

Statistical Challenges to inform action to meet the SDGs

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Motivation

- What challenges are faced in trying to reach the SDGs
 - **Research:** What evidence is needed to take action?
 - **Assessments/Evaluations:** Are specific programs and policies working?
- Focus on **statistical challenges** to obtaining evidence
 - In particular the possible contribution of **modern statistical methods**
- SDGs in relation to the **most vulnerable** mainly in **LDCs**

Basic types of questions

- How many?
 - Needs assessment
- How are things changing through time?
 - Early warning systems
 - Program monitoring
- What works and why does it work?
 - Policy interventions
 - (I)NGO programs
 - Research

Example: Sustainable livelihoods & biodiversity

- Land reform in Zimbabwe
- Poor rural communities living in marginal land rich in wildlife
- Conflict between management of natural resources and livelihoods
- Project: Diversify income from natural resources and improve resilience of ecosystems and livelihoods
- **Monitoring** required
 - for long-term management
 - to assess project effectiveness

Challenge: Complex problems

- Multiple interventions:
 - secure land tenure rights, community management and use of wildlife & natural resources, eco-tourism, boreholes, market gardens
- Multiple outcomes of interest:
 - food security, increased incomes, healthy ecosystems, reduced conflict between humans and wildlife, improved resilience to climatic and socio-economic shocks
- Interactions between different components of the problem
- How do you design the implementation, data collection and analysis strategies?

Challenge: Measurement difficulties

- Complex concepts
 - Resilience, sustainability, governance, corruption, empowerment
 - Can only observe aspects of these concepts
 - Latent variables and processes
- Hidden populations/processes
 - Most vulnerable populations are often the hardest to observe
 - Special sampling and analytical methods required

Challenge: Multiple data sources

- Primary and secondary data required
 - Secondary data collected for other purposes
 - Different spatial and temporal scales
 - Data gaps and populations omitted
 - How do you reconcile the data?
- Big data – increasing use of technology
 - Who/what do these data represent?
 - Vulnerable populations are often excluded from the system
 - Much work to be done before these data can be used

Challenges: Multiple data sources cont'd

- Information sources can include expert and community knowledge
- How do we put all of this information on an equal footing?
- Bayesian Belief Networks and Bayesian decision theory
- Bayesian framework
 - **Elicitation** tools provide mechanism to incorporate local/expert knowledge
- **Graphical statistical models** provide a mechanism for dealing with many of the problems described here

Causality and attribution

- Evidence that an intervention works (and is cost-effective)
 - Experiments/RCTs – e.g. Abdul Latif Jameel Poverty Action Lab
 - (I)NGO project evaluations and impact assessments
- RCTs not always possible
 - Complex large-scale problems
- How do you design studies, data collection and analysis strategies?

Comments

- Challenging problems that may require sophisticated analytical methods
- A demand for “simple” outputs
 - Doesn't mean that the methodology to get the outputs must be simple
- Methodological development includes learning from many different groups in LDCs

Thanks

Bob Burn, David Drew, Ricardo Fuentes-Nieva, Matthew O'Reilly, Lucy Morris, Sébastien le Bel, Roy Carr-Hill & others...