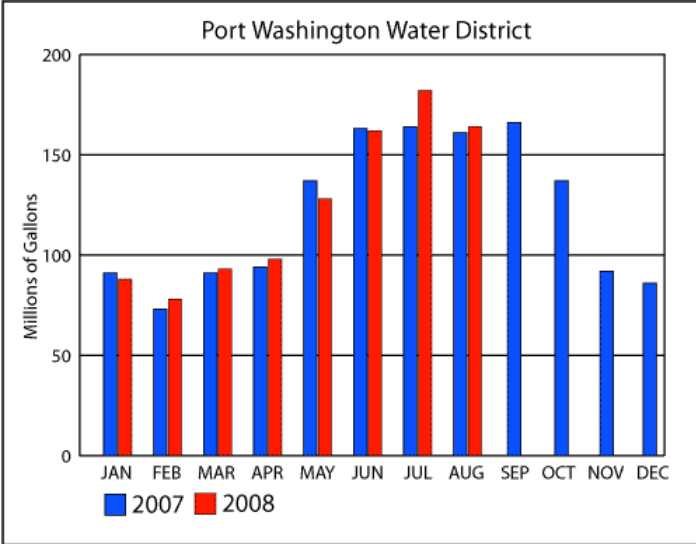


Paul J. Ferraro
Department of Economics,
Andrew Young School of Policy
Studies
Georgia State University

Based on work with K. Andam
(IFPRI), K. Sims (Amherst),
M. Holland (Univ of WI),
Michael Price (Univ of TN)

7 June 2009

Monitoring versus Impact Evaluation



Monitoring: Describes status and trends of indicators.

Impact Evaluation: Attempts to attribute changes in status and trends to a policy or program intervention (separate from other factors).

Impact Evaluation

Estimating counterfactual outcomes

requires collecting data so that an actual

program effect would be visibly different

from the most plausible rival

explanations (requires elaborate theory).

Information



WATER-SAVING DEVICE #54

Turn off the water while you
brush your teeth and save up
to 2 gallons a minute



WATER-SAVING DEVICE #44

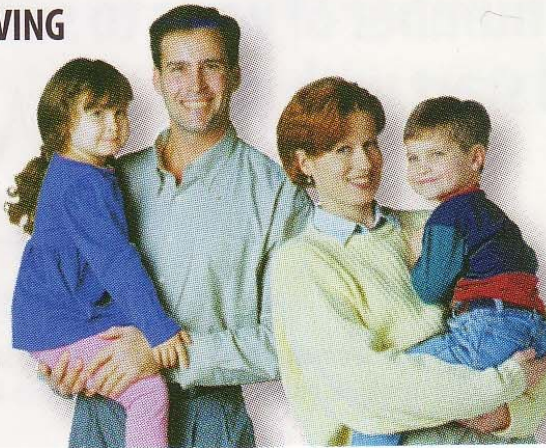
Don't water your lawn on windy days



WATER-SAVING DEVICE #19

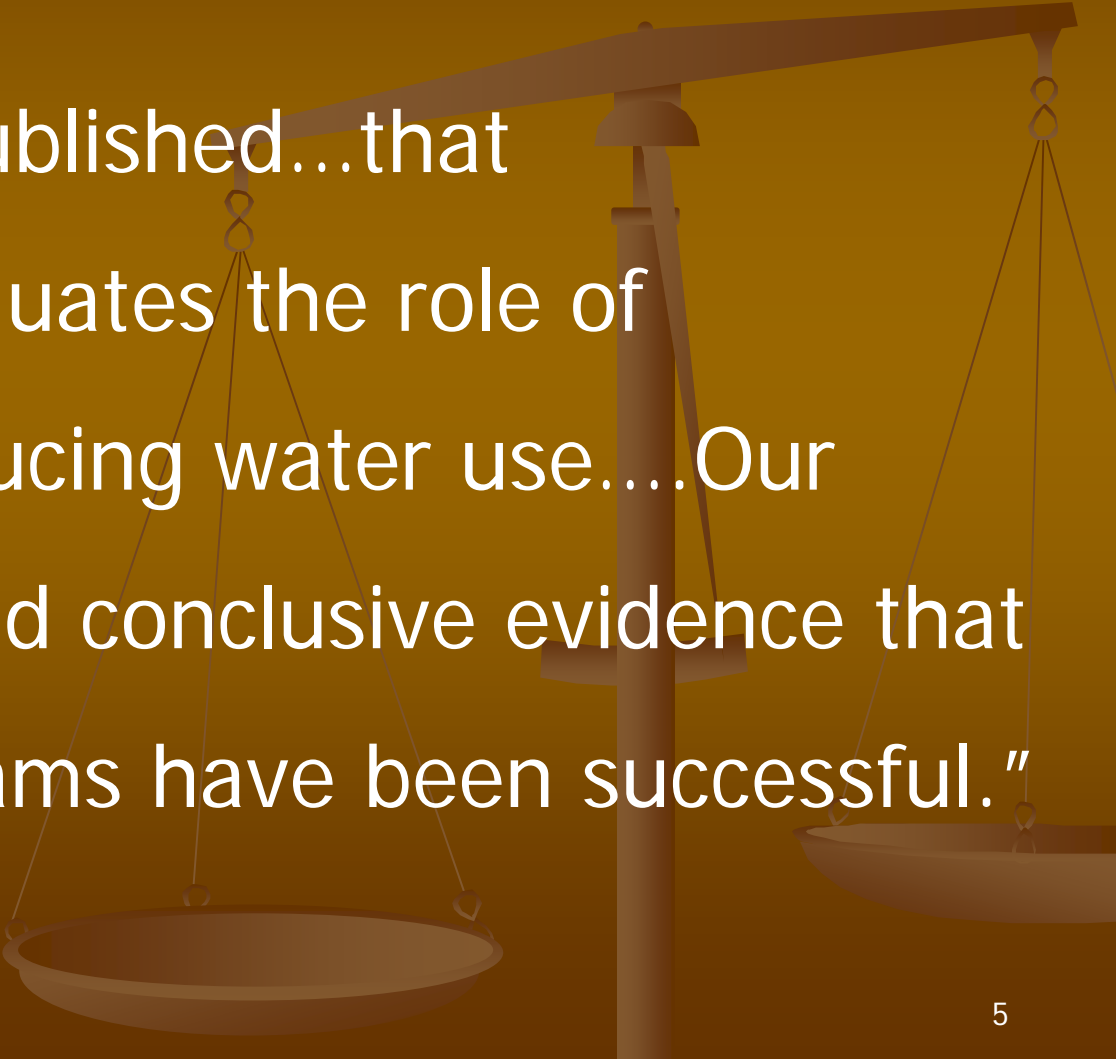
Check outdoor faucets,
sprinklers, and hoses for leaks

WATER-SAVING DEVICE #1



Syme et al. 2000, Eval. Rev.

“Little has been published...that systematically evaluates the role of information in reducing water use....Our review failed to find conclusive evidence that information programs have been successful.”



Randomization

- Region-wide drought (2007). Ongoing disputes among sectors and states.
- Metropolitan Atlanta water utility: implement their targeted, residential information campaign as randomized experiment.
- Three messages (technical info and social norms). 34,800 receive messages and 69,600 assigned to control group.

Motivation

- Professor went to multiple utilities to “sell” design.
- Utilities interested, but wanted someone else to do it (public good) or indicated that effectiveness was not important (reducing regulatory pressure was).
- 1 utility had water efficiency coordinator. Boss only wanted to know that it would not cost \$ and regulators ok with it.

Conclusions

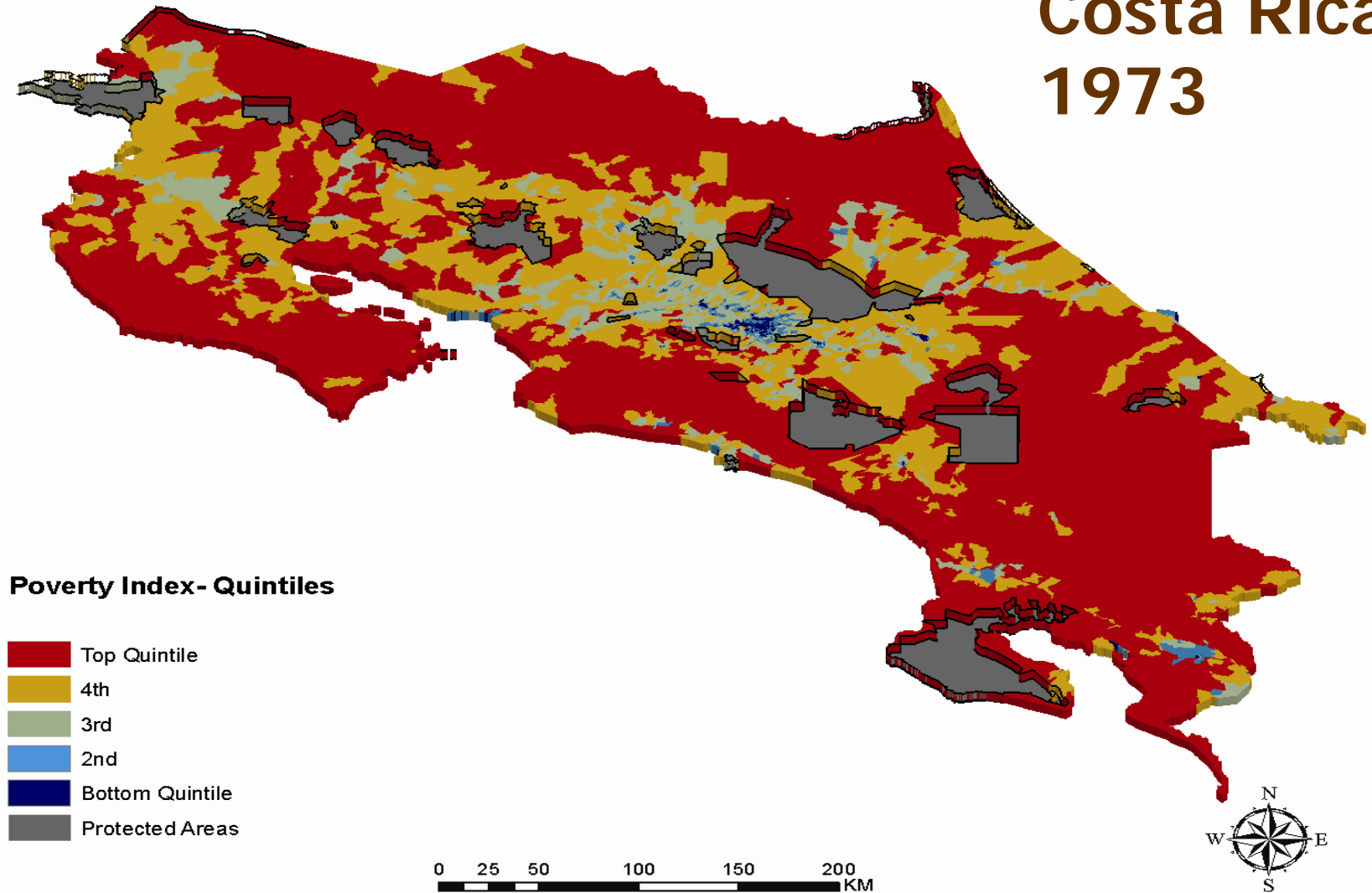
- Water consumption declined in control group.
- Strong social norms most effective (~5% decline in consumption, on average).
- Can evaluate speed of impact and heterogeneity across households.
- Can easily calculate cost-effectiveness (\$/avoided gallon consumed).

Use by utility

- Results easily understood and credible.
- Water consumption reductions w/out price increase causes revenue declines.
- 2009 drought over.
- ~200 calls received from letter recipients.
About half were annoyed or angry about social comparison (<1%).
- Waterwise Council wants to see follow-up.

Regulations & Poverty

Costa Rica
1973



Protected Areas & Social Welfare

- Studies that just look at condition of local people: only tell us status (they're poor). Often qualitative.
- Studies that are ex ante simulations based on historical trends and assumptions.
- Studies that use before-after or near-far comparisons: only valid if no temporal confounders and protection assignment is uncorrelated with outcomes.

Quasi-experimental approach

- Geo-referenced data to control for confounders.
- Secondary data (census, household surveys) to measure poverty.
- Matching methods to identify counterfactual (assume protection uncorrelated with poverty conditional on matching covariates).
- Assess sensitivity of results to unobservable confounders.

Motivation

- Important question of broad interest to many policy makers and practitioners.
- Difficult to answer in the context of a single project or program.
- Difficult to answer in a short time horizon.
- Politically sensitive.
- Demand for evaluation unlikely to come from implementers.

Conclusions

Simple comparison of ex-post outcomes between areas with PAs and areas without PAs imply PAs exacerbate poverty.

Simple before-after comparison for areas with PAs suggests PAs strongly alleviate poverty.

Controlling for confounders: No evidence that PAs exacerbate poverty. On the contrary, estimates imply protection had small, but statistically significant, impact on alleviating poverty.

Use?

Has to be published.

Have to look at heterogeneous treatment effects & dose-response relationships.

Have to look at mechanisms.

Have to look at other nations.

Incentives



Environmental Performance Payments

- Conditional Cash Transfers
- Threats to effectiveness include poor administrative targeting and self-selection by those planning on meeting performance targets anyway.
- Most studies are before-after. A few use simple treated-control comparisons.

Costa Rica Payments for Environmental Services

- World Bank post-project evaluation.
- Counterfactual thinking by collecting data to evaluate rival hypotheses that come from theory: noncompliance, adverse administrative and self-selection.

Costa Rica PSA Program

- Compliance good (but audit rate not clear).
- Little administrative targeting.
- Self-selection: 71% of contracts on land classified as unfit or with strong limitations for agriculture.
- Secondary literature: Recipients less likely to have grown crops in 1996, less likely to live on farm, and more likely to have off-farm income, more education, and larger farms with steeper slopes. Payment competitive with only low-value uses.

Other approaches

- Uganda: randomized experimental design
- Ecuador: Attempt to create exogenous variation in treatment assignment in program scaling-up.
 - poverty eligibility threshold for cantons and within canton geographic criteria.
 - random phase-in
 - random promotion of program.
 - collect relevant data pre-implementation