

# Introduction to the Econometrics of Policy Evaluation

**Philipp Eisenhauer**

... background material available at  
<https://github.com/policyMetrics/course>

# Policy Evaluation Tasks

## **Heckman (2008) defines three policy evaluation tasks:**

- ▶ Evaluating the impact of historical interventions on outcomes including their impact in terms of well-being of the treated and the society at large.
- ▶ Forecasting the impact of historical interventions implemented in one environment in other environments, including their impact in terms of well-being.
- ▶ Forecasting the impacts of interventions never historically experienced to various environments, including their impact on well-being.

# Policy Evaluation Tasks

## The Econometrics of Policy Evaluation

- ▶ ... is important
- ▶ ... is complicated
- ▶ ... is multifaceted

# Numerous Applications

- ▶ Labor Economics
- ▶ Development Economics
- ▶ Industrial Economics
- ▶ Health Economics

# Numerous Effects

- ▶ (Local) Average Effects
- ▶ Marginal Effects
- ▶ Distributional Effects
- ▶ Effects on Distributions

# Numerous Methods

- ▶ Instrumental Variables
- ▶ Experimental Methods
- ▶ Matching

# Unifying Framework

## Generalized Roy Model

### Potential Outcomes

$$Y_1 = \mu_1(X) + U_1$$

$$Y_0 = \mu_0(X) + U_0$$

### Cost

$$C = \mu_D(Z) + U_C$$

### Observed Outcomes

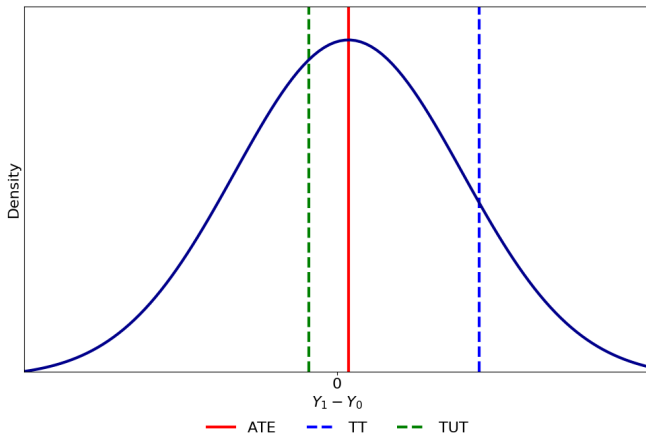
$$Y = DY_1 + (1 - D)Y_0$$

### Choice

$$S = Y_1 - Y_0 - C$$


$$D = I[S > 0]$$

Figure: Treatment Effects with Essential Heterogeneity






# Teaching Tool


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`grmpy` is an open-source Python package for the simulation and estimation of generalized Roy Model (Heckman & Vytlacil, 2005 [\[11\]](#)). It's main purpose is to serve as a teaching tool to promote the conceptual framework provided by the generalized Roy model which allows to illustrate a variety of issues in the econometrics of policy evaluation.

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# Lecture Plan

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Date	Topic
19/10/17	Generalized Roy Model
26/10/17	Parameters of Interest
02/11/17	Estimation Methods
09/11/17	<i>grmpy</i> Tutorial
16/11/17	Monte-Carlo Explorations
23/11/17	
30/11/17	

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# The Mirless Review

*The Mirrlees Review brought together a high-profile group of international experts and early career researchers to identify the characteristics of a good tax system for any open developed economy in the 21st century, assess the extent to which the UK tax system conforms to these ideals, and recommend how it might realistically be reformed in that direction.*

# Distributional Effects of Treatment

Figure: The Mirless Review 1

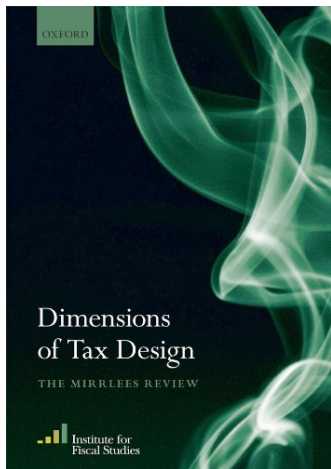


Figure: The Mirless Review 2



# Key Findings

## ► **Taxation of Earnings**

- A single integrated benefit should be introduced to replace all or most of the current multiplicity of benefits, rationalising the way in which total support varies with income and other characteristics.

## ► **Indirect Taxes**

- VAT should be extended to nearly all spending. This would reduce complexity and avoid costly distortions to consumption choices.

# Key Findings

## ▶ **Environmental Taxes**

- ▶ We should work towards a comprehensive system of congestion charging on the roads, replacing most of fuel duty.

## ▶ **Taxes on Saving**

- ▶ The risk-free return to saving should not be taxed, so that saving is not discouraged.

## ▶ **Business Taxes**

- ▶ The tax treatment of employment, self-employment and corporate source income should be aligned.

## *References*

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