UNDER PRESSURE

YOUNG RESEARCHERS ARE HAVING TO FIGHT HARDER THAN PAST GENERATIONS FOR A SMALLER SHARE OF THE ACADEMIC PIE.

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Scientists and policymakers around the world increasingly worry about the plight of young researchers in academia, and for good reason. Competition for tenure-track positions has surged, and some early-career researchers face tough odds in the quest for funding. As a result, many see lower pay–offs for their efforts in preparing and writing grant applications. Although everyone is under pressure, those just starting out seem to feel the impacts more acutely.

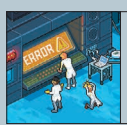
PHDS RISING, JOBS FLAT

The number of graduates with advanced science and engineering degrees has been rising around the world. The Organisation for Economic Co-operation and Development (OECD) has recorded an increase in the number of science-related doctorates that would typically funnel into academic positions. The leading OECD nations in 2014 were:

		Average annual increase
UNITED STATES	40,100	▲4.3%
GERMANY	20,600	▲0.8%
UNITED KINGDOM	17,400	▲6.2%
JAPAN	12,800	▲0.7%

1.6% The proportion of young people completing a doctorate of any kind in OECD member countries has doubled from **0.8%** less than two decades ago.

3,000 In most countries, however, the growth in academic jobs has not kept pace. US universities, for example, create only about **3,000** new full-time positions annually.



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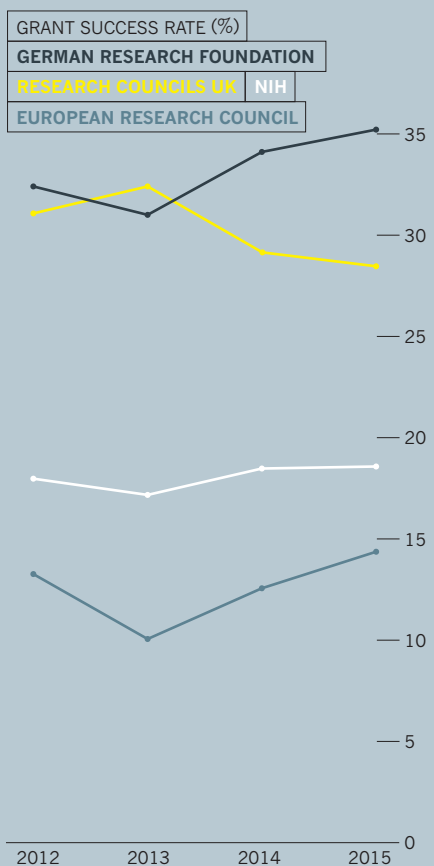
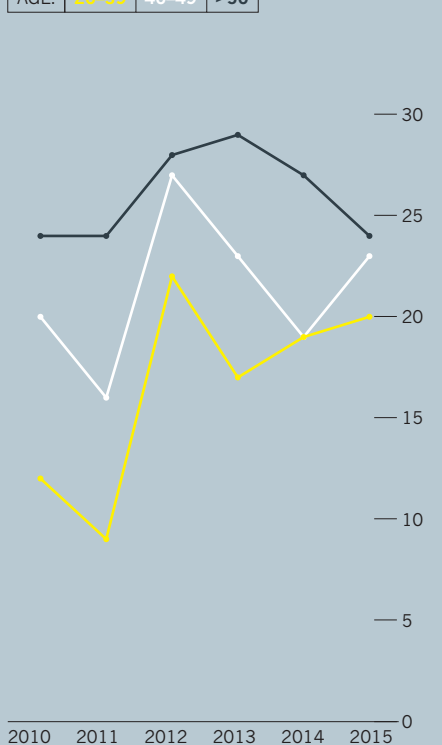
FUNDING FALTERS

Government funding for research has plateaued or declined in many countries, and success rates for grants is now below 20% for some of the most important funders.



TOUGH COMPETITION

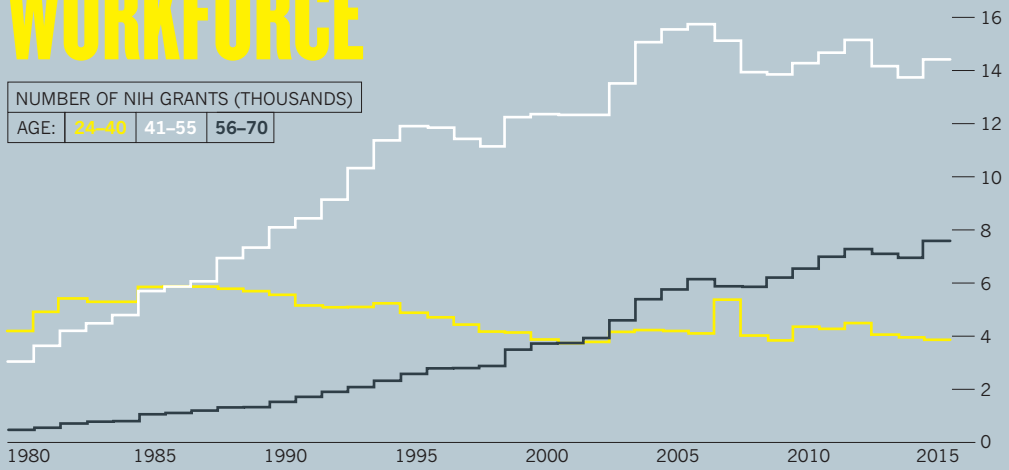
Early-career scientists struggle to compete for grants against researchers who have a better knowledge of the system, more academic and administrative resources and richer publication lists. The Medical Research Council (MRC) — part of Research Councils UK — for example, shows lower success rates for younger scientists.



SOURCES: OECD; *NATURE BIOTECHNOL.* **31,** 938–941 (2013); GERMAN RESEARCH FOUNDATION; RESEARCH COUNCILS UK; NIH; EUROPEAN RESEARCH COUNCIL; MRC

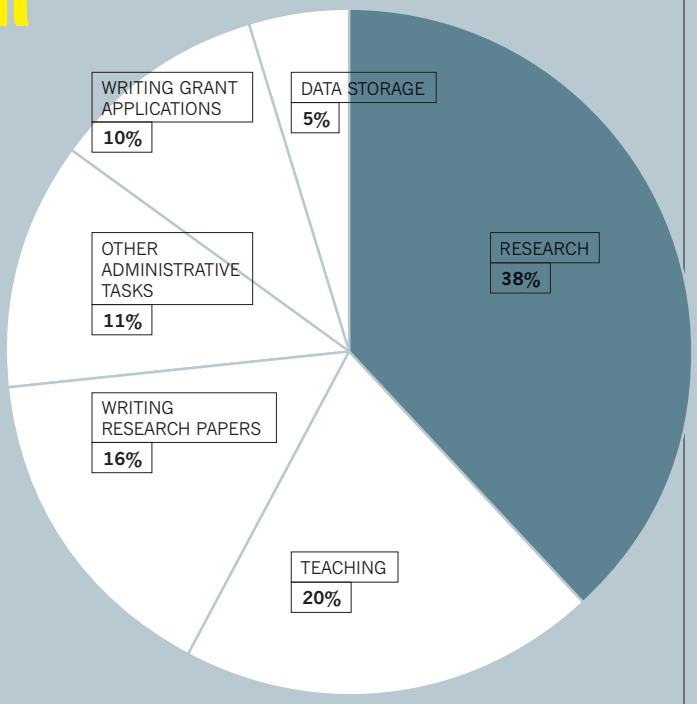
AGEING WORKFORCE

Older scientists get the vast majority of grants, a huge change from 30 years ago. Even though the National Institutes of Health (NIH) managed to even out its success rate by giving first-time applicants a boost, the average age at which PhD scientists earn their first major grant has been around 42 since 2000.

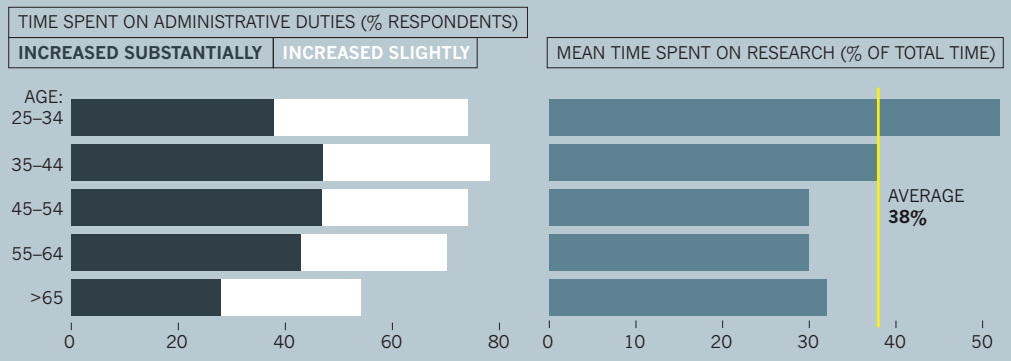


NO TIME FOR RESEARCH

The low success rates for grants means that researchers spend a lot of time applying for them. A survey run by *Nature* earlier this year found that academic researchers of all ages spend only about 40% of their time on actual research.



Across all age groups, more than 60% of respondents felt that the time spent on administrative duties had increased in the past five years. Mid-career respondents were most likely to note that administrative duties were increasing. The proportion of time they spent on research was also lower on average.



SOURCES: NIH; *NATURE* SALARY SURVEY 2016

STRESSED BUT SATISFIED

Despite the many challenges affecting young scientists, more than 60% say that they are satisfied or very satisfied with their careers. But older scientists are the happiest.