Open sourcing the economics of open source: A comprehensive literature review*

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2025-03-25

Abstract

Open source software (OSS) is powering much of our digital infrastructure. From hosting websites, to working with databases and advancement of Machine Learning models. Recently, OSS has received increased attention from the economic discipline. Some work is motivated by the curious incentive structures, the econmic value created through OSS or the available and detailed micro-data. The goal for this project is to openly and publically craft a literature review which summarises our findings about OSS relating to economic ideas. Inspired by OSS itself, this project is open to contribution from anyone. Reward in the form of co-authorship is given according to contribution (see contribution guidelines).

Contributions welcome!

Contribution guidelines:

1. Contributions to this project must be made through a pull request to the repo https://github.com/aaron-lohmann/econ-oss.
2. Position in author listing will be determind by the amount of approved pull requests. Ties between the same amount of pull requests will be broken by the earliest contribution of an author.
3. Co-authorship will be granted upon two approved pull requets. One of these contributions must introduce a new citation.

*Comments, questions, and feedback are welcome and can be submitting as an issue to the repository https://github.com/aaron-lohmann/econ-oss. Alternatively, to: aaron.lohmann@uni-bielefeld.de.

1 Introduction

Open Source Software (OSS) is key to the functioning of the modern digital infrastructure. For economists some parts of OSS propose curious questions. Why do developers contribute? Can open development outpeform closed development? On the other hand, the detailed micro data on individuals allows to study questions that are relevant to a number of knowledge intensive sectors like patenting, R & D and the development of Work from Home. OSS provides the rare oppurunity to track for a large group of workers who works when for how long at what time. Moreover, there are questions related to global integration. How do teams form across space, how much do teams across collaborate with each other? Yet, other another aspect for OSS is the network structure. One example is to study the adoption of technology. This review tries to be comprehensive. From descriptive papers to published datasets and novel and innovati ve insights. In the end, this paper addresses two groups of readers. Those that read for knowledge and look for answers and those that read for understanding, potentially seeking to enter the field of economics of OSS.

2 Theory

Theoretical contributions which directly answer questions about OSS.

3 Datasets

What datasets are out there to study OSS? What are benefits of one versus the other?

See Schueller et al. (2022)

4 The value of OSS

5 Geographical composition and team formation

Goldbeck (2025) concentrats on software developers in the U.S. Using the self-reported locations, develoepers are matched to 179 economic areas in the U.S. Running gravity-style regressions, the author finds sizable colocation effects. However, this effect is much smaller than that of traditional inventor networks. For developers with joint organizational membership or those collaborting on high quality projects, measured by stars, the distance elasticity is found to be weaker.

6 Team outcomes

7 References

Goldbeck, Moritz. 2025. "Bit by Bit: Colocation and the Death of Distance in Software Developer Networks." *Journal of Economic Geography*, lbaf002.

Schueller, William, Johannes Wachs, Vito D. P. Servedio, Stefan Thurner, and Vittorio Loreto. 2022. "Evolving Collaboration, Dependencies, and Use in the Rust Open Source Software Ecosystem." *Scientific Data* 9 (1): 703. https://doi.org/10.1038/s41597-022-01819-z.