

# **Population Pressure, Natural Resources and Conflict: Insights from Sub-National Studies of India and Indonesia**

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# Population Pressure

## Three schools

- Resource scarcity (Homer-Dixon; Kahl)
- Technological optimism (Boserup; Simon)
- Political ecology (Peluso & Watts)



# The Resource Scarcity Model

Population pressure, resource depletion, distribution



Resource scarcity



Economic stagnation, migration



Resource competition



Armed conflict

# The Technological Optimism Model

Population pressure & resource depletion



Resource scarcity



Technological innovation



Economic development



Peace

# Critique of Case Study Literature

- Selection on the dependent variable
- Complex, untestable models
- Using the future as evidence
- Unclear conflict definition
- Broad scarcity definition
- Cannot establish causal relationships

Gleditsch, Nils Petter, 1998. 'Armed Conflict and the Environment: A Critique of the Literature', *Journal of Peace Research* 35(3): 381-400.

Gleditsch, Nils Petter, & Henrik Urdal, 2002. 'Ecoviolence? Links Between Population Growth, Environmental Scarcity and Violent Conflict in Thomas Homer-Dixon's Work'. *Journal of International Affairs* 56(1): 283-302.

# Critique of Quantitative Studies

- National-level studies do not capture local dynamics
- Many dimensions are not directly testable due to data limitations
- Too narrow understanding of violent conflict?
- Hauge & Ellingsen (1998) not replicable.
- New directions: disaggregation, non-state conflict

# Disaggregated Studies

- ‘Quantitative case-studies’
- Within-state variation, ‘controlling’ for state-level factors
- Capture local dynamics
- Typically greater availability of data
- Consistent data collection, categories
- Two recent studies: India and Indonesia

# Sub-National Study of India

- State-level analysis (27)
- Time-period 1956-2002
- 3 measures of violence:
  - Armed conflict
  - Violent political events
  - Hindu-Muslim riots





# Model

- Population pressure
  - Rural population growth
- Resource scarcity
  - Land scarcity, agricultural yield
- Distribution
  - Rural inequality
- Social effects
  - Agricultural wages, urban population growth

# Results

## Supported:

- Rural pop growth and density (+)
- Decline in agricultural wages (+)
- Interaction effects

## Not supported:

- Urban pop growth (-)
- Inequality (not sign)
- Riots seem to be unrelated to pop and resource factors

# Sub-National Study of Indonesia

- 25 provinces
- 1990-2003
- UNSFIR
  - Routine
  - Episodic (ethnic)
- Population pressure and land scarcity
- Ethnic polarization and Horizontal inequality



# Accumulated Routine Violence



# Accumulated Episodic Violence



# Model

- Interaction: resource supply, demand, distribution
- Population and resource factors
  - Population growth (migration)
  - Land scarcity
- Identity factors
  - Polarization
  - Horizontal inequality
  - Vertical inequality

# Results

- Supported
  - Population growth (routine, weak)
  - Population growth\*horizontal inequality
- Not supported
  - Land scarcity (neg, also interaction with growth)
  - Inequalities (horizontal, vertical)
  - Religious polarization

## Some General Conclusions

- Cross-national studies yield little support for resource scarcity perspective
- Sub-national studies: some effect
- Tentative explanation:
  - Lack of attention by central gvts, restrictions
  - Incapable/unresponsive local gvts
  - Low adaptive capacity among people