A Sociological Perspective on Studying Organizations and Innovation:
Qualitative and Quantitative Methods and Ethical Issues

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Two points

- Combining qualitative and quantitative methods to study organizations is important because the strengths of one are the weaknesses of the other.

- Ethical issues (including confidentiality) differ for qualitative and quantitative research, but reflexivity is always important.
Comparing quantitative and qualitative research methods

<table>
<thead>
<tr>
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<th>Quantitative Research</th>
<th>Qualitative Research</th>
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<tbody>
<tr>
<td><strong>Strengths</strong></td>
<td>Generalizable to population, reliability, allow group comparison/variable analysis</td>
<td>Understanding complex processes, details of interaction, Depth, validity</td>
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<tr>
<td><strong>Weaknesses</strong></td>
<td>Context of response unclear (e.g., standard responses may be irrelevant)</td>
<td>Not generalizable to broader population</td>
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Adapted from Smith-Doerr, 2004, Appendix
Likelihood of scientists moving into supervisory positions, Network v. Hierarchical settings

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<th>Change in Odds of Supervising in Network firms</th>
<th>Change in Odds of Supervising in Hierarchies</th>
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<tr>
<td><strong>Men</strong></td>
<td>No difference</td>
<td>No difference</td>
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<tr>
<td><strong>Women</strong></td>
<td>7.9 times more likely</td>
<td>60% decrease in odds</td>
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Source: Smith-Doerr (2004, *Women’s Work*), based on logistic regression analysis controlling for years since PhD, prestige of PhD program; N=2,062
Figure 1: Predicted Probabilities of Patenting, by Sex and Sector
NOTE: Numbers in boxes refer to the difference in probabilities between men and women (M-F) and the F/M predicted probability ratio (multiplied by 100).

Note: All other variables are held at mean.
Why greater equity in biotech firms?

Clues from interviews (Smith-Doerr 2004, N=47).

1. **Flexibility in collaboration**
   - About a woman scientist friend: “left a tenured position at [an elite university] to go to [a biotechnology firm]…said the university department under [Chairman] was an autocracy…could do science there [at firm]—working with who they wanted to rather than dealing with [Chairman].”

2. **Transparency**
   - “From my experience at [academic setting] I could tell you many a true story about political infighting…[at biotech firm] we are not compartmentalized—and get to work with many good scientists both here and outside the firm. And we choose who to work with based on non-financial considerations, like how good they are in their field.”

3. **Collective rewards**
   - “While I was on maternity leave here [biotech firm] I could keep in touch with my colleagues who kept it moving forward…when I was a postdoc at [prestigious academic institute], people collaborated somewhat, on the fringes of their work, but still had their main turf which they guarded carefully.”

Smith-Doerr, presented at MS Research, 9/10/09
Ethical issues differ for qualitative and quantitative research

- Quantitative example: remote sensing, participatory urban sensing (Estrin, Center for Embedded Network Sensing, UCLA)

- Qualitative example: cyberethnography with a computer design community at Sun (Teli, Pisano & Hakken 2007)
Reflexivity matters for all

- Reflexivity about ethics policy requirements, a US example:
  - Oct. 2000 requirement at NIH for PIs to be ‘certified as educated’ in human subjects ethics.
  - Life scientists’ response: PhD program data on visibility, interview data on implementation.
  - Institutionalization and unanticipated consequences.

Sources: Smith-Doerr 2008 *Minerva*; 2009 *Journal of Empirical Research on Human Research Ethics*
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