

Study finds talented scientists and engineers join technology startups for love of the job and not the pay

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New research from the University of Illinois at Urbana-Champaign and ESMT Berlin uncovers the factors influencing the job choices of

talented STEM Ph.D.s, showing how and why startups can hire high ability scientists and engineers.

Technology startups are often encouraged to hire the best scientists and engineers to help them succeed in commercializing cutting-edge technologies. But why would talented workers turn down jobs in big companies like Amazon and Google to instead work in riskier startups for lower pay?

Indeed, a growing body of entrepreneurship research shows that [startup](#) employees earn much less than their peers in large established firms, a fact that has been interpreted as evidence that startups are unable to hire high-ability workers.

However, in a forthcoming study in *Management Science*, Michael Roach, associate professor at the Gies College of Business, University of Illinois at Urbana-Champaign, and Henry Sauermann, professor of strategy and academic director of the Vali Entrepreneurship Hub at ESMT Berlin, show that some high-ability workers prefer to join startups for non-monetary benefits despite earning lower pay.

"A key insight from our research is that many high-ability scientists and engineers choose jobs in early-stage startups over large tech companies due to specific career preferences that align better with the unique work setting offered in startups," says Michael Roach. "Many of these individuals are interested in being startup employees rather than founders, which differs from the popular notion that it is primarily aspiring entrepreneurs who choose to work in startups."

At the same time, Roach notes that aspiring founders are also more likely to work in startups, often to gain experience that will help them to become better entrepreneurs in the future.

Using [survey data](#) that followed a cohort of more than 2,000 science and engineering Ph.D.s for nearly a decade, the researchers measured respondents' career preferences while in [graduate school](#) and related them to the Ph.D. graduates' first-time industry jobs in startups or established firms. This comprehensive approach allowed the researchers to capture a nuanced picture of the factors influencing job choice among high-ability scientists and engineers.

"High-ability graduates in startups earn roughly 20% lower pay than their peers in established firms," adds Henry Sauermann. "This suggests that for these individuals, the non-financial benefits of startup employment outweigh the lower levels of pay and resources compared to established firm employment."

More detailed data on the underlying reasons suggests that startup joiners highly value factors such as autonomy and opportunities to work on cutting-edge technologies. By analyzing both job applications and job offers, the researchers also found that a large pool of individuals attracted to working at startups enables startups to "cherry-pick" the most talented applicants. As a result, startup employees are on average of higher ability than established firm employees, as measured using the Ph.D. program ranking.

Roach and Sauermann's research provides valuable insights for founders, managers, and policymakers. It suggests that early-stage technology startups can overcome the challenges of attracting and retaining human capital by appealing to individuals who have a strong preference for working in an entrepreneurial environment.

"Although these individuals appear willing to 'pay' to work in startups, this does not necessarily come 'free' to their employers. Rather, some of the features that attract workers to startups—such as autonomy—may need to be managed carefully and may involve costs of their own," the

authors caution.

For Ph.D. scientists considering their career paths, the study offers a fresh perspective. It suggests that those who are attracted to the dynamic and innovative environment of startups may have to accept lower pay and higher risks but may end up having a more satisfying job.

Still, the authors advise job seekers to consider carefully what each type of job entails, rather than relying on assumptions and stereotypes. They recommend not only using comparison data on things such as pay, but also qualitative insights from current employees and those who left the company to go elsewhere.

The study also has implications for the broader technology sector and the economy. By demonstrating that startups can attract high-ability [human capital](#), it underscores the potential of startups to drive innovation and economic growth. The findings also highlight the benefits of fostering an entrepreneurial culture and environment in established firms to attract and retain top talent.

More information: Michael Roach et al, Can Technology Startups Hire Talented Early Employees? Ability, Preferences, and Employee First Job Choice, *Management Science* (2023). [DOI: 10.1287/mnsc.2023.4868](#)

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