TWO

What Is Ethical Research?

If you look up "ethics in social science research" online, you will see that most discussions are dominated by issues surrounding the treatment of research participants, such as survey respondents and the people who participate in lab experiments. There are many important issues here—informed consent, confidentiality, and the rights of participants—and many past episodes demonstrate the abuse that can ensue when social scientists are cavalier about their core responsibilities to study participants (Desposato 2015).

At the same time, being an ethical social scientist goes beyond our responsibilities toward study participants. Our work as social scientists is premised on the goal of better understanding the world around us, and we do so as part of a larger community pursuing this same end. The importance of the overall enterprise and the authority granted to social scientist experts in public discourse oblige us to make our research as scientific as possible. We have to uphold our end of the bargain.

This chapter discusses the *ethos* of scientific research: the values that ought to inform the practices to which scientists aspire. We frame much of the chapter around one of the most famous and enduring discussions of the norms of science, by Robert K. Merton, a distinguished sociologist of the last century.[1] Writing in 1942, Merton was less than

1. Not to be confused with his son, Robert C. Merton, the Nobel Prize–winning economist.

a generation removed from the development of quantum mechanics, less than a decade away from the discovery of nuclear fission, and wrote in the very same year that the first patient was treated with antibiotics. Perhaps for this reason, Merton saw science as an extremely well-functioning system for producing knowledge, and his discussion of the ethos of science was an effort to explain why science worked so well.

Researchers have long held up the values of openness and replication as central to what they do, but as we show in the next few chapters, real-world practice has not always lived up to those ideals. Alarms have been raised about the corruption of science and the potential erosion of its credibility and effectiveness. This has led to renewed interest in Merton's writing as a guide to the core ideals of a strong scientific enterprise. As this chapter makes clear, we view the recent move toward research transparency in the social sciences as a key part of efforts to bring researchers' actions back in line with their ideals.

NORMS OF ETHICAL RESEARCH

Merton's 1942 article is arguably the most influential and most cited modern discussion of the ethos of scientific research. His treatment embeds scientists in a social system with a set of norms and describes the incentives facing individual researchers as they act within that structure. Norms have a dual character: the incentives provided by a well-functioning system support behavior that adheres to the norms, but the system also works because actors internalize the norms—they buy in. As Merton puts it, the set of scientific norms are "binding, not only because they are procedurally efficient, but because they are believed to be right and good. They are moral as well as technical prescriptions" (p. 270; here and in the rest of this chapter, we quote the reprint, Merton 1973).

Although social science training programs differ greatly across universities and fields, it is safe to say that many (if not most) graduate students never receive any formal training in the ethos of scientific research that Merton discusses. This was certainly the case for the authors of this book, who never took a course on these topics in their doctoral training programs. There has been an encouraging trend, especially in health-related fields, toward more training in the Responsible Conduct of Research, which incorporates some of the research transparency issues that we emphasize. But in most cases, students simply pick up the prevailing researcher values, expectations, and norms from their advisor, other faculty, and fellow students; the term *role model,*

incidentally, also comes from Merton. Aspiring social scientists often simply absorb elements of the scientific ethos while interacting with colleagues, but there are worries that negative lessons can be passed along this way as well.

The four core values of scientific research that Merton articulates are *universalism*, *communality*, *disinterestedness*, and *organized skepticism*. We go through these in turn in the following subsections and link them back to the broader goal of research transparency.

Before diving in, you might be wondering about the origin of these norms of research practice in contemporary universities. While there are multiple influences and contributing factors, some elements of the culture of the modern research university can be traced pretty directly back to the ascetic and communal practices of medieval European monastic scholars (Clark 2006). Food for thought!

Universalism

The first core value of the scientific ethos that Merton identifies is universalism, or the principle that "the acceptance or rejection of claims . . . is not to depend on the personal or social attributes of their protagonist" (p. 270). The idea is that research findings are fundamentally "impersonal," and that the validity of a claim that's made should not rest on who's making it. In many human interactions, the rich, connected, or famous have a great degree of power and control due to their high social standing; think of how the sales of a new fashion accessory skyrocket when a Hollywood star dons it on the red carpet. But that isn't how science is supposed to work: research is supposed to lead to general truths, not fads. If I'm a powerful person and I think the world is flat, it really doesn't matter from a scientific perspective, because researchers can objectively prove that the Earth is round.[2] No one is above the law when it comes to science, and no amount of money can change the truths that emerge from physics, math, or (we hope) the social sciences.

This universalist ideal implies that anyone with the right training should be able to contribute to scientific progress, regardless of their social background, and that one's standing in the scientific community flows from intellectual contributions rather than social origins. When

2. Nor any amount of skill in the game of basketball. See the recent controversy in the United States regarding NBA star Kyrie Irving's apparently sincere belief that the Earth is, in fact, flat: http://www.rollingstone.com/culture/news/kyrie-irvings-idiotic-flat-earth-belief-is-catching-on-w494810.

Merton wrote, in the early 1940s, that "universalism finds further expression in the demand that careers be open to talents" (p. 272), his views were strongly influenced by the Nazi regime in Germany, which had begun by dismissing Jewish scientists from universities shortly after taking power, in what turned out to be the first steps toward far greater atrocities. Many of those scientists fled to the United States, and their subsequent research contributions have been credited with establishing U.S. leadership in world science, which persists up to this day.

A broader implication is that societies that promote equality of educational opportunity may experience the most rapid scientific progress: since everybody from all walks of life—regardless of gender, ethnicity, religion, sexuality, academic pedigree, or other social distinctions—can contribute to research, restricting access to scientific training would effectively shut whole groups of people out of the scientific endeavor, impoverishing learning. Of course, most human societies today, including our own, fall far short of the ideal of equality of opportunity. Social groups are often systematically excluded, or discriminated against, on the basis of their identity. Merton writes that "when the larger culture opposes universalism, the ethos of science is subjected to serious strain" (p. 271). The fact that women and members of many ethnic groups are chronically underrepresented as university faculty researchers in the United States across social science fields is an indication that our society still has a long way to go.

Communality

Merton defines the second core value, communality, as follows: "The substantive findings of science are a product of social collaboration and are assigned to the community" (p. 273). The central idea here is that open exchange, discussion, and sharing of evidence is at the heart of the scientific enterprise: "Secrecy is the antithesis of this norm; full and open communication its enactment" (p. 274).[3]

It is easy to see how keeping science open is essential to progress. If findings are not shared with the rest of the community of researchers, others are unable to build on previous work, and they may waste time and resources on less promising research directions. Sharing of data and

3. Originally, Merton used the term *communism* here. We follow many other scholars in modifying the term for clarity, to avoid confusion with the political ideology of the same name.

results also allows other scholars to synthesize evidence across multiple samples and settings to reach broader conclusions. Similarly, swapping ideas and working collaboratively with other scholars at early stages of a project can improve the quality of the resulting research.

In centuries past, when there were fewer scientific journals, researchers would exchange lengthy letters detailing their experiments and findings to keep others with similar interests abreast of their work, and to seek support and guidance. Technology has changed radically since then—today we can instantaneously share new research findings with a global readership via the Internet—but the value of communication within the scholarly community remains undiminished.

Merton highlights a fundamental tension between this norm of open scientific communication and the commercialization of research findings: "the [communality] of the scientific ethos is incompatible with the definition of technology as private property in a capitalistic economy" (p. 275). In other words, and in sharp contrast to many other forms of property outside of research, the scientific ethos demands that research knowledge belong to the community as a whole and not just to those who discover it.

When Merton was writing, this idea was already somewhat controversial but perhaps less so than it is today. In the 1930s and '40s, universities typically did not have campus offices attempting to spin off new technologies from their engineering departments into lucrative patents. That was not how the system operated for the most part, and many researchers adhered more closely to the ideals that Merton lays out. Things have certainly changed a lot since then, as we have seen firsthand at our Bay Area academic home institutions.

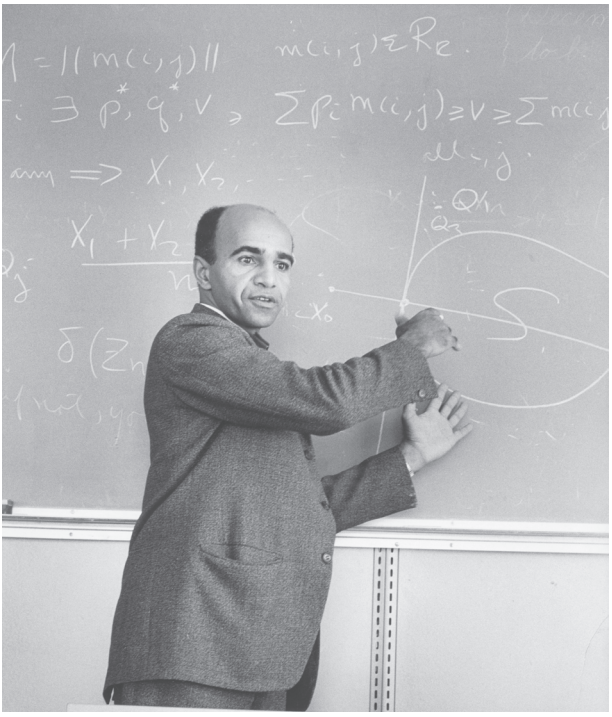
Today, developing new technologies and securing patent protection for them is seen as a normal revenue-generating activity in a research university. Some faculty spend less time doing basic research than trying to commercialize every half-decent idea they have, so they can spin out a start-up based on it. The pull of Silicon Valley investment in research, and the potential for personal riches if an idea is successful in the marketplace, has eroded attachment to the ideal of communality and open scientific communication.

As part of the same trend, a growing number of cutting-edge research activities take place outside academic institutions. The main goal of private-sector research activity is to develop something commercially viable (and proprietary). Researchers are often expressly forbidden from publishing their work and sharing it with the broader research community. This is directly antithetical to the scientific ethos as Merton

Racism in Science

There are many poignant examples of excellent scholars whose careers were hindered by prejudice—in fact, too many to count. A famous example from the San Francisco Bay Area of a researcher who overcame racial prejudice is mathematician David Blackwell (1919–2010).

Blackwell was the first African American inducted into the U.S. National Academy of Sciences (in 1965) and the first black tenured faculty member at the University of California, Berkeley (in 1955). But his research career got off to a rocky start. His attempts to attend lectures at Princeton University, and an initial effort to appoint him as a faculty member at Berkeley in the 1940s, were derailed by racist objections. While Professor Blackwell eventually overcame this bias, and made major contributions to mathematics, statistics, and game theory—many of which have found applications in the social sciences—



David Blackwell in the classroom. David Blackwell papers, BANC MSS 2001/79. Courtesy of the Bancroft Library, University of California, Berkeley.

others in the United States and in other societies have seen their research aspirations derailed by discrimination, to the detriment of scientific progress.

It seems likely that, had Blackwell been born just 10 or 15 years earlier and come of age before racist practices in the United States started to crumble, he might never have become a full-time researcher at all, and we would not even know his name. Given the potential for research advances to eventually improve human lives, society as a whole pays the price when gifted individuals like David Blackwell are shut out of scientific research.

describes it; the open-source countermovement in software and engineering is far closer to embodying the classical ideal. Later in this chapter, we present some evidence on how research norms do, in fact, often differ in academic versus corporate settings.

Disinterestedness

The ideal of disinterestedness is that researcher behavior should be consistent with a motivation for identifying the truth, and not with narrower professional self-interest or monetary motivations. The ethical researcher is supposed to report findings as they are—even if doing so is not good for your reputation, even if it goes against prevailing wisdom, even if it could make other people mad at you. The research findings themselves are more important than any person's ego or social standing, and they deserve to see the light of day. Researchers are human beings, of course, and it is natural for personal considerations or emotions to enter our minds. But we are not supposed to allow them to determine what we find as researchers.

For example, consider the case of a scholar working on topic X—let's say, the effect of immigration inflows on local wages, a prominent literature in labor economics—and imagine she has already published a body of research showing that more immigration dampens local wages. If this scholar analyzes valid new data showing something different and unexpected, even something that goes against her previous findings, she is supposed to share the new findings with the research community, just as eagerly as she would have if the earlier work had been confirmed. While researchers are often passionate about the issues they study—it is hard to make it through the rigors of graduate training without an

obsession for what you are studying—ethical researchers must be dispassionate about the results of their analysis, and not put their finger on the scale to avoid being embarrassed, offending the authorities, or jeopardizing future research funding.

Social scientists often face an additional challenge of concerns about the potential social consequences of their findings. A researcher studying immigration and local wages may have strong ideological commitments, and may worry that publishing contrary results could be used by those with opposing ideologies to advocate policies that the researcher believes would be socially harmful (e.g., results showing adverse labor-market consequences of immigration could be touted by politicians who seek to deport millions of immigrants). However, for social science to be credible, researchers must be committed to making results public regardless of their perceived implications. Otherwise, those who would dismiss social science findings as ideologically biased have a point. Whatever influence empirical social science has on policy follows from trust in social scientists faithfully reporting what their evidence shows. Social scientists can make sure that their work is taken seriously by doing all they can to objectively report their results, but they cannot control all the social impacts of their work.

Writing in the 1940s, Merton was impressed by the "virtual absence of fraud in the annals of science" (p. 276), an absence he attributed, primarily, not to the integrity of scientists but to the practice of science itself. In Merton's view, the system of social control in science was exceptionally strong because "the activities of scientists are subject to rigorous policing, perhaps to a degree unparalleled in any field of activity" (p. 276). Accountability was assured—any attempted fraud would be readily exposed by other scientists.

Read today, this part of Merton's account may seem the most out-of-touch with contemporary science. As we saw in Chapter 1, Diederik Stapel compared his serial fraud to the temptation of having a cookie jar sitting on his desk, because he was so completely unmonitored that fraud was easy to get away with. The key problems we will identify in Chapters 3 and 4 are problems precisely because they erode the system that Merton saw as fostering disinterestedness. Hidden practices increase the ability of researchers to produce, consciously or unconsciously, whatever results best serve their personal interests.

The current movement to increase transparency and reproducibility in social science shares Merton's enthusiasm for accountability: at its heart, the movement connects the credibility of science to its accountability, and its accountability to openness.

Organized Skepticism

The final element of the scientific ethos is organized skepticism. A fundamental characteristic of the approach of scientific researchers is that they shouldn't take things at face value: they need to see proof. I can't just tell you I have a proof of Fermat's Last Theorem—a famous mathematical conjecture that remained unresolved for centuries—I need to prove it, and others need to verify that proof as well. Indeed, when Andrew Wiles offered his proof of the theorem in 1993, other mathematicians pored over it and did find a misstep, but after another year of work Wiles successfully fixed it and completed the proof.

A key aspect of life as a researcher is the scrutiny that our work must face. As noted, Merton regarded scientific work as subject to far more scrutiny than almost anything else, and he saw this scrutiny as key to science's success. The ability to verify data and scrutinize claims is thus critical in order for research to live up to this standard.

Skepticism extends beyond simply scrutinizing other researchers' evidence, though. Merton sees the researcher's role as questioning everything and subjecting all realms of life to rigorous scrutiny. There is nothing the scientist should accept blindly or take on faith. Merton is eloquent on this point: "The scientific investigator does not preserve the cleavage between the sacred and the profane, between that which requires uncritical respect and that which can be objectively analyzed" (p. 277–8). In other words, scientists shouldn't restrict themselves to socially acceptable topics or to what those in power say it is okay to study: the ideal is to critically examine everything. (This is obviously an area where modern researchers diverge quite radically from medieval monk-scholars; presumably the latter would not last long in the monastery if they rejected central elements of their Christian faith.)

You can immediately see the connection here between democracy, free speech, and the scientific ideal. It would be impossible to fully realize the scientific ideal of organized skepticism—not to mention those other values—in a totalitarian dictatorship. There would simply be too many topics off limits to debate, too many red lines that scientists would inevitably cross. While some scientific progress is still possible in the most repressive of regimes—think of the community of eminent nuclear physicists and mathematicians in the Soviet Union, for instance—the free exchange of ideas and the ability to reflect critically on reality give democracies a tremendous scientific advantage. For instance, Soviet social scientists were hamstrung by political demands that they place

their work within the confines of Marxist political ideology, and this effectively crippled their research economists, sociologists, and political scientists.

A related critique has recently been lodged against prevailing norms in the field of macroeconomic theory. Romer (2015) argues that too much of recent theory has been based on untested (and sometimes untestable) assumptions, with too little feedback from empirical reality, leading to branches of theory that resemble exercises in ideological purity more than they resemble a truly scientific activity. In the case of modern macroeconomic theory, there is sometimes an almost religious attachment to assumptions regarding free-market efficiency, in contrast to the Marxist framework that constrained Soviet research. In any context, an unwillingness to test underlying articles of faith can slow scientific progress.

Access to the evidence that scientists produce, so that other scholars (and fellow citizens) can verify, extend, and critique it, is an important component of research openness, making replication and reanalysis of data essential. Openness, integrity, and transparency are at the very heart of Merton's influential articulation of scientific research norms: the free communication and sharing of findings, the ability of other scholars to examine and verify results, and the ability of all people to contribute to—and critique—the scientific enterprise.

We personally find it inspiring to think of ourselves as researchers who are part of this centuries-old tradition of learning and (hopefully) progress, and we are grateful for the opportunity to spend most of our waking hours struggling to better understand the world around us. Those of you reading this book who are currently receiving your academic training might feel the same. The values of openness, equality, and democracy are pretty easy to believe in.

But how closely do real-world researchers today conform to these ideal standards of conduct? In the next section, we present some data to assess the gap between the Mertonian ideal and reality in U.S. research institutions.

ACTUAL RESEARCH PRACTICES

Surveying Researcher Norms

A natural way to understand researchers' beliefs and practices is to ask about them directly. This is exactly what the article by Melissa Anderson, Brian C. Martinson, and Raymond De Vries (2007) that we focus on next set out to do. This study surveyed U.S.-based researchers to

understand how strongly they identify with the Mertonian norms laid out above, how close their own behavior comes to fulfilling those values, and how close they believe other researchers are to the scientific ethos. This study's relatively large sample of 3,247 is based on a representative sample of researchers funded by the U.S. National Institutes of Health (NIH), a major research funder (to the tune of billions of dollars per year). NIH funds a wide range of researchers, from lab scientists in biomedical research to social scientists in many disciplines whose work deals with health topics. So, while this is not a fully representative sample of all scholars, it does cover a lot of ground.

The sample comprises two groups. Respondents in the first ("mid-career") group had just received their first large (R01) research grants (which enable more established researchers to sustain a lab or a research group for a considerable period, usually up to five years; thus, the individuals in this group were likely to be assistant or associate professors). Those in the second ("early-career") group had recently received post-doctoral training grants and thus were at an earlier stage (perhaps 5–10 years earlier) than the mid-career group. The survey response rate of roughly 50 percent is not ideal, but the results should at least be illustrative of broad patterns in the research community. (In what follows, we will not focus much on the possible biases caused by selective survey completion, for simplicity, but it is probably worth taking these patterns with a grain of salt.)

The survey collected information about Merton's four norms, as well as two additional values, pairing each with a "counter-norm" that scholars have identified as also existing in the research community. These six pairs of norms and counter-norms are described in Table 2.1. For example, the counter-norm of universalism is particularism, which represents a lack of openness to different types of people or researchers, and specifically a belief that scientific evidence should be judged primarily on the basis of the past research track record of the investigator rather than the quality of the evidence per se. Similarly, Merton's norm of communality is paired with the counter-norm of secrecy, disinterestedness with self-interestedness, and organized skepticism with organized dogmatism.

The two additional values, governance (vs. administration) and quality (vs. quantity) of research, have been identified by scholars in the years since Merton's work as central to the scientific ethos. The first represents the research community's self-governance, the belief that scientists themselves should influence the direction of science, based on the inherent value of the work, rather than being driven by political, administrative,

or other considerations—in other words, researcher autonomy is central to the scientific ethos. The second highlights the importance of quality in relation to quantity. Of course, both are important—producing a larger quantity of valid research is certainly better than producing less—but the point here is that researchers should not be judged (for hiring and promotion, say) solely by counting the papers they've published or the amounts of grant money they've brought into their institution. Rather, the quality of the underlying research and its contributions to knowledge need to take center stage. This seems like a sensible criterion to use, given the role that a handful of the highest-quality, fundamental contributions often play in driving subsequent scientific progress.

Some observers have found that counter-norms, such as attachment to secrecy, are most prevalent in the context of "fierce, sometimes bitter competitive races for discovery" (Mitroff 1974), such as when a research group fears it is going to be "scooped" by a rival group. Indeed, people's attitudes are often somewhat contradictory, and a researcher may, for instance, express partial support for both communality and secrecy (e.g., depending on the circumstances). Anderson, Martinson, and De Vries (2007) allowed for this possibility by asking the survey respondents to rate their support of both the norms *and* the counter-norms, in terms of the respondents' own *subscription* (attitudes), their own *enactment* (practices), and their perceptions of others' typical behavior.

For subscription, the respondents were instructed: "For each item, please indicate the extent to which you personally feel it *should* represent behavior of scientists." For enactment: "Please indicate the extent to which it represents *your own* behavior." And for respondents' assessment of other scientists' behavior: "Please indicate the extent to which you feel that it *actually does* represent *the typical behavior of scientists*" (all emphases in the original). The response choices for all three sets of items were the same: 2 = to a great extent, 1 = to some extent, 0 = very little or not at all.

What Do Researchers Say and Do?

Answers were combined across the six pairs of values listed in Table 2.1, and researchers were classified by whether their responses were more in line with the norms or with the counter-norms. Those whose support for both norms and counter-norms were within one point were coded as having roughly equal support for each. The proportions of respondents in each of these categories are presented in Figure 2.1, with results presented

TABLE 2.1 SCIENTIFIC RESEARCH NORMS AND PRACTICES

Norm	Counter-norm
Communality Researchers openly share findings with colleagues.	*Secrecy* Researchers protect their newest findings for priority in publishing, patenting, or applications.
Universalism Researchers evaluate research only on its merit (i.e., by accepted standards of the field).	*Particularism* Researchers assess new knowledge and its applications by the reputation and past productivity of the individual or research group.
Disinterestedness Researchers are motivated by the desire for knowledge and discovery, and not by the possibility of personal gain.	*Self-interestedness* Researchers compete with others in the same field for funding and recognition of their achievements.
Organized skepticism Researchers consider all new evidence, hypotheses, theories, and innovations, including those that may challenge or contradict their own work.	*Organized dogmatism* Researchers spend their careers promoting their own most important findings, theories, or innovations.
Governance Researchers are responsible for the direction and control of science through governance, self-regulation, and peer review.	*Administration* Researchers rely on administrators to direct the scientific enterprise through management decisions.
Quality Researchers judge their peers' contributions to science primarily on the basis of quality.	*Quantity* Researchers assess their peers' work primarily on the basis of quantity of publications and grants.

NOTE: A similar table appears in Anderson et al. (2007).

separately for subscription, enactment, and perception of others' behavior, and also broken down by mid-career versus early-career researchers.

The first striking pattern in Figure 2.1 (top) is just how strong the stated support for the Mertonian scientific ethos is among U.S.-based researchers today. We assume that few of these scholars had actually read Merton's work on this topic or taken classes in which related material was covered—but they subscribe to the values of universal, open science just the same. Roughly 90 percent agree with the norms, and

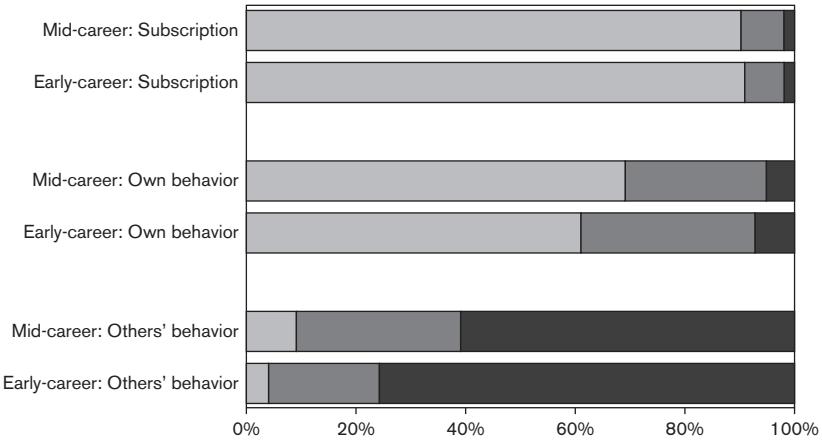


FIGURE 2.1. Attitudes, beliefs, and practices of early-career and mid-career U.S. researchers (N = 3,247) in regard to six pairs of scientific norms and counter-norms (see Table 2.1). Light gray indicates the proportion expressing more support for the norms, dark gray the proportion expressing roughly equal support for both the norms and the counter-norms, and black the proportion expressing more support for the counter-norms. Reprinted with permission from Anderson et al. (2007).

another 7–8 percent have some mixed views. Very few scholars say, in effect, "No, I believe in secrecy, I'm totally self-interested in my research, and totally dogmatic."

At first glance, it seems that the scientific ethos is alive and well. But what do these very same scholars actually do? Or, at least, what do they say they do when asked about the same values? As shown in Figure 2.1 (middle), 60–70 percent say, "Yes, I generally live up to these ideals." But the share of researchers in the ambiguous category is now larger than in the subscription question—basically claiming to follow the norm most of the time, but perhaps sometimes admitting to being secretive or self-interested. However, with regard to enactment, the data again suggest that the bulk of active researchers, roughly two-thirds, broadly conform to the six scientific norms and values.

The enactment data show a slightly greater adherence to the norms by mid-career scholars than by those earlier in their careers, and it is worth speculating on the difference. One possibility is that mid-career practices are actually more closely in line with Mertonian norms, perhaps because these scholars have had more time to be socialized into them. Maybe more established scholars feel more secure in their position (if they have received tenure, for instance) and thus feel less of a

pressing need to pursue self-interest over higher ideals. An alternative view is that the gap is due to a difference in reporting rather than actual practices: Perhaps more experienced scholars have simply learned to be dishonest and lie with a straight face? It is impossible to say from these data alone.

In our view, the most interesting data in Figure 2.1 are those at the bottom, which capture researchers' beliefs about other researchers' behavior. There is a strikingly bleak pattern: only about 5–10 percent believe that other researchers tend to mainly follow the norms, while 60 to 75 percent believe that the counter-norms are generally practiced more than the norms. The "punch line" of this figure, as the study's authors interpret it, is that there is pervasive normative dissonance among researchers—what Anderson, Martinson, and De Vries (2007) call the "disillusionment gap." The vast majority of scholars subscribe to the Mertonian norms of science but believe that few in their fields are actually living up to them. Anderson, Martinson, and De Vries (2007, p. 4) summarize their view on this gap between researchers' values and practices:

> Persistent mismatches between beliefs and actions can contribute to work strain, disillusionment and alienation. Confusion or ambiguity about right action can prompt people to try to reduce dissonance by aligning their behavior with their peers', especially if they think that not doing so would put them at a competitive disadvantage.

Which part of Figure 2.1 should we believe—the middle (mixed but broadly supportive of the norms) or the bottom (with its pessimistic view of the research field as a whole)? It remains possible that the latter is too pessimistic. Perhaps everyone hears about a few "bad apples," like the fraud cases discussed in Chapter 1, and thereafter (unfairly) condemns the state of ethics of their whole field.

There is also a potentially important temporal element here, which may lead to some ambiguity in interpretation. Many social science researchers are quite secretive about their work while they are doing it, for fear of being scooped (i.e., that others will copy them), but are then happy to discuss it widely, and share their data and materials, once it is published. As a result, they may view their own practices as being in line with Mertonian norms (in the long run, at least), while simultaneously being critical of other researchers' lack of openness with work-in-progress and viewing that behavior as partially inconsistent with the norms.

However, in our view, this would be too easy a way out. If there is one thing that two of the authors of this book have learned in development

economics over the past two decades, as original survey data collection has become ubiquitous, it is that when you want to get a reliable answer to a sensitive question, you might be better off asking people not about what they do but about what "other people like them" do. There is a whole subliterature on the study of corruption patterns in economics and political science that takes this approach, asking firm owners not about the bribes that they themselves pay (since admitting so might be illegal) but instead asking them about the likely behavior of other firms that are similar to theirs. If the same sorts of reporting issues apply when asking researchers about whether or not they break with a widely held norm, then the bottom part of Figure 2.1 is most reliable.

The data also reveal some other patterns among particular subgroups of researchers. One of the most interesting has to do with the breakdown of academic versus private-sector researchers mentioned above. Anderson, Martinson, and De Vries (2007) report significantly more norm following and stated norm following among the academic researchers in the sample than among researchers at private for-profit firms. This is perhaps not too surprising, since for-profit firms are in the business of developing new technologies that they want to patent and profit from, and their focus on generating proprietary data runs directly counter to the Mertonian norm of communality.

Anderson, Martinson, and De Vries (2007) also asked scholars about how competitive they felt their research field was, and they found that researchers in fields that were described as more competitive showed far less attachment to scientific norms. It is not exactly clear why this is the case, but one possibility is that the pressure to publish—and publish fast—in such fields sometimes tilts the balance toward self-interest and away from disinterested behavior.

A peaceful "ivory tower" life is apparently more conducive to following the high ideals laid out by Merton than high-pressure academic or private-sector research settings. That said, could it be the case that fierce competition has an upside, in more rapidly driving research progress forward? That is certainly what incentive theory in economics might suggest, and it's part of the rationale underlying contemporary technology patents. Self-interest could play a role in generating more research effort and dedication. This is not an issue that features in Merton's work, but it cannot be ignored out of hand when we consider how to design a research system that generates the most useful science. We return to this issue in our discussion of open sharing of data and research materials in Chapter 10.

LOOKING FORWARD

We have discussed some evidence that researcher practices often do not live up to the highest scientific ideals. In Chapters 3 and 4, we continue this discussion and provide further evidence on the pervasive issues of publication bias and specification searching, and elaborate on how they can lead to misleading bodies of social science. In the subsequent chapters, we then provide a road map for ways forward, possible solutions to these concerns, and approaches that can help bring researcher practices back in line with our fundamental values, addressing the normative dissonance described by Anderson, Martinson, and De Vries (2007).