SCIENCE FOR GLOBAL NEEDS AND THE FUTURE RESEARCH WORKFORCE

Carthage Smith, OECD Global Science Forum

BETTER POLICIES FOR BETTER LIVES

Menu

1. What young researchers are calling for
2. OECD work on research careers
3. The big picture
4. Precarity
5. Diverse career pathways
6. Key takeaways

1. WHAT ARE YOUNG RESEARCHERS CALLING FOR?

Technological innovations for Discovering Solutions to the World's Greatest Challenges (GYA, Nov. 2023)

"Innovation processes should encourage citizen science and inclusion of local voices, to ensure sustainable progress. Active community involvement in design and execution stages of research and technology can increase relevance to local contexts and challenges."

ERCs should:

- Pioneer **interdisciplinary research** and innovation: spearheading initiatives that intersect multiple academic disciplines and seek multidimensional solutions.
- advocating for sustainable and responsible research practices that **prioritise societal interests and wellbeing**
- have a strong **commitment to ethical and equitable conduct** in research and professional interactions
- play a significant role in translating complex scientific concepts into **understandable narratives for the public**
- **influence policy-making processes**, driving the creation of informed policies
- foster a global approach to **solving shared challenges**

Reaffirming the role of Fundamental Sciences in Achieving Sustainable Development (GYA, Dec 2023)

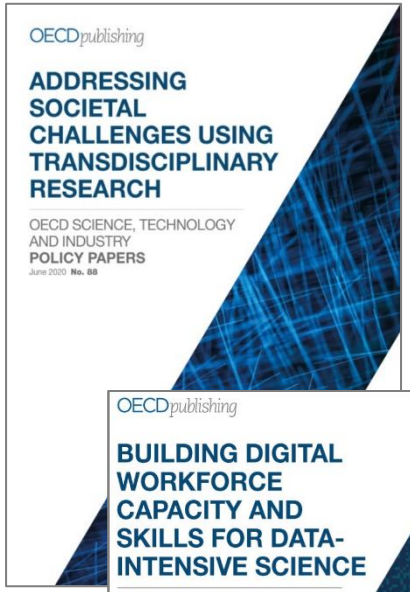
*..amplify the voices of early- and mid-career researchers around the world, and to empower them to "lead international, interdisciplinary and intergenerational **dialogue**"...research initiatives should be **inclusive**... The appreciation of and investment in these(fundamental science) fields is decreasing around the globe. Unequal access to open-access publications could **exacerbate existing inequalities**... limiting the ability of researchers from developing countries to **benefit from and contribute to global advancements.***

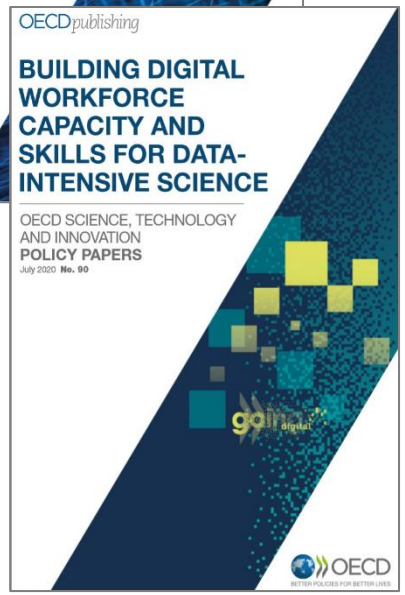
Proposed actions :

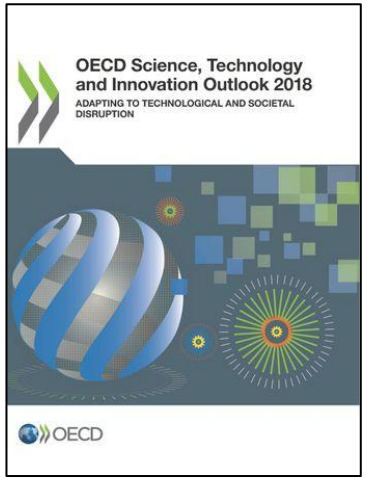
- Support fundamental research **in line with the sustainable development goals**
- Support **interdisciplinary** fundamental research
- Enhance **transitions from fundamental research to technological innovation**, entrepreneurship, and implementation
- Harness the **diversity of perspectives and knowledge systems**, including indigenous knowledge systems and historically marginalized communities
- increase awareness of **the connection between fundamental science and sustainable development**.

2. OECD WORK AND RESEARCH CAREERS

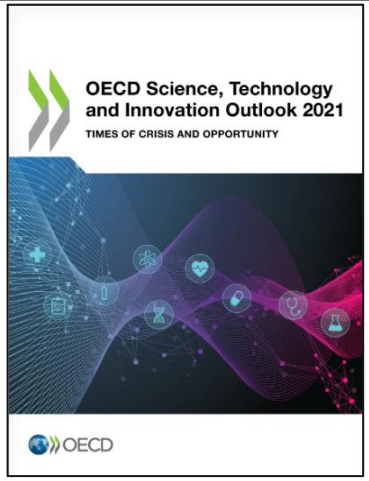
OECD GSF work on the research workforce (2018-)







Chapter 7: Gender in a changing context for STI



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

Policies to promote Equity, Diversity and Inclusion (EDI) in the Research workforce

July 2023-September 2024

Standard GSF project methodology

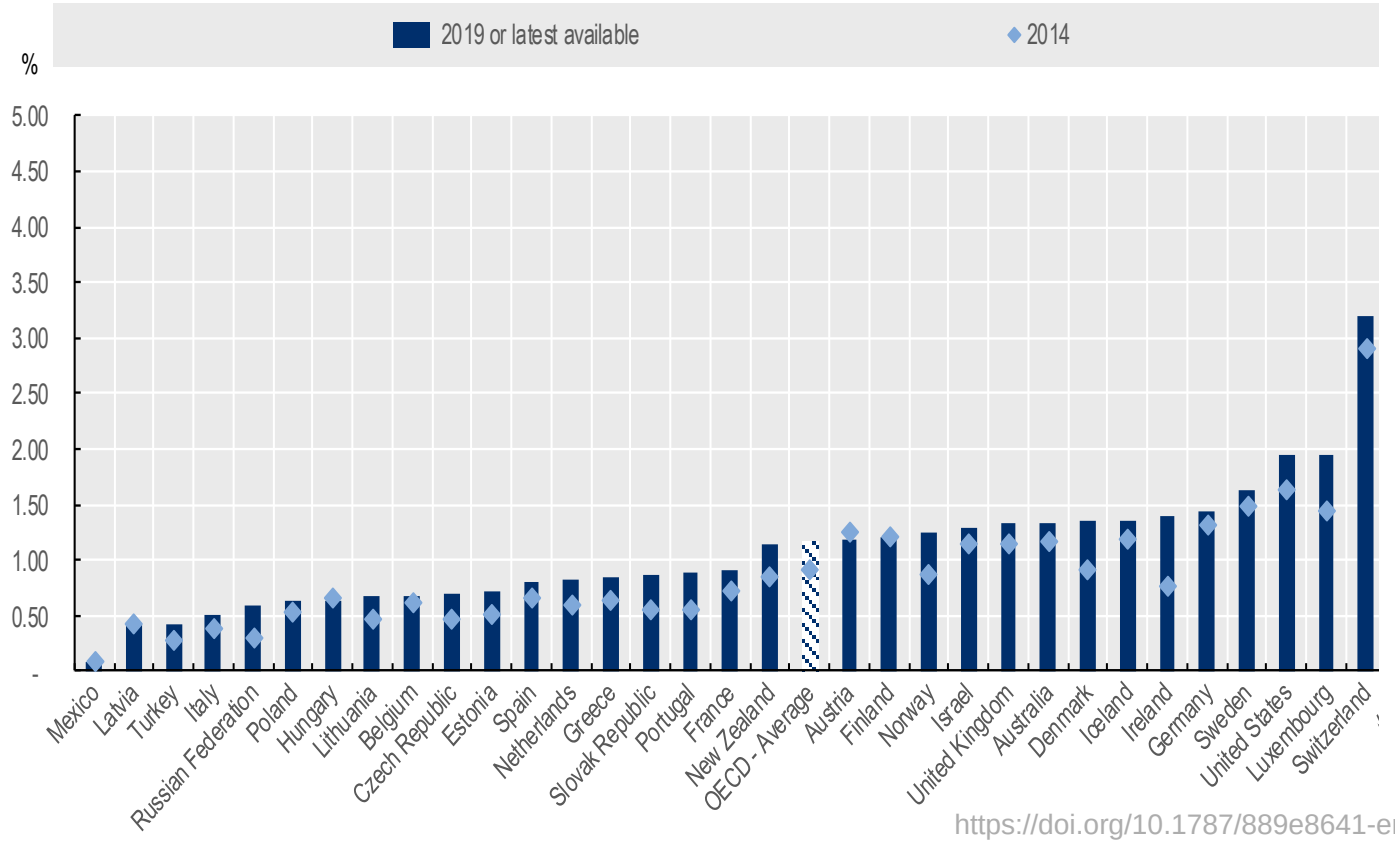
- Overseen by an *ad hoc* international expert group
- Identify and analyse existing statistical and policy data on doctoral and postdoctoral careers
- Desk-top analysis of the literature and development of a conceptual framework
- Detailed *de novo* country notes from ~15 OECD countries
- Panel interviews with different stakeholders (circa 100 persons in 12 countries) [Precariat project only]
- international workshops [+Foresight exercise]

3. THE BIG PICTURE

Supply and demand

Share of doctorate level attainment in the population

25-64 years, 2014 and 2019 or latest year available

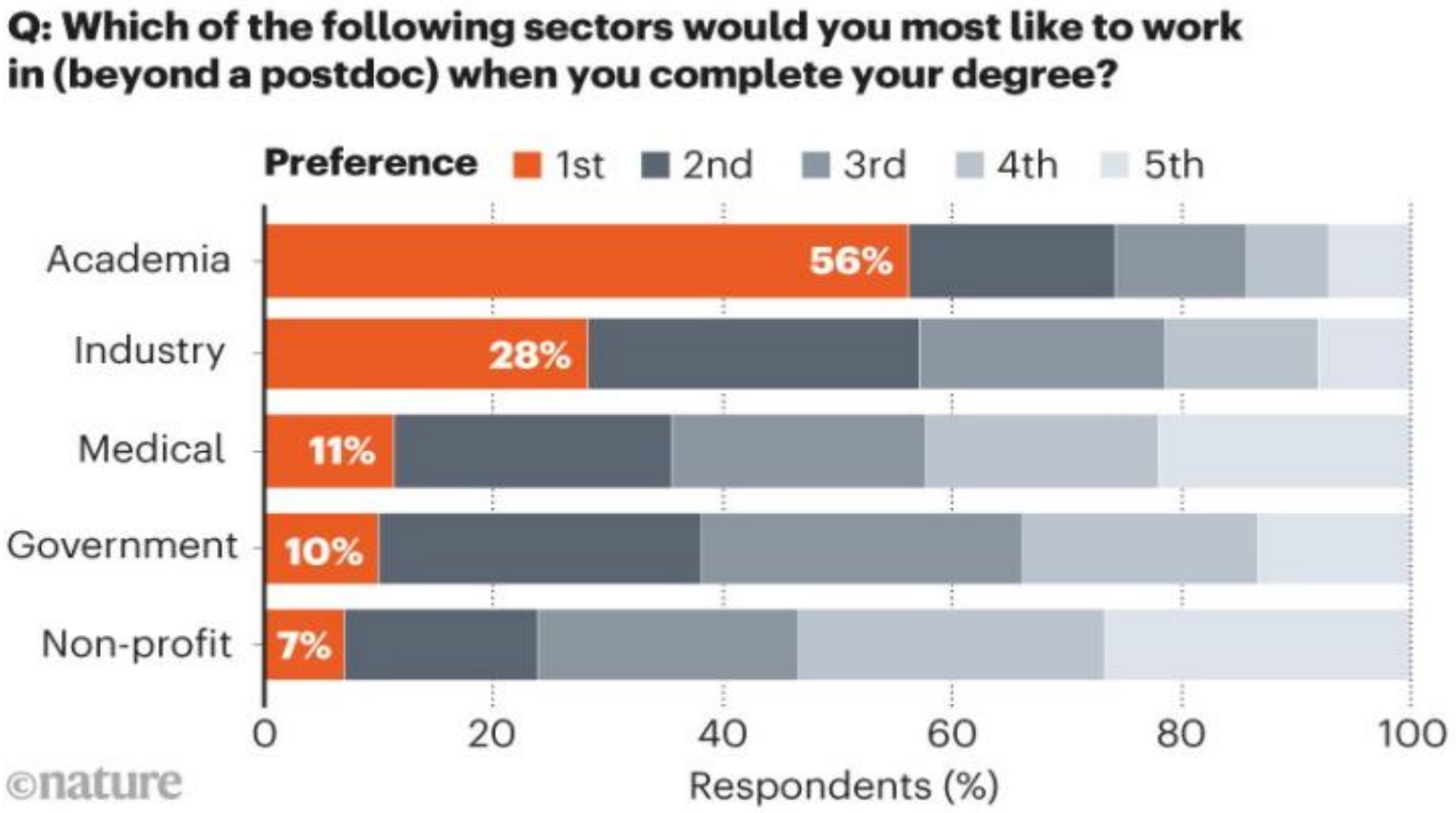


https://doi.org/10.1787/889e8641-en

- 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 **increased by 25%** during the 5-year period 2014-2019.

Great expectations?

What doctoral candidates want to do when they have their PhD



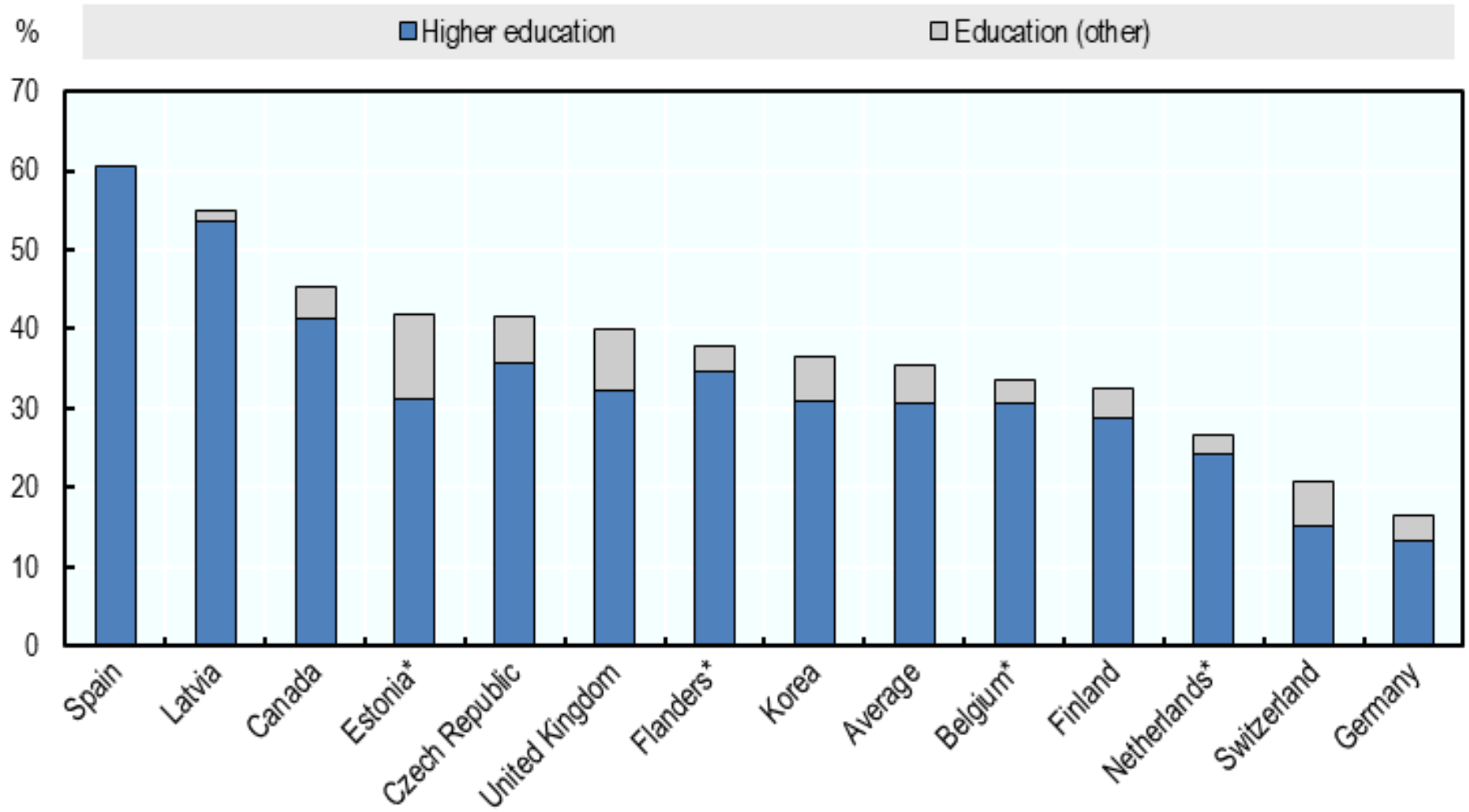
Source: *Nature* PhD Survey 2019

PhD candidates want to work in academia – a worldwide pattern

Source: 2019 Nature Survey of PhD Students https://www.nature.com/articles/d41586-019-03459-7

Where do PhDs actually lead?

Doctoral training is a stepping stone to multiple roles



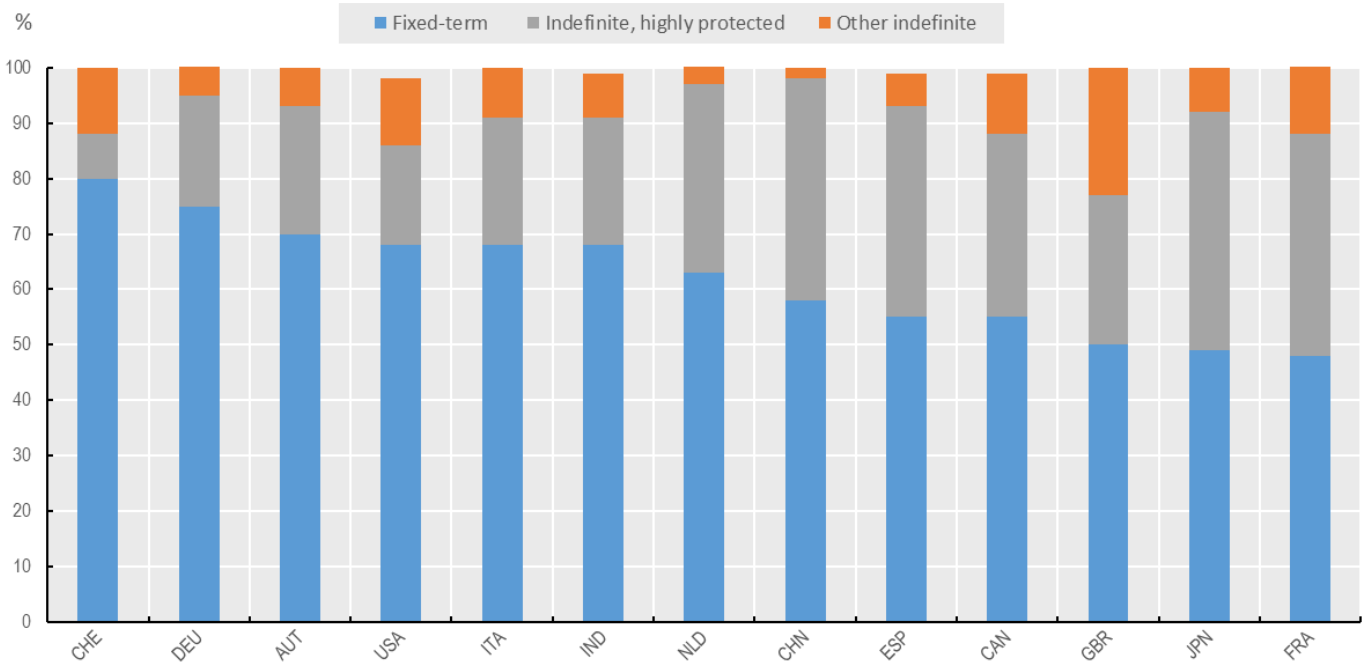
A minority of doctorate holders are employed in higher education in most OECD countries

Source: OECD (2019) Benchmarking Higher Education System Performance, based on OECD Careers of Doctorate Holders survey (CDH)

Supply and **demand**

Job security of corresponding authors, by country of residence

Percentage of corresponding authors under 45, 2018, selected economies



http://oe.cd/issa

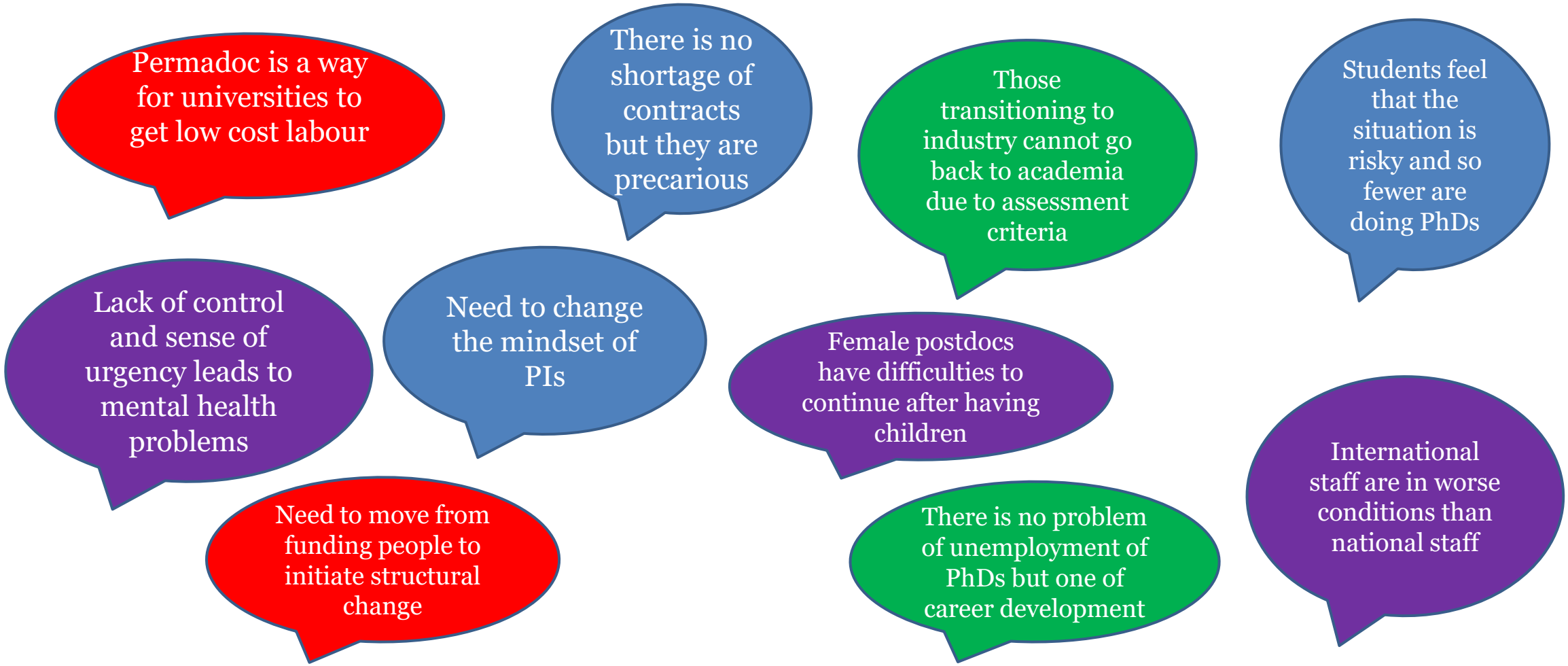
- **The traditional academic career cannot absorb the increasing number of doctorate holders wishing to stay in academia**
- Around one third of the OECD labour force are in temporary or part-time jobs or are self-employed, but **the scale of precarity is much higher in the academic research sector**,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

4. PRECARITY

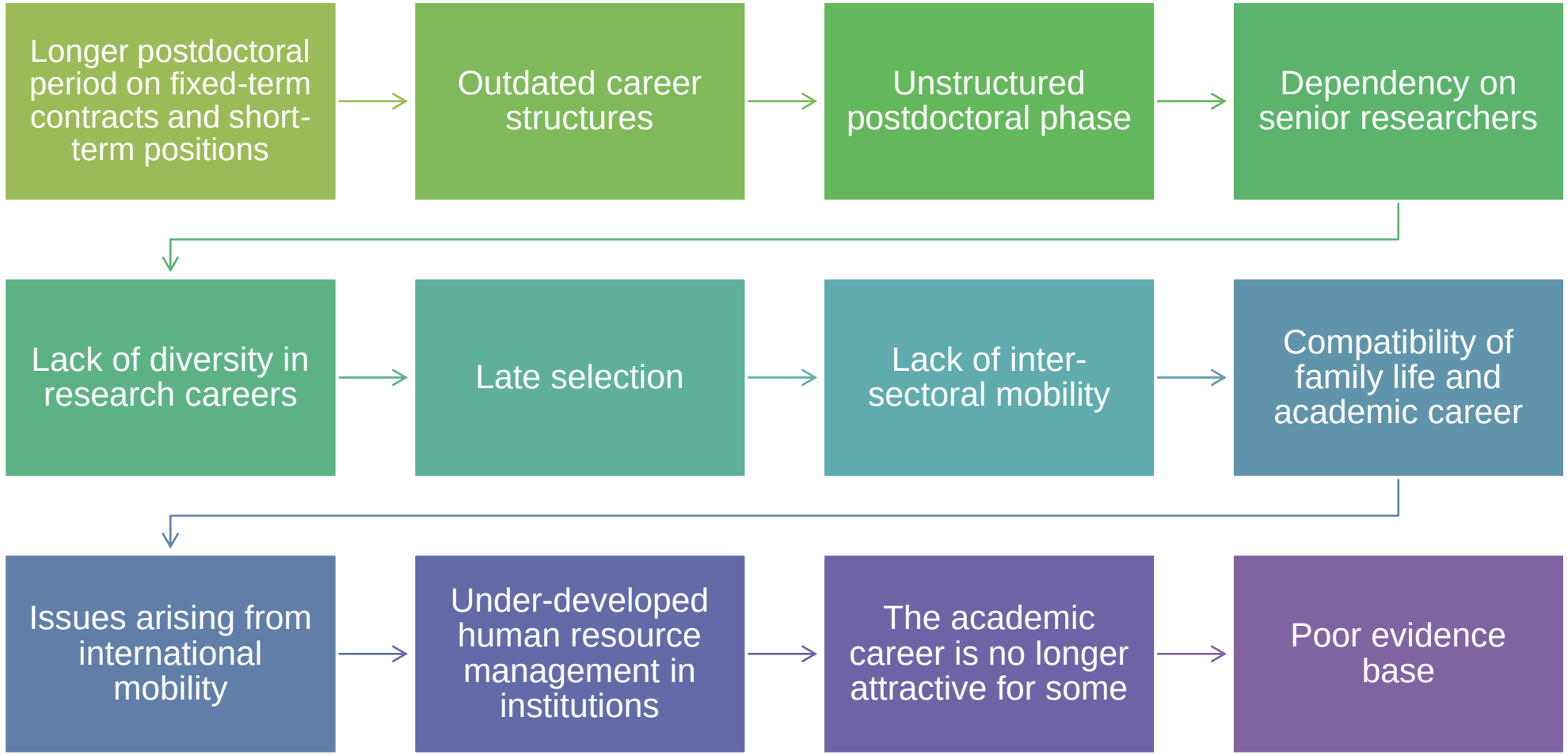
The effects of precarity

- 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



Challenges and causes



9 overarching policy recommendations

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
4. Establish better links between research assessment and funding, and human resource management policy objectives

Policy recommendations

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 regarding working conditions (rec 1)

- Make employment contracts the norm and limit use of stipends
- Include post-docs in established career frameworks with similar salaries and benefits to permanent staff
- Improve transparency on future career prospects
- Implement a minimum period for fixed term contracts (eg 3 yrs)
- Create diversified open-ended positions to replace fixed-term contracts that fulfil long-term needs
- Monitor working conditions of post-docs and employment status(via surveys and registry data)

5. PROMOTING DIVERSE CAREER PATHWAYS

8 Policy recommendations

Promote the **engagement** and interaction of institutions and funders with **employers** outside academia

Provide doctoral and postdoctoral researchers with **experience and skills** for diverse careers within and beyond academia

Render more **visible** and encourage **valorisation** of diverse career options within and beyond academia

Offer career development and **guidance** on career options for researchers

Promote **inter-sectoral mobility** with the **business** enterprise sector

Promote **inter-sectoral mobility** with **government** and private not-for-profit sectors

Reconfigure and support careers in **academic research**

Support international **mobility**

Rec 7 Policy options

Reconfigure and support careers in academic research

- National forums to discuss the working conditions, rewards and recognition, and career paths of academic researchers
- Common principles regarding academic research careers via a concordat or national framework
- Institutions implement initiatives to support inclusion, diversity and equity in academic research
- Promote changes to academic culture, evaluation systems, incentives and rewards, to value different career paths within academia as well as experience outside academia

Rec 8 Policy options

Support international mobility

- Support outgoing and incoming researchers to facilitate international mobility and a fluid global labour market
- Regulatory arrangements to facilitate integration of returning and foreign researchers, remove existing barriers
- Institutions support the integration of foreign researchers and ensure a level playing-field with national researchers
- Address the portability of pension rights across countries

KEY TAKEAWAYS

Need for systemic changes to the academic system

1. Promote and valorise a variety of different careers (basic, applied etc) within and outside academia
2. Universities and research providers/employers are the central actors
3. Policy mandates and incentives (measures and indicators) shape institutional behaviour
4. Funding and funder actions can be an important influence
5. Need systematically collected data on all research staff and their career trajectories to inform individual decision making and policies
6. All actors need to work together to effect change.

Converging challenges – relieving the bottleneck