Q Methodology and Earth System Governance

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SENSE PhD Summer School
Amsterdam, 24-31 August 2008
Outline

- Background
- Doctoral research
- Q methodology
- Examples of Q
- Current research – ESG
- Application of Q in ESG
Background

- **BSc – Agriculture**
  - Specialisation Agricultural Economics
- **MSc – Integrated Environmental Studies**
- **Work in private sector**
  - NGO/Research Centre – Environmental Management
- **PhD – International Environmental Politics**
Doctoral research

- Effectiveness of International Environmental Regimes
  - The Mediterranean Action Plan / Barcelona Convention
Regime theory

• Debate concerning environmental regime effectiveness

• On one hand – institutional approaches focusing on institutional performance

• On the other – recent attempt to include environmental result as a measurement of effectiveness
‘Epistemic Communities’

• Peter M. Haas (1989, 1990)
  - Highlights the role of knowledge-based ‘epistemic communities’ consisting of specialists responsible for articulating policies and identifying the national interest
  - Focuses on the groups of people who initiate cooperation rather than on which states are the leading actors who start the process
Approach and methodology

- Interdisciplinary approach examining both institutional and environmental effectiveness

- Combination of methods
  - Quantitative: Statistical analysis of environmental data
  - Qualitative: In-depth interviews and analysis of official documents
  - Q methodology, a qualitative-quantitative technique to reveal discourses
Q methodology

- Originated in psychology (Stephenson, 1953)
- Combines qualitative and quantitative research characteristics
  - Qualitative
    - extracts subjective data from the respondents about values and beliefs
    - does not require large population samples in contrast with other survey techniques
  - Quantitative
    - data collection and analysis involve statistical and mathematical techniques
Q methodology steps

1. Identification of the theme or area of study and the population sample
2. Creation of a series of opinion statements on the topic
3. Reduction of the statements to a manageable number
4. Scoring of the statements by the participants according to agreement
5. Statistical analysis
6. Interpretation of the factors extracted by the statistical process so as to present social discourses
Q methodology step 1

- Identification of the theme or area of study and the population sample
  - General theme
  - Specific case study
  - Stakeholder groups
Q methodology step 2

• Creation of a series of opinion statements on the topic
  – Have to be statements actually phrased by the stakeholders
    • Structured or semi-structured interviews
    • Literature such as newspapers, magazines, ethnographic studies, stakeholder conference proceedings
  – Usually number of statements is around or more than 300
Q methodology step 3

- Reduction of the statements to a manageable number
  - 36 statements are sufficient
  - 4 x 4 matrix (Dryzek & Berejikian 1993)

<table>
<thead>
<tr>
<th>Type of Claim</th>
<th>Discourse Element</th>
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<tbody>
<tr>
<td></td>
<td>Ontology</td>
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<tr>
<td>Definitive</td>
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<tr>
<td>Designative</td>
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<td>Evaluative</td>
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<td>Advocative</td>
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Q methodology step 4

- Scoring of the statements by the participants according to agreement
  - Usually 9 or 11 point scale
  - Some encourage a forced quasi-normal distribution
  - Each individual’s scoring is one Q sort
Q methodology step 5

- Statistical analysis
  - Correlation of Q sorts with each other
  - Factor analysis of the inter-correlation matrix
  - Factor rotation
  - Factors extracted are ‘ideal Q sorts’ around which all the closest Q sorts are gathered
Q methodology step 6

- Interpretation of the factors extracted by the statistical process so as to present social discourses
  - The factors – or now discourses – establish patterns within and across individuals, unlike standard survey analysis, which finds patterns across individual traits, such as gender, age, class
Q methodology advantages

- Does not require large population samples in order to produce statistically significant results
  - Only 12 participants responding to as few as 36 statements are enough to provide statistically valid results (Barry & Proops, 1999)
- Limits research bias by using statements which are generated purely by the participants and not imposed by the researcher
Q methodology disadvantages

- Despite the easy statistical procedure, the initial stages of the research design (carrying out interviews, generating and carefully selecting the statements) are very intensive and time consuming.

- The different discourses on the theme revealed through a specific case study, might not be identical to discourses on the same theme while examining a different case.
Examples of Q

• Barry & Proops 1999
• Dryzek & Berejikian 1993
• Frantzi et al. 2007
• Takshe et al. in preparation
Example of Q on effectiveness

• 25 participants
• 44 statements
• 4 discourses
  – International political cooperation
  – Legal implementation & environmental performance
  – Practical versus political effectiveness
  – Governance through participation
Current research – ESG

• ModelGIGS project
• IVM – MNP collaboration
• 2,5 years research endeavour
• The project aims at:
  – Examining the possibility of integrating governance and institutions into more formalised evaluation and forecasting methodologies, such as modelling, computer simulation and scenario development
• Study on existing multi-method approaches to examine governance and institutions
  – Qualitative and Quantitative approaches to measuring effectiveness, including Potsdam/Oslo measurement and database projects
  – Rational choice, game theory
  – Computer simulation and qualitative modelling approaches
Research Questions

• How can effectiveness of international environmental and other related regimes be measured?

• What types of institutional design are likely to increase the effectiveness of international regimes?

• How can these criteria of effectiveness and institutional design be incorporated into computer-based modelling?
Approach

• Our research approach is based on ideas within political science and International Relations that focus on:
  – Problem structure
  &
  – Institutional design

(e.g. Young; Breitmeier, Zurn, Young; Miles et al.; Wettestad)
Understanding Institutional Effectiveness

• Two steps
  – 1\textsuperscript{st} step: Identification of the key features of the issue and the issue-area (problem structure: problem characteristics, politics, actors)
  – 2\textsuperscript{nd} step: Definition of the nature of the institutional arrangements needed to mitigate the problem, or find ways to adapt to its impacts (institutional design: design options)
The challenge

“How do we translate qualitative theoretical knowledge on institutions and governance into quantifiable indicators or variables?”
1. General literature review of problem structure and institutional design

&

2. Research on discourses on institutional effectiveness in a given policy area

3. Proposed institutional design and relevant modelling variables
Project rationale – application

4. *Ex post* evaluation of policy effectiveness

&

5. Model-based *ex ante* evaluation of policy effectiveness
Policy area – Food Security

Food systems

Drivers
- Climate change etc.

Institutions

Practices
- Land use
- Bioenergy
- Trade etc.

Organisations
- FAO
- World Food Programme
- World Bank etc.

Food Security
• Within the framework of the ModelGIGS project we want to investigate discourses on institutional effectiveness in a given policy area – i.e. food security

• Stakeholders from various informal and formal institutions dealing with food security will be involved

• The resulting discourses combined with literature will feed into suggestion of modelling variables for our scenario development
Thank you…