

# **Innovation Nation: Evidence from Broadening Access to Ph.D.**

## **Training in the U.S.**

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### **Abstract**

The United States rose to become a global leader in scientific research in the early 20th century. Matching the universe of ProQuest Ph.D. recipients, inventors on US patents from PATSTAT, and the full count decennial US Censuses (1850-1940), this paper investigates how access to Ph.D. training developed research manpower and innovation in the US during this critical period. Using an event study design, we examine how the expansion of Ph.D. programs during the peak ages of graduate study impacted Ph.D. attainment for individuals born in each state and the extent to which patenting activities are associated with the expansion of doctoral research education. Additionally, we investigate whether the expansion of Ph.D. programs had different effects on access for underrepresented groups, such as minorities, immigrants, those from rural areas, and those from lower socioeconomic backgrounds. We also study how the location and field of study of the Ph.D. program openings affects the institution and research area of doctoral recipients.