EU POLICIES AND SOCIAL SIMULATION

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EU policies - Why simulation

- EU Policy and unexpected results
  - ITQ (individual transferable quotas) Iceland
    - Aim: limiting "race to fish" amongst competing vessels
    - Success: sustainable stuck market
    - Unexpected outcomes:
      - Environment: bycatch, Illegal, Unreported and Unregulated Fishing (IUU)
      - Social: disappearing fishery villages
Question

- **Question:**
  - How does social norm impact individual decisions?
  - How a social norm emerge?

- **Pre-questions:**
  - What is social norm?
  - What is the difference of social norm and behavioral patterns?
What is social norm

- Norm phases
  - Observation
  - Adoption
  - Internalization
  - Disappearing
Social norm vs behavioral pattern

- Behavioral pattern:
  - Quick reaction to environmental changes
  - Observable

- Social norms
  - Might be reactive to environmental changes
  - Not observable
  - Recognizable through communication
Designing a Norm Framework

- Individual values as stable criteria
- Complex agents
Schwartz value model
Value tree

- Abstract
  - Value 1
    - More concrete
      - Behavioral choice
    - Behavioral choice
Personal value framework

- Water tank model for personal values
A sample of value trees

- Job selection
Result of Value Framework

Norm Framework

- Based on individual values
- Norms are shortcuts for values
Norm and values

Decision Manager

Norm 1

Abstract Value 1

More concrete

Behavioral choice

More concrete

Behavioral choice

More concrete

Behavioral choice

More concrete

Behavioral choice

Abstract Value 2

Abstract Value n

More concrete

Behavioral choice

More concrete

Behavioral choice

More concrete

Behavioral choice
Norms in decision making

- The more a normative behavior exist (observed), the higher is the chance of accepting and following it.
- Considering
  - Personal preference
  - Norms of other groups
  - Norms of previous groups
  - Norms of current group
Normative decision formula...

- **X**: probability of following normal action
Simulation

- Start simple: focus on norms around donation
Simulation

- Agent
  - Values and norms
  - Decide donation%

- Groups
  - Difference sizes
donation tree

- Power
- Universalism
- Donate low
- Donate high

Violation effect on
Normative decision

- \(|\text{donation}| = X_{current\ group} \times \text{groupNormativeAmount} + \text{valueBasedProb} \times \text{myValueBasedDonation} + X_{other\ group} \times \text{otherGroupNormProbAmt} + X_{previous\ group} \times \text{prvGrpNormProbAmt}|\)
Normative decision formula...

- $X$: probability of following normal action
Normative decision, sample function

- \( X \): probability of following normal action
- Observation phase:
  - \( X = \frac{0.001}{\text{repetition time}} \)
- Adoption phase:
  - \( X = e^{(\text{repetition time} - 10.32) - 0.00028} \)
- Internalization phase:
  - \( X = 1 - \frac{1}{(\text{repetition time})^{0.5}} \)
- Disappearing phase
  - \( X = \frac{1}{1+0.0078 \times 0.5^{25-\text{not repeated time}}} \)
Results
Results

average donation per group

Tick Count

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310

avg donation%/
Questions

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