

The Fourth Report of the Japan Doctoral Human Resource Profiling Project

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Abstract

The world has entered a period of great uncertainty in which events beyond expectations, such as the spread of infectious diseases and catastrophic disasters, occur. To cope with the rapid changes in social conditions, strengthening humankind's research capabilities, which are the source of our collective "intellect," is indispensable. The importance of the role expected of doctoral-level graduates has become greater than ever before.

Despite the above conditions, the number of students beginning doctoral coursework reached a peak in 2003, at 18,232, before decreasing to 14,976 in 2019. The reasons for this decrease are, among others, insufficient financial support and similar considerations during doctoral studies, the unclear career path of those who have completed doctoral coursework, and Japan's unstable employment situation. Moreover, the ratio of students who enter a doctoral course immediately after completing a master's course has decreased steadily over time. The rate of those moving from master's to doctoral courses had exceeded 15% until 2001 but decreased to as low as 9.2% in 2019. This is a particularly serious problem, as many brilliant master's students seem to be avoiding doctoral studies.

To solve the problem of declining numbers doctoral-level students, the Japanese government has taken drastic measures based on the Comprehensive Package to Strengthen Research Capability and Support Young Researchers, which was established in January 2020. The Sixth Science, Technology, and Innovation Basic Plan, adopted at a Cabinet meeting in March 2021, set the goals that, "in the situation in which brilliant youths can anticipate the prospect of future success, the career path system for students to enter a doctoral course as bearers of 'intellect' shall be enhanced" and that "the environment, in which all brilliant doctoral human resources can anticipate the prospect of getting regular jobs in various fields, such as academia, industry, and administration, if they want and flourishing as leaders, shall be provided in the future." The Basic Plan also states that the government must take all urgently required measures, including the above-mentioned package, to address the issue.

The National Institute of Science and Technology Policy has conducted various research studies to provide the evidence necessary for the Japanese government's

policymaking efforts. The Japan Doctoral Human Resource Profiling project has continuously followed the career paths of doctoral degree holders since 2014, in hopes of understanding the situations of students before they enter doctoral courses, the experiences they have while pursuing a doctoral degree, their employment status after completing the doctoral degree, and their status as researchers after graduation. These data are essential for policymaking concerning doctoral students and the valuation and verification of the effects of the policy; they also contribute to the policy's development by providing objective evidence. Three cohort studies have been conducted to date. The subjects were people who had completed a doctoral course at a Japanese university in 2012, 2015, or 2018. Those who completed their doctoral coursework in 2018 are referred to as the "2018 cohort" in this report. This report investigated the situation of the 2018 cohort in 2020 (1.5 years after subjects completed their degrees). The results of the investigation are as follows:

- The ratio of participants reporting that they had work experience before beginning their doctoral studies exceeded 50% for the first time, and the mode of the ages of doctoral students rose to the 30s.
- Approximately 50% of participants who did not have work experience before beginning their doctoral studies did not qualify for full or partial financial aid. Some 70% of participants who had quit jobs did not qualify for full or partial financial aid.
- After completing their doctoral studies, around half the participants were employed by universities, and about 30% were employed by private firms. Those most likely to be employed by a university were graduates of humanities and social sciences programs, while those most likely to be employed at a private firm were engineering graduates.
- The future career prospects for participants who did not have work experience before beginning their doctoral studies varied. Approximately 30% reported that they wanted to work as a researcher in academia. In contrast, around 20% of respondents replied that they were not especially concerned about their place of employment and the need to conduct research. Another some 20% replied that they would accept jobs that were not tied to research.
- In terms of the Japanese government's support for doctoral students, the most common responses were that it should improve the research environment for researchers and provide doctoral students with salaries (each with more than 20% of respondents).