

LI RUIXUE

**DOES SPECIALIZATION INCREASES
RESEARCHERS' PRODUCTIVITY**

MOTIVATION

- ▶ "Well then, how will our state supply these needs? It will need a farmer, a builder, and a weaver, and also, I think, a shoemaker and..."
- Plato, *Republic*
- ▶ "The greatest 'improvement' in the productive powers of labour, and the greater part of the skill, dexterity, and judgment with which it is any where directed, or applied, seem to have been the effects of the division of labour."
- Adam Smith, *Wealth of Nations*
- ▶ Specialization increases productivity.

EMPIRICAL EVIDENCE FROM OTHER FIELDS

- ▶ Highly specialized medical doctors make better diagnoses and fewer mistakes, and are paid more. (Lovinger 2003)
- ▶ High school sports players who specialize perform better. (Mulligan 2018)
- ▶ Venture capitals that specialize are more successful. (Gompers, Kovner and Lerner 2009)

WHEN IT COMES TO RESEARCH...?

- ▶ It's not clear what's the direction the effect of specialization on researchers' productivity:
 - ▶ ↑: Researchers become better and more influential in their field.
 - ▶ ↓: Less likely to gain insights from other fields or come up with creative ideas.

RESEARCH DESIGN / METHODOLOGY

- ▶ Construct a measure of researcher productivity as endogenous variable
 - ▶ Research paper quantity and quality (citations, downloads, views, journal impact factors, etc. (Seglen 1997))
- ▶ Construct a measure of the level of specialization as exogenous variable
 - ▶ Using **computational text analysis** to measure how similar a researcher's papers are
 - ▶ Fields of the papers citing or cited by a researcher
- ▶ Fit a (or a few) **computational model(s)**: linear regression, GMM, etc.
- ▶ Control for researcher's characteristics and other fixed effects

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DATA

- Web of Science (information on authors, institutions, papers, etc.)



CHALLENGES

- ▶ Identifying causal effect
- ▶ Many confounding factors
- ▶ Quality of the constructed measures

CONTRIBUTIONS

- ▶ Provide the earliest empirical evidence on this topic.
- ▶ Create comprehensive measure of researcher productivity.
- ▶ May be able to identify heterogeneity across fields since dataset is large.
- ▶ Findings will be of interest to researchers.
- ▶ Possible policy implications for institutions.

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