

Analysis using Collaborative Research, Teaching, and Coding

Dr. Richard W. Evans

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Collaborative Research

- Git and GitHub increasing in use among Soc. Sci. researchers
 - Version control
 - Openness, transparency, replicability, sensitivity analysis

Only scratched the surface

- Broader participation
 - Recruiting (human computation, open call)
 - Enables long-distance participation
 - Democratizes participation
- Continuous integration testing
- Regression testing
- Maintains hierarchical control
- Platform better than e-mail for progress

Git vs. GitHub

- Git is version control software that resides on your machine
 - It tracks differences in tracked repositories
 - You can tag certain versions so you can always go back to them

Individually, this might be good for...

- Tracking your CV
- Tracking your thesis
- Others?

GitHub: So much more

- GitHub takes all the individual strengths of Git and adds...
 - Collective version control
 - Open fork access to anyone
 - Limited hierarchical merge and review permissions
 - Collaborative issue tracking and pull request discussion
 - Continuous integration unit testing

Broad participation

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Issue tracking

- Jason DeBacker [Issue # 237](#) OG-USA
- Rick Evans [Issue #234](#) OG-USA
- GitHub “[Great for new contributors](#)” page
- Look at Atom issues labels “help wanted”, “beginners”
 - Look at [Issue #12386](#)

Pull requests

- Anderson Frailey [PR #2079](#) Tax-Calculator

Caution: Manager vs. Developer

- Becoming an open source manager can take you away from being a developer (researcher)
 - This is the reason for the “project manager” job
 - Example: Travis Oliphant

Unit testing

Def'n: Unit testing

“software testing method by which individual units of source code, sets of one or more computer program modules together with associated control data, usage procedures, and operating procedures, are tested to determine whether they are fit for use.” ([Wikipedia](#))

- Look at [Assignment 7](#)
- Go through how `pytest` package works
- Show terminal example
- Show continuous integration in sales tax repo

Regression testing

Def'n: Regression testing

“Re-running functional and non-functional tests to ensure that previously developed and tested software still performs after a change.” ([Wikipedia](#))

- How is this different from unit tests?
- There is some overlap

Test Driven Development (TDD)

- Wikipedia: [Test Driven Development](#)
- How could you use this to scale up collaboration on theory?

Open Access Collaborative Teaching/Learning

- Our [MACSS repositories](#)
- Jupyter notebook repositories: notes.quantecon.org
- [Jupinx](#)