

# **Mapping Regional Value Chains in East-Asia**

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# OBJECTIVE

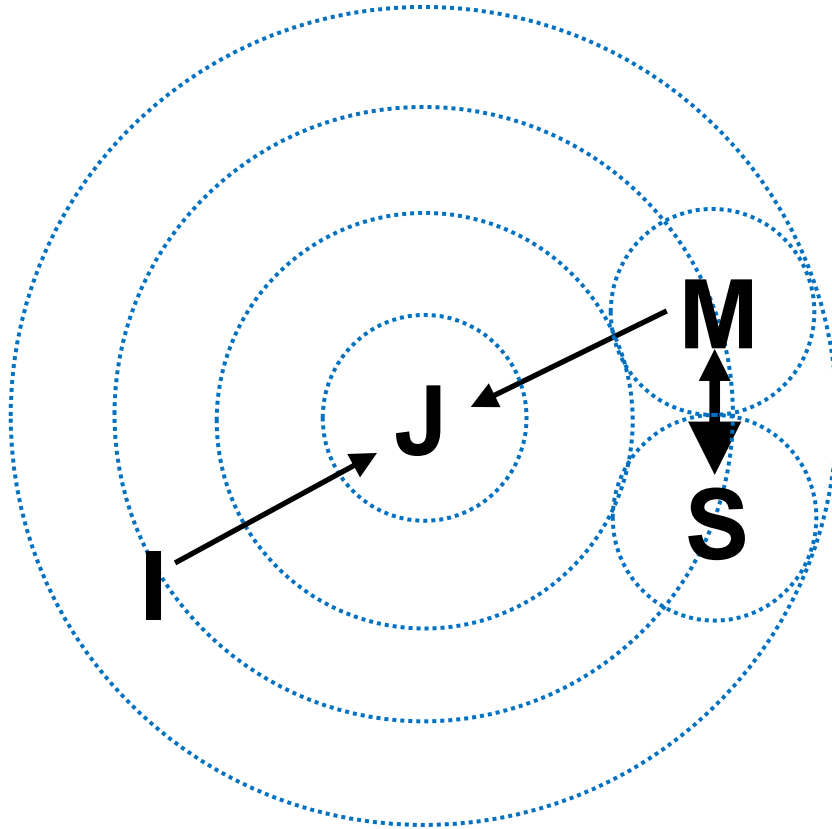
To visualize the structure of the production system in East Asia, or “Factory Asia”

and identify the **relative positions** of countries within the system.

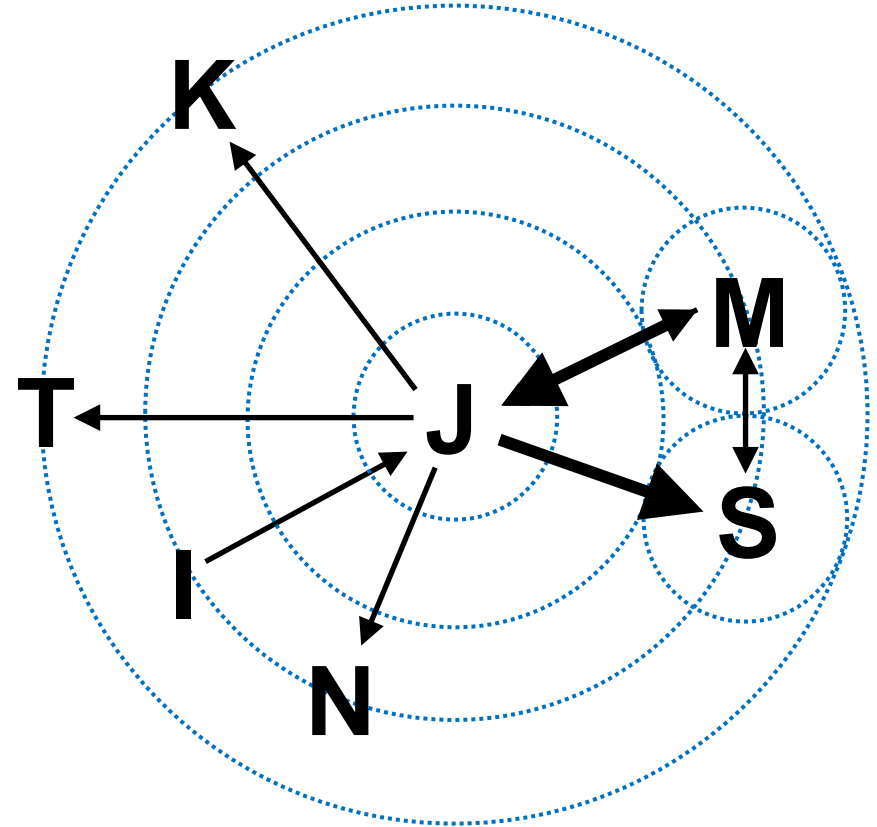
# **The evolution of regional supply chains in East Asia, 1985-2005**

**(WTO/IDE-JETRO Symposium 2011)**

# 1985

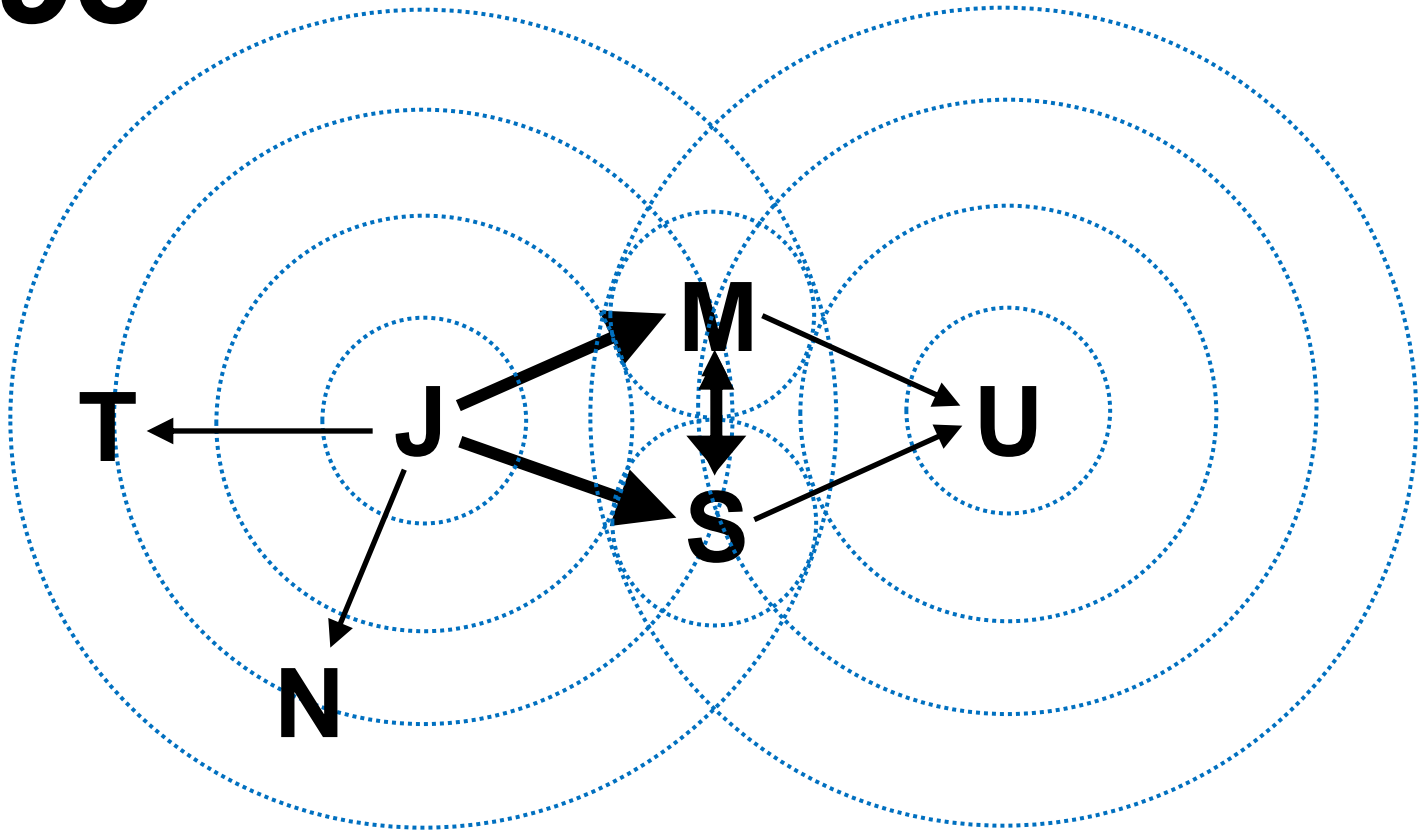


# 1990

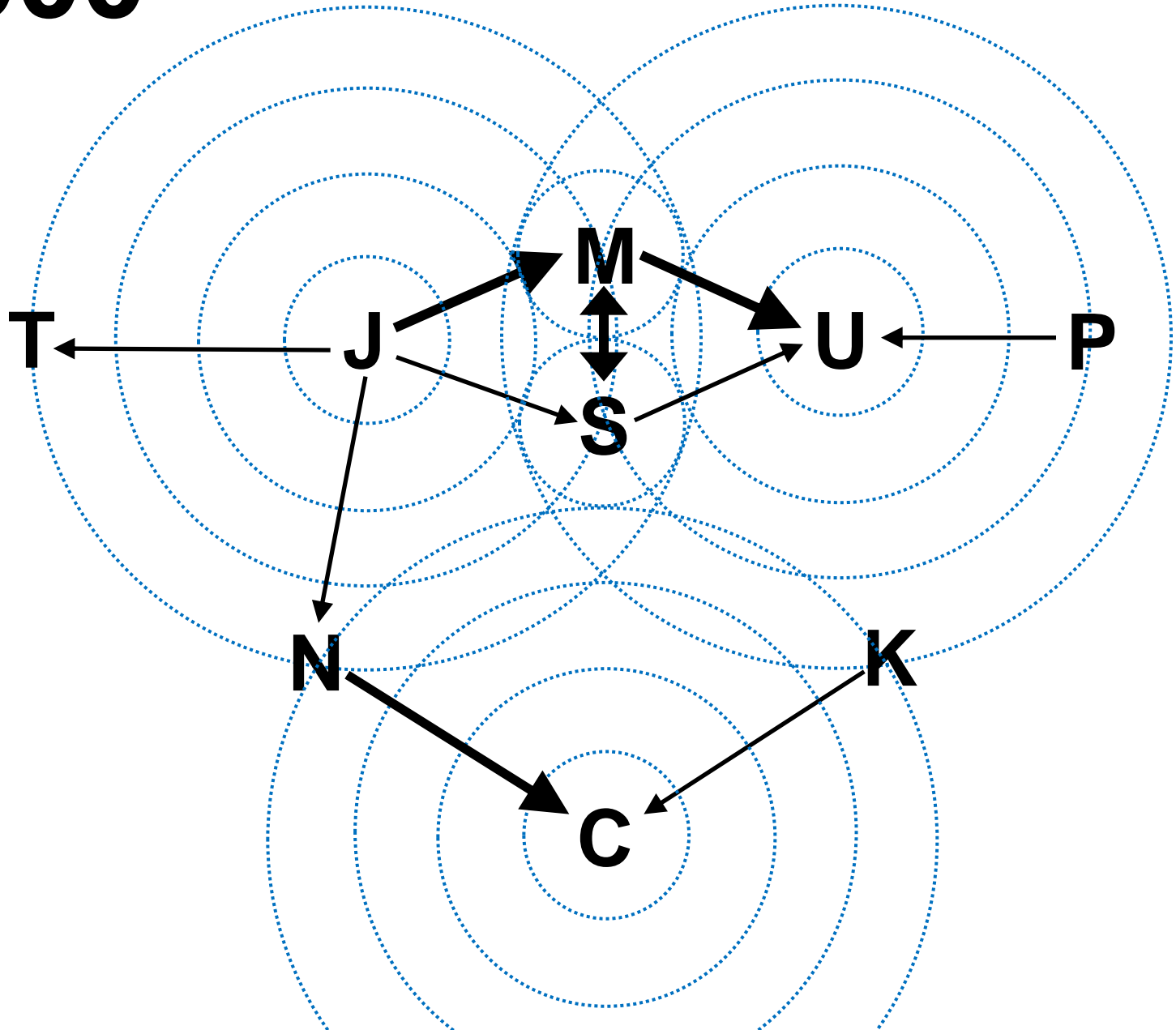


**C: China, I: Indonesia, J: Japan, K: Korea, M: Malaysia, N: Taiwan, P: The Philippines, S: Singapore, T: Thailand, U: The USA**

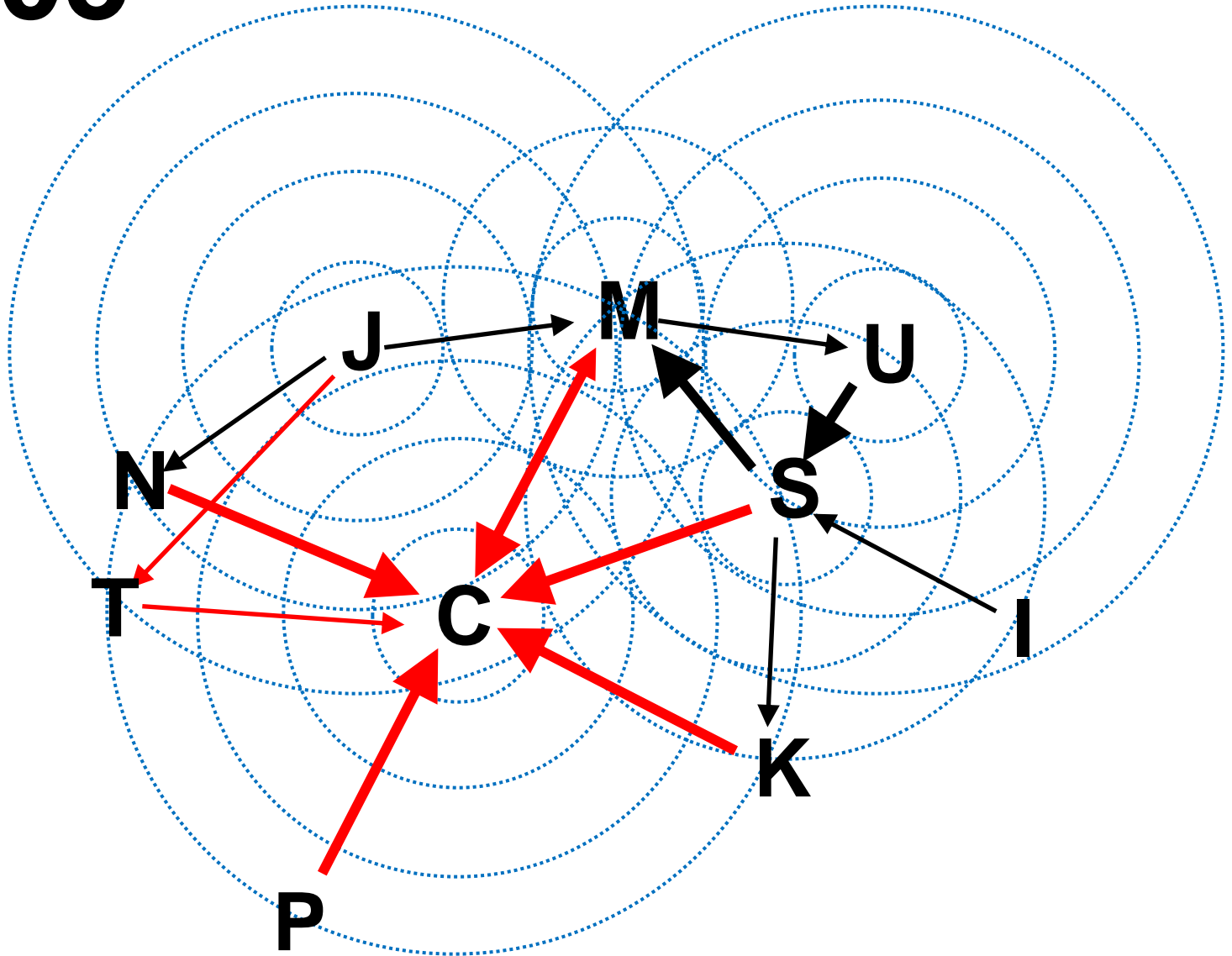
# 1995



2000



# 2005

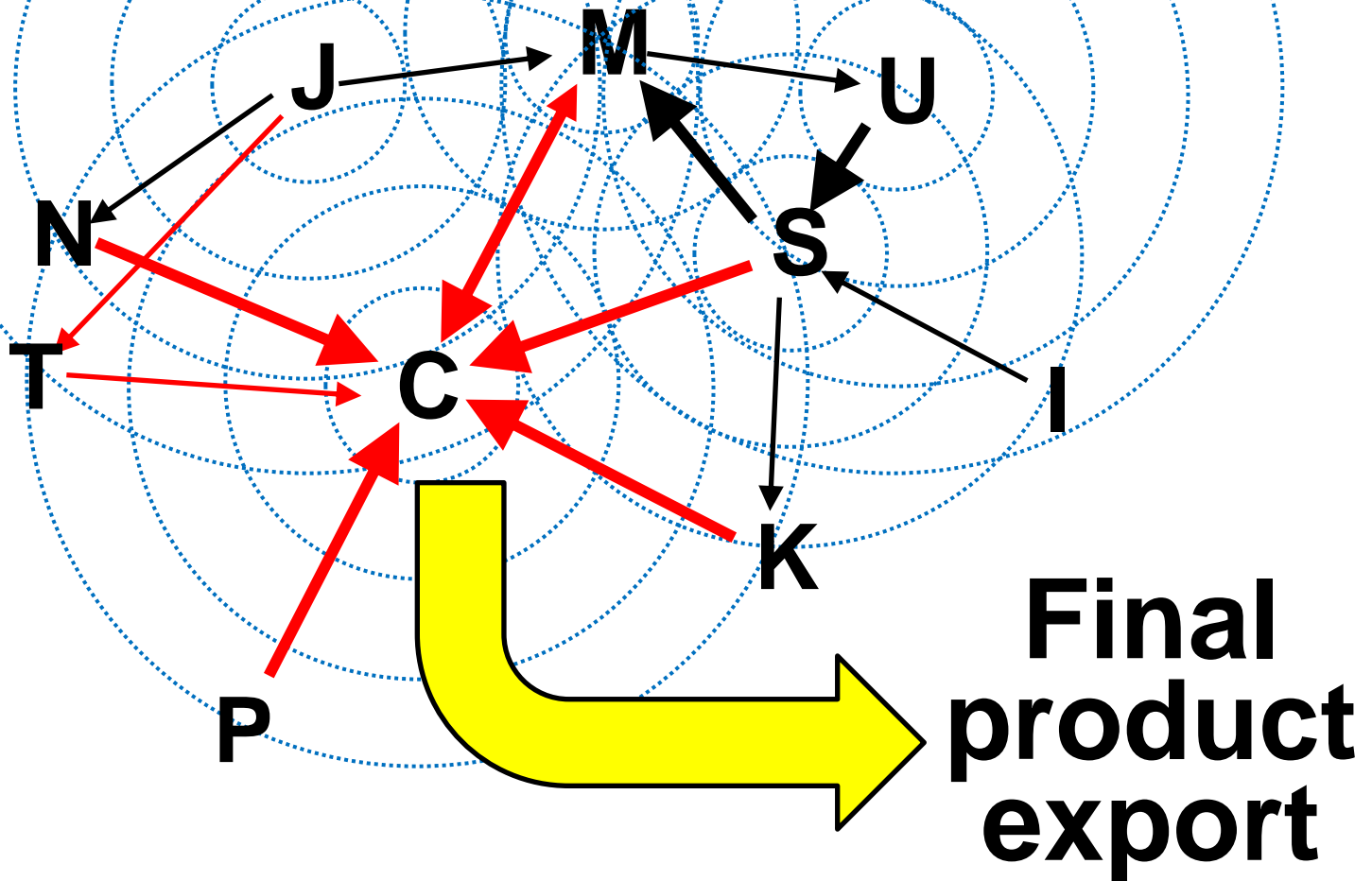


## Thickness:

The strength of linkages between industries

## Length:

The level of technological sophistication





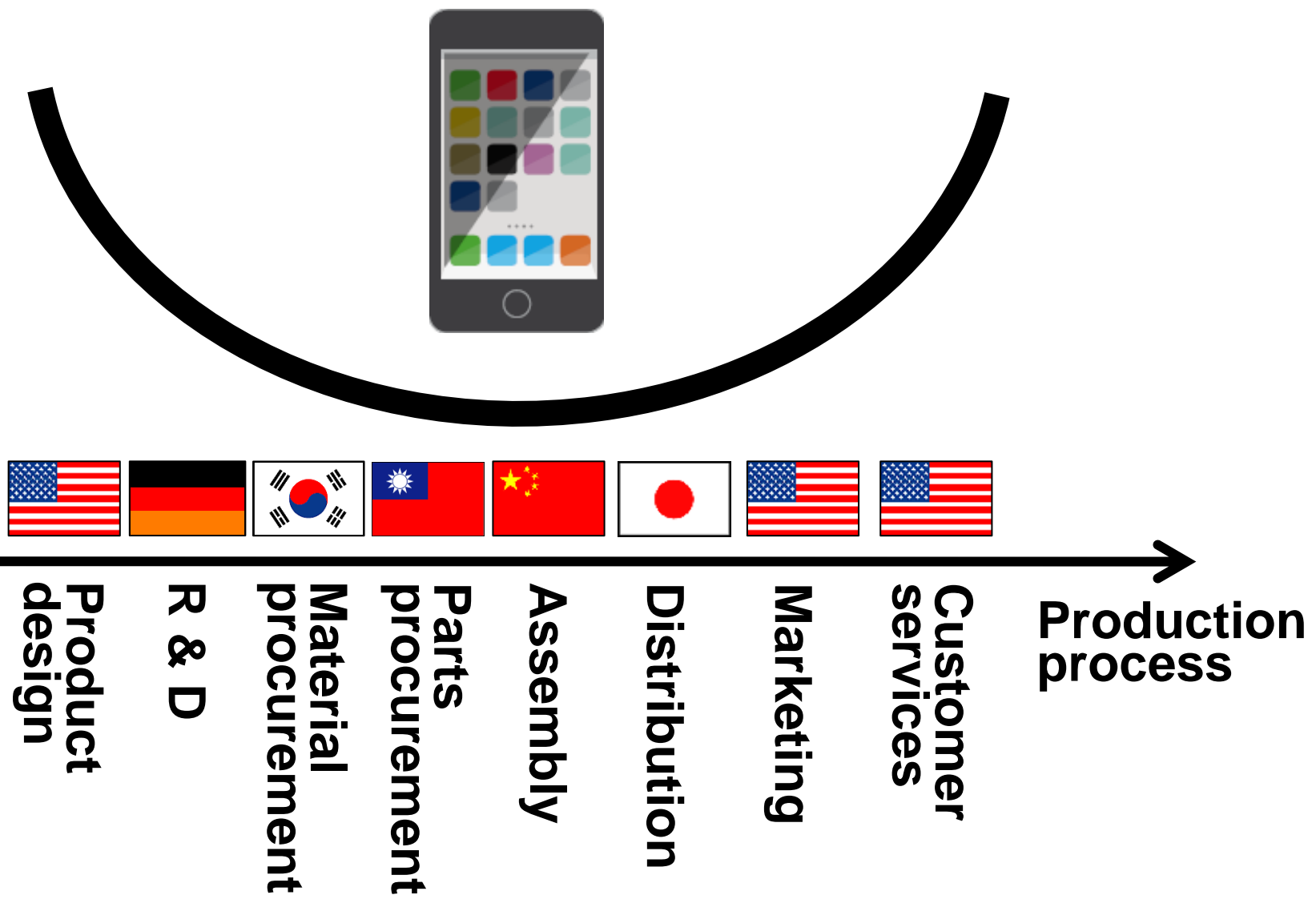
# **Structure of “Factory Asia” with outlet China**

- (1) Other East Asian economies supply high value-added intermediate products to China;**
- (2) China assemble them into final consumption goods;**
- (3) They are exported to the big markets like the USA, EU ...**

**Why do the relative positions  
matter?**

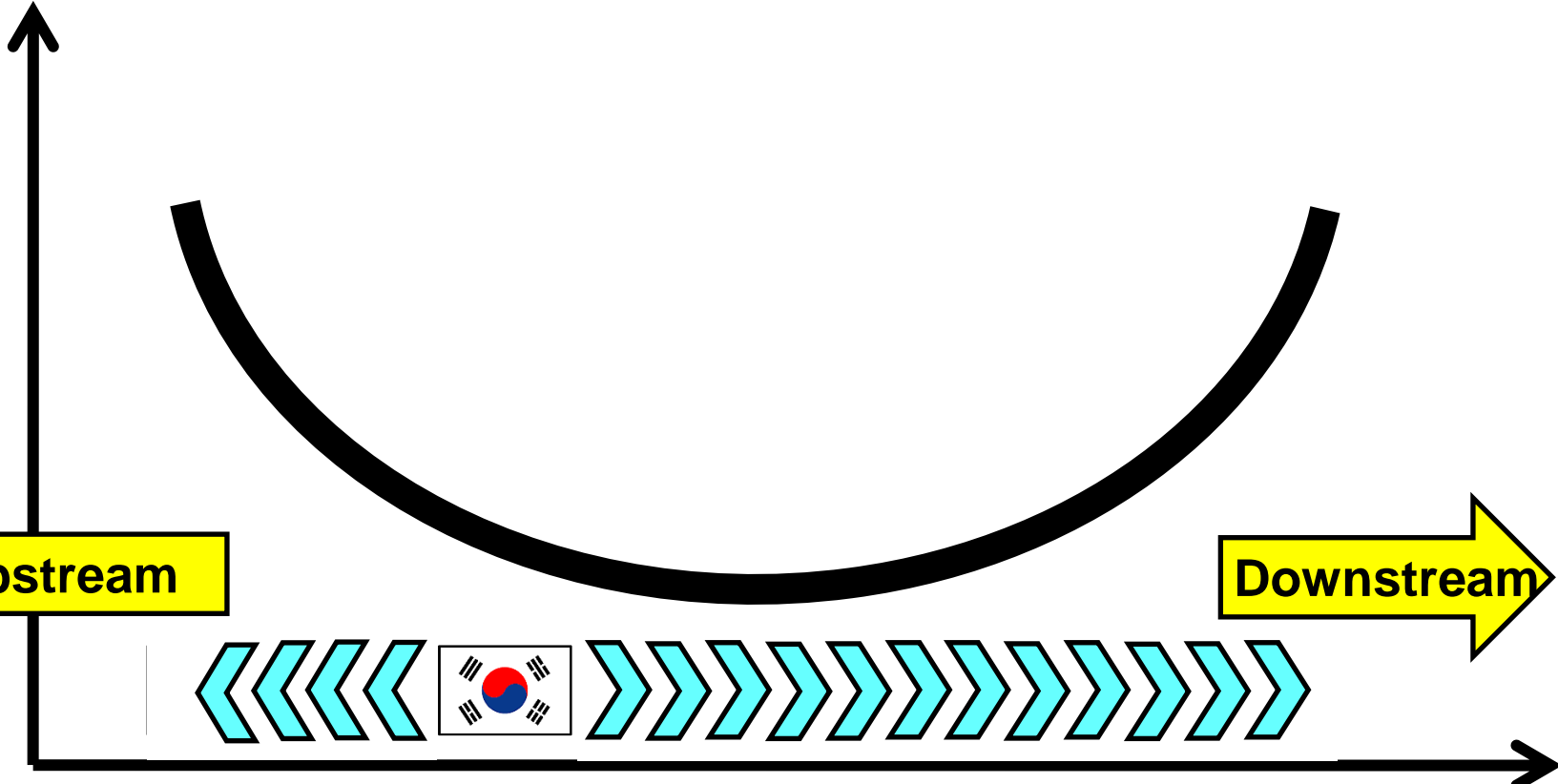
# “Smile Curve”

Value-added



**How do we evaluate  
a country's relative position?**

**Value-added**



**Upstream**

**Downstream**

**Product design**

**R & D**

**Material procurement**

**Parts procurement**

**Assembly**

**Distribution**

**Marketing**

**Customer services**

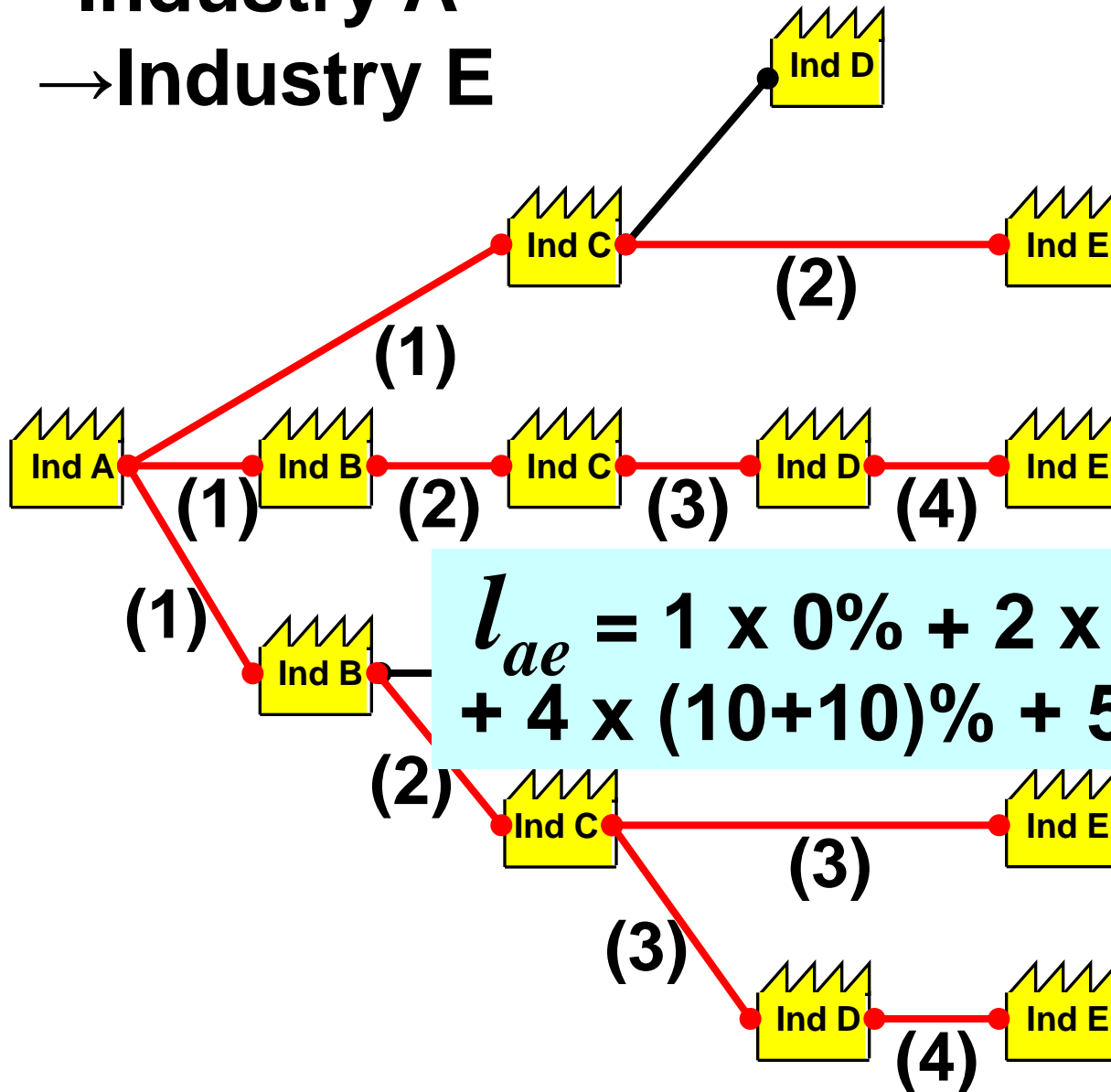
**Production process**

**How do we measure  
the length of supply chains?**

# **Average Propagation Length (APL)**

**Dietzenbacher, E., I. Romero,  
and N.S. Bosma (2005)**

Industry A  
→ Industry E



$$l^{(2)} = 50\%$$

$$l^{(4)} = 10\%$$

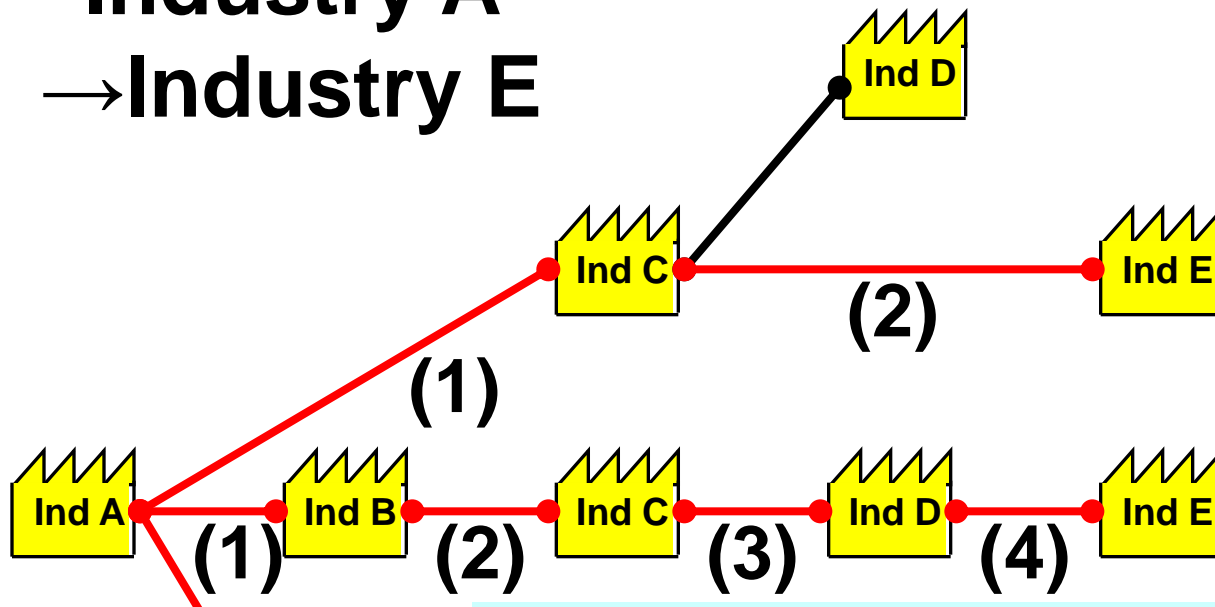
$$l_{ae} = 1 \times 0\% + 2 \times 50\% + 3 \times 30\% + 4 \times (10+10)\% + 5 \times 0\% + \dots = 2.7$$

$$l^{(3)} = 30\%$$

$$l^{(4)} = 10\%$$



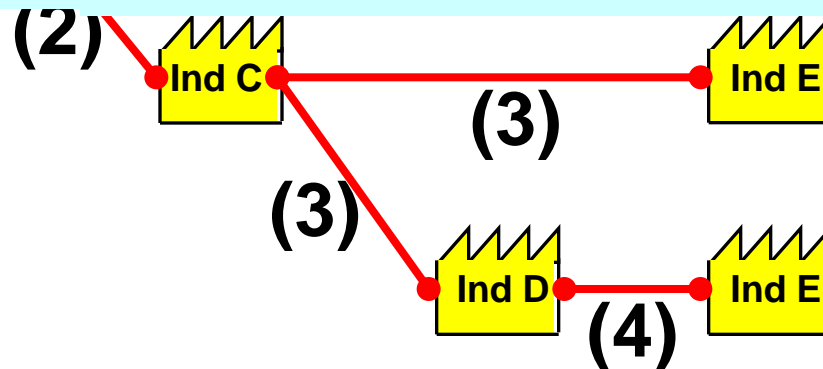
Industry A  
→ Industry E



$$l^{(2)} = 50\%$$

$$l^{(4)} = 10\%$$

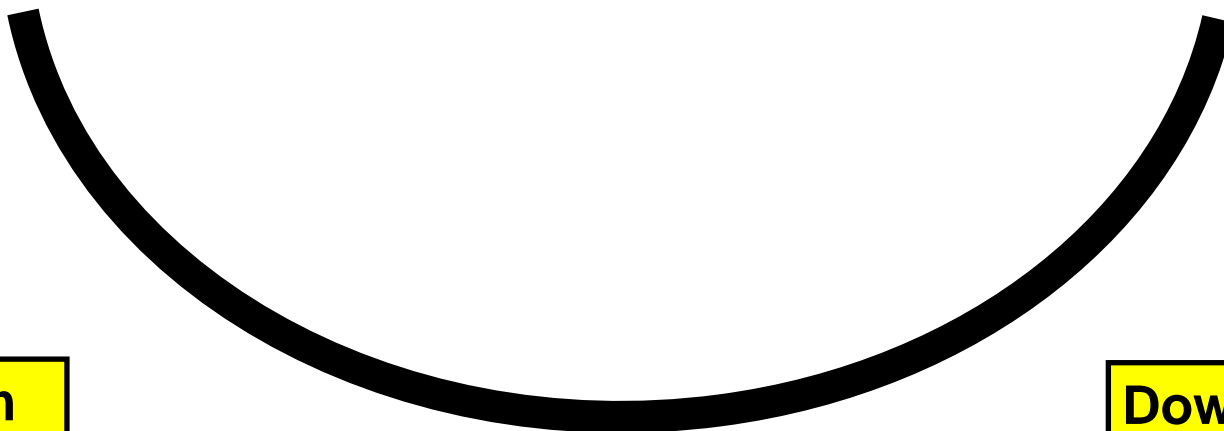
**Weighted average of the number of production stages in supply chains.**



$$l^{(3)} = 30\%$$

$$l^{(4)} = 10\%$$

Value-added



Upstream

Downstream



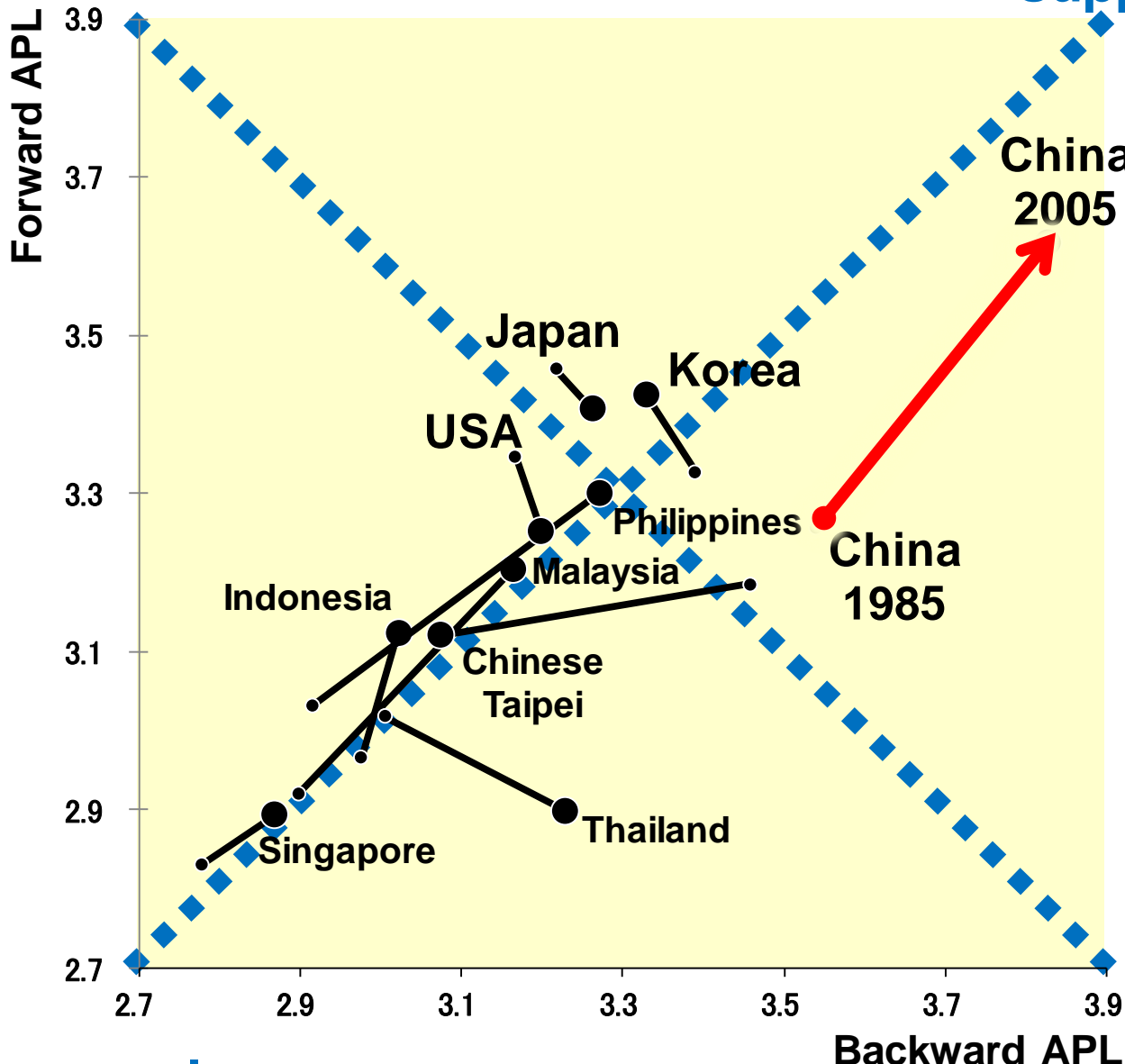
Backward  
APL

Forward  
APL

Production  
process

**Upstream**

**Longer supply chains**

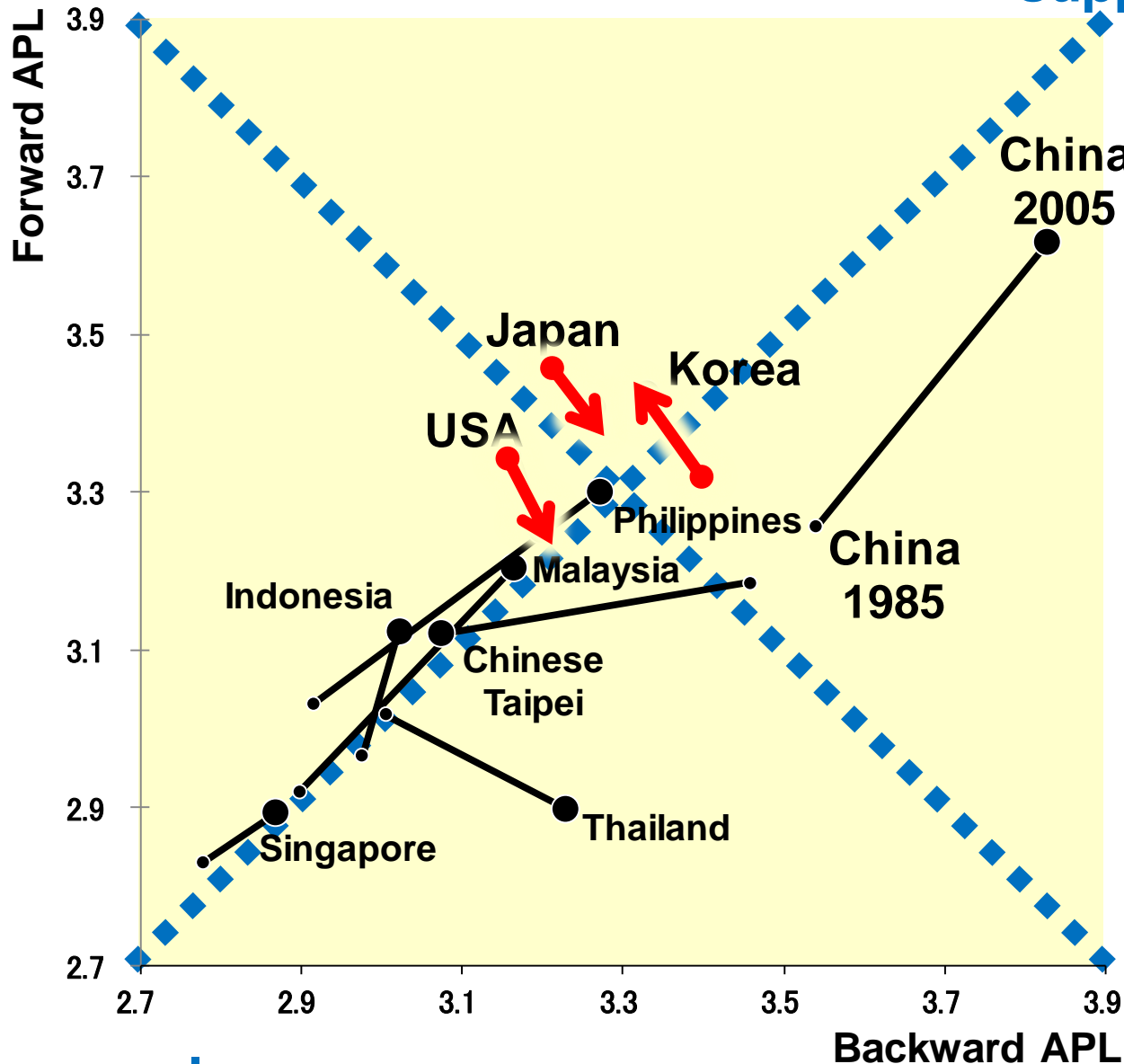


**Shorter supply chains**

**Downstream**

**Upstream**

**Longer supply chains**

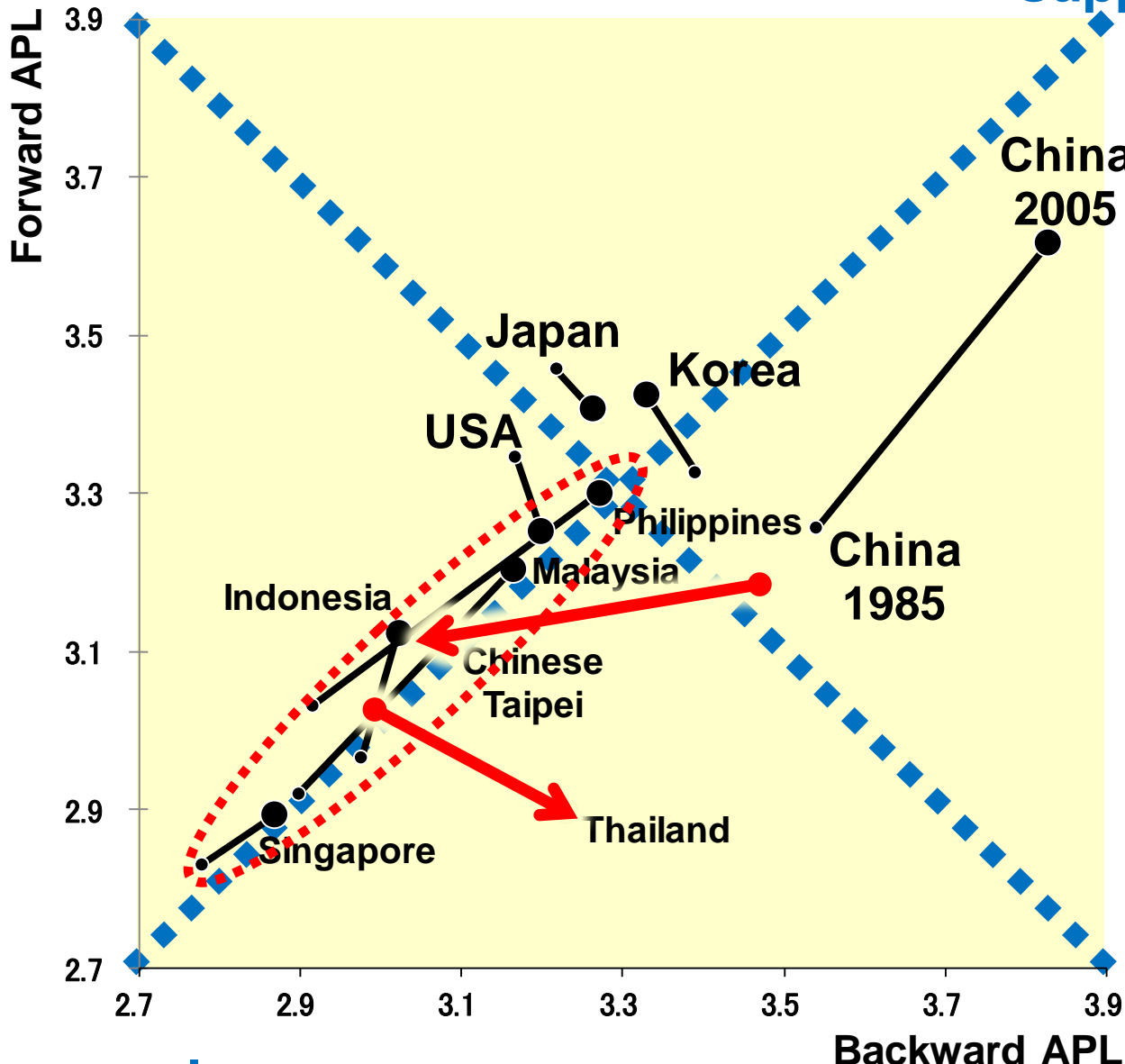


**Shorter supply chains**

**Downstream**

**Upstream**

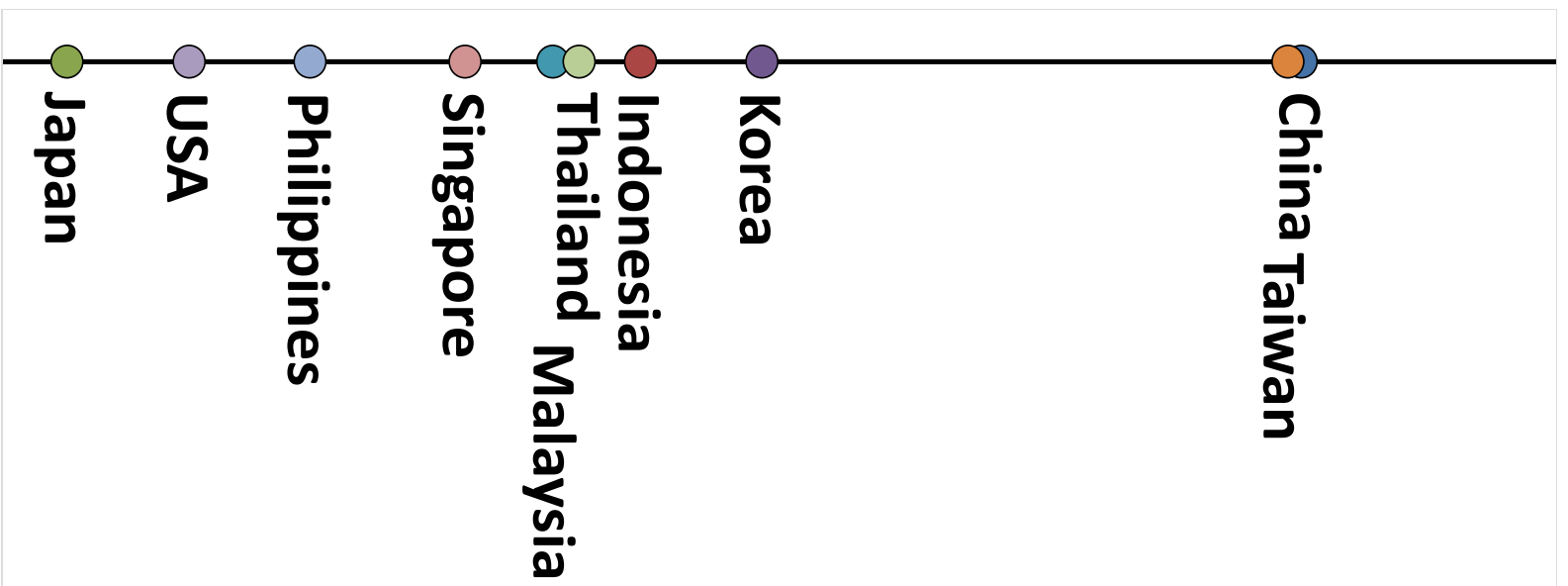
**Longer supply chains**



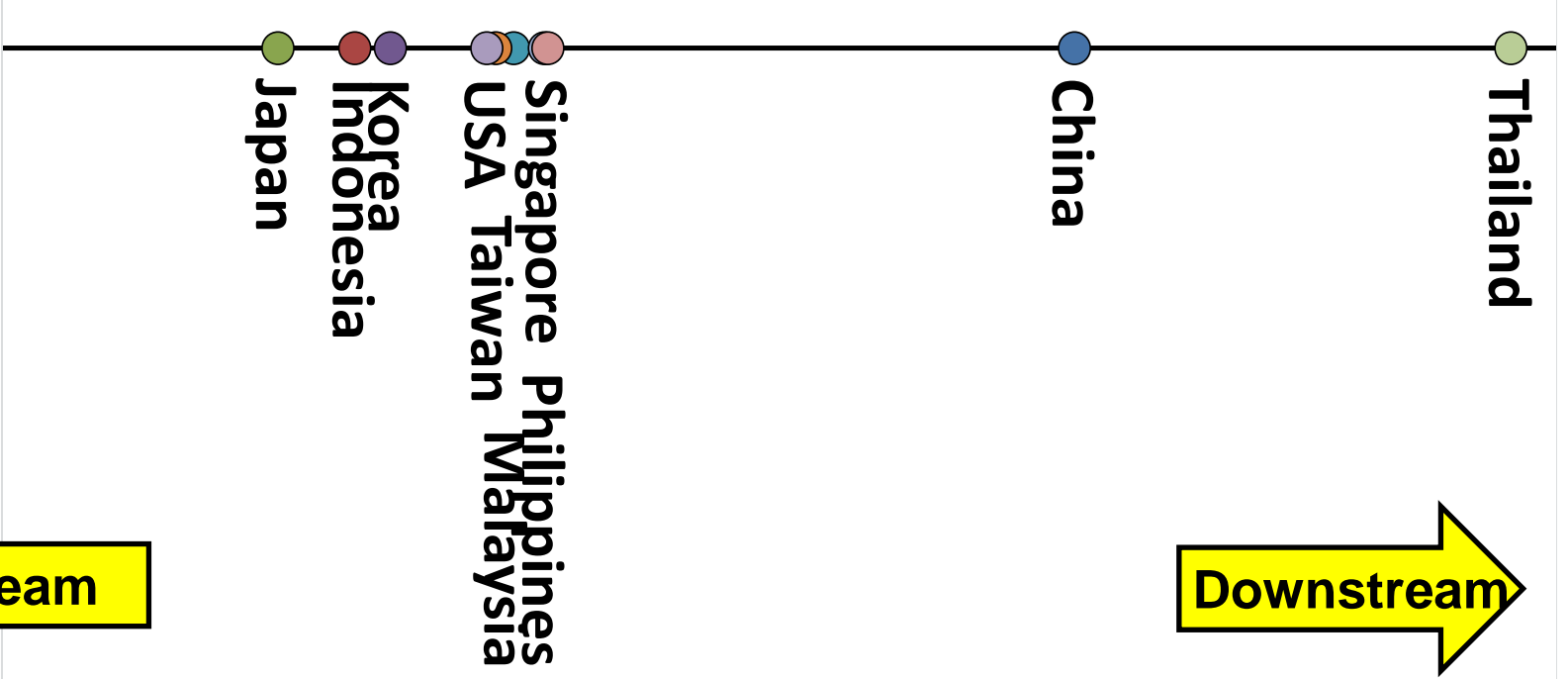
**Shorter supply chains**

**Downstream**

**1985**



**2000**



# Wrap-up

“Factory Asia (with outlet China)”, demonstrates a high degree of vertical division of labour among member countries, where the role of each economy is clearly reflected in its relative position within the regional supply chains.

Thank you.