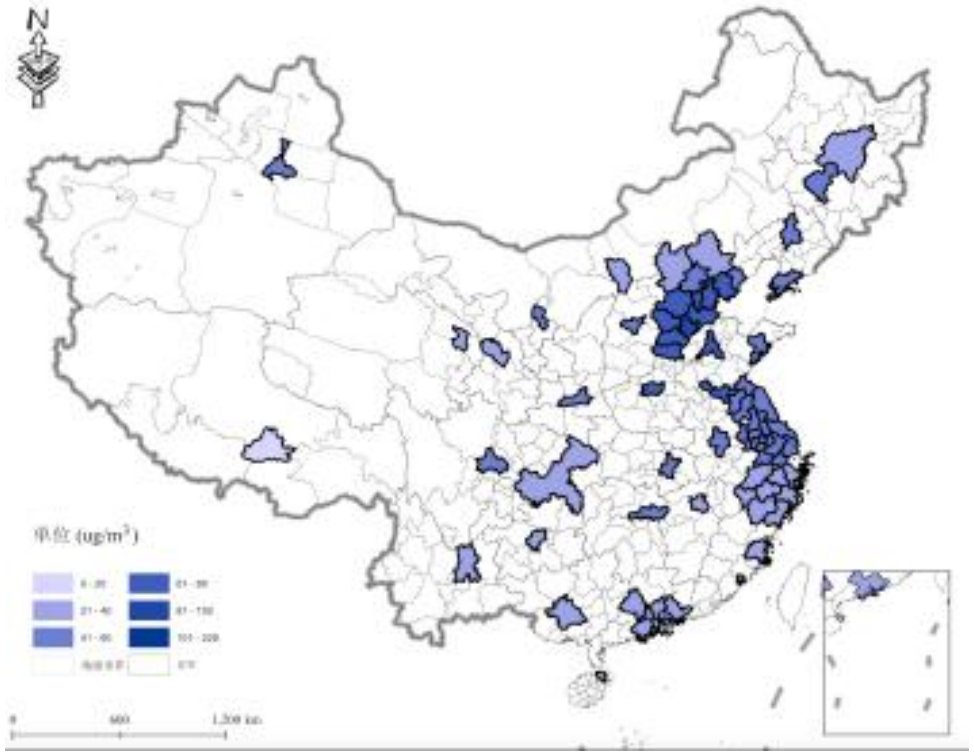
# Profiting from at Least One Side:

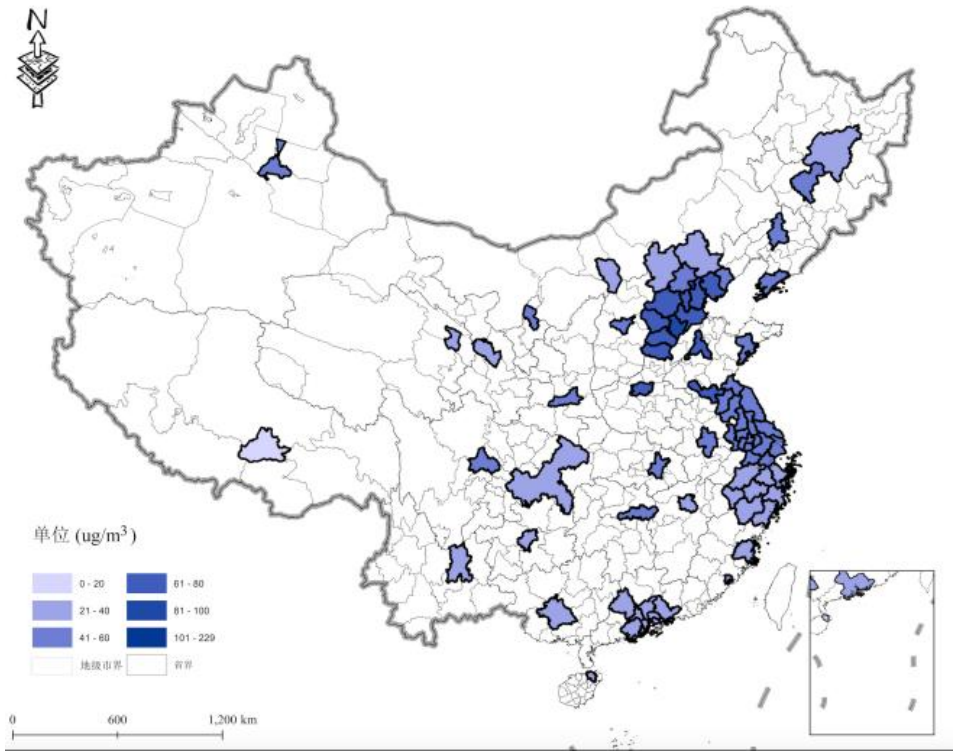
# Goal Conflict, Performance Feedback, and Data Manipulation

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# *Data Manipulation*




$PM_{2.5}$ Concentration Data for 74 Cities in 2016, MEE

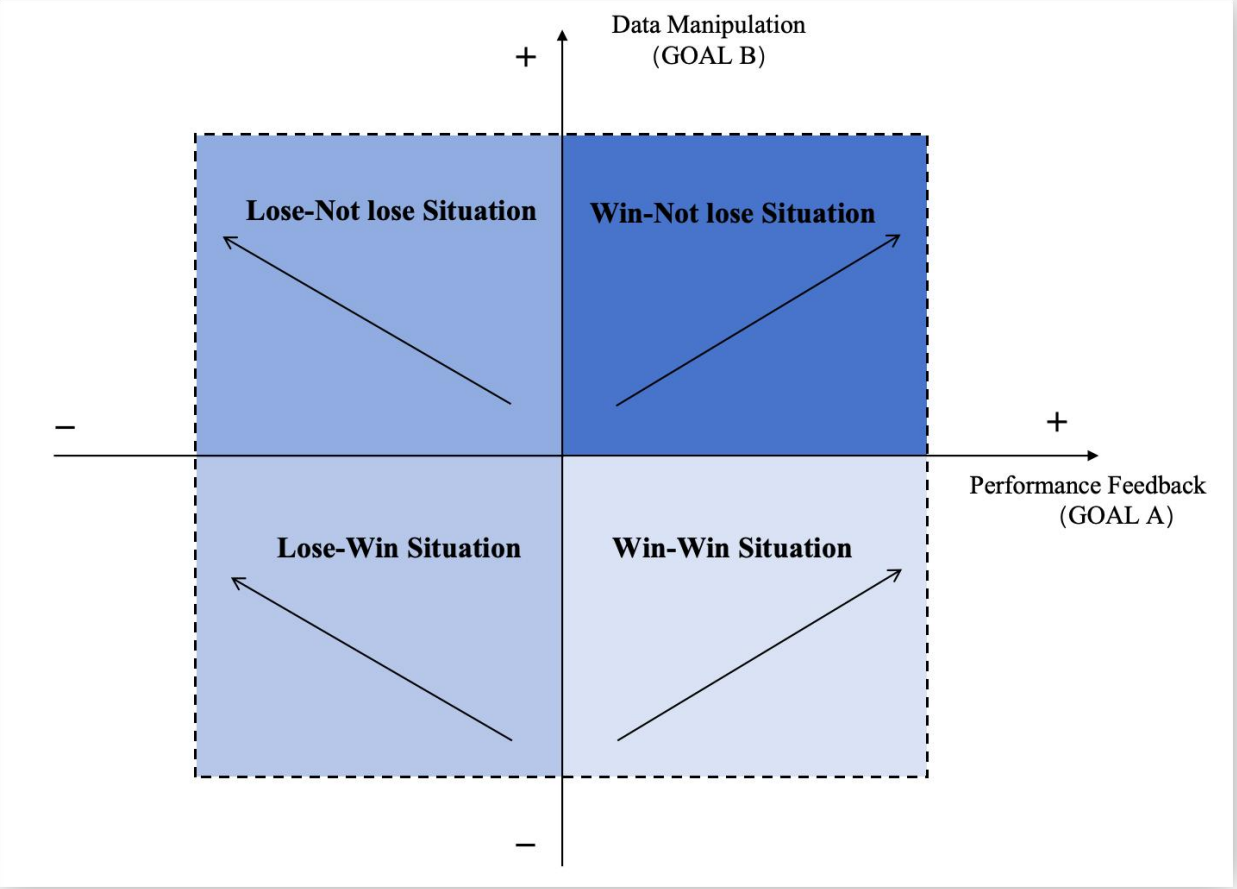



$PM_{2.5}$ Concentration Data for 74 Cities in 2016, WU

# *Research questions*

- How does performance feedback influence managerial decisions?
- How does performance feedback influence data manipulation?
- How does performance feedback from conflicting goals influence data manipulation?
- How does performance feedback from conflicting goals influence various data manipulation?

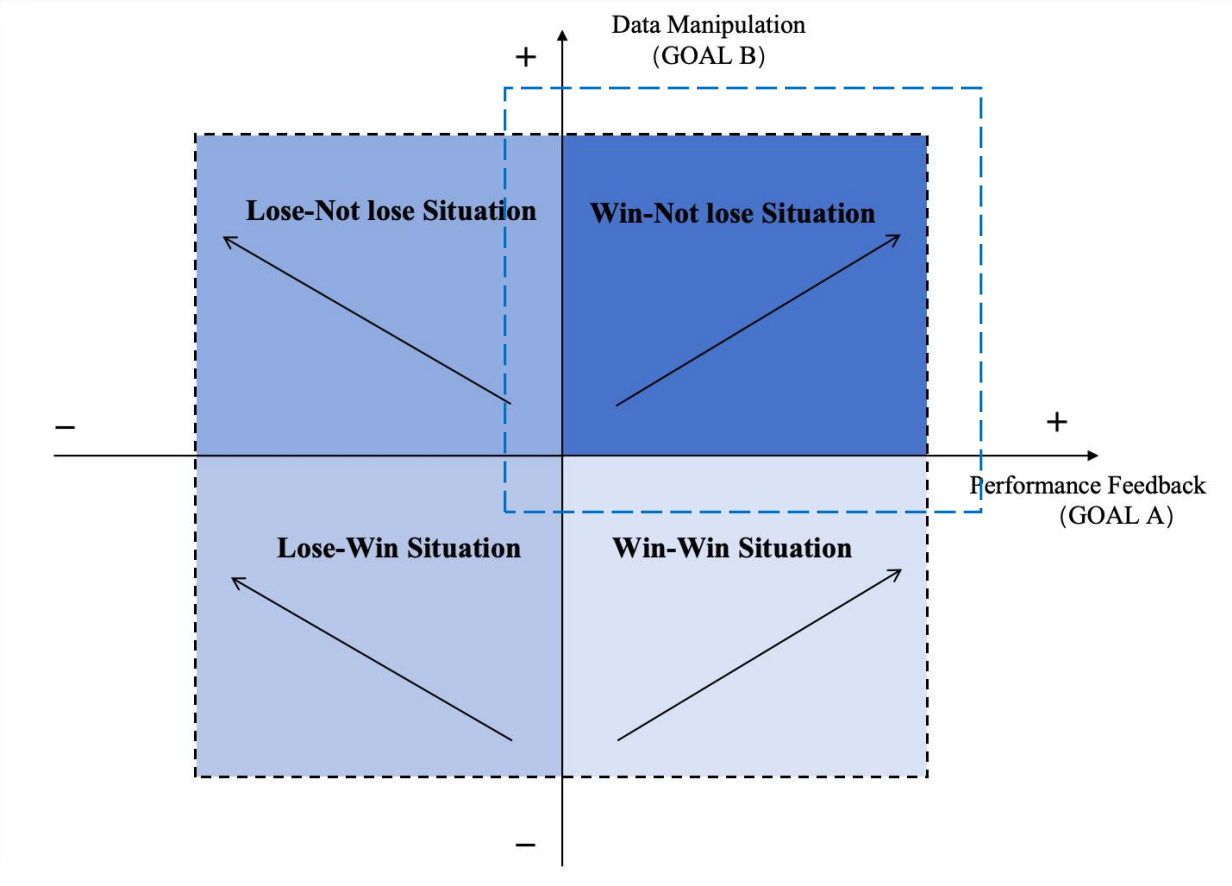
# *Theoretical Framework*



# *"Pollution heaven" and "Win-Not lose" Situation*

- **"Pollution Haven" hypothesis:** companies tend to relocate high-pollution industries to developing countries or regions with more lenient environmental regulations
- On one hand, local governments that succeed in promoting economic development are viewed as "winners," with greater opportunities for career advancement
- On the other hand, the environmental degradation resulting from this economic growth is akin to a hidden threat that could undermine their success and jeopardize their careers
- "One-Vote Veto" System

# *"Pollution heaven" and "Win-Not lose" Situation*

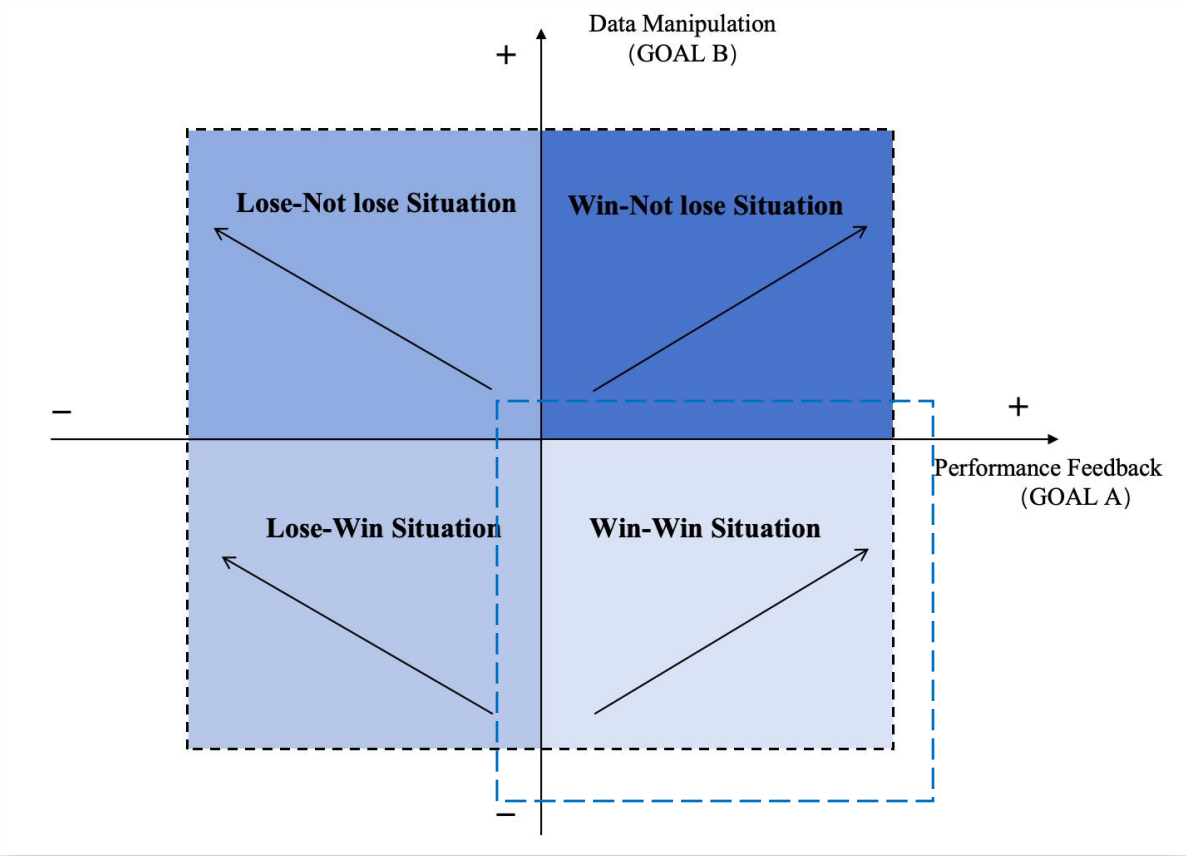



**Hypothesis 1 (Win-Not Lose Hypothesis):** The further a region's performance on Goal A exceeds aspirations, the higher the likelihood of manipulating data on Goal B to appear better than the actual performance.

# *"Ratchet effect" and "Win-Win" situation*

- Environmental Kuznets Curve
- Once economic development reaches a certain threshold, industries begin to transition towards non-polluting sectors, such as high-tech and technology-driven enterprises, which do not contribute to increased pollution
- Governments aimed at avoiding blame  in environmental protection
- Areas with strong economic development experience negative data manipulation

# *"Pollution heaven" and "Win-Not lose" Situation*

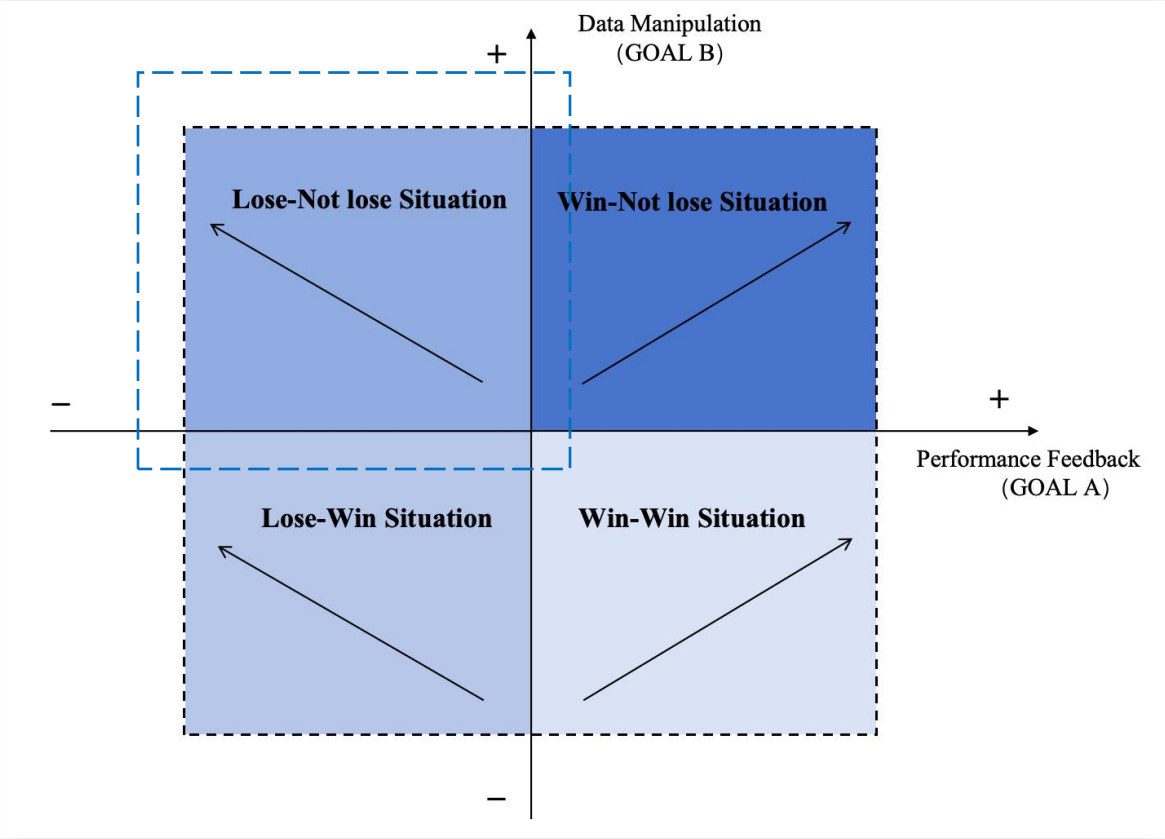



**Hypothesis 2 (Win-Win Hypothesis):** The further a region's performance on Goal A exceeds aspirations, the lower the likelihood of manipulating data on Goal B to appear worse than the actual performance.

# *"Blame avoidance and "Lose-Not Lose" situation*

- In cases where local governments fail to meet economic targets (Goal A), they receive negative performance feedback
- If the performance on Goal B is also below aspiration, the local government finds itself in a lose-lose situation, facing a high likelihood of receiving penalties
- To avoid the consequences of double failure, local governments in the fourth quadrant have a strong motivation to manipulate data on Goal B, presenting it as better than the actual performance to avoid a double failure

# *Blame avoidance and "Lose-Not Lose" situation*

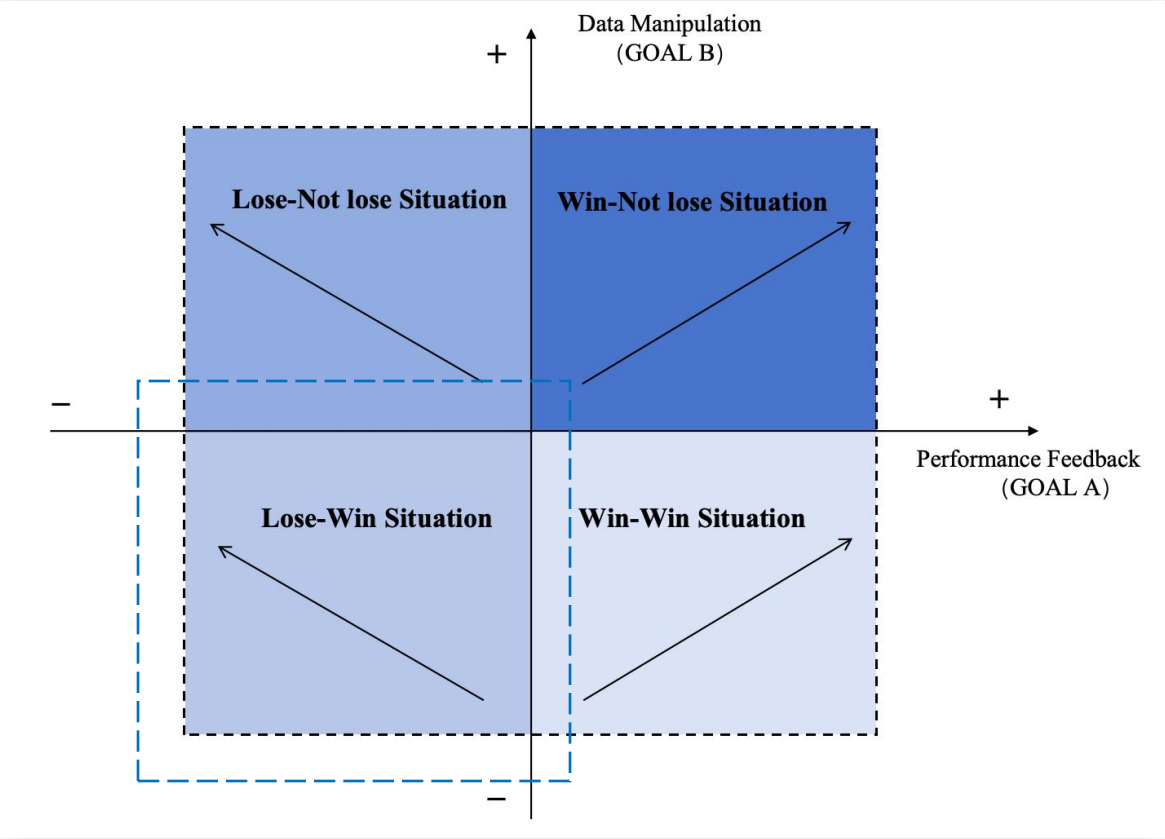



**Hypothesis 3 (Lose-Not Lose Hypothesis):** The further a region's performance on Goal A falls below aspirations, the higher the likelihood of manipulating data on Goal B to appear better than the actual performance.

# *Moderation strategy and “Lose-Win” situation*

- In the scenario of the third quadrant, the local government demonstrates strong environmental performance but lags in economic development
- Coupled with the emphasis on punishment in environmental governance, they avoid taking risks by maintaining performance within a "safe zone"—neither too high nor too low
- The better the economic performance, the less likely they are to engage in such negative data manipulation.

# *Moderation strategy and "Lose-Win" situation*

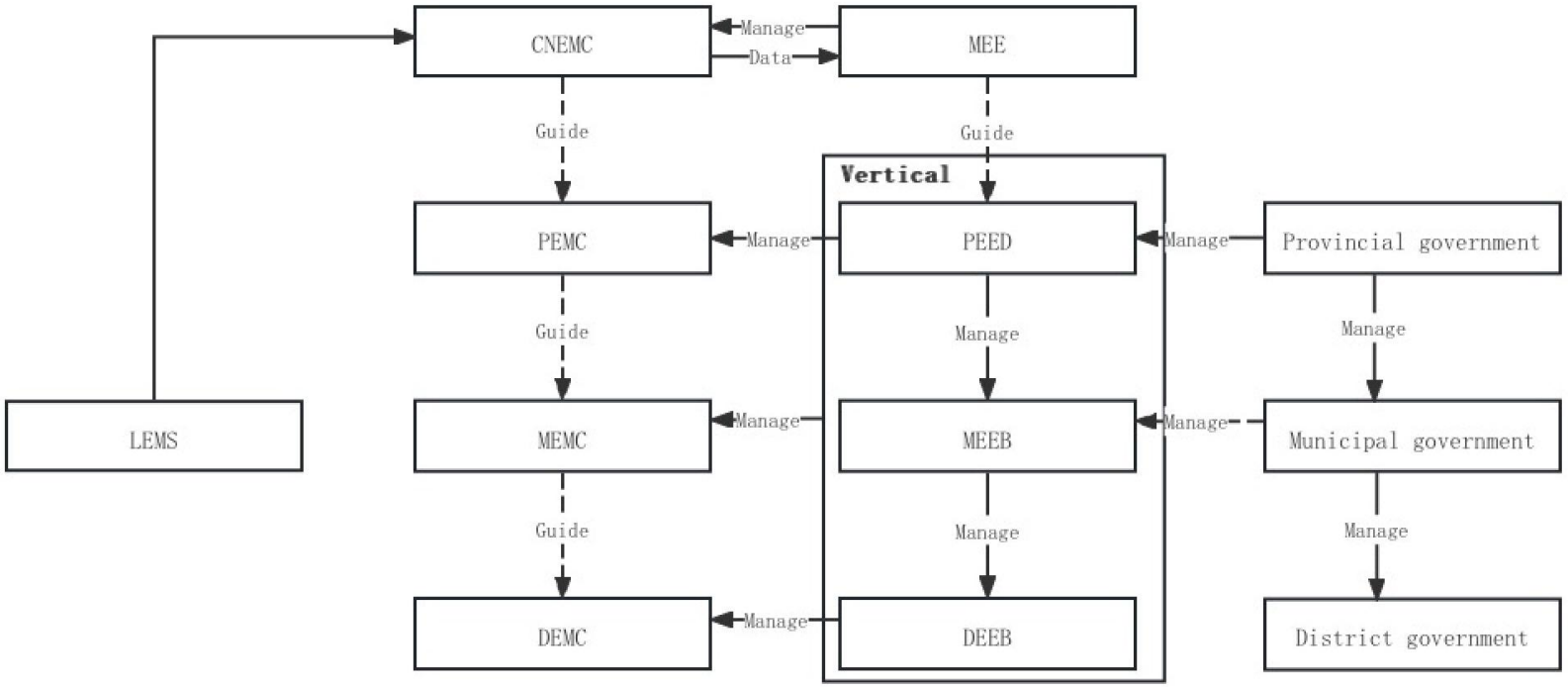



**Hypothesis 4 (Lose-Win Hypothesis):** The further a region's performance on Goal A falls below aspirations, the lower the likelihood of manipulating data on Goal B to appear worse than the actual performance.

# *Moderating role of economic feedback*

- Economic performance feedback not only influences data manipulation but also acts as a moderator in the relationship between environmental performance feedback and data manipulation
- **Hypothesis 5 (Moderation Hypothesis):** Economic performance feedback moderates the relationship between environmental performance feedback and data manipulation

# *Institutional Background*




Local Environmental Monitoring Station (LEMS)
China National Environmental Monitoring Centre (CNEMC)
Provincial Environmental Monitoring Centre (PEMC)
Ministry of Ecology and Environment (MEE)
Provincial Ecology and Environment Department (PEED)

# *Data and Methods*

- **Sample and data sources:** We aggregate and process data from *various sources*. The dataset includes 49 periods of *monthly panel data*, covering *January 2014 to May 2018 for 74 cities*, and an additional 19 periods, *from June 2018 to December 2019, for 168 cities*
- **Dependent variables:** China National Environmental Monitoring Centre (CNEMC), which provides hourly PM2.5 data, and the Atmospheric Composition Analysis Group (ACAG) at Washington University in St. Louis, which supplies monthly PM2.5 data derived from satellite observations

# *Data and Methods*

- **Dependent variables**

$$\text{Improvement}_{i,t} = -\left(\text{PM}_{2.5\,i,t} - \text{PM}_{2.5\,i,t-1}\right)/\text{PM}_{2.5\,i,t-1}$$

$$\text{Manipulation}_{i,t} = \left(\text{Improvement}_{\text{satellite}\,i,t} - \text{Improvement}_{\text{government}\,i,t}\right)$$

$$\text{PManipulation}_{i,t} = \begin{cases} \text{Manipulation}_{i,t} & (\text{Manipulation}_{i,t} > 0) \\ 0 & (\text{Manipulation}_{i,t} \leq 0) \end{cases}$$

$$\text{NManipulation}_{i,t} = \begin{cases} |\text{Manipulation}_{i,t}| & (\text{Manipulation}_{i,t} < 0) \\ 0 & (\text{Manipulation}_{i,t} \geq 0) \end{cases}$$

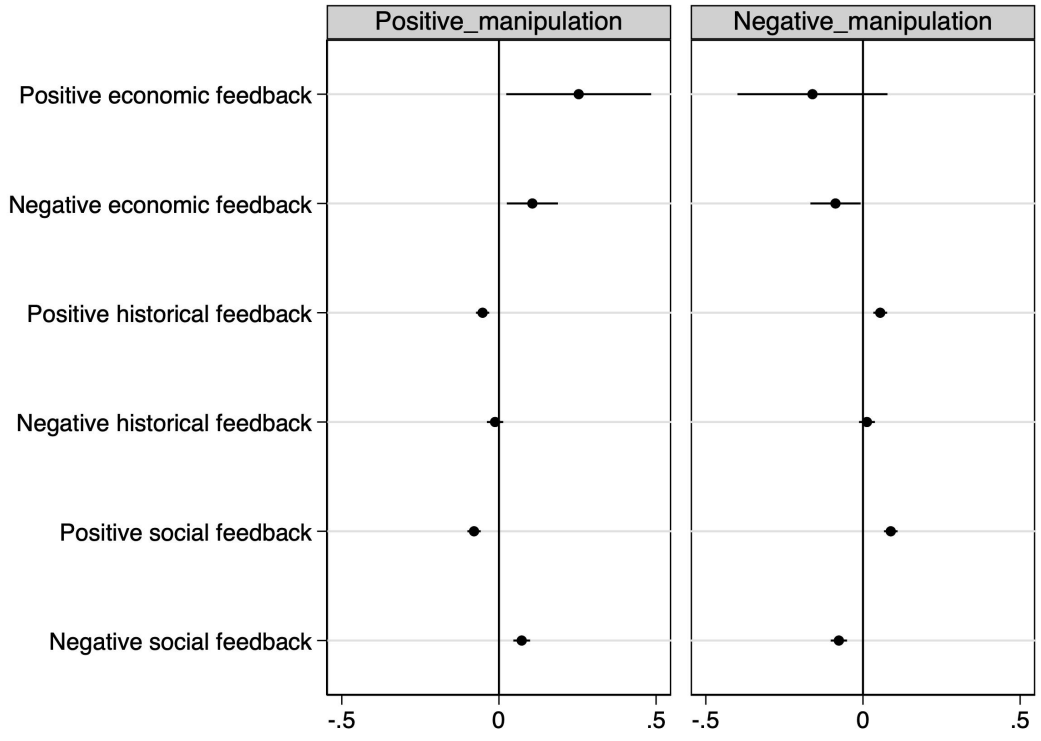
# *Data and Methods*

- **Independent variables:** The independent and moderating variables in this study are economic performance feedback, which is derived from three main sources: quarterly economic performance data for each city, the China City Statistical Yearbook, and the annual reports delivered by the mayors of each city
- **Control variables: Environmental performance feedback**, using data from the MEE's monthly air quality reports for key and national cities; the GDP growth rate; the absolute value of GDP; the proportion of the secondary industry; and population density; Meteorological variables include temperature (° C), humidity (%); and sunlight hours (log-transformed)

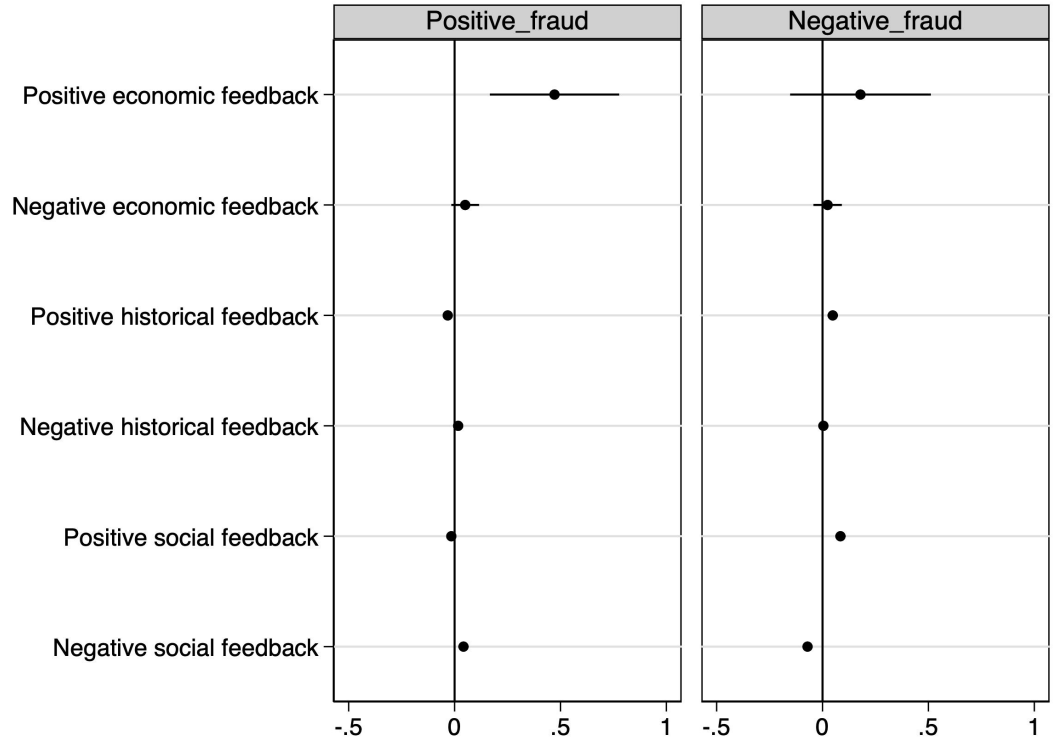
# *Descriptive statistics*

| Variable | N | Mean | SD | Min | Max |
|---|---|---|---|---|---|
| Dependent variable | | | | | |
| Positive manipulation (logged) | 6873 | −5.86 | 7.9 | −13.82 | 6.79 |
| Negative manipulation (logged) | 6873 | −5.99 | 7.98 | −13.82 | 5.55 |
| Positive fraud (logged) | 6873 | −10.52 | 6.66 | −13.82 | 6.79 |
| Negative fraud (logged) | 6873 | −9.97 | 7.07 | −13.82 | 5.55 |
| Independent variable/moderating variable | | | | | |
| Positive economic feedback | 6630 | 0.1 | 0.69 | 0 | 14.69 |
| Negative economic feedback | 6630 | 1.56 | 2.64 | 0 | 48.58 |

# *Results*




Main Results




Robustness Checks

# *Summary of Results*

| Hypothesis | Situation | IV | DV | Support |
|---|---|---|---|---|
| H1 | Win—Not Lose | Positive feedback | Positive manipulation | Yes |
| H2 | Win—Win | Positive feedback | Negative manipulation | No |
| H3 | Lose—Not Lose | Negative feedback | Positive manipulation | Yes |
| H4 | Lose—Win | Negative feedback | Negative manipulation | Yes |

# *Conclusion*

- **Key Insights**
  - Performance feedback plays a crucial role in **public managers' decisions** and **future government performance**.
  - However, its **"dark side"** under conflicting goals is often overlooked.
- **Conflicting Objectives in Governance**
  - Common dilemmas: **Economic Growth vs. Environmental Protection**
  - Local governments may **strategically manipulate data** to appear successful in at least one goal.

# *Behavioral Patterns Identified*

**1. Win–Not Lose**:

- Achieve A → **Overstate B** to maintain the image

**2. Lose–Not Lose**:

- Fail A & B → **Overstate B** to avoid double failure

**3. Lose–Win**:

- Fail A, excel B → **Understate B** to avoid ratchet effect

**4. Win-Win not supported**：

- Indicates difficulty in achieving both goals honestly

# *Key Contributions*

- **1. A New Typology of Strategic Behavior**
  - Introduces **directionality** in data manipulation:
    → **Positive** vs. **Negative** manipulation
- **2. Game-Theoretic Framework for Dual-Goal Decision-Making**
  - Models government responses to **performance feedback under conflicting goals**
  - Explores **strategic behavior** in navigating tensions like:
  - Economic growth vs. environmental protection
  - Enriches theory by uncovering:
    - Feedback-driven **gaming behaviors**
    - Real-world decision **dilemmas in public governance**

# *Limitations & Future Research*

- **1. Context-Specific Validation**
  - Framework tested only in **economic vs. environmental** tradeoffs.
  - Generalizability to **other policy domains** remains unverified.
- **2. Scope of Model Application**
  - Aims for universality, but currently grounded in **limited empirical scenarios**.
  - Further studies needed to:
    - Expand **cross-country comparisons**
    - Test **sector-specific variations**

# Thank you for

# your time and attention!

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