Highlights

- 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
Methodology

- 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.
Estimation

- 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
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.