The Social Structure of Science: Norms, Deviance and Control

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This handout outlines the readings and discussion plan for PUBP6417: Critical Perspectives on Science and Technology. The readings for this week are: [Merton, 1979, Fox and Braxton, 1994, Guston, 1994, Maher, 2010]

Part I: Science and social structure

- Defining science and the scientific marketplace[1]
- Normative system of science—*communism, universalism, disinterestedness, organized skepticism*—and its functions
- Embeddedness of scientific community in society
- Social contract for science[2]

1. Science denotes: (1) set of methods; (2) stock of accumulated knowledge stemming from the application of those methods; (3) set of cultural values and mores governing scientific activities [Merton, 1979]

2. "...the federal government provides funds for basic research in academia and agrees not to interfere with scientific decision making, in exchange for unspecified technological benefits that could ultimately flow from such research" [Guston, 1994]

Discussion Questions

1. How are the Mertonian norms dependent on one another?
2. Under what circumstances would an individual scientist face a dilemma between what the Mertonian norms and what society views as the right thing to do?
3. Is there a tension between universal norms and the organization of science into disciplines/fields? If there is, what is it? and where does it come from?
4. When is there an incentive for politicians/policymakers to break the social contract for science?

Part II: Deviance and Control

- Scientific misconduct as norm violation[3]
- Enforcement of norms
- Policy interventions

3. Examples from personal experience and from [Fox and Braxton, 1994, Maher, 2010, Guston, 1994]

Discussion Questions

1. Is the definition of violation of scientific conduct such as "fabrication of results/plagiarism" enough for modern science?

2. Is the peer pressure because of publications, reviews, tenure track positions leading to misconduct acceptable? what can be the potential control mechanism for this misconduct?

3. What can be done when a misconduct is reported in a collaborative work? Who can be responsible for it?

4. Even after establishment of institutions, why scientific misconduct goes unreported most of the time and often told as a "rare event"? Are scientists not trusting the mechanism that enforces "conduct of science" in legal way ?

5. Though government, universities, journals and individuals can exercise the social control in general, what can be the mechanism of control in a highly specialised field where the researchers to publication ratio is very less?

6. As "ethics" becoming significant piece in most of the modern research, who can be the voice of common public?

References

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Robert K Merton. The normative structure of science. *The sociology of science: Theoretical and empirical investigations*, pages 267–278, 1979.