

Understanding Global Value Chains Challenges and Opportunities for Latin America

Timothy J. Sturgeon, Ph.D.
Senior Research Affiliate
Industrial Performance Center
Massachusetts Institute of Technology

Latin America's Prospects for Upgrading in Global Value Chains

El Colegio de México, Mexico City, Mexico

March 15-16 2012

www.cepal.org/comercio/conference_LAC_GVC_MX_mar_2012/

Today's presentation

- Why are we here?
- Industry and product variation
- GVC metrics and research methods
- The IDB Case Study Project - GVCs in Latin America
- Some general observations

Why are we here?

Evolution of global industries - the rise of GVC

- Phase I (1960s): vertically integrated national firms and industries
- Phase II (1970s): global dispersion through offshoring by MNCs
- Phase III (1980s): geographic and organizational fragmentation: outsourcing *and* offshoring
- Phase IV (1990s): A new consolidation, global suppliers, the rise of China
- Phase V (2000s): Services offshoring, distributed R&D and design, global knowledge and innovation networks, the rise of India
- Phase VI (2008-2010): Radical consolidation, supplier deaths (rising protectionism did not occur, but industrial policy is back on the agenda)
- Phase VII?: Resource constraints, fiscal crisis of the state (wither regulation?), maturing of value chain modularity

The conference document begins:

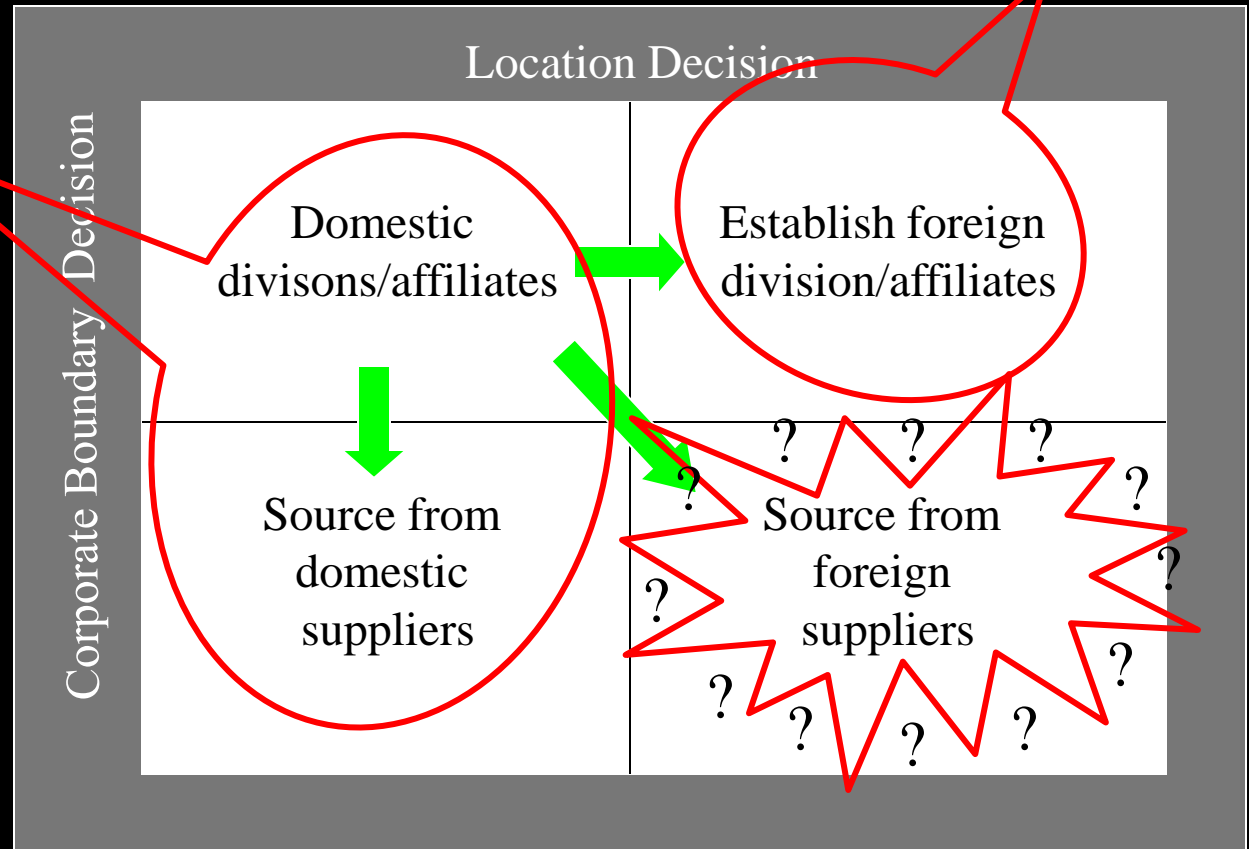
“The global economy is increasingly configured Global Value Chains (GVCs), which account for a rising share of international trade, global GDP and employment”

How do we know this is true?

GVCs are a question of strategy: In-house or offshore?

FATS
(Thin)

Business
statistics
and IO
(Rich)



GVC Research Methods and Metrics

GVC Metrics - Sampling of Current Quantitative Efforts

1. Repurposing existing statistics (aggregate and industry level)
 - COMTRADE:
 - ★ Industry breakouts for final and “true” (differentiated) intermediates (UNIDO)
 - ★ BEC revision, including GVC-friendly commodity groupings
 - Regional and Global Input-Output Tables
 - ★ IDE-JETRO I/O database for East Asia, OECD, WIOD
2. Collecting and publishing more detail on services trade and prices
3. Product-level GVC studies
 - ★ 1996 Tempest (Barbie Doll case), picked up by Feenstra (1998)
 - ★ 2007 Linden, Dedrick, and Kramer iPod studies
 - ★ Many since: ADB Institute, OECD, ETLA-Finland, UNCTAD
 - ★ Current UNCTAD/China MOC project, product groupings in three industries
4. Standardizing new enterprise-level data collection on GVCs
 - E.g., offshoring and outsourcing by business function
 - ★ 2007 International Sourcing Survey (Eurostat)
 - ★ 2010 National Organizations Survey (NSF)
 - ★ 2012 International Sourcing and Global Value Chains Survey (Eurostat)

U.S. National Organizations Survey, 2010

NATIONAL ORGANIZATIONS SURVEY

Thinking about the same functions, now we're going to ask you some questions about how your organization is structured. Within each functional category, we'd like to know about where the work takes place, whether within your organization or by an outside supplier either in the U.S. or in a foreign country. For each function, please indicate the percentage of costs for each location during calendar year 2010. Please indicate the **percentage of costs** (click definitions link below for an explanation) incurred during calendar year 2010 for PLG Retail in each of the following locations.

(The locations for each function should total 100%)

	...by your organization? DOMESTICALLY	...by an independent supplier or suppliers (no ownership of 10% or more)? DOMESTICALLY	...by a foreign affiliate of your organization (ownership of 10% or more)? INTERNATIONALLY	...by an independent supplier or suppliers (no ownership of 10% or more)? INTERNATIONALLY	TOTAL	Not Applicable
Primary business function	<input type="text" value="100"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="100"/>	<input type="checkbox"/>
Research and development of products, services, or technology	<input type="text" value="100"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="100"/>	<input type="checkbox"/>
Sales and marketing	<input type="text" value="100"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="100"/>	<input type="checkbox"/>
Transportation, logistics, and distribution	<input type="text" value="100"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="100"/>	<input type="checkbox"/>
Customer and after sales service	<input type="text" value="90"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="10"/>	<input type="text" value="100"/>	<input type="checkbox"/>
Management, administration, and back office functions	<input type="text" value="100"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="100"/>	<input type="checkbox"/>
Information technology systems	<input type="text"/>	<input type="text" value="100"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="100"/>	<input type="checkbox"/>
Facilities maintenance and repair	<input type="text" value="100"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="100"/>	<input type="checkbox"/>

[View Business Function & Other Definitions Here](#)

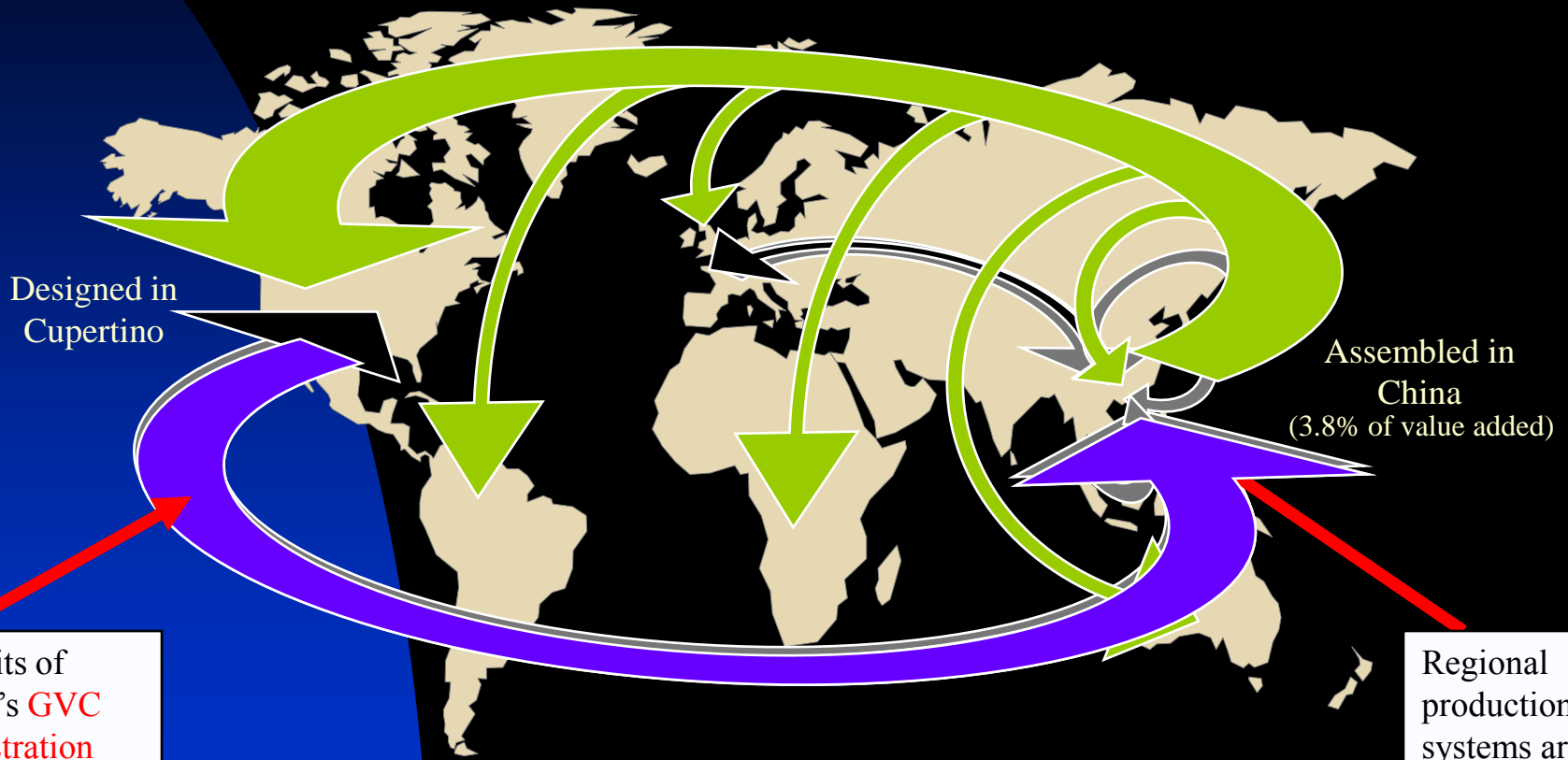
Progress - 50%

If you have any questions please call 1-877-737-5782 ext. 286 between 9am to 5pm Pacific Time Mon. - Fri.

[Frequently Asked Questions](#)

The Apple iPod (product level GVC study)

Emblematic Case #1: Low Cost Assembly and Global Sourcing (30gb, \$300 retail)

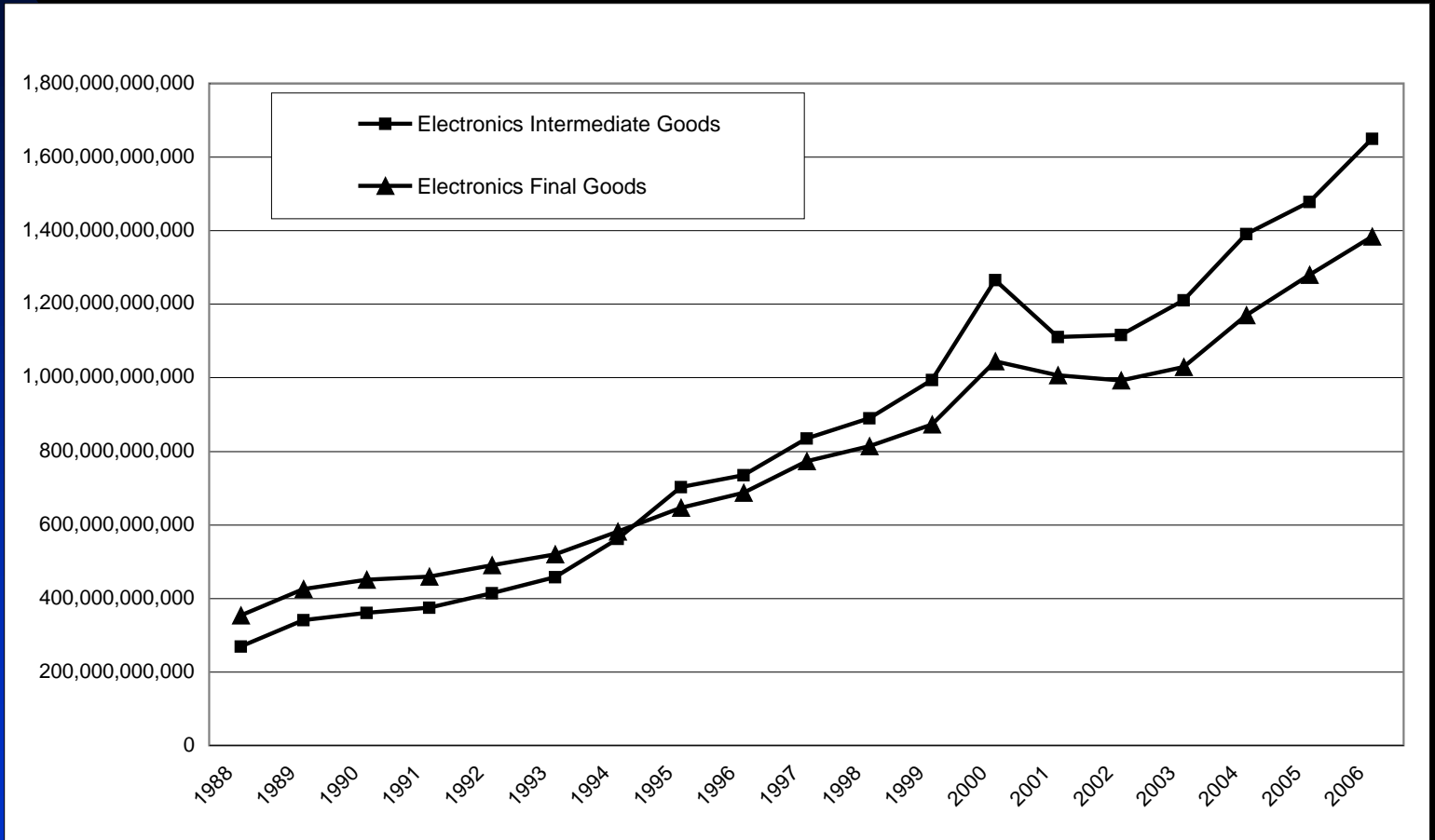


Benefits of Apple's **GVC orchestration** role largely unaccounted for in trade statistics

Regional production systems are **nested** within global production systems

Electronics: Industry-level GVC classifications

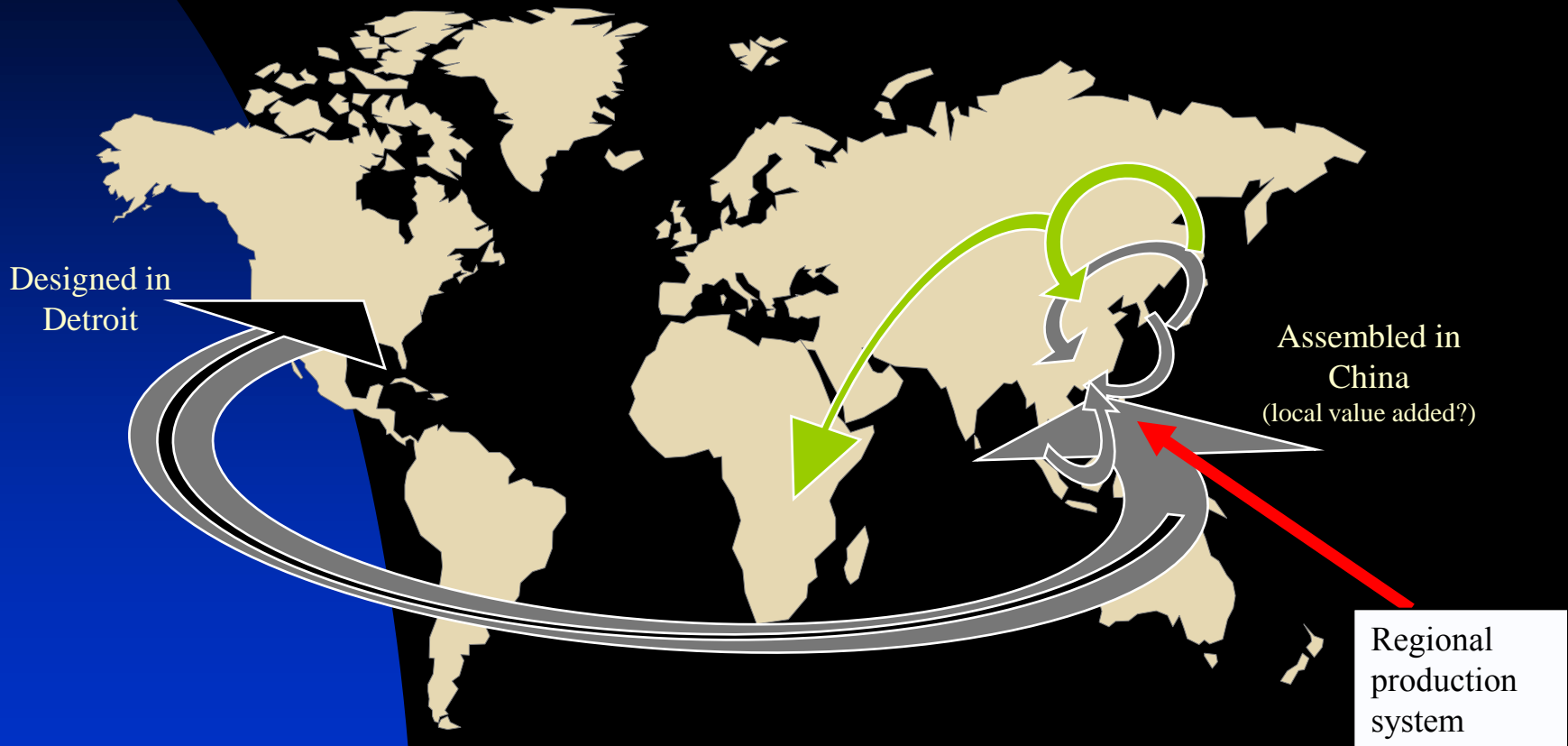
Total Trade, Manufactured Intermediate and Final Goods, 1988–2006



Source: Sturgeon and Memedovic, 2010, from SITC Rev 1 and 3 data; WITS; BEC.

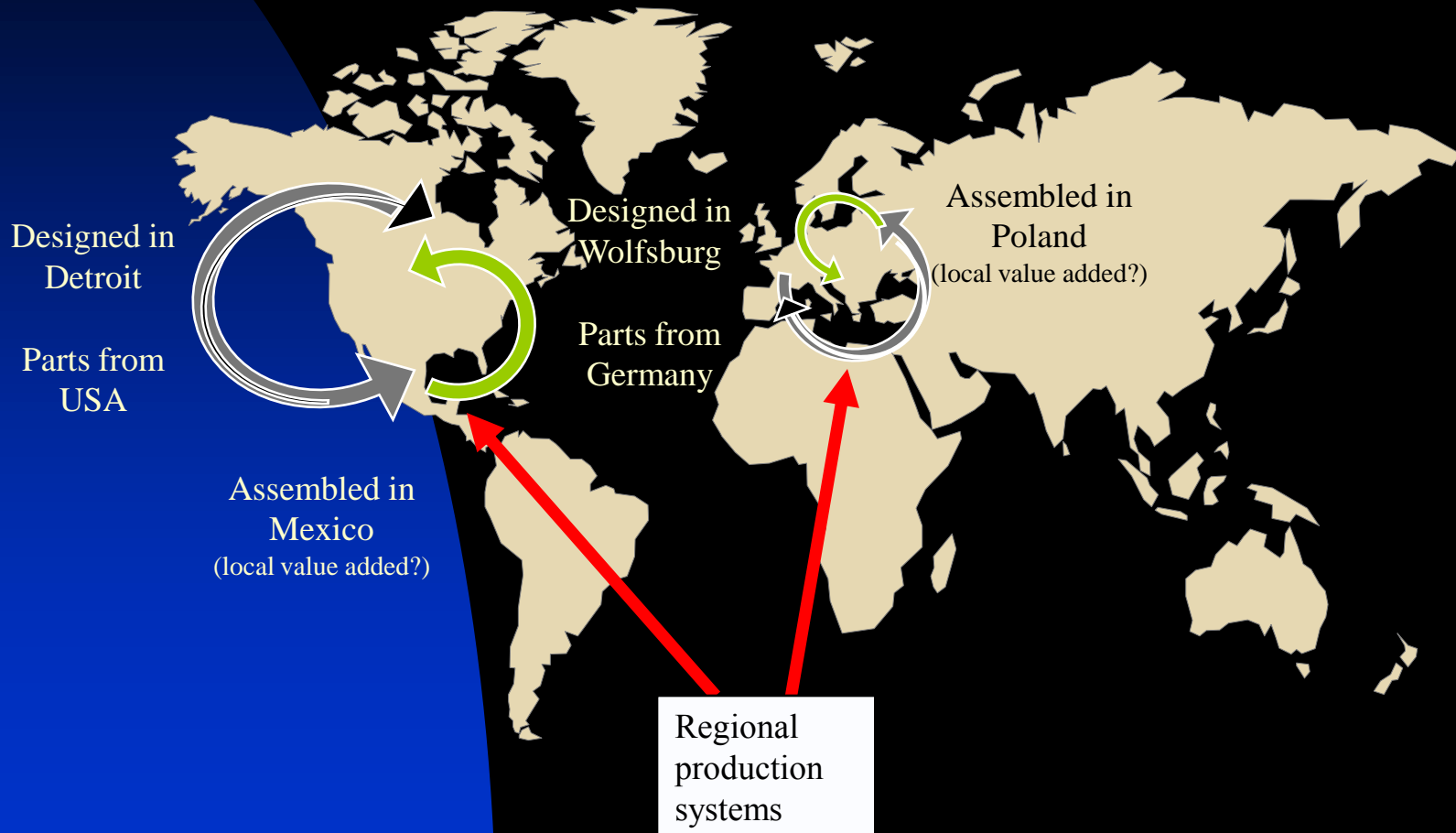
A Passenger Vehicle

Emblematic Case #2.1: Local Assembly and Sales with Global Sourcing.



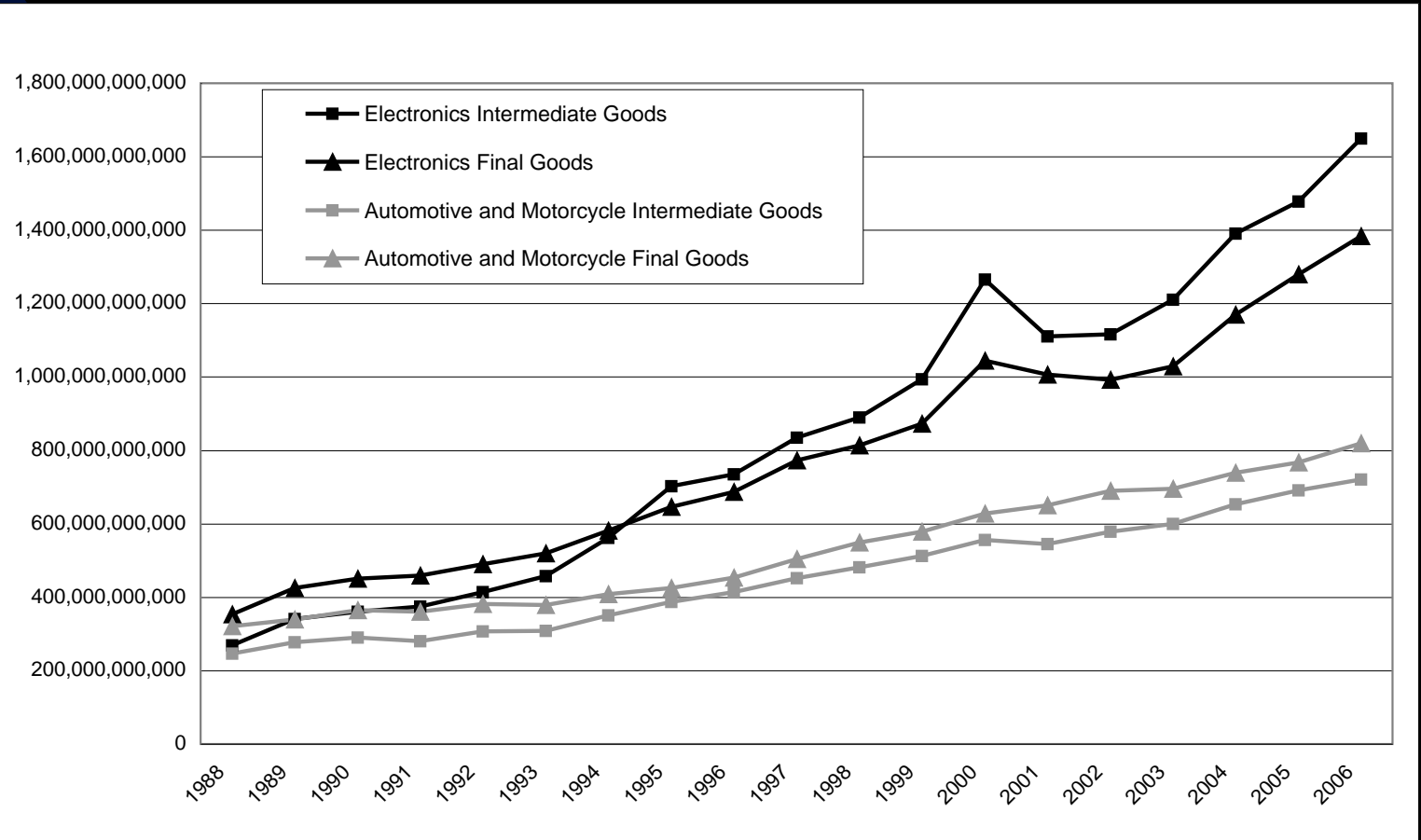
A Passenger Vehicle

Emblematic Case #2.1: Regional Production and Sourcing.



Autos and Electronics: Industry Differences

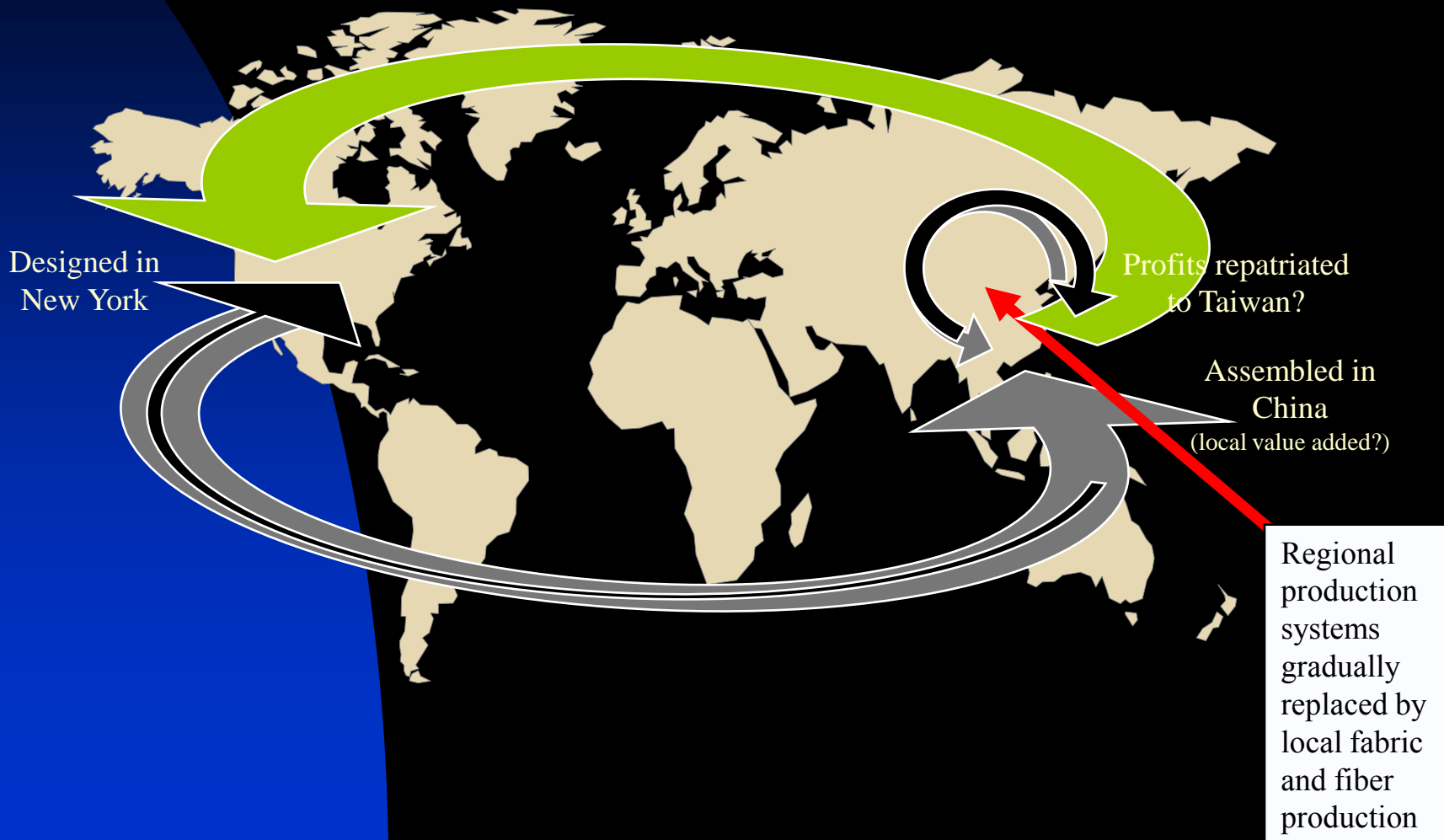
Total Trade, Manufactured Intermediate and Final Goods, 1988–2006



Source: Sturgeon and Memedovic, 2010, from SITC Rev 1 and 3 data; WITS; BEC.

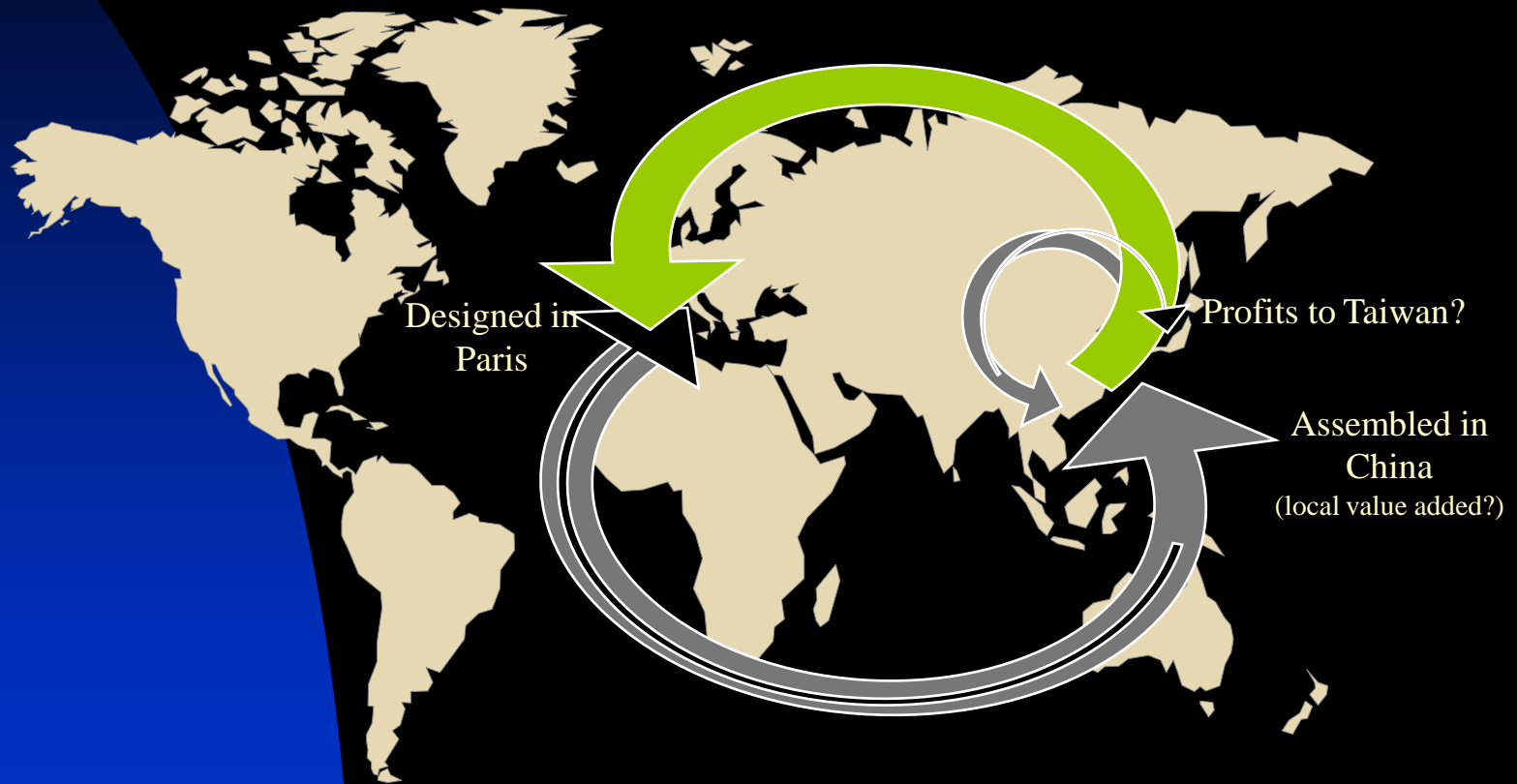
A Woman's "Off the Rack" Dress sold in USA

Emblematic Case #3.1: Low Cost Assembly and Local Sourcing.



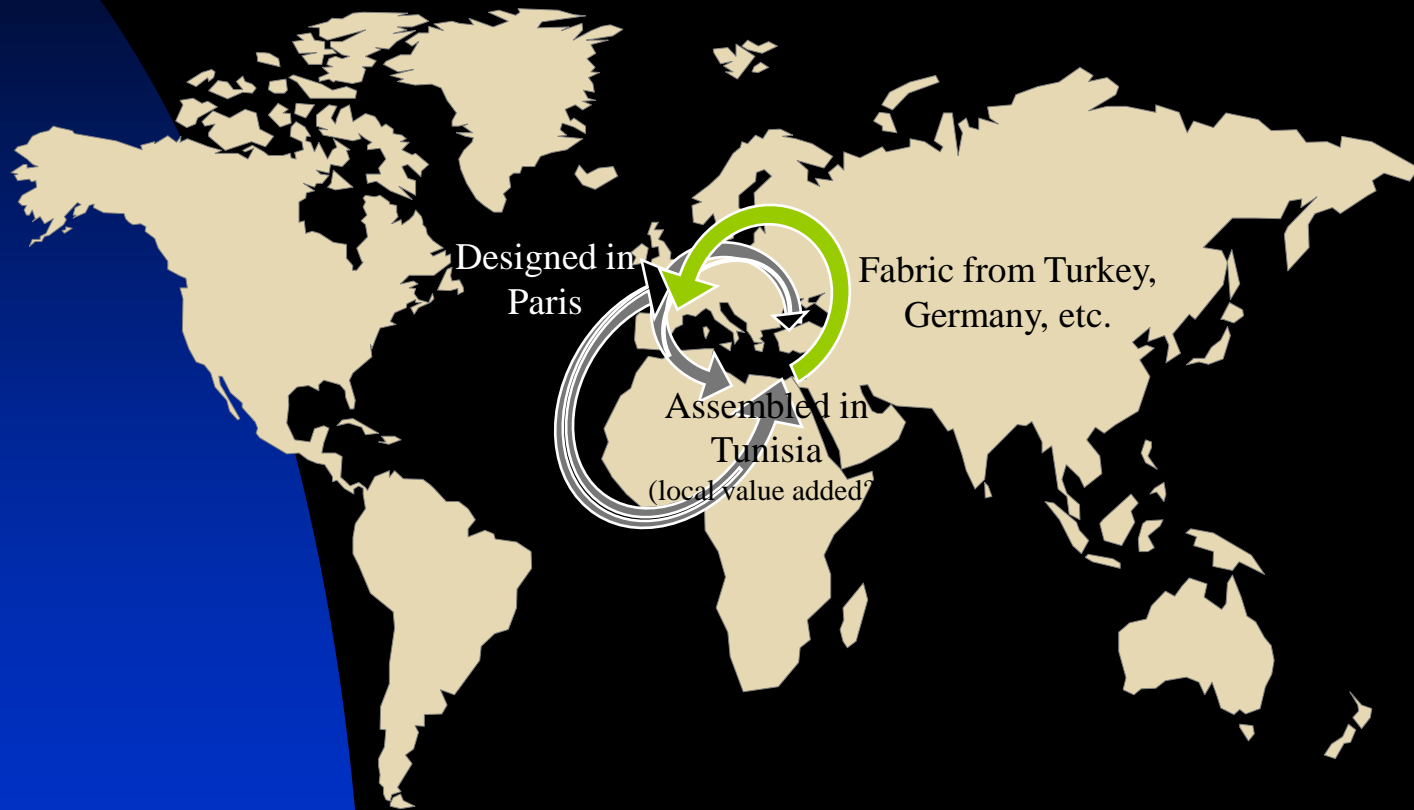
A Woman's "Off the Rack" Dress sold in Europe

Emblematic Case #3.2: Low Cost Assembly and Local Sourcing.



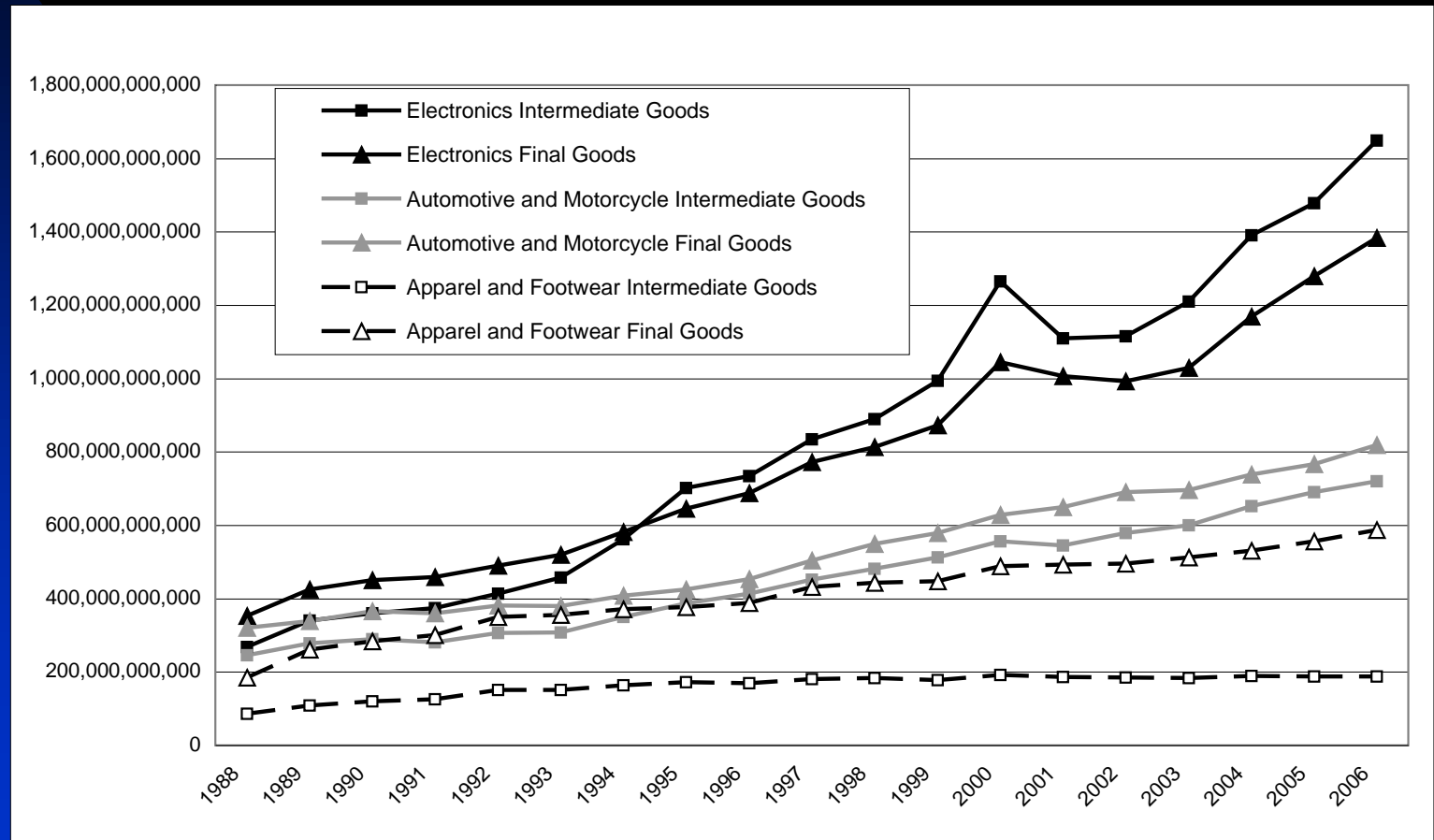
A Woman's "Off the Rack" Dress sold in Europe

Emblematic Case #3.3: Low Cost Assembly and Regional Sourcing.



Apparel, Autos, and Electronics: Industry Differences

Total Trade, Intermediate and Final Goods, 1988–2006



Source: Sturgeon and Memedovic, 2010, from SITC Rev 1 and 3 data; WITS; BEC.

Industries: multiple variations

- Conventions and standards
 - ◆ Codifiability: modular vs. relational GVC linkages
- Technological intensity
 - ◆ Complexity, codifiability, supplier competence
- Clock-speed
 - ◆ Supplier competence, codifiability
- Industry structure
 - ◆ Concentration ratios
 - ◆ Lead firm power, platform leaders
- Rules of the Game
 - ◆ Regulation and societal and political pressure

Products: multiple variations

Countries: multiple variations

More than five “emblematic” cases?

Given high variation, complexity,
and data gaps, industry-, country-,
and product -level GVC case
studies have proven to be
extremely useful

Case Study Methods

Step 1: Sector Selection

1. *Sector mapping*: What are the main sectors and product sets, and markets that comprise the industry?
2. *Identify growth sectors*: Which sectors have high growth rates and high growth potential?
3. *Identify potential for technological learning*: What sectors have high potential for technological learning?
4. *Identify potential for specialization within GVCs*: What sectors have potential for countries and regions to play specialized roles in GVCs?
5. *Identify potential for employment*: Which sectors have high levels of employment or potential employment?
6. *Identify sectors where the target country has a plausible chance of success*: Which sectors have a current, nascent, or potential presence in the target country, including FDI, local firms, exports, and employment?

Case Study Methods

Step 2: Map Global Industry

1. *Product mapping*: What are the main final and intermediate goods that comprise the sector?
2. *Process mapping*: What are the main activities in the sector? What comprises the chain of value adding activities in the main product areas, and in the case study products in particular?
3. *Key technology trends*: what is the impact of technology on the sector in terms of products, processes, logistics, and business process automation? How has technology impacted sector organization?
4. *Actor mapping*: (Lead firms, global suppliers, service providers, platform leaders, intermediaries, institutional actors)
5. *Transaction mapping*: How is information exchanged across key activities (arms-length, codified, tacit?). Do certain activities need to be co-located? Can other activities be accomplished at a distance. What role does technology play in the coordination of value chain activities?
6. *How has the global sector changed* over the past 20 years? (outsourcing and offshoring, role of information technology, new markets, new product areas, new standards, including labor and environmental standards, changes in sector structure (vertical/horizontal integration/disintegration), market share changes (consolidation, fragmentation), regulations, resource constraints?)

Case Study Methods

Step 3: Interviews with key firms and organizations

1. **Key Actors:** Contact retailers, lead firms and global buyers, intermediaries, key equipment and service providers, distributors, central exchanges, standard setting bodies, etc.
2. **Perceptions:** Discover how the target country, sector, and cases are perceived by key sector actors
3. **Strategies:** Discover how the target country, sector, and cases fit (or do not fit) into past, present, and future sourcing strategies of powerful buyers and lead firms in the sector

Case Study Methods

Step 4: Evaluate domestic sector

1. Are key GVC actors present or active in the country?
2. Does the domestic sector play a specific role within GVCs?
3. Quantify the domestic sector in terms of:
 - Number and size of firms
 - GVC roles played by local firms and foreign affiliates
 - Employment and wages
 - Trade (imports and exports)
 - Productivity, value added, etc.
4. Identify and evaluate the effects of government programs and regulations on the sector

Case Study Methods

Step 5: Firm and cluster case studies

1. **Collect a detailed history of key companies:** founding, changes, milestones, mergers and acquisitions, problems encountered, main products, main markets and customers, financial history
2. **GVC role** of case study firm and cluster, if any
3. **Downstream customers and markets**
4. **Upstream supply base**
 - Cluster-level
 - Domestic
 - Regional
 - Global
5. Collect **key informant's impressions** of topics 1-3 above
6. If possible, collect standard firm-level data on outsourcing and offshoring by **business function**.

(To the extent possible use firm- and cluster-level research to reveal the upstream and downstream value chain, not only those activities carried out locally)

GVCs in East Asia and Latin

America: a tale of two case study

sets

IDE -JETRO GVC Project

palgrave
macmillan

During the last few decades, globalization has transformed economic development in East Asia. The expansion of foreign direct investment, increase in international trade, and accelerated flow of financial and human resources across country borders have triggered rapid industrialization and economic integration in the region.

This volume uses the global value chains (GVC) perspective, to explore how the dynamic interactions between firms from developed and developing economies, together with other factors, have stimulated and shaped the rise of local firm capabilities in East Asia. By extending and modifying the existing GVC perspective, the contributors present their own analytical framework to explain the rise of firm capabilities within value-chain dynamics.

This book is essential reading for all interested in development economics, international trade policy and East Asian economics and studies.

Momoko Kawakami is Deputy Director of the Technological Innovation and Economic Growth Studies Group, Inter-disciplinary Studies Center at the Institute of Developing Economies, (JETRO), Japan. His main areas of interest include industrial development in Taiwan and East Asian economies.

Timothy J. Sturgeon is Senior Research Affiliate at the Industrial Performance Center, Massachusetts Institute of Technology, US. Previously he was a Research Specialist at the University of California at the Berkeley Roundtable on the International Economy, while earning his PhD in Economic Geography. He is co-organizer of the Global Value Chains Initiative and a Research Fellow at the Institute for Technology, Enterprise, and Competitiveness at the Doshisha Management School in Kyoto, Japan. Dr Sturgeon has also been a Research Associate at MIT, and has served as Executive Director of the IPC's Globalization Study and the Globalization Research Director for the International Motor Vehicle Program at the Center for Technology, Policy and Industrial Development.



www.palgrave.com

palgrave
macmillan

The Dynamics of Local Learning in Global Value Chains
Edited by Momoko Kawakami and Timothy J. Sturgeon



The Dynamics of Local Learning in Global Value Chains Experiences from East Asia

Edited by
Momoko Kawakami and
Timothy J. Sturgeon

IDE-JETRO



Country and Industry Cases

- China
 - ◆ Mobile phone handsets
- Taiwan
 - ◆ Notebook and netbook PCs
- Vietnam
 - ◆ Motorbikes
- Malaysia
 - ◆ Consumer Electronics
- Indonesia
 - ◆ Motorbikes

**Latin America and the Caribbean
in Global Value Chains:**

What are the Challenges?

(Led by Juan Blyde, IDB)

Country and Industry Cases

- Argentina
 - ◆ High end footwear
 - ◆ Auto parts
- Brazil
 - ◆ Aircraft parts
 - ◆ Quality coffee
- Columbia
 - ◆ Chili pepper paste
 - ◆ Fruit pulp
- Costa Rica
 - ◆ Electronics contract manufacturing
 - ◆ Aviation Software
- Mexico
 - ◆ Aircraft parts
 - ◆ IT Services and Software

Where LAC succeeds in GVCs

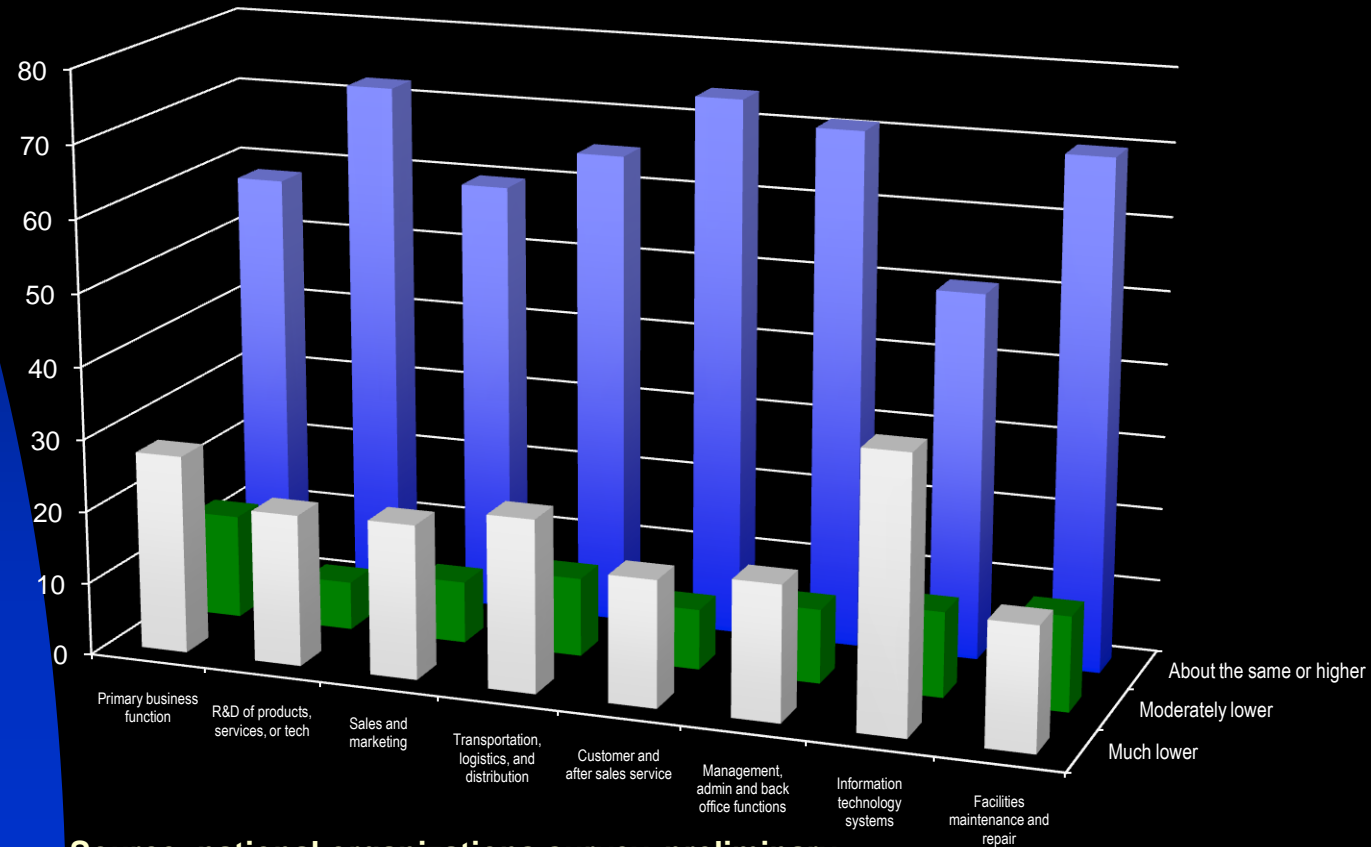
- Relational linkages
 - ◆ Relative spatial and cultural proximity to US
- Fast response
 - ◆ JIT, rapid fulfillment
- Resource base
 - ◆ Quality coffee (Brazil)
 - ◆ Chili peppers
- Favorable trade agreements
 - ◆ NAFTA, CAFTA, etc.
 - ◆ Harmonization of standards and certification

Where LAC struggles in GVCs

- Knowing and meeting quality standards
 - ◆ Focused on local and regional markets
- Scale up
 - ◆ Finance
 - ◆ Labor force
- Infrastructure and security
 - ◆ Mexico
 - ◆ Columbia
- Labor Costs (too high) and Skills (too low)
 - ◆ Too expensive to compete with East Asia
 - ◆ Not skilled enough to compete with OECD

LAC: Falling into the (middle income) gap between costs and capabilities?

International Business Function Sourcing by U.S organizations in 2010



Source: national organizations survey, preliminary

Recommendations (LAC firms)

- Focus on **mid-to-high end** products and processes
 - ◆ Take business from OECD suppliers
 - ◆ High mix, low volume per item
 - ★ High end call centers (and Spanish language)
- Focus on **quick turn** production and services
 - ◆ Proximity (logistics)
 - ★ High value, lower volume contract manufacturing
 - ★ Higher value rapid replenishment apparel and footwear
- Focus on GVC segments with **relational linkages**
 - ◆ Real time collaboration in proximate time zones
 - ★ R&D and engineering services
 - ★ Software and ITC services

Recommendations (LAC states)

- Infrastructure!
 - ◆ Movement of goods
 - ◆ Communications
 - ◆ Immigration and Emigration policies
- Finance!
 - ◆ Export (broadly defined)
 - ◆ Easy public listing of knowledge-based firms
 - ◆ Financing for consortium and rapid scale up
 - ◆ FDI (targeted attraction and retention)
 - ◆ Non-equity ties (targeted GVC linkages)
- Standards!
 - ◆ Monitoring and dissemination of global standards
- Branding and Marketing!
 - ◆ Country-level
 - ◆ Regions (appellations)
 - ◆ GVC niche (consortium and industry groups)

Supplier Upgrading and Policy

Governance Type	Linkage mechanism	Firm roles and competencies	Policy emphasis
Market	Arms-length exports	Branded exporter and importer of standardized goods and services	Brand and product development, market research and access, import substitution and export promotion
Modular	Buyer-supplier complimentary specialization in cross-border value chains	"Deverticalized" lead firms and full package suppliers with generic, base process competencies, and a global footprint	Knowledge of global standards, process- and information technology upgrading
Relational	Collaboration with co-location or in cross-border value chains with lots of air	Clusters of specialists buyers and suppliers with process and/or domain-specific	Competence building, support of clusters and districts, focus on building tacit
Captive	Foreign direct investment, equity ties	customer-specific competencies	Recruitment of MNC affiliates and suppliers, local content rules
Hierarchy	Foreign direct investment	Lower tier supplier	Recruitment of MNC affiliates, education and training, infrastructure development, local content rules

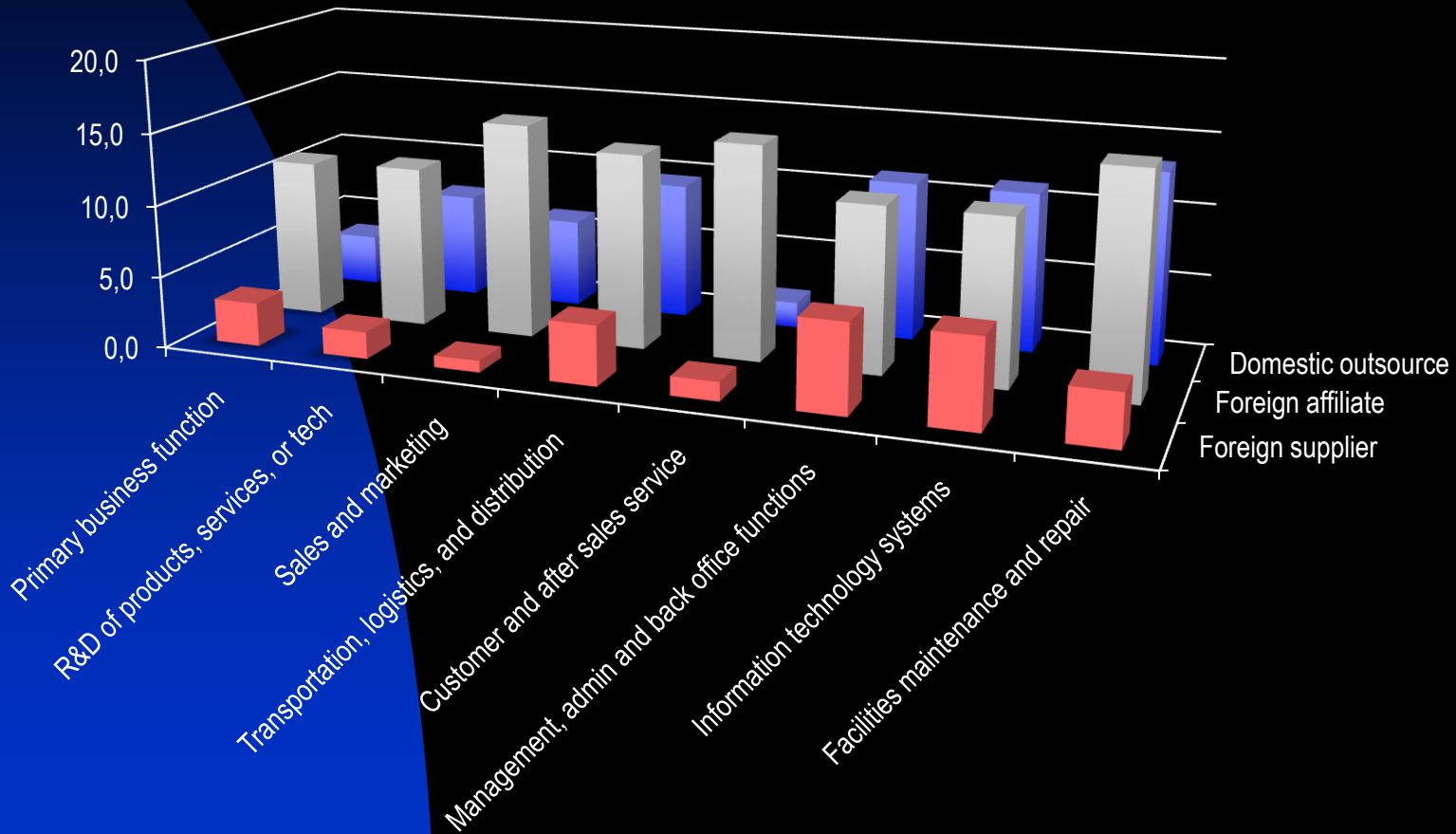
Profits and Spatial Stickiness

Some parting observations

- Vertical fragmentation (outsourcing) is the most novel characteristic of GVCs
- GVCs are enabled by ICT
- All but the most technologically competent SMEs tend to be excluded from GVCs
- GVCs can drive upgrading but they can be exclusive and partition entire economies within low value added segments of GVCs
- GVCs are driven by a small handful of the world's largest firms
- GVCs are in their infancy...domestic and regional VCs still dominate the landscape

U.S. National Organizations Survey, 2010

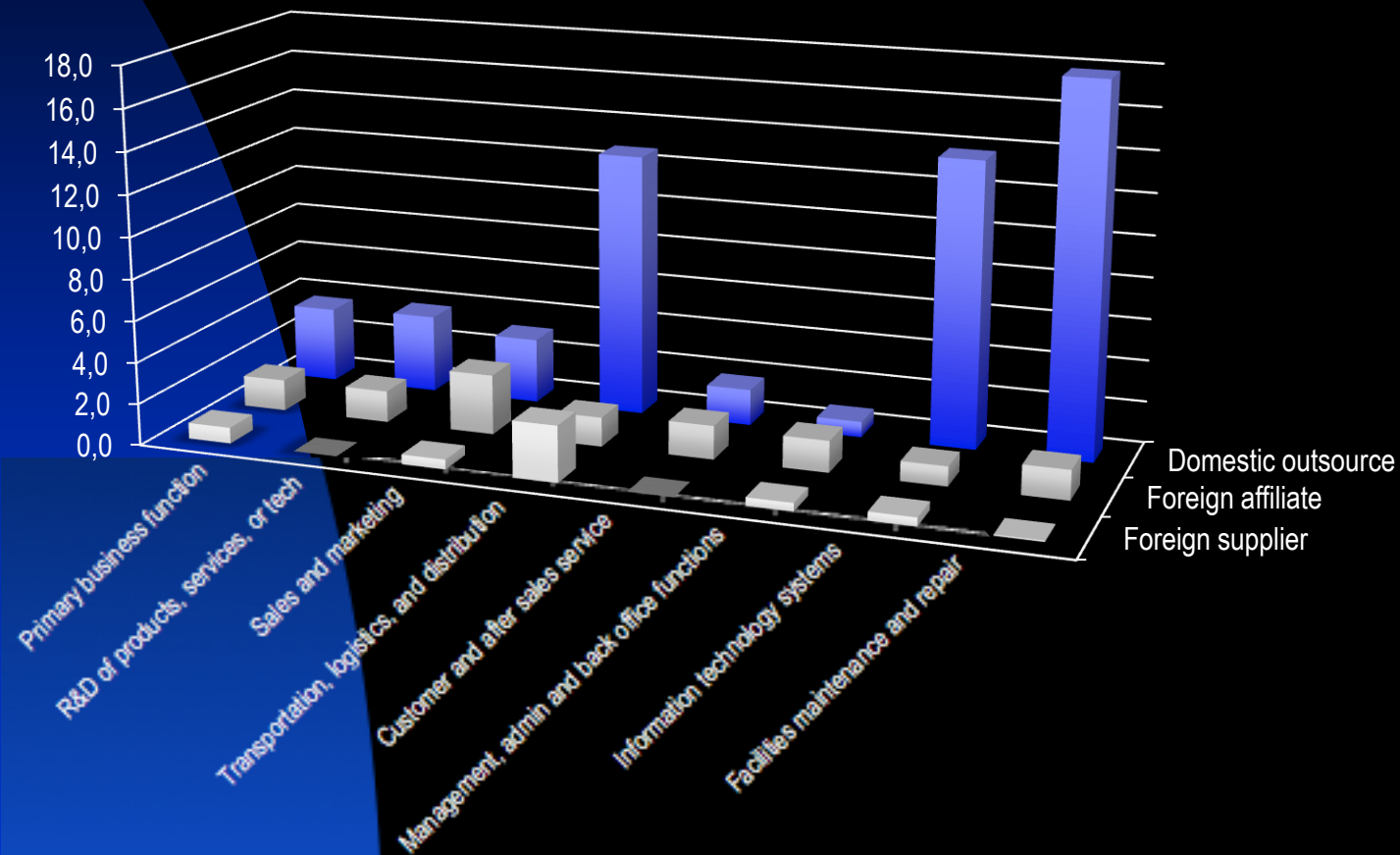
Fortune 1000 (F1K) firms, % of costs by business function



Source: national organizations survey, preliminary

U.S. National Organizations Survey, 2010

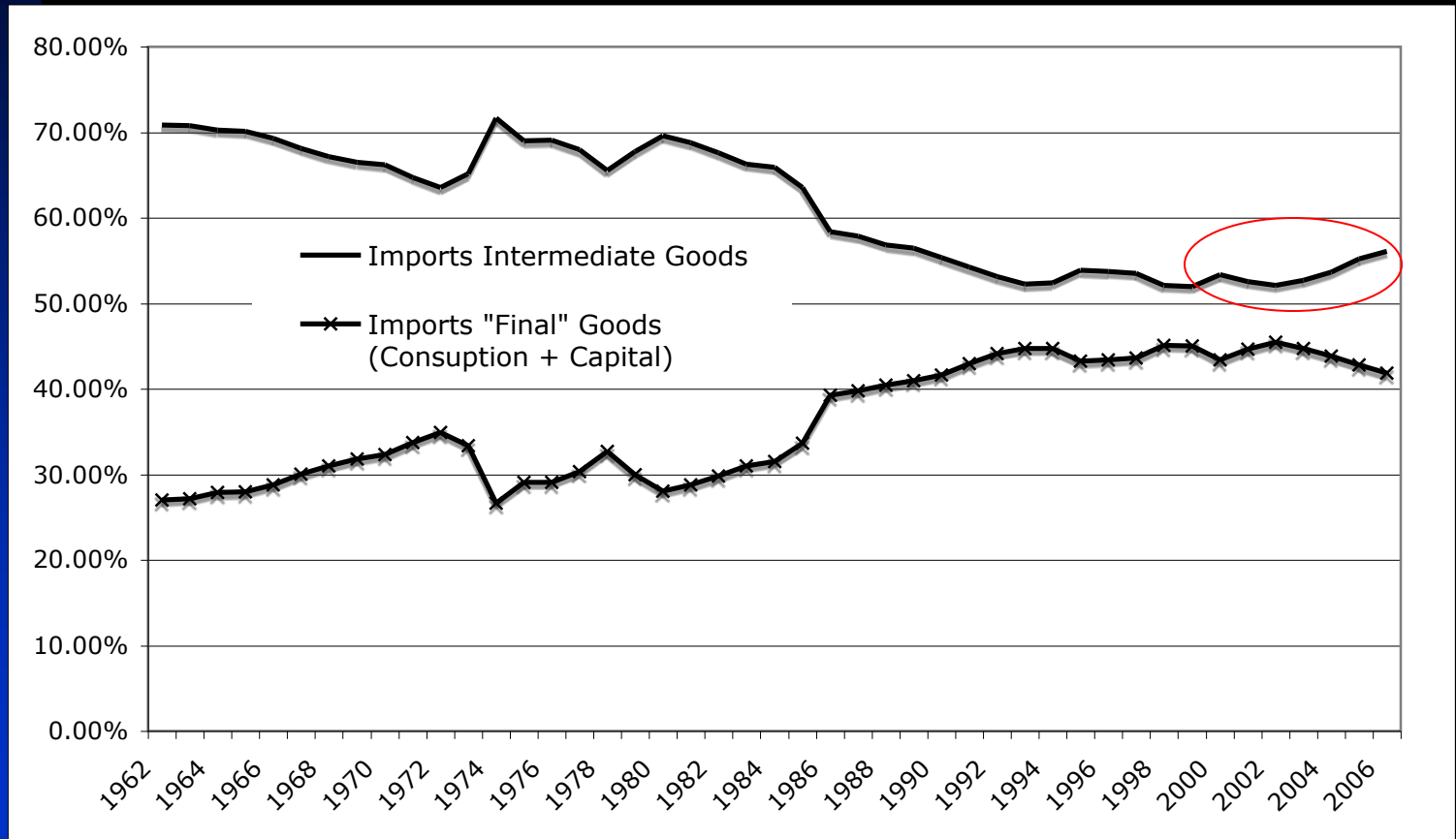
Non-F1K firms and organizations, % of costs by business function



Source: national organizations survey, preliminary

GVC inflection point after 2001? Intermediate Goods Trade - GVC classification

World import shares of intermediate and "final" goods 1962-2006



Source: Sturgeon and Memedovic, 2010, from SITC Rev 1 and 3 data; WITS; BEC.

Thank you!