ERF Workshop
"The Socio-Economic Relevance of Research Infrastructures"

Report Parallel Session 1

Keith G Jeffery

The Presentations

- Chair:
  - Stefan Michalowski, OECD Global Science Forum

- Overview of Methodologies
  - *Mickael Pero, Fraunhofer ISI*
- Case Study I: general methodology and Ex-ante evaluation of economic impact at ELI
  - *Franck Brottier/Florian Gliksohn, ELI*
- Case Study II: Ex-post study UK research facilities
  - *Katharine Robertson/Sharon Cosgrave STFC*
- Case Study III: Short-run Regional and Sectoral Demand Effects of RIs – The Case of XFEL
  - *Wilhelm Pfähler, U Hamburg*
- Case Study IV: The work of ex-ante evaluation of economic effects of ESS in Lund, Sweden: Risks associated with 'blackboxing'
  - *Olof Hallonsten, Research Policy Institute Lund*

Major Conclusions

- Overview of Methodologies
  - *Mickael Pero, Fraunhofer ISI*

- RIFI project: FenRIAM as method
- Distinguish output, outcome, impact
  - Science and technology, jobs, quality of life, ecology, project risk
- Methods and Data: Quantitative / Qualitative; Ex Ante / Ex Post
  - Ex Ante Qualitative: scenario; Quantitative: I/O analysis
  - Ex Post Qualitative: networks of influence; Quantitative: econometrics
- Factors to be managed:
  - Level of analysis; causality attribution; counterfactual; mix-methods approach; sample heterogeneity; horizon
  - Clarity of question; time constraints; method application; data availability; specificity of RIs

Major Conclusions

- Case Study I: general methodology and Ex-ante evaluation of economic impact at ELI
  - *Franck Brottier/Florian Gliksohn, ELI*

- CBA required by EC because of use of funds
  - Economic net present value positive.
  - Economic rate of return > socio-economic discount rate
- Components: investment, revenues, operational expenditure, socio-economic benefits, socio-economic costs – each along a time-axis
- For each have indicators (quantitative)
  - Absence of: markets and prices; production vs transfer; value chain : use consensual values and 'willingness to pay'
- CBA not sufficient; need clear strategy on impact delivery

- Case Study II: Ex-post study UK research facilities
  - *Sharon Cosgrave STFC /Katharine Robertson*

- Impact as part of STFC vision: create, demonstrate
  - Goals: World-class research, innovation, skills
  - Matrix of success against delivery capabilities
  - Direct short term, indirect medium term, global/life changing
- Activities
  - SRS study
  - MRI and satellite navigation (ongoing)
  - Collaboration with e2v and Oxford Instruments
  - Short case studies: ICT developments impact
- Map to government priorities for impact

- Case Study III: Short-run Regional and Sectoral Demand Effects of RIs – The Case of XFEL
  - *Wilhelm Pfähler, U Hamburg*

- Problem:
  - Basic research: characteristics lead to market failure so require government funding
  - Government unwilling to take responsibility
  - ➔ need empirical evidence of socio-economic benefit
- Mechanism:
  - Building and operating RIs; Generating Scientific Results; Utilising and Diffusing Results / ex ante, ex post
  - Stakeholders and their demands
    - By commercial sector and geographic range from RI using I/O analysis
    - Unit jobs
  - Assumptions ➔ overestimation of demand effects
- Basic research should not be a job-creation programme

Major Conclusions

- Case Study IV: The work of ex-ante evaluation of economic effects of ESS in Lund, Sweden: Risks associated with 'blackboxing'
  - *Olof Hallonsten, Research Policy Institute Lund*

- Problems
  - No formal decision, countries withdrawn, political project (SE), never scientifically evaluated – reflects European politics
  - Problems with fair return for RI subscriptions
  - Ex ante estimation local impact
    - Consultants: 1.6b€ GRP by 2040; 23,000 more jobs by 2040;
    - Media: for every 1m in 8 or 9m out; 214-302bSEK by 2040
  - Due to 'blackboxing' – no what, how, who
- Unblackboxing
  - Challenges
  - Policy recommendations
- Black box is still there!
  - Overly optimistic, lack of understanding, no deal

Discussion

- Methodological difficulties
  - Application of I/O analysis relevant?
  - ex post easy; ex ante difficult
  - Need analysis of NOT providing RI
- Satisfying the decision-makers
  - Danger in quantitative especially multipliers
  - National policy changes quickly due to changing requirements
  - Justification is for research, not economy – outcomes cannot be predicted
- Ex ante: sell scenarios – attractive
- RIs unique – can give industry an advantage

Final Conclusions

- Ex post easier than ex ante
- Current methods (CBA, I/O) are questionable