



National Center for Science and
Engineering Statistics

InfoBrief

Research Doctorate Conferrals Rebound, Leading to Record Number of U.S. Doctorate Recipients in 2022

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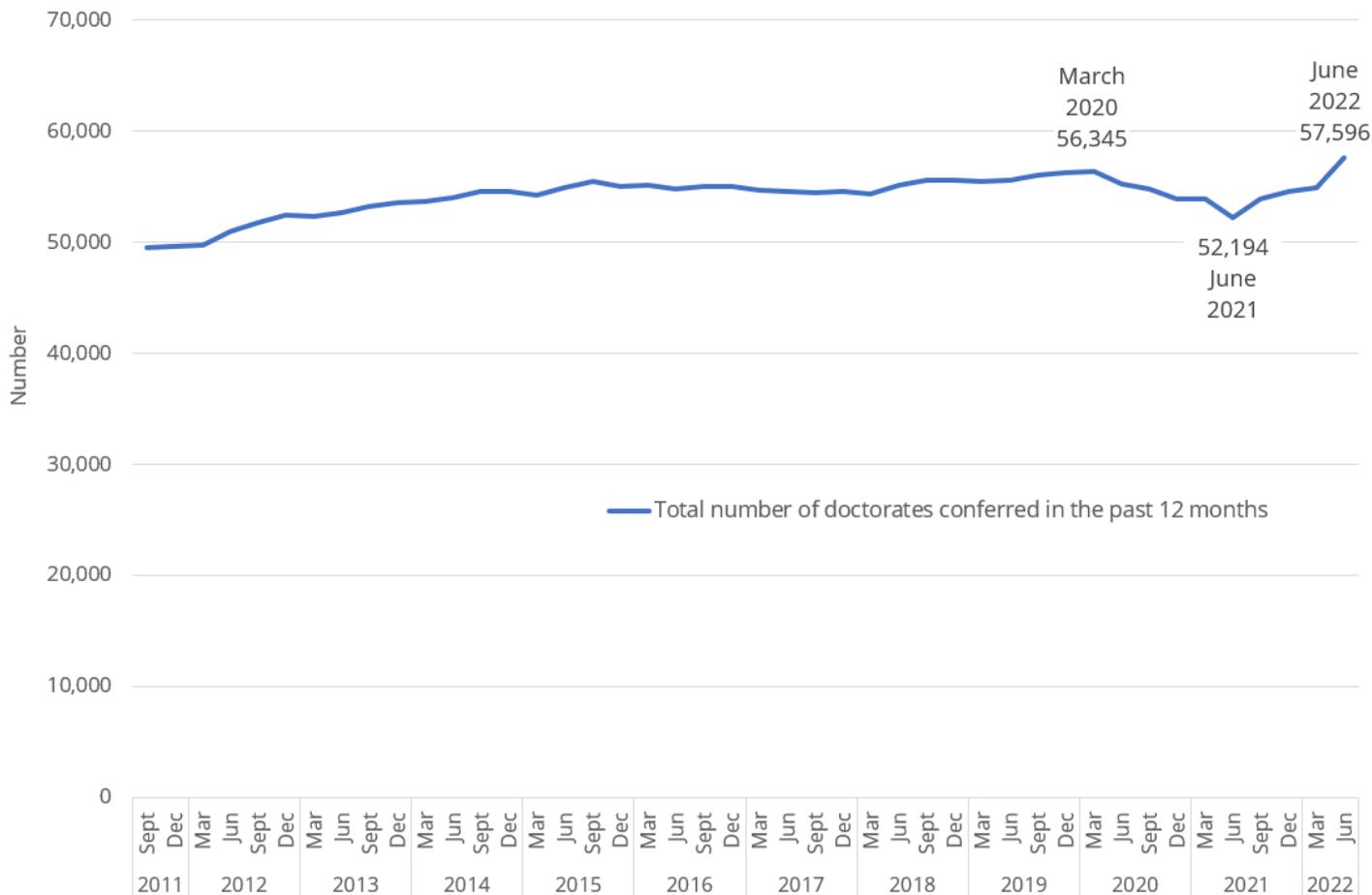
The COVID-19 pandemic negatively affected the attainment of research doctoral degrees,^{1,2} but new data from the Survey of Earned Doctorates (SED) show doctoral awards have rebounded. Data from academic year 2022 (1 July 2021 through 30 June 2022) report the highest number of research doctoral conferrals ever in a single academic year: 57,596. Delays in graduation and other disruptions to the completion of doctoral requirements contributed to this increase, with more than half of the 2022 doctorate recipients (54.0% of women, 53.1% of men) reporting the pandemic had delayed the timeline for completing their doctoral degree. The new SED data also show that between 2021 and 2022 the proportion of doctorate recipients with commitments for employment in the academic sector declined by 3.7 percentage points, while the proportion taking positions in the private sector increased by 4.4 percentage points. However, a few additional years of data will be needed to understand the full impact of the pandemic on research doctoral degrees from U.S. institutions and their recipients.

Pandemic's Impact on Research Doctorate Conferral Trends

SED data show that the number of research doctorates conferred by U.S. institutions was increasing before the start of the pandemic but began a sharp 15-month decline in spring 2020 when many universities closed and canceled or postponed their spring graduations (figure 1). This decline continued through June 2021 and was followed by an equally sharp recovery, which by June 2022 had yielded the highest number of research doctoral awards in any academic year to date.

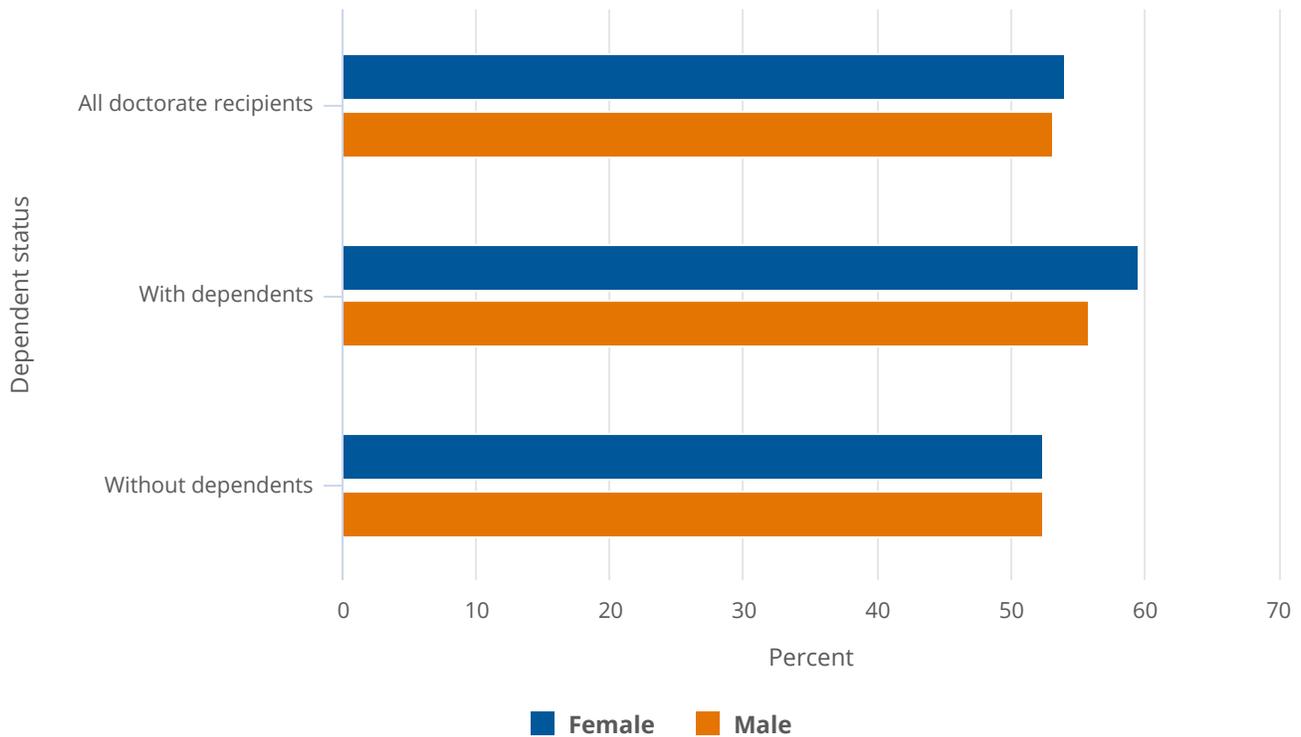
Figure 1

Research doctorates conferred in the past 12 months: September 2011–June 2022



Source(s):
National Center for Science and Engineering Statistics, Survey of Earned Doctorates.

This rebound was fueled by the graduation of doctoral students whose doctoral completions were delayed by the pandemic. As seen in figure 2, more than half of the academic year 2022 graduates reported that the timelines for completing their doctoral degree were delayed by the COVID-19 pandemic and that these delays were disproportionately reported by those with dependents.³ Almost 60.0% of female doctorate recipients with dependents were delayed, followed by 55.9% of male doctorate recipients with dependents. Among those without dependents, male and female doctorate recipients cited delays equally (52.4%).

Figure 2**Reporting of research doctorate completion delay due to COVID-19 pandemic, by dependent status and sex: 2022****Note(s):**

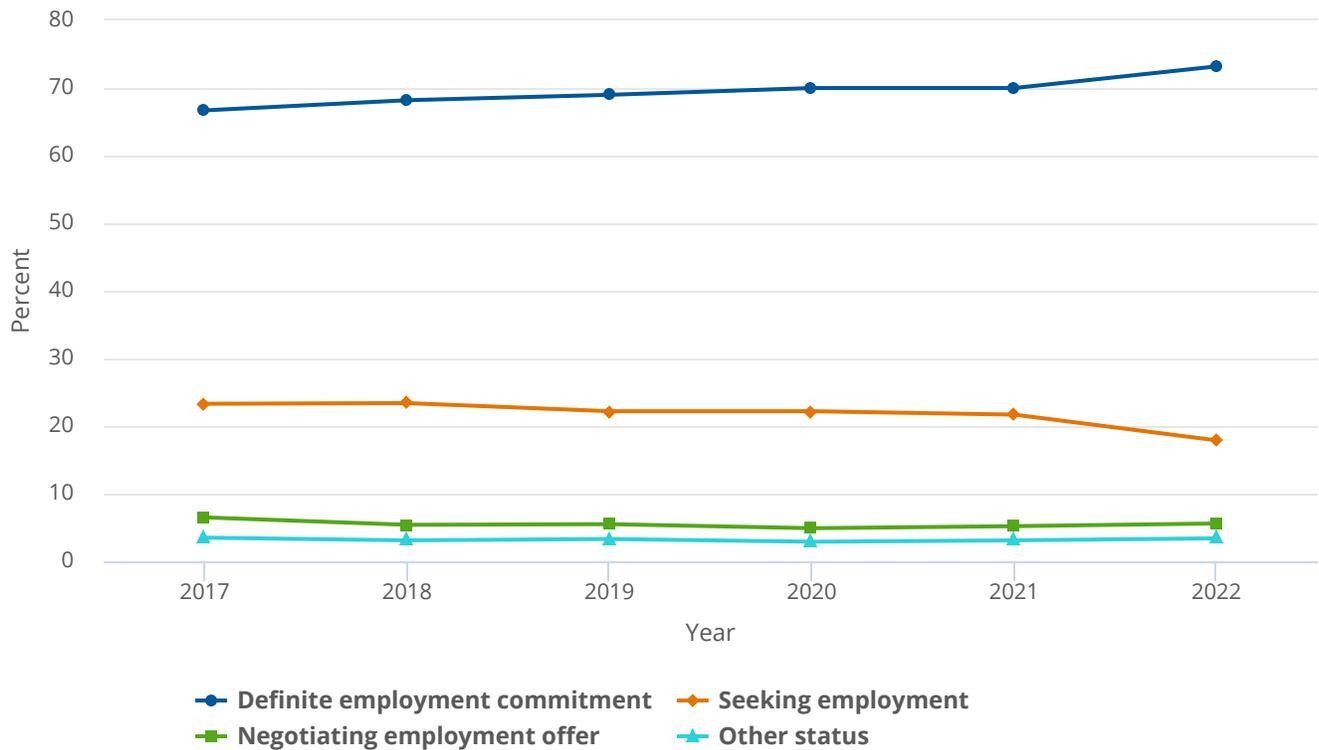
Excludes doctorate recipients who did not answer COVID-19 pandemic or dependent status question. Dependents are children or adults who receive at least half of their financial support from the doctorate recipients.

Source(s):

National Center for Science and Engineering Statistics, Survey of Earned Doctorates.

Shifts in Postgraduation Employment Plans

The proportion of graduates reporting definite commitments for employment after graduation increased from 70.0% in 2021 to 73.2% in 2022 (figure 3).⁴ This single-year 3.2 percentage point increase was larger than prior year-to-year increases and similar to the total increase (3.3 percentage points) from 2017 through 2021. The share of doctorate recipients who were seeking employment but did not yet have an offer declined from 23.3% in 2017 to 17.9% in 2022. Like the increase in definite employment commitments, the decline in those seeking employment was greater from 2021 to 2022 than in prior years, dropping 3.8 percentage points in a single year compared to 1.6 percentage points from 2017 to 2021.

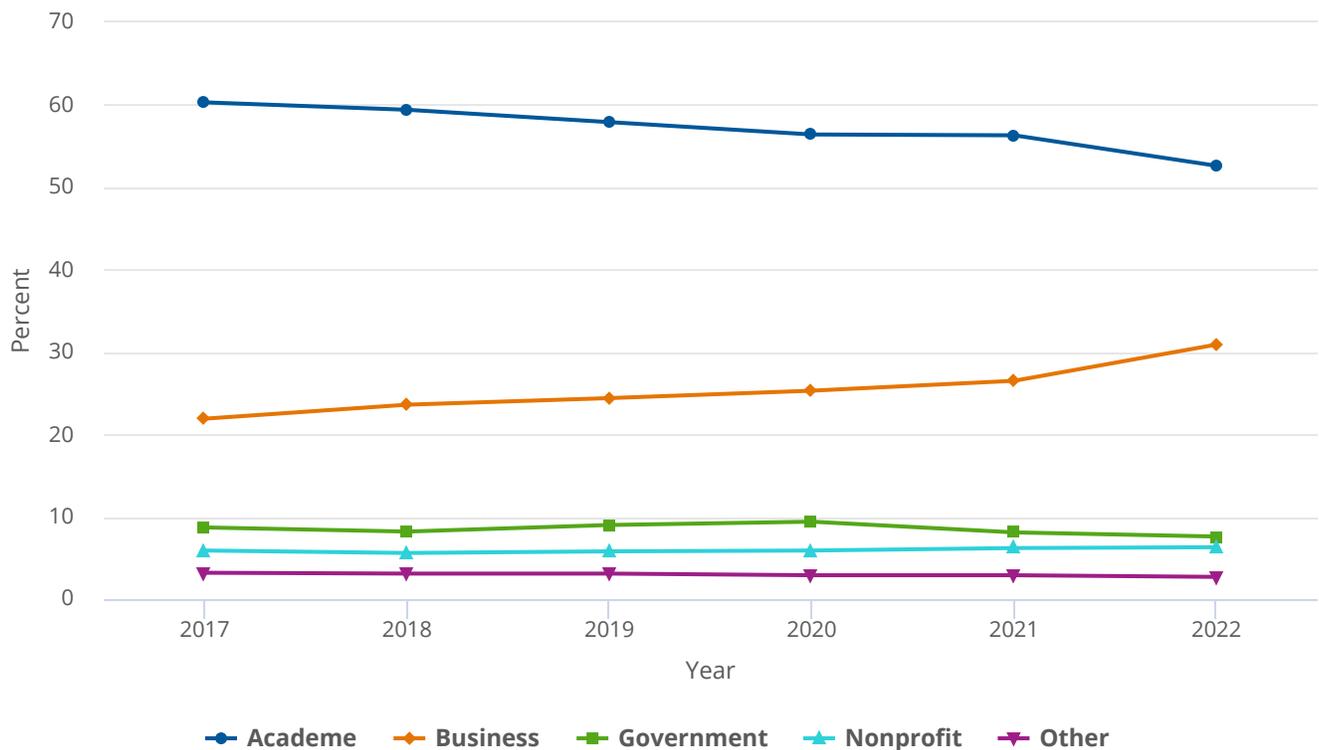
Figure 3**Postgraduation status of research doctorate recipients: 2017–22****Note(s):**

Other status includes those enrolled in a full-time degree program and those who do not plan to work or study (e.g., family commitments). Definite employment commitment includes accepting a postdoc or other training position, new employment, or returning to predoctoral employment.

Source(s):

National Center for Science and Engineering Statistics, Survey of Earned Doctorates.

While academia has been and continues to be the largest employment sector for new research doctorate recipients, there has been a long-term downward trend in doctorate recipients working in academia.⁵ Among graduates with definite employment commitments, the percentage of doctorate recipients taking jobs in academia declined from 60.3% in 2017 to 56.3% in 2021 and fell an additional 3.7 percentage points to 52.6% in 2022. Corresponding with this downturn in academia was an increase in doctorate recipients taking jobs in the business sector, from 21.9% in 2017 to 26.5% in 2021, followed by a larger increase to 30.9% in 2022 (figure 4). While there are many reasons for these shifts, the overall pattern supports the existence of a stronger labor market following the pandemic-induced recession.⁶

Figure 4**Employment sector of research doctorate recipients with definite employment commitments: 2017–22****Note(s):**

Excludes doctorate recipients who did not answer employment sector question. Other is mainly composed of elementary and secondary schools. Definite employment commitment includes accepting a postdoc or other training position, new employment, or returning to predoctoral employment.

Source(s):

National Center for Science and Engineering Statistics, Survey of Earned Doctorates.

Data Sources, Limitations, and Availability

This InfoBrief uses SED data from 2012 through 2022. Questions regarding the impact of the COVID-19 pandemic on doctorate recipients' graduate experience, including the timeline for doctorate completion and career plans, were added to the 2021 and 2022 SED.⁷

The postgraduation status questions in the SED were changed in 2017 to capture postgraduation employment data more accurately. Because of the trend break associated with the change, this InfoBrief examines only the last 5 years of postgraduation employment plans.

The SED data are available in the report series [Doctorate Recipients from U.S. Universities](#). More information on the SED, detailed data tables, and other data products are available at [the survey homepage](#). Access to custom data tabulations is available in an [interactive data tool](#) and the [SED Restricted Data Analysis System \(RDAS\)](#).

The full SED Doctorate Records File and COVID-19 impact module data are available under an [NCSES restricted use license](#).

Notes

- 1 National Center for Science and Engineering Statistics (NCSES), National Science Foundation (NSF). 2022. *Doctorate Recipients from U.S. Universities: 2021*. Section “Special Focus: COVID-19 Pandemic Impacts on Doctorate Recipients.” NSF 23-300. Alexandria, VA. Available at <https://nces.nsf.gov/pubs/nsf23300/report/special-focus-covid-19-pandemic-impacts-on-doctorate-recipients>.
- 2 Langin K. 2022. Pandemic Led to Historic Drop in U.S. STEM Ph.D. Graduates, New Data Suggest. *Science* October 19. Available at <https://www.science.org/content/article/pandemic-led-historic-drop-u-s-stem-ph-d-graduates-new-data-suggest/>. Accessed 26 June 2023.
- Flaherty C. 2022. Ph.D.s Conferred Drop 5.4% in 2021. *Inside Higher Ed* October 19. Available at <https://www.insidehighered.com/news/2022/10/20/number-phds-conferred-dropped-54-2021/>. Accessed 26 June 2023.
- June AW. 2022. America’s Ph.D. Production Experienced Its Steepest Drop on Record. *Chronicle of Higher Education* October 18. Available at <https://www.chronicle.com/article/americas-ph-d-production-experienced-its-steepest-drop-on-record/>. Accessed 26 June 2023.
- 3 Dependents are defined as children or adults who receive at least one-half of their financial support from the doctorate recipient.
- 4 Definite employment commitments include “accepted or began a postdoc, residency, or other training position,” “returning to, or continuing in, predoctoral employment,” and “accepted or am employed in a position other than a postdoc or training position (*including self-employment*)” at the time the doctorate recipient completed the survey (which may be several months before or after the conferral of the doctorate).
- 5 See NCSES 2022, [Table 2-6](#).
- 6 Penn R, Huang V. 2023. Job Openings Reach Record Highs in 2022 as the Labor Market Recovery Continues. *Monthly Labor Review* May. U.S. Bureau of Labor Statistics. Available at <https://www.bls.gov/opub/mlr/2023/article/job-openings-reach-record-highs-in-2022-as-the-labor-market-recovery-continues.htm>. Accessed 25 July 2023.
- 7 COVID-19 module questions in 2021 and 2022 can be found at <https://nces.nsf.gov/surveys/earned-doctorates/2022#questionnaires>.

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