

Impact Evaluation in Firms and Organizations

With Applications in R and Python

Chapter 1: Introduction

1 Introduction

Decision-makers' questions

- How effective is our marketing?
- How to assign training or bonuses best to employees?
- How to optimally price products?

Causes and effects

- Assessing whether or not to implement an intervention
- Focus on whether actions will pay off for business goals such as maximizing sales and retention

Impact evaluation approach

- Assessing the impact of a specific intervention on an outcome
- Use of quantitative, data-based methods
- Empirical analysis of real-world product, customer, and sales data

Predictive methods

- Use of patterns in characteristics or data to make predictions
- Target may be predicting a key performance indicator or outcome of interest
- This may be outcomes such as sales and retention

Role of machine learning for prediction

- Algorithms learn autonomously from data
- Effective when information is sufficiently rich
- Increased use across marketing, finance, and production

Limitations of predictive methods

- Wide success of predictive methods for forecasting
- Risk of using them inappropriately for impact evaluation
- Highly effective at predicting outcomes but predictive methods are not suitable for causal questions
- Cannot identify which intervention is most effective, e.g., which marketing campaign increases sales the most

Need for causal methods

- Impact evaluation requires cause-effect analysis
- Use of methods developed for causal questions
- Still little discussion and few use cases in business

Recent Developments in Impact Evaluation

Transformation of impact evaluation

- Combination with artificial intelligence methods
- Use of machine and deep learning
- Driven by digitization and richer data availability

Growing adoption in practice

- Increasing interest in evidence-based decision support
- Actual use cases and deployment by companies and organizations

Applications and resources

- Methods discussed with applications in R and Python
- User-friendly commands for impact evaluation
- Data and code available via an online repository