Local Ties in Spatial Equilibrium

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Why connect local ties and spatial equilibrium?

People have local ties

- Median US born adult lives about 50 miles from where they were born
- In the US, people are moving less often
  (Molloy, Smith and Wozniak, 2011; Ganong and Shoag, 2017; Kaplan and
  Schulhofer-Wohl, 2017)

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What happens to spatial equilibrium if people have local ties?

Residents of economically depressed places were born there
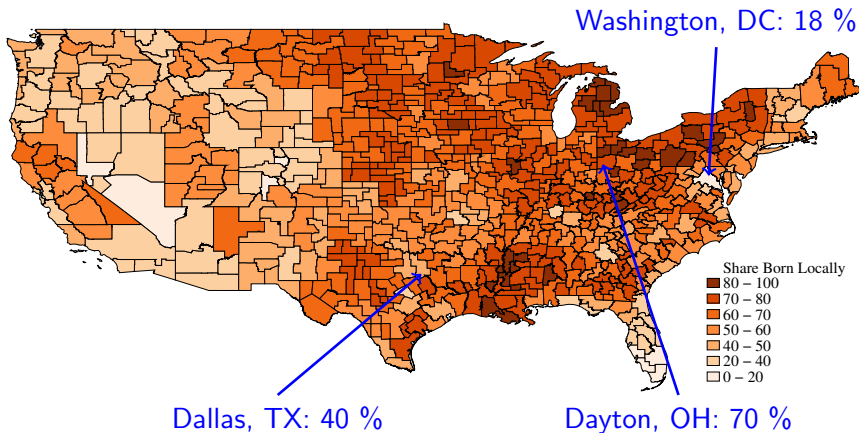
Source: 2000 Census mapped to 1990 commuting zone boundaries

People with local ties stay in economically depressed places

Agenda

1. Empirical results
   - People live close to where they were born (skipped)
   - Residents of economically depressed places were born there
   - Places infrequently lose population (skipped)
   - Less migration in places with more locals (skipped)

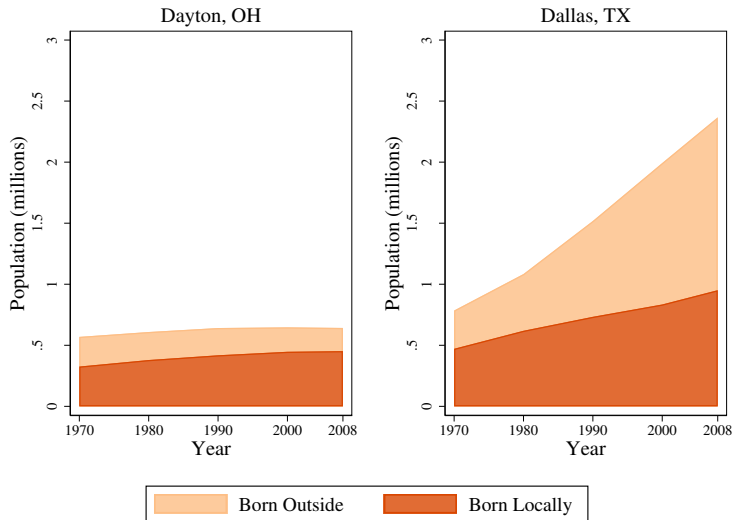2. Model of spatial equilibrium with local ties

3. Model results
   - Migration Elasticities and Real Wages are Lower in Depressed Places
   - Why do local ties affect migration elasticities? (skipped)
   - Hysteresis
   - Place-based subsidies
   - Persistence

4. Skills and Durable Housing do not Change the Main Results

5. Conclusion

Residents of economically depressed places were born there

Note: Commuting zones 5120 and 520. (Scatter of Ties)

Agenda

Model in of local ties in spatial equilibrium

Workers choose a place to live

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- But they trade off local ties, wages, rents, and amenities

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- National firm combines local goods into a consumption good
- Housing is non-tradeable, has supply elasticity

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- Housing is non-tradeable, has supply elasticity
- Can extend to include durable housing, different skill levels

Housing Government Production Worker Choice Calibration

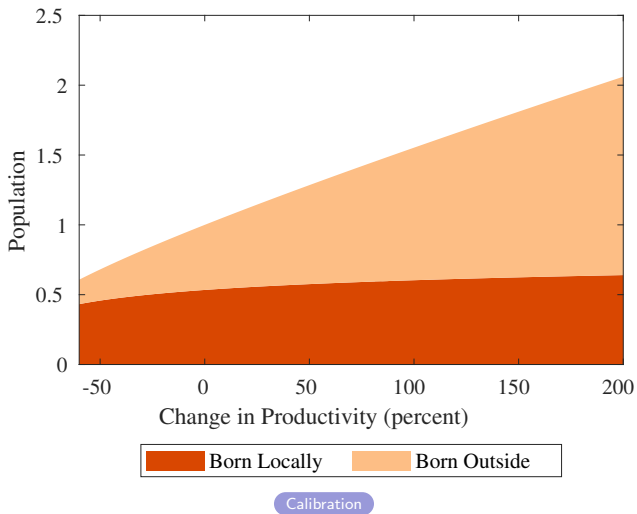# How workers choose where to live

Indirect utility of individual i, in area j, who was born in area k:

$$u_{ijk} = \overbrace{\omega_j}^{\text{Real incomes}} + \overbrace{A_j}^{\text{Amenities}} + \overbrace{\xi_{ijk}}^{\text{Logit}} + \overbrace{\mathbb{1}(k = j)\boldsymbol{\mu_i}}^{\text{Local Ties}}$$

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Local Ties $(\boldsymbol{\mu_i})$ - Preference for living in your birthplace

- Distribution of attachments, indexed by i, is independent the birthplace (k)
- Differences are due to who chooses to live in j

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- Distribution of attachments, indexed by i, is independent the birthplace (k)
- Differences are due to who chooses to live in j
- And how many people were born in k

Productivity increases population, decreases local ties

Local ties eventually follow population changes

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- Replacements (children) have ties proportionate to current population

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People are born with an unchanging local tie, but

- A share of people die each period
- Replacements (children) have ties proportionate to current population

The model eventually reaches a steady state where local ties do not vary

Calibration

Agenda

Migration Elasticities are Lower in Depressed Places

Real Wages are Even Lower in Depressed Places

Agenda

Hysteresis: A shock's impacts depend on previous shocks

People staying in depressed places lowers migration elasticities

1. Areas received negative shocks in the past, so they have mostly locals
2. Having mostly locals lowers migration elasticities

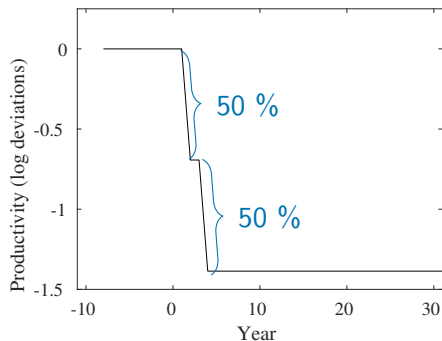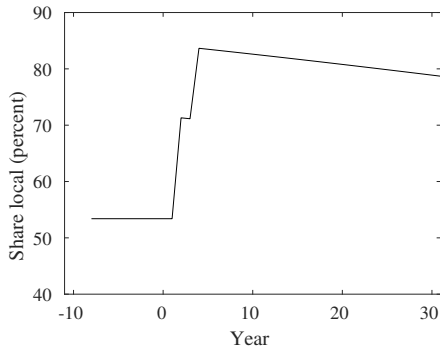# Hysteresis: A shock's impacts depend on previous shocks

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A shock's impacts depend on previous shocks

Impulse responses after equal declines in productivity

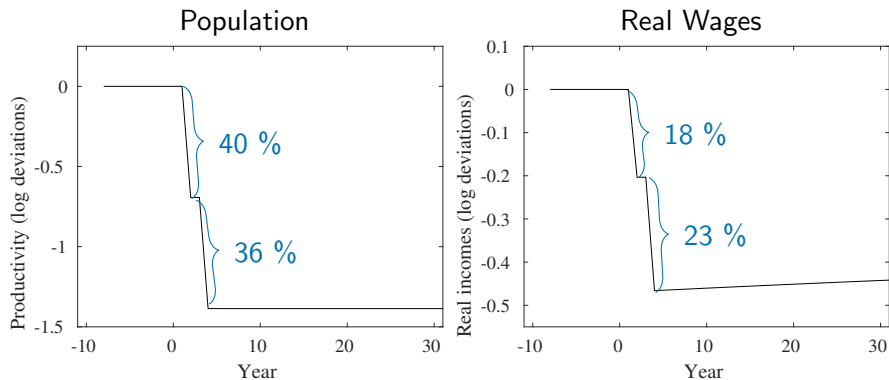Idea: Shock the same area twice, same size shock.

- First shock changes the share local

Impulse responses after equal declines in productivity

Responses differ

1. First shock - Locals stay, real wages decline somewhat (persistently)
2. Second shock - Less migration, real wages decline by more

Agenda

A 10 pct Place-Based Subsidy

Setup: A subsidy to an area, equal to 10 percent of initial wages

- A universal basic income, funded by taxing other areas
- Useful in thinking of other place-based programs
- E.g. Federal tax subsidies, economic development subsidies, school funding equalization, infrastructure placement, etc.
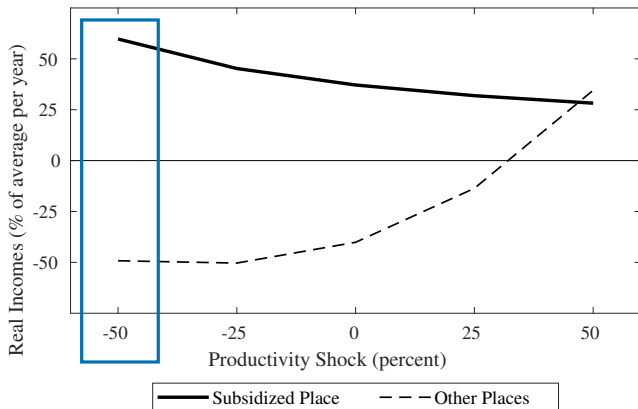
Key dynamic aspects

- Coincides with a change in productivity (positive or negative)
- Declining at 4 percent per year

Show equilibrium impacts on real incomes

- Taking into account taxed to fund the subsidy and impacts on migration, housing markets, labor markets, etc.
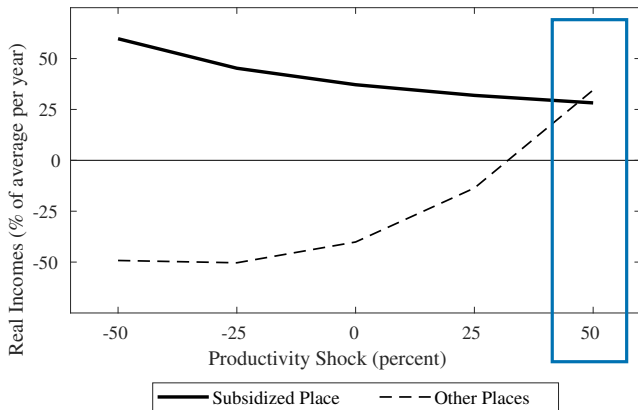
Real Income Changes After a 10 pct Place-Based Subsidy

Subsidizing depressed places increases local incomes by more

- Less in migration
- Less competition for local jobs (absent induced demand)

Real Income Changes After a 10 pct Place-Based Subsidy

Subsidizing productive places increases incomes elsewhere

- More in migration
- Makes labor more productive, grows the aggregate economy
- Decreases competition for local jobs elsewhere (absent induced demand)
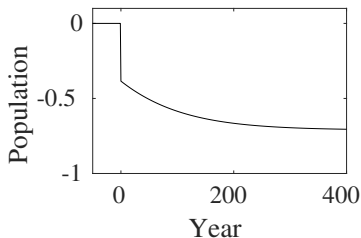
Agenda

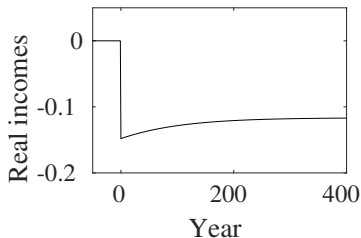# Convergence after a 50 % decline in productivity

Population undershoots steady state
(1/3 too high)

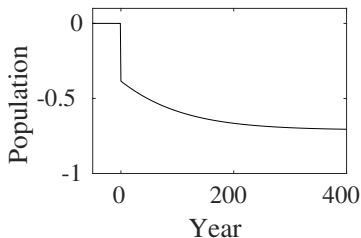# Convergence after a 50 % decline in productivity

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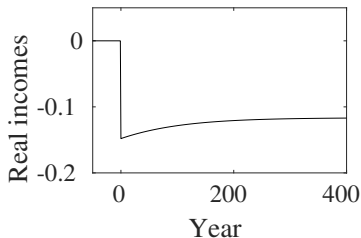(1/3 too high)

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Real incomes overshoot steady state

Convergence takes generations
(half life if a generation)

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Why add skills and durable housing?

Residents of economically depressed places

- Are less educated
- Live in cheaper houses

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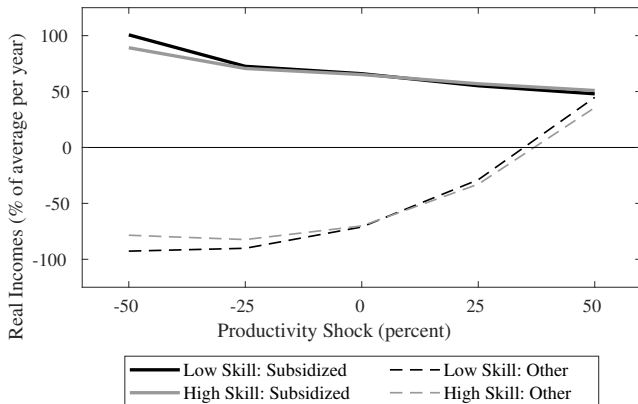
Why add skills and durable housing?

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Do these dynamics upset the main findings?

No

Real Income Changes After a 10 pct Place-Based Subsidy

1. Similar across skill groups
2. Same patterns as the simpler model

Agenda

Conclusion

- Large differences in how many locals live in different places

- Depressed areas have more locals and less elastic migration
  - Real wages can get quite low
  - Labor demand shocks impact wages, not population
  - Differences persist for generations

- Place based subsidies have different effects
  - Depressed places – Increase local incomes
  - Growing places – Increase population and aggregate productivity

Albouy, David. 2016. "What are cities worth? Land rents, local productivity, and the total value of amenities." The Review of Economics and Statistics, 98(3): 477–487.

Ganong, Peter, and Daniel Shoag. 2017. "Why has regional income convergence in the U.S. declined?" Journal of Urban Economics.

Kaplan, Greg, and Sam Schulhofer-Wohl. 2017. "Understanding The Long-Run Decline in Interstate Migration." International Economic Review.

Molloy, Raven, Christopher L Smith, and Abigail Wozniak. 2011. "Internal Migration in the United States." Journal of Economic Perspectives, 25(3): 173–196.

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