

# **Structural Transformation and the Deterioration of European Labor Market Outcomes**

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# Background

- **FACT**

Labor market outcomes in Europe have deteriorated relative to those in the US.

- **MEASURING DETERIORATION**

Traditional: Based on *unemployment*

Modern: Based on *employment* (labor input)

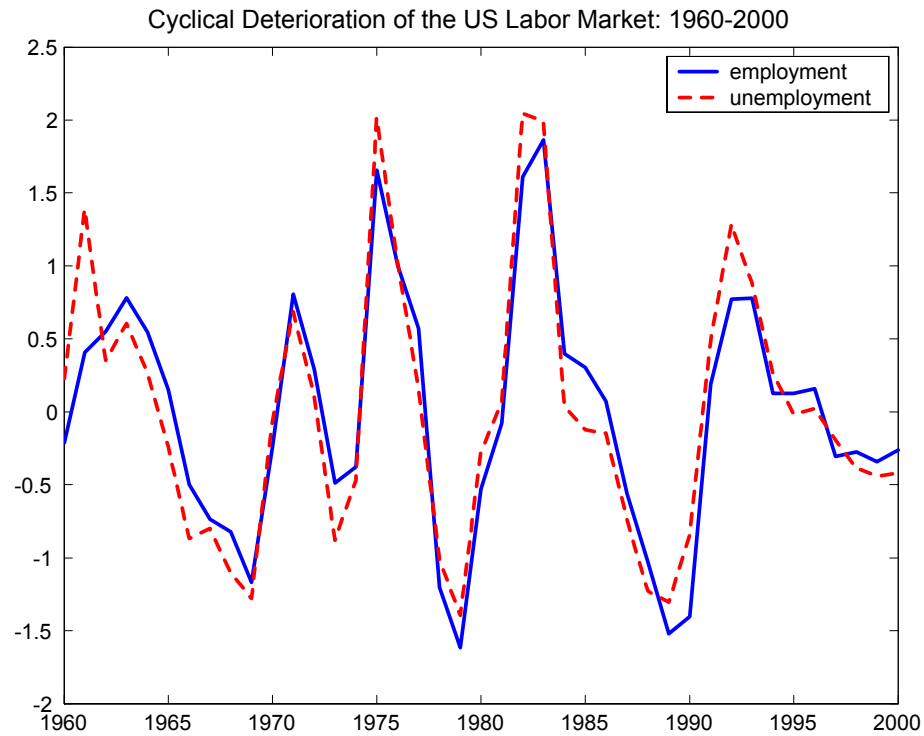
## *Why Employment?*

- Primary interest is resource allocations
- Standard framework is the growth model
- Key variables are  $y$ ,  $c$ ,  $i$ ,  $k$ , and  $h$ .

## *.....But Does it Matter?*

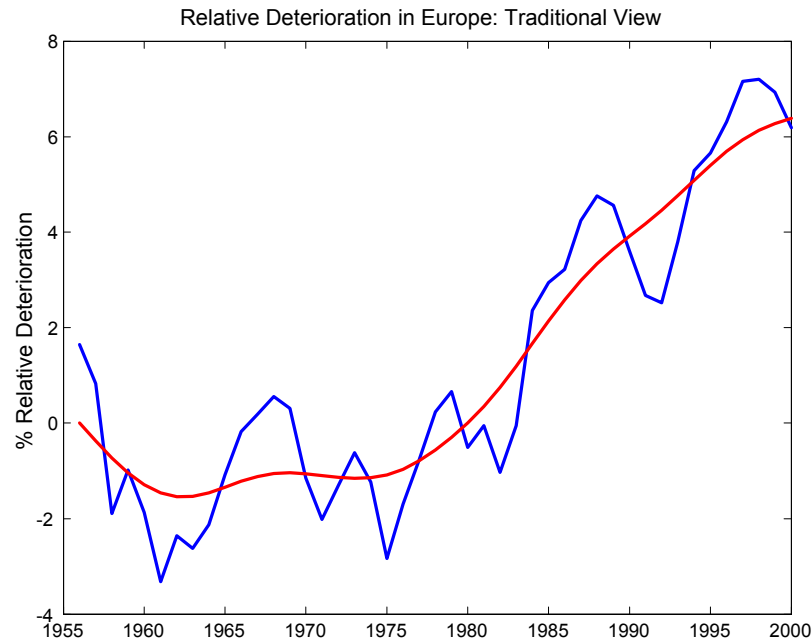
- **Depends on context:**
- For studying business cycles— Answer is *No*
- For studying European deterioration—Answer is *Yes*

# Business Cycle Context



# European Context

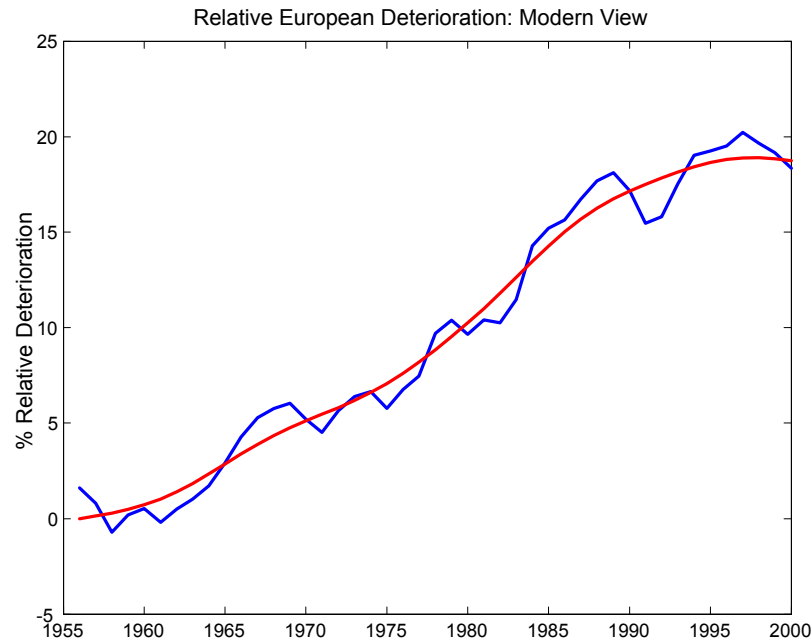
- **Data**  
OECD, 1956-2000
- **Countries**  
(France+Germany+Italy) vs. US
- **Variables**  
Unemployment Rate, Employment Rate  
Employment Rate is relative to Pop 15-64



**Timing:** Early-mid 1970's

**Magnitude:** 6%

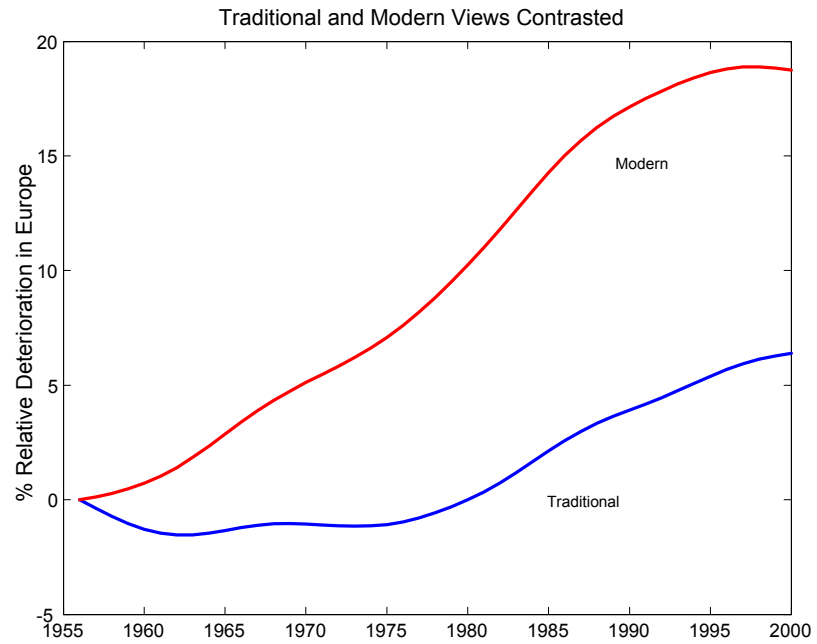
**Concentrated:** Yes. 2/3 occurs in 10 years



**Timing:** Mid 1950's (or earlier)

**Magnitude:** 18%

**Concentrated:** No. Less than 40% in any 10 yr period



Timing, magnitude and concentration all differ greatly

# Directions for Research

Given deterioration in employment rates there are two natural questions:

1. Who is working less?
2. What work is not being done?

Today I focus on question #2 and look at employment rates across three broad sectors: Agriculture, Industry and Services.

## *Sectoral View on Deterioration*

<b>Absolute Levels</b>	
Sector	% Deterioration
Agriculture	10.7
Industry	2.2
Services	6.1

**Conclusion:** 2/3 is Ag+Ind

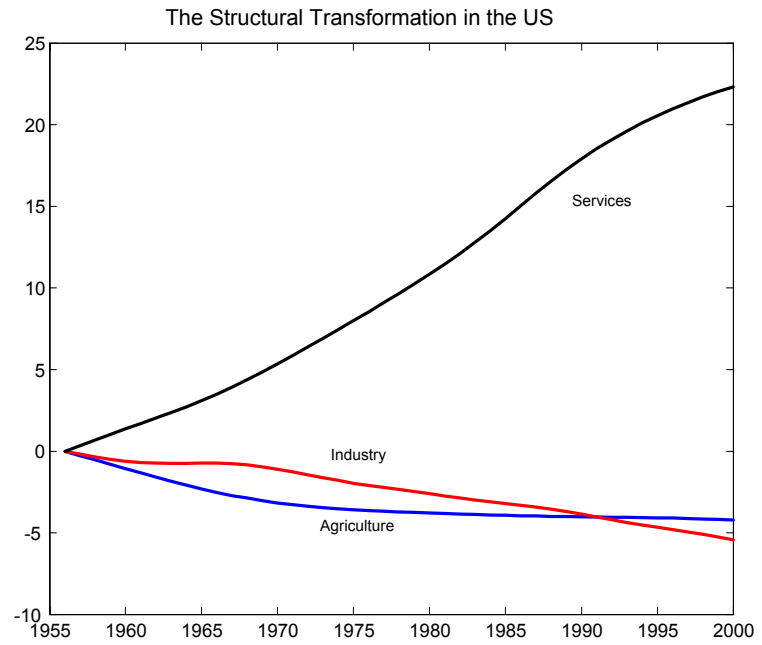
## *Sectoral View on Deterioration*

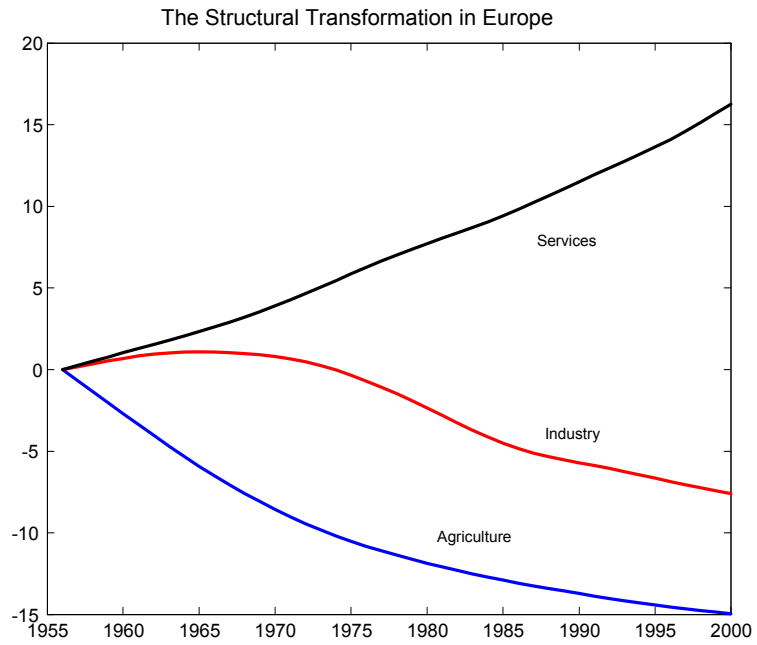
<b>Relative Levels</b>	
<b>Sector</b>	<b>% Deterioration</b>
Agriculture	160.3
Industry	8.0
Services	-1.0

**Conclusion:** It is all Ag+Ind

## Role of Structural Transformation

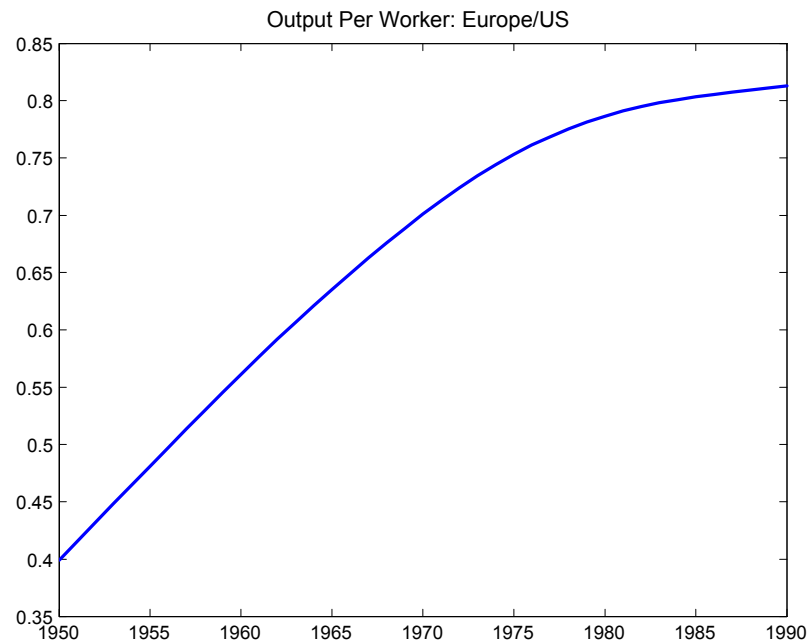
- At low levels of Y/N:  $Y/N \uparrow \Rightarrow Ag \downarrow$  Ind $\uparrow$  and Ser $\uparrow$
- At higher levels of Y/N:  $Y/N \uparrow \Rightarrow Ag \downarrow$  Ind $\downarrow$  and Ser $\uparrow$





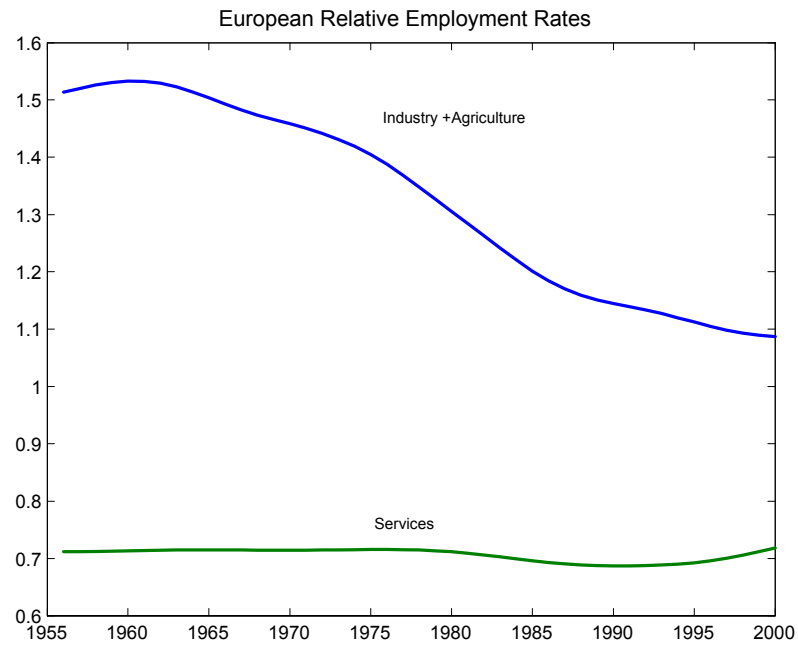
## Key Point:

In 1956 Europe lags the US in terms of  $Y/N$  but largely closes the gap by 2000



**Implication:** European structural transformation should lag in 1956 and largely closed the gap by 2000.

# What's wrong with this picture?



**Answer:** *It's the service sector!*

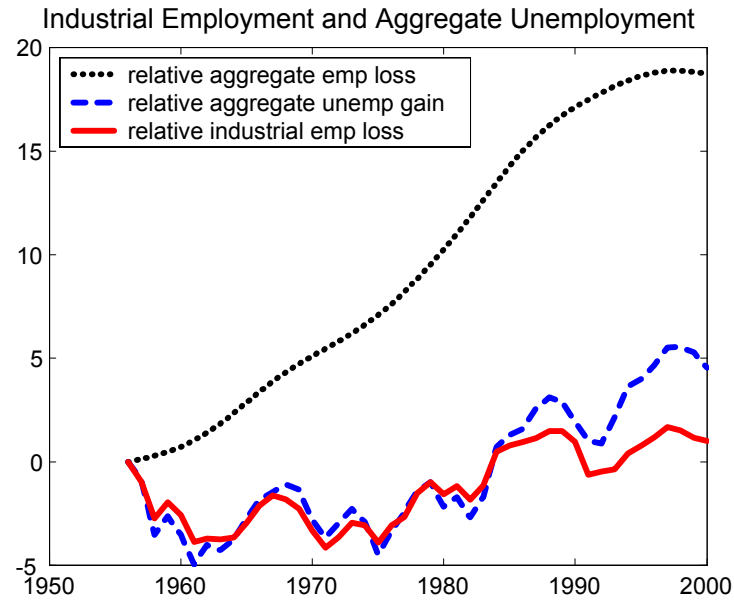
**Trend Employment Rates in 2000**

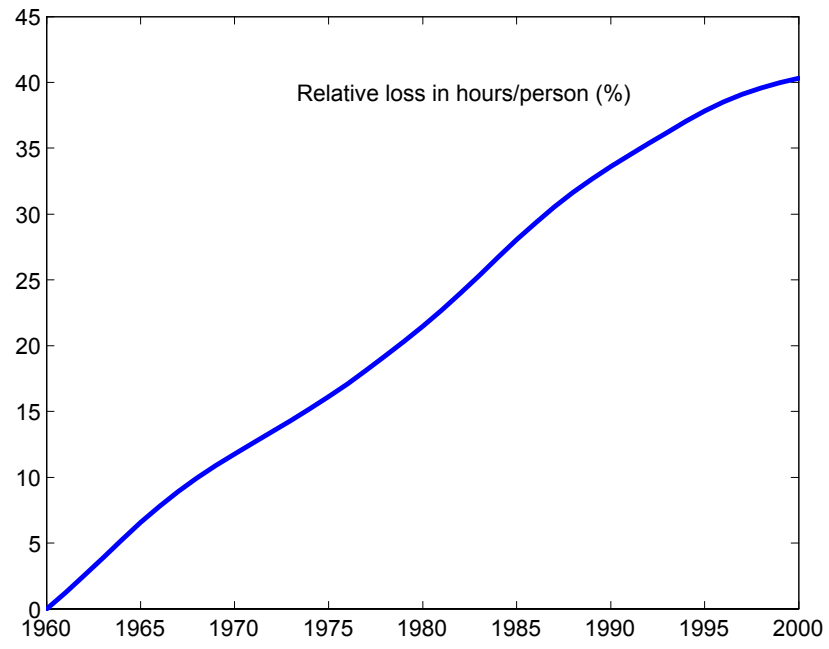
Sector	Europe	U.S.
Agriculture	2.3	1.9
Industry	17.9	16.8
Services	39.4	54.9

**Fundamental question to be answered in this literature:**

Why does Europe continue to devote so much less time to the production of market services than the US?

# Relationship between employment in industry and unemployment.





## *Answering the Question—A Time Allocation Approach*

Two simple observations serve as motivation:

- Evolution of time allocations differ between the US and Europe
- With common preferences, private returns across activities are a key driving force behind time allocations

## Two Types of Questions of Interest:

1. How do specific policies, regulations, institutions affect the private rates of return across activities and hence the time allocation across activities?
2. What aggregate evolutions of private returns across activities are required to account for the observed differences in time allocations.

I take a first step toward answering Question #2

## Minimalist Model of Time Allocation

- structural transformation generated by technological progress interacting with nonhomothetic preferences
- private returns across activities differ across countries
- market services have good nonmarket substitutes

I ask what patterns of returns across activities can produce the observed patterns in time allocations

## Results

In 1956 private returns in Europe are:

- 38% less in industry
- 44% less in market services
- 54% less in home services

In 2000 private returns in Europe are:

- 20% less in industry
- 28% less in market services
- 10% less in home services

## Interpretation

- Taxes alone can account for the bulk of gaps in 2000.
- Regulations can plausibly account for the rest.

# Model

**Preferences:**

$$\sum_{t=0}^{\infty} \beta^t \{a \log(C_t) + (1 - a) \log(L_t) + G(A_t)\}$$

$$\begin{aligned} G(A_t) &= \min\{A_t, \bar{a}\} \text{ if } A_t \geq \bar{a} \\ &= -\infty \text{ if } A_t < \bar{a} \end{aligned}$$

$$C_t = C(M_t, S_t) = [a_c(M_t - \bar{m})^{\varepsilon_c} + (1 - a_c)(S_t + \bar{s})^{\varepsilon_c}]^{1/\varepsilon_c}$$

$$S_t = [a_s S_{mt}^{\varepsilon_s} + (1 - a_s) S_{nt}^{\varepsilon_s}]^{1/\varepsilon_s}$$

# Technology

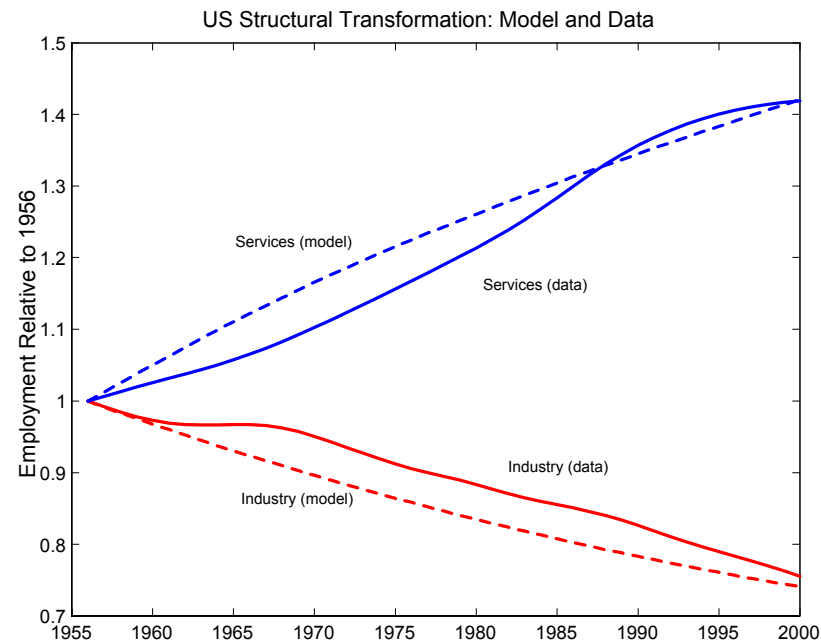
$$M_t = \theta_{mt} h_{mt}$$

$$A_t = \theta_{at} h_{at}$$

$$S_{it} = \theta_{sit} h_{sit}, \quad i = m, n$$

## Calibration Strategy:

- Calibrate to match US structural transformation. I assume constant (but possibly different) growth rates for industry and both services.



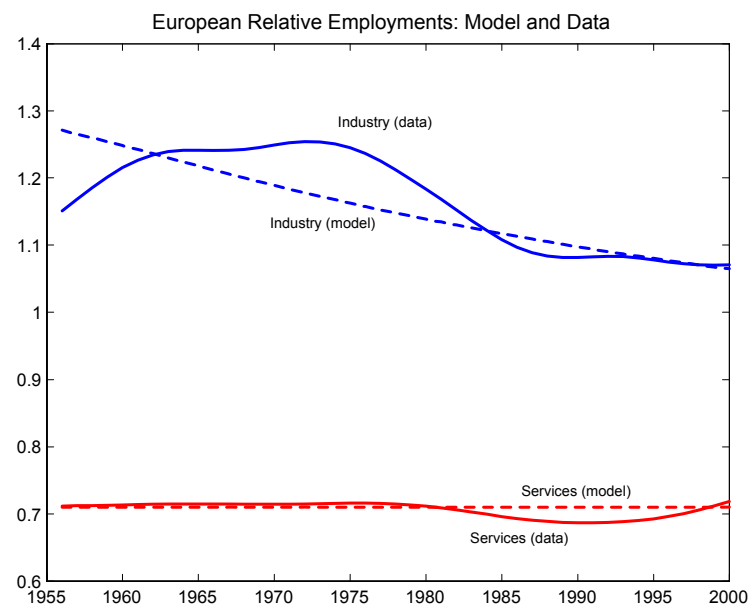
Implication: market service productivity grows faster than home service productivity

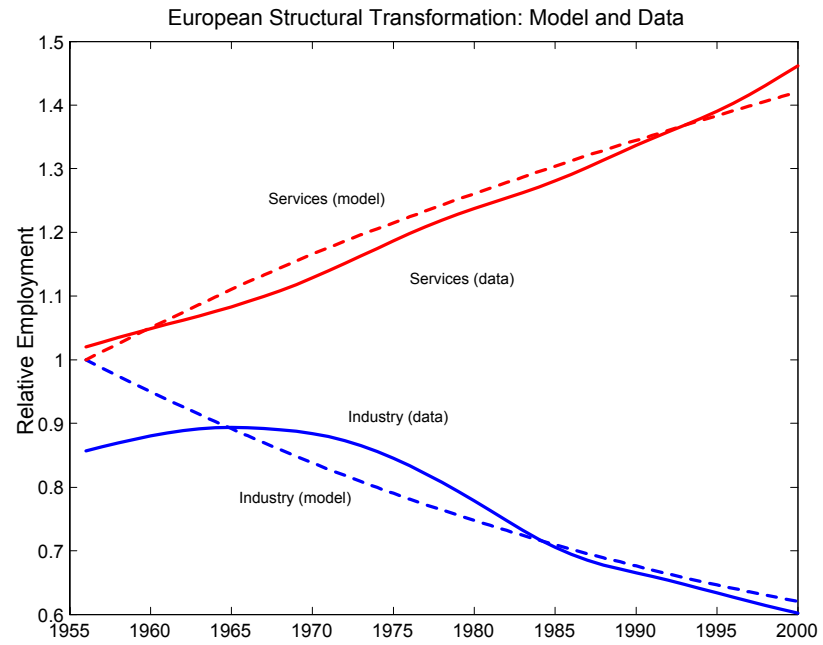
## **Application to Europe**

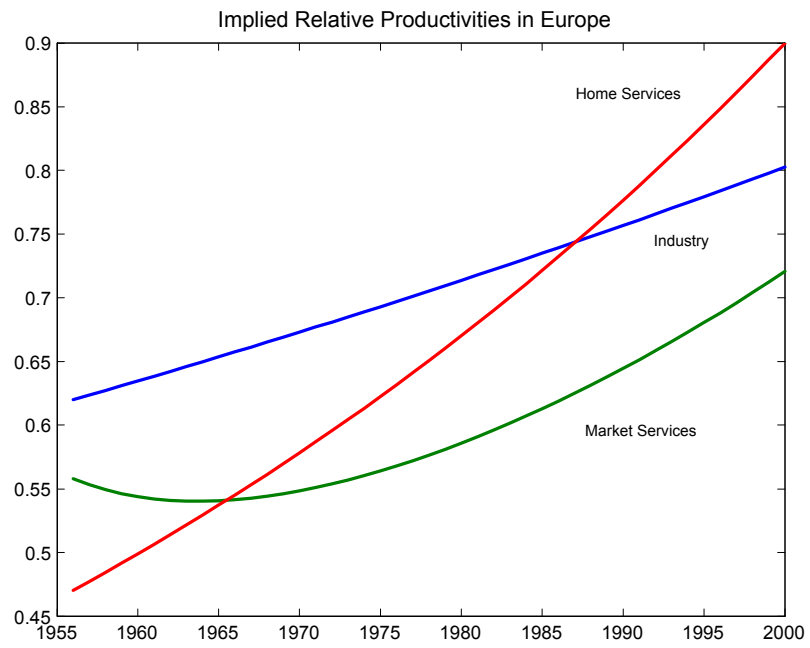
Issue: Determine what productivity profiles are required to generate the actual relative employment rates for Europe.

Key steps:

- 1.** Determine European lag in 1956 so as to match relative European starting point in 1956 (.62)
- 2.** Determine how much catch up is required in industry to account for change in relative industry employment (.62 → .80)
- 3.** Assume a given degree of convergence in home service productivity (.9)
- 4.** Calculate required profile for market service productivity







## Conclusions

- Deterioration begins in mid 1950's
- Deterioration continues through the mid 1990's
- Service sector is key
- Need to focus on time allocation
- Two elements are key:
  1. Factors that affect private returns
  2. Substitution possibilities across activities

