

Controlling Pollution with Opportunities, not Regulations

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Research Framework

Agricultural non-point pollution (ANP) is proving to be an exceptionally difficult problem to solve:

- Conventional cost-share approaches are expensive and seem to have fallen short of water quality goals.
- Additional regulation of farmers would be politically difficult.
- Water quality trading may provide some relief but it is complex and not widely implemented.

Our Field Experiment

In our experiment we ask:

Does continued water quality improvement require a radical realignment of institutions and roles?

With this question in mind we are testing if farmers located in Cullers Run, WV are willing and able to respond to economic incentives that make water quality and quantity

commodities that farmers can “produce”. This approach raises a number of technical challenges like how high payments should be, how is water quality factored in, and how can payments be estimated to form a budget.

These have been discussed elsewhere (Maille and Collins, forthcoming). The right hand side of this poster presents how we addressed a more fundamental set of challenges, namely, *how can opportunities be created to induce additional water quality improvements?*



Actions and Outcomes

What We Did

Farmers are paid for water flowing from Cullers Run.

Payments are made to participating farmers as a group.

Payments are based on water quantity and quality (nitrate-N) measurements taken at the base of the watershed.

Opportunities Created

Farmers receive limited property rights to water, thereby creating a quasi-private good.

A team approach among watershed farmers towards nitrate-N abatement is created. This contrasts sharply with conventional cost-share where conservation agents work with individual farmers.

Farmers are solely responsible for determining the appropriate nitrate-N abatement actions, rather than being responsible for conforming to provisions of a cost-share contract.

Observed/Anticipated Outcomes

Fifteen households farming about 41% of the agricultural land in the watershed are participating. Farming is strengthened by providing an additional income producing opportunity.

Farmers are recruiting non-participating farmers located in areas suspected of being large discharge sources for nitrate-N. Farmers have developed a payment allocation scheme that provides cash to participating farmers while maintaining a fund to compensate for abatement costs. Local informal institutions and such as moral suasion, land stewardship, and mutual support are brought to bear directly on ANP. Local knowledge is put to use in ANP abatement decisions.

Farmers have requested watershed wide water quality sampling to help them pin point areas for nitrate-N abatement. One farmer has initiated cost-share support for a manure shed as a result of information gained from watershed wide water quality sampling. Allows farmers to consider least-cost abatement practices. Brings to bear all of farmers' abilities as land managers.

Selected Bibliography

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