

# The First and Second Demographic Dividend in European NTA Countries: an Update

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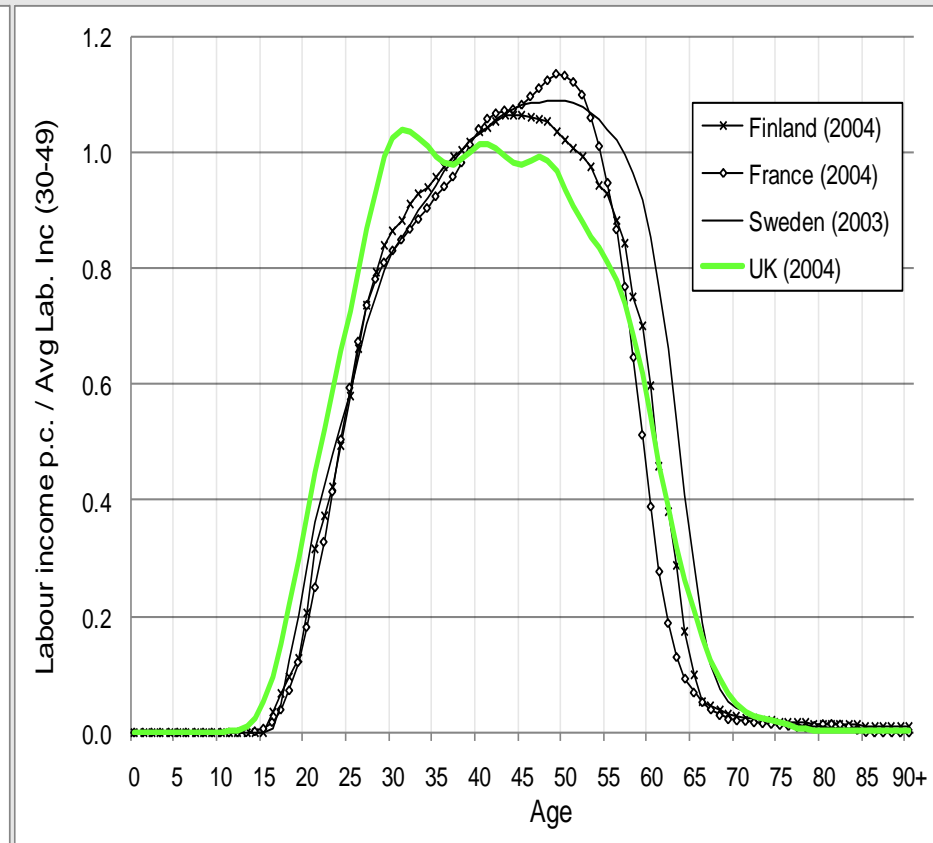
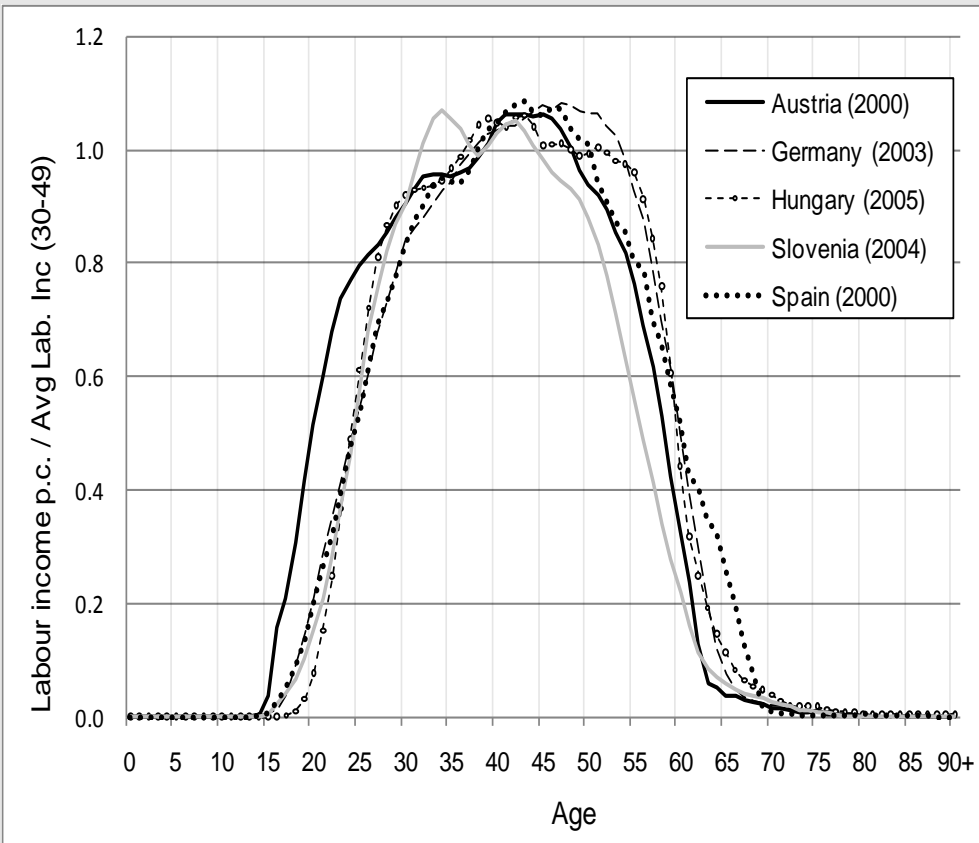
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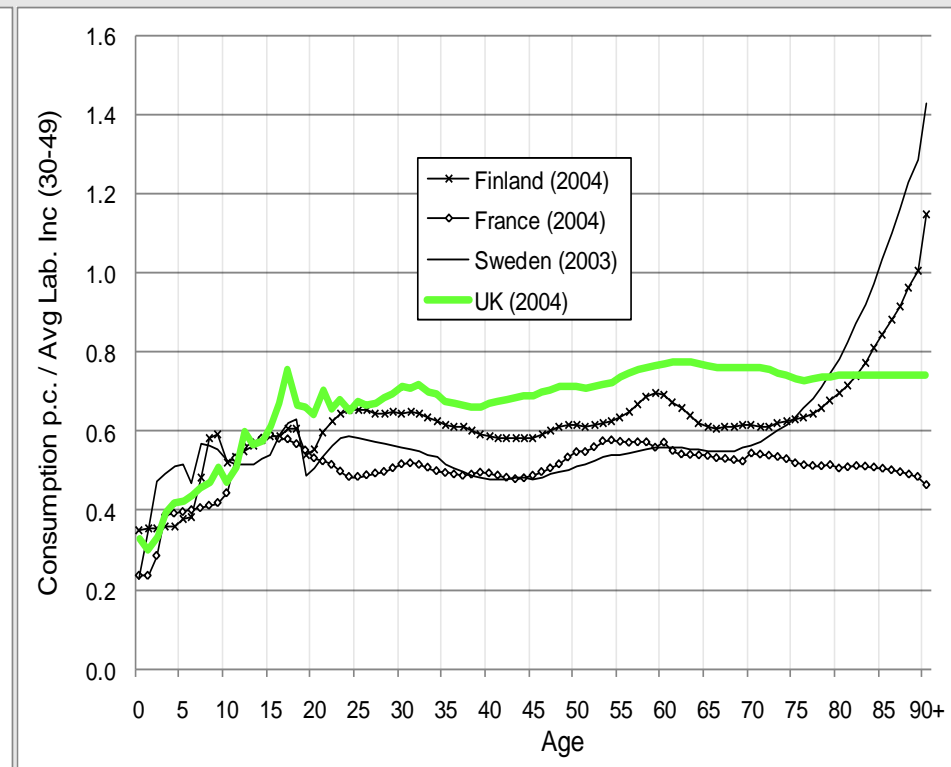
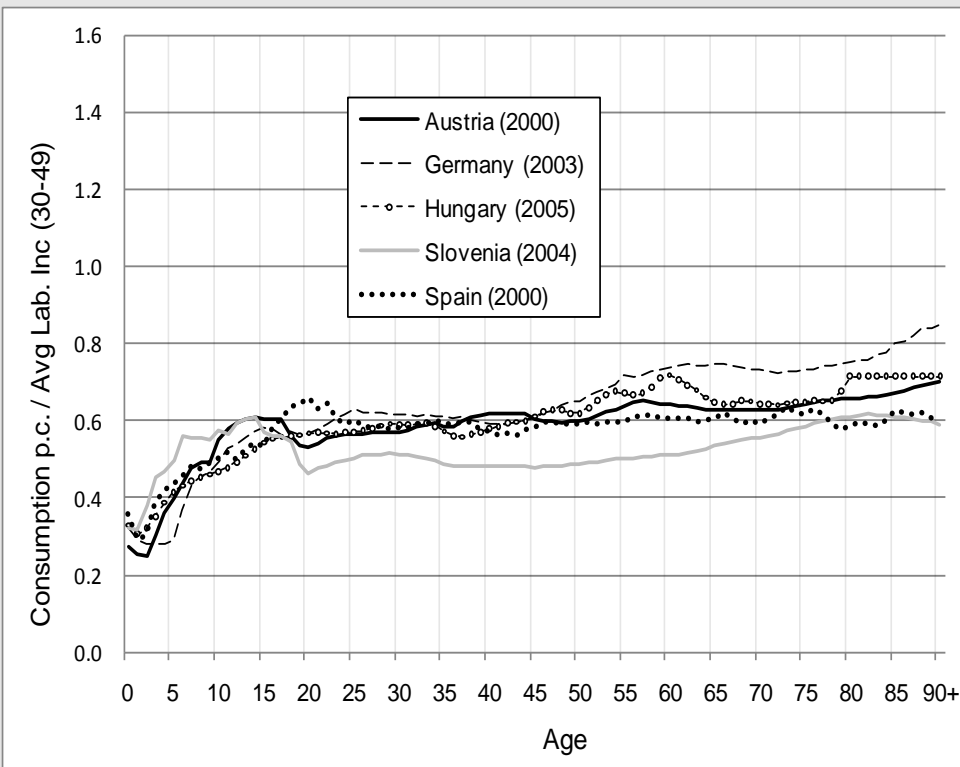
# OUTLINE

1. Results for the UK added
2. Defining age of childhood and elderly:
  - flexible age limits (FLEX) - true crossing of LY and C for defining childhood and elderly)
  - fixed age limits (FIX) – arbitrary defined age 30 and age 60.
3. New representation of the first and second demographic dividend in form of cumulative impact over the projection period

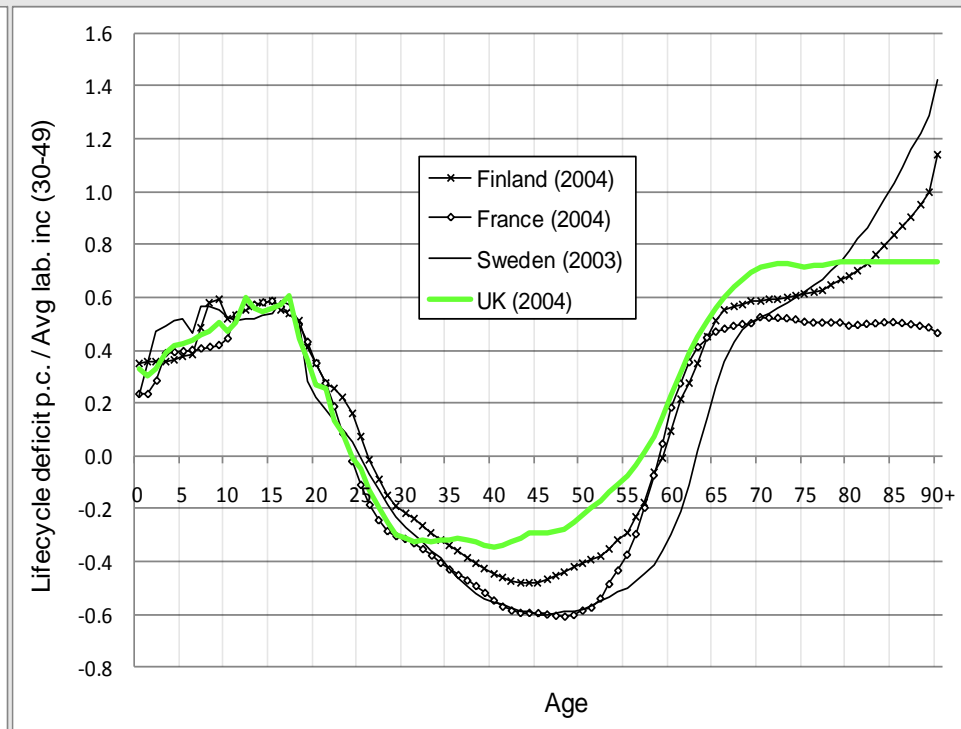
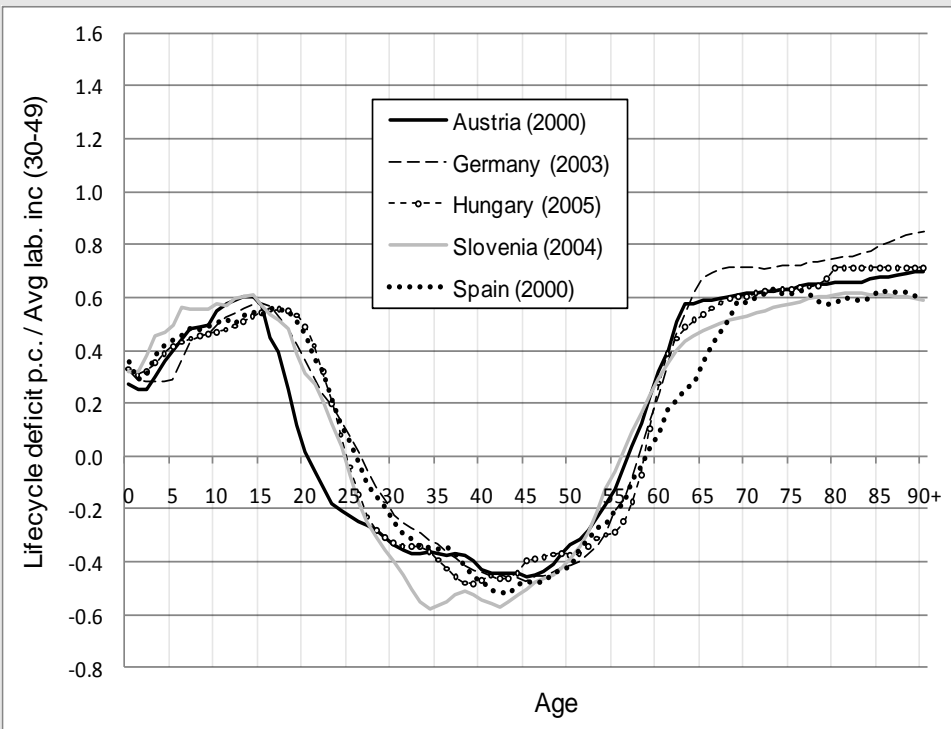
# Labor income age profile – labor income per capita relative to the average labor income 30-49 age group



# Consumption age profile – consumption per capita relative to the average labor income 30-49 age group



# Lifecycle deficit – life cycle deficit per capita relative to the average labor income in 30-49 age group



# PROJECTING SUPPORT RATIO

The demographic change implies a *change in relative size of self supporting and dependent population*.

the **support ratio**:

$$\alpha = LF / CON$$

LF .... effective labor force

CON .... effective number of consumers

Source: Cutler et al. (1990) An Aging Society: Opportunity or Challenge, Brookings Papers on Economic Activity

# CON

**Alternative 1:**  $\text{CON1} = \sum_{i=1\dots99} N_i$  (common dependency ratio)

**Alternative 2:** differentiate resource needs by age

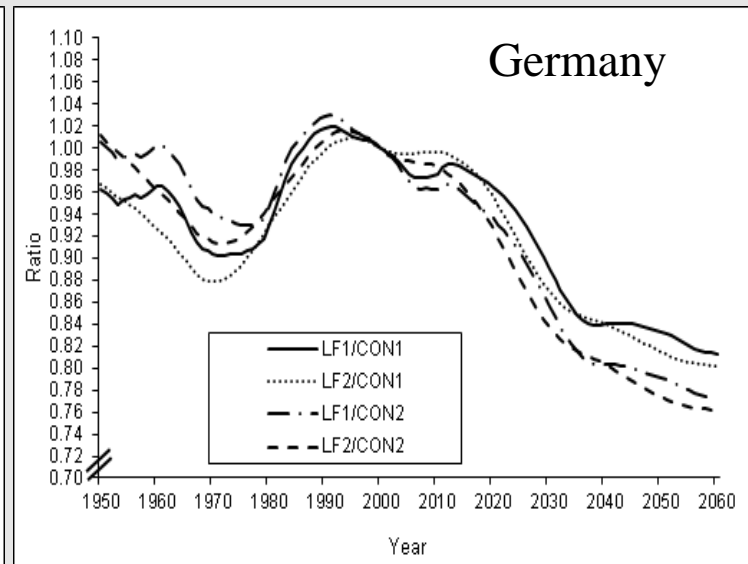
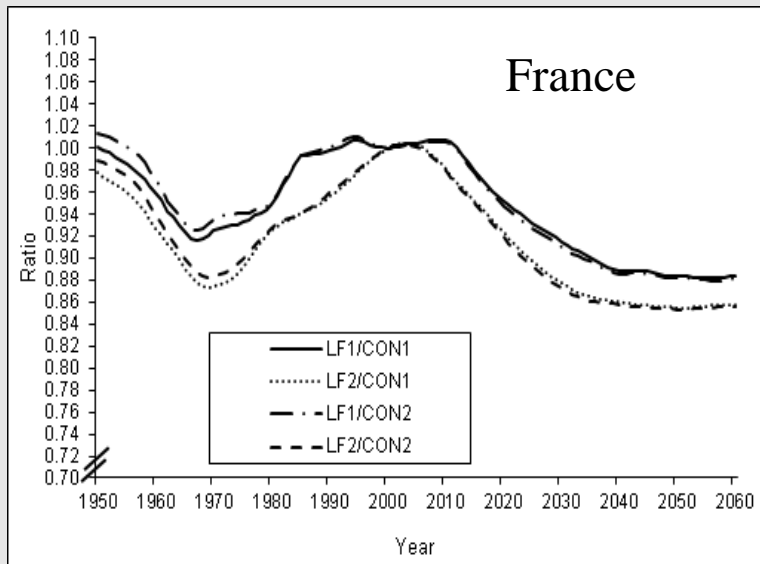
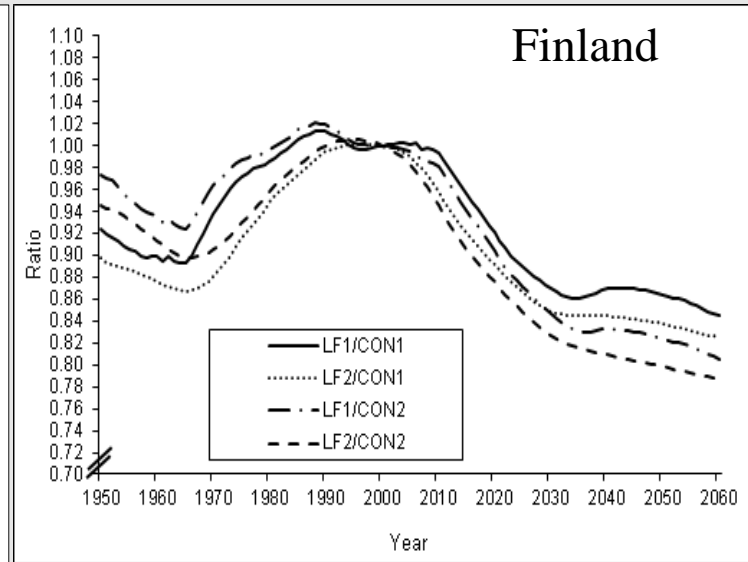
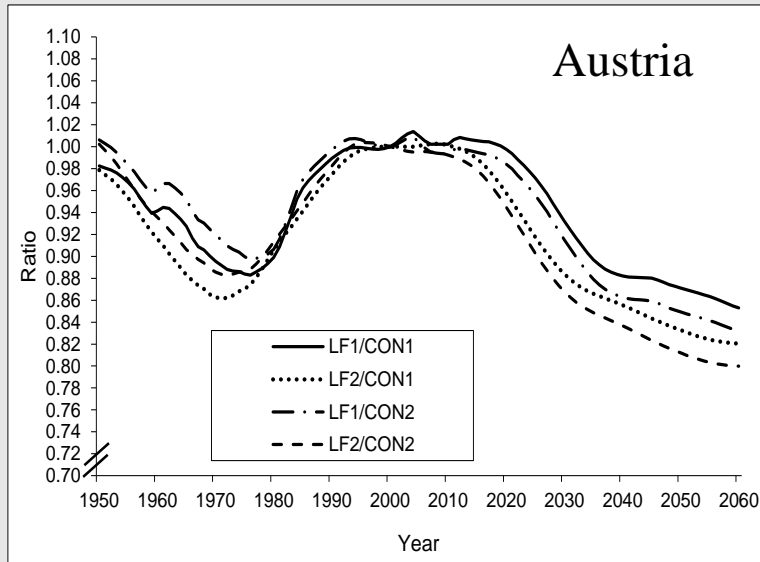
$\text{CON2} = \sum_{i=1\dots99} S_i N_i$  (needs weighted consumption measure)

# LF

**Alternative 1:**  $\text{LF1} = \sum_{i=20\dots64} N_i$  (common dependency ratio)

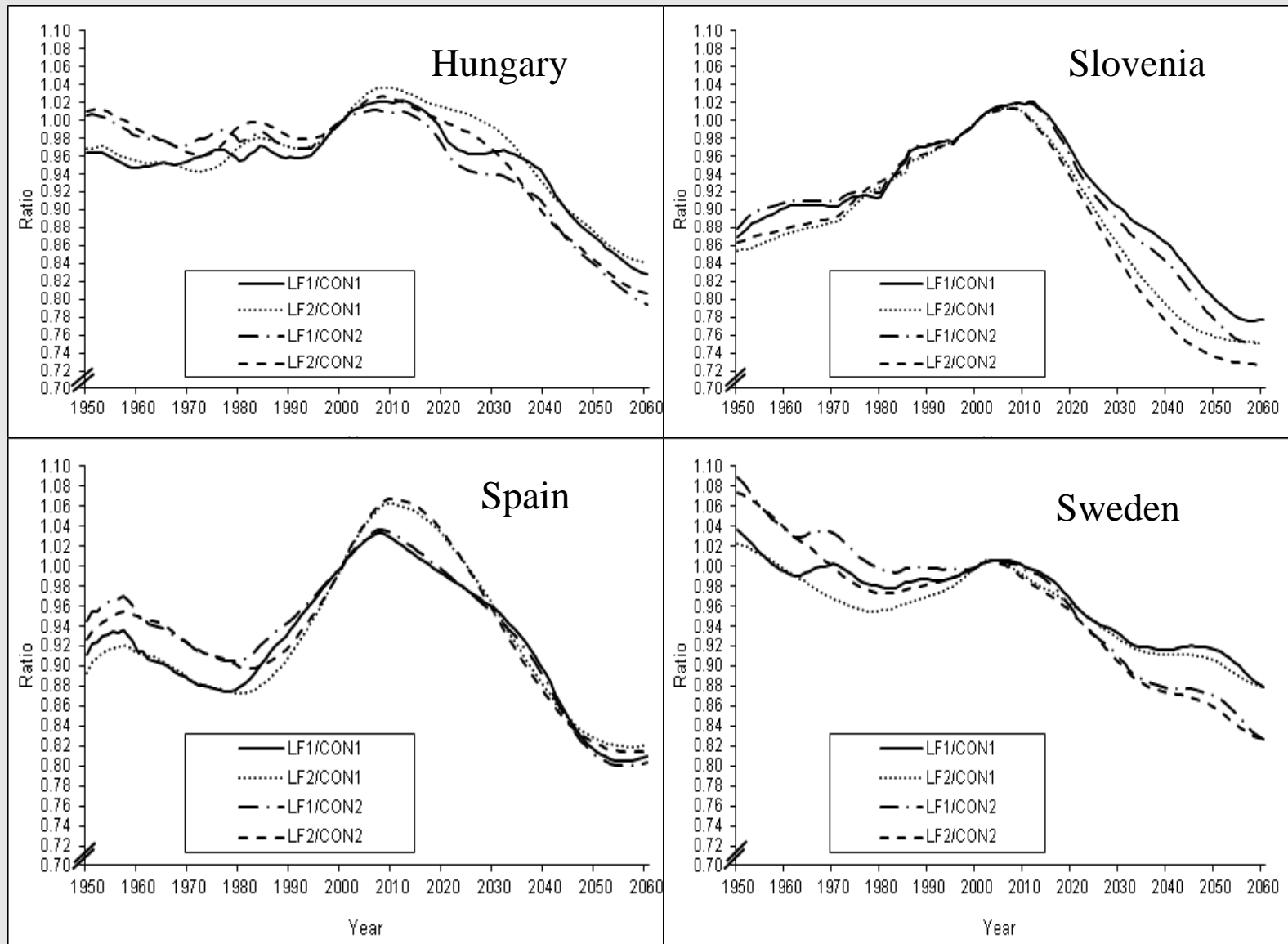
**Alternative 2:**  $\text{LF2} = \sum_{i=15\dots80} w_i \text{PR}_i N_i$  (adjust for wages and lfpr by age)

# Four alternative measures of support ratios (relative to 2000) - I

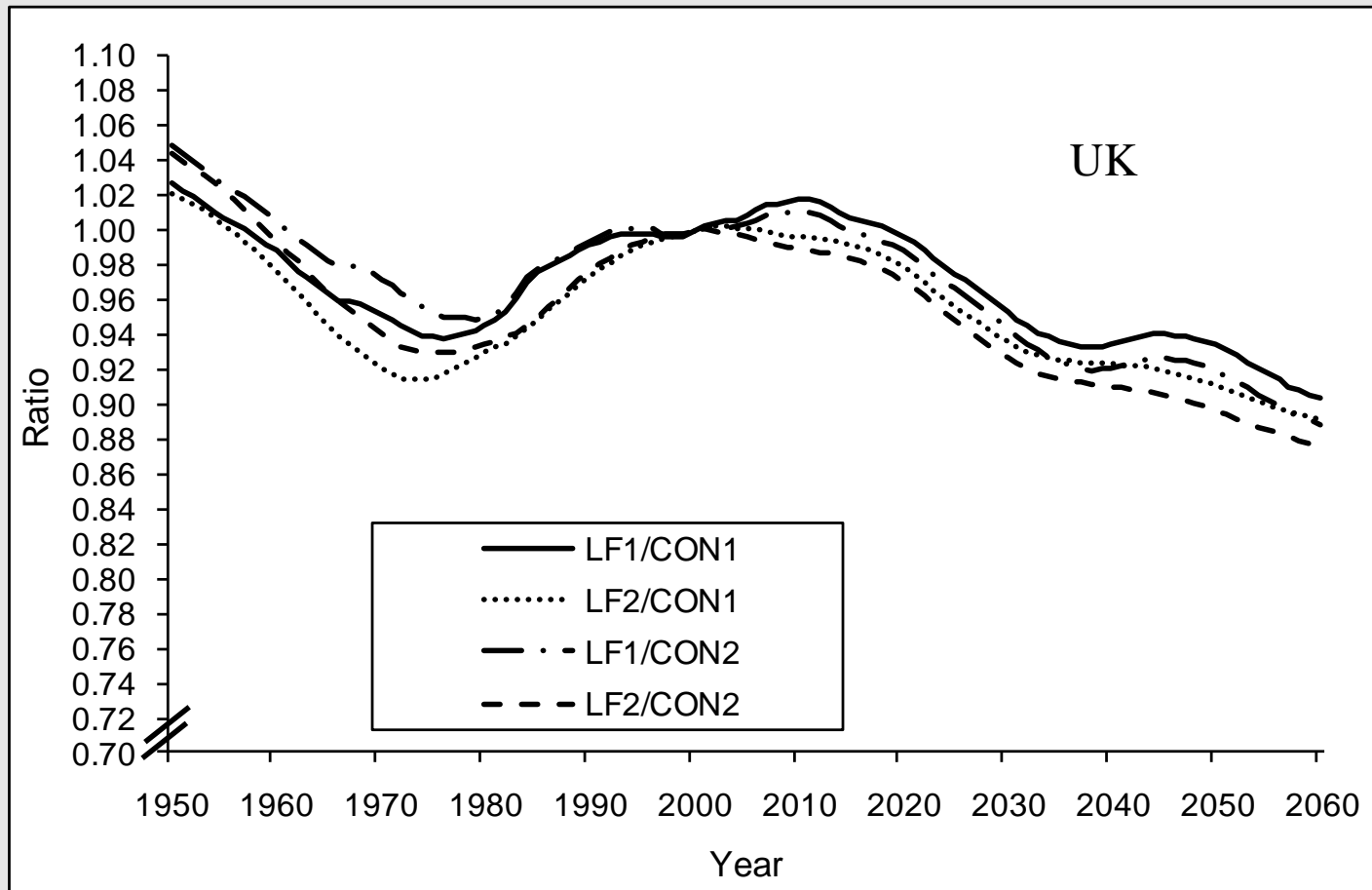




# Four alternative measures of support ratios (relative to 2000) - II



# Four alternative measures of support ratios (relative to 2000) – III (UK)



# Demographic Dividends

$$\frac{C(t)}{N(t)} = \frac{C(t)}{Y(t)} \frac{Y(t)}{L(t)} \frac{L(t)}{N(t)}$$

$$L = LF2$$

$$N = CON2$$

**First demographic dividend:**  $\hat{L} - \hat{N}$

**Second demographic dividend:**  $\hat{C} - \hat{Y}$

*Calculation of the second demographic dividend is based on Lee & Mason NUPRI2006 paper*

$$\frac{C(t)}{N(t)} = \frac{C(t)}{Y(t)} \frac{Y(t)}{L(t)} \frac{L(t)}{N(t)}$$

$$\bar{c}(t) = \frac{C(t)}{Y(t)} \bar{y}(t) \frac{L(t)}{N(t)}$$

$$\frac{\bar{c}(t)}{\bar{y}(t)} = \frac{C(t)}{Y(t)} \frac{L(t)}{N(t)}$$

$$\bar{c}_y = c_y \quad | \Rightarrow$$

$$\hat{c}_y = \hat{c} - \hat{l}$$

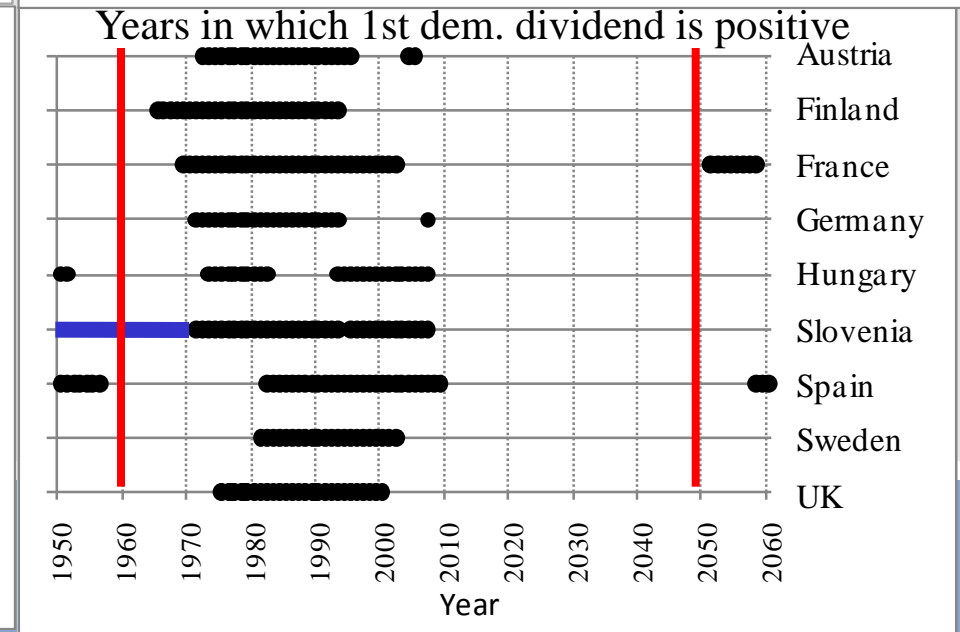
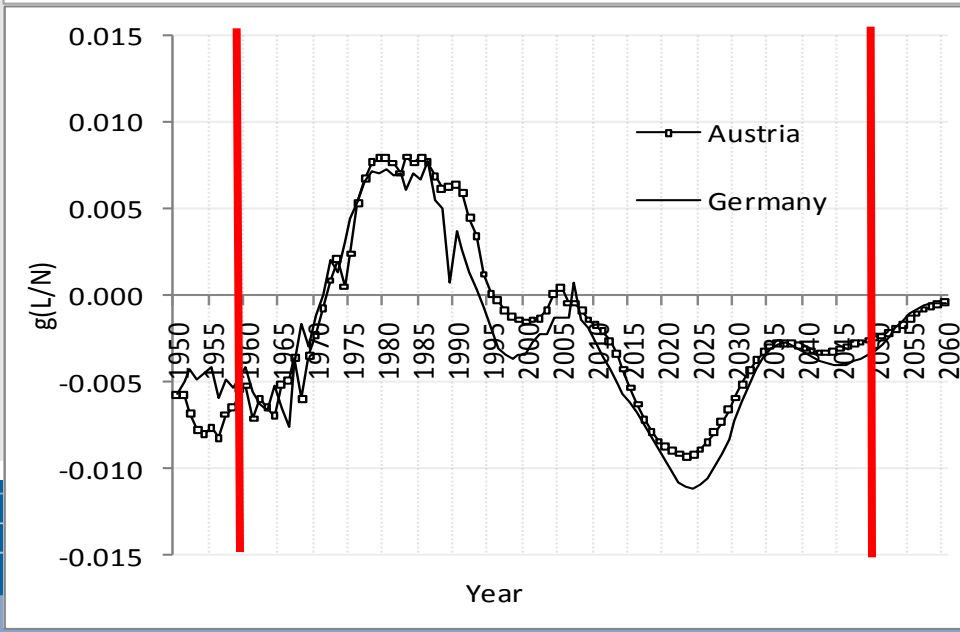
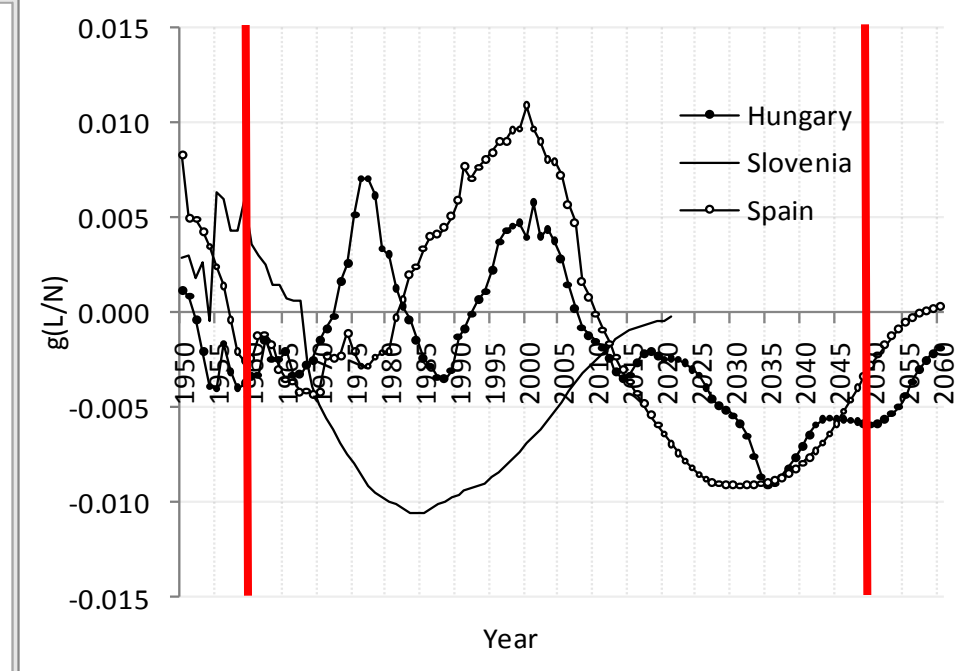
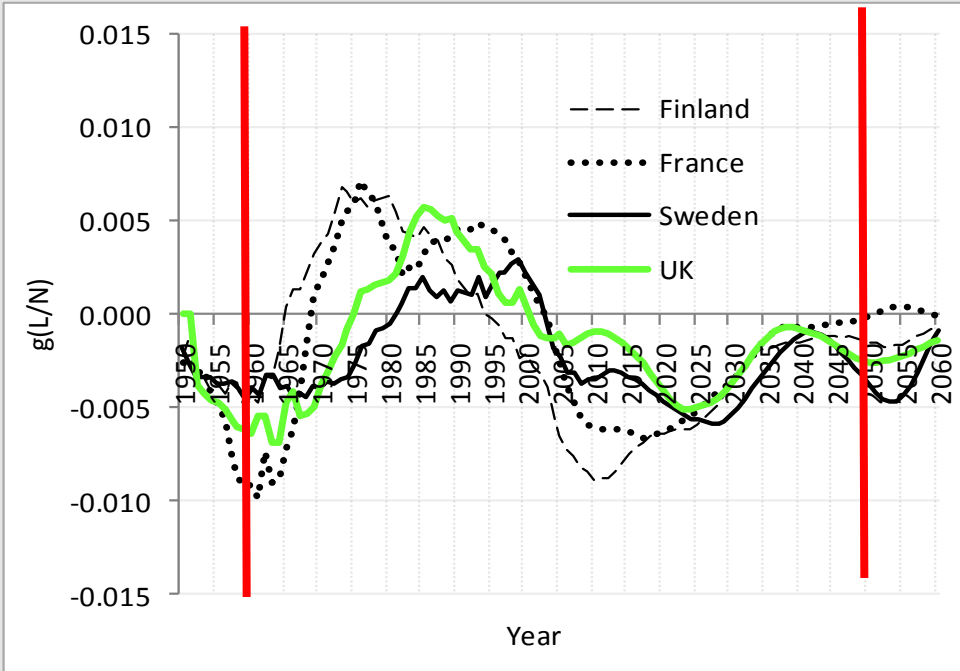
**consumption index:**

“extent to which consumption per equivalent consumer rises relative to productivity changes induced by technological change”

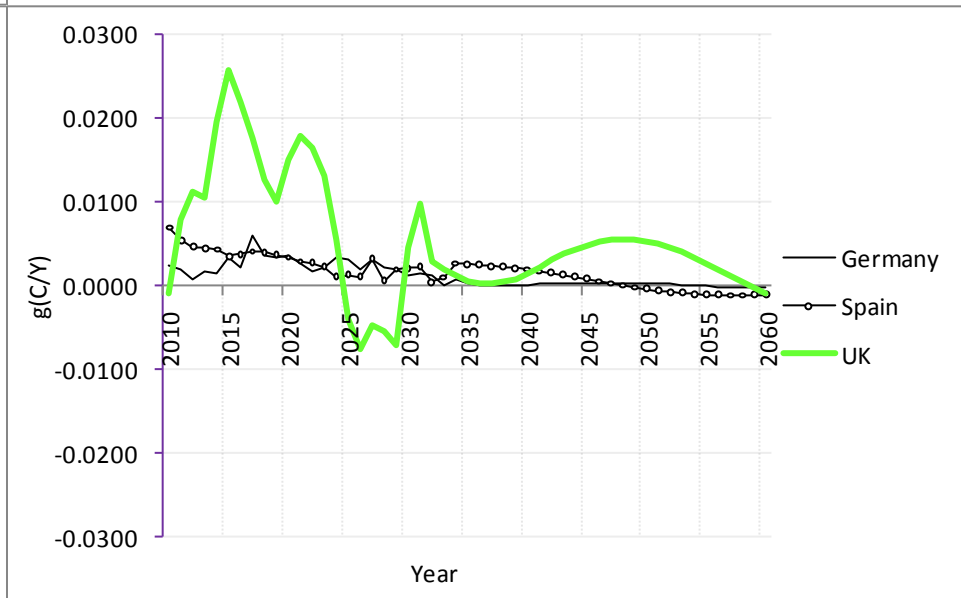
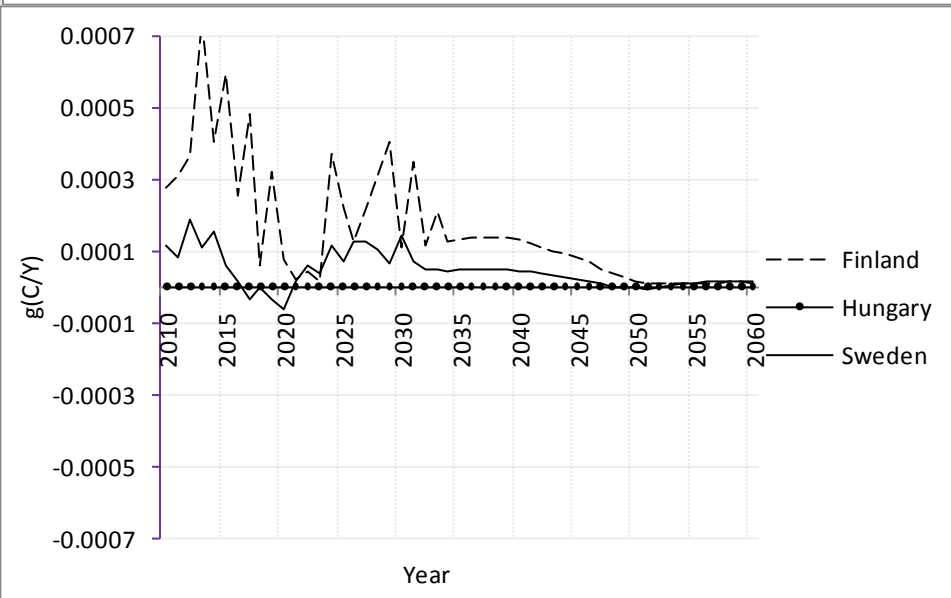
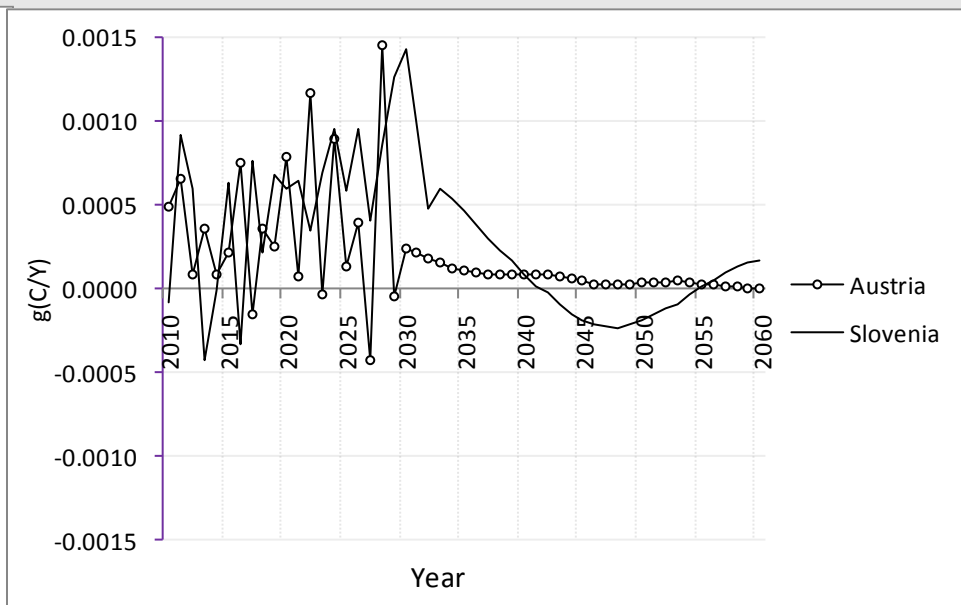
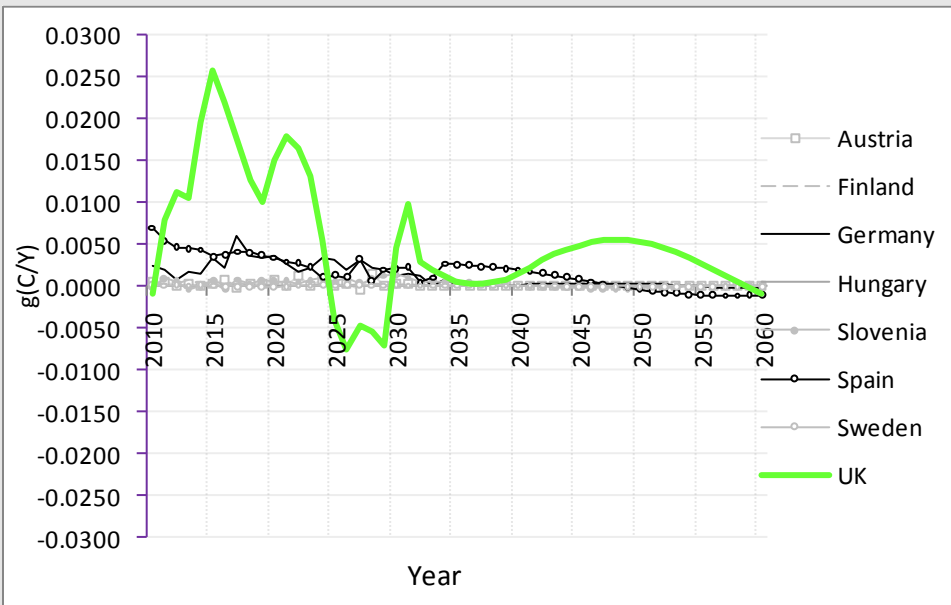
**2nd demographic dividend:**

rate of growth of consumption relative to labor income

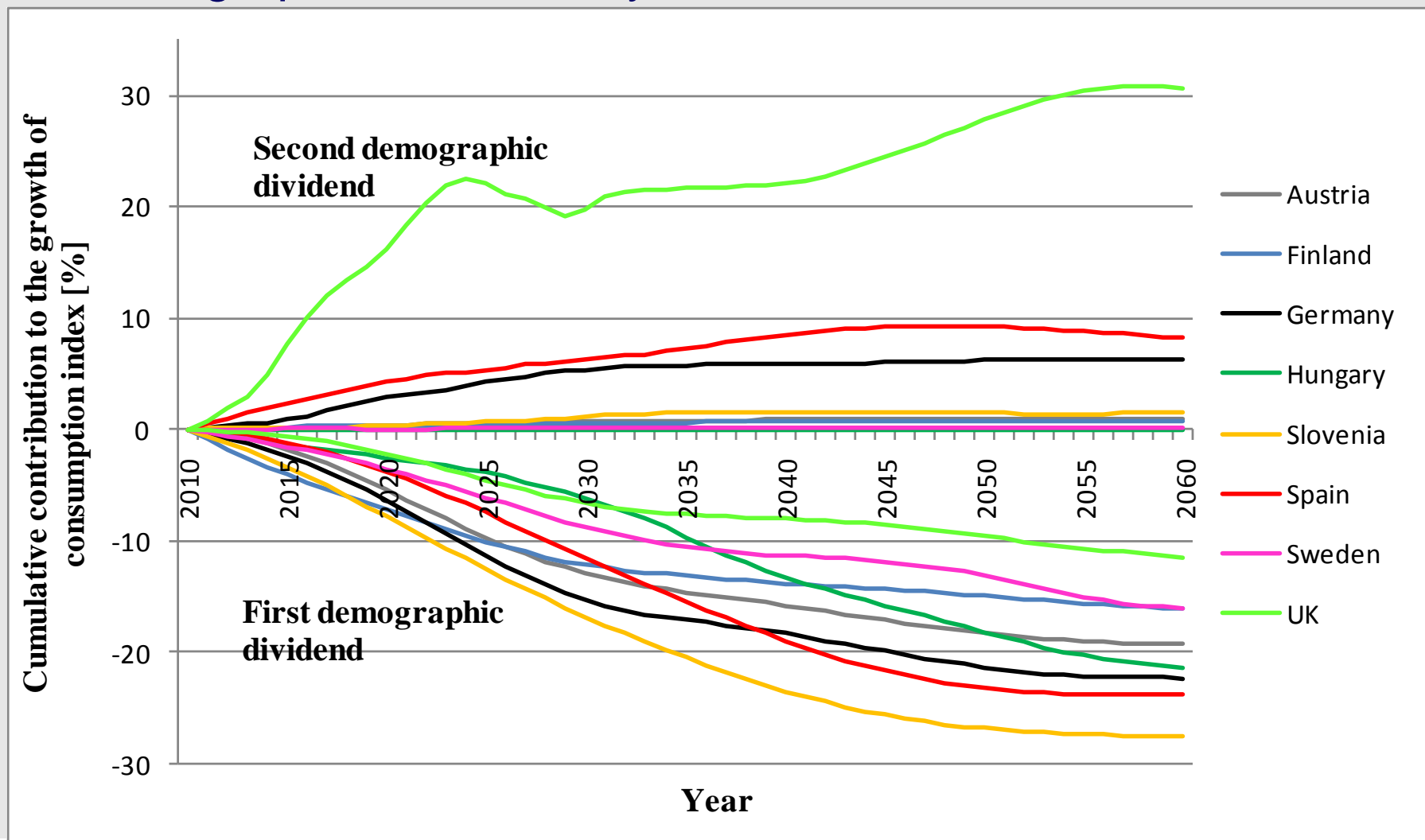
# First demographic dividend



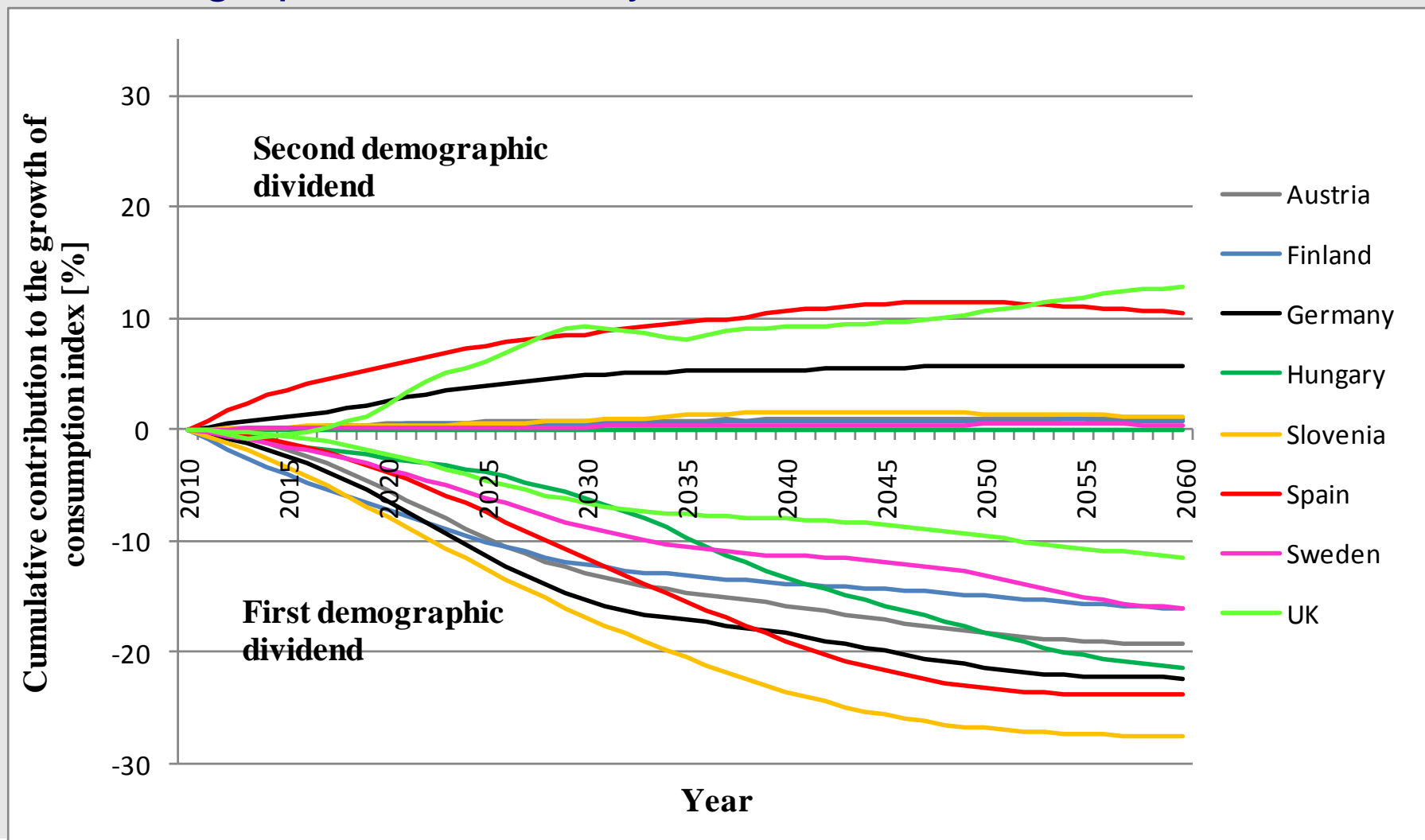
# Second Demographic Dividend – all countries together (first figure) and divided into three groups (remaining three figures); **FLEX**



# First (negative values) and Second (positive values) Demographic Dividend by Countries; **FLEX, CUMULATIVE**

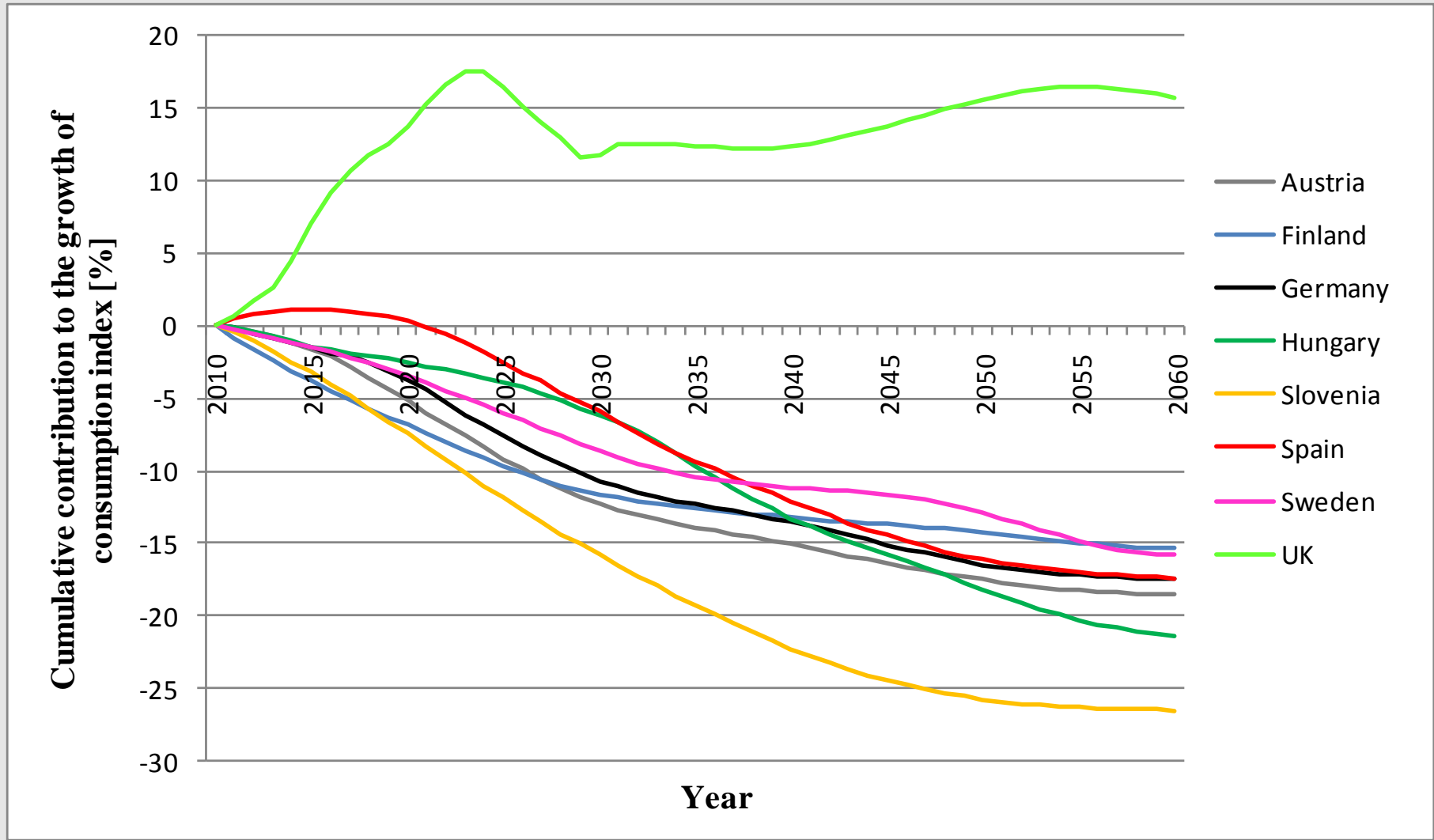


# First (negative values) and Second (positive values) Demographic Dividend by Countries; **FIX, CUMULATIVE**

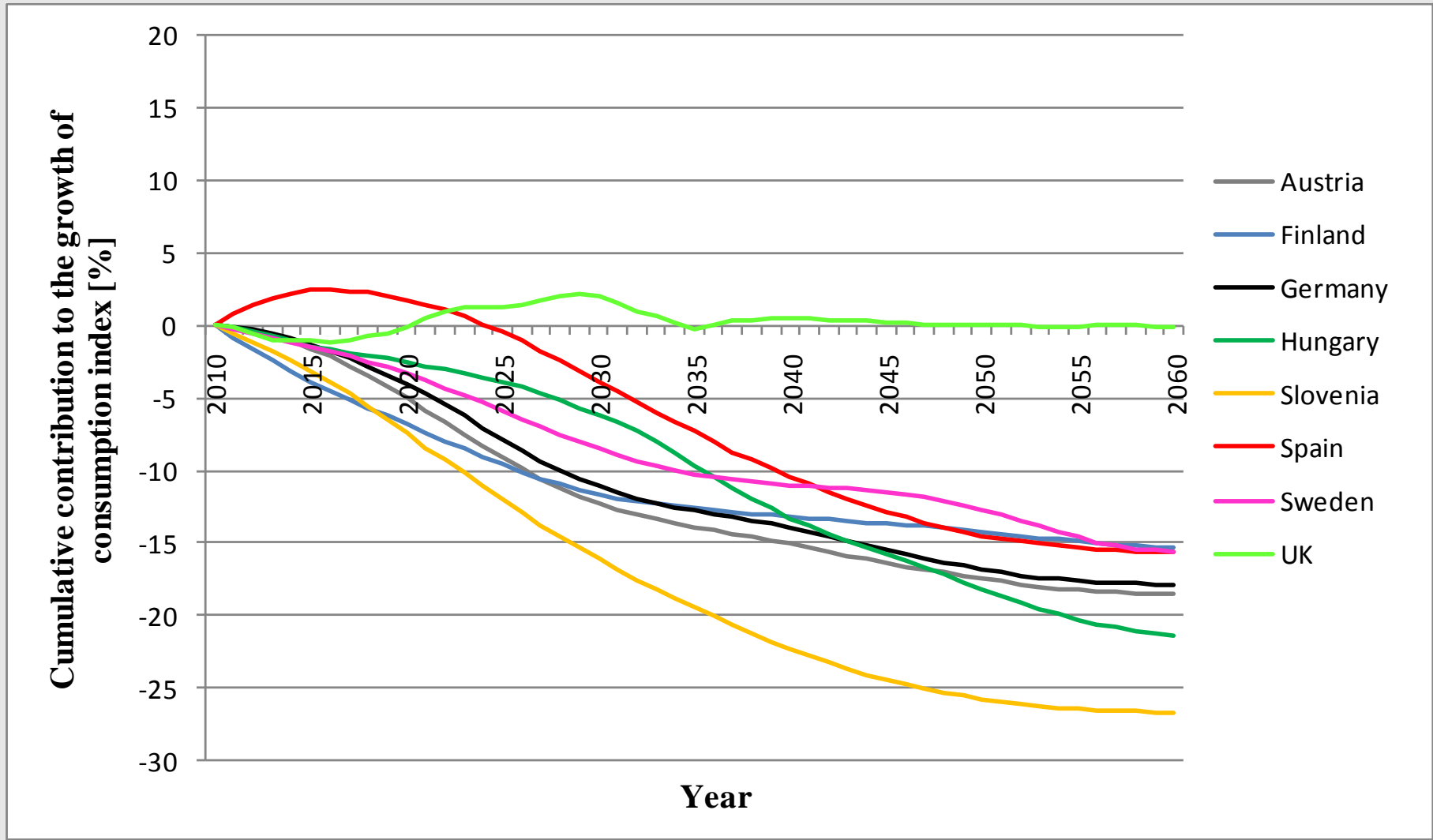




# Total Effect of both Demographic Dividends Together; by EuroNTA Countries; **FLEX, CUMULATIVE**



# Total Effect of both Demographic Dividends Together; by EuroNTA Countries; **FIX**, CUMULATIVE



# Conclusions and questions

- Under FLEX scenario in the UK the consumption of elderly (57+) is predominantly (69%) covered through the asset based reallocation. Under FIX scenario this share is 61%.
- Consequently, in the UK it is expected that in the future the positive effect of second demographic dividend will:
  - under FLEX scenario – far more than compensate the expected negative effect of first demographic dividend
  - under FIX scenario – about neutralize the expected negative effect of first demographic dividend
- Which time span to use when presenting support ratios and demographic dividends? 1950-2060; 1960-2060; 1960-2050; for the 2nd demographic dividend only projections for the future?
- Summing up (cumulative) effect of the first and second demographic dividend – adequate and meaningful?