

# **Why do growth rates differ: The case of Ireland and Greece**

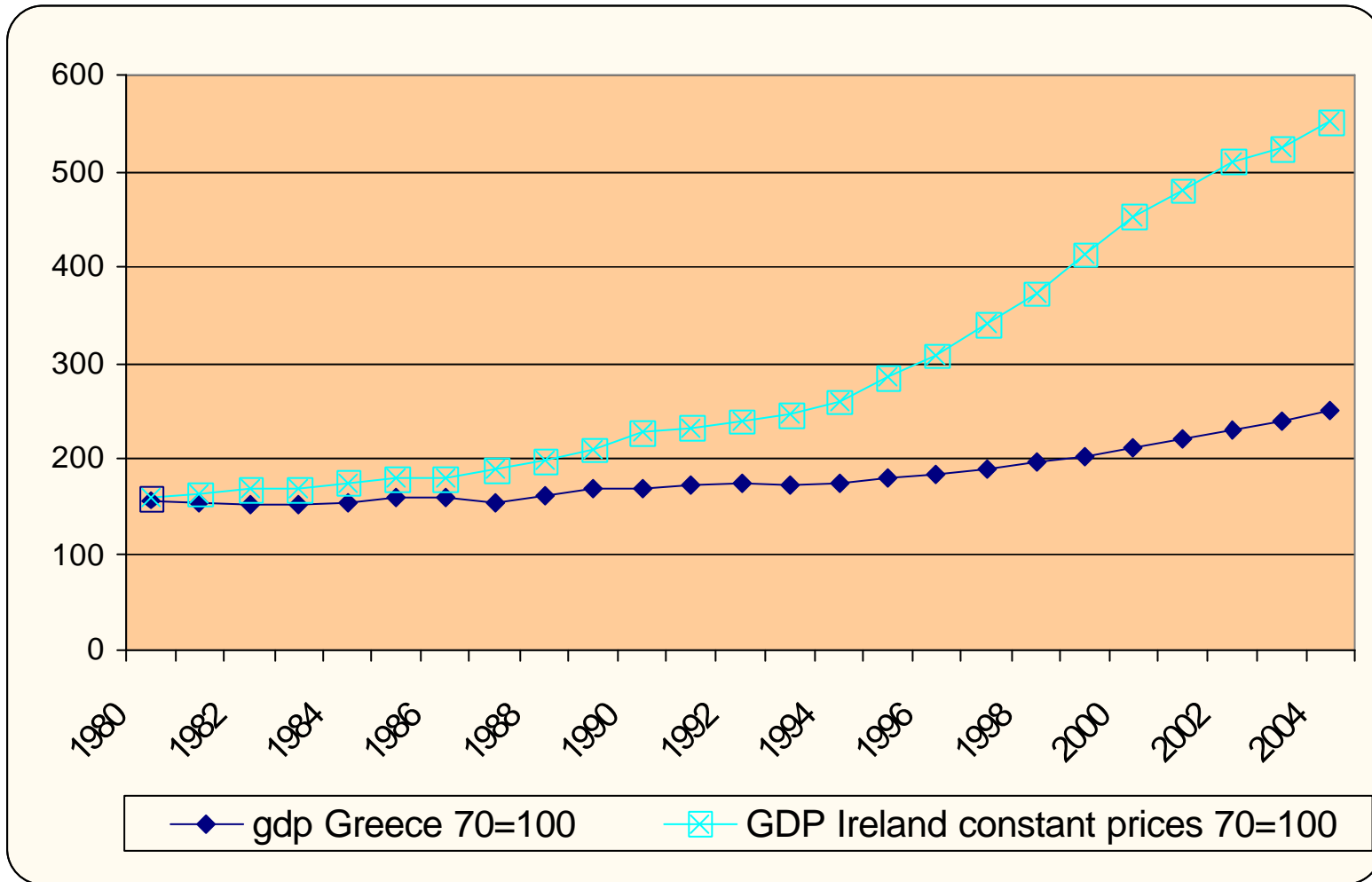
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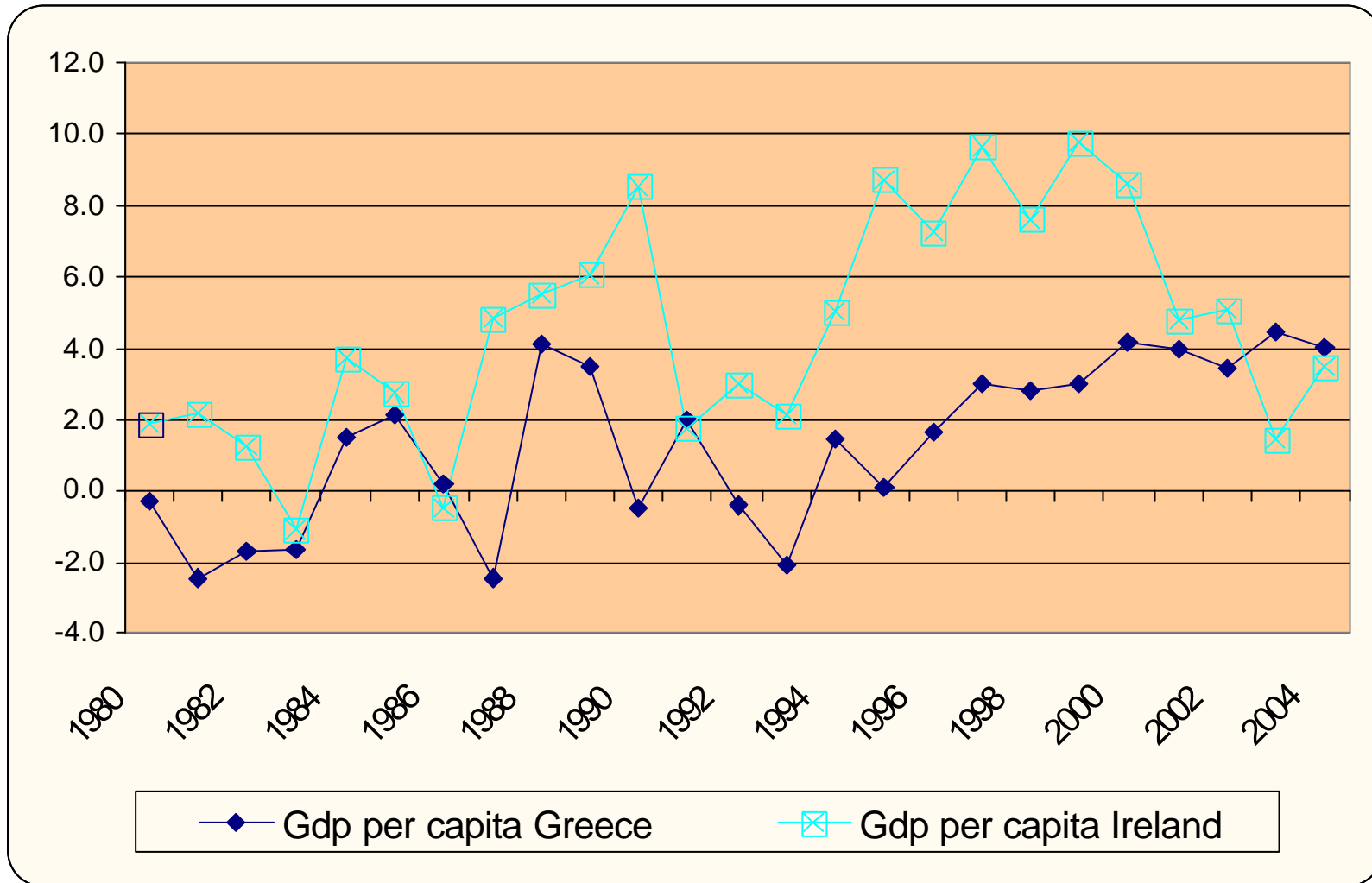
## Ingredients of growth

- Physical Capital
- Human Capital
- Productivity
- Labour Utilization

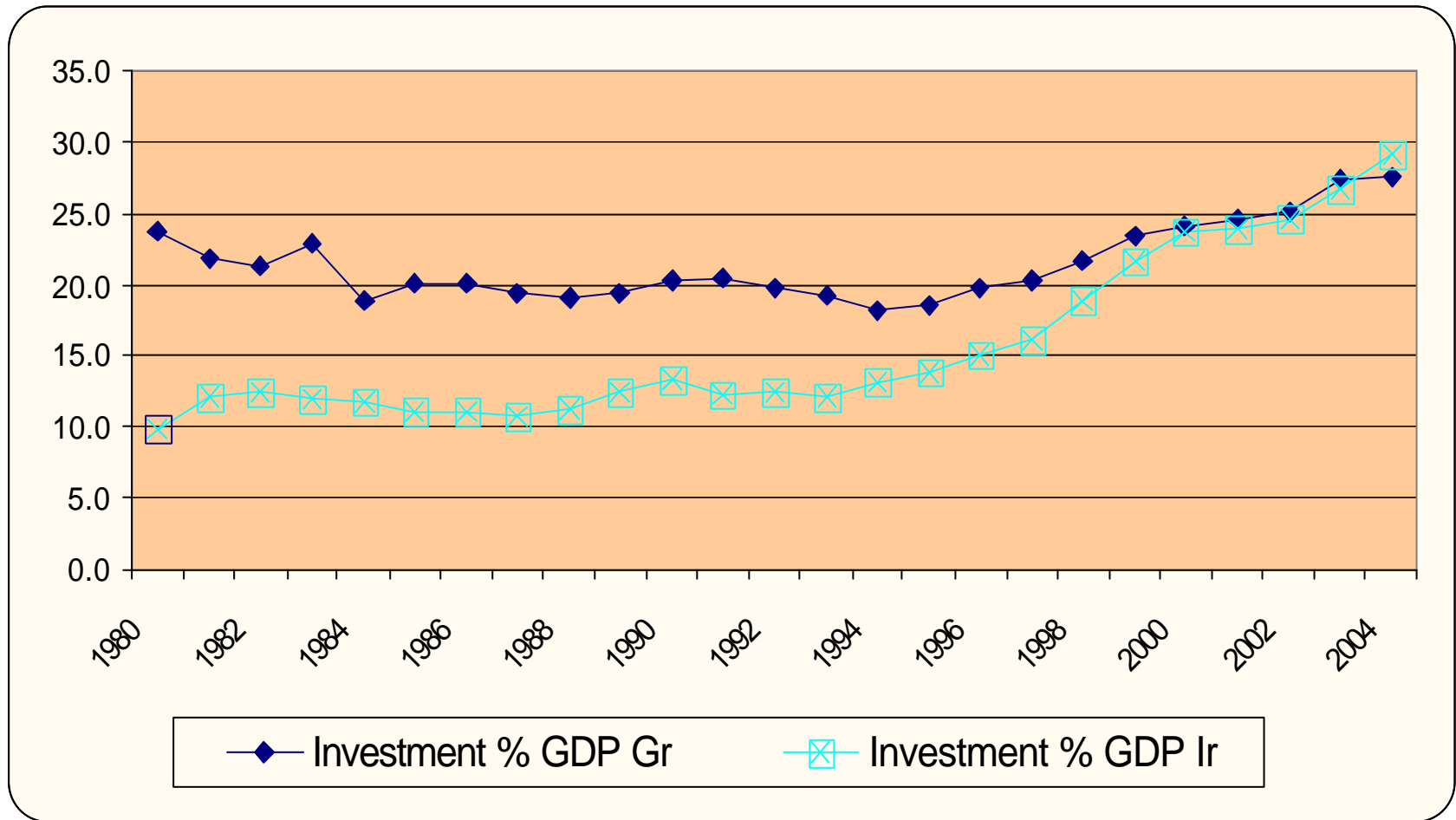
# GDP index



## GDP per capita rate of growth



# Investment as % of GDP



**Trends in educational attainment of the 25 to 64 years old population (1991-2002)**  
**Percentage that has attained upper secondary non-tertiary and tertiary education**

|   |   | 1991 | 1995 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|------|------|------|------|------|------|------|
| <b>Ireland</b>                          | Below upper secondary                           | 60   | 53   | 49   | 45   | 43   | 41   | 40   |
|   | Upper secondary and post-secondary non-tertiary | 24   | 27   | 30   | 35   | 36   | 35   | 35   |
|   | Tertiary education                              | 16   | 20   | 21   | 20   | 22   | 24   | 25   |
| <b>Greece</b>                           | Below upper secondary                           | 64   | 57   | 53   | 50   | 49   | 49   | 47   |
|   | Upper secondary and post-secondary non-tertiary | 24   | 25   | 31   | 32   | 33   | 34   | 35   |
|   | Tertiary education                              | 12   | 17   | 17   | 17   | 18   | 18.3 | 18.6 |
| Source: OECD Education at a glance 2004 |   |      |      |      |      |      |      |      |

**Rates of labour force participation by level of educational attainment  
for the population 25 to 64 years of age**

**1994**

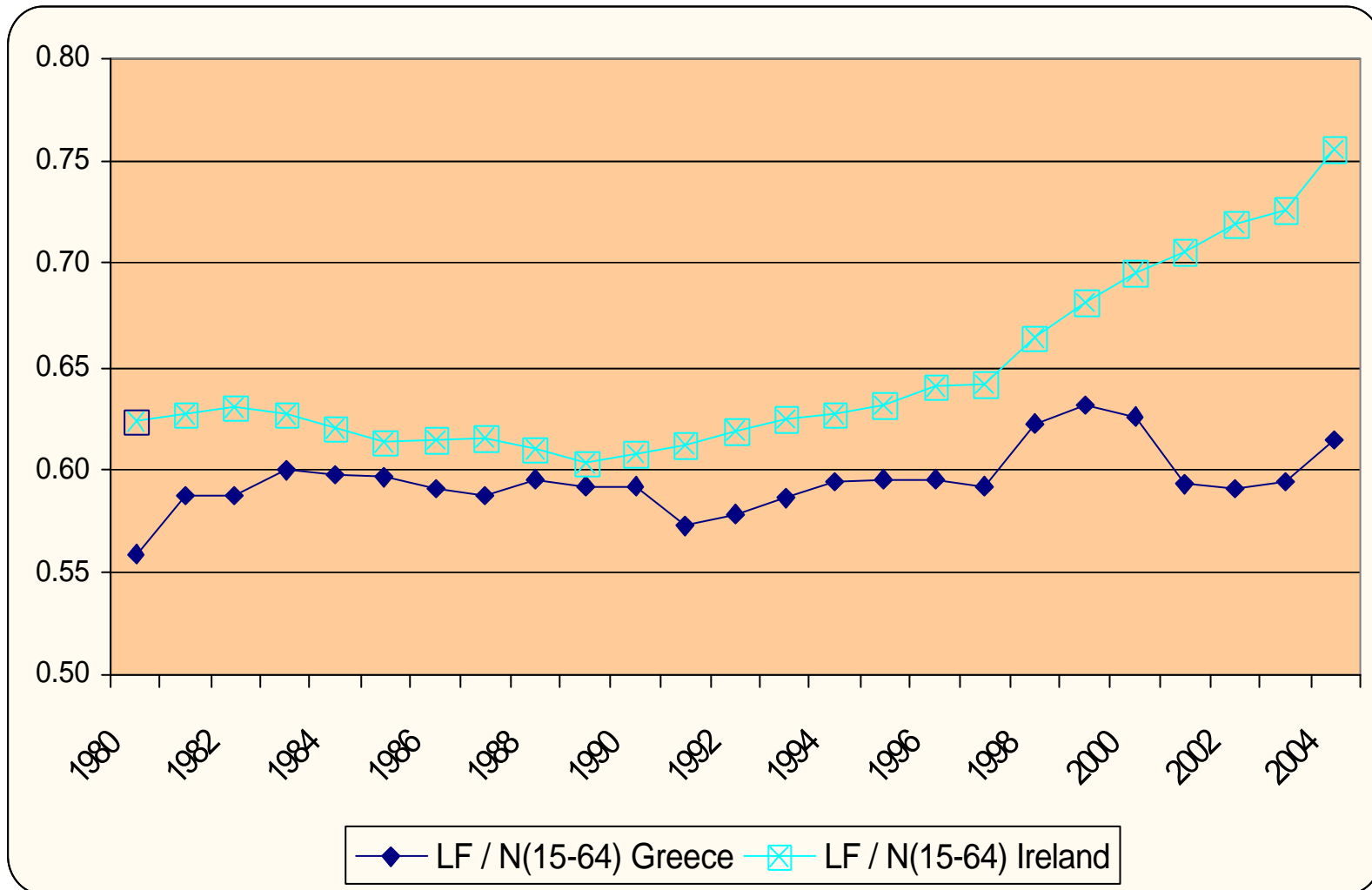
|   | Early childhood,<br>primary and<br>lower secondary<br>education | Upper<br>secondary<br>education | Non-university<br>tertiary education | University-level education |
|---|---|---------------------------------|--------------------------------------|----------------------------|
| <b>Greece</b>                             | 62  | 67                              | 84                                   | 87                         |
| <b>Ireland</b>                            | 58  | 73                              | 85                                   | 89                         |
| Source: OECD, Education at a glance, 1996 |   |                                 |                                      |                            |

**2002**

|                | Less than<br>upper<br>secondary<br>education | Upper<br>secondary<br>education | Tertiary education |
|----------------|--|---------------------------------|--------------------|
| <b>Greece</b>  | 60.3   | 72.6                            | 86.3               |
| <b>Ireland</b> | 60.5   | 79.3                            | 88.2               |

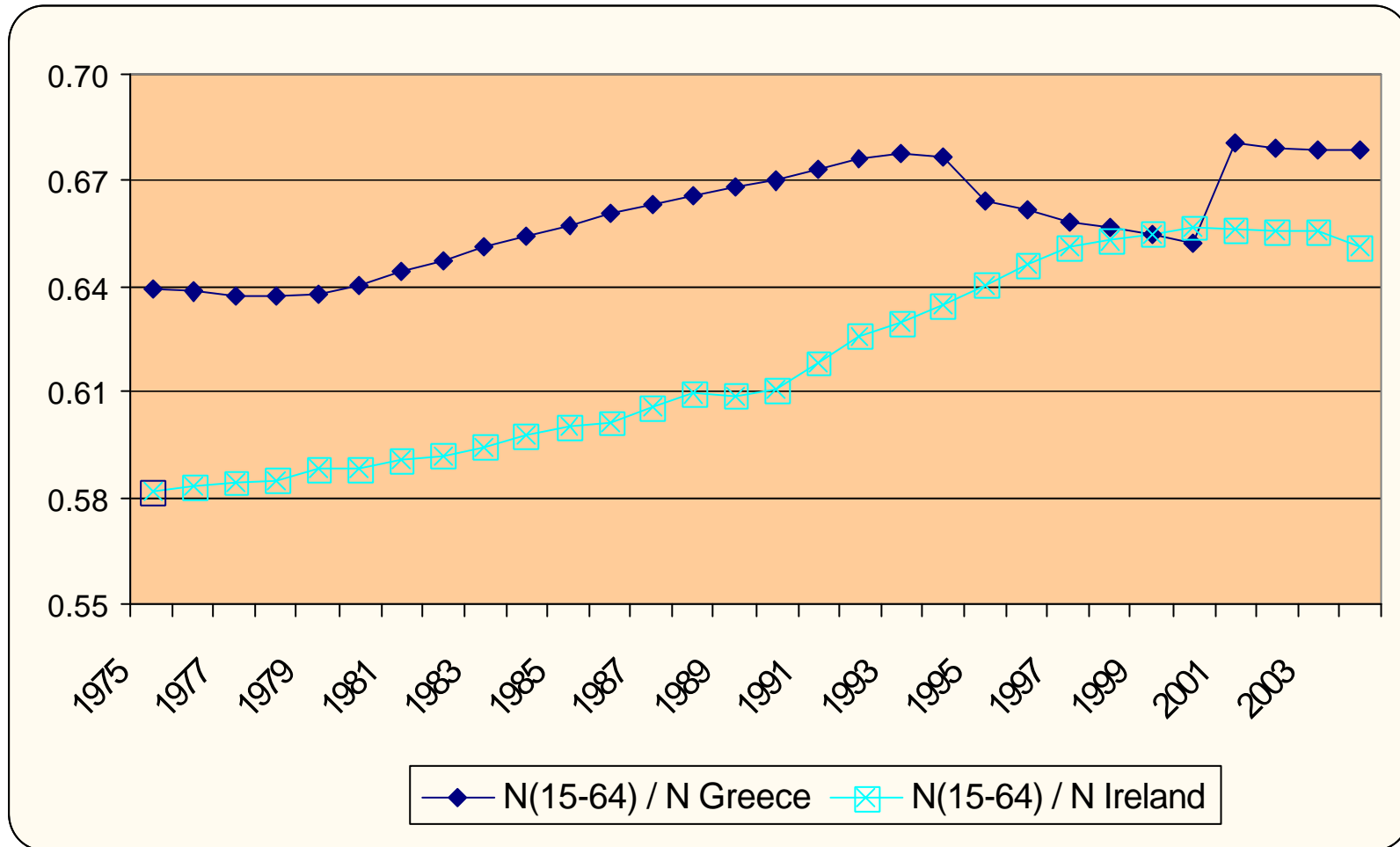
Source: OECD, Employment outlook , 2003

## Participation rates





## Inverse dependency rates



| <b>Production Structure relative to USA</b> |   |             |             |
|---|---|-------------|-------------|
|   |   | <b>1991</b> | <b>2002</b> |
| <b>Greece</b>                               | <b>GDP per worker relative to USA</b>           | 0.450       | 0.429       |
|   | <b>Capital per worker relative to USA</b>       | 0.628       | 0.586       |
|   | <b>Human capital per worker relative to USA</b> | 0.792       | 0.849       |
|   | <b>Factor input relative to USA</b>             | 0.733       | 0.751       |
|   | <b>Productivity relative to USA</b>             | 0.614       | 0.572       |
|   |   |             |             |
| <b>Ireland</b>                              | <b>GDP per worker relative to USA</b>           | 0.700       | 0.904       |
|   | <b>Capital per worker relative to USA</b>       | 0.636       | 0.849       |
|   | <b>Human capital per worker relative to USA</b> | 0.821       | 0.882       |
|   | <b>Factor input relative to USA</b>             | 0.754       | 0.871       |
|   | <b>Productivity relative to USA</b>             | 0.929       | 1.038       |

## Contributions to Growth

|                |                            | 91-97        | 98-02       | 1991-2002   |
|----------------|----------------------------|--------------|-------------|-------------|
| <b>Greece</b>  | Output growth (per capita) | 0.48         | 2.88        | 1.57        |
|                | Physical capital growth    | 1.44         | 3.32        | 2.29        |
|                | Human capital growth       | 1.20         | 0.58        | 0.92        |
|                | <b>Factor growth</b>       | <b>1.28</b>  | <b>1.49</b> | <b>1.38</b> |
|                | <b>Productivity growth</b> | <b>-0.80</b> | <b>1.38</b> | <b>0.19</b> |
|                |                            |              |             |             |
| <b>Ireland</b> | Output growth (per capita) | 4.24         | 4.57        | 4.39        |
|                | Physical capital growth    | 5.83         | 5.44        | 5.65        |
|                | Human capital growth       | 0.86         | 1.02        | 0.93        |
|                | <b>Factor growth</b>       | <b>2.52</b>  | <b>2.49</b> | <b>2.51</b> |
|                | <b>Productivity growth</b> | <b>1.72</b>  | <b>2.08</b> | <b>1.88</b> |

## Greece Multifactor productivity

|                                | 1999 | 2000 | 2001 | 2002 |
|--------------------------------|------|------|------|------|
| <b>Output growth</b>           | 2.0  | 5.4  | 5.3  | 4.0  |
| <b>Physical capital growth</b> | 2.7  | 5.3  | 5.7  | 5.0  |
| <b>Human capital growth</b>    | -0.6 | 1.3  | 1.1  | 0.4  |
| <b>Factor growth</b>           | 0.5  | 2.6  | 2.6  | 2.0  |
| <b>Productivity growth</b>     | 1.5  | 2.7  | 2.6  | 2.0  |

To understand more fully the productive capacity of the economy it is useful to decompose GNP per capita into a number of individual components, namely productivity, employment, participation and dependency, as follows

$$\frac{GNP}{N} = \frac{GNP}{E} \cdot \frac{E}{LF} \cdot \frac{LF}{N_{1564}} \cdot \frac{N_{1564}}{N}$$

**GNP per capita**

**Productivity**

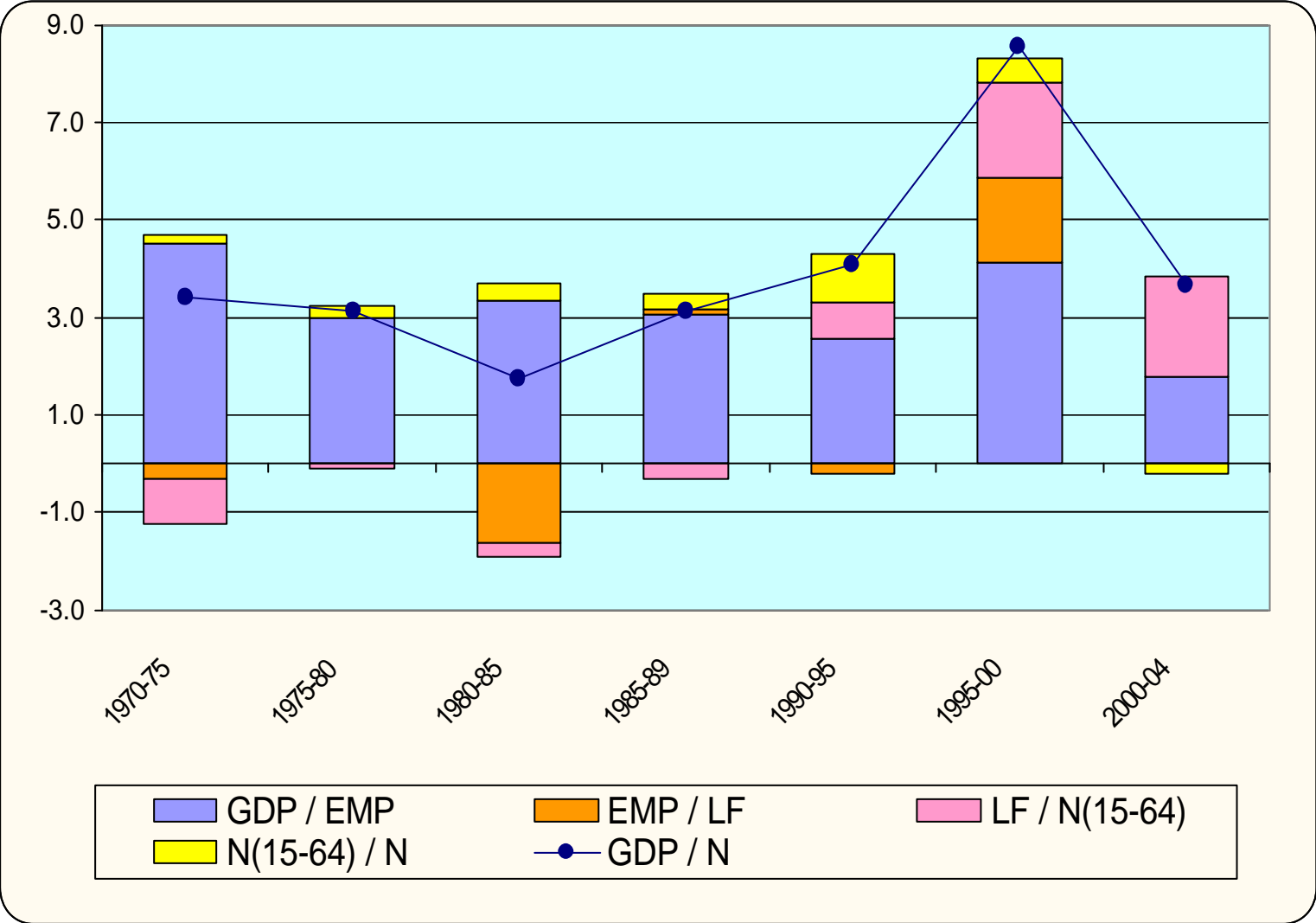
**Employment Rate**

**Participation Rate**

**Inverse Dependency Ratio 15-64**

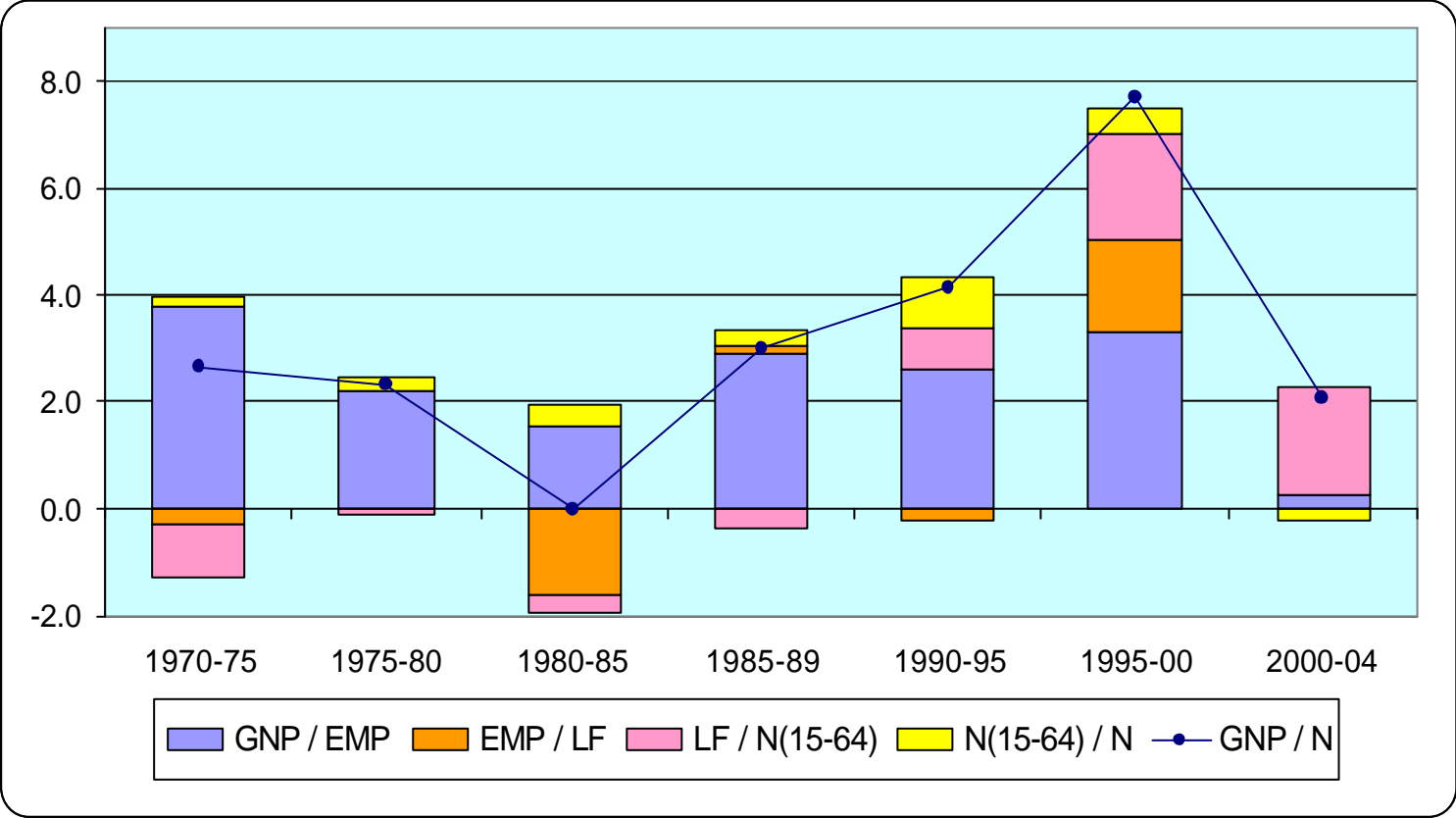
# Contribution of Labour components

## GDP IRELAND



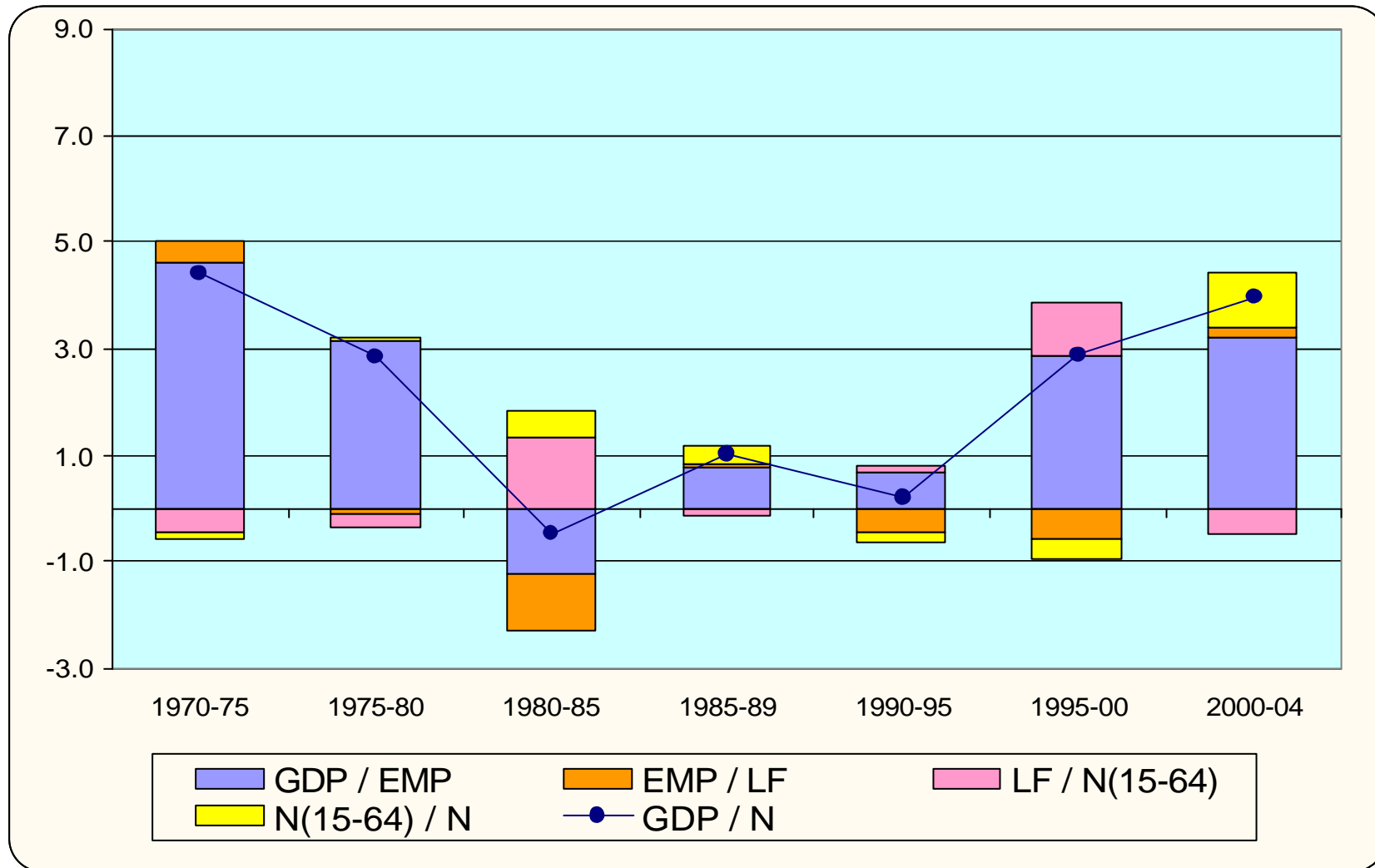
# Contribution of Labour components

## GNP IRELAND



# Contribution of Labour components

## GDP GREECE





## What matters

- Investment
- Education
- Productivity
- Labour Utilization