THE TALENT EQUATION

The new "economics of talent" field aims to identify and nurture exceptional problem-solvers at an early stage

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Illustration by Yasmine Gateau

Before he became one of the greatest mathematicians in history, Srinivasa Ramanujan was a young clerk in India's southern port city of Madras. With no formal college education, he spent his free time scribbling strange but beautiful math formulas in notebooks. In 1913, hoping someone would take him seriously, he wrote a letter to G. H. Hardy, a top mathematician at Cambridge University.

"Local mathematicians are not able to understand me," Ramanujan wrote, sharing pages filled with his ideas on number theory and infinite series. At first, Hardy was unsure of what to make of it. But soon he realized he was looking at genius. Hardy brought Ramanujan to Cambridge, where his ideas took flight. Their partnership transformed mathematics and laid the foundation for breakthroughs in fields like cryptography and computer science, and even in the understanding of black holes.

Ramanujan's story raises three key questions. How can we identify talent? What support do brilliant minds need to thrive? And what is the cost to society when talent is wasted?

An emerging field, the economics of talent, seeks answers to these questions. The goal is to provide a road map for spurring innovation and unlocking progress on the world's toughest challenges, from climate change to public health.

We define talent as the capacity to solve novel problems efficiently in a person's late teenage years. Talent is shaped by both innate abilities and accumulated learning. It shows up in how quickly people grasp math or science, how naturally they engage with challenges, how creatively they apply knowledge to unfamiliar situations, and how they persevere until they reach solutions.

Seeking talent

History shows how an extraordinary individual can transform an entire field, from Albert Einstein's physics advances paving the way for nuclear energy to Jonas Salk's creation of the polio vaccine. More broadly, the allocation of talent can aid economic growth, as economist William Baumol argued in his work on productive and unproductive entrepreneurship. Kevin Murphy, Andrei Shleifer, and Robert Vishny showed that growth depends on talent allocation. Nations thrive when their brightest minds become researchers, engineers, or entrepreneurs—not when they spend their talent finding ways to manipulate financial and legal systems.

But first, their talent needs to be discovered and developed, an area economists have traditionally paid less attention to. Our blind spot means we don't know what policies can help promising people realize their potential. Even in higher-income countries, standardized tests and rigid curricula can overlook unconventional thinkers.

It is all too common for a precocious child to be dismissed as disruptive, or for a family in a remote region to have no idea that advanced training resources even exist. Studies in psychology also reveal that some children show "precocious talent" early on, but their spark can fizzle without specialized mentorship, intellectual stimulation, and supportive peer groups.

There's also understandable concern that focusing on a small group is elitist. But broad policies aren't necessarily at odds with targeted programs. Just as building soccer fields in every neighborhood makes it easier to find the next Pelé, investments in public goods like universal education and health care lift economic prospects for everyone.

Targeted support for young geniuses can complement those efforts and unlock tremendous progress at a relatively low cost, by ensuring that minds with extraordinary potential do not remain undiscovered or underutilized. As Ramanujan's case reminds us, overlooking even one such individual can mean sacrificing insights that transform entire fields.

What we know

It's well established that talent tends to manifest in the teenage years or sooner, something we can see in the winners of one of the top awards for mathematics. Half of the winners of the Fields Medal had previously competed in the International Mathematical Olympiad (IMO), a competition for high school students with only a few hundred participants per year.

The importance of supportive environments is also clear. Mentorship, financial support, and

engaging with peers can turn an isolated prodigy into a powerhouse of innovation. Economists such as Alex Bell and colleagues have shown that children of patent holders tend to become inventors themselves.

Our own research shows that IMO medalists from low-income countries are less likely to produce influential research, perhaps because they lack access to top universities, or more generally to institutional support and global networks. These findings suggest that even strong natural ability isn't enough if a young person faces financial and geographic barriers.

And it's clear that major gaps persist in discovering potential talent worldwide. About 90 percent of young people live in developing economies, yet people born in the United States, Europe, and Japan win the overwhelming majority of Nobel Prizes in chemistry, physics, and biology (see Chart 1).

While multiple factors could contribute to this disparity, developing economies often fail to identify top talent at an early stage. For instance, Africa has produced only three IMO gold medalists, compared with 86 for Romania. But there are encouraging signs. By enhancing its talent discovery and training programs, India finished fourth among more than 100 countries at last year's IMO, a remarkable leap from 52nd in 2017. The country engineered a similar transformation in chess as well.

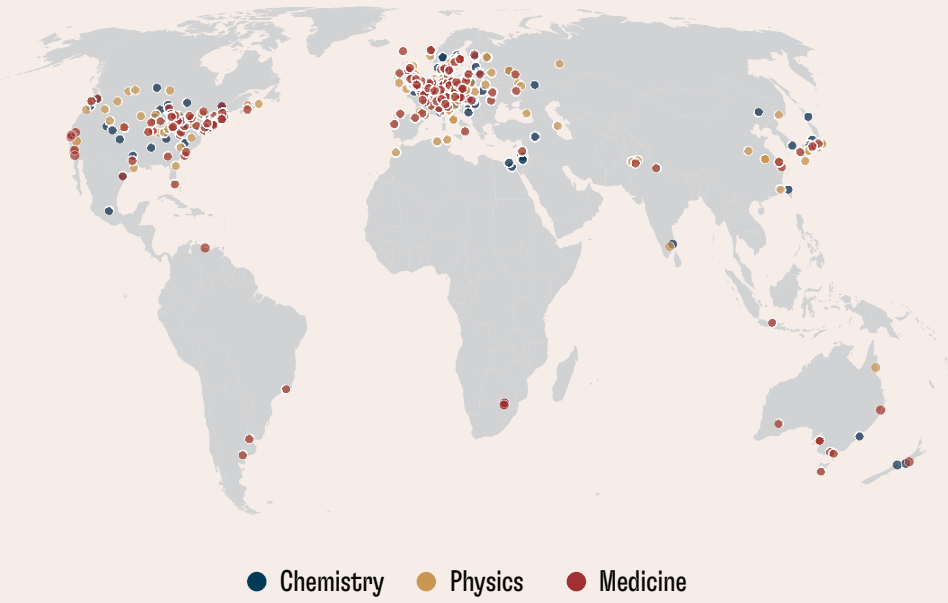
Finally, migration policies that promote brain circulation can help both sending and receiving countries. Bright students who move abroad often

CHART 1

Invisible geniuses

About 90 percent of young people live in developing economies, yet people born in the United States, Europe, and Japan win the majority of Nobel science prizes.

Birthplace of Nobel laureates, 1901–2024



SOURCE: Ruchir Agarwal.

reach greater heights, but home countries worry about losing their best minds. In rich countries, concerns about immigration can make it harder for foreign talent to secure visas.

However, people who study and train abroad and later return to their region of origin—or stay connected through global networks—are essential to spreading ideas and technology across borders. They start businesses that draw in foreign investment, create jobs, and provide essential services at home. Activating that two-way flow requires flexible policies and institutions that encourage the movement of knowledge and allow people to travel freely back and forth.

What we don't know

Despite these insights, further research is needed on identifying, nurturing, and understanding the impact of talent on innovation and economic growth.

Even in developed economies, it's hard to detect extraordinary ability that does not align with conventional measures. Standardized tests can miss creative reasoning, and students from remote or underprivileged regions may not take them at all.

Some education experts wonder if emerging technologies—such as artificial intelligence tools that analyze a student's work—could better identify hidden potential. Yet we still lack robust evidence on how to scale such methods or avoid biases that favor well-connected or wealthy applicants.

Spotting gifted students is one step. Ensuring their growth is another. While there's abundant research on educational strategies, much less is known about their use with high-ability students, who may learn differently.

Are specialized high schools with advanced curricula, highly qualified teachers, and advanced peers the best way to help promising students excel? Or could distance learning work for promising students with no access to highly qualified teachers locally? How helpful are quick boosts—like six-week intensive programs—in promoting learning and shaping career aspirations for such students? What are the returns on these interventions in terms of career outcomes and contributions to society?

While anecdotal accounts suggest that a handful of talented individuals can spur enormous progress, precisely how this unfolds remains underexplored. Which fields, beyond the usual suspects of technology, science, and art, benefit most from finding and developing exceptional ability? Should governments incentivize top minds to tackle social challenges like public health? Scholars of innovation often struggle to measure the long-term effects of a single breakthrough, or multiple breakthroughs from one lab.

The emerging field

Although the field is still forming, a new wave of economists is addressing these questions. We explored them at a National Bureau of Economic Research conference in November 2024. Discussions in Cambridge, Massachusetts, touched on research on the role of mentors in identifying exceptional talent; the effectiveness of summer programs in science, technology, engineering, and math for underrepresented youth; and the effects of targeted acceleration in middle school math.

One takeaway was the need for more systematic tracking. When we follow, say, 13-year-olds who show math flair at Olympiad camps, we can see whether scholarships and advanced mentorship change their lives.

Without solid data, policymakers and funders risk pouring resources into programs that might look good on paper but have limited real-world effects. Context is also essential: Approaches that succeed in a tech-savvy city may not work in a community with few teachers and sporadic electricity.

Developing clean energy, improving global health, and ensuring humanity benefits from advances in artificial intelligence demand fresh thinking. If a young person with the potential to advance nuclear fusion or design next-generation cures never finds the right mentors, the entire world loses.

Next steps

Our interest in the economics of talent is also about putting research into action. Motivated by our findings, we created the Global Talent Fund to drive initiatives like the Backing Invisible Geniuses (BIG) program, which provides scholarships, mentorship, and research opportunities to Olympiad medalists worldwide. Many of these scholars come from emerging market and developing economies, gaining access to opportunities they might not otherwise have.

The Global Talent Fund further supports organizations across more than 30 countries, helping nations like Pakistan achieve their best-ever results at the Math Olympiad. By investing in regional olympiads and local training partnerships, the fund empowers talented youth to reach new heights and realize their full potential.

The role of governments is also important. They can identify and nurture talent by funding specialized secondary school programs, engaging in outreach to marginalized areas, and adjusting admissions processes to spot unconventional brilliance.

Universities and research institutes can form partnerships with local schools, offer remote mentoring, and refine scholarships so that they target high-ability students with limited means. Businesses, which also gain by strengthening this pipeline, can set up labs in emerging regions, sponsor advanced camps or competitions, or fund online platforms that let young innovators connect with experts.

Nurturing top minds is not a rejection of broad policies that benefit all students. It is a complementary approach that can unlock game-changing discoveries. Failing to do so deepens global inequality of opportunity. Yet when even a single high-ability youth from a marginalized setting scales new heights, it gives kids the most powerful thought: So can I.

Far from elitism, this is a practical strategy to harness what social scientists and psychologists have long documented: Some individuals, by their late teens, already show extraordinary ability to tackle new problems. But before this precious resource can be allocated, it must be discovered and fostered. This is a missing piece of the talent equation that we must urgently address.

Human brilliance emerges in every part of the globe. By learning how to identify, nurture, and empower this gift, we can transform individual lives and inject new energy into innovation at large. Whether the next leap comes in renewable energy, biomedical technology, or an unforeseen domain, it could originate from someone we don't yet know.

As Hardy said of Ramanujan, "I owe more to him than to anyone else"—a timeless reminder of the transformative power of realized talent. The economics of talent is dedicated to finding ways to make sure such individuals get the chance to solve problems in ways that benefit us all. **F&D**

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