

Stanford SOCIAL INNOVATION^{Review}

Books

A Revolution in Science Collaboration?

By Sukrit Silas & Kali Allison

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BOOKS

REVIEWS OF NEW AND NOTABLE TITLES

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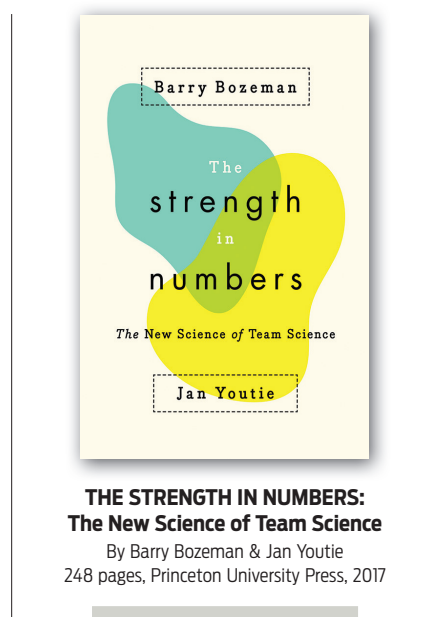
A Revolution in Science Collaboration?

REVIEW BY SUKRIT SILAS
& KALI ALLISON

Science has never been a solitary enterprise. Theoretical advances are not *made*; they *emerge* from within communities of scientists, and it is often difficult to pinpoint a single event of “discovery.” Even when theories come together in the hands of particular scientists, assigning credit is an exercise rife with intrigue. Some of history’s most momentous scientific breakthroughs are no exception: Charles Darwin and Alfred Russel Wallace came up with theories of evolution concurrently; the dispute continues over whether Isaac Newton or Gottfried Wilhelm Leibniz invented calculus.

Yet, it is clear that practicing science in the 21st century requires an unprecedented level of teamwork, to meet the demands for specialized skills posed by modern scientific and social problems. *The Strength in Numbers* is an attempt to understand—and, indeed, harness for social good—what the authors term a “revolution” characterized by “the growth in the sheer number of collaborators, but also ... a greater mix in the number and disciplinary diversity of collaborators.”

Part anthropology of scientific teams, part sociology of scientific collaboration, and part self-help for practicing scientists, the book may seem too ambitious and simultaneously not ambitious enough to some readers. The authors surveyed more than 600 scientists (mostly tenured professors) from 108 US universities across various disciplines about their experiences with collaborative research. They suggest an “aggregate model” for evaluating a research collaboration’s effectiveness, which they use to build multifaceted assessments of scientific teams from their survey data. The process involves assessing factors such as the ability to work through differences in prac-



**THE STRENGTH IN NUMBERS:
The New Science of Team Science**
By Barry Bozeman & Jan Youtie
248 pages, Princeton University Press, 2017

tice across fields, chemistry among team members, and the team leader’s or leaders’ management ability. On this last factor, the authors recommend that project leaders consult all collaborators at all key points in the research to ensure collective buy-in—a practice they call “Consultative Collaboration Management.”

The book succeeds on several counts. The diversity of scientific disciplines that the survey encompasses is remarkable, especially given the amount of effort required to organize the subjective experiences of researchers across disciplines, each with its own norms for such things as attribution, authorship, and publication. The study’s disciplinary diversity stands in contrast with much of the previous research on scientific collaboration, which has focused on the biosciences.

Also commendable is the authors’ determination to maintain a subjective tone in presenting their findings. “It is our subjects’ words that provide most of the knowledge presented here,” they write. This qualitative approach is especially welcome: Scientific academia relies excessively on easily quantified outputs such as coauthorship and citation counts as metrics of productivity. In our view, these metrics may not only be misleading but also drive the vicious

publish-or-perish cycle that lies at the heart of perverse incentives in the practice of science.

It is unfortunate, then, that the authors devote much of the rest of the book to discussing authorship and suggesting remedies for teams experiencing disagreements over research credit. The preoccupation with citations and authorship somewhat undermines the book’s objective of providing a more holistic view of modern scientific collaborations that can contribute to social good. Moreover, in emphasizing the novelty of its approach, the book fails to place the authors’ findings in the context of preexisting literature. This includes decades of work in operations research and management science around concepts such as transaction costs and exchange theory, which could help illuminate team members’ potential psychological barriers to collaboration and draw more concrete lessons from the authors’ findings for researchers and leaders outside of scientific academia.

Underlying the book’s sentiment is the commendable ideal that scientific research ought to be a collective endeavor for the benefit of more than just the individual scientists’ careers. “Research effectiveness is not best viewed in terms of personal gain,” they write. But they do not fully explore what, if anything, can be done at a systemic or policy level to motivate scientists to pursue broader social goals. How should we restructure the scientific establishment for a collaboration-driven future? The book treats the fault lines encountered in the course of scientific collaborations almost as givens, rather than social constructs over which we might have some control. In this context at least, the authors’ entreaties for more effective communication in scientific teams risk ringing hollow, as the Consultative Collaboration Management approach appears to treat only the symptoms of the disease rather than the cause. The reader is left wondering what could be done to address institutional barriers that may prevent collaboration in the first place—such as hiring practices based on publication metrics.

JONATHAN LEVY is a professor of history at the University of Chicago and author of the forthcoming book *Ages of American Capitalism*.

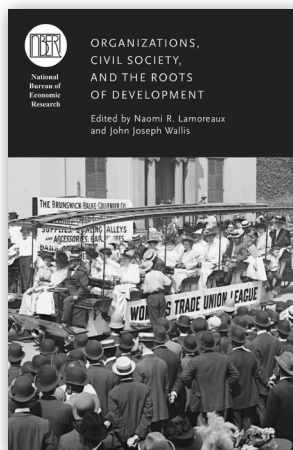
Lacking a concrete call to action, *The Strength in Numbers* feels like a missed opportunity. A range of policy changes could improve scientific practice, both for scientists and for society at large. These include providing extensive management training to graduate students early on in their academic careers, establishing permanent senior scientist positions at universities for postdoctoral scholars who prefer not to manage lab groups and bring in grants, and restructuring assessment mechanisms of scientific work to de-emphasize hollow metrics such as a scientist's number of publications and citations. We remain convinced that the scientific community is ultimately capable of holding itself to a higher standard. This book about a revolution in 21st-century science could do with a little more revolution-ary thinking. ■

Organizations for All

REVIEW BY JONATHAN LEVY

For the longest time, social innovation was available only to elites, who controlled governments and thereby decided which individuals could formally organize, on what terms, and toward what ends. The many benefits of formal association—of, say, chartering a corporation—not surprisingly flowed to them. Only in a number of countries relatively recently, sometime during the 19th century, did the tools and benefits of formal organization become available in principle to all, on a more democratic, impersonal basis. When they did, “open access” social orders began to emerge in tandem with political democracy and greater economic dynamism.

That is the sweeping thesis behind *Organizations, Civil Society, and the Roots of Development*, a collection of essays edited by two of the best economic historians in the academy, Naomi R. Lamoreaux and John Joseph Wallis. This book brings together



ORGANIZATIONS, CIVIL SOCIETY, AND THE ROOTS OF DEVELOPMENT

Naomi R. Lamoreaux and John Joseph Wallis, editors
448 pages, University of Chicago Press, 2017

an unusually diverse cast consisting of historians, economists, political scientists, sociologists, and a political theorist. The animating spirit of the volume is an earlier effort, coauthored by Wallis, Douglass C. North, and Barry R. Weingast. Their ambitious book, *Violence and Social Orders: A Conceptual Framework for Interpreting Recorded Human History*, first analytically defined an open-access social order and explained why, across history, self-interested governing elites restricted access to the tools and benefits of formal organization. The introduction to this book provides a lucid entry point into the microeconomic foundations of that grand narrative. But the bulk of it focuses, in rich detail, on a historical moment of transformation: the 19th century.

You can agree with North, Wallis, and Weingast's original thesis; disagree; or—like me—fall somewhere in between, and still benefit from reading *Organizations, Civil Society, and the Roots of Development*. You could also not care so much about academic debates and still benefit.

Many readers might be surprised to learn just how contested many of the tools that business and social entrepreneurs take for granted when starting and perpetuating organizations today once were. They also might appreciate knowing just how much

social innovation has been inextricably at stake in the great themes of modern history, including economic growth, the rise of democracy, and the evolution of civil and political rights. Many scholars will appreciate knowing all of this too, since until now historians have documented only parts. Now much more of it is available under a unified, if contestable, framework.

Alexis de Tocqueville's *Democracy in America* posited that the United States possessed a uniquely dynamic civil society, where “voluntary associations” abounded and flourished. But when Tocqueville traveled to America, it was not possible simply to create a corporation devoted to pursuing any end that a flesh-and-blood individual might legally pursue. Various laws forbade it. One chapter in the book, by the legal scholar Richard Brooks and the economic historian Timothy W. Guinnane, helpfully distinguishes between “the right to associate” and “the rights of associations.” The right to associate through formal, legal association in almost all states remained quite restricted. A chapter by historian Ruth H. Bloch and Lamoreaux catalogues for the first time the “legal constraints on the development of American civil society.” There were many. Courts found various reasons to revoke corporate charters. Take redundancy. Imagine if you could not charter a nonprofit because another nonprofit, with the same general purpose, already existed in your neighborhood. Furthermore, “the rights of associations” remained restricted. Many legal benefits of incorporation that we take for granted today—the ability to own and convey property, legal perpetuity, the ability to sue in courts, or limited liability—emerged only in fits and starts. Organizational purpose and means were not flexible (an issue of interest today, with the arrival of many hybrid organizations, such as benefit corporations). This was true then for both joint-stock companies and nonprofit corporations.

How and why did open access emerge, and when and where? There is no single, tidy cause or explanation. The editors appeal