

BACKGROUND RESEARCH

Inventors = pioneers of progress

Policy makers want to create places for ideas to thrive to maximize innovative potential and build the economy. However, comprehensive data collected by Opportunity Insights, which tracked more than one million inventors from birth onward, found that current policies may be targeting the wrong solutions.

Their policy implications: identify female, minority, low-income children who excel at STEM in early ages.

Key policy implications all involved intervening in children's exposure to innovation at a young age.

Although this is important, we are interested in seeing how colleges and universities around the country are influencing one's likelihood of becoming an inventor. **Research has found that higher education institutions also play an important role in helping students develop innovation competence, not just their exposure at a young age.**

To what extent does the college you attend affect your likelihood to be an inventor? Can we predict if a school will be a high or low innovator-producing college?

Further research other factors, at a higher education level, that may be influencing innovation:

- Overall, finding lots of stuff about reforming education in China!!
- Moving towards better serving and their local communities (Jamie Merisotis, Forbes)
- Level of autonomy students perceive themselves as having; more autonomous = more likely to become an innovator (P. Martín)
- Coping mechanism in response to academic cognitive demands (P. Martín)
- Fine arts students have a high level of innovative behaviors than other students (P. Martín)
- Psychology students are the least innovative students? (P. Martín)
- Colleges cause an increase in local [patenting](#)
 - Maybe we could get data on where inventions are happening and map them next to colleges
- Experimental training (philosophy that informs many methodologies in which educators purposefully engage learners in direct experience and focused reflection in order to increase knowledge, develop skills, clarify values, and develop students capacity to contribute to their communities) (Safang et al.)
- Avoiding test scores as the only metric of evaluation ([Safang et al.](#))
 - In many colleges, practical ability assessment is ignored ([IJEER](#), Hailiang Guo, retracted article whoopsie)
 - One score makes it hard to involve comprehensive quality of students (IJEER)
- Proportion of required to elective courses can restrict the development of students learning interest and personality (IJEER)
- Quality of teachers - colleges that are having increases in enrollment are not hiring quality faculty (IJEER)
- Internal factors (self-awareness) are more important than external (environmental) factors

- Hire well-known entrepreneurs, experts and scholars, and excellent alumni from all walk of life as part-time teachers (Bing Wu and Sheng Ye)
- Develop more practical courses and practical activities (Bing Wu and Sheng Ye)
- Educational psychology should be incorporated into entrepreneurship and innovation education, together with other professional disciplines
- Most entrepreneurs show remarkable entrepreneurial spirit when they are students → schools should focus on the cultivation of innovation spirit ([Zhang et al.](#))

Lasso regression

- Finds features that contribute most
- Take coefficient weights for variables not contributing and force them to zero, then inflates the other coefficients
- Classify AFTER lasso

TO INCLUDE IN THE FINAL

Can we predict if a school will be a high or low patent-producing college?

Motivation: *Inventors = pioneers of progress*

Policy makers want to create places for ideas to thrive to maximize innovative potential and build the economy.

Recent policy is mostly focused on intervening in children's exposure to innovation. However, research has found that higher education institutions also play an important role in helping students develop innovation competence, not just their exposure at a young age.

To explore our question, we merged multiple datasets from Opportunity Insights.

- Innovation Rates by College
- College Level Characteristics
- Baseline Cross-Sectional Estimates by College

Noteable potential factors according to background research **not included** in our dataset:

- Internal factors (autonomy, motivation, self-awareness)
- Proportion of elective to core courses
- Quality of faculty
- Metric of evaluation (tests score? projects?)

Noteable potential factors according to background research **included** in our dataset:

- Family income/mobility in general and by innovation status
- Makeup of different majors by college (Fine Arts Majors most innovative and Psych Majors least innovative, according to one study)

Feedback for us

- Any more college data? No
- More statistics?
- **Classify colleges → have EDA show this to give a better idea of our dataset??**
- Confused on the wording of the question!!
- Intellectual property rights – do we have any of this?
 - Explore that - explore more data
- Take out columns that stem as a results of patents
- What TYPES of patents??
- Explain LASSO + why we chose to use logistic regression ?