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# STEM Workforce Training: A Quasi-Experimental Approach Using the Effects of Research Funding

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## OVERVIEW AND GOALS

This project will examine the impact of different research funding structures on the training of graduate students and postdoctoral fellows and on their subsequent outcomes.

The PIs will begin by examining the different contexts of research funding and training and will then

- 1) Relate measures of team structure to the structure of funding to determine the extent to which funding agency policies shape research teams, and
- 2) Capture the trajectories of the students and postdoctoral fellows during and after their contact with the teams to quantify how the structure of teams affects training.

The PIs will then use longitudinal administrative data to capture information about sources of funding for the training and support of PhDs and Postdocs from 13 major research institutions that participate in the Committee on Institutional Cooperation.

They will identify the nature of the research training through a text analysis of pertinent documents and use a quasi-experimental design to estimate the causal impact of the structure of research and length of training on trainee outcomes.

They will use quasi-experimental variation induced by changes in funding structure to estimate the causal impact of the structure of research and length of training on trainee outcomes.

## STRUCTURE OF PROJECT

This project will exploit four important sources of data:

- 1) Administrative data that give detail on the structure and interaction of project teams (STAR METRICS Level I administrative data)
- 2) Survey data on the initial outcomes of graduate students (Survey of Earned Doctorates)
- 3) Data on PI characteristics and graduate student/postdoctoral researcher outcomes (derived from new computational ways of capturing scientific activity from public internet sources)
- 4) Matches to Census data on wages and placements

## MAIN CHALLENGES (expected)

- 1) Coordination of large numbers of universities and interests
- 2) Building data infrastructure that ingests data from variety of sources and feeds out to variety of sources
- 3) Engaging broader community
- 4) Addressing confidentiality issues