

# Structural behavioral economics

Working group

October 7, 2019

Visit us on



GitHub

# Motivation

## General setup

- ▶ joint discussion of selected topic (45 - 60 minutes)
  - ▶ scientific computing
  - ▶ research article
  - ▶ research project
- ▶ student contributions
  - ▶ presentation (20 minutes, up to 10 slides)
  - ▶ lightning talks (5 minutes, no slides)

- ▶ Wednesday, noon
  - ▶ deadline for student contributions
  - ▶ announcement of selected topic
  - ▶ selection of student presentation
- ▶ Monday, lecture
  - ▶ joint discussion
  - ▶ student presentation (peer-grading)
  - ▶ lightning talks

## Figure: Signup process

topics-course-reading-group-signup ☆

File Edit View Insert Format Data Tools Add-ons Help Last edit was yesterday at 9:10 AM

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Reading Group			
joint discussion	student presentation	lightning talk	
Name	Week	Date	Article
Philipp Eisenhauer	1	07. October	Introduction
	2	14. October	Structural behavioral economics
	3	21. October	
	4	28. October	
	5	4. November	
	6	11. November	
	7	18. November	
	8	25. November	
	9	2. December	
	10	9. December	
	11	16. December	
	12	23. December	
	13	6. January	
	14	13. January	
	15	20. Januar	

+ Tabell1 Sheet2 Explore

## Tooling



## 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.

📍 Bonn, Germany

✉️ [OpenSourceEconomics@policy-lab.org](mailto:OpenSourceEconomics@policy-lab.org)

📁 Repositories 20

👤 People 19

📁 Teams 0

⚙️ Settings

## Pinned repositories

Customize pinned repositories



respy

Python package for the simulation and estimation of a prototypical finite-horizon dynamic discrete choice model

Python ★ 15 🗓️ 11



gmpy

Python package for the simulation and estimation of generalized Roy model

Jupyter Notebook ★ 10 🗓️ 6



career\_decisions\_data

Dataset for the seminal paper on dynamic human capital investment by Keane & Wolpin (1997)

Jupyter Notebook ★ 1

Find a repository...

Type: All

Language: All

New

## 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 ★ 0 2 0 Updated 3 hours ago



## norpy

Python package for the analysis of human capital investment decisions using Norwegian population panel data.

Python 🗓️ 1 ★ 1 7 1 Updated 2 days ago



## soedpy



## Top languages

Jupyter Notebook Python  
Scheme TeX Fortran

## Most used topics

Manage

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

## People

19 >





## Communication

Slack     <http://bit.ly/human-capital-slack>  
<http://bit.ly/ose-slack>

GitHub   <http://bit.ly/human-capital-github>  
<http://bit.ly/ose-github>

## Figure: Communications

The screenshot displays a Slack workspace named 'HumanCapital...' with a sidebar on the left containing a list of channels. The main area shows the '#structural-behavioral-economics' channel, which was created on February 20th. The channel description states: 'You created this channel on February 20th. This is the very beginning of the #structural-behavioral-economics channel. Description: course on structural behavioral economics (edit)'. Below the description, a message history is shown, starting with a Wednesday, February 20th header. The first message is from Philipp Eisenhauer at 5:43 AM, stating 'joined #structural-behavioral-economics.' The second message is also from Philipp Eisenhauer at 5:43 AM, stating 'set the channel description: course on structural behavioral economics'. The third message is from Valerie Stottuth at 5:48 AM, stating 'was added to #structural-behavioral-economics by Philipp Eisenhauer. Also, Rafael Suchy joined.' A 'Yesterday' header follows. The first message of the day is from Philipp Eisenhauer at 8:24 AM, stating 'renamed the channel from "structural\_behavioral" to "structural-behavioral-economics"'. The second message is also from Philipp Eisenhauer at 8:24 AM, stating 'renamed the channel from "structural-behavioral-economics" to "structural-behavioral-economics"'. The right sidebar shows 'About this channel' with options for Channel Details, Highlights, Pinned Items, and 3 Members (Philipp Eisenhauer (you), Rafael Suchy, and Valerie Stottuth). At the bottom, there is a search bar and a message input field with the placeholder text 'Message #structural-behavioral-economics'.

HumanCapital... Philipp Eisenhauer

Channels

- # general
- # labor-economics
- # microeconomics
- # policy-evaluation
- # research-module
- # structural-behavioral-ec...

+ Add a channel

Direct Messages

- Slackbot
- Philipp Eisenhauer (you)
- Adelina
- America Gehlen
- Daniel Lika
- Florian Schoner
- Linda M
- Mila
- Simone Jos-Mussel
- Tim Mensinger
- Valentin Lorenz Stumpe

+ Invite people

Apps

- + Install Google Drive
- + Add apps

#structural-behavioral-economics

12 | 13 | 14 | 15 | Add a topic

Search

About this channel

- Channel Details
- Highlights
- Pinned Items
- 3 Members

Philipp Eisenhauer (you)

Rafael Suchy

Valerie Stottuth

Add People

Apps

Shared Files

Notification Preferences

#structural-behavioral-economics

You created this channel on February 20th. This is the very beginning of the #structural-behavioral-economics channel. Description: course on structural behavioral economics (edit)

+ Add an app + Add people to this channel

Wednesday, February 20th

Philipp Eisenhauer 5:43 AM

joined #structural-behavioral-economics.

Philipp Eisenhauer 5:43 AM

set the channel description: course on structural behavioral economics

Valerie Stottuth 5:48 AM

was added to #structural-behavioral-economics by Philipp Eisenhauer. Also, Rafael Suchy joined.

Yesterday

Philipp Eisenhauer 8:24 AM

renamed the channel from "structural\_behavioral" to "structural-behavioral-economics"

Philipp Eisenhauer 8:24 AM

renamed the channel from "structural-behavioral-economics" to "structural-behavioral-economics"

Message #structural-behavioral-economics

## Neoclassical baseline

- ▶ Keane, M. P., & Wolpin, K. I. (1997). The career decisions of young men. *Journal of Political Economy*, 105(3), 473–522.
- ▶ respy. (2018). *respy: An open-source package for the simulation and estimation of a canonical model of human capital investment*. Retrieved from <http://doi.org/10.5281/zenodo.595547>

## Figure: Code documentation

respy 1.2.1 documentation »

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Search

Enter search terms or a module, class or function name.

Welcome to respy's documentation!

[PyPI](#) | [GitHub](#) | [Issues](#) | [Pull Requests](#)

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.

license [MIT](#)

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- [Economics](#)
  - [The Economic Model](#)
  - [Solution and Estimation](#)
- [Software](#)
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  - [Numerical Methods](#)
  - [Reliability](#)
  - [Scalability](#)
  - [Software Engineering](#)
- [Development](#)
  - [Docker](#)

## **Behavioral structural econometrics**

- ▶ DellaVigna, S. (2018). Structural behavioral economics. In D. Bernheim, S. DellaVigna, & D. Laibson (Eds.), *Handbook of behavioral economics*. Elsevier.

# **Student project**

# Conclusion

# **Appendix**



- DellaVigna, S. (2018). Structural behavioral economics. In D. Bernheim, S. DellaVigna, & D. Laibson (Eds.), *Handbook of behavioral economics*. Elsevier.
- Keane, M. P., & Wolpin, K. I. (1997). The career decisions of young men. *Journal of Political Economy*, 105(3), 473–522.
- Keshav, S. (2016). *How to read a paper*. Retrieved from <http://blizzard.cs.uwaterloo.ca/keshav/home/Papers/data/07/paper-reading.pdf>
- Purugganan, M., & Hewitt, J. (2004). *How to read a scientific article*. Retrieved from <http://www.owl.net.rice.edu/~cainproj/courses/HowToReadSciArticle.pdf>

respy. (2018). *respy: An open-source package for the simulation and estimation of a canonical model of human capital investment*. Retrieved from <http://doi.org/10.5281/zenodo.595547>

University Libraries, University of Colorado Boulder. (2018). *Strategy: Notetaking & Reading*. Retrieved from <http://libguides.colorado.edu/c.php?g=622592&p=4336669>