CEE-M
CENTER FOR ENVIRONMENTAL ECONOMICS - MONTPELLIER

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Innovative agri-environmental incentives: ex-ante and ex-post evaluation with experimental approaches

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Designing and evaluating innovative incentives for more sustainable farming practices

Work program conducted by the research unit CEE-M « Center for Environmental Economics - Montpellier » , axis « Promoting an ecologically-innovative agriculture »

- Coud'Pouce project (APR 2011 Pesticides of the Ecophyto program)
- PENSEE project (ANR) – 2016-2019
- PollDiff project – financed by the ReadyNov of Occitanie Region

Resarch team specialized in:

- *Public economics applied to agriculture and environment*
- *Behavioural economics*
- *Experimental techniques for impact evaluation*

Why do we need innovative incentives?

- **Usual instruments** are conservation contracts ou payments for environmental services: payments compensating the additional costs and income foregone associated with the take-up of a conservation practice

- **Relative inefficiency**: diasppointing cost/environmental benefit ratio of CAP agri-environmental schemes, insufficient enrollment, reversal of practices at he end of the contract period

- ***Rejection*** /mistrust/ discouragement of farmers

- ***Demand by local stakeholders (public and private)*** for better-adapted incentives

A broad range of incentives

Farmers' motivations

Extrinsic motivations
costs/ revenue /risk

Intrinsic motivations
Preferences/social norms

Behavioural biases
Loss aversion, framing, routines

Financial and non financial incentives

- *Result-based contracts*
- *Collective contracts*
- *Agglomeration bonus*
- *Staggered payments*
- *Conditionnal payments*
- *Agro-environmental auctions*
- *Nudges etc…*

Environmental characteristics

Threshold effects

Synergy effects

Spatial coordination

Why do we have to evaluate?

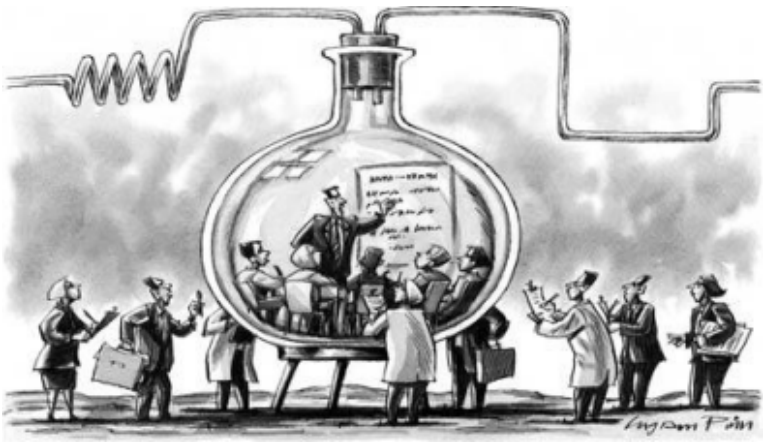
Ex-ante evaluation:

- Measure adequation between proposed incentive and environmental stakes
- Anticipate farmers' responses
- Adjust the measure « design»

Ex-post evaluation / or ex-ante through pilot experiments:

- To measure the net impact of incentive: what can be attributed to the incentive?
- To be accountable
- To communicate
- To adjust and improve

How to evaluate?

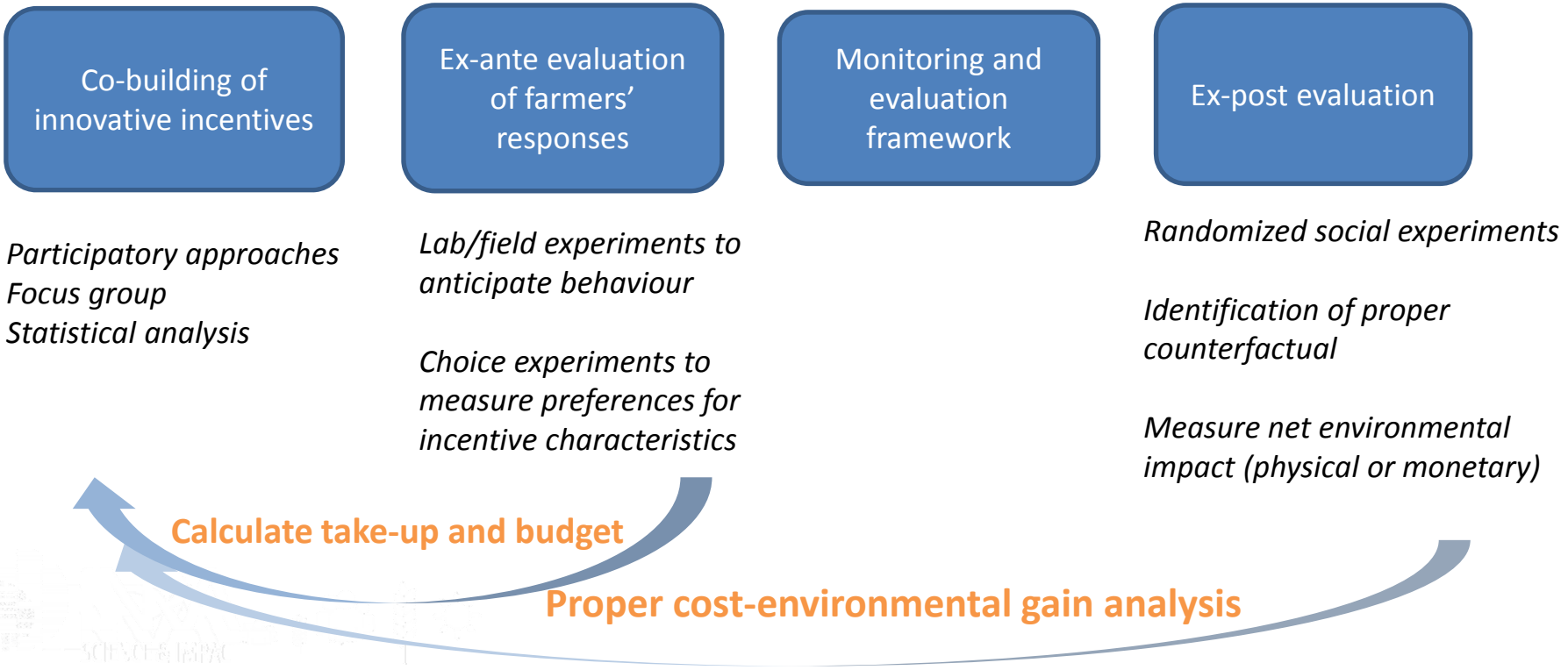


- Incentives which have not been tested yet
- Need to produce data
- Priviledge experimental approaches:
  - Control and reproductibility
  - Build a proper counterfactual: what would have happened WITHOUT the incentive
  - Prove causality between incentive and observed outcome

  - ➢ Hypothetical choice experiment
  - ➢ Lab/field experiments
  - ➢ Randomized controlled trials

Stated preferences versus revealed preferences
Incentivized experiments

Process for designing and evaluating more efficient incentives



First example: Evaluation of a conditional payment for threshold environmental goods

Proposal: package of recommanded practices with a payment conditional on a minimum participation threshold

Question: Can a conditional payment discourage farmers and reduce enrolment (risk of not being paid) or can it be an additional motivation (social norm, greater environmental efficacy…)

2 approaches

Expérimental test in the lab with students and a decontextualized protocol (Le Coent et al., 2014)

Choice experiment with wine growers in Languedoc-Roussillon (Kuhfuss et al., 2014, 2016)

Lab experiments with student

To measure and understand behaviour

LEEM: laboratoire d'économie expérimentale de Montpellier

Field experiments with … farmers

With a decontextualized protocol

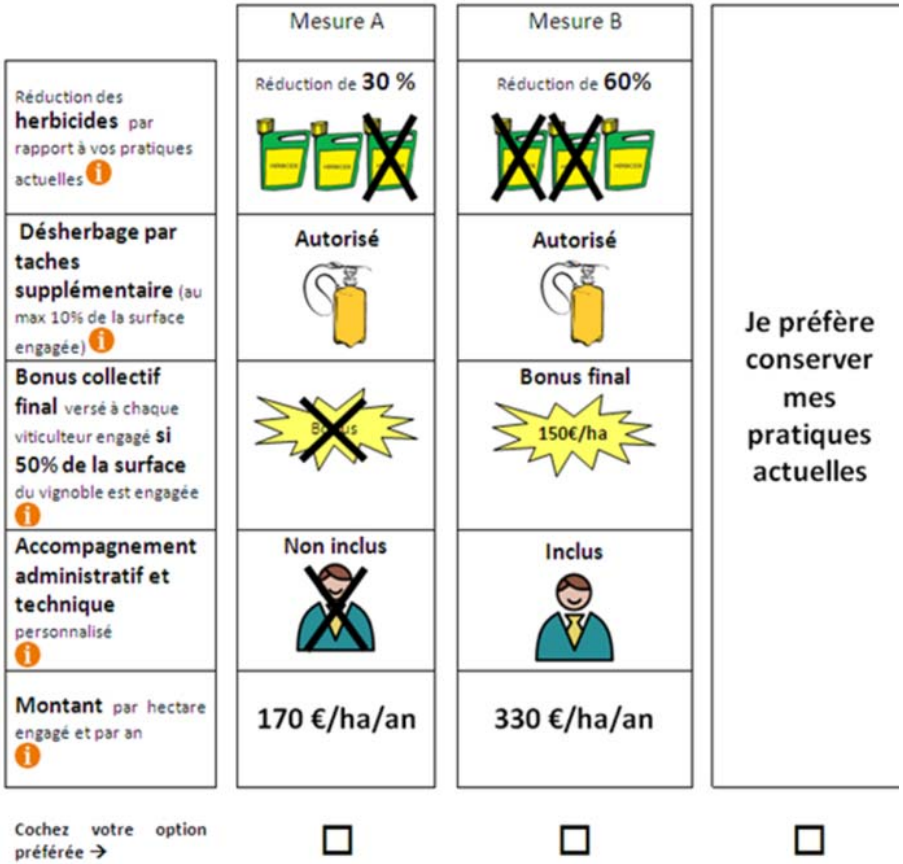
Or within a social experimental setting

Choice experiment with wine-growers

Improve acceptability of proposal by proposing a conditional bonus when more than 50% of wine growers enrol in the agri-environmental contract

Survey with 310 wine-growers

Greater efficiency : the contract with bonus enables to obtain the same enrolled area for a 20% lower budget.



2d example: a randomized experiment on the role of comparative social norm

Findings from literature on conformity in behaviour: indiviuals tend to make the same decision as the majority of their social group

Questions:

- do we observe the same bahaviour amongst farmers?
- If yes, can we « nudge » them by providing them with a (sincere) information of what others do?
- Can this be sufficient to change behaviour in the long term?

Measure it with a randomized controlled trial (based on stated prefernces) but another one has been lauched based on revealed preferences

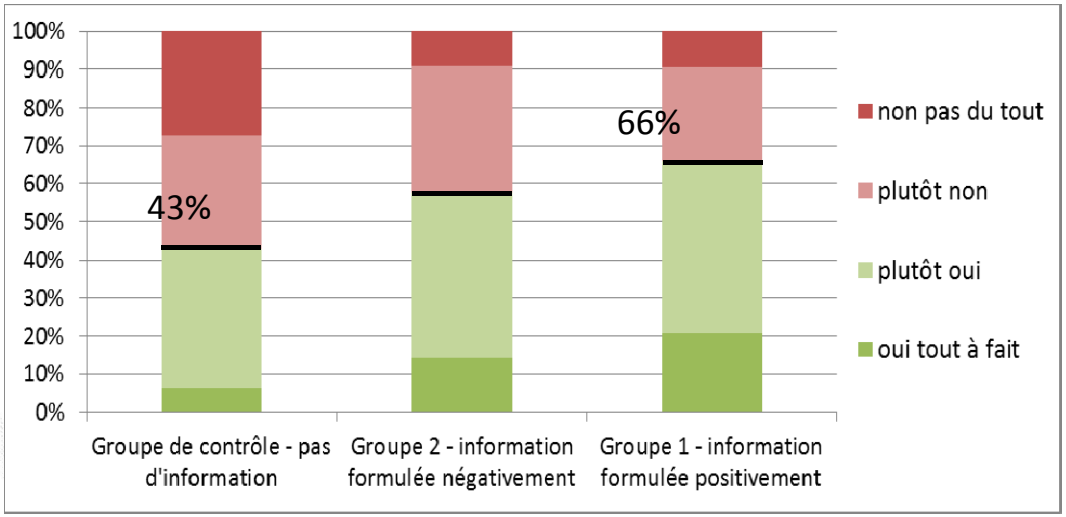
Survey with 395 French farmers having signed an AEM during the 2007-2014 CAP programming period (2013)

Respondants assigned randomly to three groups

- **Control group:** are you intending to maintain your practices after the end of your contract?

- **Group 1: in a previous survey, 80% of farmers have responded that they would maintain their practices even without payments.** Are you intending to maintain your practices after the end of your contract?

- Group 2: **in a previous survey, 20% of farmers have responded that they would not maintain their practices without payments.** Are you intending to maintain your practices after the end of your contract?



Significant increase of farmers responding YES when provided with a posiive information on what their peers intend to do

Links with CEMEB

- Need to measure better the nature of environmental services needed to preserve biodiversity and to find ways of measuring them (data?)
- Need to understand the link between farming practices and environmental/ecological improvments in a spatially-explicit way (for output-based incentives)
- Need to anticipate synergy effects in the case of a multi-environmental services payment
- Need to provide environmental scoring rules for measures such as auctions