Global Production Networks and Regional Development: Implications for Smart Specialisation

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Global Production Networks and Regional Development: Implications for Smart Specialisation

Outline

- Introduction
- Value capture trajectories and strategic coupling
- Strategic coupling of regions with global production networks
- Promoting strategic coupling: implications for smart specialisation
1. Introduction

Regions in global production networks (GPNs) and global value chains (GVCs)

- 80% of world trade organized through GPNs (UNCTAD’s *World Investment Report 2013*).
- GPNs and GVCs as “the world economy’s backbone and central nervous system” (World Bank, 2010).
Global production sharing is the norm, not the exception.

Intra-regional and major inter-regional imports of intermediate goods, 2008 (in billions) of USS:

- Share of 64% Intra-Asian: US$ 1479 bn
- Share of 61% Intra-European: US$ 2050 bn
- Share of 25% Intra-CEA: US$ 287 bn
- Share of 10% Intra-Africa: US$ 63 bn
- Imports of Asia from Europe: US$ 361 bn
- Imports of Europe from Asia: US$ 384 bn
- Imports of Europe from North America: US$ 223 bn
- Imports of North America from Europe: US$ 291 bn
- Imports of North America from Asia: US$ 330 bn
- Imports of Asia from North America: US$ 287 bn

Source: FGI Supply Chain Study.
1. Introduction

“Strategic coupling” with global production networks (GPN 2.0)

- **Strategic coupling** as an *interactive mechanism* connecting **regional dynamics** (e.g. smart specialisation initiatives) and **GPN imperatives** (e.g. new markets or production arrangements)

- Regional development as an evolving process of shifting *value capture trajectories* in a world of global production networks

2. Value capture trajectories and strategic coupling

Value capture trajectories: beyond upgrading as a pathway to regional development

- Linear trajectory in most upgrading studies: from product upgrading to process and functional upgrading and chain upgrading?

- Smart specialisation as a “leapfrogging” strategy? Issues of national/regional contexts, type of firms, means-vs-ends of upgrading: who gets upgraded and who captures value?
2. Value capture trajectories and strategic coupling

- Value capture trajectories: much more varied, contingent, and multi-directional
  - firm-specific: different possible roles and trajectories
  - value capture as the ultimate outcome
  - different starting points and dynamics

- Regional development as the dynamic aggregate effect of the value capture trajectories of the various firms located in a particular territory
2. Value capture trajectories and strategic coupling

Value capture through the mechanism of strategic coupling

- GPN actors:
  - global lead firms and their market control through product and market definition;
  - strategic partners, suppliers, and other actors

- Strategic coupling of regions with GPNs: making smart specialisation work through mutual complementarity and dynamic articulation
2. Value capture trajectories and strategic coupling

Value capture through the mechanism of strategic coupling

- *Territorial* dynamics at the regional scale: regional institutions and assets (potential for smart specialisation)
- *Network* dynamics at the global scale: competitive logics of lead firms seeking
  - cost efficiency
  - market access and development
  - financialization and capital gain
  - risk minimization
Industry-level influences
- Growing or declining industry
- Technological change
- Competitive and cost conditions
- International and macro-regional regulatory frameworks
- Standards regimes and industrial conventions

Global production networks
- Structure as organizational outcome
- Lead firm strategies
- Role within wider network
- Nature of power relations between firms
- Extent to which firm is substitutable
- Range of activities performed by firm within network

Value capture trajectories
- Steady or rapid growth
- Steady or rapid decline, stasis
- Growth into decline, decline into growth
- Decoupling, and possible recoupling
- Shifts between global production networks (and possibly industries)

Regional development outcomes
- Growth, decline, stasis
- Specialization, diversification
- Lock-in, rejuvenation
- Spatially even/uneven growth/decline
- Equitable versus inequitable growth/decline

Territorial influences
- Market conditions and natural endowments
- Regulatory frameworks
- Financial incentives and labour market conditions
- Infrastructure quality and knowledge environment
- Organizational ecology (presence of other firms)
3. Strategic coupling of regions with GPNs

Dynamics of strategic coupling and regional development

- Coupling not a static equilibrium concept

- Evolutionary possibilities
  - coupling/articulation
  - decoupling/disarticulation
  - recoupling/re-articulation
Varieties of value capture trajectories for firms in global production networks

(b) Multi-directional paths

Value capture

I  Recouple

H  Decouple

G  Growth into decline

F  Decline into growth

\[ t_0 \quad t_1 \quad t_2 \quad t_3 \]
Varieties of value capture trajectories for firms in global production networks

(c) Shifts between global production networks

Value capture

Decouple?

K  Decouple from and recouple with different network or industry

J  Entering decline

$t_0$  $t_1$  $t_2$
Development outcomes (e.g. East Asia in the ICT and other industries)

- **Strategic coupling**: local/regional economies “working with” key actors in GPNs

- Upgrading: not just economic (industrial), but also social (people and employment conditions)

- Path dependency and regional lock-ins: short- and long-term consequences (e.g. “race to the bottom”)

- Vulnerabilities and disarticulations: what about “unplugging” from chains and networks?
Strategic coupling: industrial market specialization through foundries and IDMs in global semiconductors

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<td>Intel*</td>
<td>U.S.</td>
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<td>56,313</td>
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<td>Samsung</td>
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<td>29,324</td>
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<td>5</td>
<td>Qualcomm (2)</td>
<td>U.S.</td>
<td>16,008</td>
<td>15,436</td>
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<td>Broadcom Ltd.* (2)</td>
<td>Singapore</td>
<td>15,183</td>
<td>15,332</td>
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<td>4</td>
<td>SK Hynix</td>
<td>South Korea</td>
<td>16,649</td>
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<td>Micron</td>
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<td>TI</td>
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<td>12,112</td>
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<td>Toshiba</td>
<td>Japan</td>
<td>9,429</td>
<td>10,922</td>
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<td>10</td>
<td>9</td>
<td>NXP*</td>
<td>Europe</td>
<td>10,563</td>
<td>9,498</td>
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<td>6,699</td>
<td>8,610</td>
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<td>Infineon</td>
<td>Europe</td>
<td>6,916</td>
<td>7,343</td>
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<td>13</td>
<td>12</td>
<td>ST</td>
<td>Europe</td>
<td>6,873</td>
<td>6,944</td>
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<td>Apple (2,3)</td>
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<td>5,531</td>
<td>6,493</td>
<td>17%</td>
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<td>Sony</td>
<td>Japan</td>
<td>6,263</td>
<td>6,466</td>
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<td>Nvidia (2)</td>
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<td>4,696</td>
<td>6,340</td>
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<td>Renesas</td>
<td>Japan</td>
<td>5,682</td>
<td>5,751</td>
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<td>GlobalFoundries* (1)</td>
<td>U.S.</td>
<td>5,729</td>
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<td>-11%</td>
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<td>4,866</td>
<td>4,858</td>
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<td>20</td>
<td>UMC (1)</td>
<td>Taiwan</td>
<td>4,464</td>
<td>4,455</td>
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Total Including Foundries: 272,772
Total Without Foundries: 236,140

[3] Custom processors for internal use made by TSMC and Samsung foundry services.

*2016 and 2015 sales include Intel/Altera, Broadcom/Avago, NXP/Freescale, GlobalFoundries/IBM, and ON/Fairchild sales for all of 2015 and 2016.

Source: Companies, IC Insights’ Strategic Reviews Database
Mechanism 1: industrial market specialization through strategic partnership of semiconductor foundries in Taiwan
Mechanism 1. strategic partnership of TSMC with Apple, Qualcomm, Broadcom, and Nvidia
Mechanism 2: industrial market specialization through indigenous innovation: Samsung and South Korea

Location
The Center of Innovation

Here you’ll find information on our global manufacturing sites and R&D centers.
Mechanism 2: industrial market specialization through indigenous innovation: Samsung and South Korea

KOREA (R&D CENTER)

Samsung Hwaseong Research Center

- Address
  1, Samsungjeonja-ro, Hwaseong-si, Gyeonggi-do 18448
- R&D
  - Memory, System Logic
Mechanism 2: industrial market specialization through indigenous innovation: Samsung and South Korea
Mechanism 2: industrial market specialization through indigenous innovation: Samsung and South Korea
3. Strategic coupling of regions with GPNs

Changing modes of strategic coupling

- The “dark sides” of strategic coupling
  - strategic coupling but negative consequences
  - conflicting GPN and regional logics: cost efficiency vs. industrial upgrading

- Shifting dynamics of strategic coupling: disarticulations, with the possibility for re-articulation into different and more appropriate GPNs
Table 2. Potential negative consequences of strategic coupling in global production networks

<table>
<thead>
<tr>
<th></th>
<th>Between GPN and region</th>
<th>Within region</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ruptures</strong></td>
<td>• Disinvestment</td>
<td>• Crowding out local firms</td>
</tr>
<tr>
<td></td>
<td>• Exit of foreign firms</td>
<td>• Reduction or removal of local linkages</td>
</tr>
<tr>
<td></td>
<td>• More limited access to international markets</td>
<td>• Political exclusion</td>
</tr>
<tr>
<td></td>
<td>• Financial and other risks</td>
<td>• Displacement and eviction</td>
</tr>
<tr>
<td><strong>Frictions</strong></td>
<td>• Uneven value capture</td>
<td>• Uneven resource allocation</td>
</tr>
<tr>
<td></td>
<td>• Leakage of intangible assets (technology and knowhow)</td>
<td>• Social and class conflicts</td>
</tr>
<tr>
<td></td>
<td>• External path dependency and regional “lock-ins”</td>
<td>• Gender inequality</td>
</tr>
<tr>
<td></td>
<td>• Labour exploitation</td>
<td>• Environmental damages</td>
</tr>
<tr>
<td></td>
<td>• “Clash” of cultures</td>
<td></td>
</tr>
</tbody>
</table>

Source: Expanded from Coe and Hess (2011: Figure 11.2, p.135).
4. Promoting strategic coupling: implications for smart specialisation

Cautions for policy makers and practitioners

- Changing modes of strategic coupling and their associated pitfalls: not a universal panacea or all-inclusive policy instrument

- Always a critical role for regional institutions and groups of actors to engage in joint decision and collective action
  - to mitigate “dark sides” of GPN coupling
  - to consider a more balanced and equitable form of regional development
4. Promoting strategic coupling: implications for smart specialisation

Cautions for policy makers and practitioners

- Mindful of regional variations in resource endowments and institutional repertories: a key plank of smart specialisation initiatives

- Role for sector-specific industrial policies in GPN-led regional development
4. Promoting strategic coupling: implications for smart specialisation

Key considerations in GPN-led regional development POLICY

- Moving from national industries to specialized niches of regions in GPNs (i.e. smart specialisation)

- Recognizing the need for detailed knowledge and analysis of regional prospects in different GPNs

- Promoting new domestic capacity and/or foreign investment in value-adding segments of GPNs in regional economies
Key considerations in GPN-led regional development POLICY

- Developing global supply base through a combination of local and foreign firms
- Facilitating trade in production inputs and intermediate goods and services
- Leveraging GPNs for international market access and development of regional firms