

# **OpenSourceEconomics**

Learn, build, share, repeat

October 25, 2019

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Github

## **Computational modeling in economics**

- ▶ provide learning opportunities
- ▶ assess importance of competing mechanisms
- ▶ predict the effects of public policies

## **Development**

- ▶ economic model
- ▶ mathematical formulation
- ▶ computational implementation

## **Application**

- ▶ verification
- ▶ calibration
- ▶ validation
- ▶ uncertainty quantification

# OpenSourceEconomics

*We are a group of economists using computational models in the pursuit of our research. By adopting sound software engineering practices, we hope to leverage tools from computational science and increase the transparency and extensibility of our implementations. In doing so, we expand the set of possible economic questions that we can address and improve the quality of our answers.*

 **OpenSourceEconomics**

Learn, build, share, repeat.

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Pinned repositories

 <b>respy</b> Python package for the simulation and estimation of a prototypical finite-horizon dynamic discrete choice model  ● Python ★ 15 ⚡ 11 ● Jupyter Notebook ★ 10 ⚡ 6	 <b>gmipy</b> Python package for the simulation and estimation of generalised Roy model  ● Jupyter Notebook ★ 10 ⚡ 6	 <b>career_decisions_data</b> Dataset for the seminal paper on dynamic human capital investment by Keane & Wolpin (1997)  ● Jupyter Notebook ★ 1 ⚡ 1
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**respy**  
Python package for the simulation and estimation of a prototypical finite-horizon dynamic discrete choice model  
  
economics software-engineering structural-microeconomics  
  
● Python MIT ⚡ 11 ★ 15 ● 39 ⚡ 1 Updated 15 minutes ago

**ruspy**  
Python package for the replication of John Rust's 1987 paper on the optimal replacement of GMC bus engines  
  
● Jupyter Notebook MIT ⚡ 1 ★ 9 ● 2 ⚡ 0 Updated 3 hours ago

**norpyp**  
Python package for the analysis of human capital investment decisions using Norwegian population panel data  
  
● Python ⚡ 1 ★ 1 ● 7 ⚡ 1 Updated 2 days ago

**soepy**

Top languages

- Jupyter Notebook ● Python
- Scheme ● TeX ● Fortran

Most used topics

Manage

- software-engineering
- behavioral-economics
- economics risk-preferences
- time-preferences

People 19 >



## **Members**

- ▶ Professors
- ▶ Postdoctoral researchers
- ▶ PhD students
- ▶ Master students
- ▶ Bachelor students

## **Models**

- ▶ respy
- ▶ soepy
- ▶ ruspy
- ▶ grmpy

## **Infrastructure**

- ▶ estimagic
- ▶ ose\_utils
- ▶ datasets

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# Welcome to respy's documentation!

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respy is an open-source Python package for the simulation and estimation of a prototypical finite-horizon discrete choice dynamic programming model. We build on the baseline model presented in:

Keane, M. P. and Wolpin, K. I. (1994). *The Solution and Estimation of Discrete Choice Dynamic Programming Models by Simulation and Interpolation: Monte Carlo Evidence*. *The Review of Economics and Statistics*, 76(4): 648-672.

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estimagic  
latest

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Repos - Das Data Warehouse für Postgres User. Beginne jetzt mit der Analyse deiner Daten!

Sponsored - Ads served ethically

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# Welcome to estimagic's documentation!

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## **Development**

- ▶ GitHub organization
- ▶ Gitflow workflow
- ▶ code reviews
- ▶ testing harness
- ▶ continuous integration

## **Support**

- ▶ team meeting
- ▶ chatroom
- ▶ courses
- ▶ hackathons
- ▶ quality guide

## **Events**

- ▶ conferences
- ▶ retreat

## Figure: Impressions



PASC



Retreat

# Cooperations

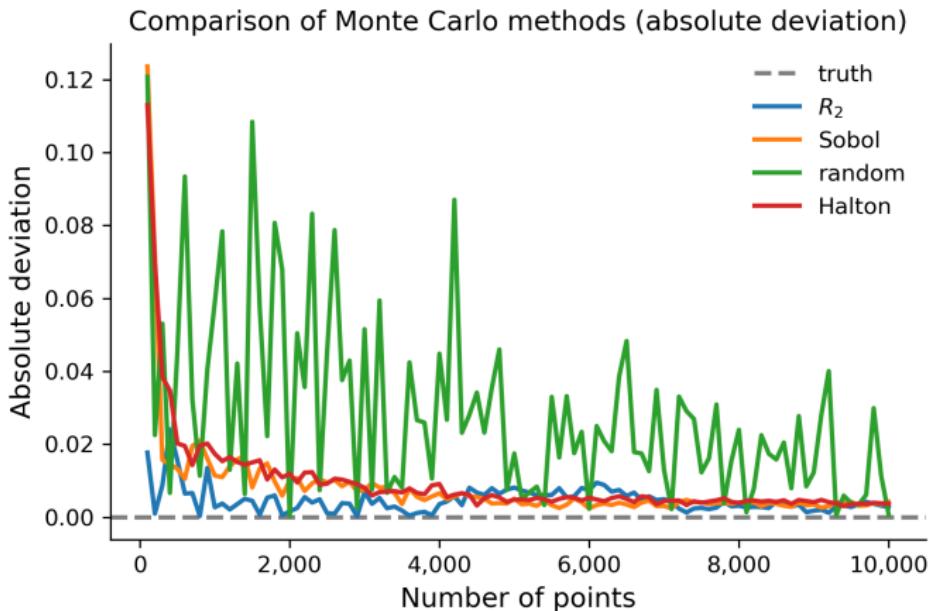


Institute for  
Numerical Simulation



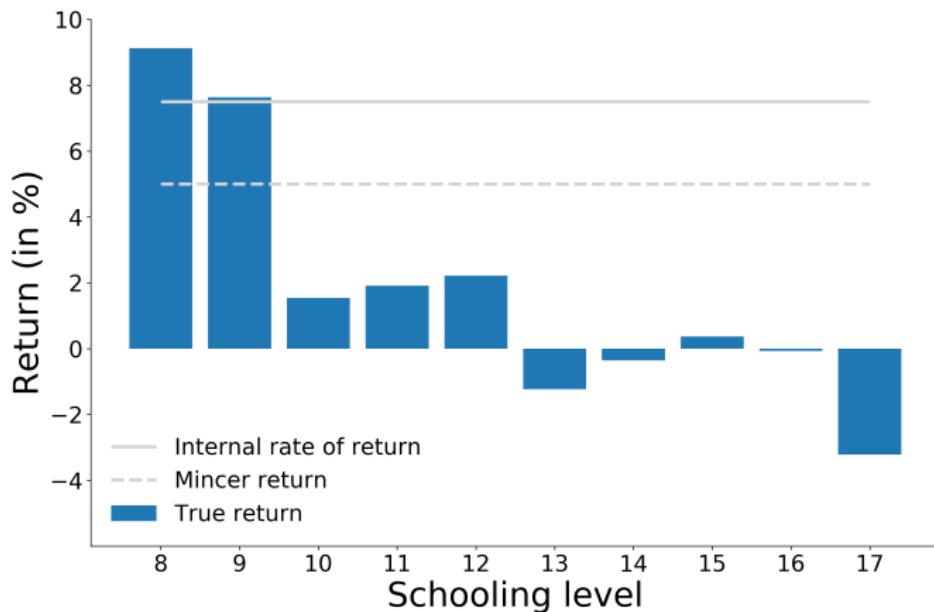
# **Example projects**

# Advanced numerical integration



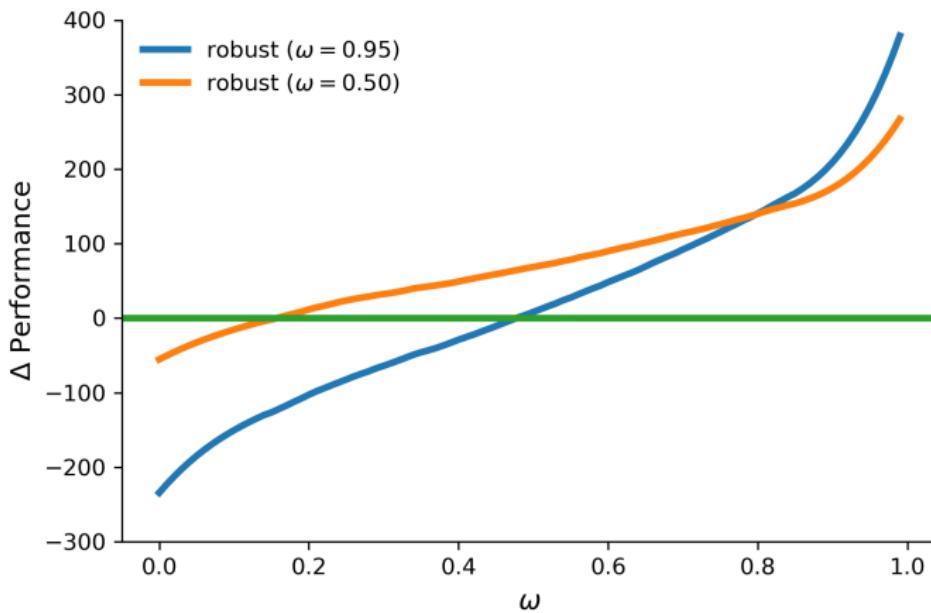
**Notes:** Figure from Eisenhauer & Suchy (2019)

# Option value of schooling



**Notes:** Figure from Bhuller & Eisenhauer & Mendel (2019)

# Robust decision making



**Notes:** Figure from Blesch & Eisenhauer (2019)

## **Join us!**

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Hackathon    <http://bit.ly/ose-hackathon>

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