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## JOB SATISFACTION

# Turbulent times

*Nature's 2012 Salary and Satisfaction Survey suggests that many scientists are content with their work, but uneasy about finances.*

BY GENE RUSSO

**S**tacy Gelhaus has given a lot of thought to the career prospects of postdocs. Two years ago, she was chairwoman of the board of directors for the US National Postdoctoral Association (NPA) in Washington DC — so she knows that positions in academia come up relatively rarely.

And yet despite the risks, she chose to pursue academia after her own postdoctoral fellowship. Now an assistant research professor

in pharmacology at the University of Pittsburgh in Pennsylvania, she is living through some of the issues that she explored as an NPA officer, including the challenges of publishing, acquiring funding and balancing the demands of work and personal life. Her job is not yet on the tenure track — perhaps, she says, securing a good publication record and a sought-after grant will give her a chance to change that. For now, Gelhaus relishes having relatively few administrative duties. But, she says, she is already finding herself “competing

for grants in a situation where the overall funding dollar is decreasing as well as the number of tenure-track positions”.

Gelhaus enjoys her work, but uncertainty about the future has generated some anxiety. As an NPA officer, she learned that all career tracks have their downsides. “It really comes down to what you can live with, what you are willing to accept,” she says. “I’m sure that everyone has different deal-breakers.”

Gelhaus’s experience is common. The ►

## NATIONAL DIFFERENCES

*The geography of happiness*

Which nation has the most contented scientists? Among the countries with considerable numbers of respondents to *Nature's* survey, Sweden, Switzerland and Denmark earned top honours. Globally, 67% of respondents were satisfied to some degree with their jobs, in comparison with 86% in Switzerland, 82% in Denmark and 81% in Sweden.

Although salary is not the primary driver of satisfaction, it is a contributing factor. Some 78% of Swiss respondents were somewhat or very satisfied with their salaries, whereas UK and US respondents were closer to the global average of 36%. We found that Swiss earnings are indeed among the highest, with an average of approximately US\$104,000, although this did not take into account differences in the cost of living. The mean for industry positions in Europe was about \$86,000, in comparison with \$64,000 in academia.

Denmark, Sweden and Switzerland also had the fewest respondents agreeing that the recession has had a negative effect on satisfaction; they were joined in that by Germany, Australia and Brazil. Not surprisingly, given the state of their economies, Spain and Portugal had the most.

Ralph Eichler, president of the Swiss Federal Institute of Technology in Zurich, attributes Swiss satisfaction to reliable government funding and a good quality of life. (One measure of quality of life is

a country's 'happiness index', tracked in the World Database of Happiness (<http://www1.eur.nl/fsw/happiness/>); our results suggest that this is often highest in the countries with the most contented scientists.) But Eichler does not take his country's position for granted. "Switzerland is in a very good economic state," he says. But because exports are important to the nation, it "depends on the world economic status". Swiss scientists also reported high satisfaction with salary and independence in *Nature's* 2010 salary survey, as did those in Denmark, the Netherlands, Sweden and Germany.

Several countries reported that the amount of guidance at work was a problem. About 59% of respondents from Japan said that it had a negative impact on satisfaction, as did half of UK and German scientists. In general, guidance was a bigger concern for postdocs and assistant and associate professors than for those in more senior academic positions.

As in 2010, satisfaction with 'degree of independence' was high across the board, with more than 70% of respondents somewhat or very satisfied in most countries. India, China and Japan scored the lowest, with just 48% satisfied in Japan. Although scientists relish the freedom to pursue projects independently, they also seek mentors, as many made clear (a finding also familiar from *Nature's* 2011 survey of graduate students<sup>3</sup>).

China and India both rated worse than the global average for scientists who were 'not at all satisfied' with salary, guidance, total hours worked and independence. India also rated much worse than the global average for benefits such as retirement plan and health care. But scientists perceive improvements: India and China were the only countries in which satisfaction had increased for more than 50% of respondents in the past year.

When the results are broken down by continent and career stage, satisfaction looks similar in 2010 and 2012. However, the proportion of associate professors in North America reporting satisfaction has dipped from 75% to 68%, perhaps because of concerns about budgets and funding. Satisfaction for full professors also fell slightly. By contrast, the proportion of satisfied postdocs in Asia has risen, from 44% to 51%.

Martin Hynes, chief executive of the European Science Foundation in Strasbourg, France, notes that in the 2012 results, as in 2010, satisfaction for assistant professors and lecturers in Europe is lower than for those in North America, possibly because of lack of empowerment or tenure-track positions. But he is surprised that in both years, the satisfaction levels of full professors converged at a relatively high rating across continents. "It is remarkable that they all cluster so closely," he says. "Where is the image of the grumpy, eminent professor?" **G.R.**

► results of *Nature's* 2012 Salary and Satisfaction Survey show that most scientists feel engaged and pleased with their research, while tolerating modest salaries and benefits. But even those lucky enough to secure an academic post often remain uneasy about their future (see 'Income, independence and instability').

**ECONOMY EXACERBATES ANXIETIES**

The survey paints a sobering picture of concerns for many scientists as the global recession squeezes research budgets around the world. It also reinforces the overall conclusion of *Nature's* previous survey<sup>1</sup>, two years ago: when it comes to job satisfaction for scientists of all stripes, factors such as the independent pursuit of research and the prospects for learning and advancement are generally as important or more important than salary concerns.

More than 11,500 scientists from various career stages and academic fields replied to this year's survey. We had respondents from more than 100 nations, including considerable

sample sizes from more than a dozen (see 'The geography of happiness'). The results illustrate challenges and illuminate trends in the global scientific workforce.

The financial and other hurdles that researchers face are not new — especially in academia. But the precarious state of the

**66%** of respondents were somewhat or very satisfied with their jobs

global economy has intensified them. The 2012 survey included a suite of questions about the effects of the recession on job satisfaction.

Some respondents expressed despair. One said: "The shortfall in grant funding and the decline in state revenues both mean substantially more work writing grants that have a lower chance of funding. The increasing administrative burden also adds to the list of tasks that must be completed in the same

amount of time. Very demoralizing and exhausting." Another wrote: "Universities are under more 'performance' pressure, leading to more interference from management."

But several respondents said that although the recession and reduced funding levels were worrying, they had little effect on job satisfaction. One wrote: "My job satisfaction is based on my intellectual freedom. There is no connection between the markets and the pursuit of my scientific interests." And location matters. Another respondent, mourning his country's economic contraction, said: "I am a Spaniard living in Spain, bearing the various penances this implies."

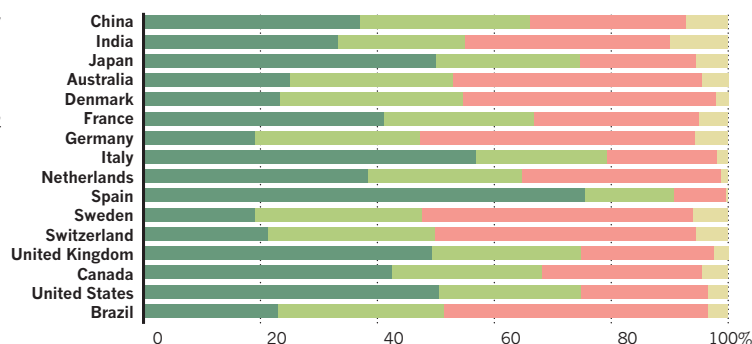
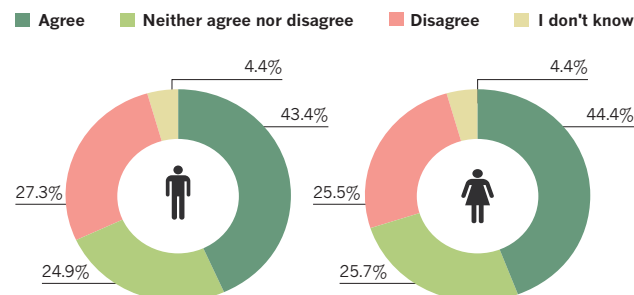
The more senior the scientists, the more likely they were to report that the recession had negatively affected their job satisfaction. Thirty-six per cent of respondents who had earned their highest degree in the past one to two years agreed strongly or to some extent that "the global recession has had a negative impact on my overall job satisfaction". By 11–15 years after earning the degree, agreement was 46%. Among those who had received their ►

# Income, independence and instability

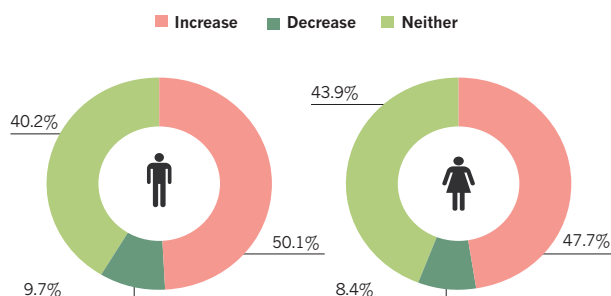
Selected statistics from *Nature's* international Satisfaction and Salary Survey illustrate the factors that affect the outlooks of scientists at various stages of their careers. The survey had more than 11,500 responses from researchers.

**Q** To what extent do you agree or disagree with the following statement?

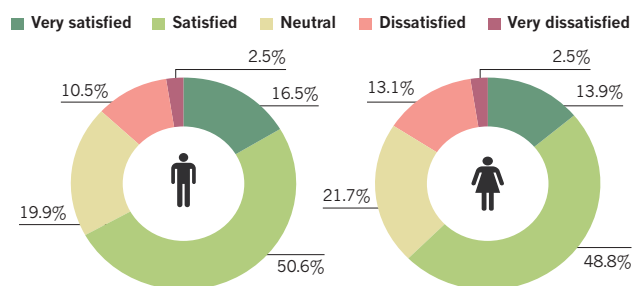
"The global recession has had a negative impact on my overall job satisfaction."



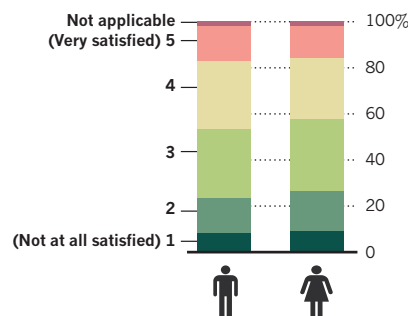
**Q** Did you receive an increase or decrease to your base salary in 2011?



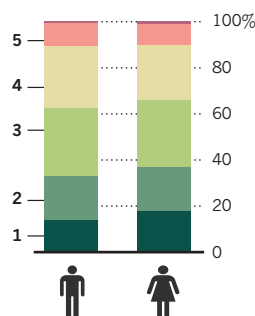
**Q** Overall, how satisfied are you with your current job?



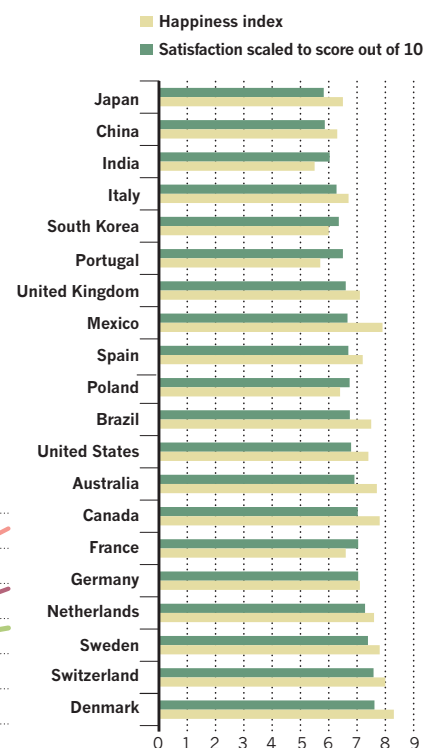
**Q** To what extent are you satisfied with the total hours worked per week in your primary job?



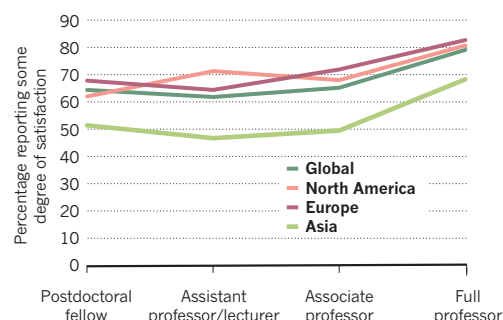
**Q** To what extent are you satisfied with the salary in your primary job?



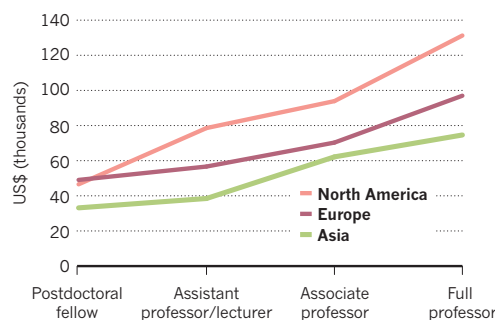
## OVERALL JOB SATISFACTION BY COUNTRY



## LEVELS OF SATISFACTION BY CONTINENT AND ACADEMIC CAREER STAGE



## MEAN SALARIES BY CONTINENT AND ACADEMIC CAREER STAGE



Salaries not adjusted for costs of living. Source: (happiness index) World Database of Happiness, Erasmus Univ. Rotterdam.

## GENDER

*Unequal pay, similar satisfaction*

Large salary disparities persist between male and female researchers, the results of *Nature's* survey suggest. But the gulf did not seem to affect most satisfaction ratings.

In some countries, the mean salaries reported for women were 75% of those reported for men, or even less. But several factors could contribute to that. From some nations, for example, we received many more responses from male senior scientists than from female senior scientists, and the apparent salary gulf could reflect this sampling bias. But that bias in itself could reflect the trend of more men advancing to higher positions, rather than suggesting that men are paid more for a given post — although both trends are troubling.

Other numbers suggest more similarities than divides. Some 50%

of men reported a pay rise in 2011, in comparison with 48% of women. Yet despite apparent salary discrepancies, women do not report much less satisfaction with their earnings. About 37% of men said they were somewhat or very satisfied, as did 33% of women.

Other attributes also showed comparable satisfaction. Men were slightly more content with the total number of hours worked per week (44% versus 40% for women), but women were more likely to be pleased with guidance from superiors or co-workers (35% of men were satisfied to some degree, in comparison with 40% of women).

Nor did gender make a difference to the perceived impact of the global recession: 43% of men agreed that the recession had reduced overall job satisfaction, as did 44% of women. **G.R.**

► degrees 16 years ago or more, it was 50%.

Responses to the statement “I feel that my salary would have increased in 2011 were it not for the global recession” showed a similar pattern, although this is probably partly because the salaries of postdocs, from whom we received many responses, vary little regardless of the state of the economy.

Scientists at all career stages seemed to be satisfied with most other aspects of their jobs — and, in many respects, men and women had similar satisfaction levels (see ‘Unequal pay, similar satisfaction’). As in the 2010 survey, scientists were generally very happy with their degree of independence. The proportion increased as career stage advanced: 70% of postdocs are somewhat or very satisfied with their degree of independence, in comparison with 87% of professors.

**NOW AND THEN**

The preliminary results of a separate, ongoing survey by Euroscience, a non-profit organization in Strasbourg, France, that represents scientists and promotes science in Europe, underscore the divide between current job satisfaction and anxieties about the future among early-career scientists. On the basis of responses from young European academic researchers, it found that nearly 80% expected still to be in academia in one year's time. But only 40% saw themselves still working at a research institute or university in five years. “I was satisfied as a postdoc, but definitely had anxiety looking ahead,” says Gelhaus. At the time, she adds, “there was a postdoc office and benefits were good, so there wasn't really too much to be unhappy about.”

“There are a lot of existential fears,” agrees Ruth Müller, a research fellow focusing on science and technology studies and innovation at the Austrian Institute of International Affairs in Vienna. “Will this translate into an occupation that will feed me, allow me to have a family?” Müller and her research team have completed more than 50 in-depth interviews with life scientists at different career stages to investigate how professional pressures affect their work practices and working relationships, especially during the postdoc period. One of her findings<sup>2</sup> was that the compulsion to pursue first-author publications often leads postdocs to eschew collaborations.

But, as with *Nature's* survey, Müller and her colleagues found that early-career researchers were passionate about their work. And it's clear from the *Nature* survey results on satisfaction with various job attributes that money is not the most important factor at any career stage, and especially among early-career researchers.

Still, economic conditions have heightened anxieties. “I do not think the recession dramatically impacts me as a postdoc currently,” noted one respondent to *Nature's* survey. “But the recession does add to my anxiety about finding a faculty position in an increasingly competitive job market with no clear indication that funding will increase in the near future.” ■

**Gene Russo** is *Nature's* Careers editor. **Fiona Watt** and **Laura Harper** contributed to the study design and data analysis.

1. Russo, G. *Nature* **465**, 1104–1107 (2010).
2. Müller, R. *Higher Edu. Policy* **25**, 289–311 (2012).
3. Russo, G. *Nature* **475**, 533–535 (2011).