

Are Japan and Korea experiencing *deindustrialization*? Lessons for Europe

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In collaboration with **Florimond Bourdeaux** (EHESS & French Embassy in Japan)

Bruegel seminar

2012/06/19 (1 pm – 2:30 pm)

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Context of this presentation: a 3 years research program coordinated by FFJ

Is Deindustrialization inevitable?

The Future of Manufacturing in Japan, Korea, Germany and France

- Workshops
 1. 1st conference in Paris (20 & 21 mars 2012)
 2. 2nd conference in Tokyo, co-organized with RIETI (April 2013)
 3. 3rd conference in Brussels (2014)
- Education: a regular seminar at EHESS & PSE on “Industrial dynamics in Japan and Korea”
- Publication: book or special issue of a journal (2014)

Participants to the research program

- **French Team:** L. Demmou (OECD), G. Cette (Bank of France), S. Jung (PSE), S. Lechevalier (EHESS), J. Mairesse (INSEE & EHESS), P. Petit (CNRS)
- **German Team:** C. Storz (Goethe U), B. Petters (ZEW)*, S. O. Becker (U of Warwick)*, M. Muendler (U of California SD)*
- **Japanese Team:** K. Fukao (Hitotsubashi U), Y. Konishi (RIETI), M. Morikawa (RIETI), J. Nishimura (Hitotsubashi U), H. Ohashi (Tokyo U)
- **Korean Team:** S. Ahn (KDI), M. Choi (Ewha Womans U), H. Lee (Korea U), K. Lee (Seoul National U), W. Ok (Incheon U)
- **Observers (OECD):** Y. Harayama, D. Pilat

(*: to be confirmed)

Introduction & motivation deindustrialization in Asia...lessons for Europe

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Deindustrialization is a major problem and concern... in France (and in Europe)

- **The French case**

1. Deindustrialization started in the early 1970s; it has accelerated after
2. Manufacturing industries have lost 36 % of their workers between 1980 and 2007, that is 1,9 million jobs (71 000 every year);
3. Their share in total GDP (in value) has decreased from 24 % to 14 % between 1980 and 2007

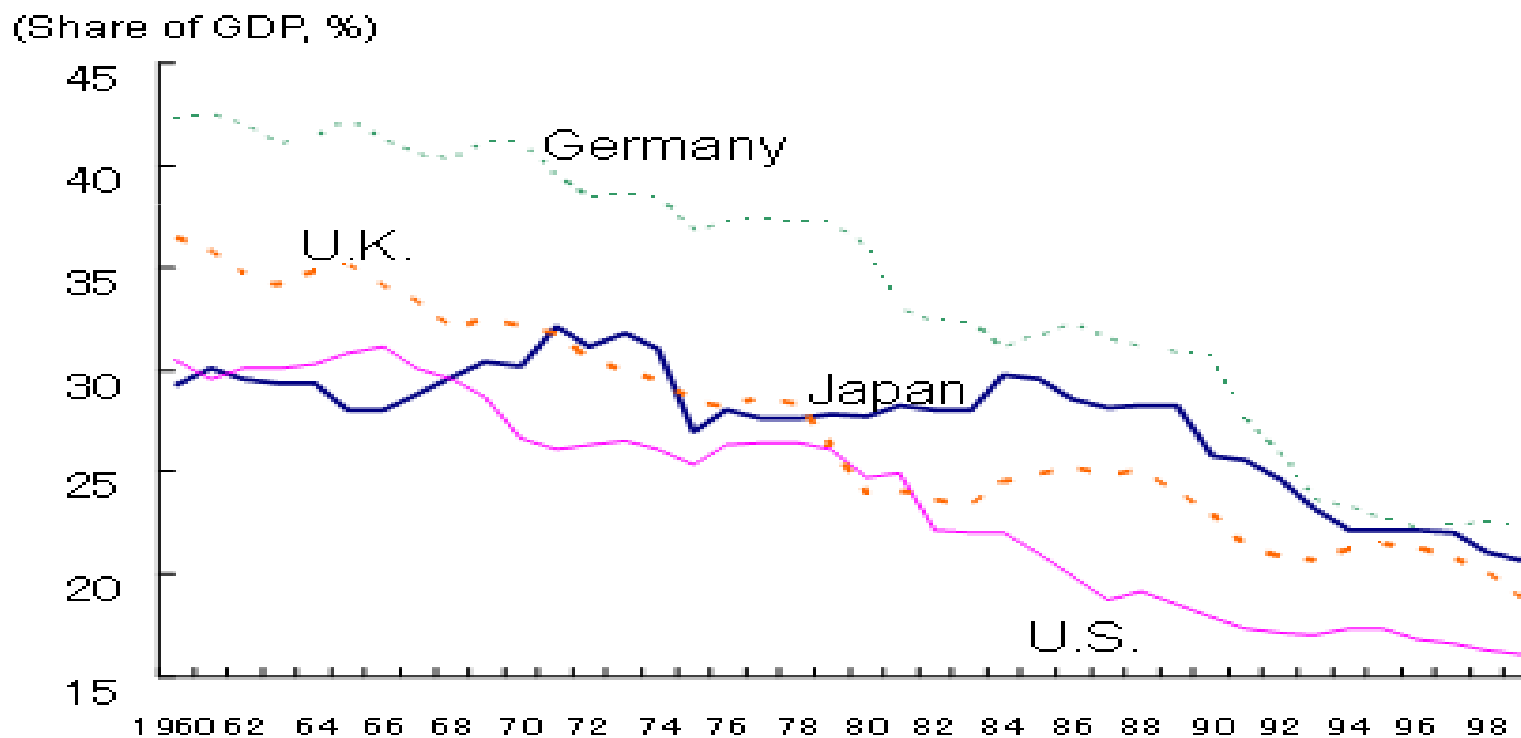
- **Contribution of the various industries to manufacturing jobs destruction (Demmou, 2010)**

1. The “leading” industries in term of job destruction are intermediate goods and final consumption goods
2. As for the causes, they also differ depending on the industry:
 - Agro-industries and consumption goods have been more affected by the evolution of demand (≠automotive)
 - Foreign competition has been more destructive for automotive, equipment and intermediate goods

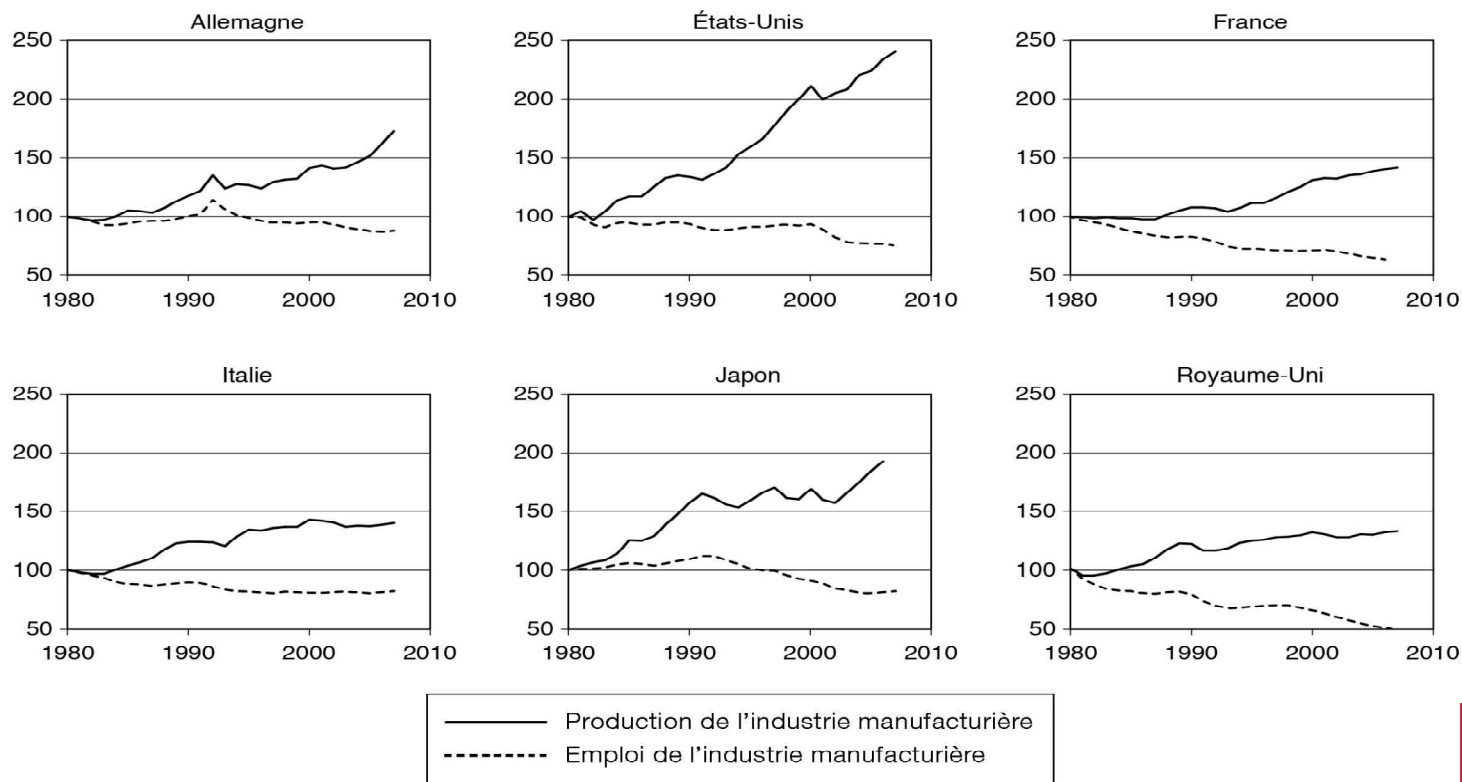
Beyond a Germany-France (or intra-European) comparison, necessity of historical perspective and international comparisons

- The importance of the comparison with Germany in the French context
 1. “Failure” vs “success” (e.g. trade balance, unemployment, growth, etc.)
 2. “Hyper-productivism” in France
 3. French firms are much more internationalized than German firms, with the following meaning: ratio FDI/total investment is 4 times higher for French firms [but the ratio inv/profit is much lower for F firms in general]
- An historical perspective
- International comparison

“Historical” perspective: evolution of the share of manufacturing in GDP in the UK, the US, Germany, and Japan since the early 1960s



International comparison (indices of absolute numbers) → various cases



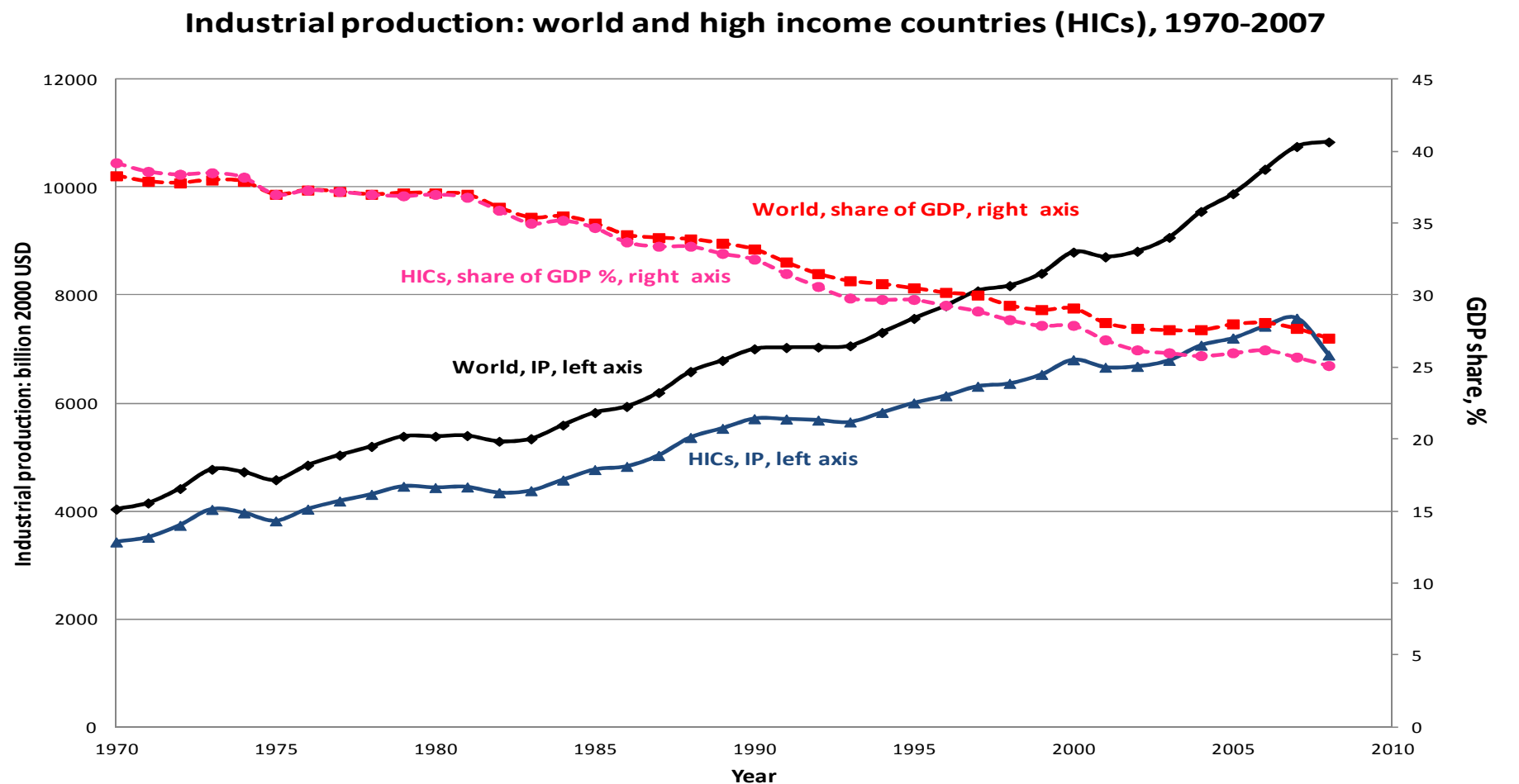
What is deindustrialization? A first definition and some alternative concepts

- Strictly speaking, deindustrialization corresponds to the decrease of the share of the manufacturing industries in total employment **and** GDP (VA); (see Tregenna, 2009: why the definition matters)
- Alternative concepts:
 1. Deindustrialization \neq delocalization
 2. Hollowing out (of manufacturing industries) : 空洞化 (Kûdôka)/아웃 (hollowing)
 3. Shall we prefer more “neutral” concepts such as industrial mutation/transition, changes in the industrial structure, or more positive ones like “servicization”, “tertiarization”?

New trends in deindustrialization?

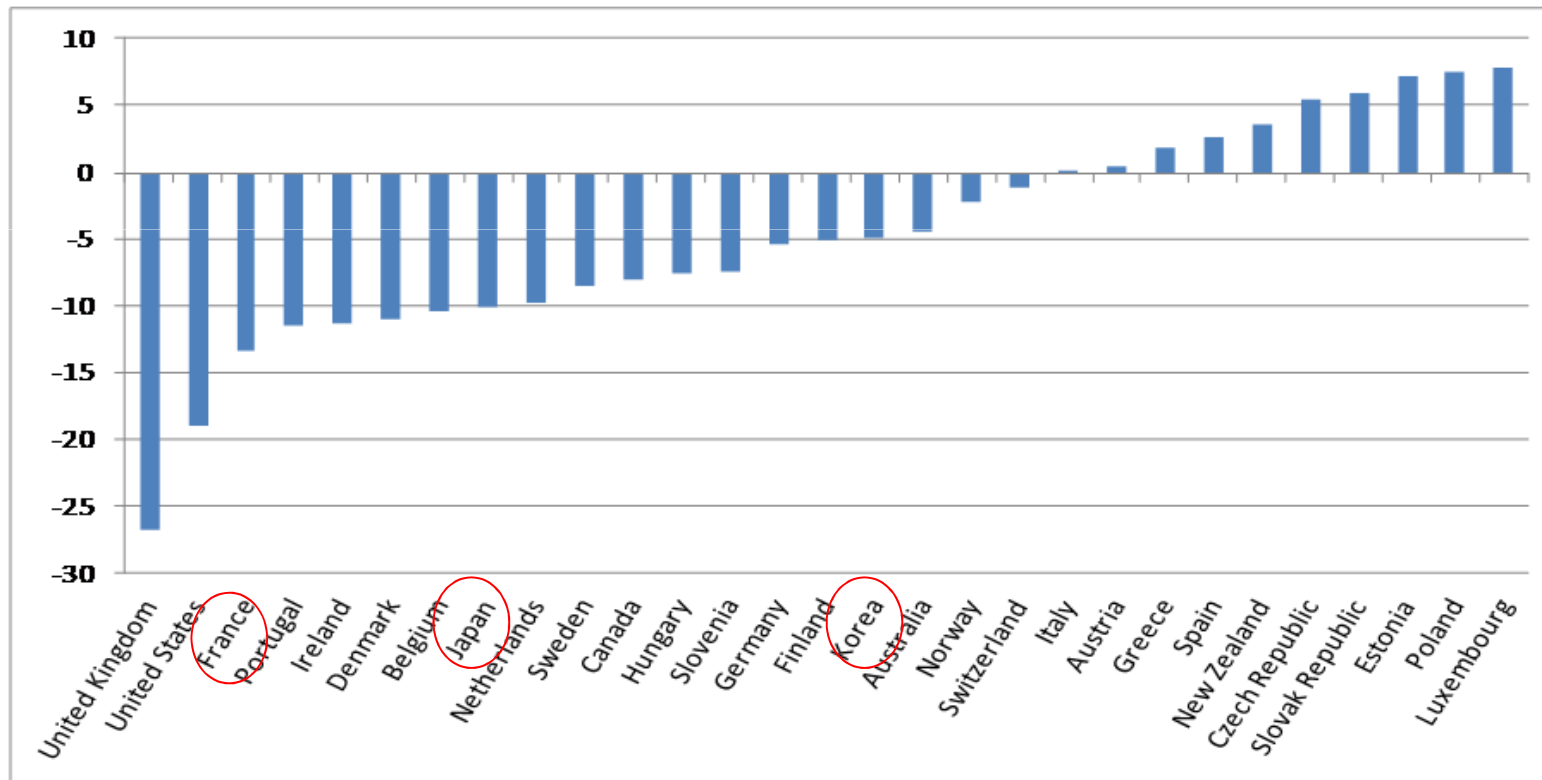
- A very classical topic but the nature of the process may have changed during the last decades → identifying the turning point and the nature of the change
- The share of manufacturing in GDP at the global level **did** decrease...while the manufacturing production has continued to grow
- Meanwhile, we have observed during the last 40 years a process of “delocalization” of the production bases from OECD countries to developing economies
- This process is even more dramatic with the development of China...

The relocation of industrial production at the global level



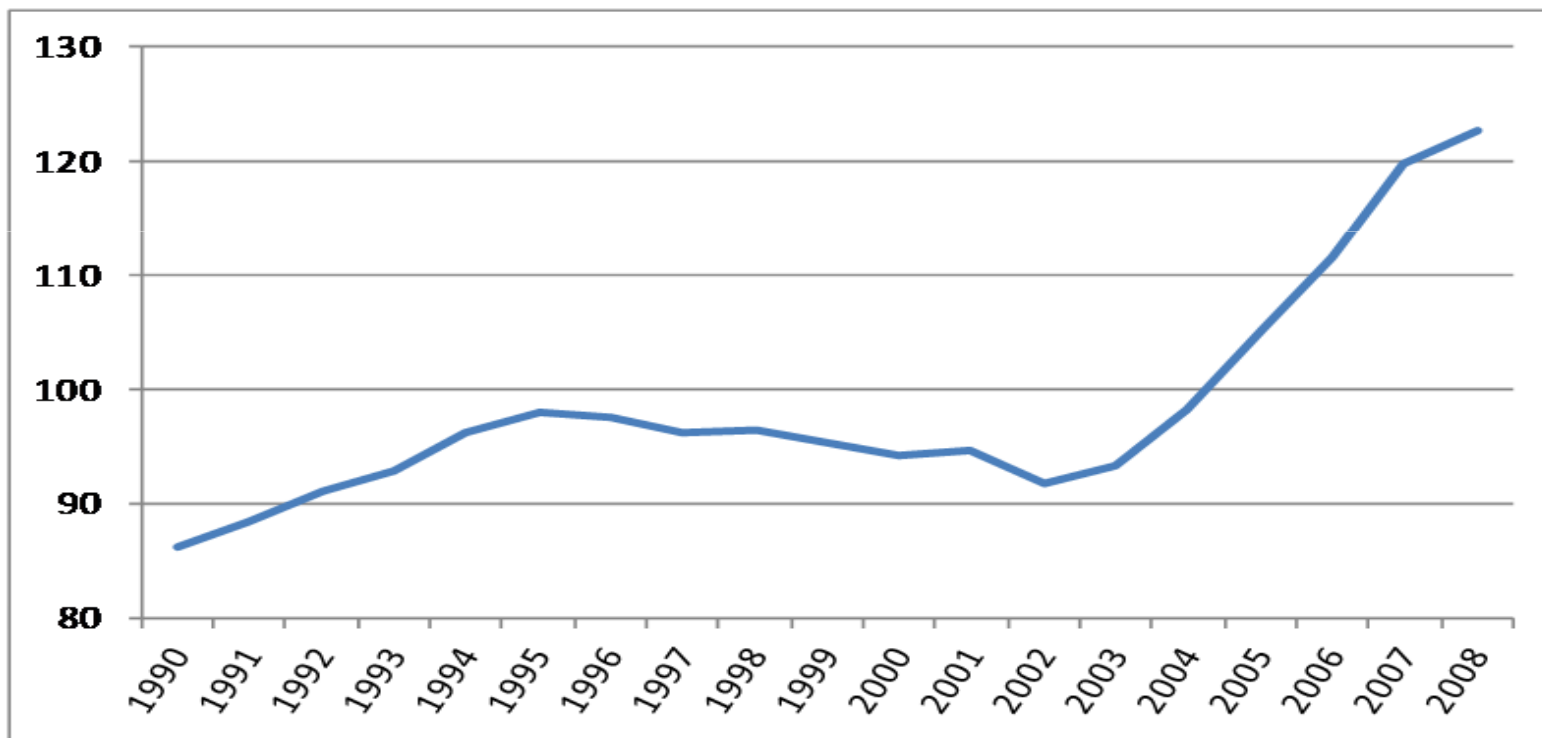
Evolution of manufacturing employment in the OECD countries from 2000

Percentage change in manufacturing employment, 2000-2008 (OECD, Stan)



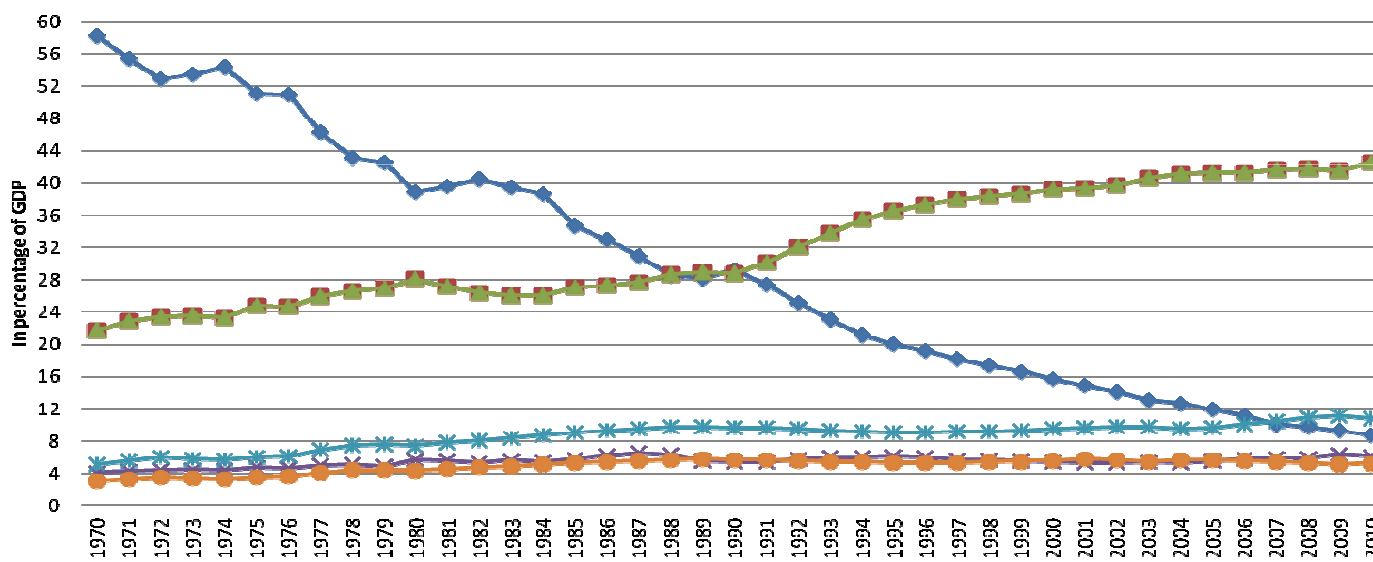
Growth of manufacturing employment in China

(employment in millions)



Development and structural change of the Chinese economy

Breakdown of Chinese GDP, 1970-2010, constant 2005 US\$

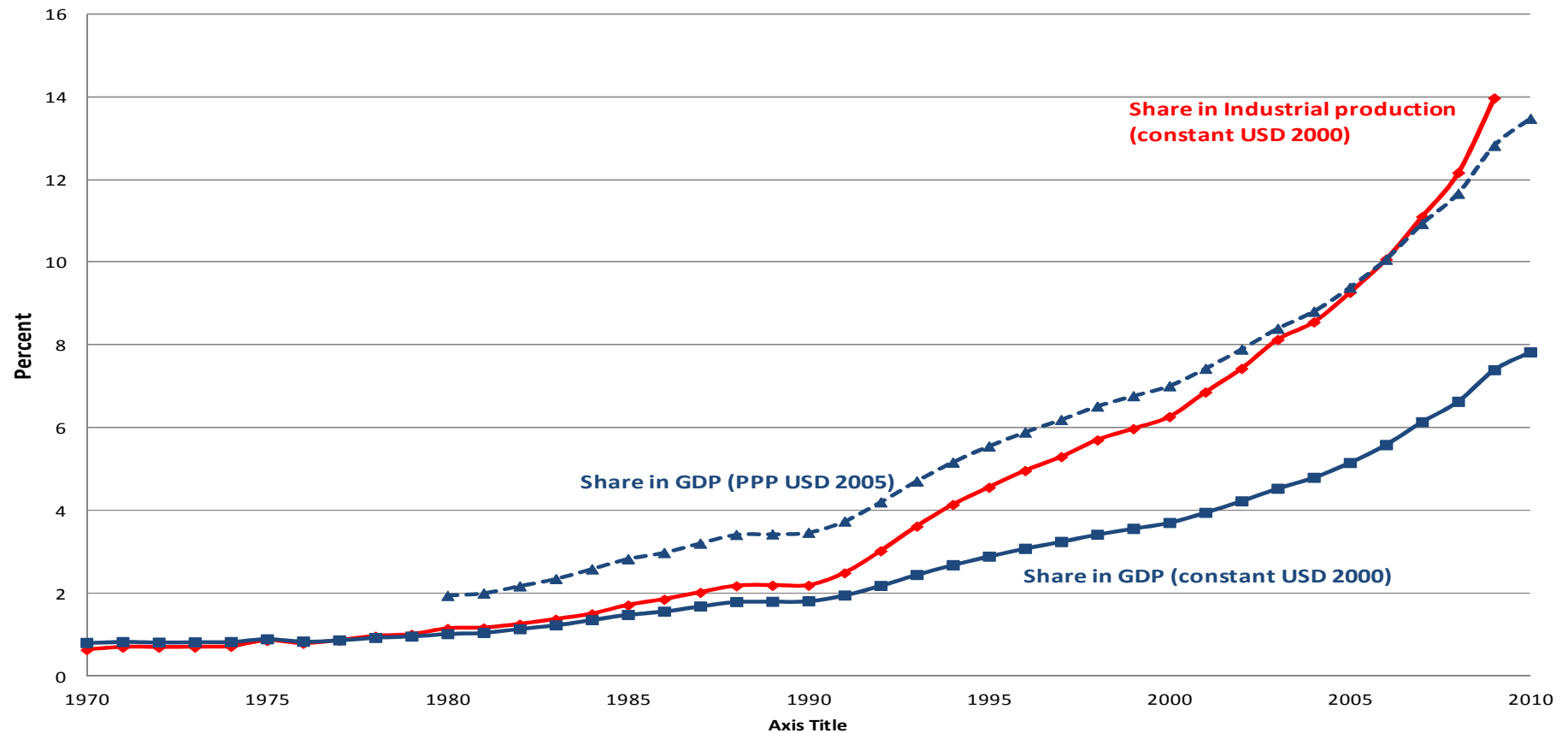


Source: Author's calculations with data from United Nations Statistical Division

- ◆ Agriculture, hunting, forestry, fishing (ISIC A-B)
- Mining, Manufacturing, Utilities (ISIC C-E)
- ▲ Manufacturing (ISIC D)
- ✦ Construction (ISIC F)
- ✧ Wholesale, retail trade, restaurants and hotels (ISIC G-I)
- Transport, storage and communication (ISIC J)

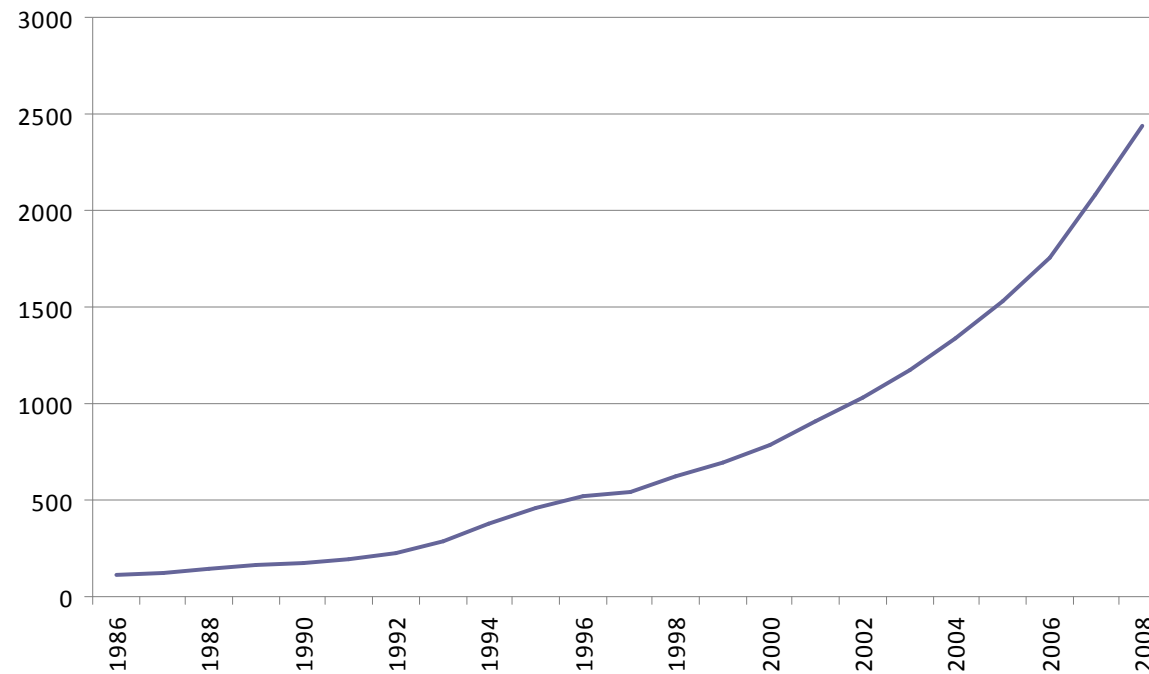
The surge of China in the Global economy and its industrial bias

Share of China in Global GDP and Industrial production



China in transition: rising labor costs (source: ILO database)

Earnings per month / Yuan



Defining the “Chinese issue”

- The effect of North-South trade on manufacturing dynamics in North has not been found as important until recently (see for example Rowthorn & Coutts, 2004)
- However, things may change with the emergence of China as a manufacturing superpower...
 1. Scale effect (significant \neq with the experience of NIEs)
 2. Fast catching-up including in tech-sectors (investment in R&D + impact of foreign investment)
 3. Concern for developed economies but even more for developing economies (e.g. Vietnam), especially through the impact on world markets

In this context, why is it interesting to look at Japan and Korea's industrial dynamics from a European point of view? (1/2)

- Interest of an extra-European comparison (Europe/Asia comparison) : what do we *really* know about deindustrialization (beyond what we learnt from the UK and the US cases)?
- Why Japan AND Korea?
 1. Beyond confusion between J & K
 2. Common wisdom: manufacturing capacities are moving to Asia
 3. Deindustrialization in Japan and Korea???

In this context, why is it interesting to look at Japan and Korea's industrial dynamics from a European point of view? (2/2)

- “False” reasons: A rather idealized image of Japan and Korea's industrial dynamics in France:
 1. No deindustrialization in J and K? Generalizing the (domestic and international) successes of Toyota and Samsung?
 2. Success of industrial policy in J and K?
- “Good” reasons:
 1. Development in J & K has been successfully based on industrialization and exports of manufacturing products
 2. J & K may have to face even more dramatically the Chinese challenge and the associated new trends in deindustrialization
 3. “Varieties of deindustrialization” + redefining what it is about

Contents of today's presentation

(~ synthesis of our first conference, March 2012 in Paris)

- What is deindustrialization? How do we explain it? Some basics
- Are Japan and Korea experiencing deindustrialization?
- Is it a problem? (Needing a systematic analysis of the causes and of the consequences of deindustrialization in J & K)
- Any relevant public policies?
Revisiting industrial and innovation policies Lessons for Europe

What is deindustrialization? How do we explain it?

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Deindustrialization: towards a more precise and comprehensive definition?

- Measurement issues + implications in terms of typology:
 1. Share of manufacturing in total employment and GDP (nominal/real)
 2. Looking at absolute numbers: a decrease of the share of manufacturing may be associated to a stability or even an increase of absolute numbers
- Borders between manufacturing and services are becoming less and less clear:
 1. For example, **outsourcing** practices contribute to an “artificial” increase to the share of services
 2. Case of individual companies
 3. Conversely, the content of manufacturing products in terms of services is also increasing
 4. **Definition of what manufacturing is: making/designing (T. Fujimoto)**
 5. **Problem of industrial classification**
- Looking at the causes of deindustrialization: what are we talking about?

The causes of deindustrialization (1/3)

- A major trend that has affected all the industrialized countries from the late 1960s. It concerns economies, which have reached a certain level of development (“post industrial stage”) :
 1. Long term trend: transition from agriculture to manufacturing and services.
 2. From this point of view, deindustrialization may seem a “*natural*” phenomenon = corresponding to a certain stage of development.
 3. **Domestic mechanisms** (~ consensus among economists):
 - Demand:** evolution of the demand from agricultural goods to manufacturing goods and to services (Engel’s law);
 - Supply:** in general, productivity growth is much higher in manufacturing than in services

The causes of deindustrialization (2/3)

- **Is globalization responsible?** (dominant image in the public opinion; never ending controversy among economists)
 1. **Outward FDI** (off shoring by MNEs) leads to a mechanical decrease of the national production & employment in a first step; the impact of the second step (increased efficiency, evolving specialization in other industries, increasing exports of components) is open;
 2. At the same time, even in the absence of off shoring, it is possible to observe a decay of manufacturing activities at the level of a firm or of a whole sector, for example because of **international competition** (in this case, national firms do not off shore but national consumers buy foreign products)

The causes of deindustrialization (3/3)

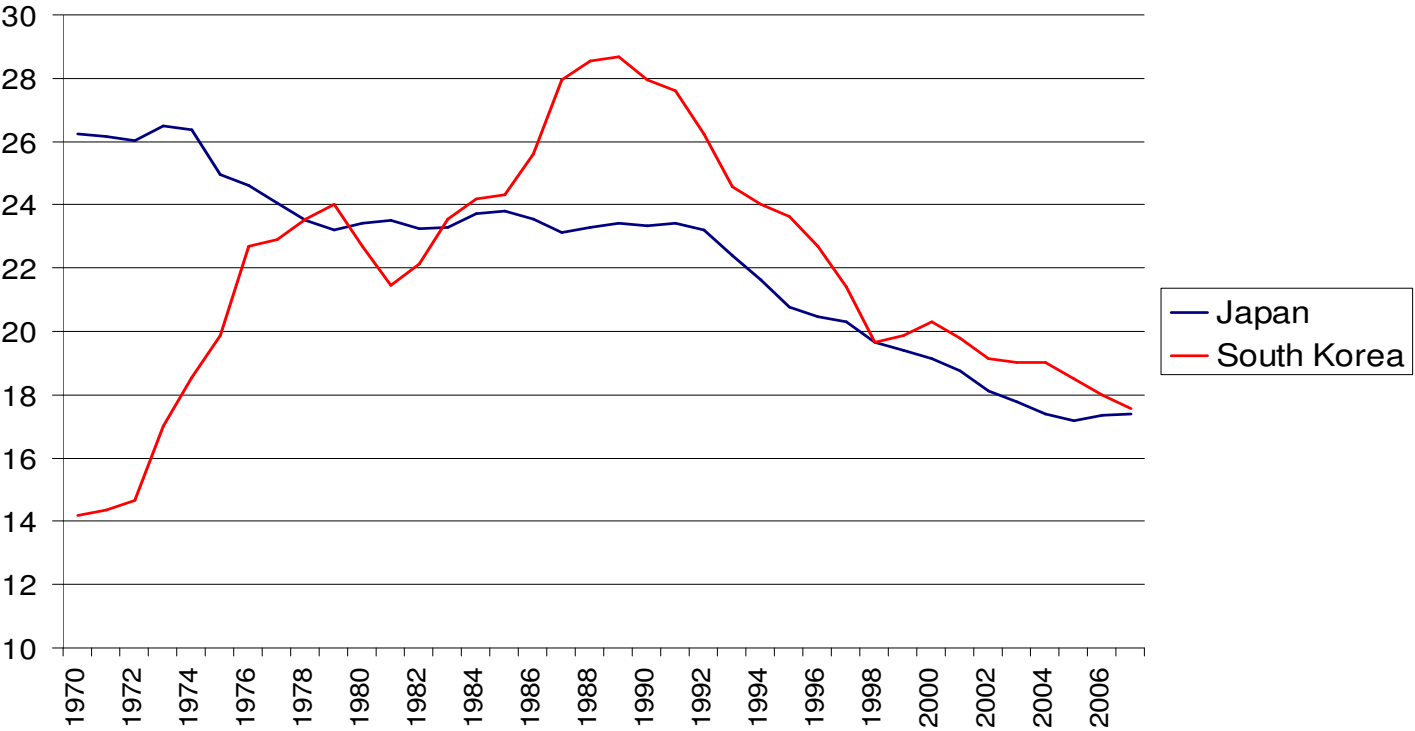
- Remarks regarding the international dimension of deindustrialization
 1. The discussion in Japan on deindustrialization has over-focused on the role of the exchange rates
 2. ≠ types of FDI (e.g. market led vs costs cut driven; see Japanese FDI in the US and in Europe vs in China) and ≠ destinations may have ≠ impacts
 3. The **fragmentation of production** and the evolving international/regional division of labor may make the analysis of the impact even more difficult...

Are Japan and Korea experiencing deindustrialization?

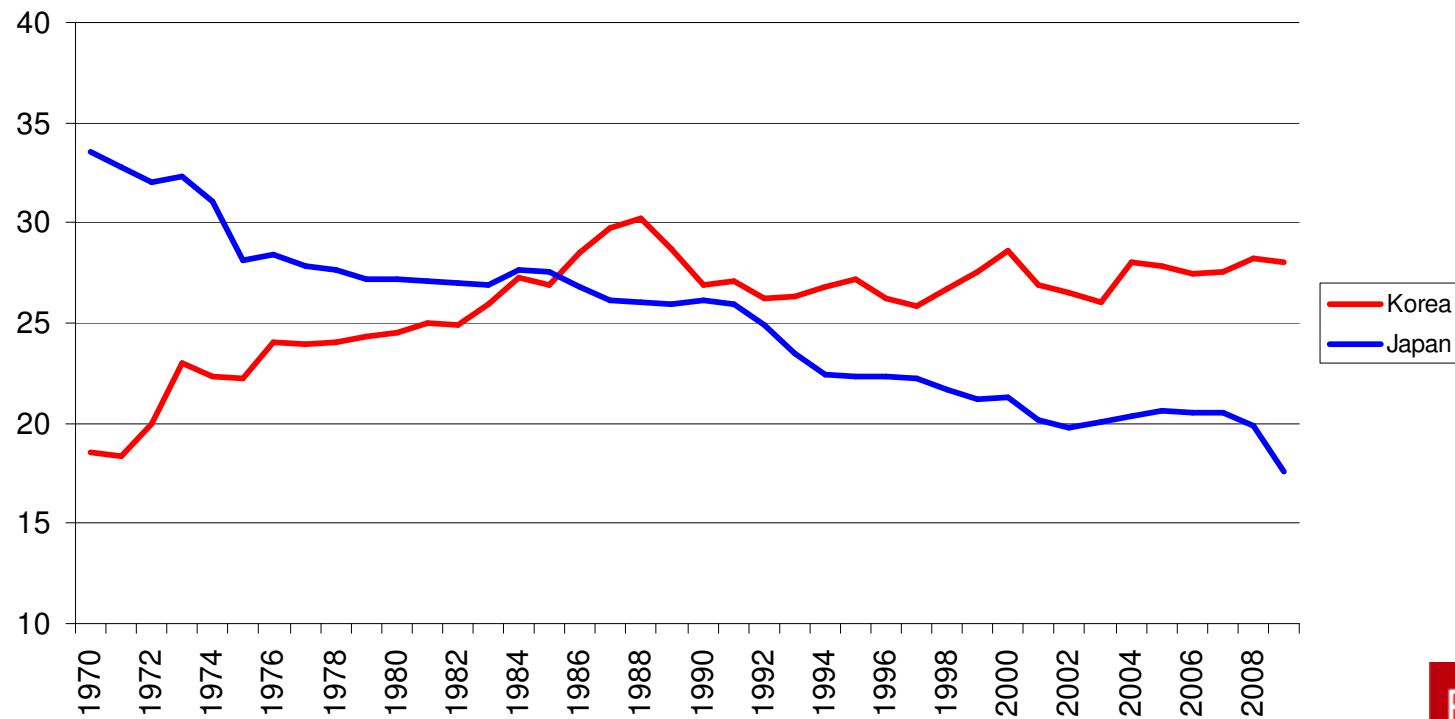
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Evolution of the share of manufacturing in total employment in Japan and Korea, in % (1970-2007)

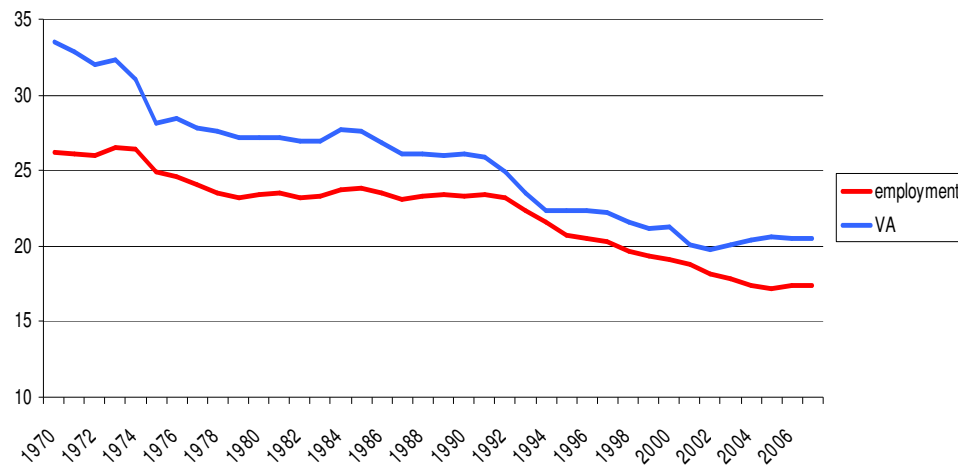


Evolution of the share of manufacturing in total va in Japan and Korea, in % (1970-2007)

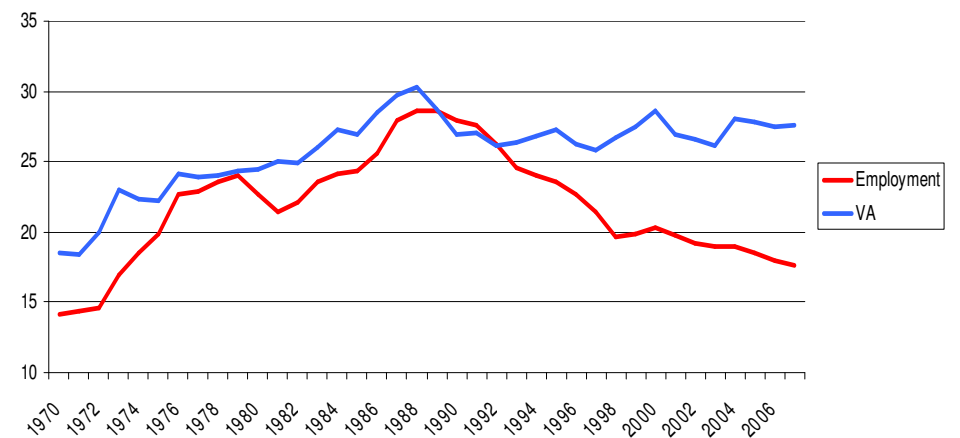


Comparing Japan and Korea: employment and VA perspectives

Evolution of the share of manufacturing in total production and employment in Japan (1970-2007)

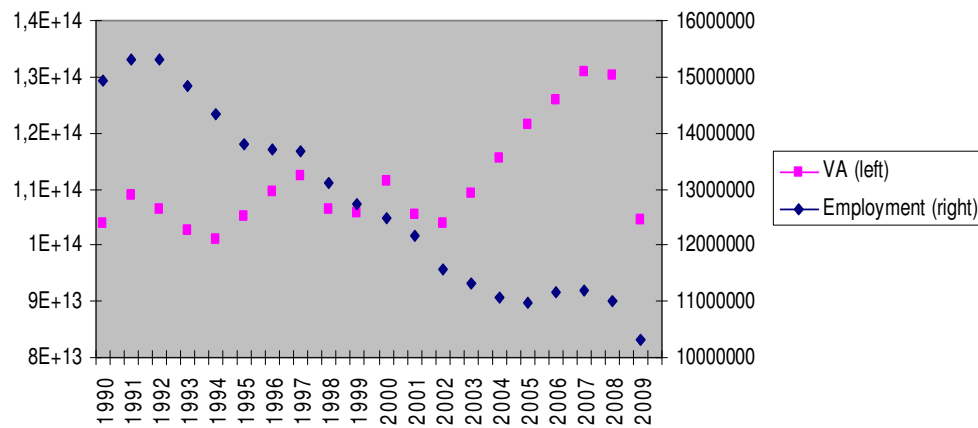


Evolution of the share of manufacturing in total production and employment in Korea (1970-2007)

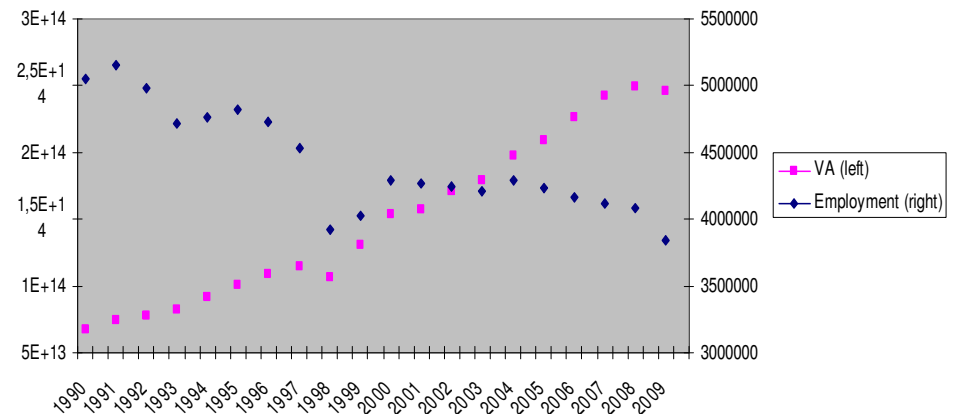


Evolution in absolute terms – VA & Employment (1990-2010)

Evolution of manufacturing VA and employment in Japan



Evolution of manufacturing VA and employment in Korea



Preliminary conclusion: is deindustrialization an accurate concept to describe industrial dynamics in Japan and Korea??

- Yes!
- **Two different cases (varieties/stages?) of deindustrialization:**
 1. Japan (deindustrialization in terms of employment and production) ≠ Korea (deindustrialization in terms of employment only but more dramatically)
 2. ≠ timing certainly because of ≠ levels of development
 3. K is catching up rapidly...also in terms of deindustrialization (from late industrialization to rapid deindustrialization?)
 4. J's deindustrialization seems to be correlated to business cycles
 5. In terms of absolute numbers, ≠ are less remarkable

Comparing deindustrialization in Japan and Korea – to do list...

- Comparing the contribution of “domestic” (demand and productivity differentials between manufacturing and services) and “international” (“hollowing out”)
- In particular, assessing the differences in terms of industrial specialization, the impact of China’s rise, and the strategies of J and K multinationals (FDI, fragmentation of the production, etc.) in various sectors
- Analyzing the counterpart of the evolution of manufacturing on the service sector side (K≠J)

Do we have to worry about it?

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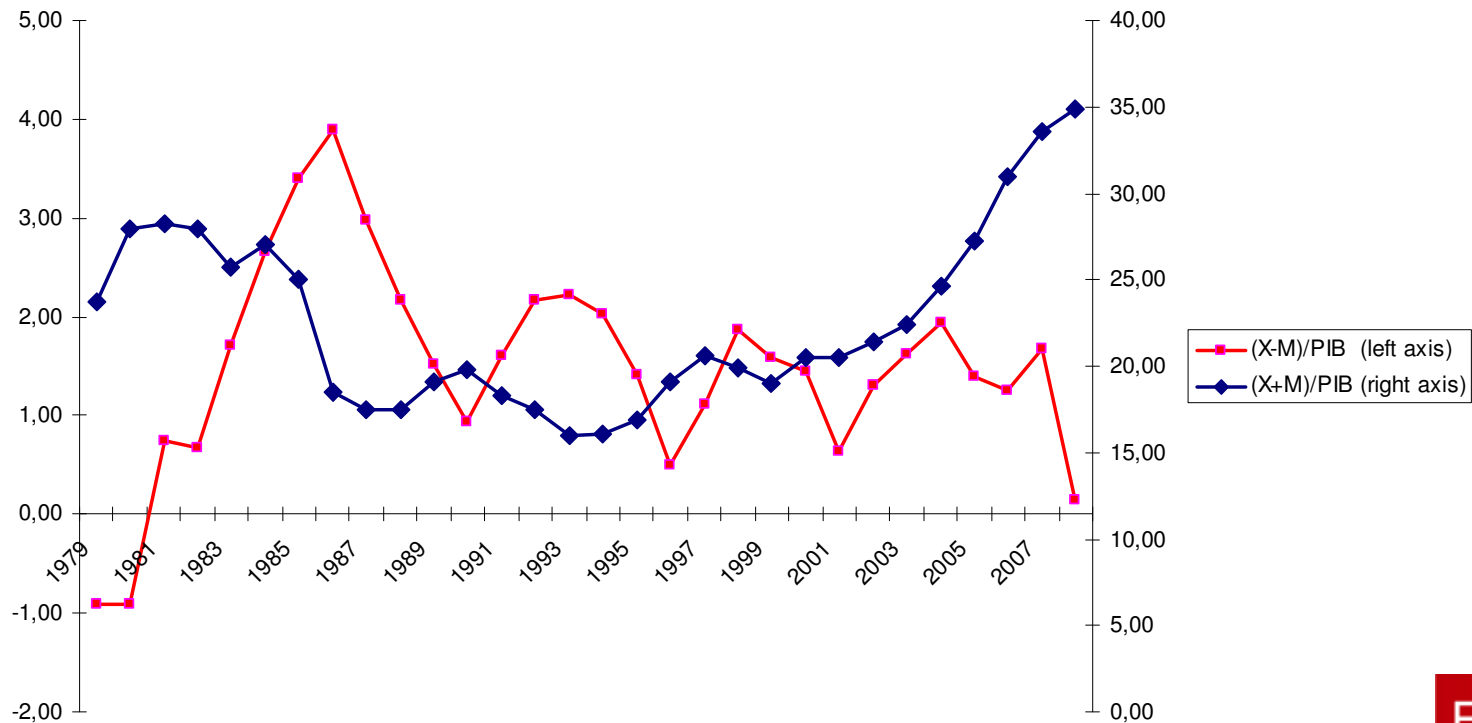
Some principles

- Going beyond citizens or politicians' views...
- What can we learn from economics?
 1. Analyzing the causes of deindustrialization
 2. Analyzing its various consequences

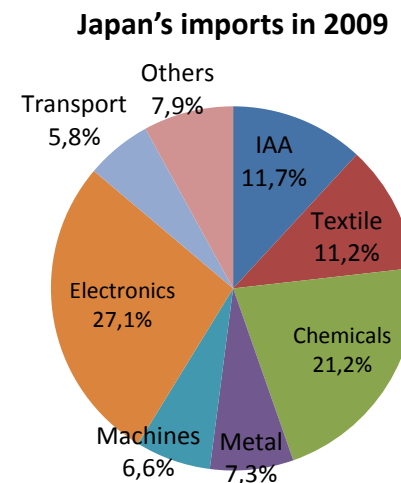
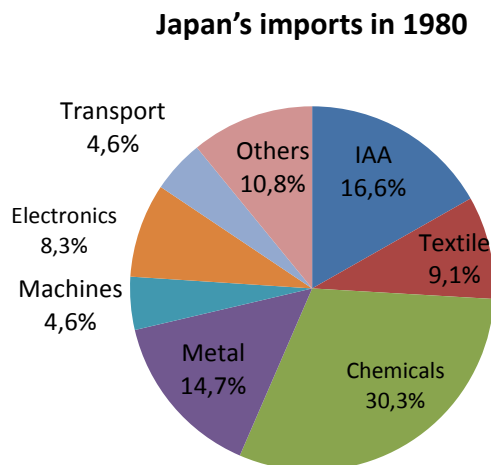
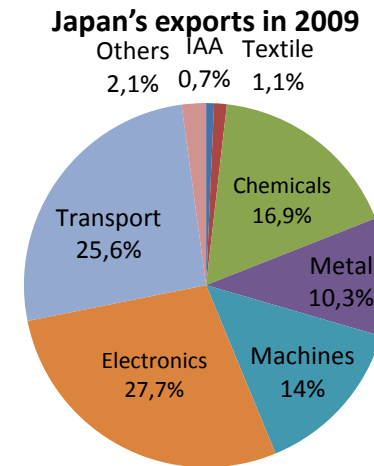
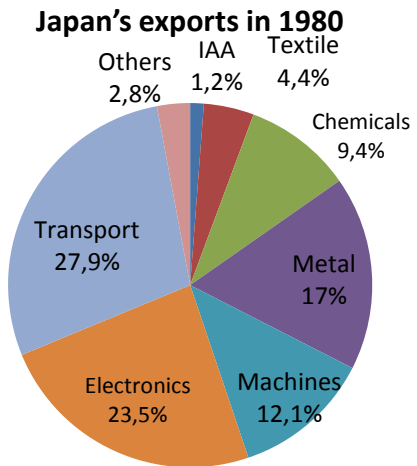
Do we have to worry about deindustrialization? (1/2): causes

- It fundamentally depends on the **causes** at work:
 1. **No worry** if the driving force is domestic (very success of a growth strategy: high productivity gains in manufacturing)
 2. **Worry** if it is the consequence of a lack of competitiveness
- Analyzing the causes of deindustrialization and the contribution of each of them is of crucial importance

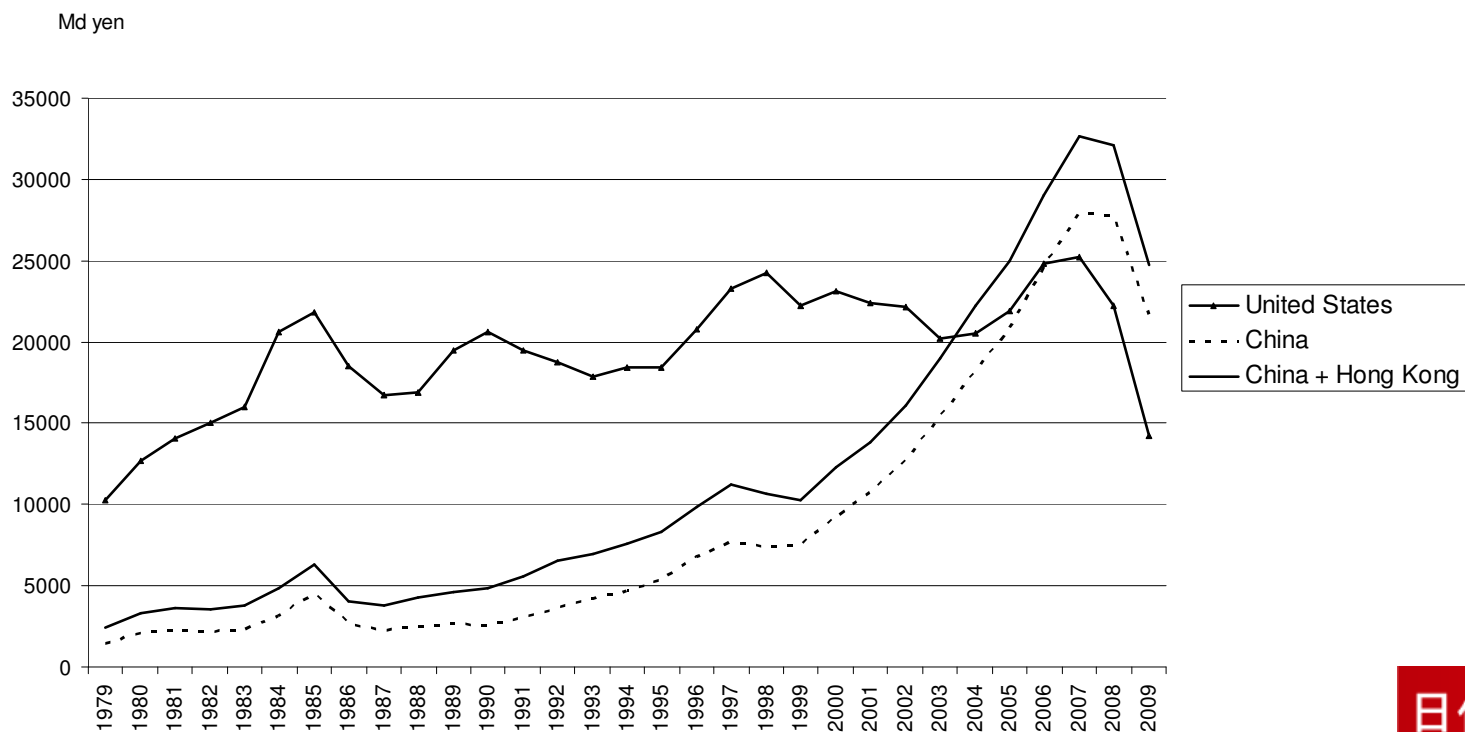
Evolving trade balance and participation to international trade: any sign of losing competitiveness?



Evolution of Japan's trade structure in 1980 & 2009 (OECD)



China overcame the US to become the Number 1 trade partner of Japan (X+M)



The positive but heterogeneous impact of trade with China on the Japanese economy (Fukuda, 2010)

- Previous literature: the rise of China has a differentiated impact in Asia, depending on the level of development (+ in Japan and NIEs, - in less developed countries)
- This paper: the impact is heterogeneous in Japan, depending on the sectors and the size of the firms:
 1. By industry: strong impact in general machinery, electronics, iron & steel, weak in labor intensive industries (e.g. plastic products, fabricated metals) and industries with standardized technology (chemicals, ceramics, stone and clay products)
 2. Much smaller impact for small firms, including in general mac

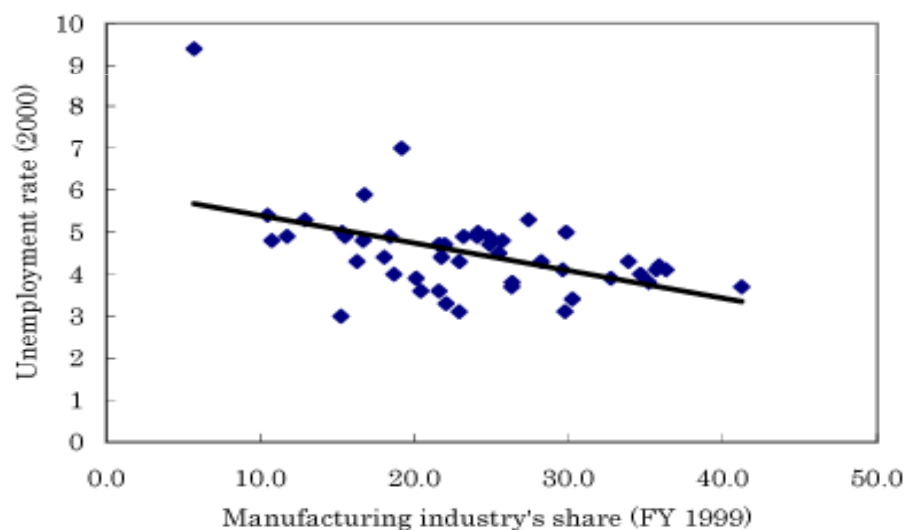
Do we have to worry about deindustrialization? (2/2): consequences

- Whatever the causes, another concern is the impact of deindustrialization at the macro and regional levels:
 1. Potential growth of post-industrial economies
 2. Labor market and welfare issues (see for example Palier B. et al. (2012), *The Age of Dualization: The Changing Face of Inequality in Deindustrializing Societies*, Oxford University Press): employment (can the growth of the service sector counterbalance the effects of deindustrialization?), type of labor contracts, and wages (level and inequalities)
 3. Loss of skills and “savoir-faire”
 4. Unbalanced regional development

Correlation between the share of manufacturing in total employment and unemployment rate in Japan

Source: Annual Report on the Japanese economy and public finance 2001-2002

Figure 3-1-15 Manufacturing Industry's Share and Unemployment Rate



Sources: "Prefectural Accounts," Cabinet Office; "National Census," Ministry of Public Management, Home Affairs, Posts and Telecommunications

Any relevant public policies?

Revisiting industrial policies: the J & K contributions

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Starting with a personal impression

- After a spread general mistrust towards industrial policy in the 1980s-1990s, one observed a relative revival during the last decade (Rodrik, 2008; Aghion, 2009; Stiglitz...)
- Some limitations:
 1. Basically a tentative synthesis between analyses of market failures and government failures
 2. Very conventional statements

Example 1: “nurturing entrepreneurship”. Problem: systematic failures of attempts to create Silicon Valley in F, J or K

Example 2: “reconciling competition and industrial policies”: preparing for market environment from which a national champion emerges through natural selection process. Problem: no guarantee that the selection process effectively functions

What we can learn from J & K experiences

- Do not idealize the successes of industrial policies in these two countries...
 - Evaluating systematically with different methodologies (e.g. in using patent data: Lechevalier et al., 2010)
- Do not expect too much from the sole innovation policy: innovation is a necessity (differentiation, industrial specialization) that may have negative side effects from the viewpoint of deindustrialization (manuf./non manuf. productivity gap)
 - Better integrating various types of policies: innovation, trade, institutional and business-environment type

Towards more substantial development of industrial policy? (1/3)

- **Towards new requirements in the design of industrial policies:**
 1. Well identifying the nature of the problem before implementing any policy (e.g. causes of deindustrialization)
 2. Defining broad objectives (balancing economic growth and economic structure, searching for new sources of growth, promoting the transition to green growth) and criteria (employment, trade balance, etc.)

Towards more substantial development of industrial policy? (2/3)

- **Rethinking industrial policy in a globalized world =** defining the position of a national economy in the evolving international division of labor:
 1. Beyond “made in” policies in a era of global value chains...
 2. ...but globalization does not necessarily mean the absence of degree of liberty for industrial policy
 3. Towards a new definition of comparative advantage based on the social and institutional environments
 4. Efforts to specialize in products with specific-investment inputs (less fragmentation, less off shoring is expected)

Towards more substantial development of industrial policy? (3/3)

- **Learning from the past and exploring new practices:**
 1. Towards a better integration of manufacturing and service, for example in promoting manufacturing industries with a higher content of services = source of VA and of differentiation (Korean case: Jang, 2012)
- **Rediscovering the necessity of (private and public) coordination :**
 1. In order to reduce the gap among firms (increasing heterogeneity of firms: Dosi et al., 2010) and between the micro and the macro level (increasing gap between multinational companies and national economies: e.g. most productive firms move abroad)
 2. In order to define a common vision among (private and public) players

Conclusions

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To sum-up

- Deindustrialization: a useful concept...that requires discussion to take into account various experiences (beyond the classical UK and US cases)
- Interest of looking at Japan and Korea
 1. Looking at the “Chinese issue” with “new eyes”
 2. Varieties of deindustrialization
 3. Despite significant differences, these two cases are comparable with the European cases and we can learn from them: revisiting and enriching discussion in Europe about the future of manufacturing, competitiveness, innovation, industrial specialization, etc.
 4. Beyond idealized images, looking at the reality with first-hand materials

Deindustrialization, revisited

- A revival of the analysis of deindustrialization is required to discuss:
 1. The varieties of experiences (and the similarities within a global trend), including developing economies
 2. A potentially new trend since the early 2000s (e.g., former studies did not find any large North-South trade impact, but it may have changed more recently with the rise of China)
 3. Other mechanisms than the ones “traditionally” analyzed (e.g. the extent of outsourcing and fragmentation of production, the role of innovation)
 4. The potential role of public policies, in interaction with private strategies in a globalized environment

Thank you for your attention

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Our own contribution

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- Special issue of *Research policy* (2013, forthcoming): “The path-dependent dynamics of emergence and evolution of new industries”, edited by J. Krafft, S. Lechevalier, F. Quatraro & C. Storz (based on a 2010 BRICK-GREDEG-EHESS-Goethe U conference at Collegio Carlo Alberto in Torino)

Appendices

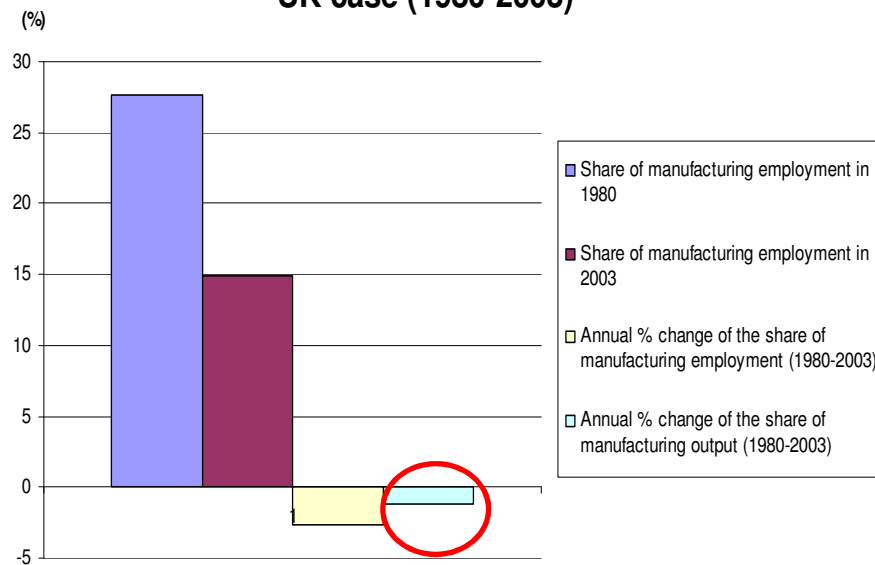
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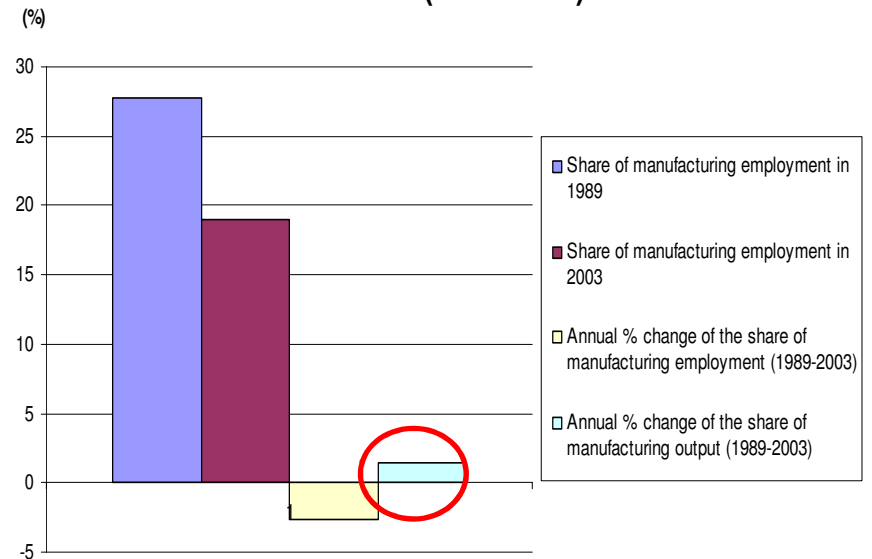
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Additional note: comparing deindustrialization in the UK and in Korea (Tregenna, 2009)

UK case (1980-2003)



Korea case (1989-2003)



Why the analysis of the csq of deindustrialization matters the US-UK revisited (Rowthorn & Coutts, 2004)

- Similarities: in both countries good economic performance from the 1990s has been accompanied by a prolonged and massive fall in the employment share of manufacturing.
- Differences:
 1. Strength of the US manufacturing sector ≠ perennial difficulty in the UK;
 2. Despite this, UK external position taken as a whole (balance of payment) is stronger;
 3. General comment: a worsening in the manufacturing trade balance is not so important; what matters is the overall balance of payments (manufactures + all currents expenditures and receipts for food, material, fuel, services, transfers and property income, etc.) Any loss of net revenue in manufacturing trade can in principle be compensated by additional net revenue from these other items (=British case ≠ the USA that has not yet developed new sources of income to offset its worsening trade balance in manufactures → This situation is not sustainable in the long run);
 4. Until the early 2000 recession, productivity growth in American manufacturing served mainly to increase output, whereas in Britain it served mainly to reduce employ