PRECARITY AND THE RESEARCH WORKFORCE OF THE FUTURE

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OECD inputs for policy making on research careers

Chapter 3: Challenges and new demands on the academic research workforce

Website online: oe.cd/sti-outlook

STI policy papers www.oecd-ilibrary.org
1. The Research Precariat

A survey has warned that researchers are overstressed. It’s up to universities to improve their working environment.

Universities must overhaul the toxic working culture for academic researchers.

Anton Muscatelli

Why are many academics on short-term contracts for years?

More than a third of academics are on temporary contracts, a new study has found.

Second class academic citizens: The dehumanising effects of casualisation in higher education

The Bleak Job Landscape of Adjunctopia for Ph.D.s

Ruthless labor exploitation? Generational betrayal?

Understanding the job crisis in academia requires a look at recent history.
Project methodology

• Identified and analysed existing data on doctoral and postdoctoral careers
• Desk-top analysis of the literature and development of a conceptual framework
• Detailed de novo country notes from 15 OECD countries
• Panel interviews with different stakeholders (circa 100 persons in 12 countries)
• 2 international workshops
Supply and demand

Share of doctorate level attainment in the population
25-64 years, 2014 and 2019 or latest year available

- The OECD average share of 25-64 year-olds with a doctorate is around 1%, and this share has been increasing.
- The share of doctorate holders in the population (25-64 year olds) of OECD countries has increased by 25% during the 5-year period 2014-2019.

https://doi.org/10.1787/889e8641-en
Great expectations?
What doctoral candidates want to do when they have their PhD

PhD candidates want to work in academia – a worldwide pattern

Where do PhDs actually lead?

Doctoral training is a stepping stone to multiple roles

A minority of doctorate holders are employed in higher education in most OECD countries

Supply and demand

Job security of corresponding authors, by country of residence
Percentage of corresponding authors under 45, 2018, selected economies

- The traditional academic career cannot absorb the increasing number of doctorate holders wishing to stay in academia.
- Around one third of the OECD labour force are in temporary or part-time jobs or are self-employed, but the scale of precarity is much higher in the academic research sector, especially among early-career researchers.

http://oe.cd/issa
The effects of precarity

- Affects the well-being and mental health of researchers
- Decreases the attractiveness of research as a career choice
- Negates efforts to promote diversity and gender equality
- Ultimately affects research choices (safe vs risky) and the quality of science
Different perspectives: Funders; employers, researchers, policy-makers

- Permadoc is a way for universities to get low cost labour
- There is no shortage of contracts but they are precarious
- Lack of control and sense of urgency leads to mental health problems
- Need to change the mindset of PIs
- Students feel that the situation is risky and so fewer are doing PhDs
- International staff are in worse conditions than national staff
- Need to move from funding people to initiate structural change
- Female postdocs have difficulties to continue after having children
- Those transitioning to industry cannot go back to academia due to assessment criteria
- There is no problem of unemployment of PhDs but one of career development
- Female postdocs have difficulties to continue after having children
- Need to move from funding people to initiate structural change
Challenges and causes

- Longer postdoctoral period on fixed-term contracts and short-term positions
- Outdated career structures
- Unstructured postdoctoral phase
- Dependency on senior researchers
- Lack of diversity in research careers
- Late selection
- Lack of inter-sectoral mobility
- Compatibility of family life and academic career
- Issues arising from international mobility
- Under-developed human resource management in institutions
- The academic career is no longer attractive for some
- Poor evidence base
The COVID-19 pandemic is making things worse, particularly for women.

Perceived impact of the crisis on scientific work - Percentage of responses by respondent profile

1. Improve working conditions and offer more transparent, predictable and flexible career prospects for postdoctoral researchers

2. Offer broad professional development during postdoctoral training

3. Promote equal opportunities, diversity and inclusion in research careers by identifying and addressing existing biases and challenges (re. *OECD STI Outlook, 2018*)

4. Establish better links between research assessment and funding, and human resource management policy objectives
5. Improve institutional practices regarding human resource management in research
6. Promote inter-sectoral mobility of researchers
7. Support the international mobility of researchers
8. Develop the evidence base on research careers
9. Include all relevant stakeholders in the governance and coordination of research and ensure concerted, systemic action
Policy Options with regard to funding (rec 4)

• Adopt **evaluation criteria** that go beyond bibliometrics
• **Attach conditions to awards** that promote good HR management:
  – Require adherence to sector-wide agreements (e.g. Concordat, European charter)
  – Include evaluation criteria related to the quality of the research environment (e.g. REF in UK)
  – Provision of professional development to postdoctoral researchers
  – Level of independence of postdoctoral researcher relative to PIs
  – Equity, diversity and inclusion strategies and practices
• Examine and monitor the **balance between core basic funding and project funding** and impact on precarity
• Take into account **supply and demand** for doctorate holders in different fields of R&D, when ‘feeding the doctorate pipeline’
Policy options for Inter-sectoral mobility (rec. 6)

• Offer **broad training** beyond academic skills during doctoral education
• Offer **work-based learning opportunities** during doctoral education, including for fields that are not market-facing (e.g. AHSS)
• **Remove barriers to mobility** between sectors (e.g. enable portability of pension rights)
• **Recognise professional experience and skills** acquired in other sectors in recruitment and promotion processes
• **Counter perceptions of failure** associated with transition out of academic research by publishing evidence on labour market outcomes of doctoral holders in different sectors and their career satisfaction
• **Monitor** distribution of doctorate holders in different sectors through registry data and use this data to inform policy and evaluate policy impact.
Policy options: developing the evidence base (rec 8)

• Collect, analyse and publish registry data on all researchers, including those on fixed-term contracts and other forms of non-standard employment via offices for national statistics.

• Follow the guidelines of the Frascati Manual to make statistics comparable across countries (OECD, 2015[1]).

• Track the career trajectories of doctorate holders through regular surveys (e.g. use the Career of Doctorate Holders (CDH) survey already developed by the OECD).

• Implement regular surveys on the experience of postdoctoral researchers (e.g. use the module on early-career researchers of CDH (Auriol, Schaaper and Felix, 2012[2]), which will allow for international comparisons).

• Evaluate the effectiveness of policy implementation regularly using the developed evidence base (e.g. implement 5-year cyclical reviews with recommendations for the next cycle).
2. Digital Skills

Enhancing access to research data during crises
Lessons learned from the COVID-19 pandemic

Virtual workshop hosted by the Research Data Alliance (RDA)
23 April 2021, via Zoom, 12:30-16:00 CET (Paris time)
http://oe.cd/RDAworkshop
Digital skills: Different needs in domains

Figure 5.3. Most important skills for scientific authors’ research work

Percentage of authors who deem each type of skill as important

Digital skills, frameworks & roles

- Developing Software
- Understanding Data
- Conducting Research
- Advising on Law & Ethics

Roles:
- Data Analyst
- Research Software Engineer
- Data Steward
- Researcher

Skills:
- Conducting Research
- Advising on Law & Ethics
What is needed = 5 focus areas

Integrate digital workforce capacity development into broader science policy frameworks and actions, e.g. for open science and research integrity.

Identify the key competencies, skills and roles required for data-intensive science in different contexts.

Support training in foundational digital skills and more specialized skills for scientists and research support professionals.

Support development of communities for new professional roles, learners and trainers.

Implement changes in academic evaluation and reward systems in order to attract and retain diverse digitally skilled staff.

Define needs: digital skills, frameworks and roles.

Provision of training.

Community development.

Career paths and reward structures.

Enablers for digital workforce capacity development.
3. Transdisciplinary research for societal needs

Key features of transdisciplinary research:

1. Collaboration between natural and social sciences/humanities

2. Engagement of non-academic stakeholders, such as public officials, citizens and commercial or not-for-profit organisations
Transdisciplinary research and related concepts

- Transdisciplinary Research
- Co-creation
- Citizen Science
- Interdisciplinary Research
- Team Science
- Action Research
- Convergence Research
- Development Research
- Transdisciplinary Research

Team Science

Convergence Research

Development Research

Action Research

Citizen Science

Interdisciplinary Research

Transdisciplinary Research
Recommendations on TDR training and careers

Research Funders
• Emphasise the evaluation of societal as well as scientific outputs and impacts.
• Support capacity building and the participation of non-academic stakeholders.

Universities
• Introduce TDR learning modules into science education and postgraduate training courses.
• Support early career researchers who engage in TDR projects.
• Change evaluation and promotion criteria for individuals so that they are judged on their contributions to stakeholders outside of science too.

Academic community
• Support early career researchers who wish to engage in TDR.
• Contribute to the development of new STI indicators and measures that value multiple research outputs.
Converging challenges – relieving the bottleneck
Need for systemic changes to the academic system

• Universities and research providers/employers are the central actors
• Policy mandates and incentives (measures and indicators) shape institutional behaviour
• Funding and funder actions are an important influence
• Need systematically collected data on all research staff and their career trajectories to inform policy. (Policy experimentation, monitoring and adaptation)
• All actors need to work together.
• “The Government should provide a reasonable number of undergraduate scholarships and graduate fellowships in order to develop scientific talent in American youth. The plans should be designed to attract into science only that proportion of youthful talent appropriate to the needs of science in relation to the other needs of the nation for high abilities.”

Vannevar Bush, Science, the Endless Frontier, 1945
Policy levers

**Legal and regulatory regimes**
- Science policy legislation
- Employment law
- Equal opportunities legislation
- Career statutes

**Financial incentives**
- Funding of research organisations
- Funding of individual and team projects

**Informational mechanisms**
- Collection, analysis and publication of information on researchers and research careers

**Organisational levers**
- Research councils
- Observatories
- National coordination bodies