

World view



By Yasheng Huang

Universities must harness their financial value

Attacks on US academic institutions neglect the wealth that they generate for society.

It is common to hear that elite US research universities are fabulously wealthy. Their multibillion-dollar endowments are seen as vast, untapped resources. In reality, the wealth of even the most-affluent universities are dwarfed by the value their graduates generate for society.

In 2023, the endowment value of the top ten wealthiest US universities was around US\$271 billion (see go.nature.com/41wdedo). Yet, this is smaller than the estimated \$455-billion fortune of a single individual: entrepreneur Elon Musk. The five richest individuals in the world – Musk, Larry Ellison, Mark Zuckerberg, Jeff Bezos and Larry Page – command a combined \$1.55 trillion in net worth.

Have these five entrepreneurs, however innovative, really created more value than these ten world-leading institutions have? The evidence suggests otherwise.

A 2015 report (see go.nature.com/3vij3b1) on the Massachusetts Institute of Technology (MIT) in Cambridge calculated that active companies founded by the university's alumni constituted an economy equivalent to the tenth-largest in the world (\$1.9 trillion, as of 2014). A 2012 study on Stanford University, California, found much the same (go.nature.com/41vblh).

Yet, none of this value appears on a university's balance sheets. Unlike technology companies such as Tesla or Amazon, universities cannot claim the trillions of dollars generated by their faculty members, graduates and the technological ecosystems they seed.

The purpose of a research university is to create and disseminate knowledge as a public good, train human capital at scale and pursue fundamental enquiry without ownership of the resulting societal value. This has been a remarkably successful model. But its success is predicated on a long-standing social compact.

In exchange for producing this public good, the United States has supported its universities through federal research funding, tax exemptions and tax incentives for private philanthropy. This compact has driven scientific and technological leadership for generations.

However, this social compact is being challenged. The administration of US President Donald Trump has paused funding to elite universities including Harvard, in Cambridge, and Columbia, in New York City. It has suspended grants that had already been approved.

The Republican-controlled US Congress has proposed massive budget cuts to the National Institutes of Health and National Science Foundation and a tax of up to 21% on income from university endowments. If enacted, these measures will severely hamper the ability of research

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universities to generate knowledge at scale.

This is an existential moment that demands a drastic rethink of how universities sustain their operations. Institutions should explore how to capture a larger share of the financial returns on the knowledge they help to create. Existing mechanisms, such as patent licensing, remain modest. MIT received only \$40 million in gross licensing income in 2023, a tiny fraction of its 2024 annual operating expenditure of \$4.8 billion.

Universities should negotiate for more founding equity in ventures built on institutionally funded research, reflecting their contribution of talent, facilities and intellectual groundwork. Take Stanford's partnership with Google. By licensing its PageRank search algorithm – co-developed by then-students Page and Sergey Brin – Stanford secured a stake that yielded more than \$300 million. Similarly, MIT's ecosystem supported the creation of Akamai Technologies, translating campus research on distributed networks into a multibillion-dollar enterprise. But these are rare cases.

US universities could also look to the Weizmann Institute's technology-transfer arm, Yeda, in Rehovot, Israel, which aggressively commercializes research, fosters start-up companies and establishes industry partnerships in pharmaceuticals and biotechnology.

The relationship between a university and the external professional activities of its faculty members should also be reconsidered. Researchers often earn extra income through consulting, speaking engagements and expert witness testimony. Many universities limit external engagements to one day a week. But this rule caps the value that the university's faculty members can provide to the public.

Universities should 'tax' external income at a rate that does not deter these activities but generates proceeds that can be reinvested into research and teaching. This would be fair – recognition that people in applied fields have an obligation to colleagues in the basic sciences and humanities.

These proposals are by no means a panacea; nor can they replace federal investments in time to cushion the funding cuts. They are not without complications, risks and unknown impacts on research incentives. But these are managerial challenges.

Academics need to recognize that the social compact between society and universities might not return, even after the current political cycle. We cannot let our nostalgia for better days stop our search for alternative funding models. We need to innovate to save innovation in our research universities.

We need to start a rigorous debate about alternative funding sources and how to preserve the open nature of research. We might need new regulations, guidelines and culture. What is not an option is failing to act in the face of this grave threat to knowledge institutions.