Precarious careers in research

Analysis across EU countries and policy options

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Overview

- A Factors that may drive precarious careers
- B Empirical findings for five dimensions of an academic job contract across EU Member States
- C Policy options for improving precarious careers

- Short summary of very long, EU-funded report (with executive summary and country profiles though ;-)

A Factors potentially contributing to precarious careers in research (-> levers to improve careers)

**Scientific training & selection processes**
- Long periods of PhD-training
- Uncertainty about abilities
- Long working hours, competing with colleagues

**Research funding / income levels**
- Low availability of jobs in research
- Low salaries and others (pension etc.)
- Lack of research funding

**Career structures of higher education systems**
- Fixed-term contracts
- Lack of merit-based career progression
- Hierarchical relationships with supervisors

**Mismatch supply of / demand for researchers**
- Demographics
- Expansion higher education
- Research funding (stop and go)
- Strong inflows of foreign-born researchers / outflows of domestic

**High intrinsic motivation, taste for science** lead to strong determination to pursue career in (academic) research

Source: Janger et al., 2022.
B EU-Level selected main findings

- **Main issues...**
  - in research-intensive countries (RiC) are related to careers & job availability – many fixed-term positions, struggling to obtaining tenure,...
  - In less research-intensive, “widening” countries, related to salaries and research funding; PhD candidates without contract

- ...point to **different dynamics in labour markets for researchers:**
  - In RiC, high research budgets fund many junior positions, but lack of permanent positions in academic research
  - In other countries, employers struggle more to find suitable researchers
Available data point to some positive trends
- Declining PhD numbers vs. growing research spending,
- More merit-based recruitment and career progression,
- Fixed-term contracts reduced...

But long periods of time in career uncertainty persist, especially by comparison with private sector (much lower share of fixed-term)

Impact of inflation?
Fixed term & part-time contracts
Salaries, social security benefits, employment contracts
Career paths & progression
Fair treatment
Close to 40% of researchers say that working conditions restrict them in choosing high risk research projects -> clear link between precarity and research excellence.
C Policy options framework: 1. Balance supply with demand
2. Better Working Conditions

Supply of researchers
Not reducing number, but appropriately selecting, training and informing researchers

Demand for researchers
More open-ended positions – funding, career structures, …

Better working conditions
Full employment contracts, pay, protection against discrimination….
### Supply

Career path with early and reliable selection points (transparent, merit-based recruitment) ...

... coming with 4 types of support
- Job market information
- Training in transferable skills
- Feedback
- Getting to know researchers/ former alumni (research/non-research)

... provided / organised by
- Graduate Schools
- Post-doc Offices
- Human Resources in universities/ research institutions
Conclusions – improving precarious careers

- Evidence shows a lot of potential policy options, in Austria and elsewhere – on top of legally restricting the time on fixed-term contracts (Germany, Austria). **Someone needs to coordinate relevant policies & actors in a country.**

- But even in the most perfect system, it is unlikely that everyone who is interested in or aspires to a career in academic research will be able to do so

- This is why early honest feedback is important, training in transferable skills and information on a range of careers available using research skills, not just in academic research – **so that researchers can take informed decisions on their career.**
References


- Twitter thread (even shorter than executive summary)
  [https://twitter.com/JurgenJanger/status/1605096026997952512?s=20](https://twitter.com/JurgenJanger/status/1605096026997952512?s=20)

If researchers could improve one aspect of their job
Mapping of 5 dimensions of employment contracts (temporal, economic, career, social and organisational)

Review of the literature

Analysis of existing data
- MORE4
- Structure of Earnings Survey
- OECD Employment Protection Database
- Working Conditions Survey
- Eurostat /OECD R&D data

Explorative Analysis of Novel Data Sets
- Job Portal Analysis
- Analysis of ORCID Data

Qualitative Approach
- Surveys (Researcher and Employer Survey)
- National Experts
- Interviews

Analytical report
Identification of vulnerable researcher groups, policy options, indicators

Synthesis: Validation Workshop & Policy Brief
Analysis of costs and benefits of policy options
**Policy Options to Balance Supply with Demand (Adjust Supply)**

...provided by (e.g.):
- Graduate Schools (PhD-studies)
- Post-doc Offices
- Funding organisations
- PhD-, post-doc, alumni associations

Career path with early selection points
- Merit-based, transparent recruitment and career progression

Skills & information:
1. Career services (job market information, application skills...)
2. Career guidance (mentoring, yearly talks with supervisors,...)
3. Training in transferable skills
4. Exposure to research outside academia & other career opportunities using skills acquired (alumni discussions, industry fellowships, invited visitors...)

...fostered/Supported by (e.g.):
- Principles of innovative doctoral training
- European Charter and Code
- Sharing of best practice/network of graduate schools/post-doc offices
- Funding criteria (grant funding, base funding...)
- Prizes for career services
- Monitoring (graduate tracking, surveys,...)

**Key Policy Levers:**
1. **Structured PhD-Training (Doctoral/Graduate Schools) for as many PhD-students as possible (EU: doctoral school 12% 2019, vs. 65% USA)**
2. **Post-doc Offices with large range of support services in as many research institutions as possible (no data available; in US guidelines for post-doc offices)**
A model career path with information & support

Graduates (Master Level) interested in PhD

PhD-Students: Training in transferable skills, career guidance, ...
Selection: Entry into Doctoral School
Job market information (by Graduate/Doctoral School)

PhD-Graduates interested in further academic career
Selection: Successful completion of PhD
Job market information (by Graduate School)

Non-research job in industry, public sector,..

Post-docs: career guidance, industry fellowships...
Selection: application for post-doc position
Job market information (by post-doc office)

Junior Professor on tenure track
Selection: application for tenure track position

Tenured Professor (teaching/research varying over lifetime, industry engagement...)
Selection: tenure evaluation

Selection: application for permanent position

Research/non-research job outside academia

Research/non-research job in industry, public sector,....; staff scientist role, permanent researcher at extra-university research institution...

Selection: Entry into Doctoral School
Job market information (by Graduate/Doctoral School)

Graduates (Master Level) interested in PhD

Same as for junior professor

As below plus teaching job in higher education...
Where will a biology PhD take you?

86,000 current US biology PhD students

1,900 to 3,900 foreign-trained PhDs start postdocs

720 leave the US

37-68,000 current postdocs

70% (5,800) postdoc

7 years average time to degree

9,000 receive PhDs

37% drop out

30% do more than one postdoc

A faculty job is an “alternative” career.

15% of PhDs get tenure-track faculty jobs within 6 years post grad.

29,000 current tenured and tenure-track faculty

17,000 current bio PhDs doing non-science jobs

22,500 current industry researchers

25,000 current non-tenure track academic positions

24,000 current non-research, science related jobs

10% of former postdocs (up from 2% in 2010) consider themselves unemployed.

At this rate, <10% of entering PhD students will become tenure-track faculty. Yet, 53% rank research professorships as their most desired career.

Sources:
3. Sauermann & Roach 2012 PLOS ONE. DOI: 10.1371/journal.pone.0036507

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