

# Delayed childbearing, low fertility and assisted reproduction in Europe

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# INTRODUCTION

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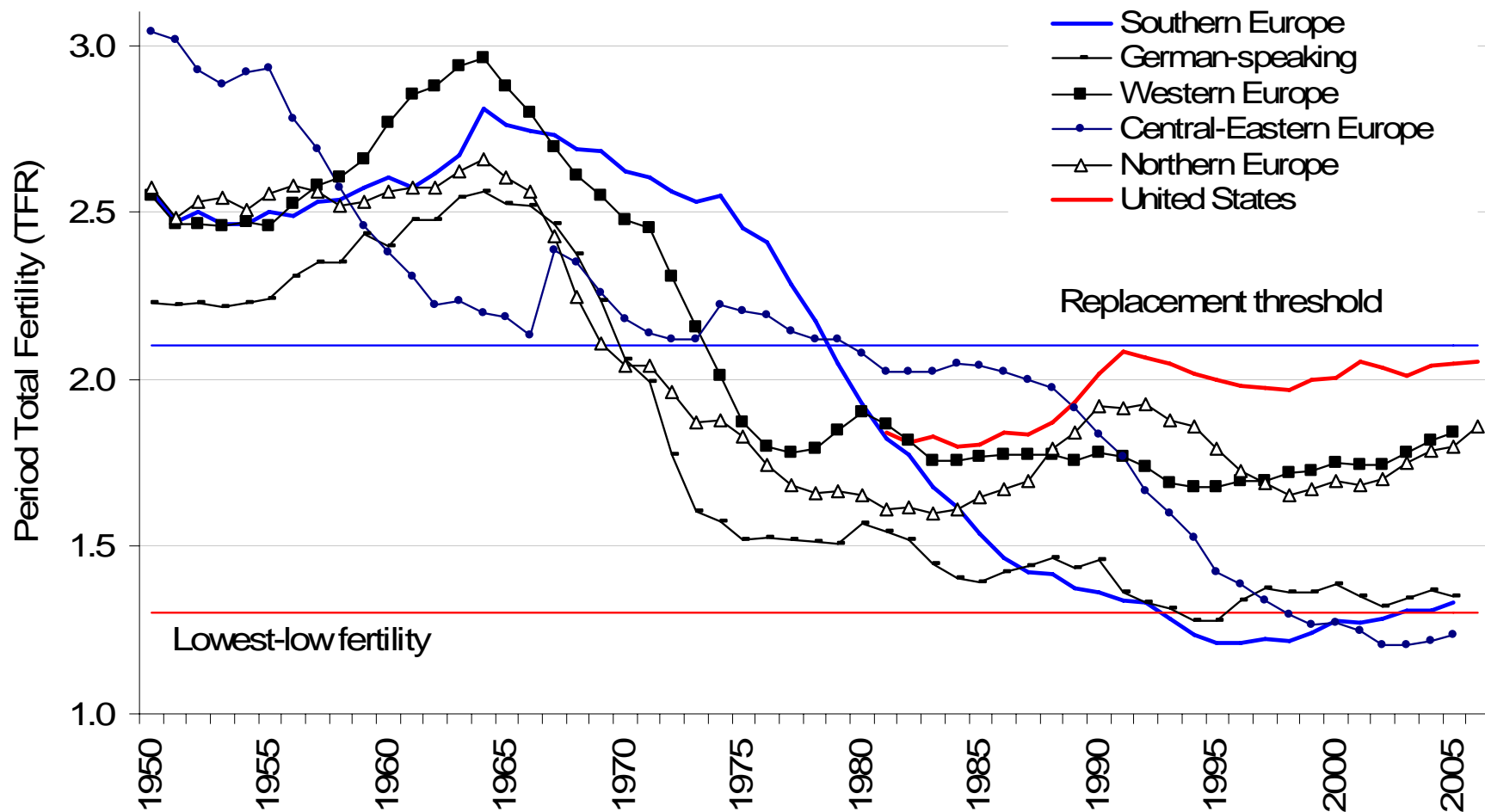
Demographic perspective: Low fertility, delayed childbearing and assisted reproduction in Europe

Mostly focused on the EU countries and North-Western Europe

- Note: Fertility, fertility rates = birth rate; usually number of children per woman
- Period vs. Cohort approach

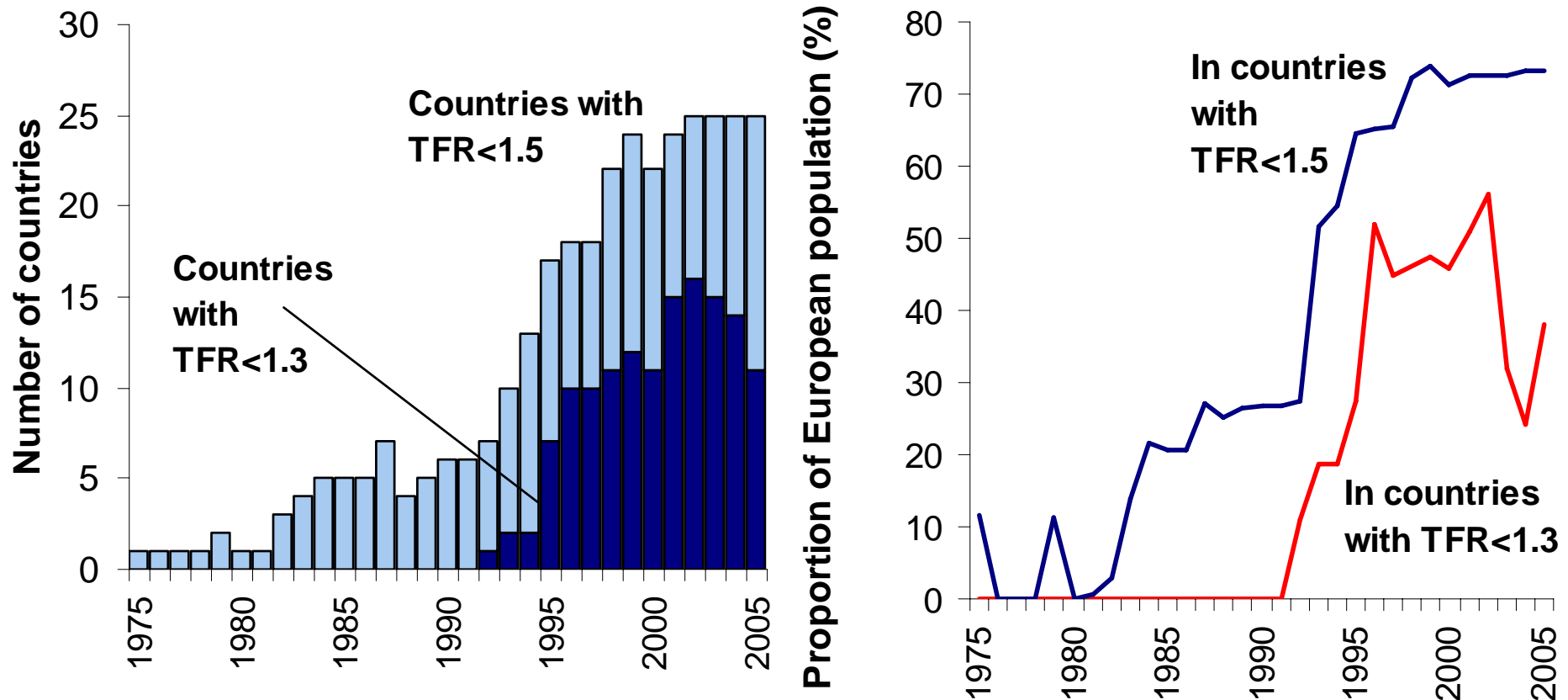
# PROMINENT TRENDS IN EUROPEAN FERTILITY:

- 1) Decline of total fertility rates to very low levels
- 2) New regional division of Europe (North-West vs. other regions)



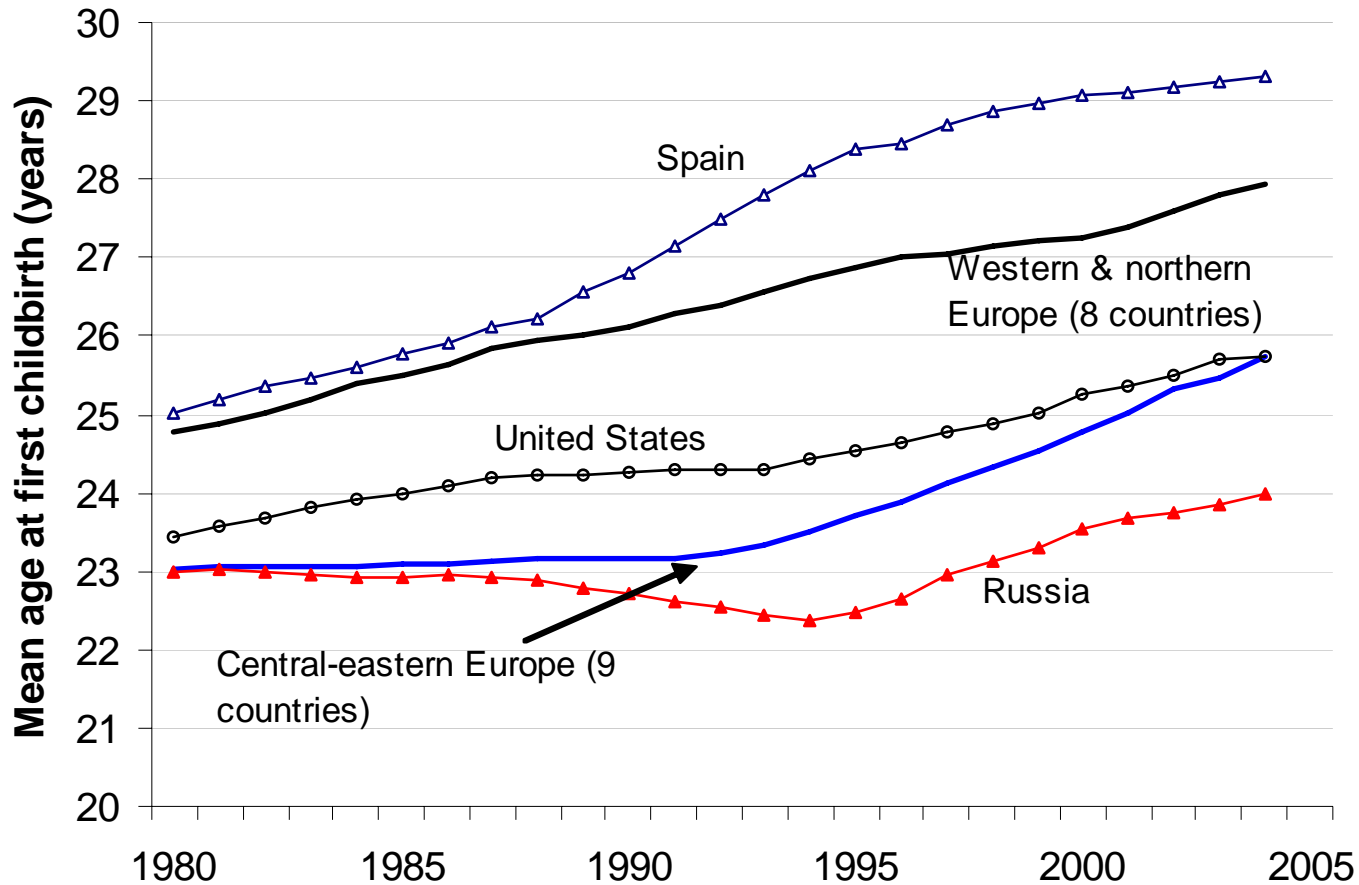
# The spread of low and “lowest-low fertility” in Europe

## EUROPEAN FERTILITY CRISIS?



Data sources: Council of Europe (2006), Eurostat (2006)

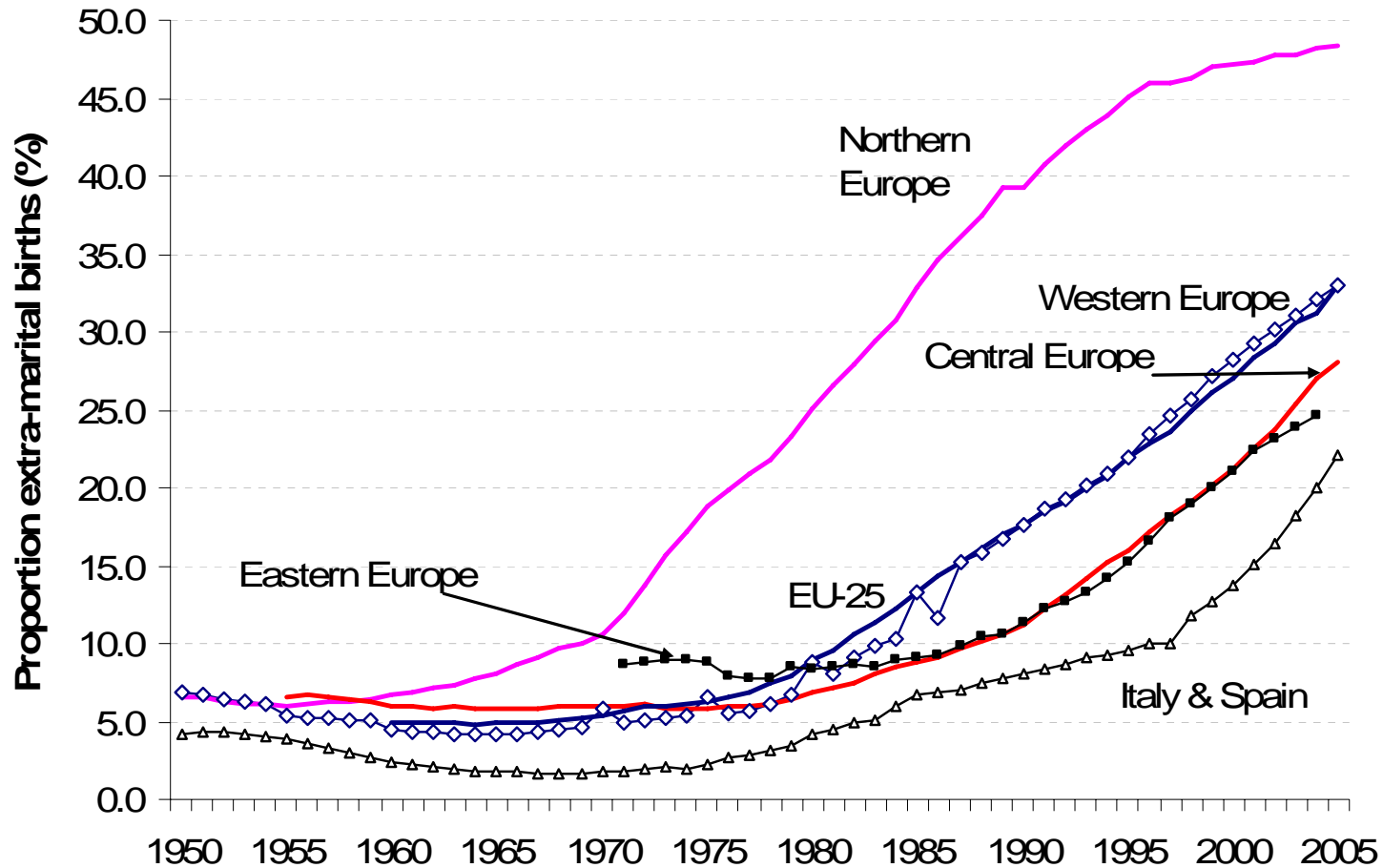
### 3) The shift to an ever later family formation



Data sources: Council of Europe (2006), EUROSTAT (2006), and national sources

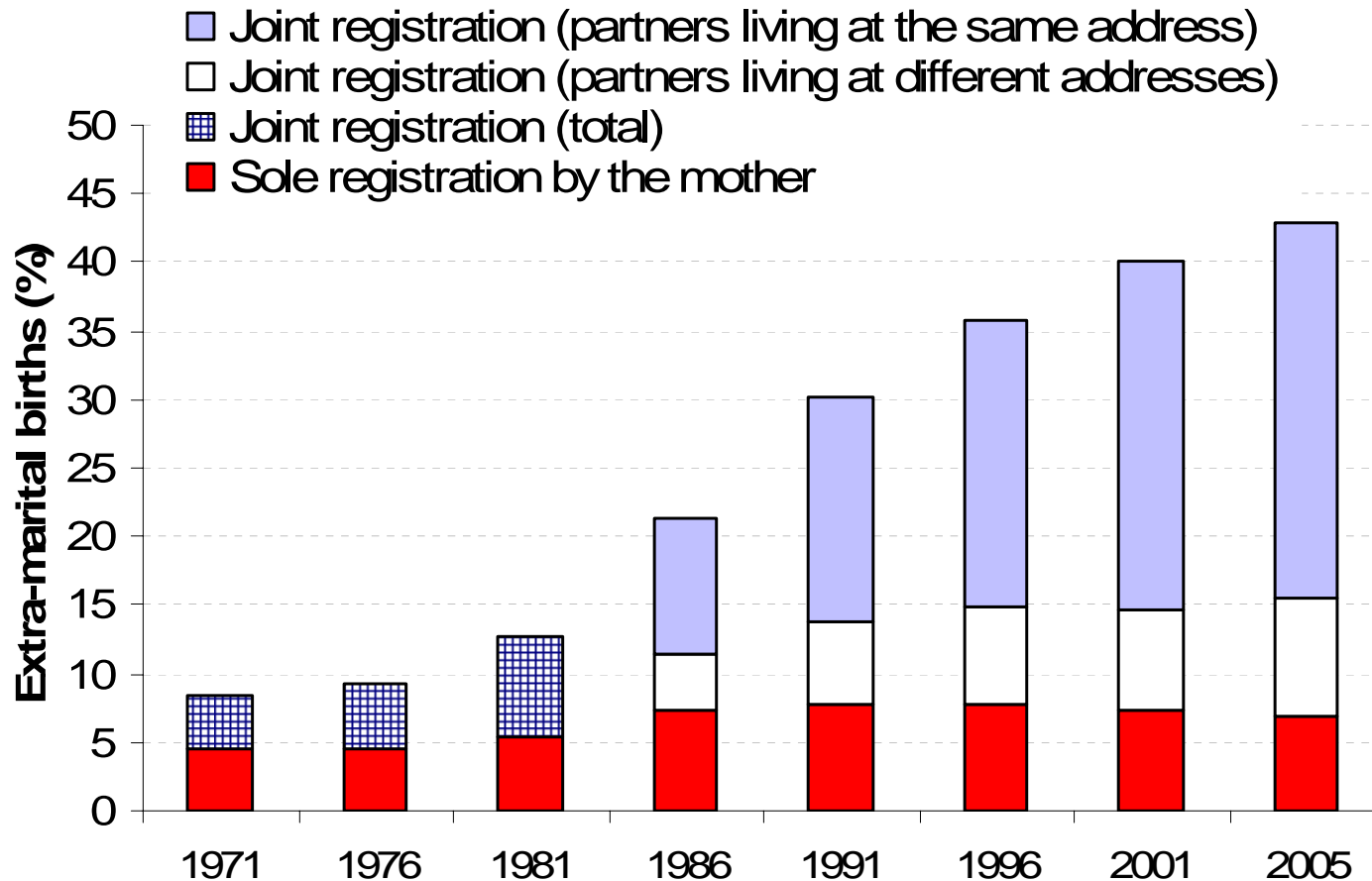
## 4) Changing family context of childbearing

Rapid rise in non-marital childbearing in all parts of Europe



# Non-marital births take place within increasingly diverse living arrangements

Distribution of non-marital births in England and Wales by the recognition of father (%)

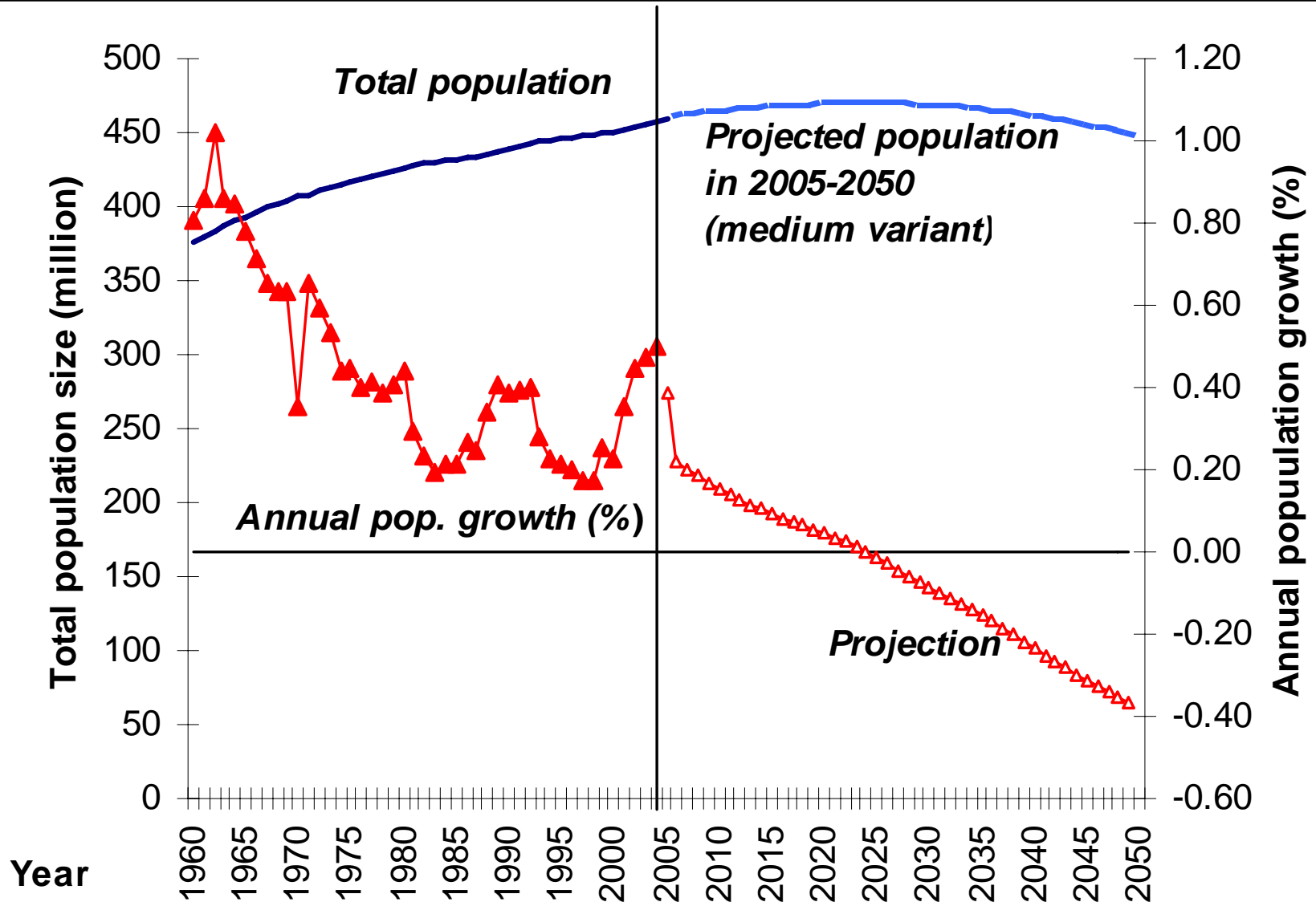


# Renewed fears of “fertility implosion,” “baby deficit” and population decline

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- 1920s and 1930s: spreading concerns about low birth rates and their consequences
- 1970s-?: renewed fears of declining fertility, rapid population ageing and declining population size
  - J. C. Chesnais (2001): population implosion in the 21<sup>st</sup> century may be particularly pronounced in Europe
  - Pope Benedict XVI (Christmas 2006): Europe “...seems no longer wants to have children” (...) and “seems to be wishing to take its leave of history”
- Increasing political concerns & pronatalism
  - The “Green Paper” (European Commission, 2005): low birth rate is a “challenge for the public authorities”; “return to demographic growth” is one out of “three essential priorities”

# The current & future population trends in the European Union (25), Eurostat 2004 projection



# Should we worry about the (very) low fertility in Europe?

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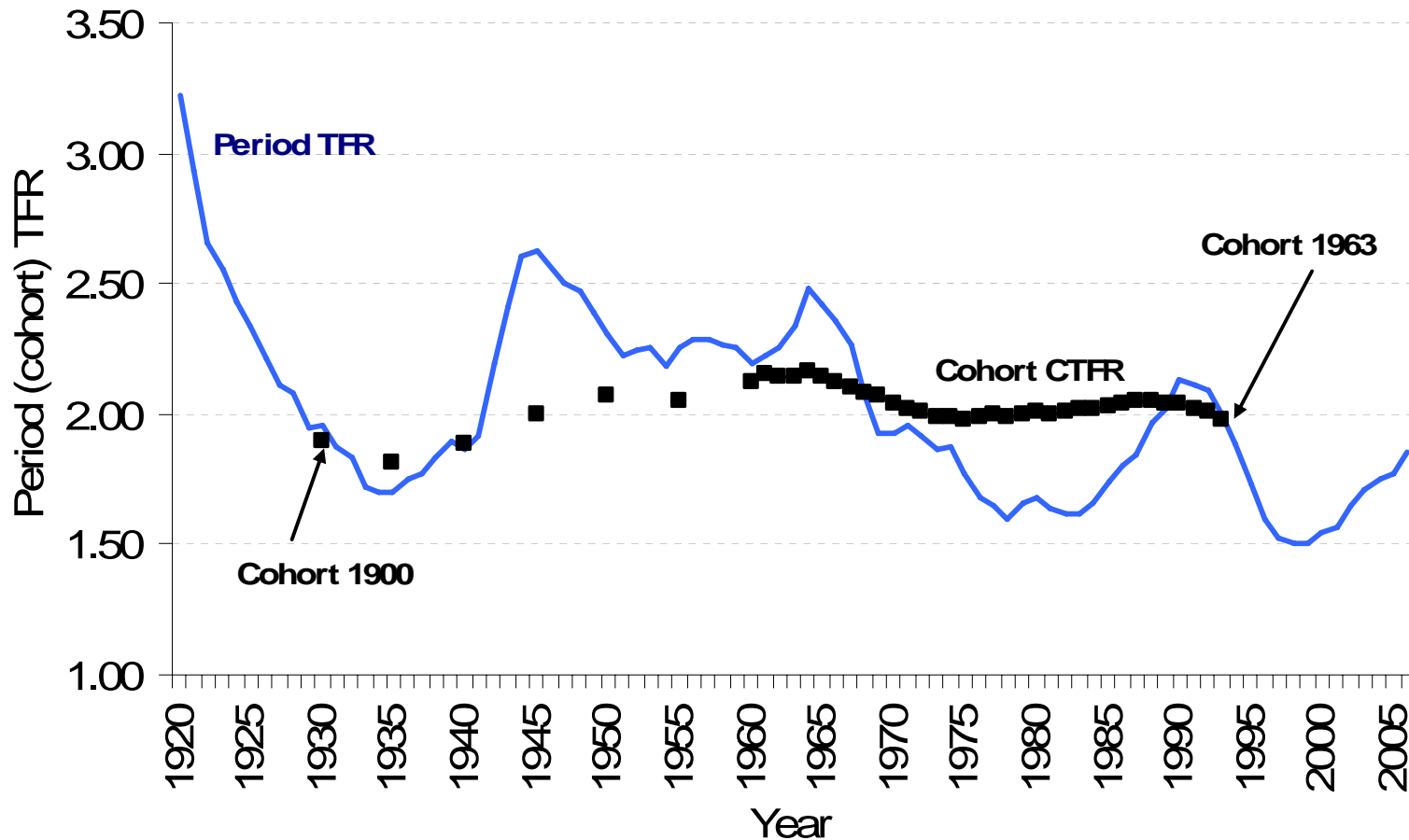
Many fears of European population slump are exaggerated

- Long history of low fertility in many countries in the past
- Fertility rates not declining further in most parts of Europe
- Current fertility rates across Europe negatively affected by fertility postponement, which will eventually stop
- The positive role of migration
- Fertility desires and ideals remain at or above two children per woman in almost all the countries of Europe (exception: German-speaking countries)
  - 2006: mean intended number of children in the EU-15 2.05 among women aged 25-39 (EUROBAROMETER 2006, Testa 2006)

# Adjusted TFR in Europe, 1995-2000 and 2002-2003 (Bongaarts-Feeney adjustment)

	Population , millions 2002	TFR		Adjusted TFR (Bongaarts-Feeney)		Cohort TFR 1960
		1995-2000	2002	1995-2000	2001-2003	
Western Europe	149.3	1.71	1.75	1.88	1.92	2.02
Northern Europe	24.3	1.70	1.70	1.94	1.96	2.00
German-speaking	97.8	1.35	1.32	1.52	1.53	1.67
Southern Europe	120.4	1.23	1.28	1.59	1.43	1.74
Central-eastern Europe	77.6	1.40	1.25	1.74	1.66	2.10
South-eastern Europe	43.7	1.43	1.33	1.67	1.64	2.14
Eastern Europe	205.8	1.25	1.25	1.46	1.45	1.85
EU-15	378.6	1.47	1.49	1.70	1.67	1.84
EU-12 new (2004, 07)	104.1	1.36	1.24	1.67	1.63	2.10
<b>EU-27</b>	<b>482.6</b>	<b>1.45</b>	<b>1.44</b>	<b>1.69</b>	<b>1.66</b>	<b>1.89</b>
<b>Europe</b>	<b>722</b>	<b>1.46</b>	<b>1.39</b>	<b>1.63</b>	<b>1.61</b>	<b>1.89</b>

# Period and cohort fertility in Sweden



A 'puzzling' case of Sweden: extreme fluctuations in period fertility, but stable cohort fertility level

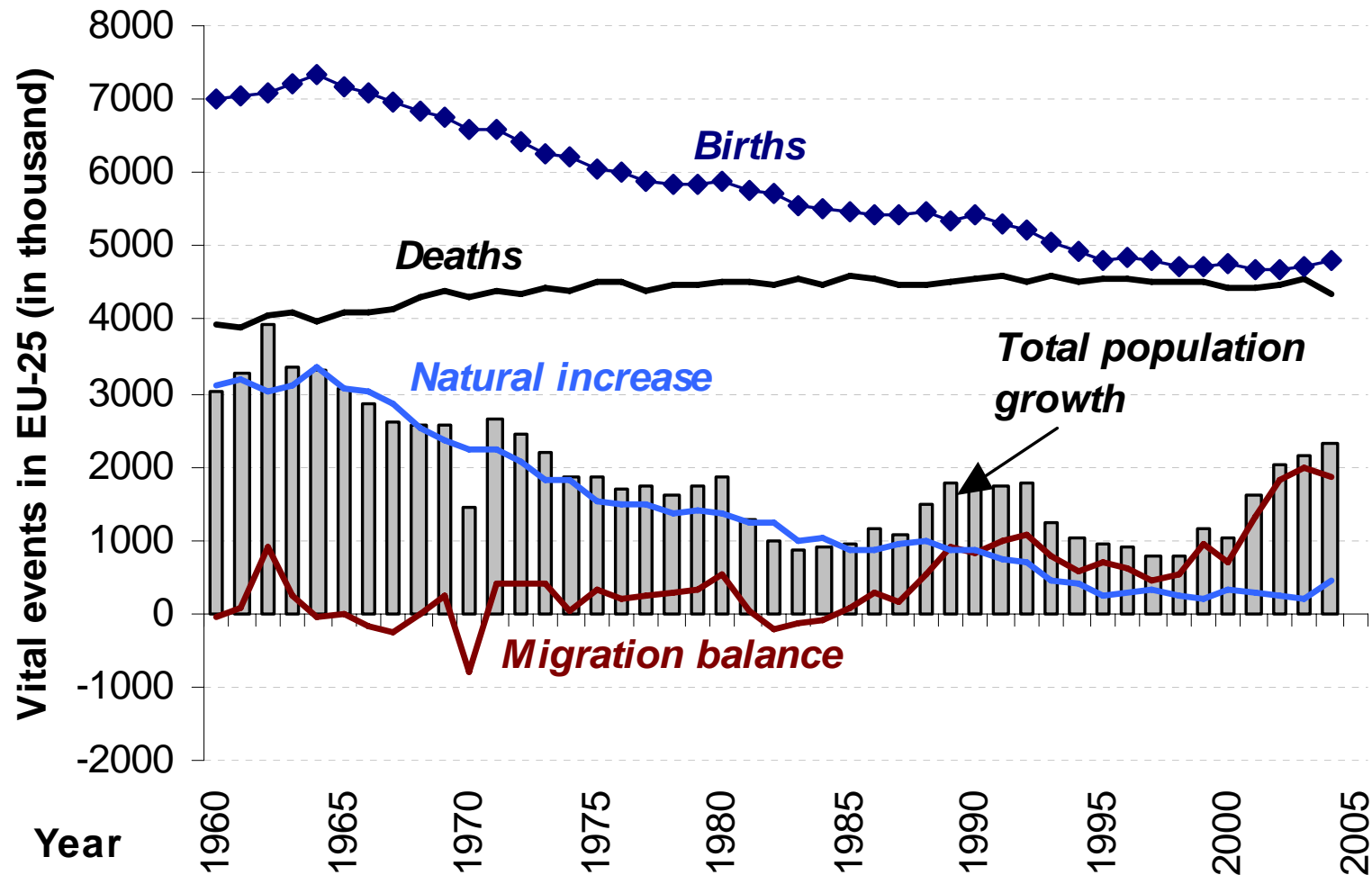
# Migration can partly serve as an equal substitution for births ‘missing’ due to low fertility

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Similar to fertility, migration can (only) partly offset population ageing, through two separate features:

- a) Immigrants are typically young (age 18-30 most typical)
  - b) Immigrants frequently have higher fertility than the ‘native’ population
- In many ‘Western’ countries migration keeps population size stable or increasing, substituting thus births missing due to low fertility
  - ,Extreme‘ examples: Spain, Northern Italy, Switzerland, Ireland

# The rising role of migration for sustaining population growth in the European Union (25), 1960-2004



# LATE CHILDBEARING AND FERTILITY

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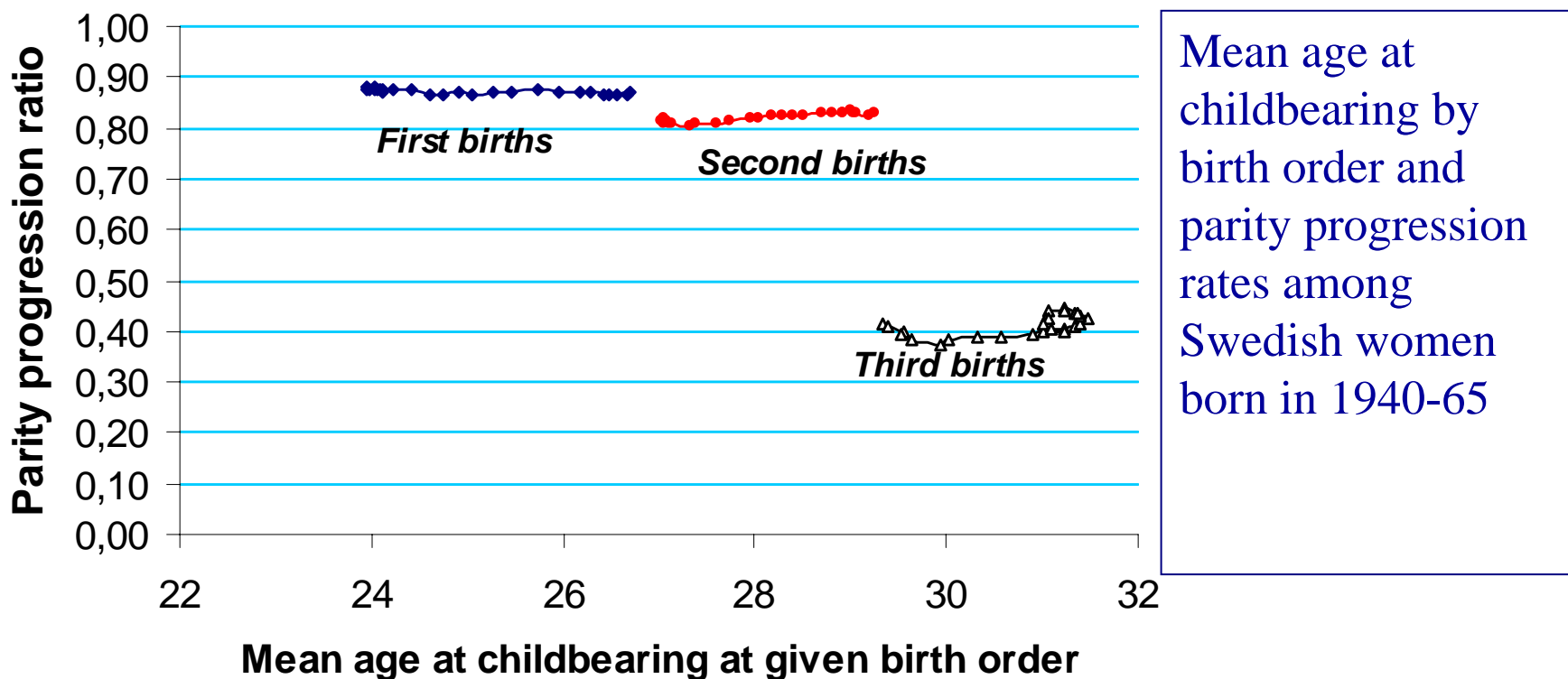
- **Does late childbearing lead to lower fertility levels?**
- **Individual-level data:** strong association between the timing of first birth and completed fertility (Toulemon 2004)
- **Aggregate-level data:** conflicting evidence on the impact of delayed childbearing on completed fertility rates

*Surprisingly, countries with the highest fertility in Europe – France, Ireland, Iceland, Norway, Denmark, and Sweden – all belong to the late-childbearing countries (mean age at first birth 28-29 years)*

- Most women / couples can achieve their desired family size even when they start having children relatively late (age 30-35)

# DELAYED CHILDBEARING AND COMPLETED FERTILITY

SWEDEN: no aggregate effect of fertility postponement on fertility rates



# Is there a reason for concern about the ongoing shift to a late childbearing pattern?

- Most studies suggest that this shift has a negative, although modest, effect on cohort fertility rates
- This effect likely to become more pronounced if fertility postponement continues further (as it does in many countries)
- High-educated women are likely to be most affected

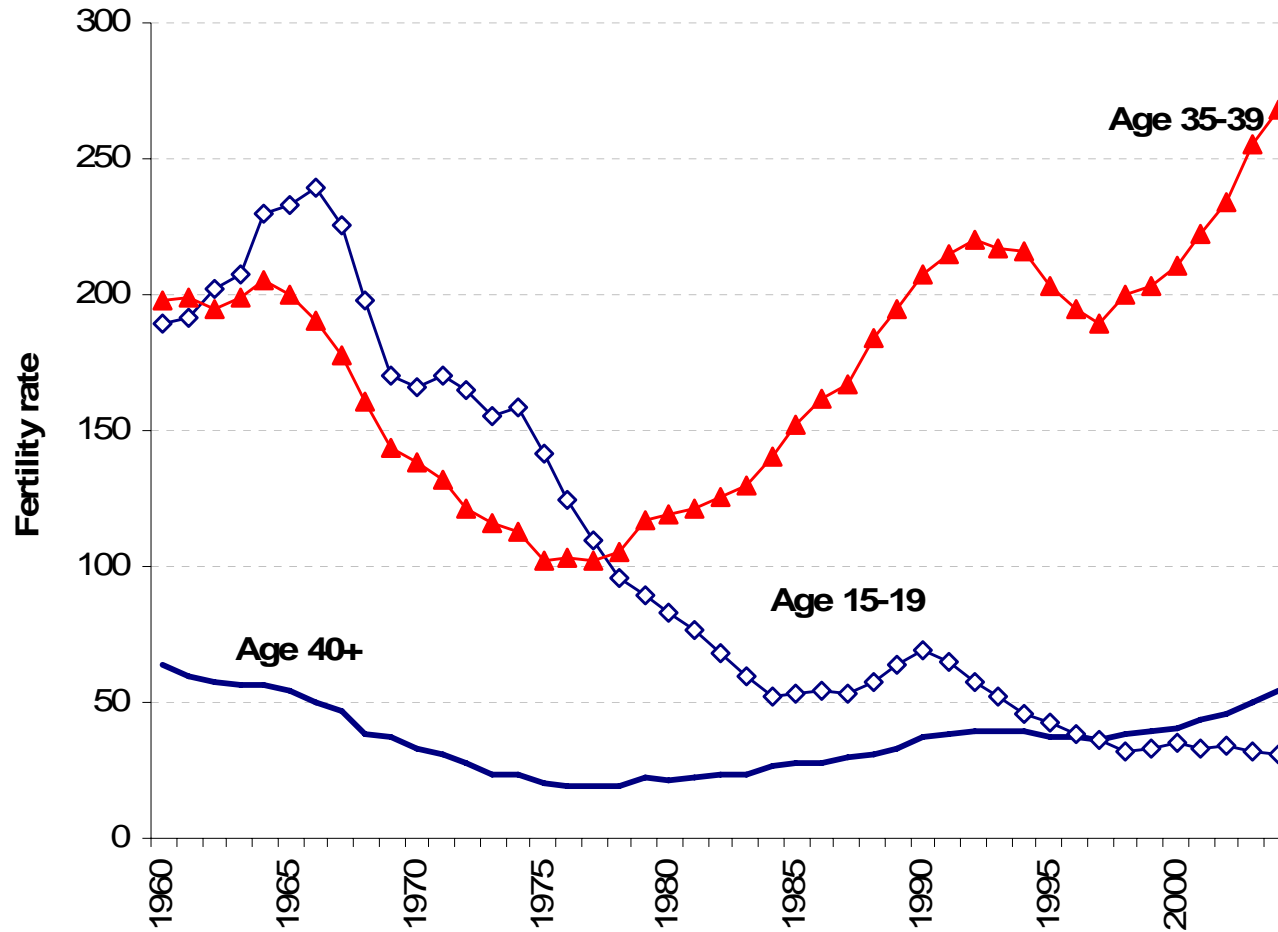
**Estimated proportion of couples permanently sterile by woman's age**

Age	Unable to have a live birth				No more conception
	Vincent 1950	Henry 1953 (Norway)	Leridon 1977	Menken-Larsen 1986	Leridon 2005
25	6	5	6	7	1
30	10	8	10	12	2
35	17	13	17	22	5
40	37	24	29	46	17
45	75	50	50		55

The effect of age also important for men!

Source: Leridon 2005

# Trends in late childbearing in Sweden



# Pushing the age limits: rise in childbearing at ages 40+

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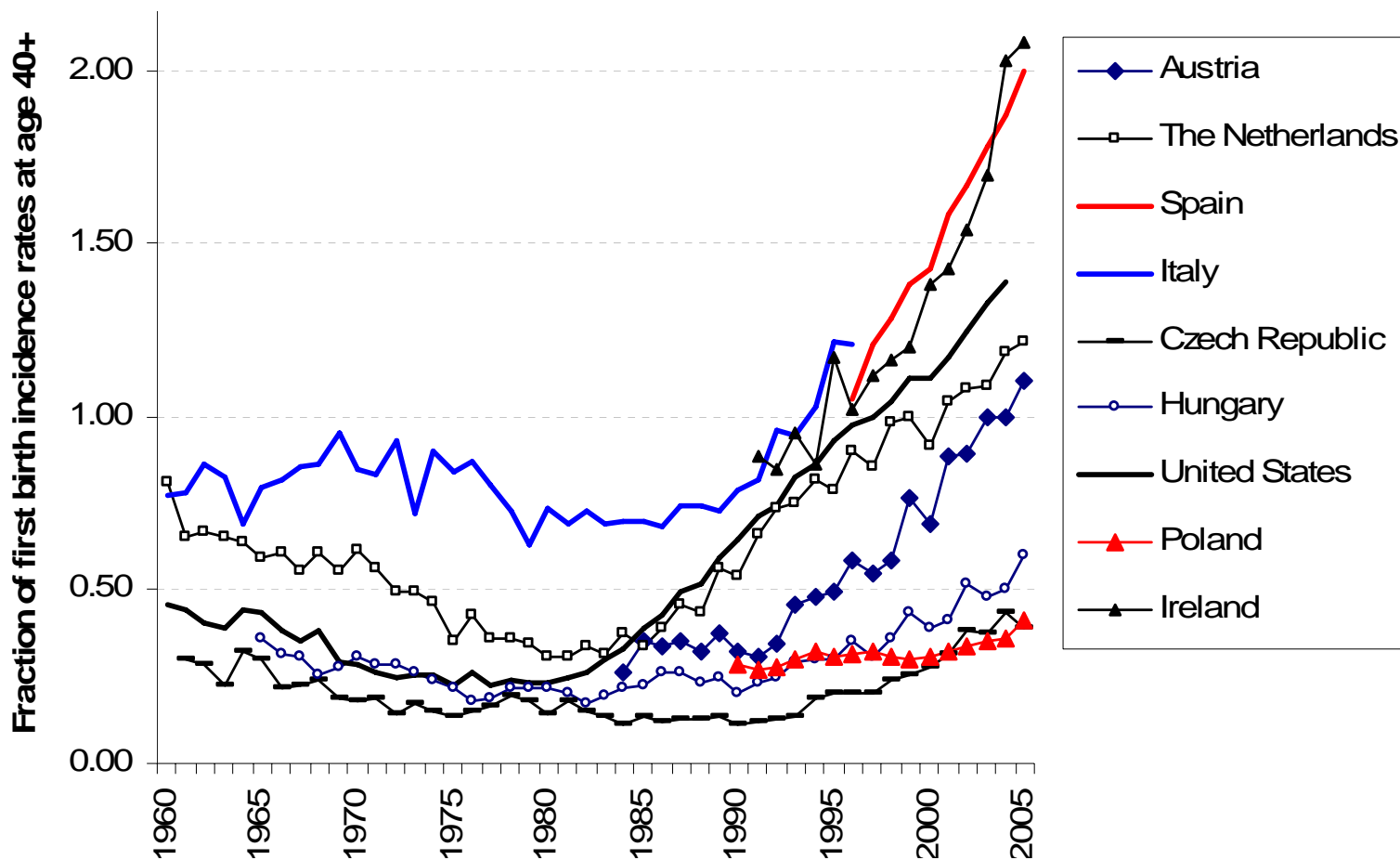
By the 1970s “late fertility seemed destined to disappear” (Prioux 2005)

**Trend reversal** in many countries since the 1980s: rising fertility rates, numbers of births, and the fraction of total fertility at ages 40+ (Billari et al. 2007)

- Trend towards later childbearing, especially among highly educated
- Rescaling of the life course? (Lee-Goldstein 2003)
  - rather strict biological limits (‘deadlines’) to postponing childbearing
- Late childbearing (i.e., childbearing at ages 40+) comes close to these limits – the notion of ‘biological clocks’
- Also linked to advances in assisted reproduction (ART)

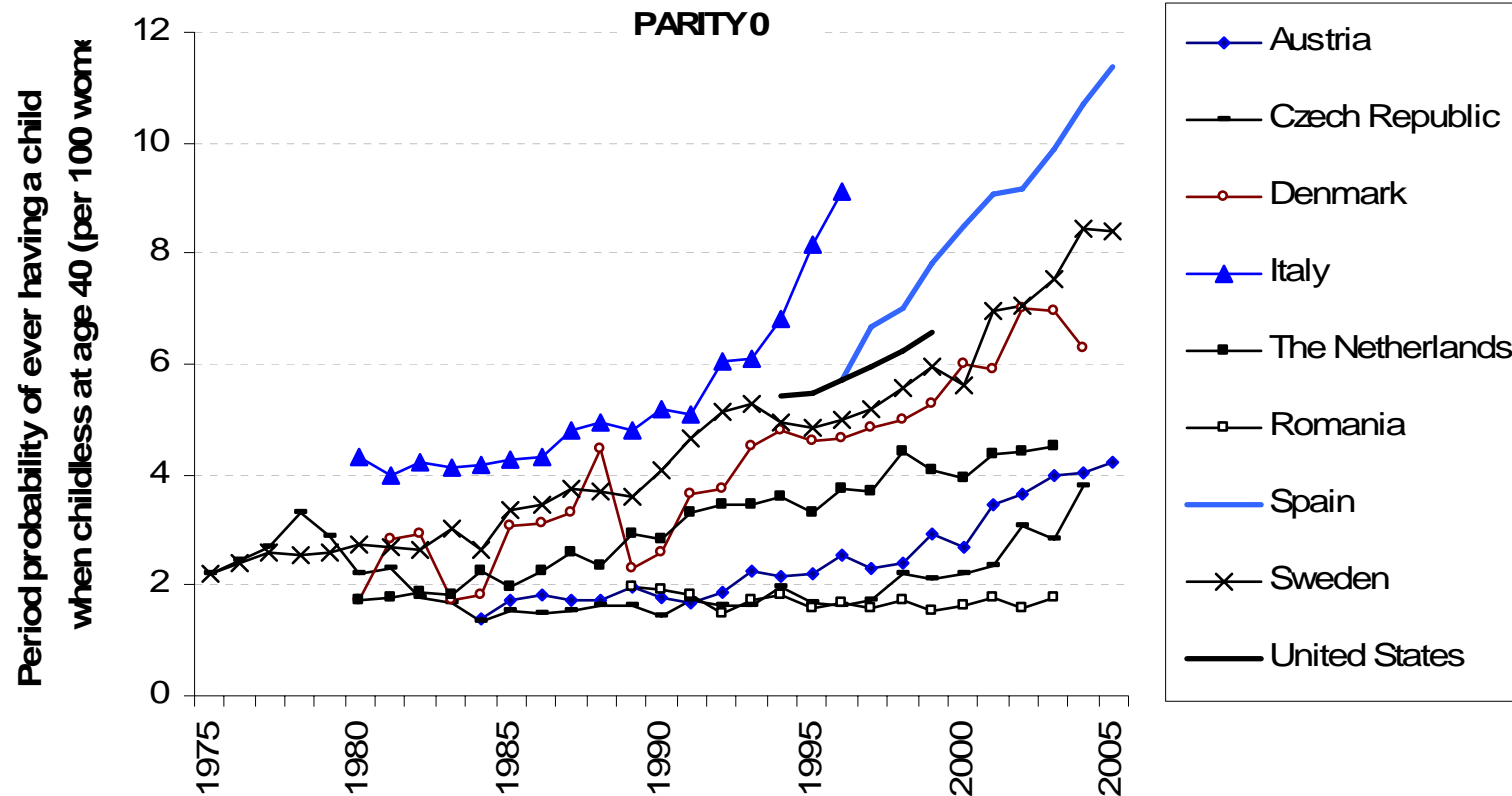
# First-time motherhood at late ages

- First birth rates among women aged 40+ and their share on the first-order TFR increasing more rapidly than the overall late fertility rates
- Frequency of late first births at the record-high level in many countries



**Data sources:** computations based on Eurostat (2006), CBS Statline, Statistics Austria and NCHS (2006)

# Life table indicators of late childbearing intensities: (Period) probability of ever having a(nother) child specified by parity at age 40



Notable rise in late childbearing intensity observed in most countries among childless & those with one child

- The percentage of children born to mothers aged 40+ still relatively low in most countries (around 3 percent in the EU) when viewed from a historical perspective

### **So...why to worry about it?**

- This share increasing rapidly
- Linked to progressively delayed childbearing, and thus very likely to continue
- (very) late childbearing becoming more frequent among childless women

- **The threat of unfulfilled fertility desires**
  - Potentially serious psychological problem, especially for women aged 40+
- **ART and late childbearing:** delayed childbearing fuelling the demand for ART
- **Health consequences** of very late childbearing
  - Possible aggregate effects on infant mortality rates, congenital anomalies, and health of newborn children and their mothers (Lansac 1995)
  - More negative outcomes of late motherhood for childless women? (Gilbert et al. 1999)

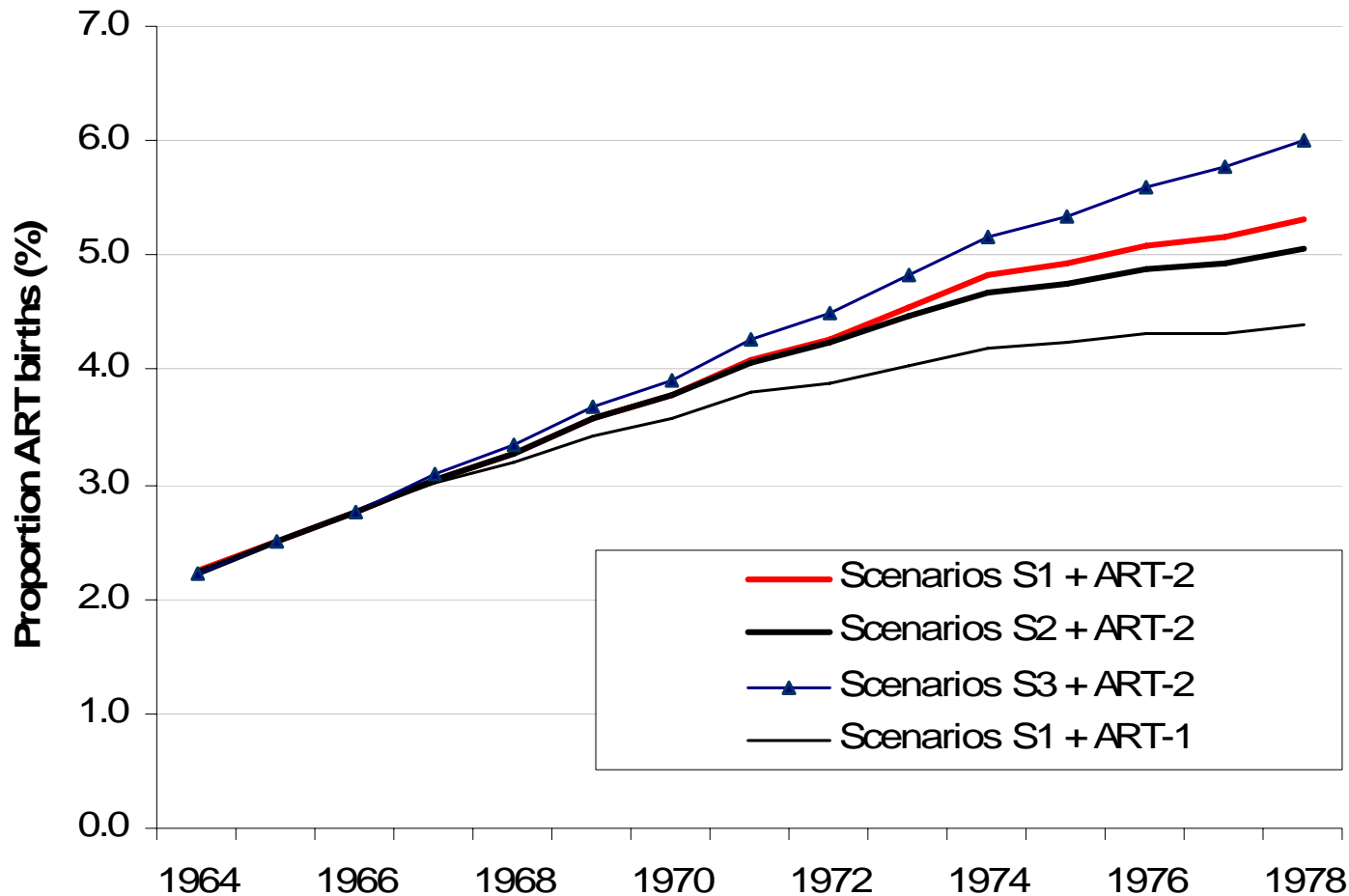
# Can ART provide a solution to the childbearing desires of women at late reproductive ages?

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ART has a rising impact on fertility in Western countries:

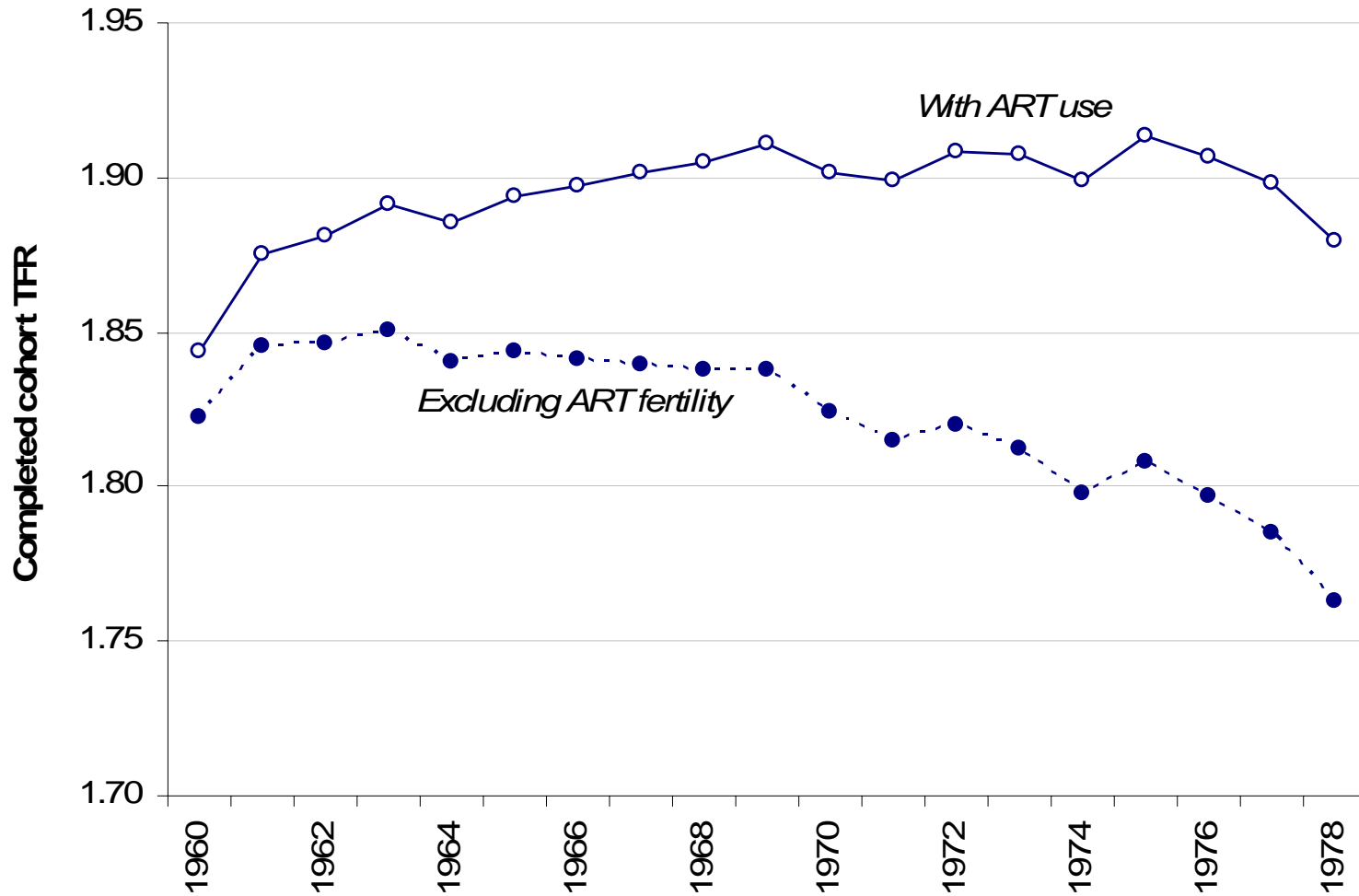
- An increasing number of births after an ART (2-3 percent in most Western & Northern European countries in 2003)
  - Sweden: 2.25 % ART kids in 1997, 2.9 % in 2003
- Huge increase in the number of multiple births in the 1990s
- Helps realising fertility desires among infertile couples
- Pushing the age limits of childbearing:
  - January 2007: a single woman from Spain named Carmela Bousada gave birth to healthy twins one week before her 67th birthday (and 18 years after reaching menopause)

# DENMARK: Projected proportion of children born after ART treatment, different scenarios



Denmark 2002: 4.2 percent births after an ART treatment, 6.0 percent if intrauterine inseminations included

# DENMARK: Completed cohort TFR with and without ART use (trend scenario)



# The potential impact of ART may be overstated

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RAND report (Grant 2006): Policies supporting ART use may have a positive affect on fertility rates;

- ART as a part of population policy mix?

Thaele and Uszkoreit (2007): “...*fertility treatment is more than a medical need: fertility treatment plays a major role in battling negative population growth*”

However: ART’s potential to increase fertility and slow-down population ageing is limited

- The ‘net effect’ of ART on fertility minor and less important than some other factors (childcare policies, immigrants’ fertility, flexible work)
- Hoorens et al. (2007): TFR in the UK may increase by 0.04 (+ 2 %) to 1.68 if UK women had the same ART use as women in Denmark (many assumptions involved)

# ART is ill-suited as a means of helping women who postponed motherhood to (very) late reproductive ages

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- Nature, 4 November 2004: “*Age is no barrier*“
- New Scientist April 2007: „*Reproductive revolution*“
- But: ART particularly ineffective for a rapidly rising number of women who postponed childbearing past age 40
  - Leridon 2004: ART makes up for one half of births lost by postponing childbearing from age 30 to 35, but is as ineffective as spontaneous conceptions for women aged 42
  - Live birth rate after non-donor ART in the US in 2003: 15.6 % at age 40, 12.6 % at age 41, 8.9 % at age 42 (CDC 2005)
- Technology advances fuel a false perception of reproductive control - an illusion of control over the timing of conception

Yoga instructor, aged 29, quoted in Hewlett (2002: 115):

*„...Which brings me to forty. At that point, I'll be ready for marriage and family. I can't tell you how glad I am that this new reproductive technology virtually guarantees you that you can have a baby up until forty-five. Or maybe it's even later. It seems that every time I pick up the paper there's another medical breakthrough. Go, doctors!“*

# CONCLUSIONS

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## Fertility trends in Europe: Not all the news are bad

- Some European countries (+ the U.S.) retain fertility close to the 'replacement level' Extreme low fertility rates are probably temporary
- No further decline in fertility rates in most of Europe
- Fertility desires and ideals remain at or above 2 children per woman even in the most individualistic and 'postmodern' societies
- Migration can substitute most of the births 'missing' due to low fertility in many parts of Europe (Southern Europe, Central Europe)

# Sweden shows that very low fertility is not inevitable in Europe

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Sweden retains fertility close to the ‚replacement level‘ despite being one of the first countries experiencing low fertility and also being a ‚trend-setter‘ in many changes often related to fertility decline:

- the collapse of the ‚traditional family‘
- shift to a high education level, especiall among women
- contraceptive revolution
- women‘s emancipation
- delayed childbearing
  - The role of public policies (not explicitly pronatalist!), welfare state, gender equality, and social system that has accommodated well to the changed family behaviour

# The paradox of delayed childbearing: The clash between social / economic and biological rationales

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## Social & Economic rationale for late childbearing

- Better income & labour market position
- Smaller loss of income (,motherhood penalty‘)
- Finished education
- Own housing
- Satisfaction of consumer and leisure aspirations
- More stable partnerships
- Social maturity, better ability to educate own children

## Biological rationale for an early childbearing

*The challenge for reproductive medicine and public health:*

*These two rationales are increasingly in conflict: Reproductive biology still imposes strict limits on prospective mothers and their partners*

# The paradox of delayed childbearing: The clash between social / economic and biological rationales

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The challenge for reproductive medicine and public health:

*These two rationales are increasingly in conflict:  
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Questions?

Comments?

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