RIETI
Research Institute of Economy, Trade & Industry, IAA

RIETI BBL Seminar Handout

"GVC Journeys When National and Territorial Comparative Advantage Differ"

December 11, 2018

Speaker: Richard Baldwin

https://www.rieti.go.jp/jp/index.html

GVC Journeys

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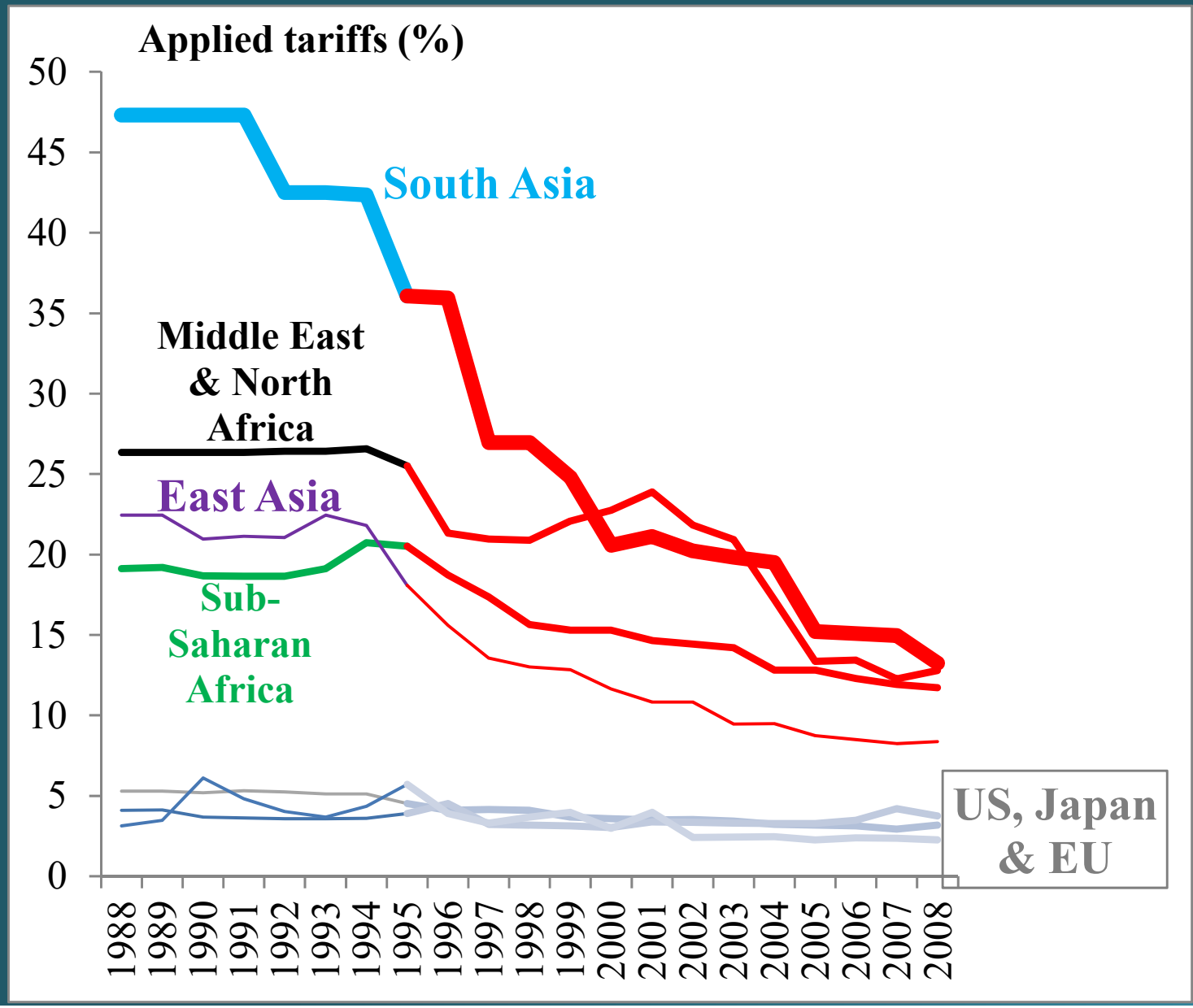
Background question:

Was comparative advantage denationalised?

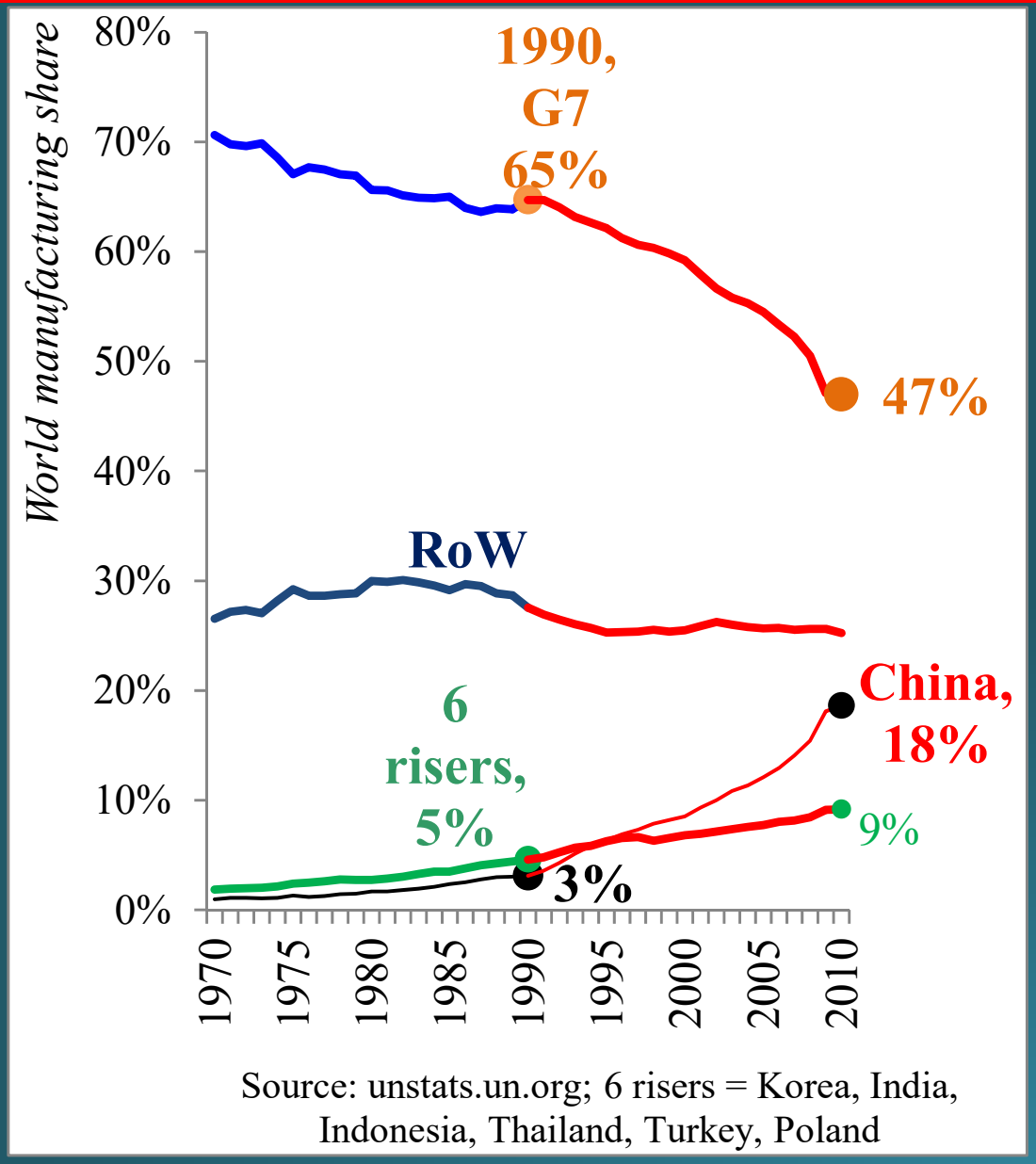
#1. EMs lowered tariffs a lot

AEs much less

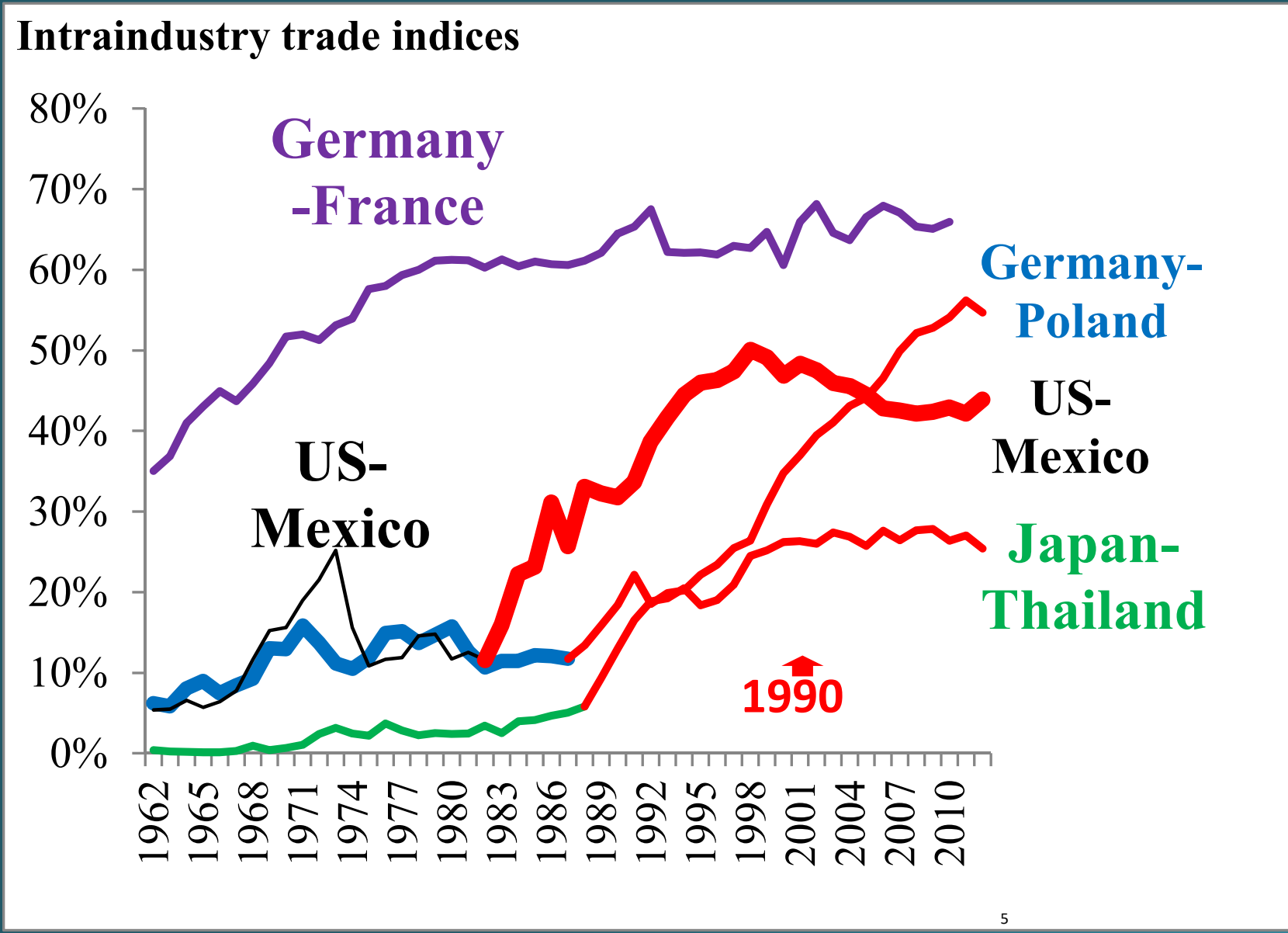


#2. Shocking Share Shift in Manufacturing.

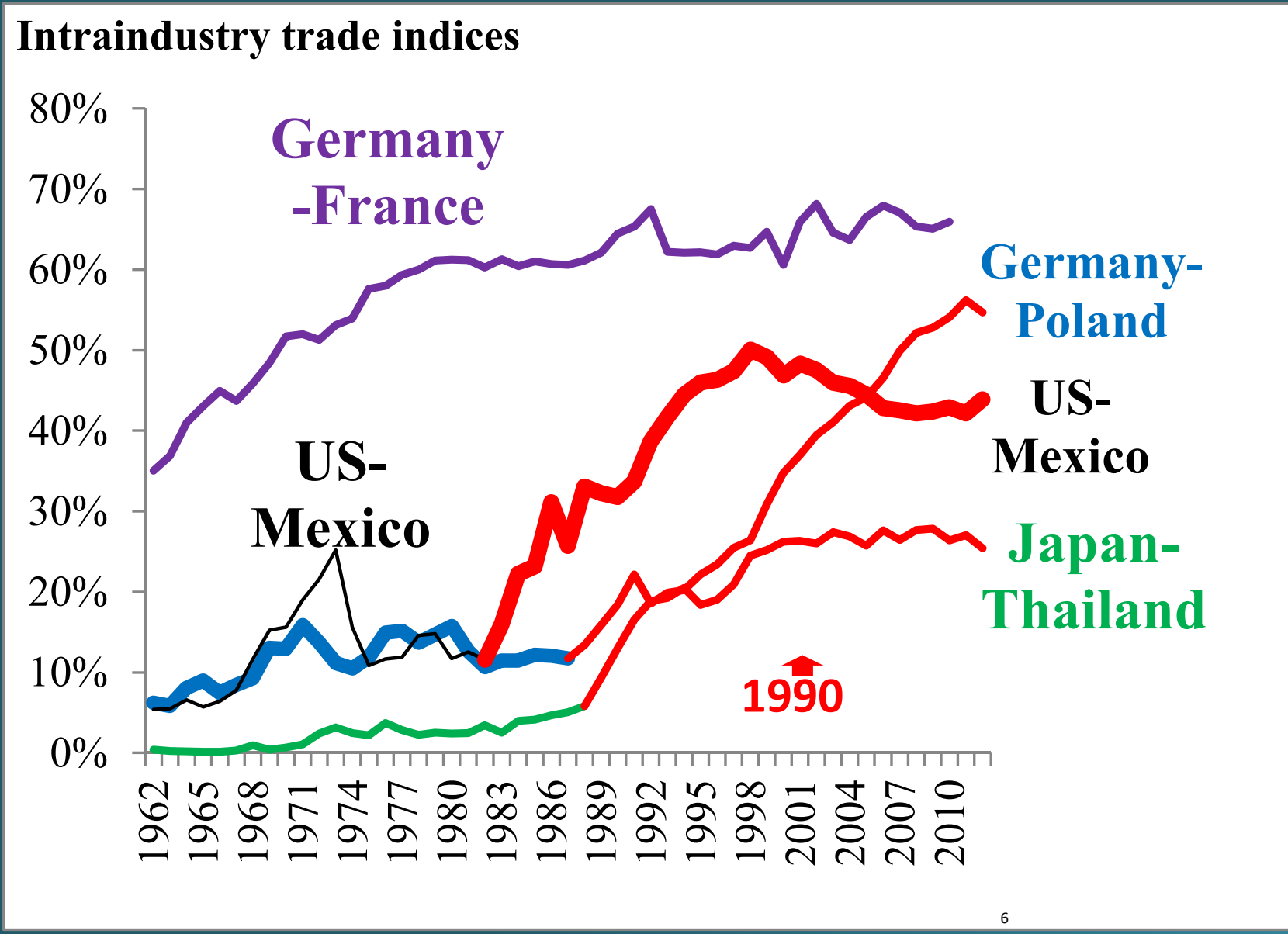
World shares:
- 7 'losers'
- 7 'risers'
- RoW = little change.



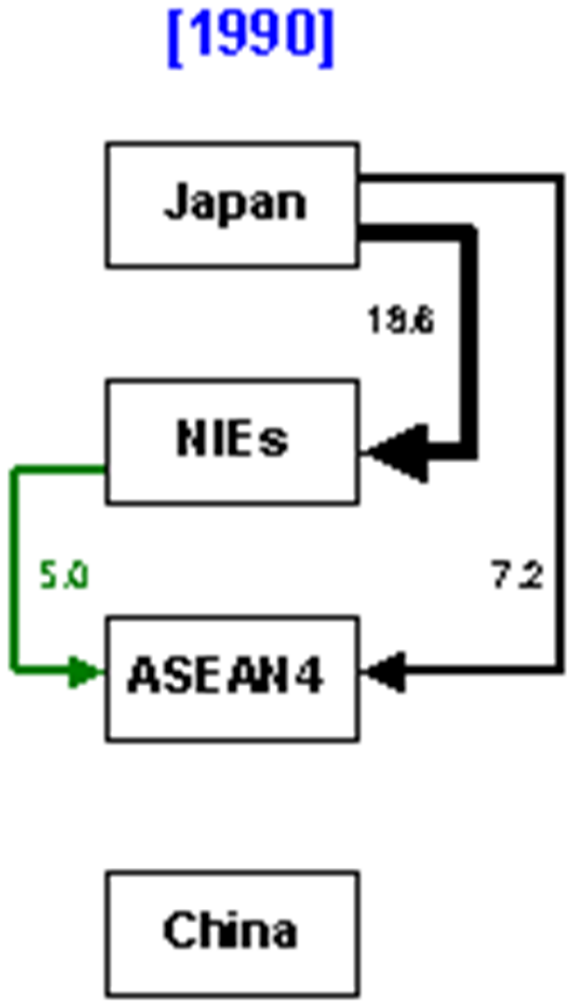
#3. Two-way trade in similar goods goes North-South, too

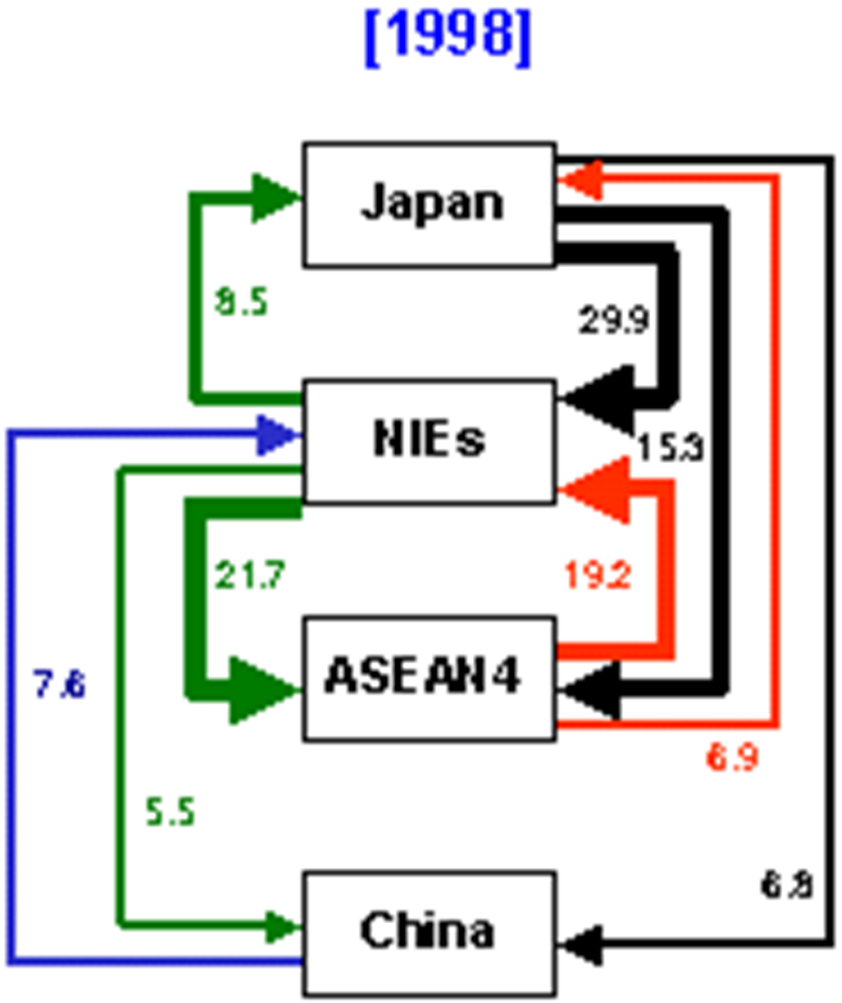


#4. Two-way trade in similar goods goes North-South, too



#5. Parts and components flow “wrong way”?

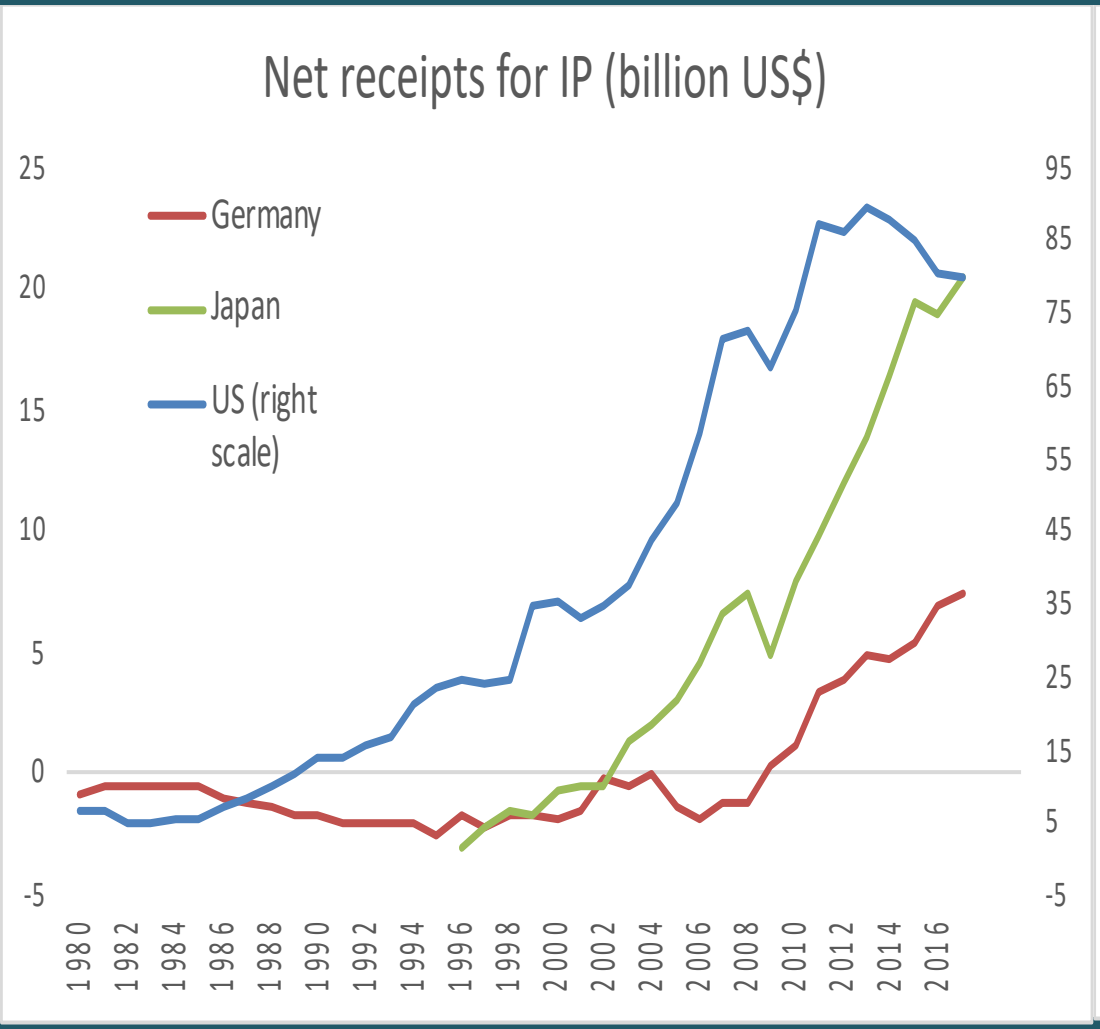


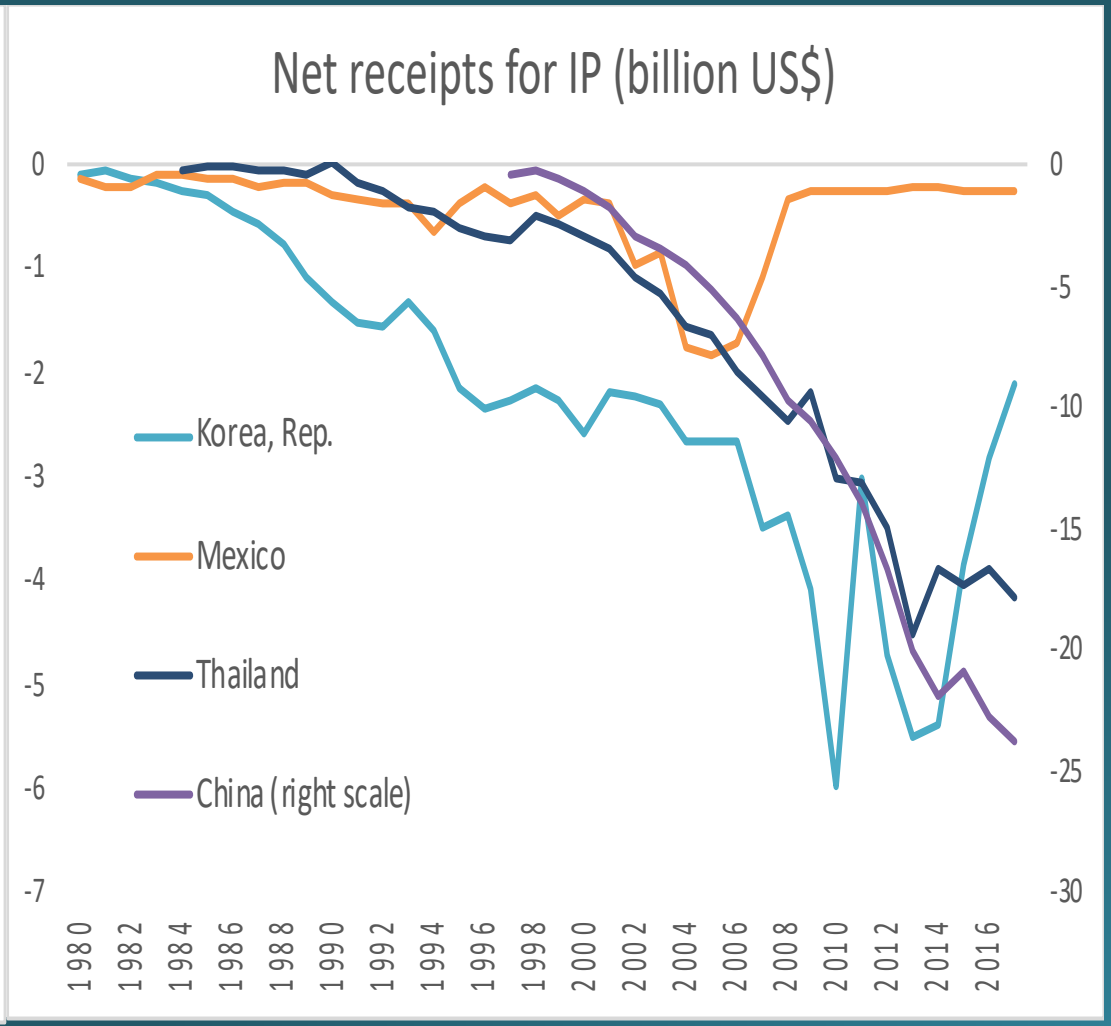


What explains this?

1. Old Globalisation (1st unbundling): Lower barriers allow nations to exploit existing comparative advantage. (Trade-led globalisation)
2. New Globalisation (2nd unbundling): Better ICT allows North->South flows of firm-specific knowhow that changes existing comparative advantages. (Knowledge-led globalisation)

Weak direct evidence of knowledge flows





Actual question addressed in this paper:
Can we identify GVC "paradigms"?

- Like "Inward Oriented" vs "Export Oriented" development paradigms of yesteryear?
  - e.g. Thailand focused on autos; Philippines much broader; Costa Rica focused on services, etc.
- Can we classify the "GVC Industrialisation Journeys" into helpful categories?

Trade in parts vs final goods

The necessary suspense of disbelief:

- Assume exporting parts from South to North reflects North-tech + South-wages (the tech is in the parts)
- Export of final goods less so (assembly activity is simpler and ubiquitous before 2nd unbundling)

But may be interesting even without suspended disbelief

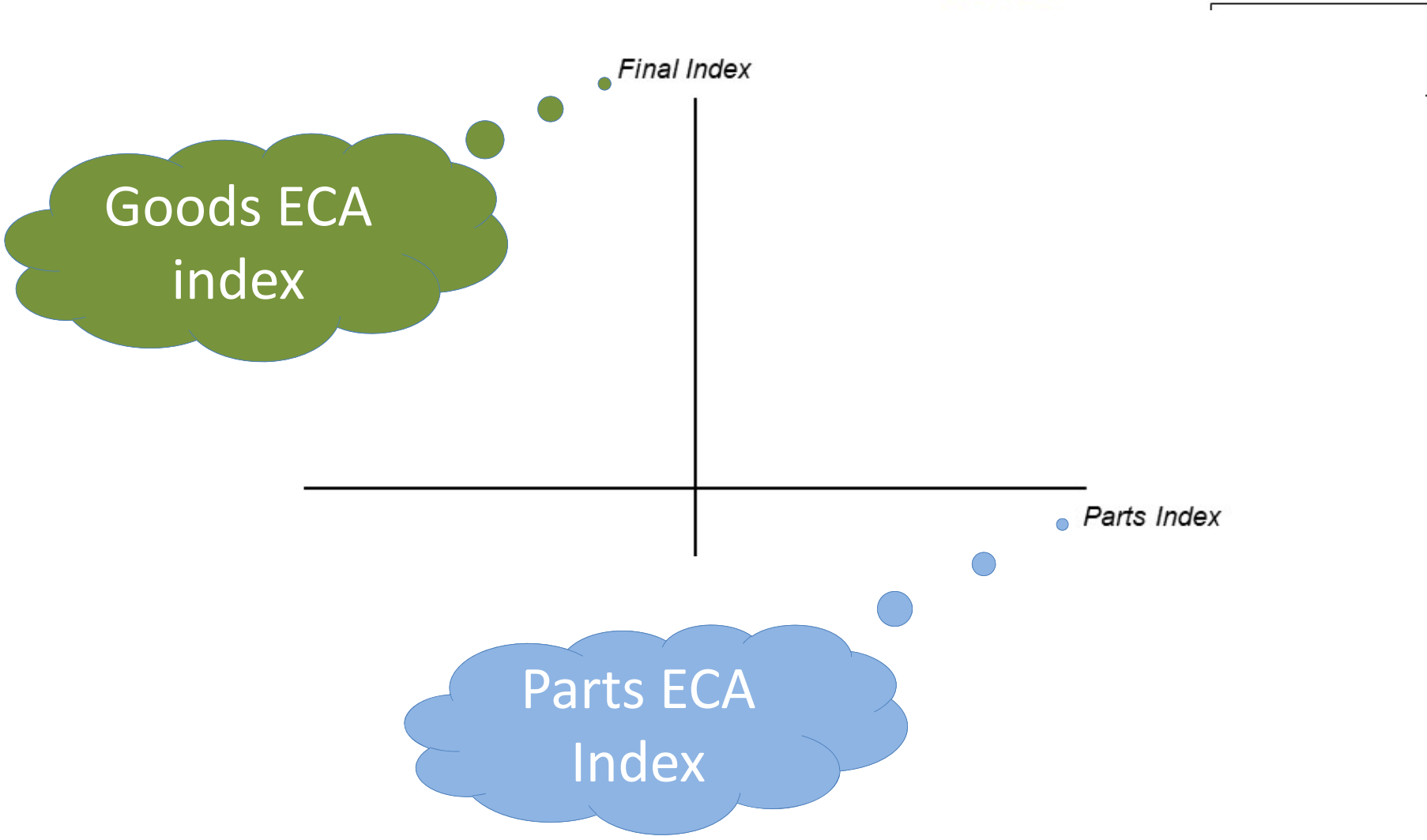
The GVC Journey diagram

- 1. Empirical Comparative Advantage (ECA) index

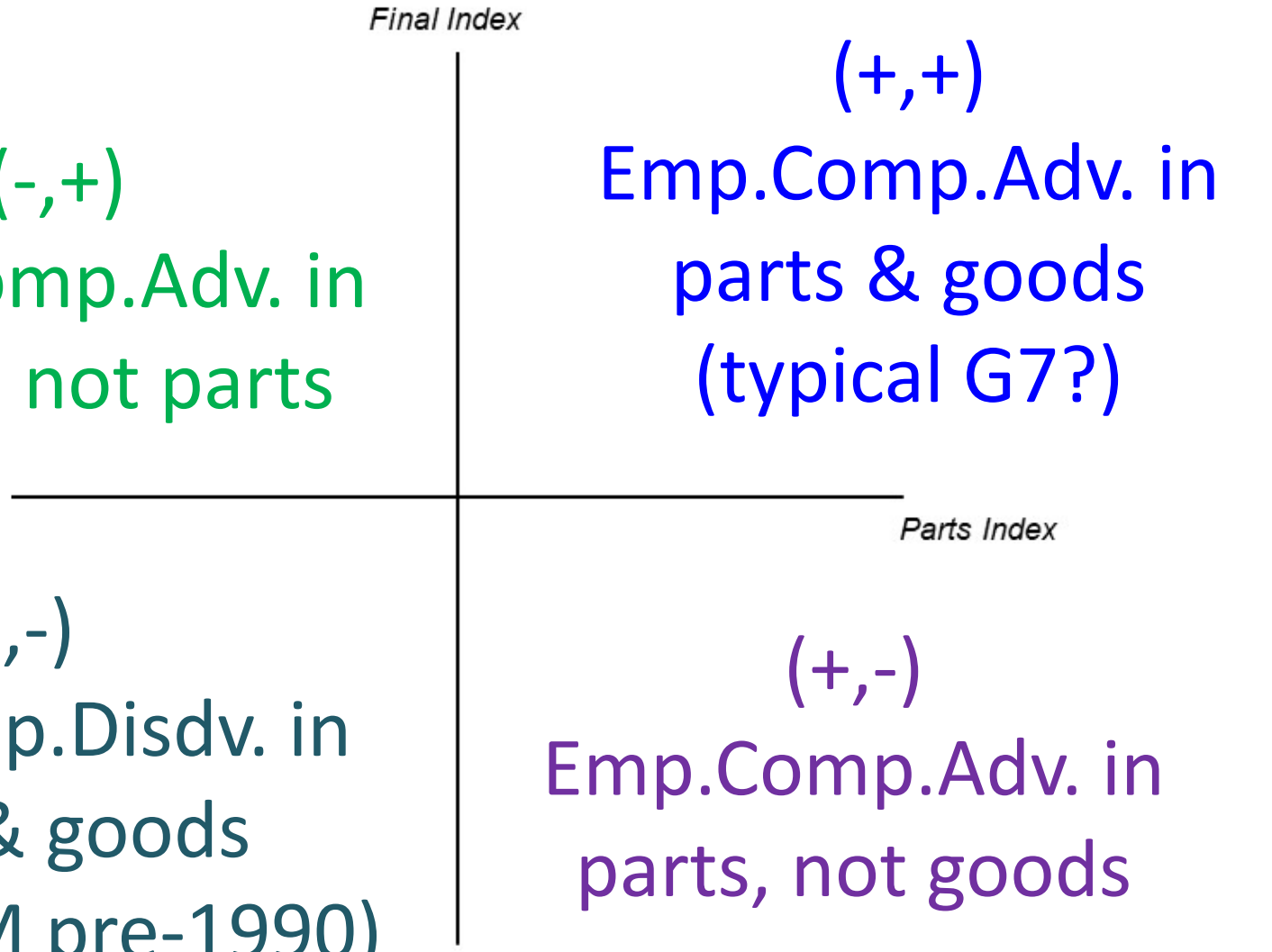
$$ECA_{cik} = \frac{X_{cik} - M_{cik}}{X_{cik} + M_{cik}}$$

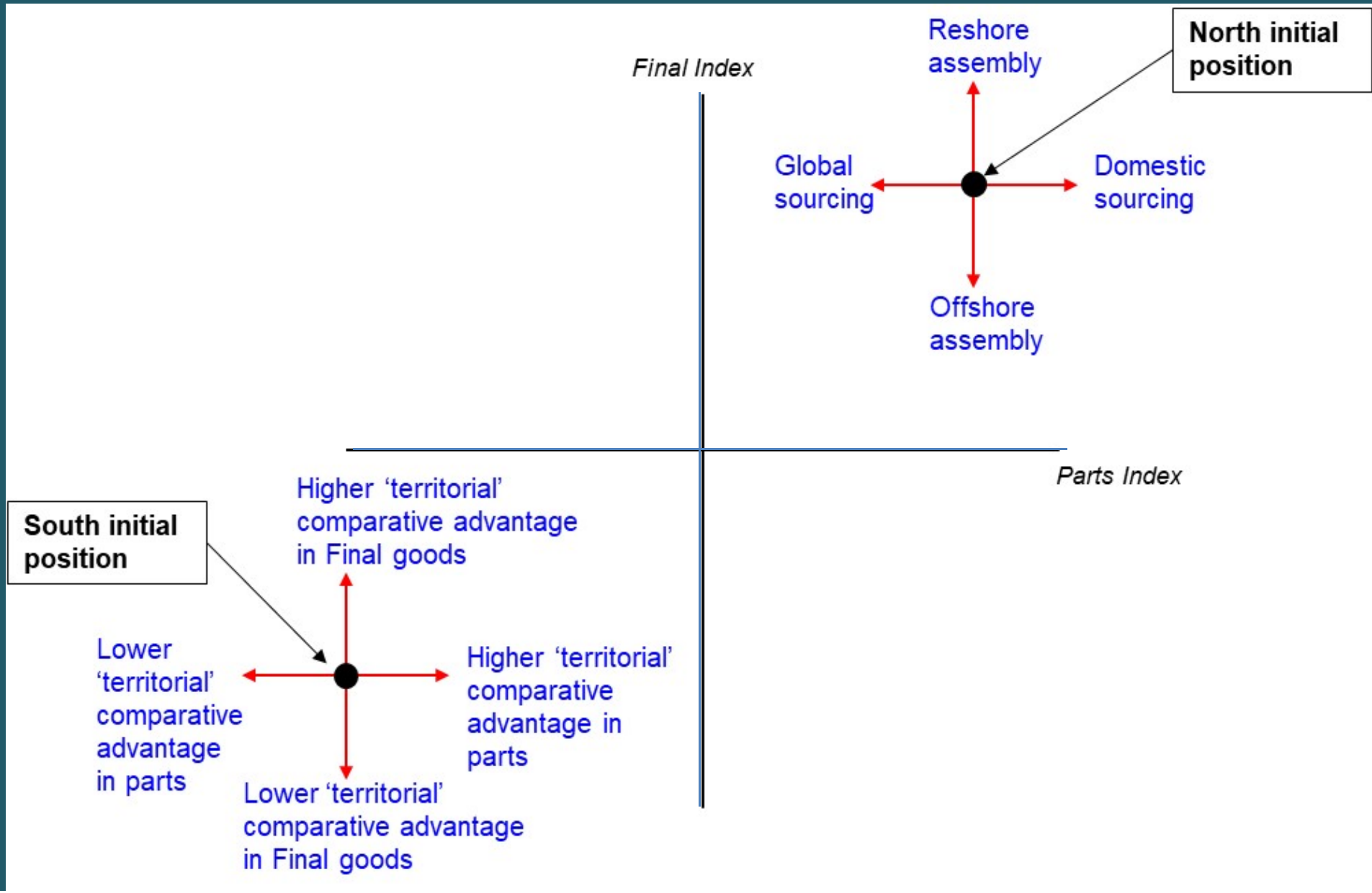
- For country ‘c’ in sector ‘i’ and k=parts, or goods
  - Measures “Territorial Comparative Advantage” (Comp.Adv. when sources of comp.adv. cross borders within int’l supply chains)
- From -1 (comp.disadv) to 1 (comp.adv.)

GVC Journey diagram

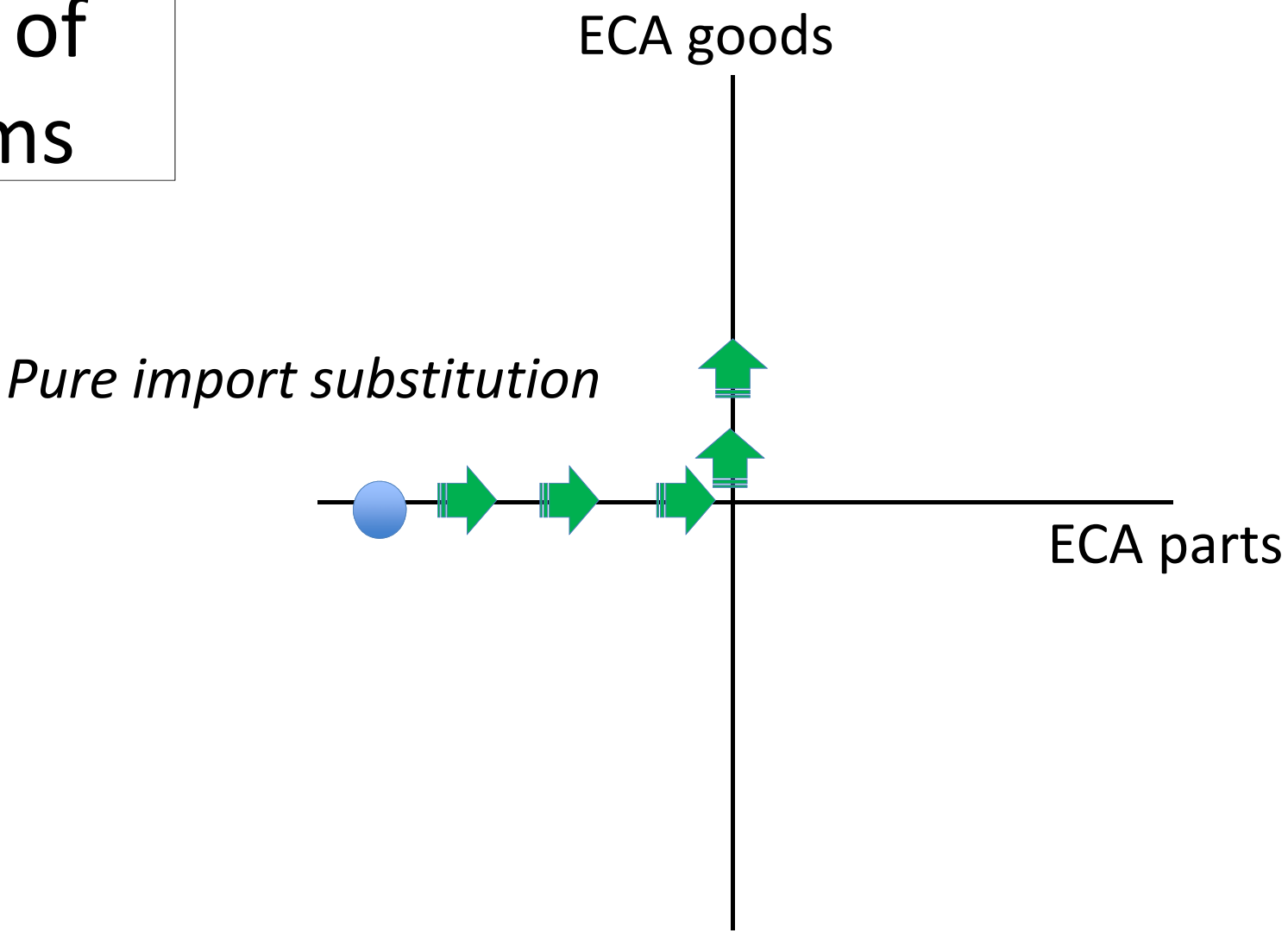


GVC journey diagram

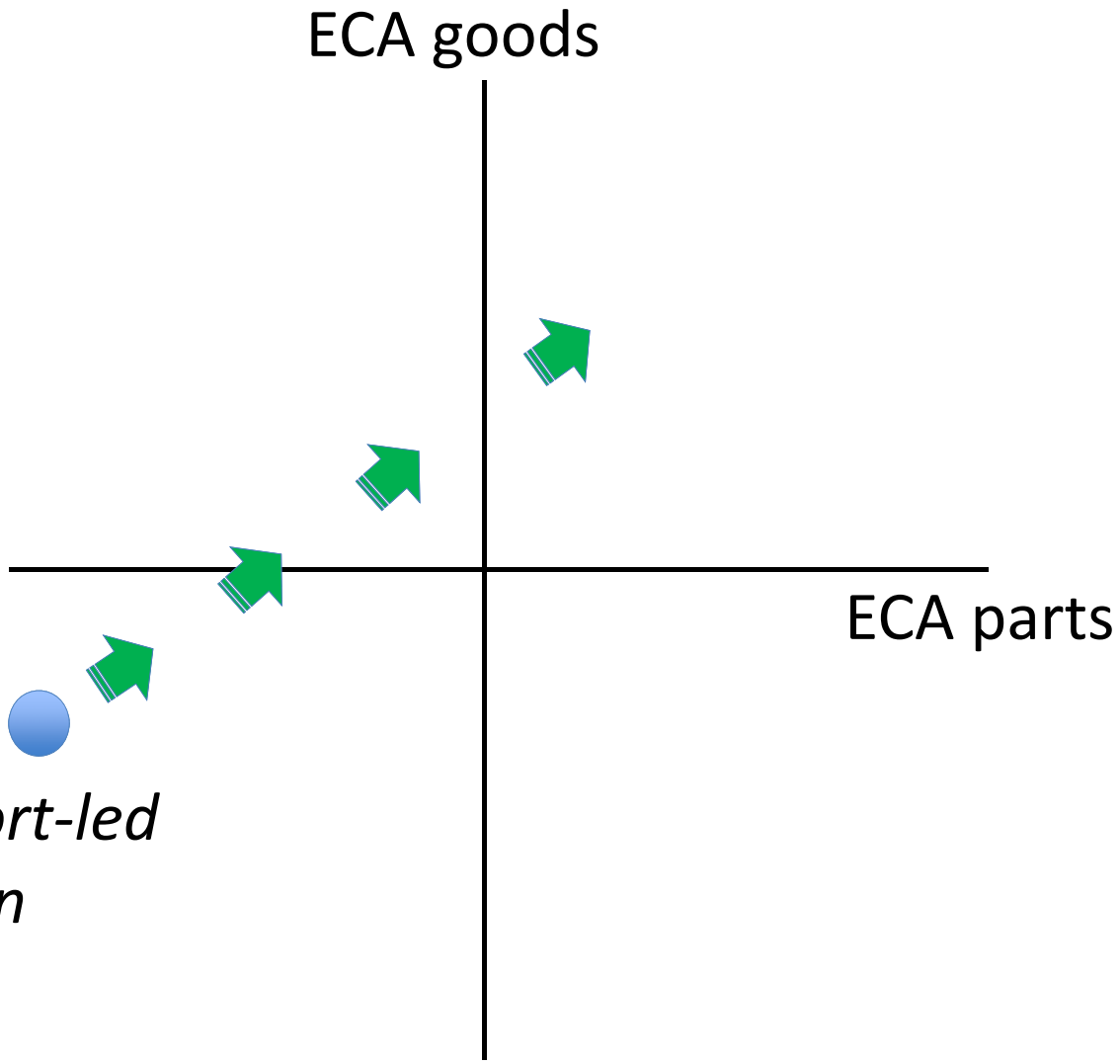



Final Index
Parts Index
Reshore assembly
North initial position
Global sourcing
Domestic sourcing
Offshore assembly
South initial position
Higher 'territorial' comparative advantage in Final goods
Lower 'territorial' comparative advantage in parts
Higher 'territorial' comparative advantage in parts
Lower 'territorial' comparative advantage in Final goods

Example of paradigms

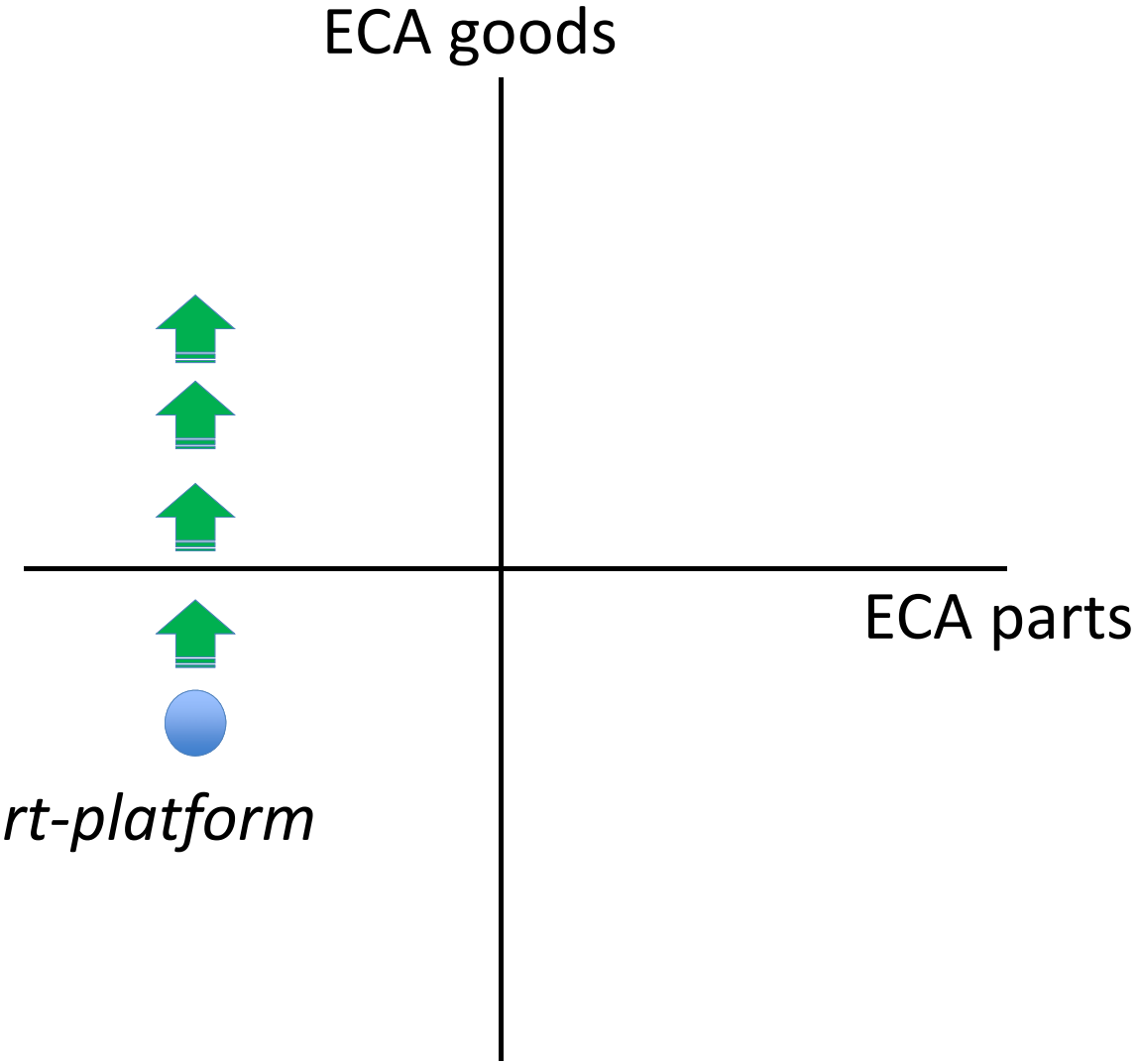


Example of paradigms



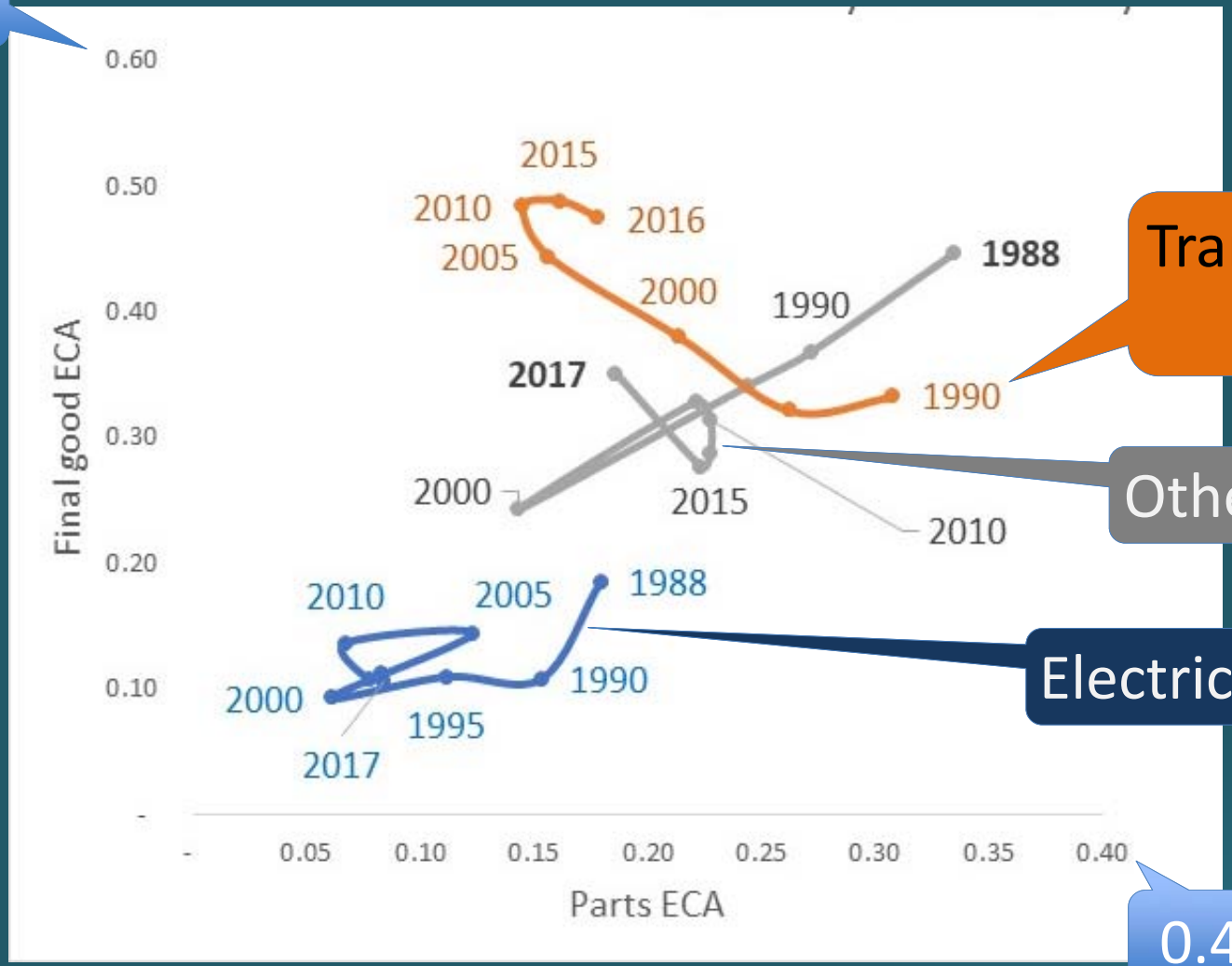
Successful export-led industrialisation

Example of paradigms



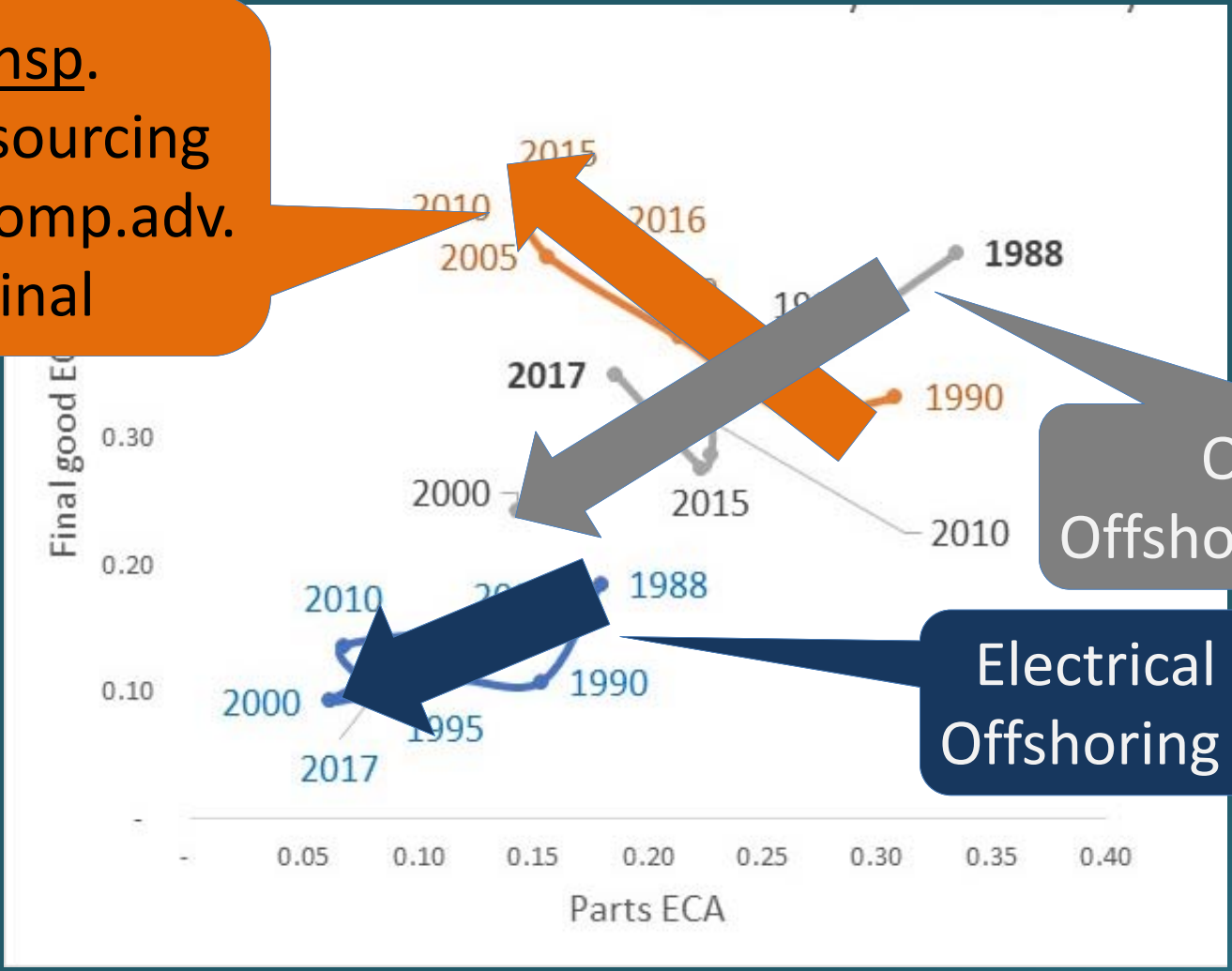
Assembly export-platform

Germany's GVC Journey



Germany's GVC Journey - STYLISED

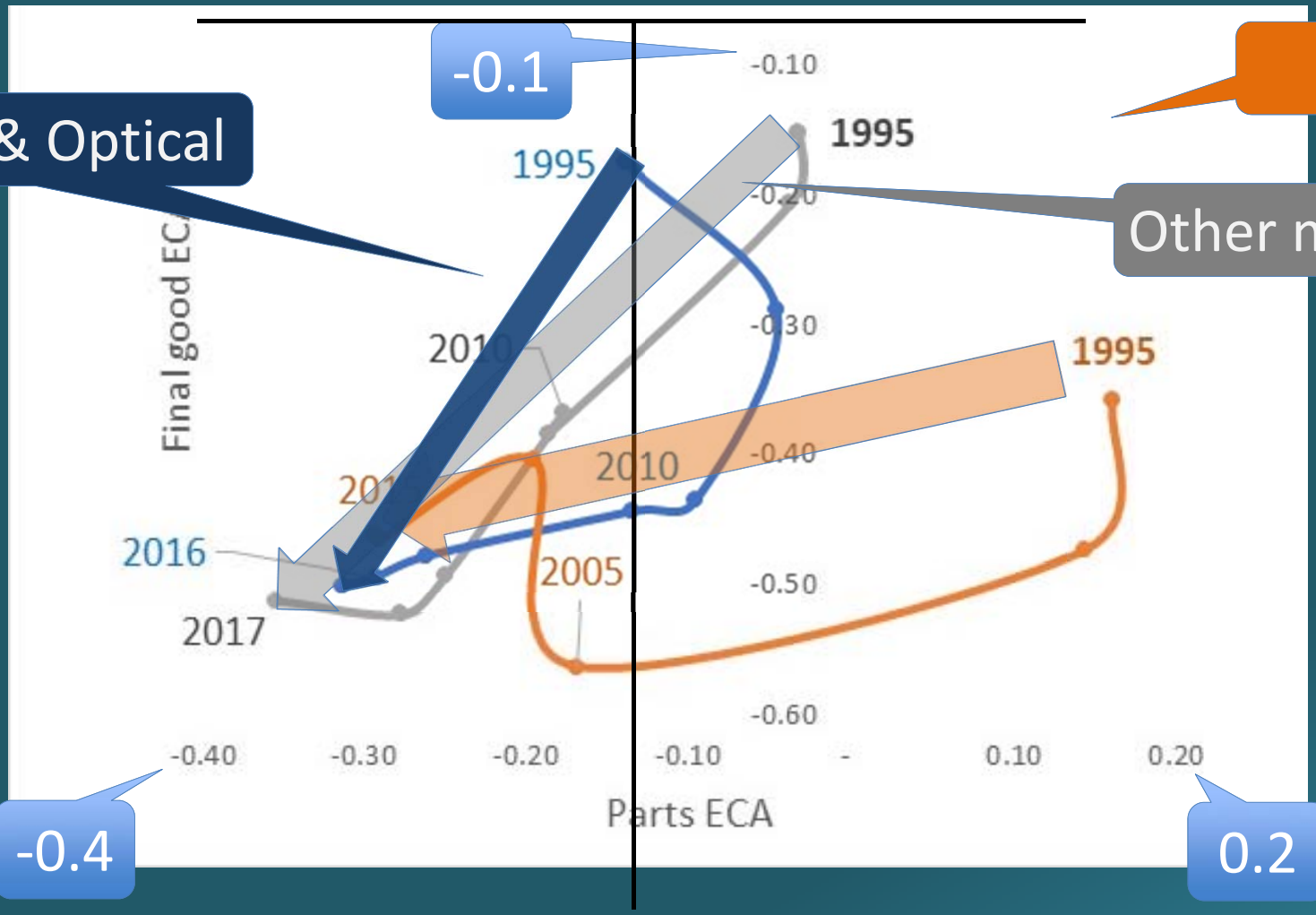
Transp.
Global sourcing
boosts comp.adv.
in final



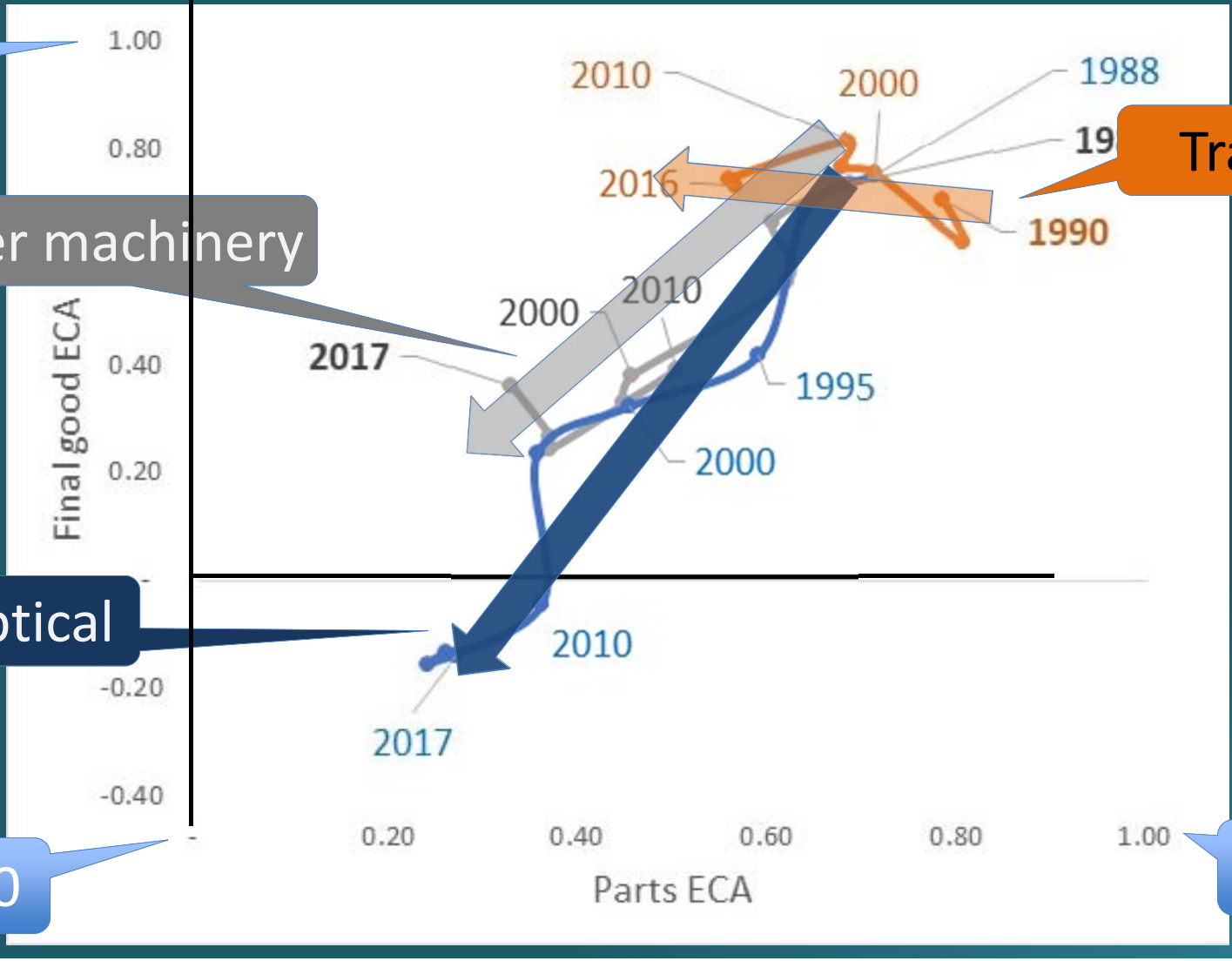
OtherMach
Offshoring production

Electrical & Optical
Offshoring production

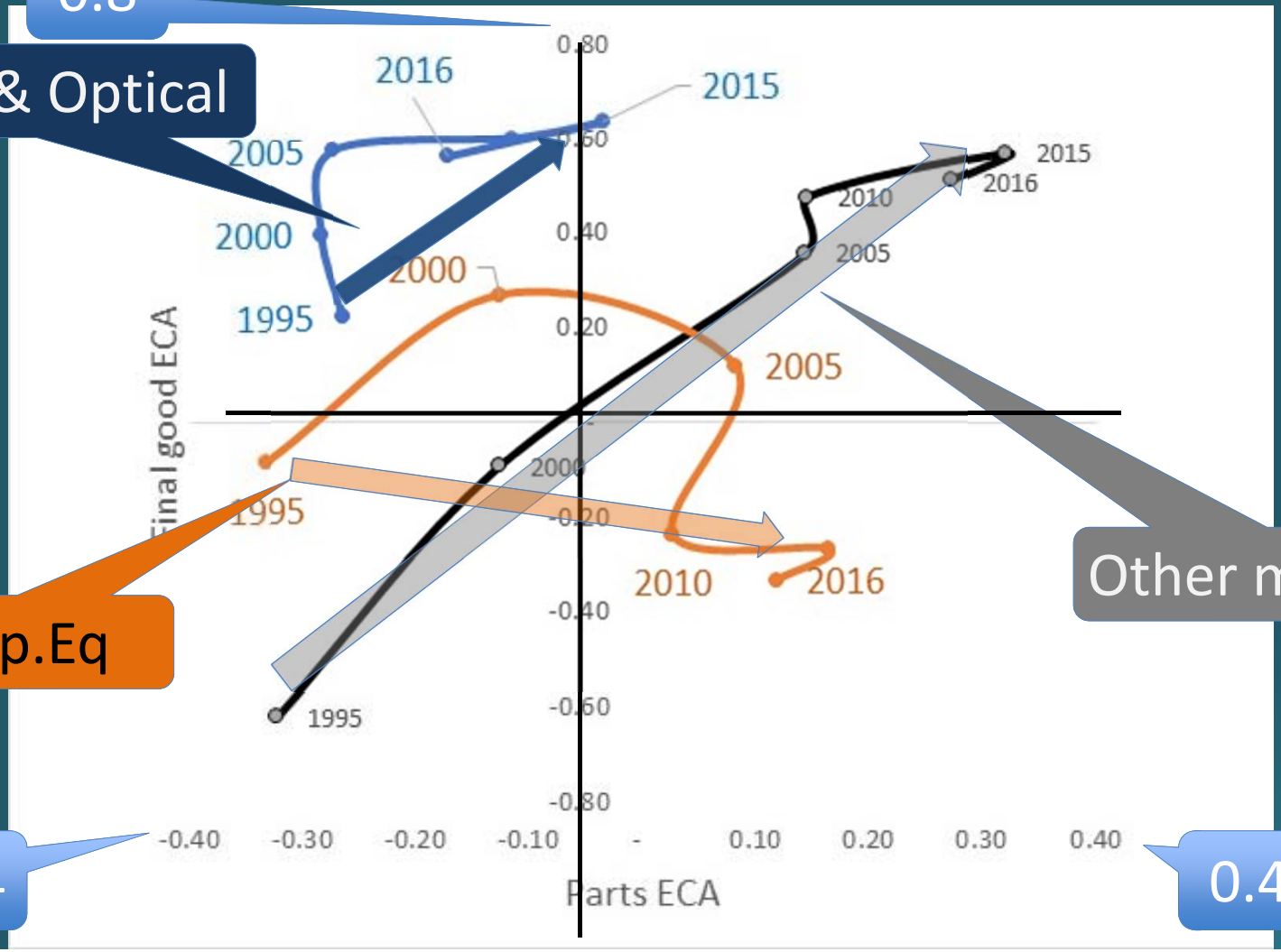
US's GVC Journey

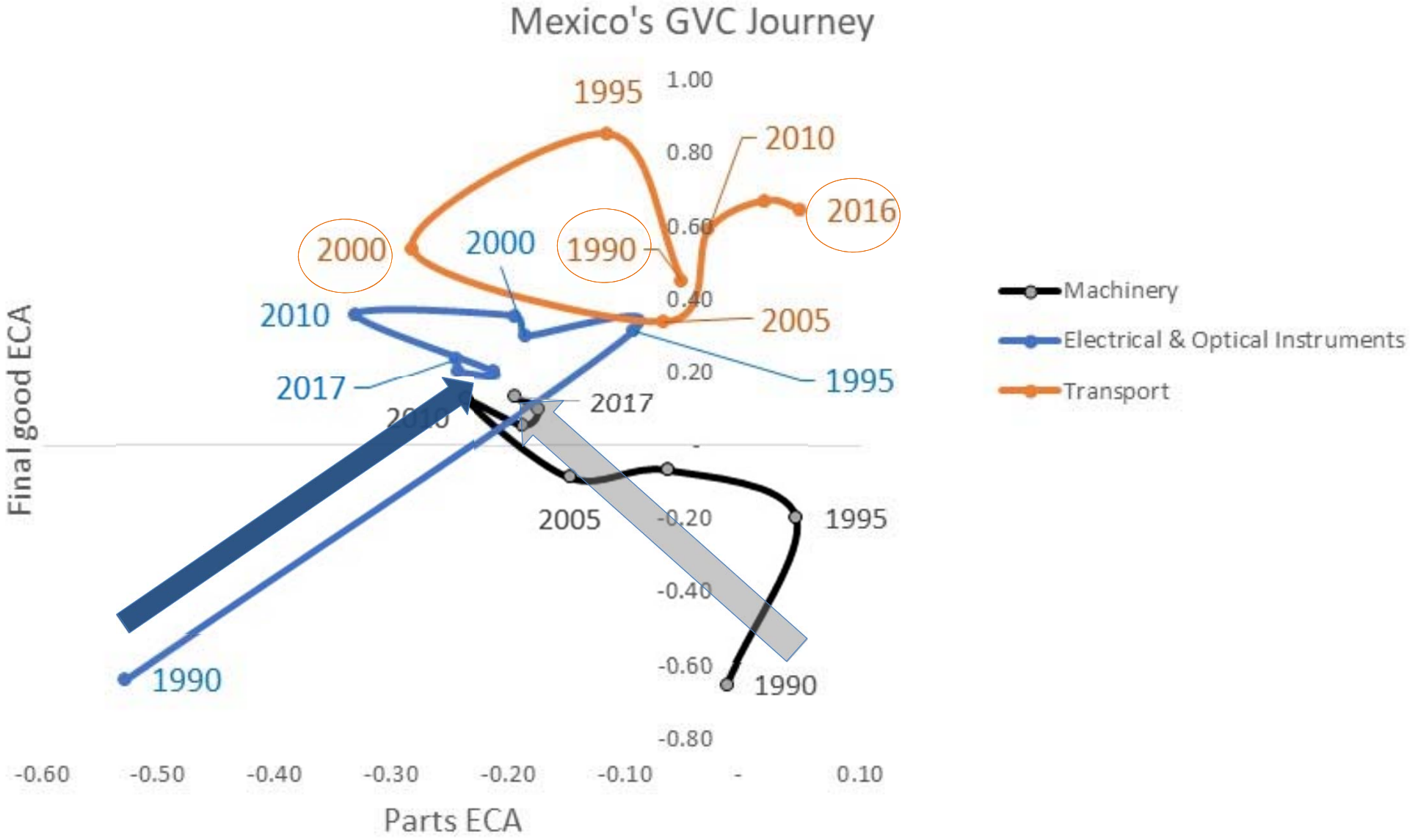


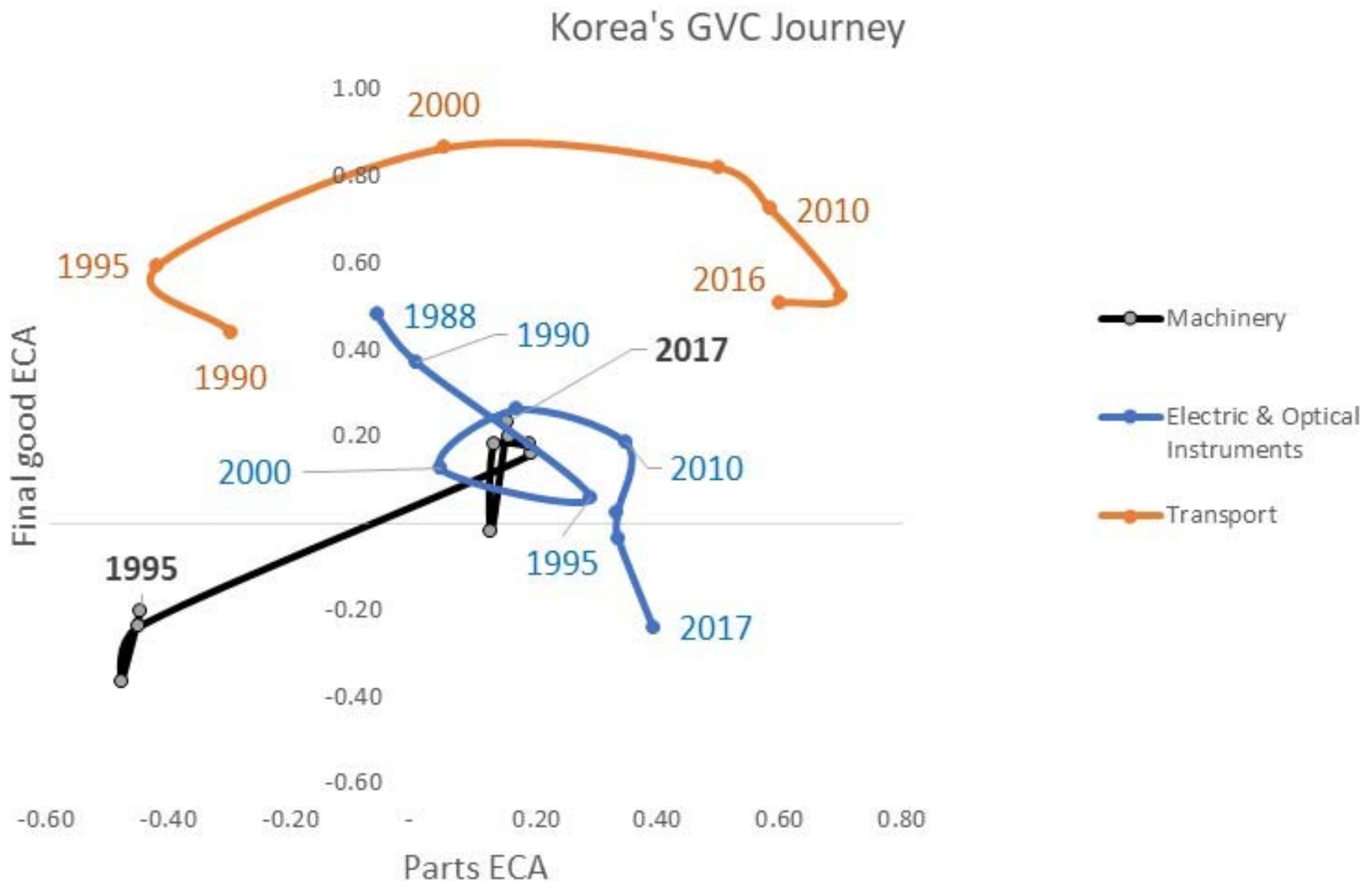
Japan's GVC Journey

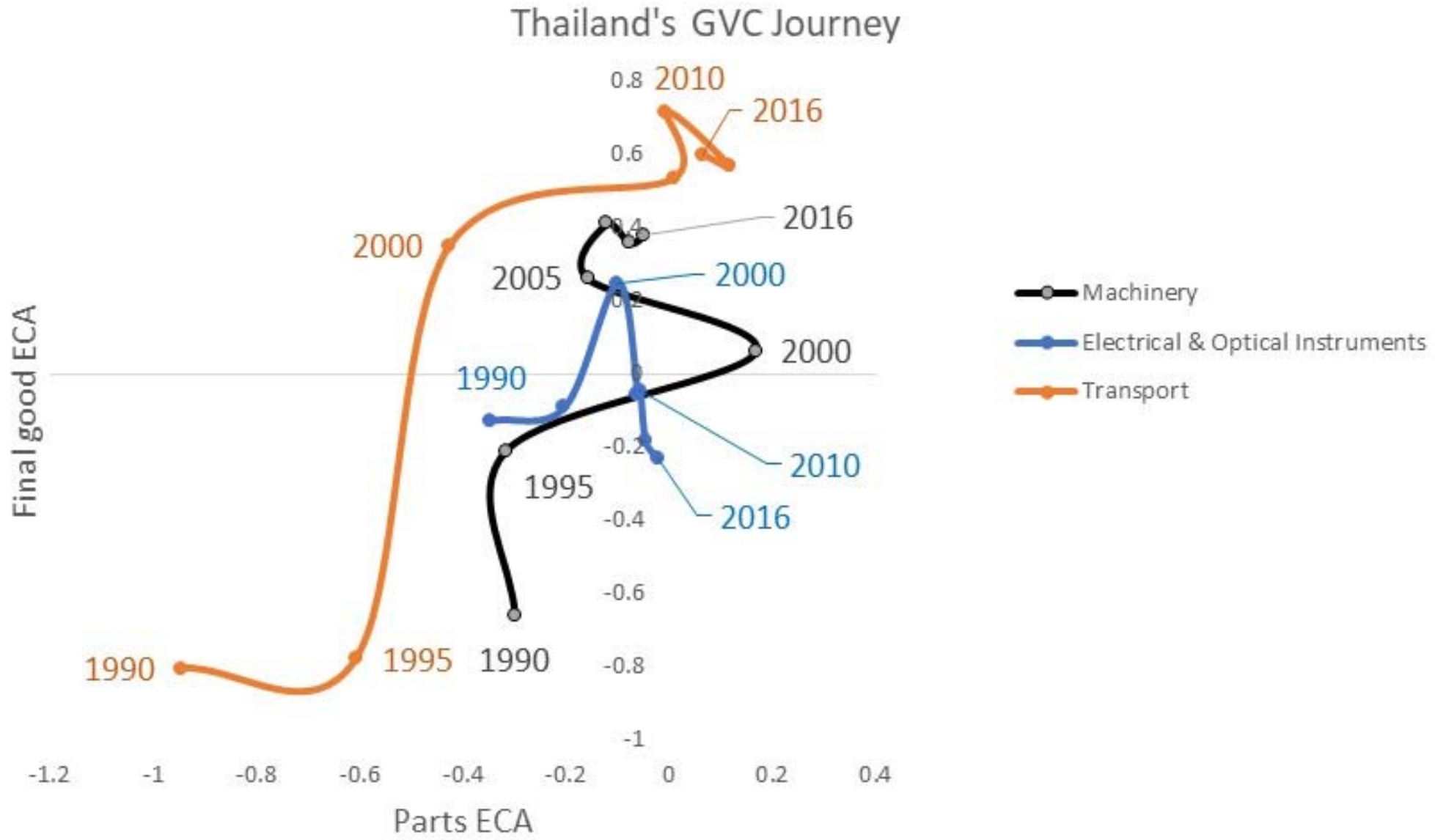


China's GVC Journey




Mexico's GVC Journey
Final good ECA
Parts ECA
1.00
0.80
0.60
0.40
0.20
-0.20
-0.40
-0.60
-0.80
-0.60
-0.50
-0.40
-0.30
-0.20
-0.10
-
0.10
1995
2010
2016
2000
2000
1990
2005
2010
1995
2017
2017
2005
1995
1990
1990
Machinery
Electrical & Optical Instruments
Transport


Korea's GVC Journey
Final good ECA
Parts ECA
1.00
0.80
0.60
0.40
0.20
-0.20
-0.40
-0.60
-0.60
-0.40
-0.20
-
0.20
0.40
0.60
0.80
2000
2010
1995
2016
1990
1988
1990
2017
2000
2010
1995
2017
1995
Machinery
Electric & Optical Instruments
Transport


Thailand's GVC Journey
Final good ECA
Parts ECA
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-1.2
-1
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
2010
2016
2000
2016
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2016
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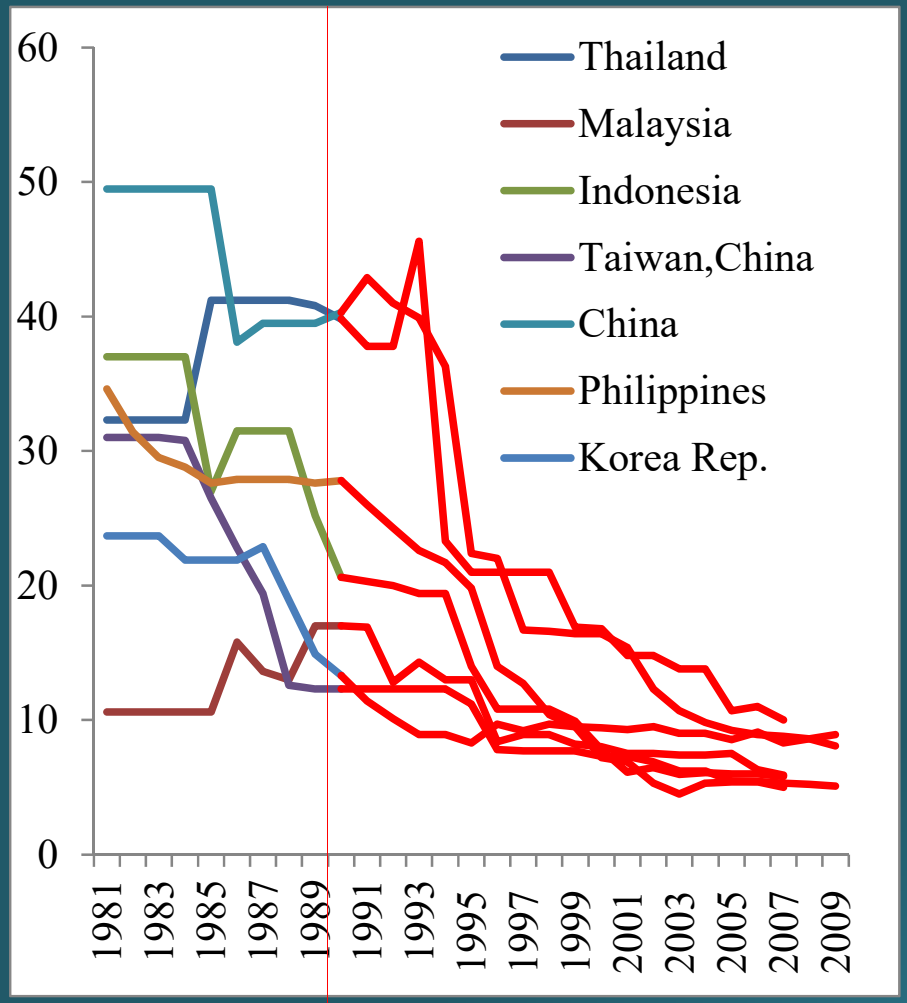
1995
1990
Machinery
Electrical & Optical Instruments
Transport

EMs lowered tariffs; AEs much less



Spider: Basic assumptions

- Perfect competition, constant return, 2 regions.
- All final consumption in North.
  - Shipping costs of final good $\alpha\, t$
    = *traditional trade costs*
- Coordination cost:
  - Per-unit costs is $t\theta(y)$ paid if part not produced in region of assembly.
    = efficiency loss due to spatial separation.

Comparative advantage

PARTS: Parts are indexed by type $y \in Y$

- Unit production cost are:
  - $b(y)$ in S
  - normalised to 1 in N.
- S has comp.adv. in parts $b(y)<1$

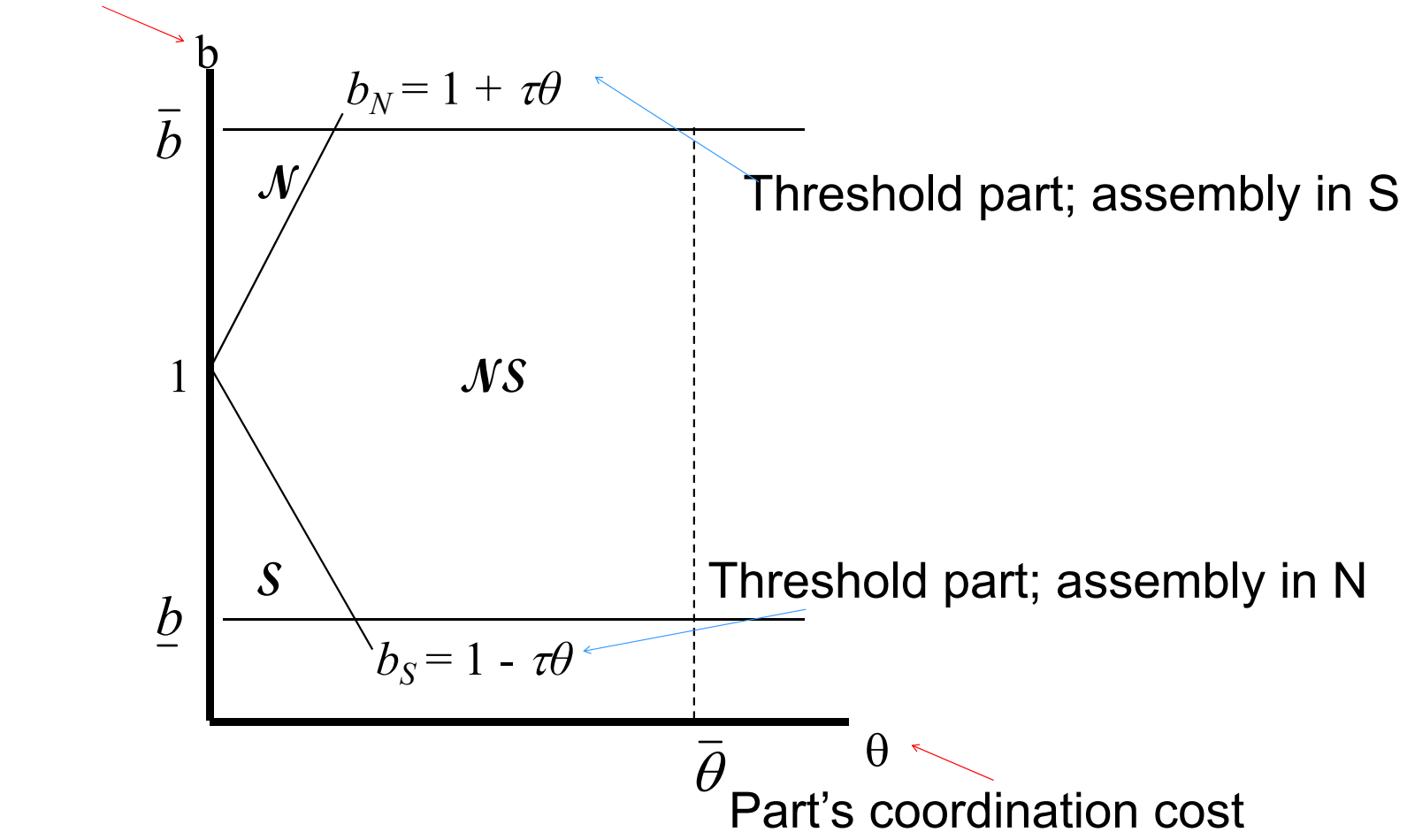
ASSEMBLY: Assembly of parts costs:

- a_N in N
- a_S in S.

– S has comp.adv. in assemble iff $a_S<a_N$.

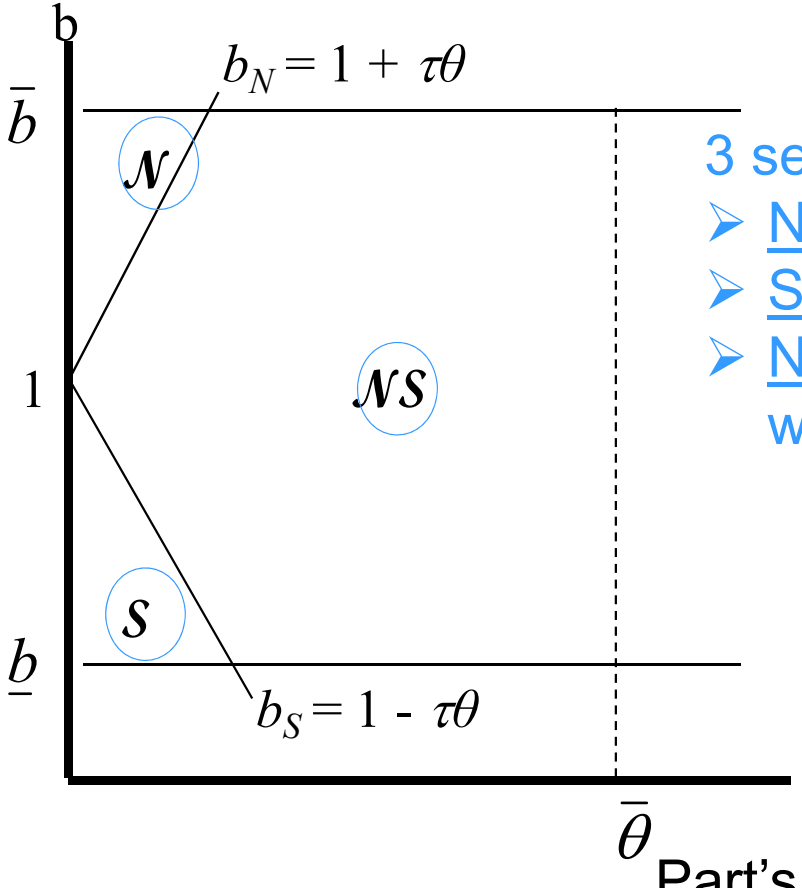
Intermed results: Spider

Each part is a point in b,θ space.



Spider

Part's relative cost in S



Part's Offshoring cost

3 sets of parts, N, NS, S

- N: always cheapest in N
- S: always cheapest in S.
- NS: cheapest to co-locate with assembly.

Cost minimisation

- Given sets N, S and NS chosen to min costs for given t
- Assembly in S iff

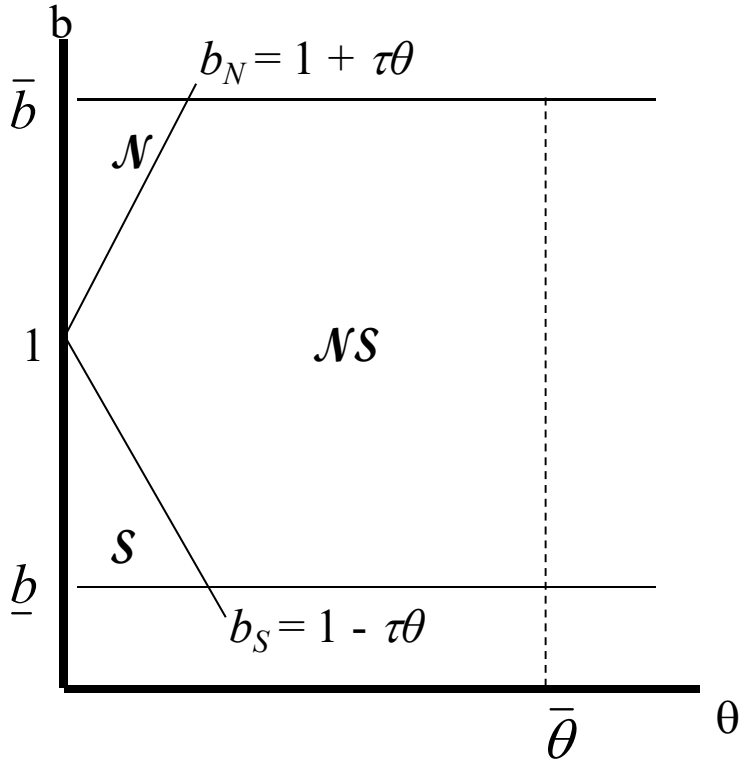
$$a_N + \int_{y \in N \cup NS} 1\,\psi(y)dy + \int_{y \in S} \left[b(y) + t\theta(y)\right]\psi(y)dy$$

- is greater than

$$a_S + \alpha t + \int_{y \in N} \left[1 + t\theta(y)\right]\psi(y)dy + \int_{y \in S \cup NS} b(y)\psi(y)dy$$

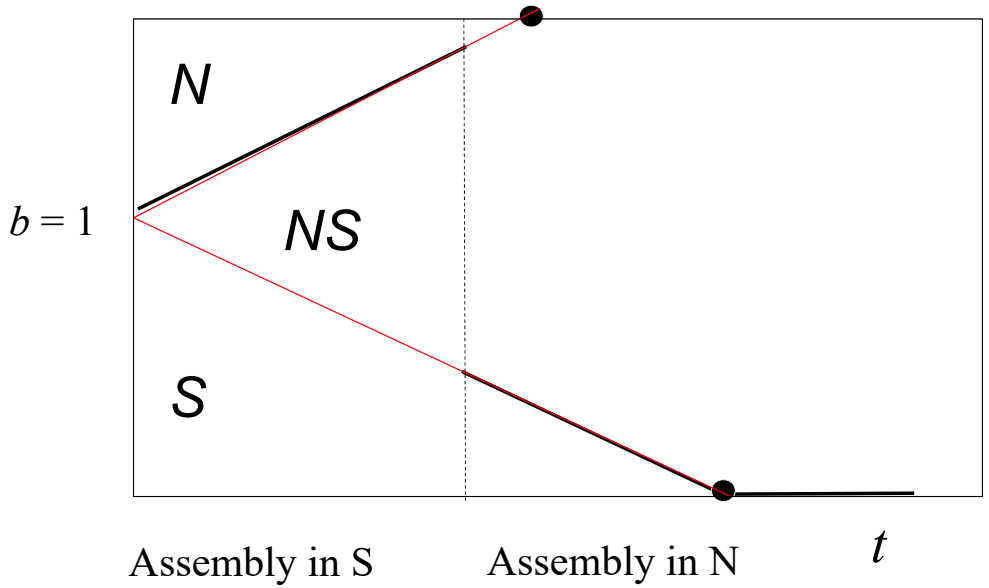
Offshore ‘overshooting’ & ‘reshoring’

- Easy results:.
  - Shift in assembly leads to ‘too much’ parts overshooting (compared to costless trade case) likely to occur.
  - Lowering ‘t’ reverses this ‘reshoring’.



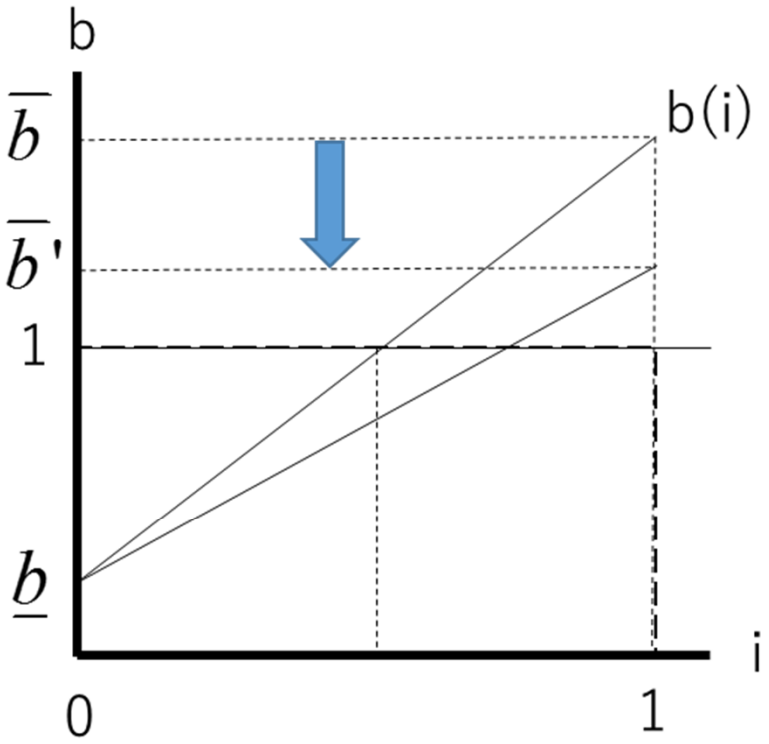
Simple example

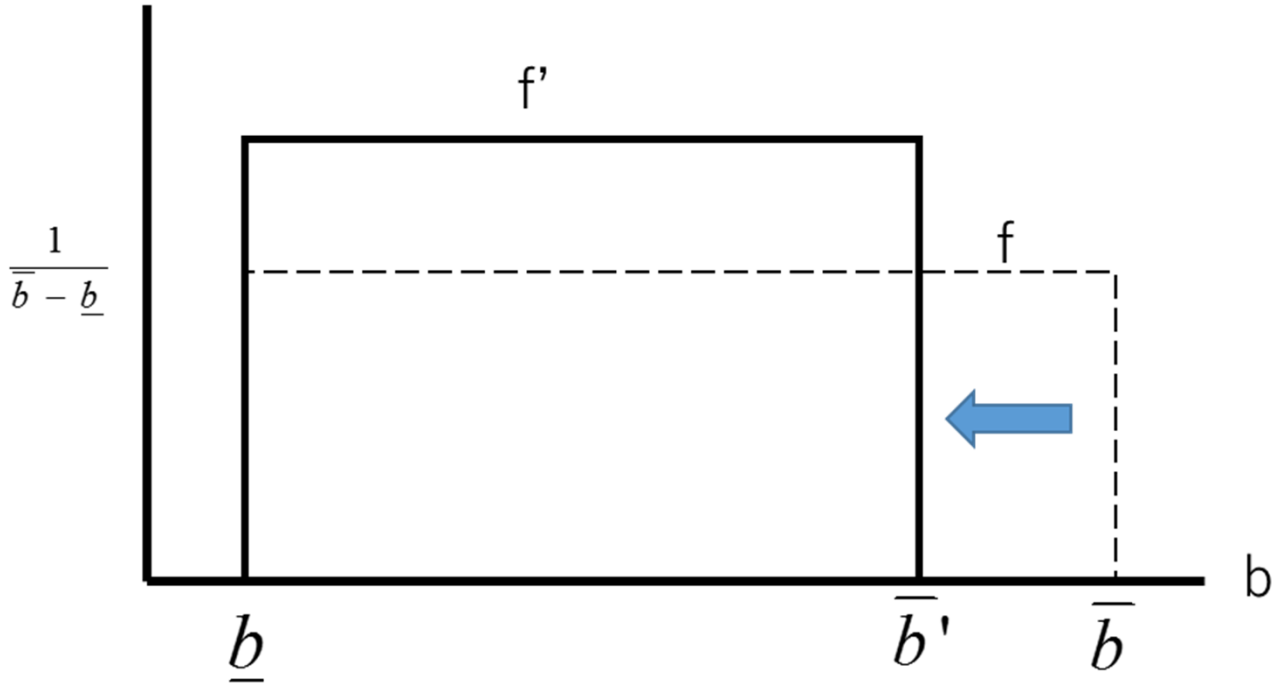
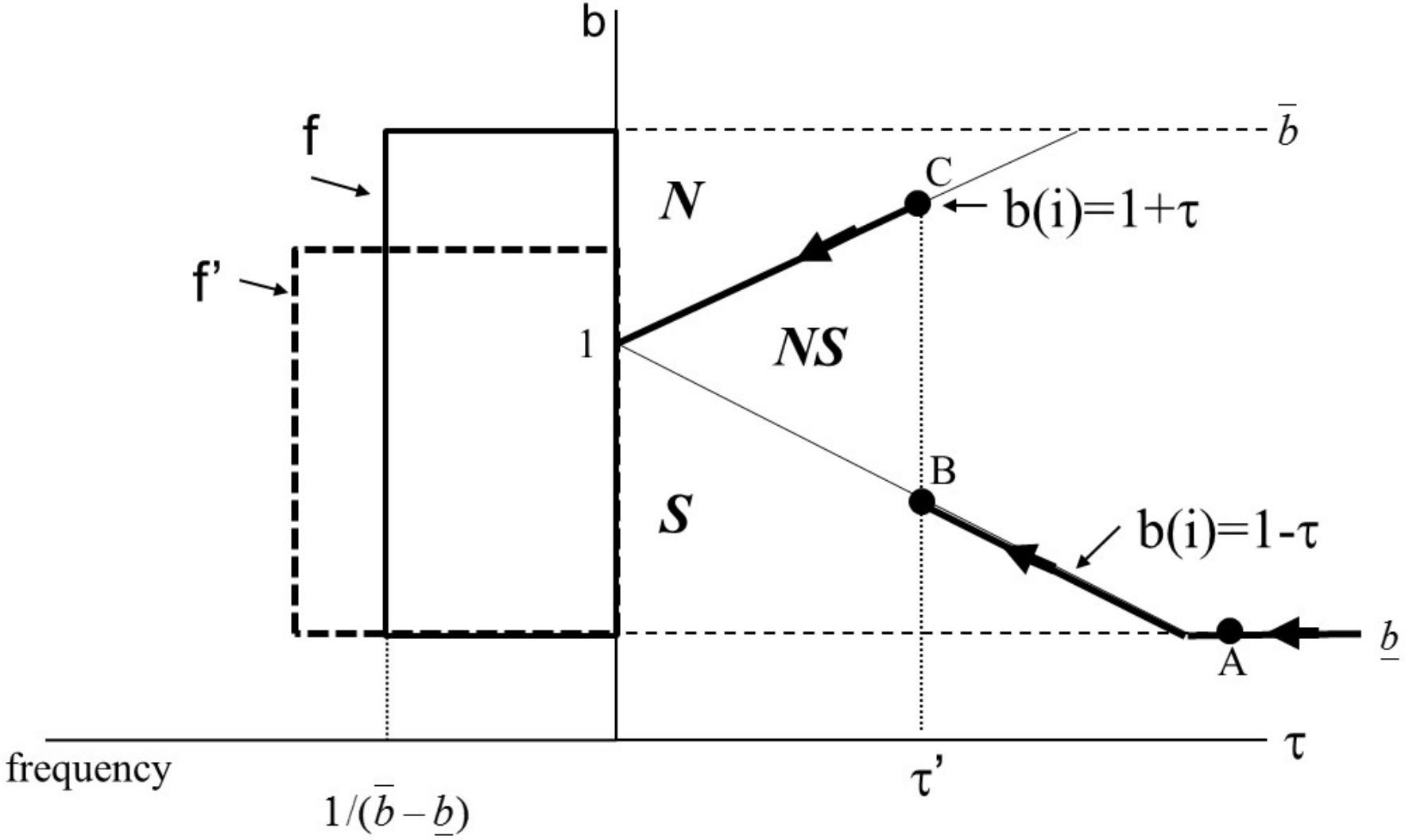
- Focus on comparative advantage;
  - Assume all coordination costs,θ's, equal for all parts, so horizontal axis now "t" , not theta
- Start with assembly in North; assume $a_S < a_N$.



Result: Offshoring "overshooting" of parts

Production technology and distribution of comparative advantage





Asymmetric parts production and exports with knowledge-led globalisation