Greening the automotive production network in the Great Lakes region of North America: What role for unions?

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Context of Our Paper

- Draws from ongoing research into the regional impact of disruptive technologies associated with the “greening” of the automobile

- Seeks to extend the Global Production Network (GPN) 2.0 perspective by incorporating insights from research in economic and labour geography concerning labour’s role in (re)shaping the space economy

- Empirical focus: historical heartland of the North American automotive industry – the Great Lakes region
“rightly or wrongly, the auto industry has been singled out as a primary “culprit” in climate change debates and politicians have seized on measures affecting this industry as the centre-piece of their climate change proposals.” (Canadian Auto Workers union 2007: 2).
An Industry Facing Technological Disruption

- Increasing regulatory pressure to reduce carbon footprint of individual vehicles
- Disruptive automotive technologies:
  - Alternative propulsion systems
  - New lighter weight materials
  - Vehicle electrification
  - Autonomous car
Disruptive Technological Change

% Impact on Fuel Efficiency

- Engine: 50%
- Auxiliary Units: 5%
- Aerodynamics: 10%
- Transmission/Driveline/Axle: 15%
- Weight: 10%
- Wheel / Tire: 10%
Global industry with global players but complex geography

Design and vehicle development globally integrated - concentrated in a handful of centres, including the Great Lakes region

on vehicle production side, dominant trend is regional integration on a continental scale e.g. 80% of vehicles purchased in NAFTA bloc are built there
Automotive production regions in NAFTA

- Great Lakes
- South-eastern US
- Mexico
Great Lakes automotive region (GLR)

- Very highly integrated US-Canada cross-border production system:
  - defined by significant intra-regional flows of vehicles and components
  - integration driven by trade agreements (e.g., Auto Pact, CUSFTA, NAFTA)
- Challenges:
  - hard hit by Great Recession
  - more recent southward shift in industry towards competing auto production regions in southeast US and Mexico
ShiXs in Vehicle Production Capacity

**Midwest**
- 2000: 7.8
- 2005: 6.9
- 2010: 4.5
- 2015: 6.8
- 2020: 6.7

**Canada**
- 2000: 2.9
- 2005: 2.6
- 2010: 2.0
- 2015: 2.2
- 2020: 1.8

**Southeast**
- 2000: 2.9
- 2005: 3.7
- 2010: 2.3
- 2015: 4.4
- 2020: 4.5

**Mexico**
- 2000: 1.9
- 2005: 1.6
- 2010: 2.3
- 2015: 3.4
- 2020: 4.4

**Detroit 3**
- 2000: 6.5
- 2005: 5.7
- 2010: 3.3
- 2015: 5.2
- 2020: 5.1

**Non domestic**
- 2000: 2.3
- 2005: 1.9
- 2010: 1.3
- 2015: 1.3
- 2020: 0.9
Great Lakes automotive region (GLR)

**BUT** GLR still the heartland of NA vehicle production accounting for:
- Over 500,000 workers
- 60% of all NA light vehicle production
- 72% of NA vehicle transmission production
- 52% of NA engine production
- 50% of all US and 90% of all Canadian suppliers
- Michigan hosts R&D facilities for 9 of the world’s 10 largest OEMs and 46 of the largest 50 global component suppliers
A transitioning industry

Drivers
- Contribution to climate change
- National energy security concerns
- Manufacturing decline

Primary Actors
- State
- Automotive firms (all tiers)
- Consumers
- Labour

Potential Effects
- Uneven regional growth and decline
- Winners and losers (firms and localities)
- Inter- and intra-regional competition for new tech investment
• Attributed to the Manchester School of Economic Geography
• Study of multi-actor and multi-scalar industry networks
  • Vertical (chain): governance relations between production network actors
  • Horizontal (territorial): regional economic development outcomes
• Regional economic development through strategic coupling (indigenous, functional, structural)
• Coupling, recoupling, decoupling (MacKinnon, 2011)
Coe & Yeung (2015)

Seeks to identify the causal factors underlying regional economic development and decline

- Emphasis placed on regional institutions and firms
- Development as regional firm upgrading (product, process, functional)

A dark side to strategic coupling?
- Implications for labour?
GPN 2.0

Coe & Yeung (2015)
What role for unions?

- Cumbers et al (2009): labour as a passive actor in GPN theory
  - Labour geography - labour’s active role in (re)shaping the space economy
- Labour’s influence in reshaping coupling dynamics?
  - Regional upgrading (Rutherford & Holmes, 2007)
### Coupling, recoupling, decoupling in the GLR

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Michigan</th>
<th>Ontario</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Type of region (SOURCE-HOST)</td>
<td>SOURCE</td>
<td>HOST</td>
</tr>
<tr>
<td>(2) Regional assets (GENERIC-SPECIFIC)</td>
<td>SPECIFIC</td>
<td>MORE GENERIC</td>
</tr>
<tr>
<td>(3) Mode of existing coupling (INDIGENOUS, FUNCTIONAL, STRUCTURAL)</td>
<td>INDIGENOUS</td>
<td>FUNCTIONAL/STRUCTURAL</td>
</tr>
<tr>
<td>(4) Degree of existing coupling (LOW-HIGH)</td>
<td>HIGH</td>
<td>HIGH</td>
</tr>
<tr>
<td>(5) Exposure to decoupling (LOW-HIGH)</td>
<td>LOW</td>
<td>HIGHER</td>
</tr>
<tr>
<td>(6) Current degree of recoupling (LOW-HIGH)</td>
<td>MODERATE</td>
<td>LOW</td>
</tr>
</tbody>
</table>
Conclusions & Research Questions

- New path creation in the Southern Ontario automotive production network?
  - Effectiveness of existing regional policies?
  - Influence of labour in regional upgrading?
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