

# Intercounty Spillovers in Ports and Roads Infrastructure

Jeffrey Cohen, University of  
Hartford

Kristen Monaco, CSULB

# Research Motivation

- External Impacts of Port Operations
  - Negative Externalities
  - Positive Externalities
- Trade-dependent sectors
  - Manufacturing
  - Wholesale Trade
  - Retail Trade

# Prior Research

- Public Infrastructure
  - State-level
    - Morrison and Schwartz (1996)
    - Sturm (2001)
  - County Level, roads infrastructure
    - Boarnet (1998)
  - Spillover effects
    - Cohen and Morrison Paul (2005)
    - Cohen and Monaco (2007)

# Prior Research

- Monaco and Cohen (2007)
  - State level data on ports and roads infrastructure
  - Increasing ports and roads infrastructure decreases manufacturing costs.
  - Diseconomies of scale from neighboring ports.

# Current Research

- Ports and roads infrastructure effects using county-level data for California
- Focus on spatial effects
- Three industries: manufacturing, wholesale trade, retail trade
- Production function approach

# Data

- County-level data: 1998-2005
  - Labor: employment by industry
  - Capital: investment by industry
  - Roads capital: investment by county
  - Port capital: investment by county
- Investment data converted to capital stock by using data prior to 1998

# Port Investment: Average Capital Spending, 1995-2005

County	Port Name	Average
Los Angeles	LA, Long Beach	\$319,420,364
Alameda	Oakland	\$95,890,545
San Diego	San Diego	\$29,070,200
San Francisco	San Francisco	\$16,421,455
San Joaquin	Stockton	\$5,182,667

# Road Investment: 2005, Top 10 counties

Los Angeles	\$267,950,000
Santa Clara	\$197,771,000
Sacramento	\$194,068,000
San Diego	\$148,944,000
Orange	\$129,953,000
San Francisco	\$106,866,000
Alameda	\$88,561,000
Yolo	\$57,972,000
Riverside	\$57,113,000
San Bernardino	\$51,881,000

# Labor Market Statistics – Percent Change in Employment

	No Port	Port
Total Emp.	10.6%	18.7%
Retail Trade	10.5%	20.9%
Wholesale Trade	8.9%	10.1%
Manufacturing	-8.0%	-1.7%

# Labor Market Statistics – Percent Change in Nominal Payroll

	No Port	Port
Total Emp.	45.5%	58.1%
Retail Trade	42.8%	53.8%
Wholesale Trade	29.1%	54.8%
Manufacturing	13.2%	19.9%

# Model

- Dependent variable: log of output (Gross County Product) for manufacturing
- Explanatory variables: private capital stock, employment, ports capital stock, roads capital stock, neighbor's port capital stock
- Includes controls for: individual county, time, spatial autocorrelation

# Results

Two measures of focus

1. Elasticity manufacturing output with respect to own port infrastructure.
  - How much will manufacturing output in a county change if increase ports infrastructure in that county?
2. Elasticity of manufacturing output with respect to neighbors' port infrastructure.
  - How much will manufacturing output in a county change if a neighboring county increases port infrastructure?

# Results for Selected Counties – Northern California

County	Own Port Elasticity	Neighbor Port Elasticity
Alameda	0.409	
San Francisco	0.76	
San Joaquin	0.202	

# Results for Selected Counties – Northern California

County	Own Port Elasticity	Neighbor Port Elasticity
Alameda	0.409	-0.015
San Francisco	0.76	-0.026
San Joaquin	0.202	0.008

# Results for Selected Counties – Southern California

County	Own Port Elasticity	Neighbor Port Elasticity
Los Angeles	0.76	
Ventura	0.225	
San Diego	0.428	
Riverside	0	
San Bernardino	0	

# Results for Selected Counties – Southern California

County	Own Port Elasticity	Neighbor Port Elasticity
Los Angeles	0.76	-0.026
Ventura	0.225	0.018
San Diego	0.428	0.0001
Riverside	0	0.007
San Bernardino	0	0.025

# Conclusions

- Generally, county investment in ports leads to increased output.
  - We find larger elasticities associated with larger ports.
- Neighbor ports infrastructure is positive if there is no port in the county.
- Neighbor ports infrastructure tends to be negative for counties that have large ports and have neighboring counties with smaller ports.
  - May reflect a “crowding out” of industry as well as preference to locate near less congested ports or in port hinterlands

# Remaining Tasks

- Estimate production functions for other trade-dependent industries.
- Examine the dynamics of own and neighbor ports infrastructure.