RESTLESS MINDS

Analysis of a vast set of public CVs reveals the world’s most migratory scientists

By John Bohannon

Scientists are migratory beasts. It’s just the nature of the job: You spend your days at the border of human knowledge. Depending on the topic, only a dozen people may deeply understand your research—let alone help you push it further—and they are scattered across the world. For many, completing a Ph.D., doing postdoctoral research, and landing a permanent job all in one country is impossible. And so you wander.

Consider Rimantas Kodzius, possibly the most migratory scientist alive. Since leaving his home country of Lithuania in 1995 for graduate school in Austria, Kodzius, 42, has crossed 10 national borders. “I arrived in China just a week ago,” the synthetic biologist wrote in an email in March. “My home is wherever I work, where I live.” Kodzius has built an impressive career, including prestigious research positions in Germany, Japan, Sweden, and Saudi Arabia, where he started a biotech company and held a faculty position at King Abdullah University of Science and Technology in Thuwal. But last year he was invited to lead a well-funded new lab at Shanghai University in China. He couldn’t resist, he says: “Life without activity and adventures is not fulfilling.”

Social scientists are eager to study the wanderings of nomads like Kodzius to understand how the global scientific enterprise is evolving. You might expect that to be an easy task, because scientists log and publish every milestone of their research. But the lives of the scientists themselves are outside the frame. Surveys and government reports yield some information, but no data set comprehensively tracks scientific migration worldwide. And surveys keep people’s identifying information confidential, so individual migrations are impossible to track.

To find Kodzius and his fellow globetrotters, Science analyzed data from a new source: ORCID, the nonprofit organization that assigns unique identity codes to researchers (http://scim.ag/ORCIDid). ORCID wasn’t designed for that purpose, but its database of 3 million scientists—by far the largest public data set of academic CVs ever released—may become a vital tool for charting their flow around the world.

ORCID “is a big step forward,” says Paula
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Although the data set overrepresents some EU countries and underrepresents China, Science’s analysis reveals intriguing migration patterns. For example, about a third of those who earned their Ph.D. in the United Kingdom were living in another country by 2016. But only about 15% of Ph.D.s from other EU nations migrated away. Also, ORCID chronicles steady growth since 1990 in the number of foreign scientists immigrating to the United States (bottom). But in 2002, that annual influx stagnated, possibly because of the 2001 terrorist attacks.

As ORCID grows into a more comprehensive sample, policymakers will likely use it to track the impact of their efforts to entice research talent. Meanwhile, the data offer a unique glimpse into the migratory lives of the world’s knowledge producers.

Consider Danny van Noort, age 54, a biotechnology engineer who studied in Sweden and the Netherlands but is based in Singapore—for now. “After 4 months in Cambodia, I packed my bags again and went back to Sweden in 2014,” he recalls. “I got an offer from a former colleague to join him in Australia a few months later as a research fellow.” Each move offered a chance to push his research to a higher level by working with top experts or at cutting-edge facilities, he says. “I am ready to settle down somewhere nice, but my career doesn’t let me.”

Then there’s Delanyo Dovlo, a public health researcher for the World Health Organization (WHO) based in Brazzaville. “My first major migration was from Ghana to Namibia in 1999,” he says. By then, he had already studied in the United Kingdom and the United States. Then came “political interference” in Namibia, followed by “an opportunity to be well paid for once” at WHO. So he kept roving, migrating three more times between Europe and Africa.

The enticements—a bigger paycheck or access to top researchers—had better be good because there’s often a personal cost, Van Noort says. Migration “uproots you. It is a lonely existence, as friends are hard to come by and maintain. And there is no stability and security.” Kodzius echoes that sentiment: “I am still single,” he says bluntly.

Others see migrations as an end in themselves. “I only wish I could secure funding for more,” says Helena Pinheiro, 56, a biological engineer at the Superior Technical Institute in Lisbon, who has crossed national borders five times so far. “Living and working in another country … makes you more humane and understanding, provides happiness in so many unsuspected ways.” Then again, she notes, “crossing borders has always left me with the wish that borders would cease to exist.”
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