

Agglomeration and Trade: State-Level Evidence from U.S. Industries

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- What portion of the state- and industry-level production is consumed as a final good within the United States?
 - How are these portions connected to economic agglomeration and specialization effects?
- What are the elasticities of substitution across products of different states at the state and industry levels?
 - Are these elasticities systematically connected to economic agglomeration and specialization effects?
- Using interstate trade data would suffer from the lack of actual consumption and production data
 - Agglomeration and specialization of both production and consumption

- Under CES, when the elasticity of substitution $\eta_i(j)$ is state i and industry j specific,
 - pricing-to-markup implies the following markups for producers that are also state and industry specific:

$$\pi_r^H(j) = \frac{\sum_i \eta_i(j) C_{i,r}^H(j)}{\sum_i (\eta_i(j) - 1) C_{i,r}^H(j)}$$

- $\eta_i(j)$'s can be estimated using consumption and production markup data at the state and industry level
- After controlling for U.S. international imports in the data,
 - portion of the state- and industry-level production is consumed as a final good is:

$$\alpha_r^H(j) P_{r,r}^H(j) Y_r^H(j) = \sum_i P_{r,r}^H(j) C_{i,r}^H(j)$$

- $\alpha_r^H(j)$'s can be estimated using production and final good consumption data.
- Estimated $\eta_i(j)$'s and $\alpha_r^H(j)$'s are compared with agglomeration and specialization effects.

- Consumption and production data from U.S. Census Bureau
 - food and beverage and tobacco products
 - apparel and leather and allied products
 - computer and electronic products
 - furniture and related products
- Other supplementary data (see the paper)
- Nonlinear least squares estimations result in average (across states) estimates of $(\eta_r(j), \alpha_r^H(j))$
 - (2.65, 0.72) food and beverage and tobacco products
 - (2.10, 0.85) apparel and leather and allied products
 - (2.83, 0.25) computer and electronic products
 - (2.90, 0.79) furniture and related products

Agglomeration and Specialization Effects

- The agglomeration effects of consumption are significant for all industries
- The specialization effects of consumption are significant only for apparel and electronics.
- Specialized and agglomerated industries/states sell more of their products as intermediate inputs or international exports.
- Thus, agglomeration and specialization of industries play an important role in determining the patterns of trade, both intranationally and internationally.
- Spillover effects are much higher for electronics compared to food, apparel, or furniture, in terms of both consumption and production.