(1) When does the use of advanced monitoring technology (e.g., stack, fenceline, or ambient) to measure emissions and/or to publicize the monitoring data spur facilities to improve compliance?

   a. Does it matter if the entity doing the measuring and reporting is the regulated entity, the regulator, or a third party such as a researcher, trade association, insurer or citizen group?

   b. When it’s the regulated entity that is doing the monitoring, does it matter whether they are required to report in real time or maintain records onsite and make them available during regulatory inspections?

(2) If parties not associated with the government, such as researchers, trade associations, insurers or citizen groups, collect and publicize real time pollution data (e.g., fence line or ambient air or water monitoring) would facilities reduce their emissions or discharges, or respond in other ways?
4 Research Topics

• Monitoring and compliance
• Monitors
• Monitoring and technology
• Monitoring alliances
Monitoring Practices Associated with Compliance

[1] Robust monitoring
[2] Clear, consistent communication and application of regulatory requirements
[3] Building relationships with key organizational actors
Key Finding [1]: Robust Monitoring

• Many studies demonstrate that more heavily monitored facilities exhibit better environmental compliance than other facilities (Magat and Viscusi 1990; Braithwaite and Makkai 1991; Kuperan and Sutinen 1998; Gray and Shadbegian 2005)

• Studies in other domains have shown that excessive monitoring can undermine compliance
  – Signals distrust
  – Dampens normative motivations to comply
Key Finding [2]: Clear and Consistent Communication of Regulatory Requirements

Less compliance among building contractors when:

- Subject to the jurisdiction of multiple regulators with conflicting requirements
- Same inspector gives inconsistent information about compliance (May and Wood 2003)

More compliance among small food-industry businesses when inspectors convey regulatory requirements clearly and prescriptively and educate regulated entities about requirements (Fairman and Yapp 2005)

- Knowledge issues: 43% of small businesses mistakenly thought they were in compliance
- "Flexible" approaches that solicited input from regulated establishment not effective
Key Finding [2]: Clear and Consistent Application of Regulatory Requirements

Dangers of regulatory forbearance (Rorie, Rinfret and Pautz 2015)

- Environmental inspectors are inclined to exercise leniency with certain companies
  - Less likely to issue NOV if:
    - Inspector believes there will be bad financial consequences for firm
    - Inspector knows that firm has participated in a voluntary “beyond compliance” program

- Company compliance managers more likely to commit future violations if they were investigated but not cited for past violations
Building contractors who had direct contact with inspectors in the field more likely than those who did not to report: (May and Wood 2003)

- Inspectors were cooperative and provided useful quality control function
- Important to comply in order to maintain reputation with the inspector

Compliance personnel at university who had direct and repeated interactions with EPA inspectors developed relationships and rapport with inspectors and came to see them as allies rather than adversaries (Gray and Silbey 2014)
Key Finding [4]: Fairness in application of the law

- Citizens more likely to comply with military service policies when they perceive that other citizens are doing their share (Levi 1997)

- Building contractors more likely to comply with regulatory requirements when they know these requirements are being enforced on other contractors (May 2005)

- Industrial facilities more likely to comply with Clean Air Act requirements when other facilities in the same industry are more frequently inspected (Short and Toffel 2010)
Monitor Heterogeneity/Bias

Key Research Findings:

[1] Social and relational factors influence perceptions and citation practices of monitors

Monitor Heterogeneity (Large-N Studies)

• **Experience:**
  – More experienced FDA inspectors are less likely to find a facility in total non-compliance (Macher, Mayo and Nickerson 2011)
  – More experienced supply chain audit teams report more violations than less experienced teams (Short, Toffel and Hugill 2015)

• **Relationships with Regulated Entities (the “dark side” of relationships):**
  – Restaurant inspectors new to the inspected establishment report 12.7-17.5% more violations than returning inspectors (Jin and Lee 2014a)
  – Supply chain audit teams entirely new to the audited factory report more violations than teams with returning auditors (Short, Toffel and Hugill 2015)

• **Training**
  – Supply chain audit teams with more training report more violations (Short, Toffel and Hugill 2015)

• **Gender**
  – Supply chain audit teams with at least one woman report more violations (Short, Toffel and Hugill 2015)
Bias in Private 3P Monitoring

• Substantial evidence of economic conflicts of interest
  ▪ Factory pays environmental inspector → lax inspection (Duflo et al. 2013)
  ▪ Financial auditors earn consultancy fees → lax auditing (Kinney, Jr. et al. 2004)
  ▪ Bond issuers pay CRA → higher bond ratings (Jiang, Stanford, and Xie 2012)
  ▪ Supply chain factory pays social auditor → lax auditing (Toffel and Short 2015)
  ▪ SMOG-Check stations have lucrative cross-selling opportunities → lax inspection (Pierce and Toffel 2013)
• Innovation in inspection technology
  – Adoption of PDAs by restaurant inspectors led to: (Jin and Lee 2014b)
    • 11% increase in detected violations
    • Compliance improvement
    • Lower incidence of foodborne illnesses

• Anecdotally, monitors skeptical of technology
  – Concerned that it interferes with development of relationships
  – Concerns that it promotes rote box-checking to detriment of independent and considered judgment

• Remote sensing data
  – NASA
  – Google
  – ???
Monitoring Alliances

• **Citizens:**
  – Citizen complaints helped Chinese Environmental Protection Bureaus to access enforcement resources (Van Rooij and Lo 2010)

• **Media:**
  – Media exposes of health, safety, and environmental disasters generated public support for more stringent enforcement (Hutter 2011; Tilt 2007)

• **Civil society organizations:**
  – Argentine labor inspectors expanded inspection programs by developing social and organizational ties with labor unions (Amengual and Fine 2016)
  – San Francisco partners with local social service NGOs to identify and support worker claims of wages and hours violations (Amengual and Fine 2016)

• **Other regulators:**
  • Prosecutorial enforcement of labor and environmental law in Brazil (Coslovsky, McAllister)
  • Labor inspectors in Brazil partnered with bank regulators to more effectively monitor wage violations (Pires 2011)

• **Researchers**
Information Disclosure Action Cycle

(Fung, Graham and Weil, *Full Disclosure*)

- **Discloser reveals information to user**
- **User actions/behavior affect discloser perceptions and calculations**
- **Information affects user perceptions and calculations**
- **Changes in discloser behavior**

This cycle illustrates how information disclosed by one party affects another, leading to changes in behavior and perceptions, creating a feedback loop.
Monitoring Discussion Questions

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References


