Regional Specialization and Growth

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- **This paper:** Role of regional specialization in explaining economic fortunes
  1. How does regional specialization affect growth?
  2. What is the optimal regional specialization?

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- Financial frictions account for 56% of adverse specialization effect on growth
- Efficient regional specialization in 1950 raises welfare by 1.2-2.2 percent

The contribution of this paper

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1. **Regional growth:**

   [Solow (1956), Baumol (1986), Barro and Sala-i-Martin (1991), Autor & Dorn (2013), Giannone (2022), Eckert & Peters (2023), Comin et al (2021), Gaubert et al (2020), Caselli et al (2016)]

   Contribution: Document specialization trade-off in U.S. regional growth since 1950

2. **Industrial Specialization:**

   [Jacobs (1961, 1970), Imbs & Waczarg (2003), Gaubert et al (2018), Glaeser (2019), Caselli et al (2020), Nagy (2023), Walsh (2023), Bartelme, Costinot, Donaldson & Rodriguez-Clare (2024)]

   Contribution: Endogenize costs of specialization + derive optimal specialization

3. **Long-run implications of financial frictions:**

   [Kiyotaki & Moore (1997), Bernanke, Gertler & Gilchrist (1999), Mendoza (2010), Gertler & Karadi (2012), Bianchi (2011), Bianchi & Mendoza (2019), Bonciani et al (2023)]

   Contribution: Derive financial friction in multi-industry setting + long-run effects

Empirical results

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  - Robustness: other measures (HHI, max share), other variables (employment, value added)

▸ Topcoding ▸ Further Details

Fact 1: The specialization trade-off

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- Define
  - r for commuting zone $r = \{1, ..., 722\}$
  - Y_r as dependent variable
  - $Gini_{r,1950}$ as 1950 Gini on income p.c. by 3-digit industry

$$Y_r = \alpha + \beta \cdot Gini_{r,1950} + \epsilon_r$$

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$$Y_r = \alpha + \beta \cdot Gini_{r,1950} + \gamma' \cdot Z_r + \epsilon_r$$

  - Z_r including a set of control variables:
    - 1950 log income p.c. [Barro & Sala-i-Martin (1992]
    - 1950 population [Eckert, Ganapati & Walsh (2024)]
    - 1950 share of high-skilled workers [Autor & Dorn (2013)]
    - 1950 old-age dependency ratio [Autor, Dorn & Hanson (2019)]
    - 1950 share of female workers [Fosso, Bergholt, Furlanetto (2025)]
    - Dummy for rustbelt state [Alder, Lagakos, Ohanian (2023)]

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- Define
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$$Y_r = \alpha + \beta \cdot Gini_{r,1950} + \gamma' \cdot Z_r + \delta \cdot \hat{g}_r + \epsilon_r$$

  - Z_r including a set of control variables
  - $\hat{g}_r$ as shift-share predicted growth from structural change [Borusyak et al (2025)]

$$\hat{g}_r = \sum_{i=1}^{I} s_{i,r,1950} \cdot g_i^{US}$$

with

- $s_{i,r,1950}$ as 1950 income share in industry i
- g_i^{US} as 1950-2020 US growth in industry i

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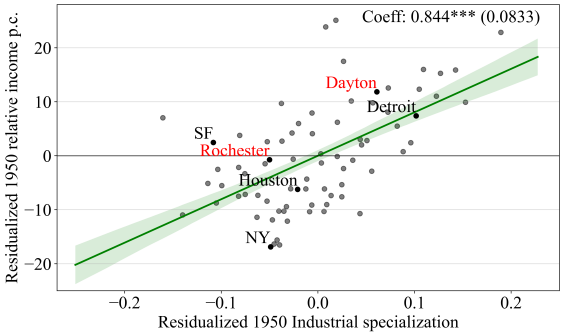

Figure 1: 1950 Income level

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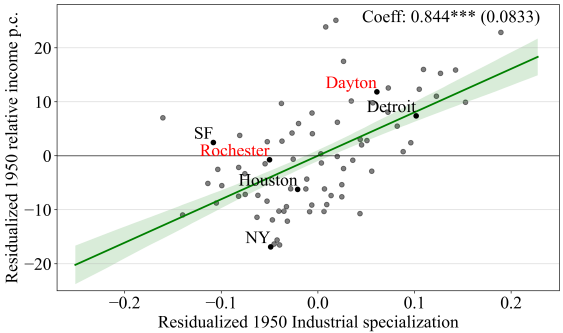

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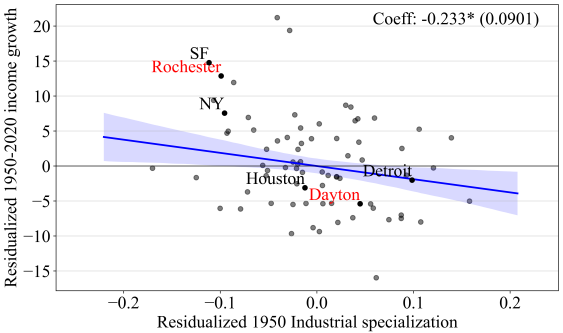

Figure 2: 1950-2020 Growth

▸ Regression table

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- Extensions and Robustness:
  - Specialization across tradable industries matters most ‣ Role of tradability
  - Specialization trade-off at different time horizons ‣ Horizons
  - Specialization trade-off by different industries ‣ Industries
  - Persistence measures ‣ Persistence

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- Next: Formalize specialization trade-off theoretically
  1. Quantify role of specialization for long-run growth
  2. Assess welfare under optimal specialization *(not today)*

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- **Main exercise**: Simulate economies with different initial specialization
  - Calibrate $\{\xi_i, \Phi_i, \theta, \rho_i, \sigma_i^2\}$ externally
  - Match 1950 income and specialization of 722 U.S. commuting zones
  - Feed in realized TFP across industries

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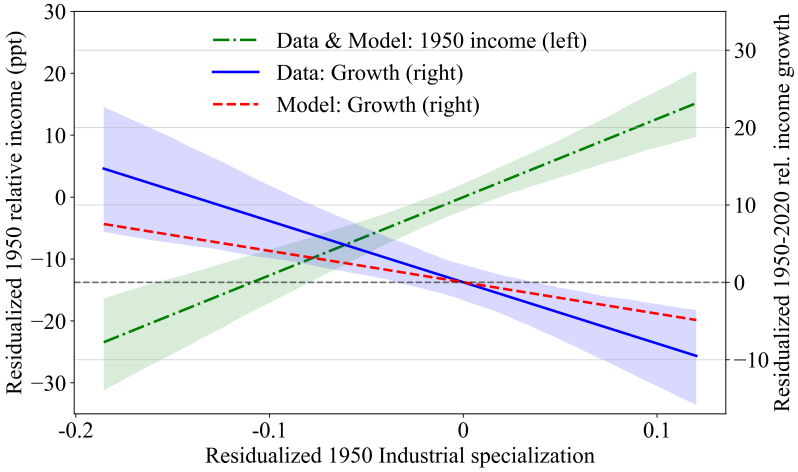

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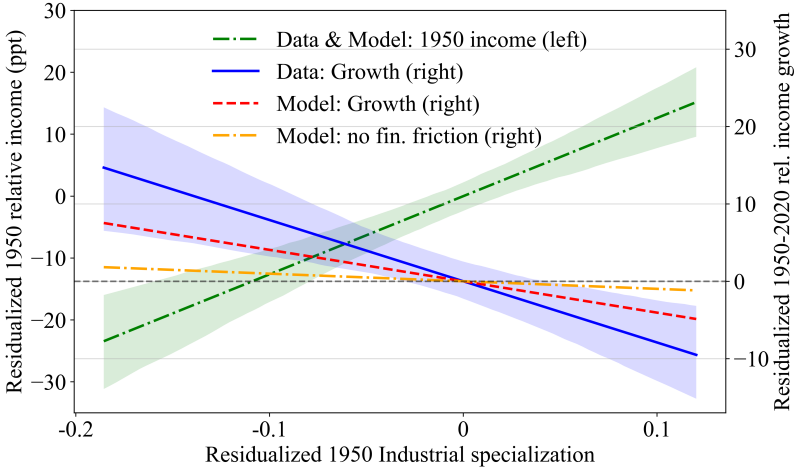

⇒ Financial friction captures 56% of adverse specialization effect on growth!

Conclusion

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- **Empirical take-away**:
  - $\Rightarrow$ Highly specialized regions are richer initially and have lower long-run growth
- **Theoretical take-away**:
  - $\Rightarrow$ Specialization $\rightarrow$ productivity $\uparrow$ + exposure to sectoral shock $\uparrow$
  - $\Rightarrow$ Frictions make reallocation costly & long-lasting
- **Quantitative take-away**:
  - $\Rightarrow$ Financial frictions play key role in generating adverse specialization effect on growth

Thank you very much!

Appendix