



**HM Revenue
& Customs**

Evaluation Session HMRC Research Conference

Stephen Matthews

Tristan Slinger, Adam Douglas & Stuart Kozam

Objectives

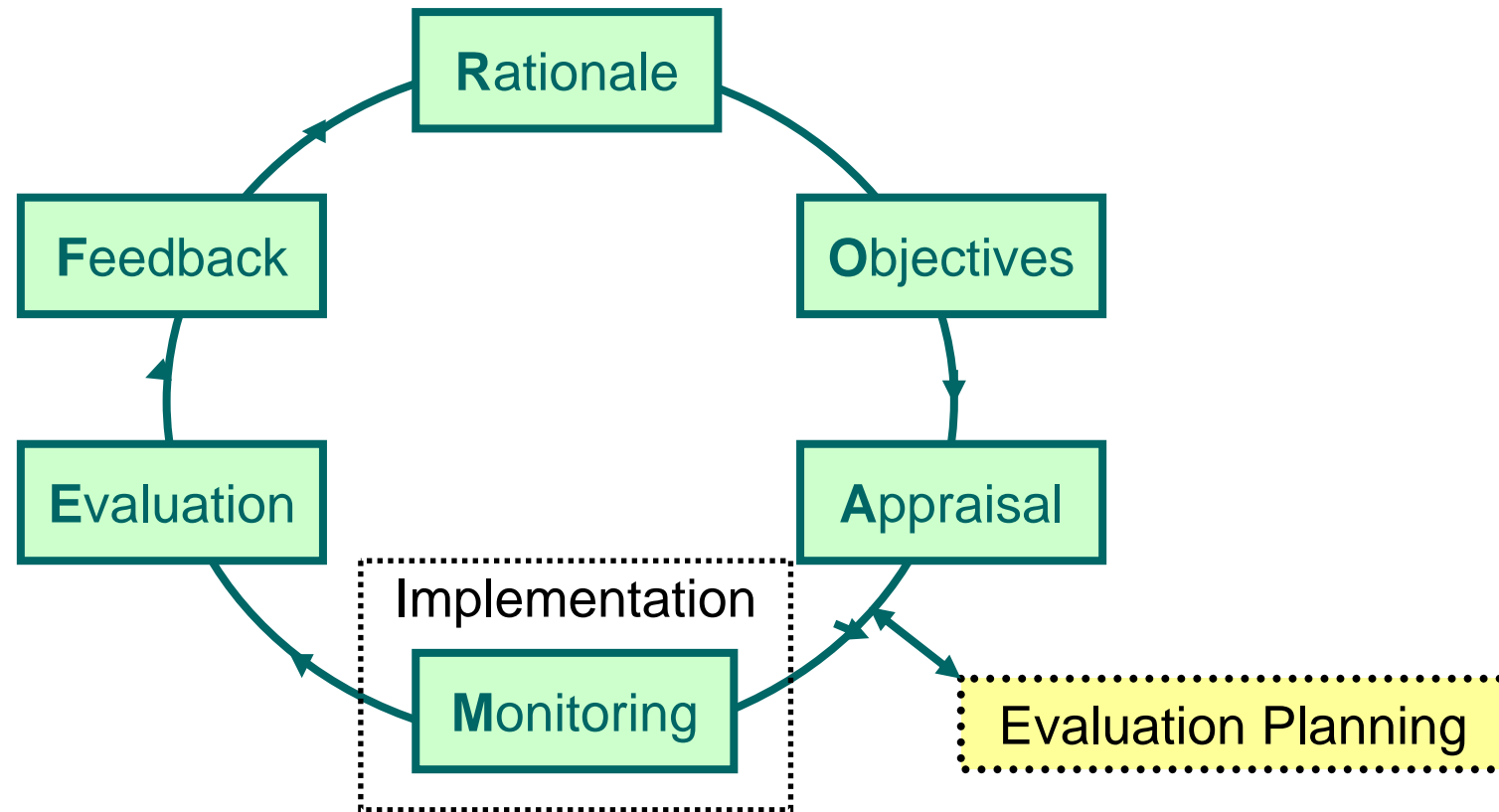
- Explore role of evaluation in HMRC.
- Discuss choice of methodology.

Outline

- Why Evaluate?
- Methodological Issues
- Practical Considerations
- Three HMRC Evaluation Examples
 - Research and Development Tax Credits
 - Enhanced Capital Allowances for Energy-Saving Technology.
 - Climate Change Levy

'Ideal' Process for Evidence Based Policy Making

'ROAMEF Cycle'



Source: Based on HMT's 'The Green Book: Appraisal and Evaluation in Central Government'

Evaluation

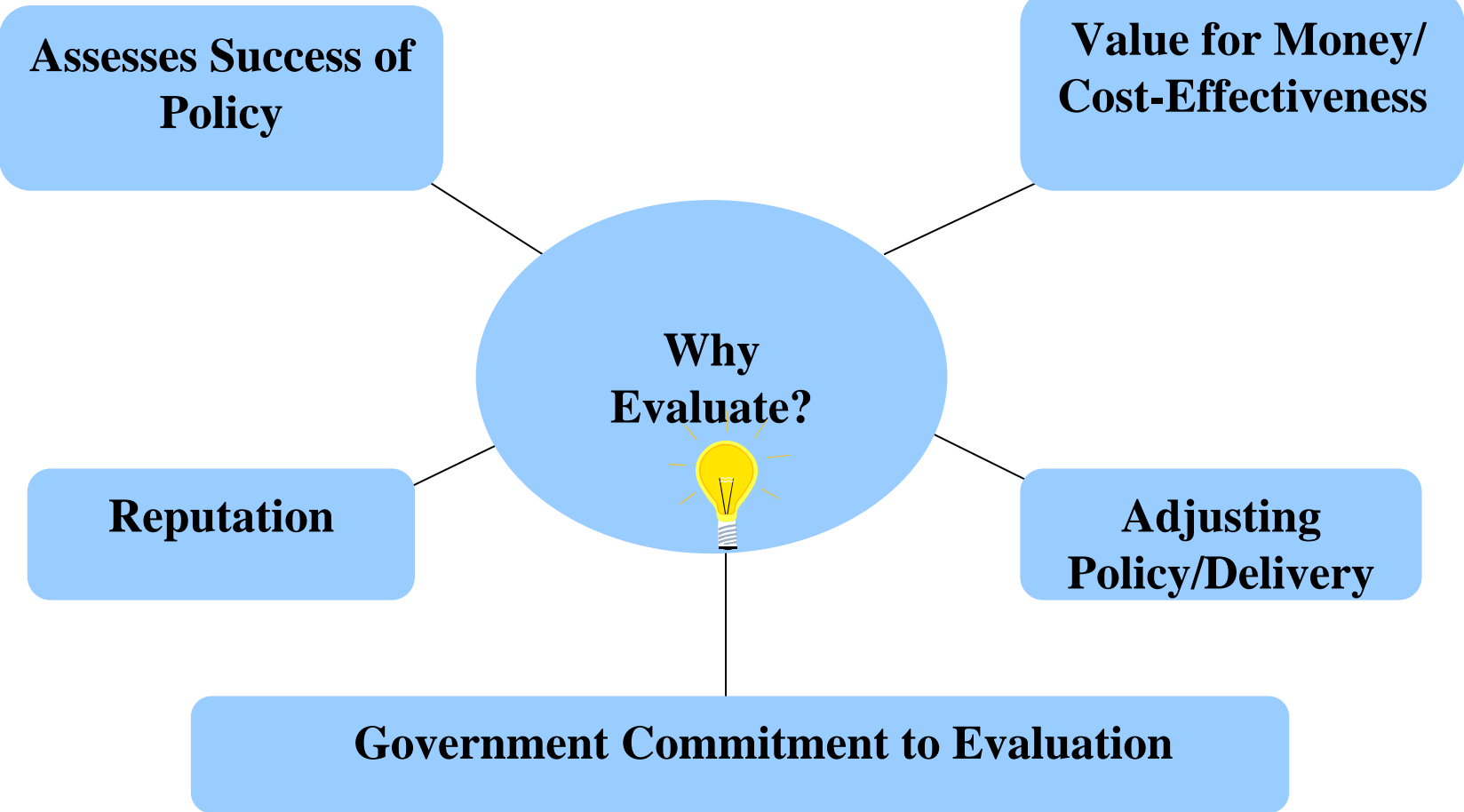
“Assessment of effectiveness of policy in meeting its objectives”:

- What difference did it make? (Impact Evaluation).
- *How* different features of policy contribute to this impact & *why or why* not a policy works. (Process Evaluation)

Monitoring

“The continuous tracking and reporting of inputs and outputs to help ensure that processes are working as intended”

Benefits of Evaluation



Evaluation Design Objectives

- Establish causal links and their strength
- Robust and unbiased results
- Inform value for money assessment
- Proportionate and cost-effective

Methodologies

Impact Methods

- Randomised Controlled Trials (RCTs)
- Matched Comparison Designs
- Matched Area Designs
- Regression Discontinuity Design (RDD)

Econometric/Statistical

- Interrupted Time Series
- Difference-in-Differences (DID)
- ANOVA
- Structural/Econometric Modelling

Process Methods

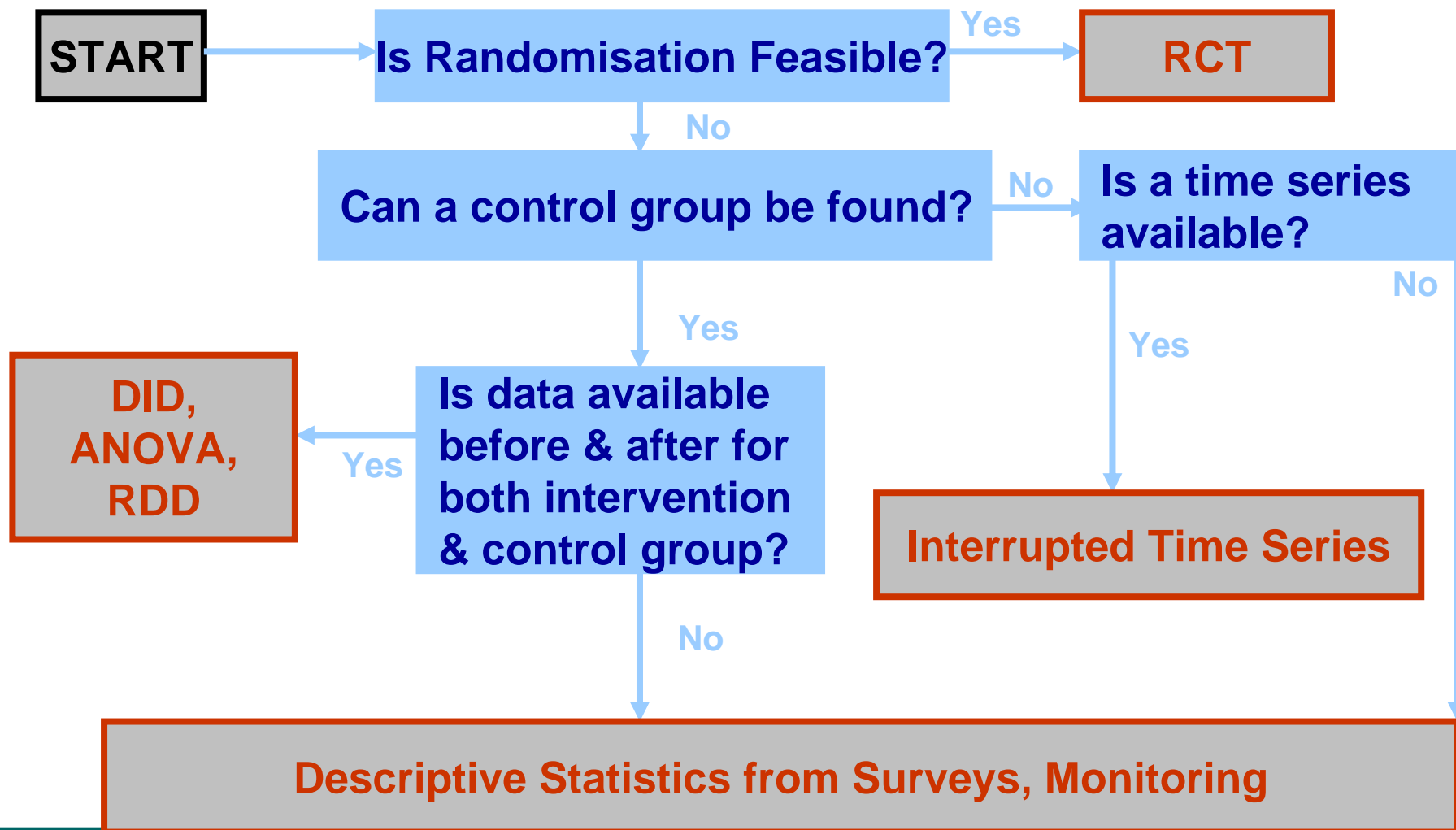
Quantitative Surveys

(Impact too)

Qualitative

- In-depth Interviews
- Focus Groups
- Case Studies

Hierarchy of Impact Evaluation Methodologies



Social Research (Surveys & Qualitative)

- Describes, explains and predicts social and economic structures.
- Finds out about attitudes, values, behaviours and experiences, & factors which motivate and constrain individuals/groups.
- Relevant to both impact and process evaluation (why/why not & how a policy is working)
- Often used in combination with other techniques.
 - Can complement other methods or act as an alternative.

Quantitative Surveys & Qualitative Research

Quantitative Surveys: Structured Questions

- *Pros:* Hard data, representative of study population so can generalise to universe. Complements admin data & fills gaps.
- *Cons:* Often needs large scale surveys to detect impact, relatively high cost, need to take steps to avoid response bias.

Qualitative: Unstructured Discussions

- *Pros:* rich, deep data exploring and understanding beliefs, feelings, priorities and motivations for behaviour. Scope to explore complexity of issues/ interactions.
- *Cons:* Outputs provide no indication of prevalence - not statistically representative

Practical Considerations

- Data
- Counterfactual/ Control Groups
- Timing
- Resources

Three HMRC Evaluation Examples

Research & Development (R&D) Tax Credits

Key question:

What additional R&D spending has been induced by R&D tax credits?

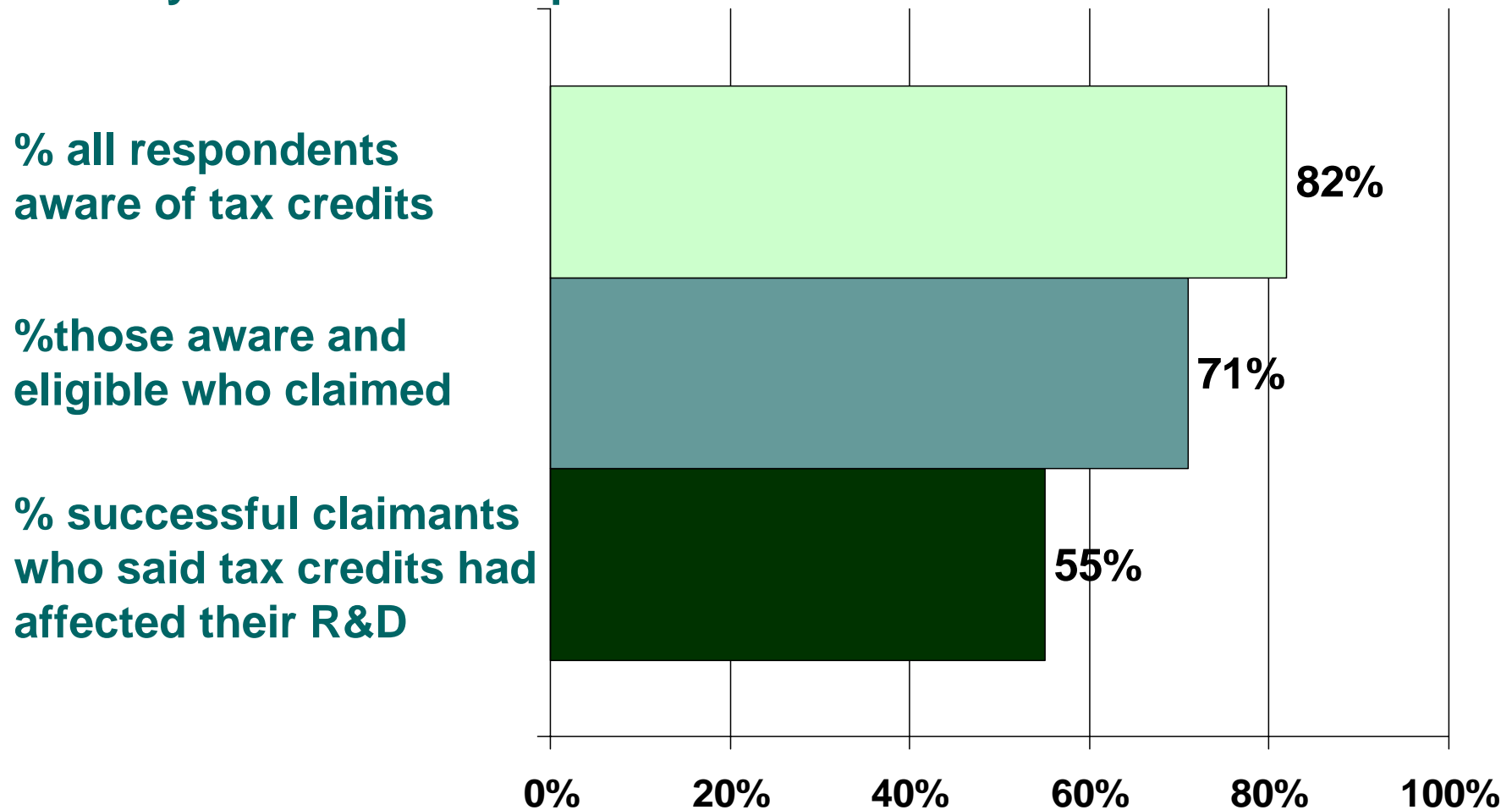
- Econometric study supported by surveys.

Supplementary questions: e.g. how have the tax credits performed?

- Surveys supported by descriptive analysis.

R&D Tax Credits: first evaluation survey

Survey of 968 R&D companies conducted in 2005



R&D Tax Credits: what next?

Still too early for the econometric study

- Not enough data yet for robust econometrics

In the meantime:

- Currently working to improve the data and to explore different methodologies
- A follow-up survey on policy outcomes

Enhanced Capital Allowance (ECAs) for Energy Saving Technology

Objectives

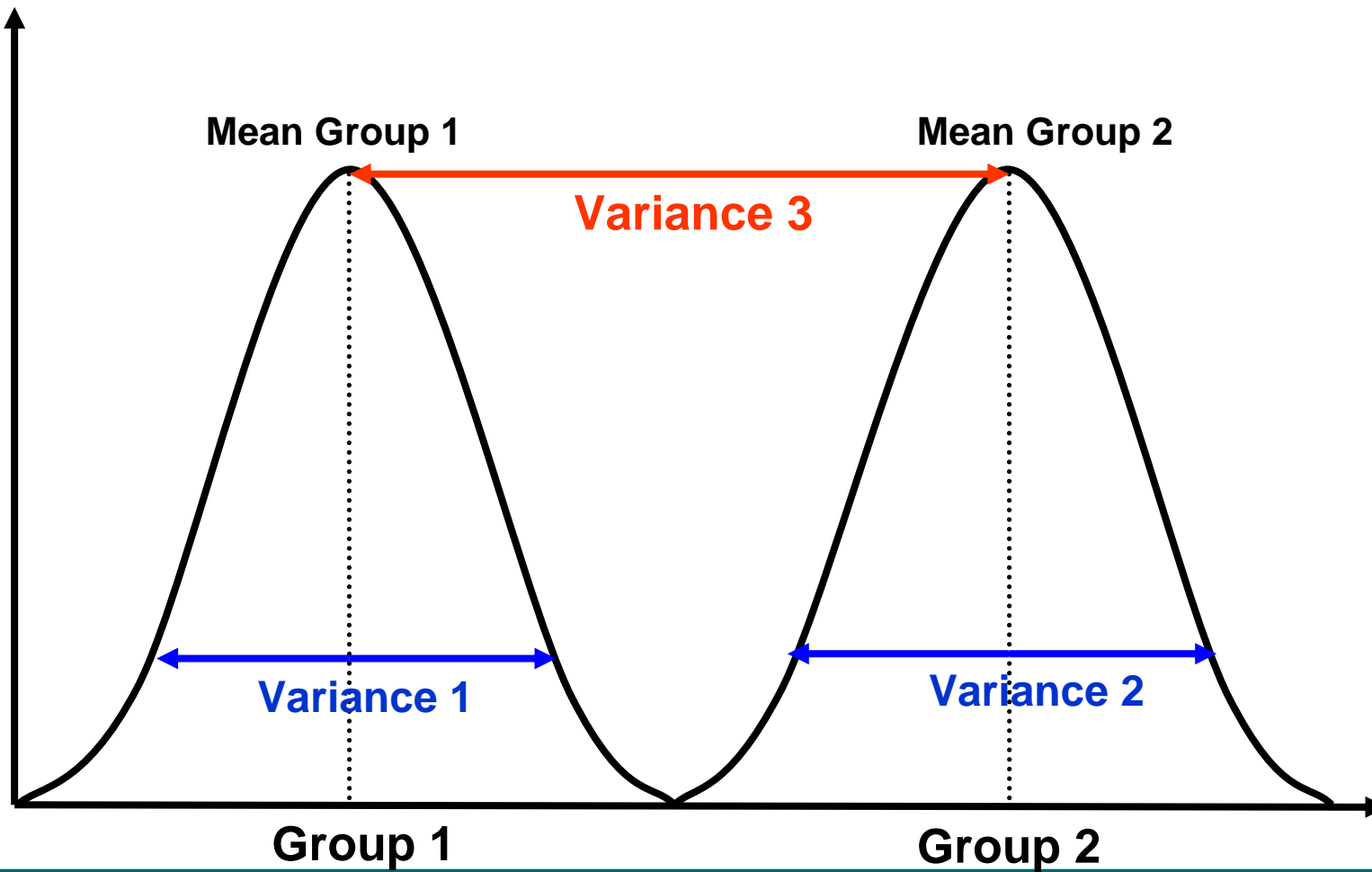
- Do ECAs for energy saving technologies have an impact on companies' decisions to invest in the designated energy saving technology?
- If so, what are the mechanisms that the ECAs work through in influencing business behaviour?

ECAs for Energy Saving Technology

Methodology

- Multi-factor ANOVA used
- Identifies Differences between Groups.
- Main effects and Interaction Effects examined
- Medium/large companies divided into 'Aware' and 'Non-aware' groups.
- Matched on size, turnover, industrial classification, operating surplus, type of equipment.

ANOVA



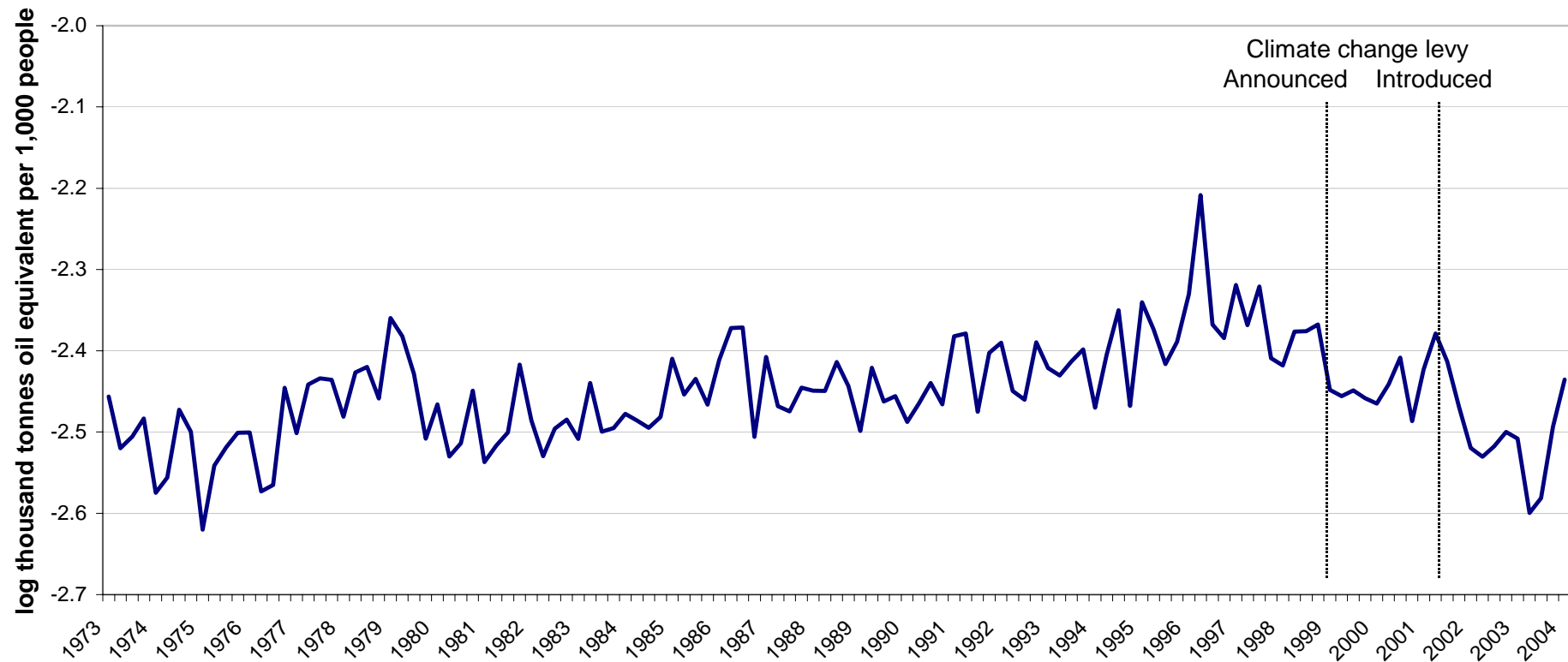
Example 3: Climate Change Levy (CCL)

Objectives

- Evaluate the economic and environmental effects of CCL since its announcement in Budget 1999 and introduction in 2001
 - Investigation of CCL's announcement effect on business energy use
 - Particularly interested in estimating carbon savings brought about by the levy

CCL: Interrupted time series

Commercial and public sector energy consumption



Main findings reported at Budget 2005

- CCL should deliver significant annual emissions savings of over 3.5 million tonnes of carbon by 2010
- Announcement of CCL in Budget 1999 reduced energy demand and emissions in the commercial and public sectors compared with a situation where the levy had never been announced or introduced (policy counterfactual)
- CCL has increased good quality combined heat and power capacity and encouraged renewables because generation from these sources is exempt from the levy.

Conclusion

- Each evaluation has its specific constraints & solutions.
- Importance of evaluation design and planning.
- Increased use of evaluation in recent years, but still early days.