A Rising Tide?
The Local Incidence of the Second Wave of Globalization

Rowena Gray & Greg Wright

UC Merced
Overview

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- Can summarize impact by looking at local land values
- Also look at median income and home prices to proxy changes in standard of living
- Gains to workers vs property owners: explore heterogeneity due to different local housing and labor supply elasticities
Trade as Share of US GDP
Local labor market literature is large and growing by the minute.

- China shock: Autor, Dorn and Hanson (2013); Pierce and Schott (2016); Acemoglu, et al (2016)
- Long-run impact of trade: Bernard, Jensen and Schott (2006); Dix-Carneiro & Kovak (2017)
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Research Design

- Estimate for 722 CZ c and year $t \in \{1980, 1990, 2000\}$:

$$y_{ct} - y_{c,1970} = \alpha + \beta_1 \Delta XE_{c,66-80} + \beta_2 \Delta ME_{c,66-80} + Z_{c,1959} + \epsilon_{ct}$$
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- $Z$ is pre-period Mfg Share and other controls
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\[ \Delta XE_{c,66-80} = \sum_j \frac{L_{cj,1959}}{L_{c,1959}} \frac{\Delta X_{j,66-80}}{Y_{j,1959}} \]

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- Exploit the **container-driven** rise in trade, 1966-1980
Containerization Sequence

<table>
<thead>
<tr>
<th>Year</th>
<th>Country 1</th>
<th>Country 2</th>
<th>Country 3</th>
<th>Country 4</th>
<th>Country 5</th>
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</thead>
<tbody>
<tr>
<td>1966</td>
<td>India</td>
<td>Netherlands</td>
<td>UK</td>
<td>USA</td>
<td>West Germany</td>
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<tr>
<td>1968</td>
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<td>France</td>
<td>Netherlands</td>
<td>Austria</td>
<td>Belgium</td>
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<td></td>
<td>Spain</td>
<td>Sweden</td>
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<td>Hungary</td>
<td>Switzerland</td>
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<td>1969</td>
<td>Finland</td>
<td>Yugoslavia</td>
<td>Japan</td>
<td>Norway</td>
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<td>1970</td>
<td>Singapore</td>
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<td></td>
<td>Hong Kong</td>
<td>USSR</td>
<td>Greece</td>
<td>Israel</td>
<td>Romania</td>
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</table>
Research Design: Instrumental Variable

- **IV Strategy:**

\[ \Delta X_{jd,t} - \delta = \sum d_{66,t} \Delta X_{jd,t} - \delta_{1}, \]

where \( d \) is destination.

- \( \hat{\Delta X}_{jd,t} - \delta_{1} \) with foreign containerization and lags and all combinations of interactions with:
  - product containerizability (source: German Engineering Society, 1968),
  - distance to foreign port,
  - initial foreign market size,
  - intra-US distance to domestic port,
  - oil price

Two approaches to selecting regressors:
1. use foreign container dummy and lags (K-P F-stat = 7)
2. use LASSO to select best predictors (K-P F-stat = 44) (Chernozhukov & Hanson, 2013)

1. LATE is effect of container technology (but low power)
2. LATE is transport costs loosely defined (but high power)
IV Strategy:

Note: \( \Delta X_{j,66-80} = \sum_d \sum_{t=66}^{80} \Delta X_{jd,t:t-1} \), where \( d \) is destination
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### First Stage

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<th>$\Delta ME_{c,66-80}$</th>
</tr>
</thead>
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<tr>
<td><strong>IV:</strong> $\Delta XE_{c,66-80}$</td>
<td>0.21*** (0.09)</td>
<td>0.24*** (0.11)</td>
</tr>
<tr>
<td><strong>IV:</strong> $\Delta ME_{c,66-80}$</td>
<td>0.16*** (0.03)</td>
<td>0.37*** (0.13)</td>
</tr>
<tr>
<td>MFG Share</td>
<td>0.09*** (0.02)</td>
<td>0.19*** (0.04)</td>
</tr>
<tr>
<td>K-P Wald F-Statistic</td>
<td>44.01</td>
<td>44.01</td>
</tr>
</tbody>
</table>
Results: Land Price, IV

[Graph showing export and import exposure over different years]
Economic Magnitude: Land Price (LP)

- Implied net percentage change in Land Price:

\[
\hat{\beta}_1 \triangle XE_{66-80} + \hat{\beta}_2 \triangle ME_{66-80}
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Economic Magnitude: Land Price (LP)

- Implied net percentage change in Land Price:

\[ \beta_1 \triangle \bar{XE}_{66-80} + \beta_2 \triangle \bar{ME}_{66-80} \]

- 70-80: \( \triangle \log(LP) = 4\% \)
Economic Magnitude: Land Price (LP)

- Implied net percentage change in Land Price:

\[ \hat{\beta}_1 \Delta XE_{66-80} + \hat{\beta}_2 \Delta ME_{66-80} \]

- 70-80: \( \Delta \log(\text{LP}) = 4\% \)

- 80-90: \( \Delta \log(\text{LP}) = 5.4\% \)
Economic Magnitude: Land Price (LP)

- Implied net percentage change in Land Price:

\[
\hat{\beta}_1 \triangle \overline{XE}_{66-80} + \hat{\beta}_2 \triangle \overline{ME}_{66-80}
\]

- 70-80: \( \triangle \log(LP) = 4\%

- 80-90: \( \triangle \log(LP) = 5.4\%

- 90-00: \( \triangle \log(LP) = 5.2\%\)
Results: Median Income, IV
Economic Magnitude

- Implied net percentage change in INC - HP:

  - 70-80: \( \Delta \log(\text{INC}) \Delta \log(\text{HP}) = 1.8\% \)
  - 80-90: \( \Delta \log(\text{INC}) \Delta \log(\text{HP}) = 1.5\% \)
  - 90-00: \( \Delta \log(\text{INC}) \Delta \log(\text{HP}) = 2.2\% \)

Upper bound on gains if non-housing component of the price index fell on average due to the shock.
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- Upper bound on gains if non-housing component of the price index fell on average due to the shock
Role for Labor and Housing Supply Elasticities

- Estimate local labor supply elasticities at the county level, create emp-weighted CZ mean values

\[
\text{HS}_{c, 50} - 70 = a + bHS_c [g_c \Delta \log \text{Prod}_{c, 50} - 70] + \epsilon_{c, 50} - 70
\]

where \( HS \) is housing supply; \( g_c \) are CZ FE; \( \text{Prod} \) is VA per Worker

\[
\text{Prod}_{ct} = \sum_j L_{cj, 1959} L_{c, 1959} \text{Prod}_{jt}
\]

the vector \( b_{HS} \) are our HS elasticities

Repeat for Labor Supply to obtain vector \( b_{LS} \)
Role for Labor and Housing Supply Elasticities

- Estimate local labor supply elasticities at the county level, create emp-weighted CZ mean values
- Estimate housing supply elasticities at CZ level

\[ \Delta \log HS_{c,50-70} = a + b HS_c [g_c \Delta \log Prod_{c,50-70}] + \epsilon_{c,50-70} \]

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Role for Labor and Housing Supply Elasticities

- Estimate local labor supply elasticities at the county level, create emp-weighted CZ mean values
- Estimate housing supply elasticities at CZ level
- For pre-period, 1950-1970 (10-year differences), estimate:

$$\triangle \log HS_{c,50-70} = \alpha + \beta^HS_c [\gamma_c \times \triangle \log Prod_{c,50-70}] + \epsilon_{c,50-70}$$

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Role for Labor and Housing Supply Elasticities

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- Repeat for Labor Supply to obtain vector $\beta^L_c$
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- those with “low” LS elasticities also more responsive
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  - any other ideas?