

# $E$ conometrics of $P$ olicy $E$ valuation

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# Introduction to the Econometrics of Policy Evaluation

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## **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:**

- ▶ Conventional Average Effects
- ▶ Policy-relevant Average Effects
- ▶ Marginal Effects
- ▶ Distributional Effects
- ▶ Effects on Distributions

## **Numerous Estimation Strategies:**

- ▶ Instrumental Variables
- ▶ (Quasi-)Experimental Methods
- ▶ Matching

## Generalized Roy Model as Unifying Framework

### 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

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

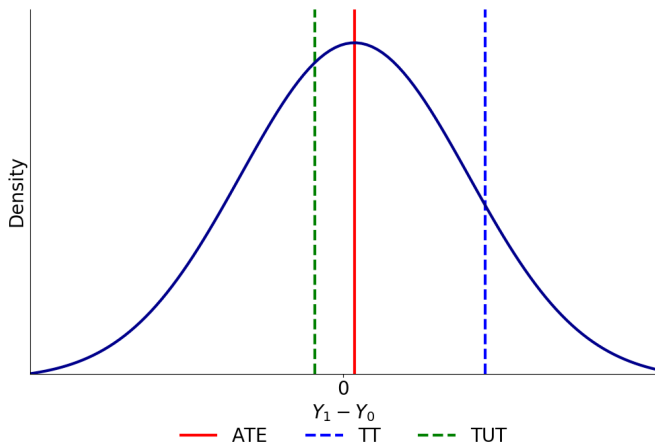
### Choice

$$S = Y_1 - Y_0 - C$$


$$D = \mathbb{I}[S > 0]$$



Figure: Treatment Effects





# Teaching Tool

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`grmpy` is an open-source Python package for the simulation and estimation of generalized Roy Model (Heckman & Vytlačil, 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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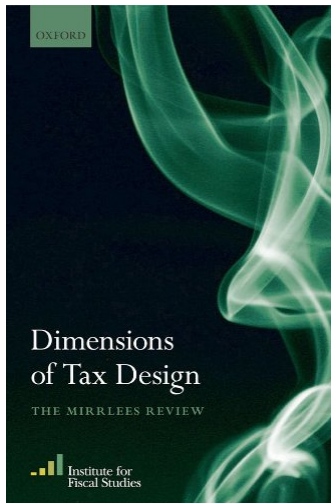
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## **The Mirrlees Review**

*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.*

Figure: The Mirrlees Review



## ► **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.

## ▶ **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.

# **Appendix**

# *References*



- Adam, S., Besley, T., Blundell, R., Bond, S., Chote, R., Gammie, M., . . . Poterba, J. (2010). *Dimensions of tax design: The mirrlees review* (O. U. Press, Ed.). Institute for Fiscal Studies (ifs).
- Cho, S., & Rust, J. (2010). The flat rental puzzle. *Review of Economic Studies*, 77(2), 560–594.
- Finkelstein, A., Taubman, S., Wright, B., Bernstein, M., Gruber, J., Newhouse, J., . . . Group, O. H. S. (2012). The Oregon health insurance experiment: Evidence from the first year. *The Quarterly Journal of Economics*, 127(3), 1057-1106. Retrieved from

<http://dx.doi.org/10.1093/qje/qjs020>      doi:  
doi: 10.1093/qje/qjs020

- Gordon, R. (2011). Commentary on tax by design: The Mirrlees Review. *Fiscal Studies*, 32(3), 395-414.
- Heckman, J. J., Moon, S. H., Pinto, R., Savelyev, P., & Yavitz, A. (2010). The rate of return of the High-Scope Perry Preschool Program. *Journal of Public Economics*, 94(1), 114–128.
- Mirrlees, J., Adam, S., Besley, T., Bond, S., Chote, R., Gammie, M., ... Poterba, J. (2011). *Tax by design* (O. U. Press, Ed.). Institute for Fiscal Studies (ifs) and Mirrlees, J.

Todd, P. E., & Wolpin, K. I. (2006). Assessing the impact of a school subsidy program in Mexico: Using a social experiment to validate a dynamic behavioral model of child schooling and fertility. *American Economic Review*, 96(5), 1384–1417.