

**Title: Structural Forces in Research Ethics (Psychology Graduate version)**

**Length:** 1 Day (80 minutes)

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**Problem Statement:** Understanding research fraud, sloppy research, and the Replication Crisis requires understanding the structural forces that incentivize research practices.

**Learning Objectives:**

Students will understand the values and norms of ethical research practices.

Students will understand the structural features of academic reputation that encourage fraudulent and sloppy research practices.

Students will understand the pressures facing working scientists and reflect on these pressures.

Students will understand and compare various proposals for changing the structure and incentives of scientific research.

**Description:** This module is designed for psychology graduate students who have some familiarity with cases of research fraud and the replication crisis. It looks at current accounts of what structural forces incentivize fraud, sloppy research, and other such issues. It compares two approaches to understanding the norms that structure academic research. It then looks at several proposals for altering the structure of academic research to address these issues.

**Topic 1: Money, Honor, and Truth**

When we seek to explain widespread, recurring phenomena within a realm of human practice, we generally look for structures, institutions, and norms that incentivize the behavior that leads to those phenomena. In recent years, several phenomena in need of an explanation have concerned scientists, and psychologists especially. The three interrelated phenomena we will discuss here are fraud, sloppy research practices, and the Replication Crisis. By fraud, we mean cases of falsified research and data. There have been several high-profile cases recently, included one in which two co-authors independently falsified their data on the same paper; the research topic of these papers was dishonesty.<sup>1</sup> By sloppy research, we mean errors in interpretation, citation, calculation, etc., that are not intentional, but reflect a lack of effort. Peer review is supposed to root out sloppy research, but it is often not as robust a defense as we would like (see for example, Schroter et al, 2008). The Replication Crisis is impacted by both of these phenomena, but also it also points to further structural issues around confirmation in science.<sup>2</sup>

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<sup>1</sup> Piper, Kelsey, "Is it Defamation to Point Out Scientific Research Fraud?" (2023) *Vox*.  
<https://www.vox.com/future-perfect/2023/8/9/23825966/francesca-gino-honesty-research-scientific-fraud-defamation-harvard-university>

<sup>2</sup> While there have been several further studies on replication that show better results than the original, none have found a replication rate over 67% (Korbmacher et al, 2023).

In order to understand the nature of these interrelated problems and, ultimately, what to do about them, we must look to the structure of scientific practice. The main activity of scientists is research. As a social practice and an institution, academic science is structured by norms. Norms are conventions, beliefs, or facts about how people ought to act. Robert Merton's 1942 book, *The Sociology of Science*, argued that four norms guide the scientific community's research practices: communalism, universalism, disinterestedness, and organized skepticism (CUDOS for short).

- 1) Communalism is the norm that all data, research findings, etc., are public goods; individual scientists do not "own" their data, and from example, should not be able to charge money to access it. When we say a discovery "belongs" to a certain scientist, say *Darwin's* theory of evolution, this does not imply they 'own' that discovery as when one has intellectual property rights that give exclusive right to monetize that property. Instead, it is a label of esteem (which we will return to below).
- 2) Universalism means that a scientific claim is treated the same, regardless of who makes it.
- 3) Disinterestedness is the norm that science is done as a social good, not for individual benefit (importantly, disinterested is not the same as uninterested). This is meant to suggest impartiality. One accepts the results or records the results without putting one's thumbs on the scale to prove a preferred hypothesis.
- 4) And finally, the norm of organized skepticism is that all claims must be subjected to scrutiny and tested rather than accepted based on the authority of the one making the claim. It is organized in the sense that skepticism is embedded in scientific institutions and practices (as opposed to being unstructured individual skepticism).

There will always be cases where individuals violate the norms of the institutions and practices they are a part of (call these "bad apple" cases). However, when *patterns* of fraud and sloppy research emerge, it becomes more likely that there are negative incentives at play. An incentive is a reward that encourages certain types of behavior. If norms and incentives are supposed to guide behavior, then what is behind fraud, sloppy research, and the widescale issue of experiments being unlikely to replicate? What is missing from Mertonian norms is an account of the more concrete ways in which research is carried out, how scientists get jobs, promotions, and compensation, and especially the role that publications play in this process. The 2015 article that sparked the concern over replication points out that "Reproducibility is not well understood because the incentives for individual scientists prioritize novelty over replication."<sup>2</sup> And so we should look to accounts of these incentives.

One account of fraud and sloppy research in general comes from James Stacey Taylor's *Markets Within Limits*. There he argues that market norms have come to influence academic research, much to its detriment. He points out that a researcher's financial incentives are to publish high impact research in major journals as this improves their chances at getting a raise, being offered more prestigious and higher paying positions, speaker fees for invited talks, etc. Scientists are then incentivized to spend as much time as they can on their research. They are also then incentives towards the type of research and articles that journals want to publish, namely original experiments with positive results, and ideally large

effects. If the research comes to a conclusion that is likely to get media attention for the article, and thereby the journal, then even better.<sup>3</sup>

Because of the time research takes, scientists (and academics generally) will spend less time doing quality peer review work. This will then increase the number of honest mistakes and fraudulent work that gets published. In addition, because of the possible financial rewards for getting research published and low incentive for doing quality peer review work, this structure then incentivizes fraud and sloppy research. In some of the examples of fraud above, it was only years later that the fraud was discovered, meaning that the benefit was reaped well before they were discovered. Is this then a result of market norms encroaching on and eroding Merton's norm of communalism?

Merely thinking about fraudulent research as caused by financial incentives, however, does not explain many of the cases and the unique structure of academic fraud. Philosopher Liam Kofi Bright argues in the paper "Why Do Scientists Lie" that there are plenty of incentives for fraud within the existing structure of scientific norms. Thus, structural incentive for fraud would exist even if we excluded the encroachment of market norms. In particular, he argues that explaining fraud by the encroachment of market norms has a difficult time explaining the people who do go into academic (rather than private) research. People who become research scientists at academic institutions are often choosing to do so over more well-paying corporate jobs that require the same skill set, often because this means they will have more freedom to pursue the research they think is most important. These individuals value the very norms Merton argues structure academic science, and they enjoy work that does not need to be immediately justified by market norms such as profitability. Such people, then, seem to have already chosen the search for truth over the quest for money. If so, it is very unlikely that financial incentives can be the only, or even primary, explanation for research fraud in academia.

Here we must look at a different kind of economy, what could be called a *prestige* economy. In a prestige economy, reputation, notoriety, popularity, and honor all function as a means of distributing resources. We noted above that Mertonian norms make room for a prestige economy in the way scientists accrue esteem over their research. Prestige is gained through producing highly original and influential research published in high-ranking journals. There is some overlap with Taylor's account here in that esteem in academic science often translates into access to resources. "The informal judgements scientists routinely make about the quality of one another's work, and the potential or intellectual capacity of the scientists doing the work, are not just the stuff of idle gossip, but an essential element of how we in fact allocate the resources necessary to carry out scientific research," (Bright, 2021). Even if you don't particularly care about honor, credit, esteem, etc., because it is part of the process of accessing the resources to do your job or seek truth, you will likely have to act as if you do.

However, in distinction from Taylor, such resources are often not about, at least not primarily, personal enrichment (and so, are not strong financial incentives). Even grants are often (from the perspective of the researcher at least) more about the prestige of receiving the grant than the financial incentive because only a small percentage of grants, if any, can be used to pay the researcher. However, there is also the indirect financial incentive, because in getting big grants the researcher confers their honor

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<sup>3</sup> This description focuses on the incentives that structure academic research on its own. The situation becomes increasingly more complicated, and provides further incentives for fraud, when research is connected to private business. For example, see Mandavilli 2023 for a case of fraud involving a potential lucrative Alzheimer's drug.

onto the institution they represent and demonstrates their financial benefit to the university. Academic scientists then work in conditions constrained by at least two, often intersecting, economies.

If Bright is right, then scientists who wish to maintain the reputational integrity of their fields and their research have a much more difficult problem! Taylor argues for separating market norms from academia, whereas, if Bright is right, the incentives for fraud are not just from market norms, but also inherent in scientific (Mertonian) norms. Bright points out that this prestige economy is equally responsible for many of the valuable features of scientific research. Some positives of credit-seeking structures include how seeking prestige incentivizes knowledge sharing (which speeds up research, fosters teams, and makes scientific research open to non-specialists) and provides a counterforce to conformism by incentivizing methodological and intellectual diversity. Reducing esteem-based incentives may then risk harming some of the most positive features of science. If so, then addressing the problem of fraud is not as simple as insulating academic research from market norms (which is already a big task), but may require a variety of narrow interventions to strength the good of esteem norms while minimizing their inherent, negative incentives.

### **Discussion Questions 1:**

Taylor and Bright use two different models of human motivation. Taylor sees all motivation as acquisitive (homo-economicus) whereas Bright sees humans as having multiple sources of motivation, with both truth-seeking and honor-seeking being independent of acquisitive motivations. What do you think of these two models in general? How about as models of scientists' behavior?

What do you think of the pressures scientists face and the issues raised around incentives for research? Are there other issues that should be taken into account when looking to structural change in research?

### **Topic 2: Structural Proposals**

With these accounts of the norms science should operate under and those that structure the professional practices and compensation for research, we can look to various proposals for how to address the current problems of incentives for fraud, sloppy research, and those which led to the Replication Crisis. First, we should look to what has been done already. Korbmacher et al 2023 chronicles many such changes, reasons, and likely effects thereof. Such practices include open data publication, pre-registration of studies, and pre-acceptance to journals. "Such format shifts the focus from the research outcomes to methodological quality and realigns incentives by providing researchers with the certainty of publication when adhering to the preregistered protocol," (Korbmacher et al, 2023). In other words, these structural changes to how research is published have lessened the positivity bias and originality pressure on researchers because publication has been assured before the result is known. Notice that these sorts of alterations maintain much of the esteem structure, but they alter how that esteem is accrued and distributed. In doing so, they have weakened several incentives that are harmful to good research practices. While these protocols are becoming more common, they are not yet the standard. The more widely these are adopted, the more of this effect one should reasonably expect.

In addition to these changes, there are many proposals for further structural changes. Some of these proposals target the mechanisms of publication and others target broader professional structures to

adjust what is incentivized. For an example of the former, Reich 2021 argues for the increased use of registered reports. A registered report consists of fully written introduction, experimental design, data collection methods, etc., sections. It is then submitted to peer review before the experiment is run. The report is then either rejected or accepted for publication on the condition that the experiment does not deviate from the report without reason. As registered reports are more complete than preregistration, this further constrains researchers from post hoc alterations and reasoning. Reich 2021 admits that while effective for quantitative research, qualitative research may need different guidelines and structures for registered reports or an equivalent publishing model.

Taylor, drawing on his analysis of market norms and the academy, suggests providing bounties for reviewers to catch errors, misattributed quotes, interpretative mistakes, fraudulent data, etc. This, he claims, will provide incentives that strengthen peer review quality, and thereby lower instances of fraud and sloppy research, and make them more likely to get rooted out in the process. Taylor depicts this as a way to use market incentives to oppose market norms that disproportionately favor publishing over reviewing, thereby realigning with academic norms. The claim here is that incentivizing review work financially should increase the quality of such work because it will be in the researcher's interest to spend more time on it. While there is not research specifically on Taylor's bounty proposal, Squazzoni et al 2013 studied the effect of financial incentives on peer review and found that they were harmful to the overall process. Also, given the recent lawsuit<sup>4</sup>, the incentive for such bounties may pale in comparison to the risk of punitive damages for unsubstantiated accusations of fraud or sloppiness.

Another proposal is to link various forms of review work to the current incentives for researcher career advancement. This includes taking journal refereeing into consideration for hiring and tenure. It would also require a certain ratio of original experimental work to replication work. That is, for each, say, 3 experiments a researcher or a lab conducts of original research, it would have to undertake at least one replication experiment of another researcher or labs' work. This would be coupled with changes to publishing wherein journals would have to publish a certain amount of replication attempts. Alternately, replication only journals could be founded. This addresses the problem within academic norms, rather than financial ones; however, it requires extra work, training, and restricts some of the freedom of researchers.

Finally, we can look at Romero's 2018 Professional proposal. This article proposes a particularly radical solution to the issues we have been concerned with: split the job of research scientist into two jobs. On this view, academic scientists would be hired as either discovery researchers or confirmation researchers. Two different incentive structures would then exist, and they would temper each other: one for original research and the other for replication. Romero addresses only the Replication Crisis here, but it is possible that his proposal could have positive effects on fraud and sloppy research by having a number of researchers whose job is to check the quality of the research of others as a part of the process of replication experiments. It does, however, require restructuring academic research at the widest level.

### **Final Discussion:**

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<sup>4</sup> Piper 2023.

Lead students through a discussion of these various proposals, asking questions such as which proposals do they favor (including combinations of several)? Why? What are some possible negative consequences of adopting any of these proposals? Are there other issues not discussed (or maybe those brought up in the first discussion) that these proposals may also improve?

### Sources and Further Reading:

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