

The Rise of American Ingenuity: Innovation and Inventors of the Golden Age

Firm Dynamics and Economic Growth

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This paper

- ▶ Archive work to create a micro database on patenting in the early XX century
 1. Digitize USPTO patents
 2. Merge with Census data (Inventors)
 3. Merge with regional
- ▶ Present stylized facts that shed light on innovation during the “Golden Age.”
 1. Characteristics of inventors: Who became an inventor?
 2. Characteristics of innovative hubs: What makes a region fertile for innovation?

Where does innovation occurs?

Regional Characteristics

- R1. More inventive states and sectors grew faster on average
- R2. Densely-populated states were more inventive.
- R3. Financially-developed states were more inventive.
- R4. Geographically-connected states were more inventive.
- R5. States associated with slavery were less inventive, but religiosity is not robustly correlated with inventiveness.
- R6. Innovation was strongly positively correlated with social mobility.
- R7. Broad measures of income inequality, such as 90/10 ratio, and Gini coefficient, were negatively correlated with innovation.

Who becomes an inventor? I

Personal Characteristics

1. Inventors were more educated on average and were most productive between the age of 36 and 55.
2. Inventors were positively selected through exit early in their careers, but were less productive and more likely to exit late in their careers.
3. The patents of new inventors received more citations on average, and were more likely to be in the top decile of the citations distribution.
4. Inventors delayed marriage and had fewer children.

Who becomes an inventor? II

Personal Characteristics

- 15. Inventors were more likely to have migrated from their state of birth. They moved to states that were more conducive to innovation.
- 16. Father's income was correlated with becoming an inventor. This effect disappears once child's education is controlled for.
- 17. Successful patentees had substantially higher labor income, even controlling for demographics and education.
- 18. Inventor's income was highly correlated with the quality of invention measured by patent citations.

What's next?

- ▶ Facts presented suggest some mechanisms:
 - (1.) Agglomeration effects: R2
 - (2.) Financial frictions: R3, R6, R7, I6
 - (3.) Education: I6
 - (4.) Idea flows: R4, R5, I5
- ▶ Build a model to understand the mechanisms:
 - (1.) Trade-offs
 - (2.) Quantify the mechanism
 - (3.) Counterfactual analysis for policy design