

Industry collaboration enhances academic science, sociologist finds

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New research suggests that private industry and academic science pursue different goals with different consequences, but that the two can still be complementary.

Over the past three decades, private funding and collaboration in university-based research has risen steadily. That has led to concerns about the independence and integrity of public science. However, University of Chicago [sociologist](#) James Evans finds that industry can advance academic science by shaking up its conservative nature and encouraging novel discovery.

Evans's research, released today in the *American Journal of Sociology*, focuses on the science surrounding *Arabidopsis thaliana*, a [flowering plant](#) that has become the dominate [genetic model](#) in plant and agricultural sciences. Evans looked at over 18,000 research articles involving *Arabidopsis*, mapping out which articles are linked together by common research themes, methods, or citations. He could then compare those data to funding sources for each article.

The results show that government-funded studies tended to cluster around related themes and theoretical hubs. Industry-funded work on the other hand tended to stray more from hubs and explore novel gene combinations, use new techniques, or investigate previously unexplored biological processes. "For the network of scientific ideas surrounding *Arabidopsis*, industry sponsorship weaves discoveries around the periphery into looser, more expansive knowledge," Evans writes. In

short, industry pushes scientists "to know less about more."

The findings make sense considering the differing motivations of academic and industry science, Evans argues. Most academic science is incremental and theory-driven. Because government grant money is dispensed by scientists' peers, scientists have little incentive to step outside existing theoretical frameworks. Industry on the other hand rewards new (and potentially profitable) discoveries. It cares little for theory explaining those discoveries. As such, industry encourages innovation by "infusing the pool of theory-driven experiments with unanticipated questions and answers," Evans said.

There's a danger, as government support for science wanes, that the scale could tip too far, at the cost of deep theoretical understanding and the methodical, confirmatory process that is the hallmark of university science, Evans says. But in general, his analysis paints a complementary picture of the two enterprises.

"Governments reward replication; companies enable novelty. Governments sponsor refinements in the thick of existing hubs of scientific activity; industry patronizes pioneering activity into unknown, sometimes desolate, scientific territory."

More information: James A. Evans, "Industry Induces Academic Science to Know Less about More." *American Journal of Sociology* 166:2.

Provided by University of Chicago

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