

Demographic change and European competitiveness

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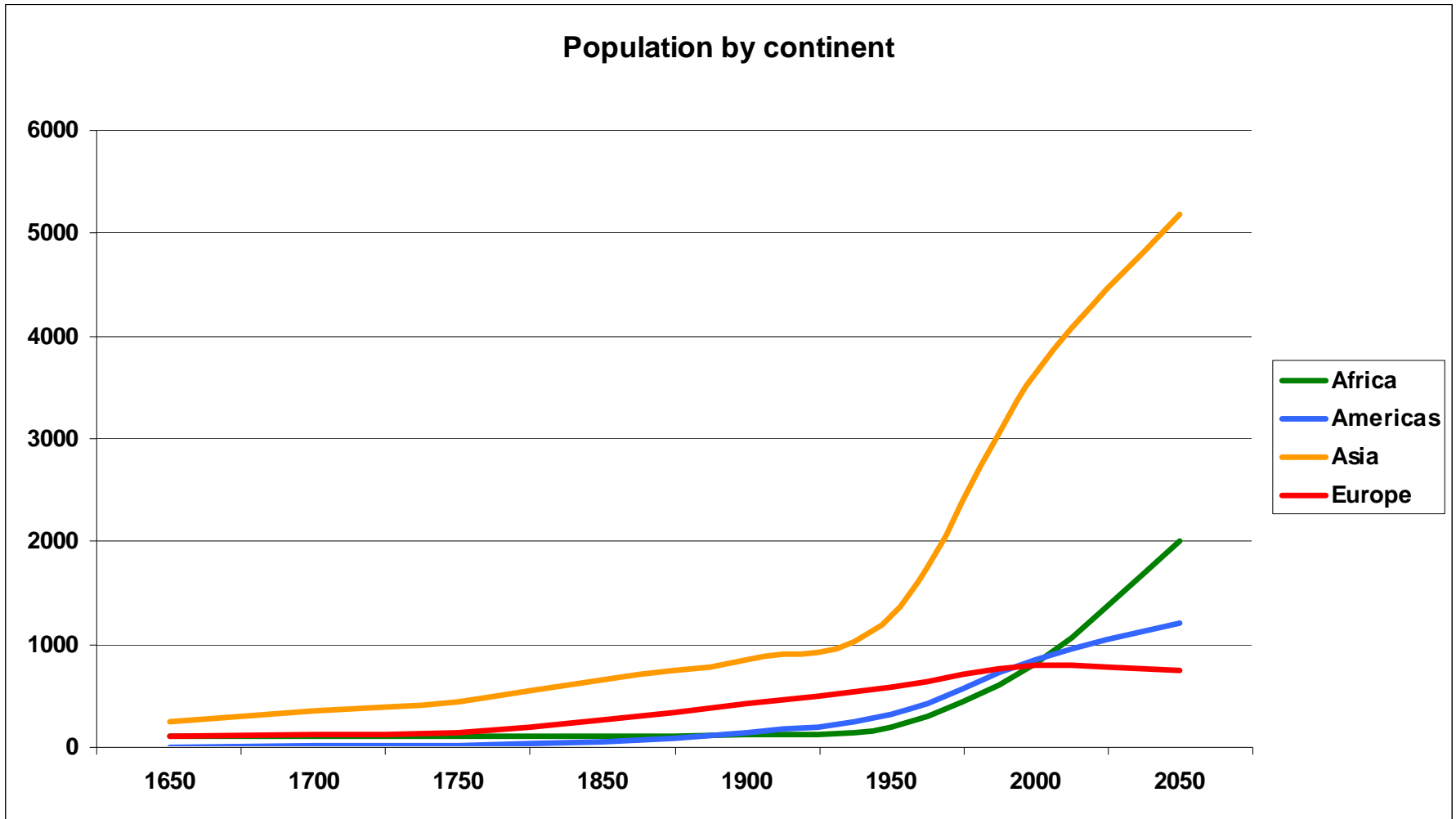
Questions to be considered

- European population in perspective
- Do Europeans support policies that could lead to population growth?
- Ageing in Europe
- Adapting to an ageing population
- Work performance by age
- Age and employment security

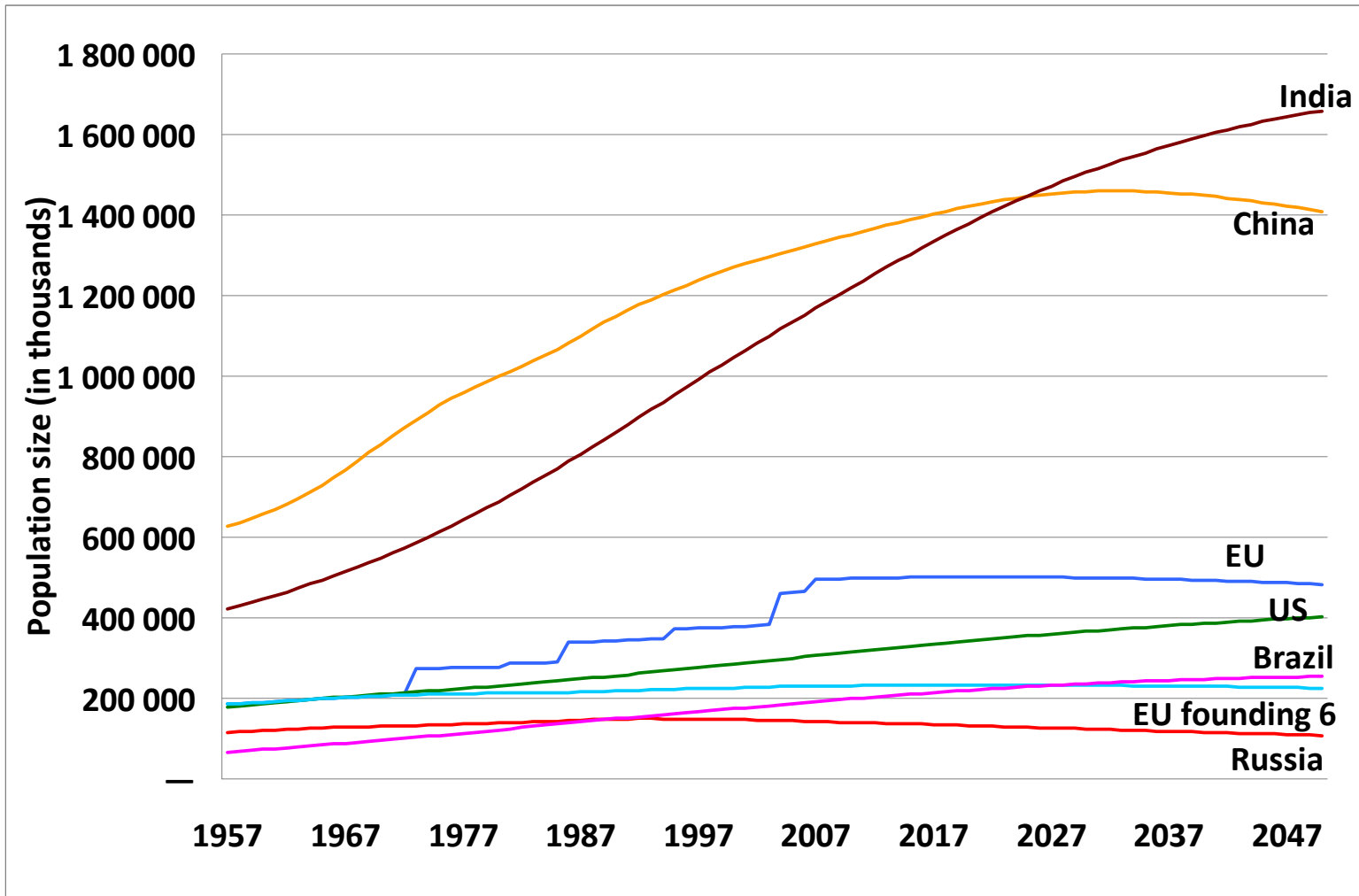
European population in perspective

Europe's population may decline

- relatively and perhaps absolutely



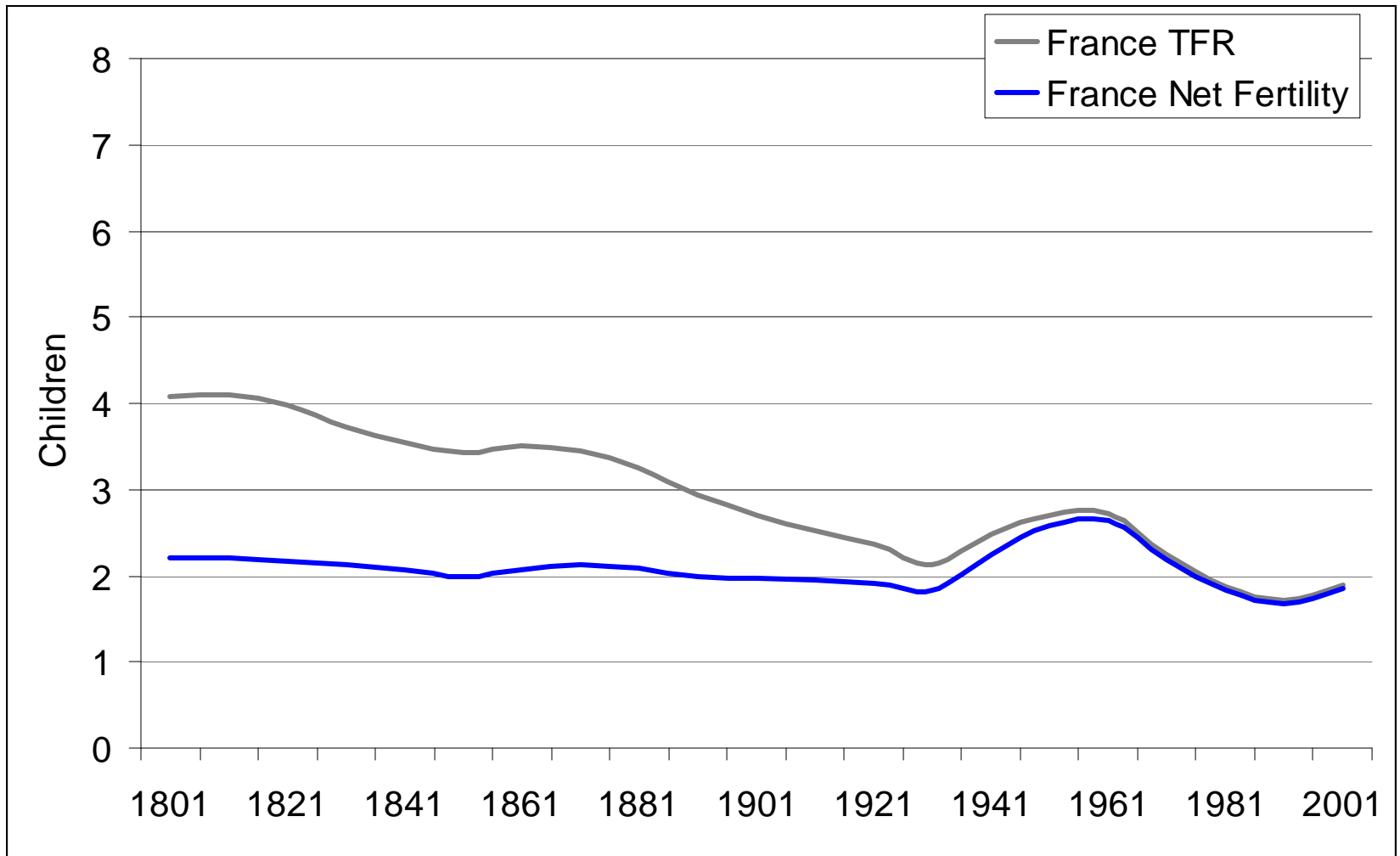
...but EU grows through expansion



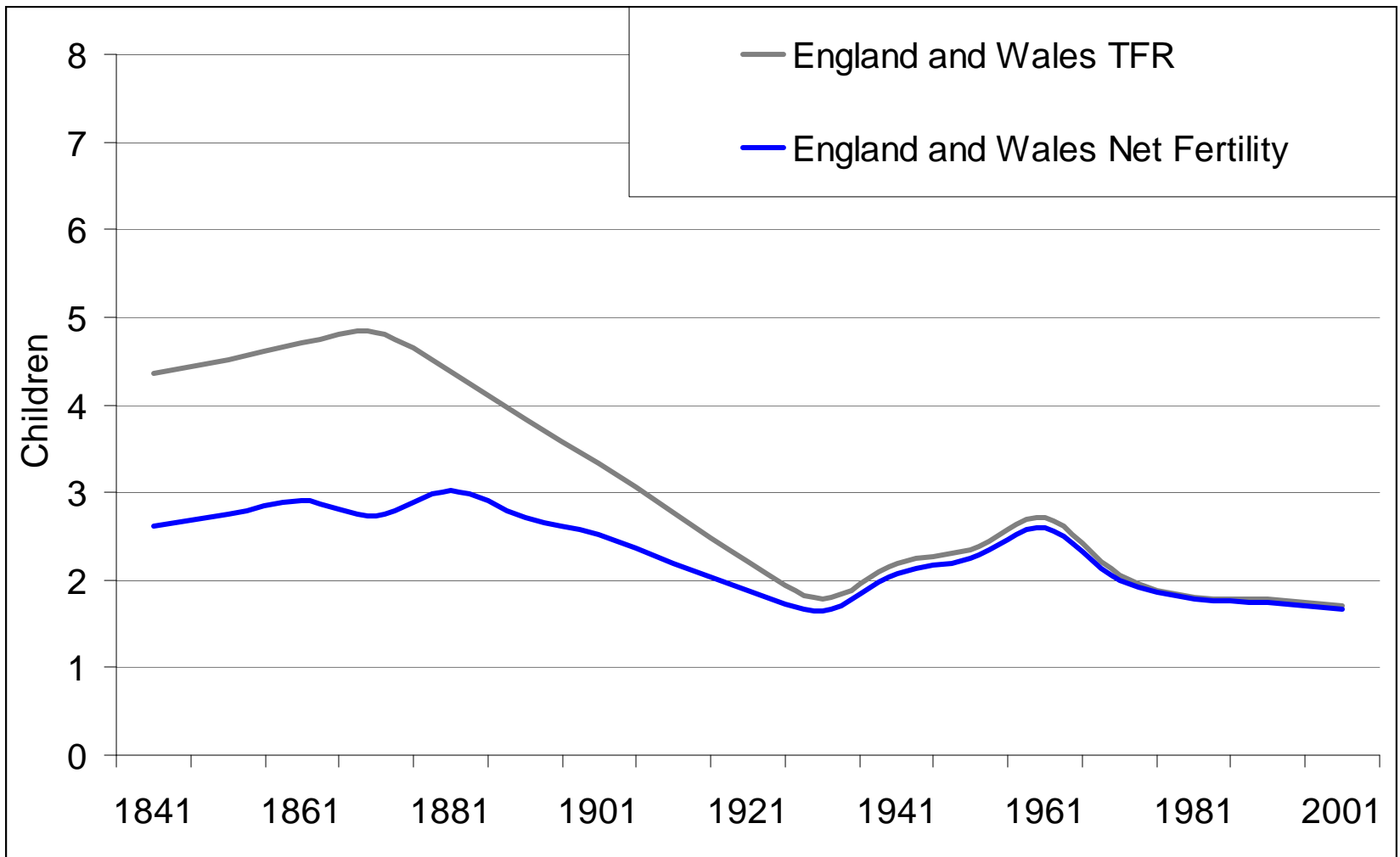
European demographic changes are relatively slow

- Net fertility averaged slightly above 2, leading to slow population growth across the world
 - (West)-Europe tended to have low gross fertility, 4-5 children
 - high levels of premarital celibacy and late marriage
 - perhaps 10-20% never marry
 - Evidence from other world regions suggests higher fertility
 - marriage was young and universal
 - net fertility levels perhaps similar

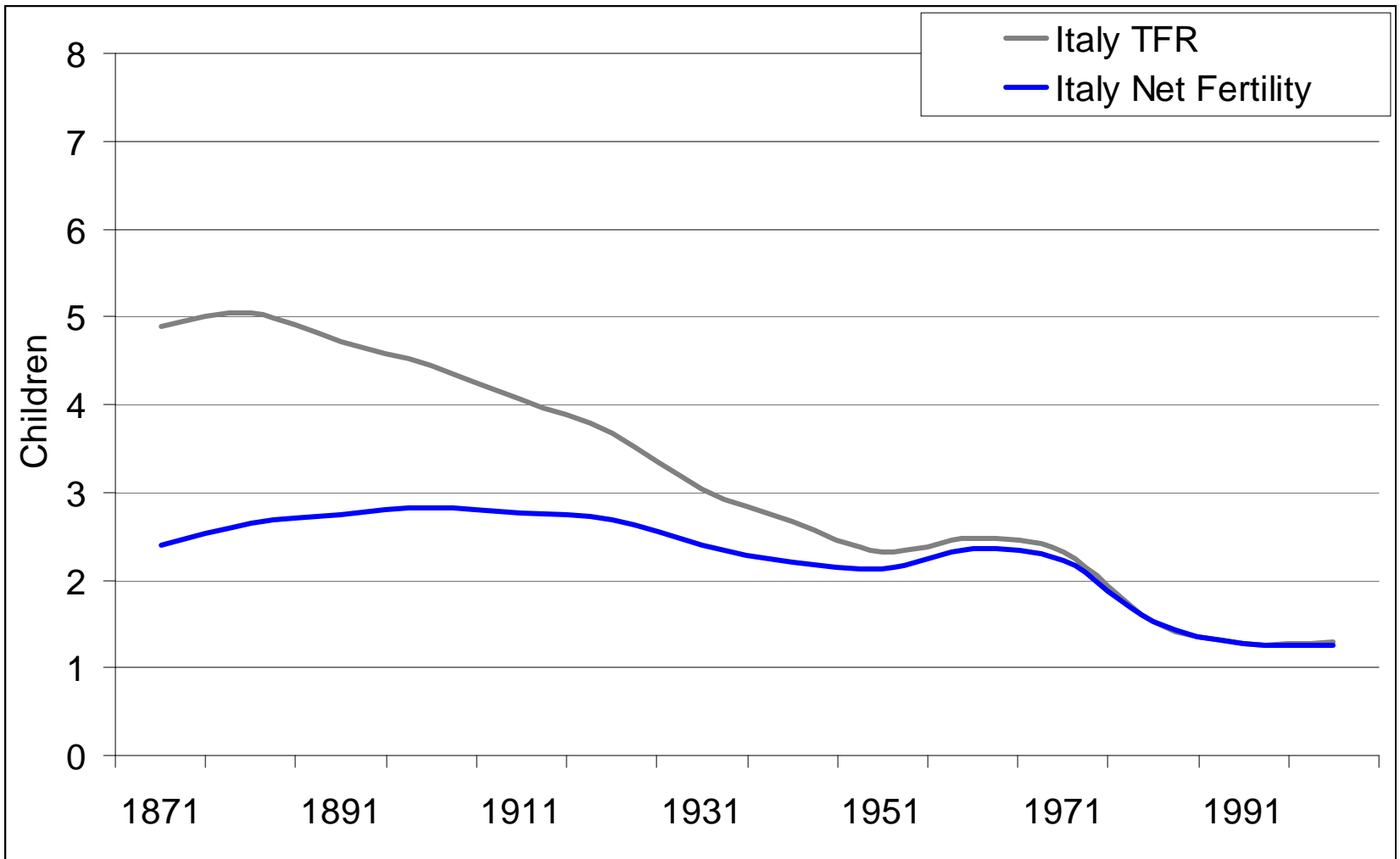
France



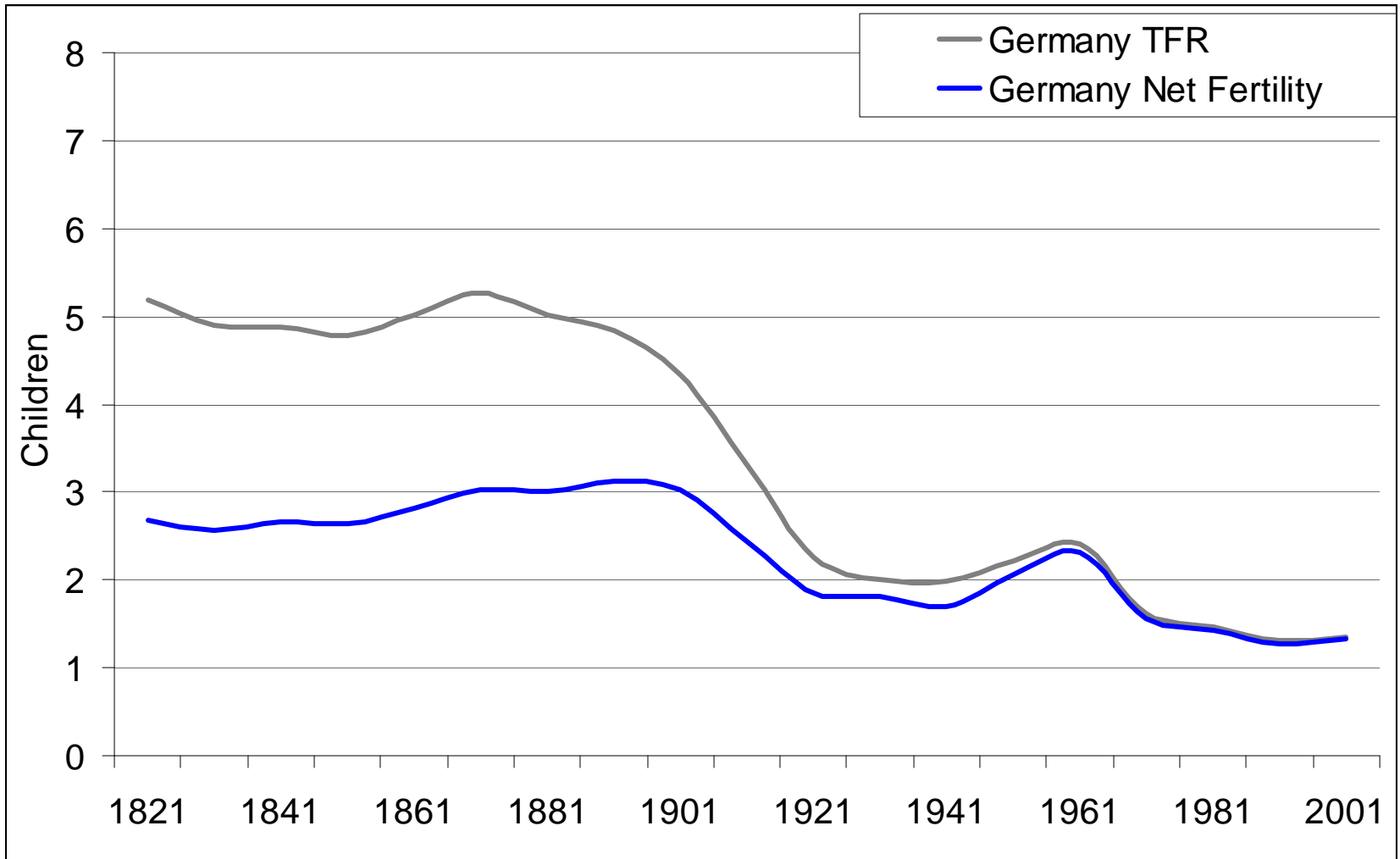
England and Wales



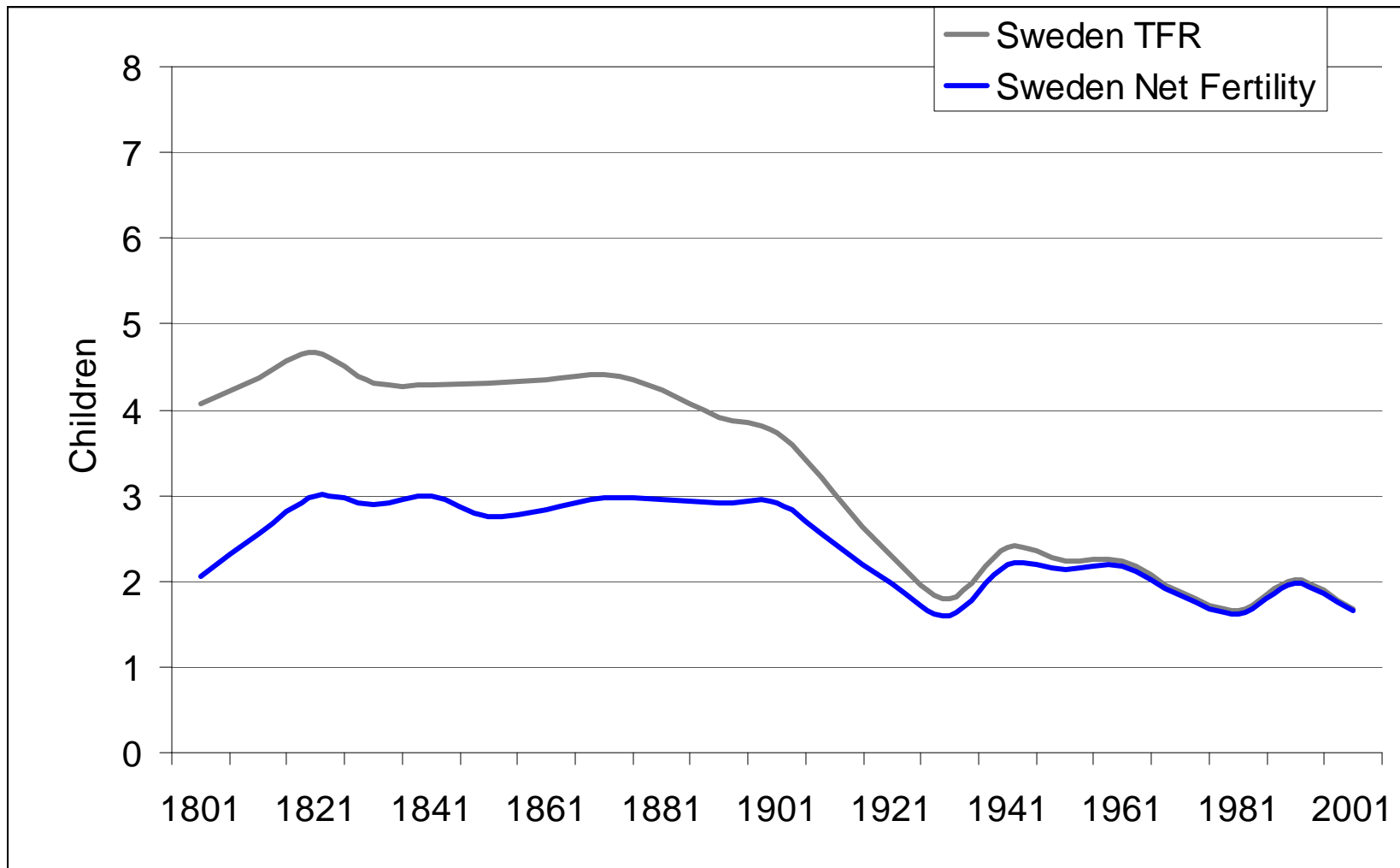
Italy



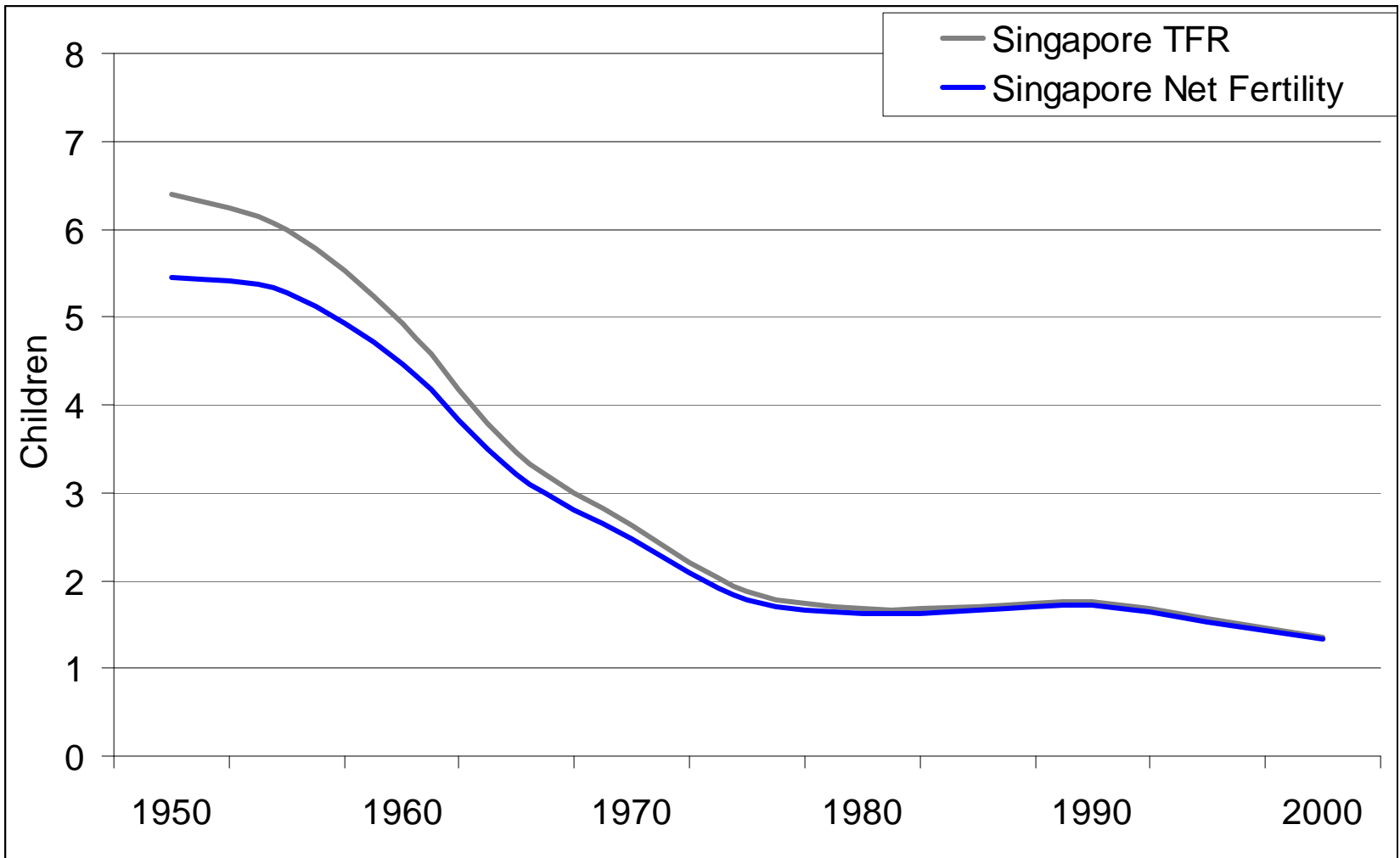
Germany



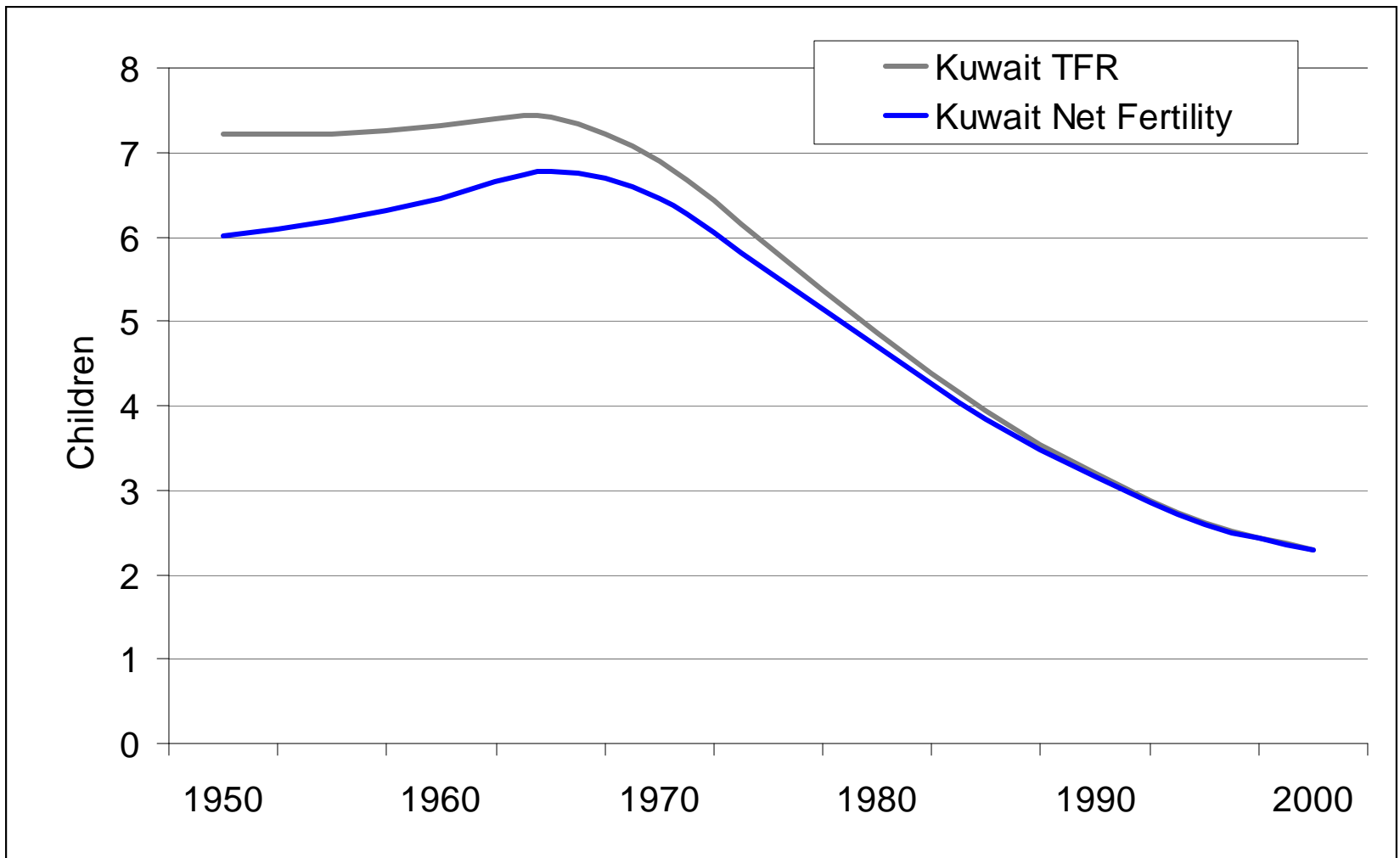
Sweden



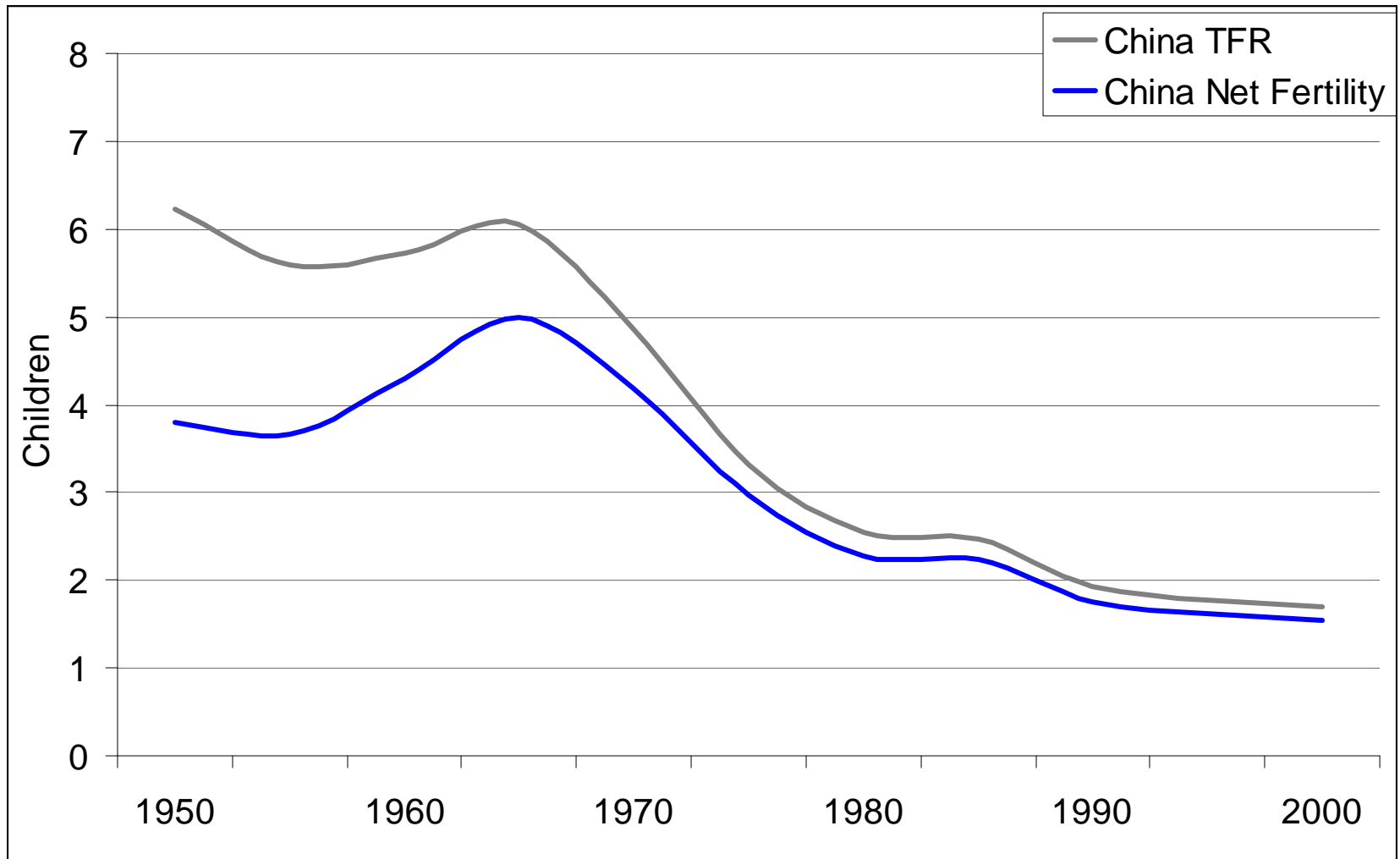
Singapore



Kuwait



China

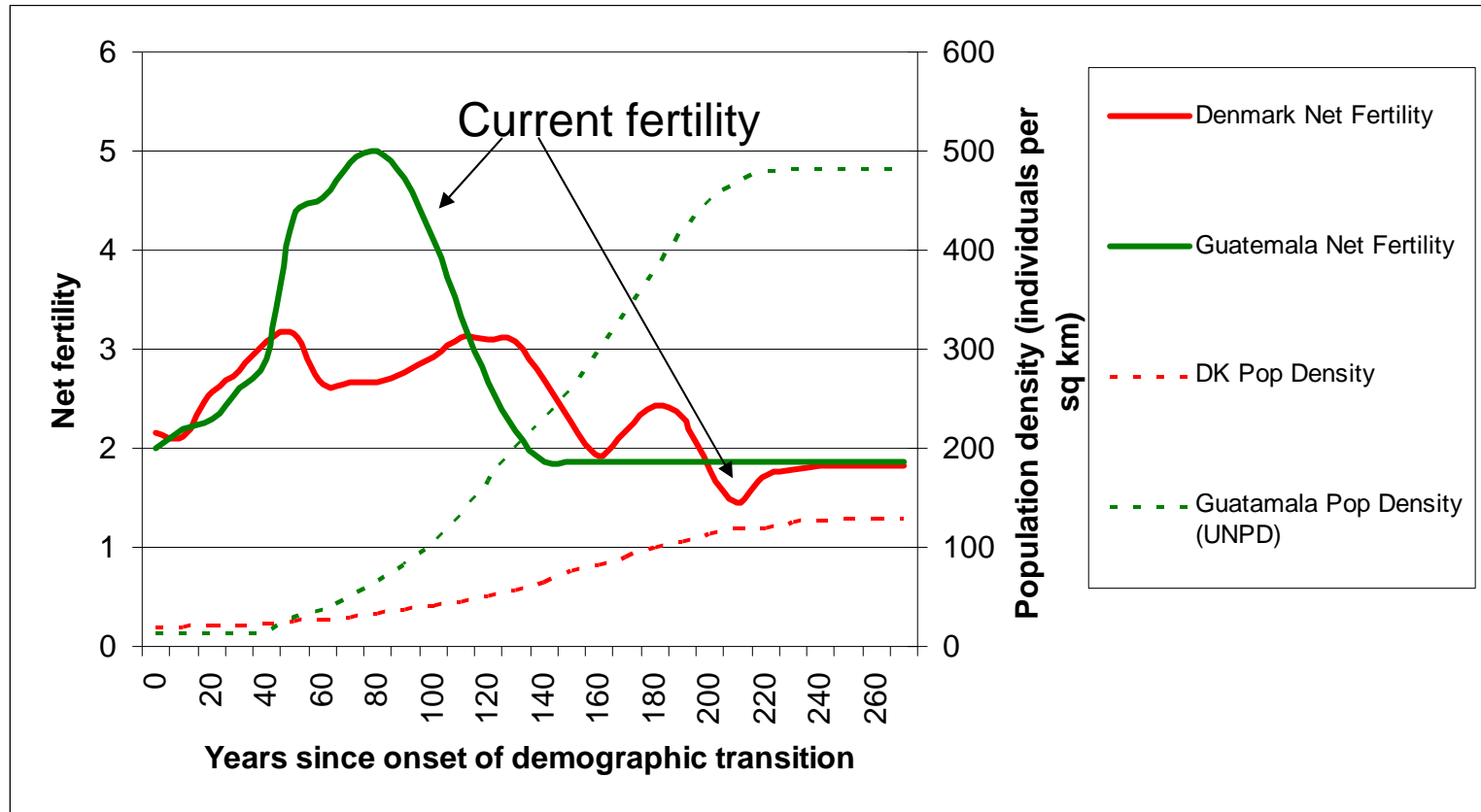


Demographic transition

Europe grew 3-5 times, rest of world 8-24

	Population size onset of demographic transition	Population size, End of demographic transition	<u>(Size at end of transition)</u> (Population Size 1900)
Algeria	4.7	67	14.3
Egypt	11.2	121	10.8
Madagascar	2.2	49	22.3
South Africa	5.2	103	19.8
Tunisia	1.9	20	10.5
Brazil	17.4	285	16.4
Colombia	4.3	62	14.4
Guatemala	1.4	33	23.6
Venezuela	2.3	45	19.6
India	235.5	1888	8
Indonesia	37.7	355	9.4
Pakistan	45.5	400	8.8
Philippines	7.6	172	22.6

Demographic transition



Beginning of demographic transition: Denmark and Guatemala similar, both with population of 1 million
 GDP per capita: Denmark, 1820: 1584 USD, Guatemala, 1920: 1583 USD

Denmark (1820-1970): 5 times greater population (similar to other European countries)
 Guatemala (1920-2050 est.): 25 times greater population

Per capita GDP in 2007: Denmark: 57137 USD, Guatemala: 2532 USD

*USD in 2007 levels, Sources: Maddison 2008, IMF 2009, Cleland 2001

Population-environment relation debated

- UN

"Population is clearly an important factor," said Yvo de Boer, head of the U.N. Climate Change Secretariat, at U.N. talks trying to plan a new deal to combat climate change after 2012.

- China

Chinese Gov't spokesperson Su Wei: [Through our low fertility policies] "we averted 1.3 billion tonnes of carbon dioxide in 2005... equals a country that would rank just ahead of Germany, behind only the United States, China, Russia, India and Japan."

- US

Harlan Watson, chief U.S. negotiator at U.N. Climate Change Secretariat: "high immigration to the United States makes it harder to slow its rising emissions. It's simple arithmetic. If you look at mid-century, Europe will be at 1990 levels of population while ours will be nearing 60 percent above 1990 levels. So population does matter," (*Reuters, August 30, 2007*).

- Great Britain

The head of the British Government Committee on Climate Change, Adair Turner, recently warned about the challenges of population growth to the UK for national prospects (Turner 2007).

- The Netherlands

Native-born inhabitants in the the Netherlands increasingly emigrate to gain closeness to nature, more space, absence of noise, and enjoy a less densely populated country (Van Dalen and Henkens 2007)

Do Europeans support policies that could lead to population growth?

Positive attitudes to pronatalism?

- 48% of worlds' countries in 1976 and 68% in 2001 had population targets (UN World Fertility Report 2004)
 - EC (2006): reduce desired-realized fertility gap through policies
- 79%+ of Europeans support policies that could be seen as pro-natalistic (family support, tax breaks, parental leave, publicly supported kindergarten)
 - Pro-natalistic policies may have small or no effects (OECD 2003, Rand 2004)
 - Willingness to pay may decrease if recipients belong to other ethno-linguistic groups (Alesina et al. 1999, Luttmer 2001, Smeeding 2004)

Negative attitudes to immigration?

% agreeing that "*We should further restrict and control immigration*"

North America

Canada	62
United States	75

Asia

India	82
Pakistan	74
Turkey	74

Africa

Kenya	83
South Africa	89

Latin-America

Brazil	72
Mexico	71

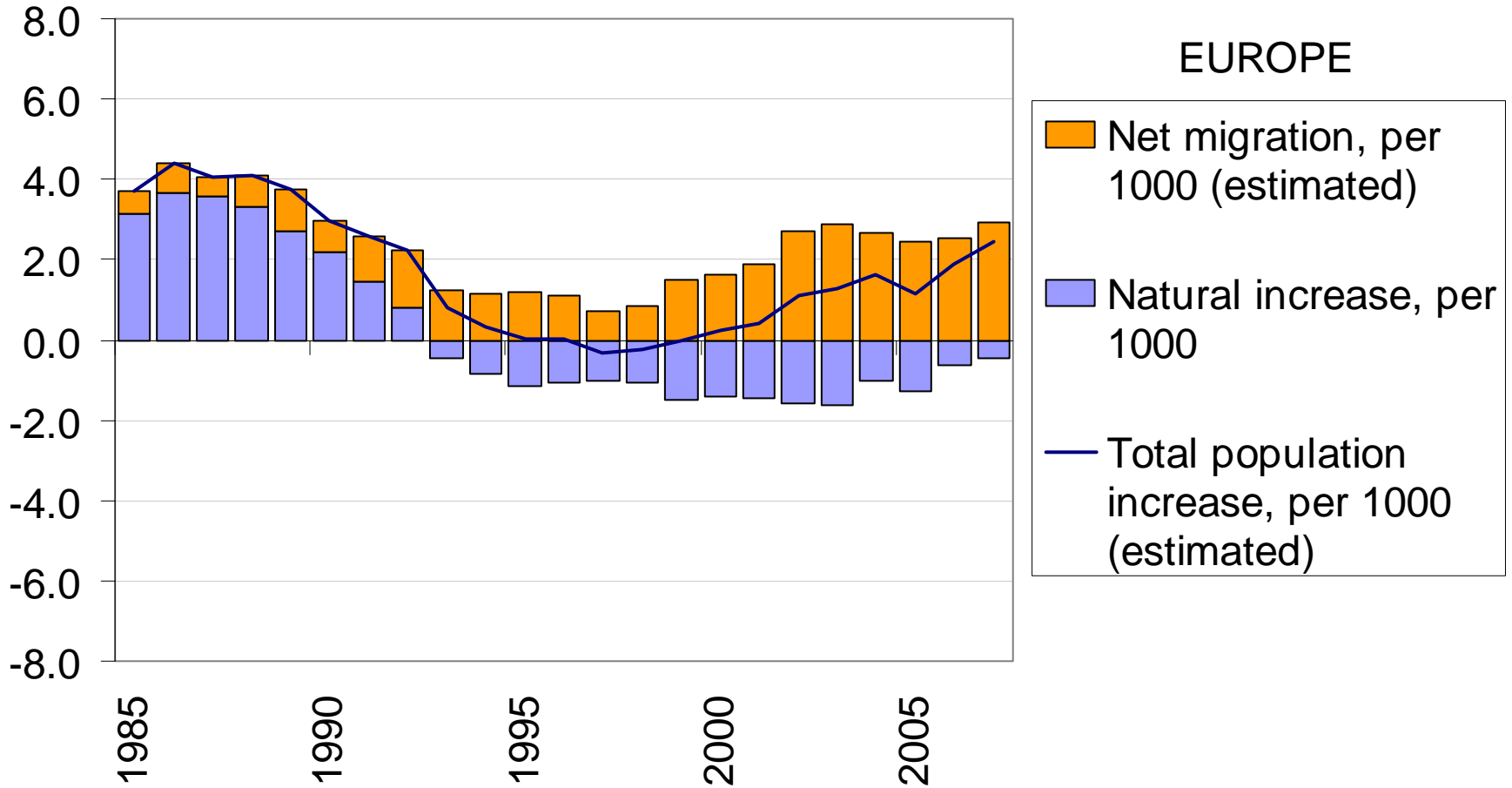
Europe

France	68
Germany	66
Great Britain	75
Italy	87
Poland	77
Spain	77
Sweden	75
Europe average	69

...but attitudes more positive to high skilled immigrants

Source: PEW 2007, Mayda 2006, Blom 2008

Immigration high in recent years



Immigrants' fertility increasingly important

	Period	Births to immigrant women (%)	Births to immigrant women, 1 st + 2 nd gen. (%)	Births to foreign mothers (%)	At least one parent foreigner (%)	Source
Denmark	1999-2003	13.5		11.1		Statistics Denmark 2004
England and Wales	1980	13.3				Schoorl 1995, p. 100
	1996	12.4				ONS 2005, p. 51
	2004	19.5				ONS 2005, p. 52
France	1991-98	12.4				Toulemon 2004
	1998				14.5	Prioux 2005, p. 449
	2004		15 (est. Heran & Pison 2007)		18.2	Prioux 2005, p. 449
Italy	1999			4.0		ISTAT 2006
	2004			8.7		ISTAT 2006
The Netherlands	1996	15.5	21.0			CBS Statline 2006
	2005	17.8	25.5			CBS Statline 2006
Spain	1996			3.3	4.5	Instituto Nacional de Estadística 2006, Vila and Castro Martin 2005
	2000			6.2	7.9	
	2004			13.7	16.9	
	2005			15.0		
Sweden	2005	19.5		11.8		Statistics Sweden 2006
Switzerland	1980			15.3		Coleman 2003
	2000			22.3		Swiss Statistical Office
	2005			26.3		2006

Immigrant fertility by country of origin

Country of residence	Period	Country (region) of origin					Source
		<i>Somalia</i>	<i>Pakistan</i>	<i>Turkey</i>	<i>Iran</i>	<i>(Western) Europe³</i>	
Austria	2000–05 ¹⁾			2.96			Kytir 2006
Denmark	1999–2003	5.21	3.58		1.84	1.57	Statistics Denmark 2004
England and Wales	2001		4.7				ONS 2006
France ²⁾	1991–98			3.21		1.66	Toulemon 2004
The Netherlands	2005	4.4 (1999)		2.22	1.1 (1999)	1.45	CBS 2006; the Netherlands chapter
Norway	1997-8	5.2	3.59	3.09	1.92	2.02	Østby 2002
Sweden	2005	3.82		2.62	1.31	1.57	Statistics Sweden 2006

Source: Sobotka 2008

Ageing in Europe

Ageing is global

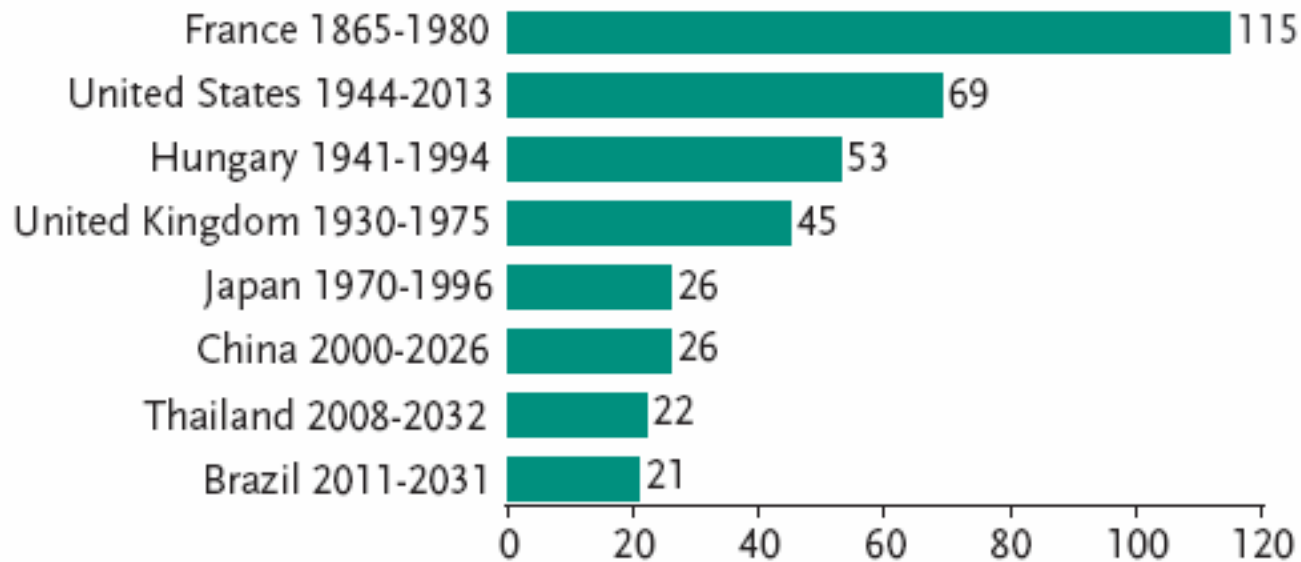
”A substantial degree of population ageing is expected over the next few decades in all regions of the world

[...] unlikely that policy interventions intended to encourage childbearing in low-fertility countries could substantially alter this expectation.

[...] no plausible assumption about international migration levels would have more than a moderate impact on the expected degree of population ageing that will be experienced in future decades by countries all over the world.”

Europe ages quite slow

Number of years it takes for 65+ population to increase from 7% to 14%



Concerns in rapidly ageing Asia and Latin-America:

- China may “grow old before it grows rich”
- South America ages without preceding economic boom

Adapting to an ageing population

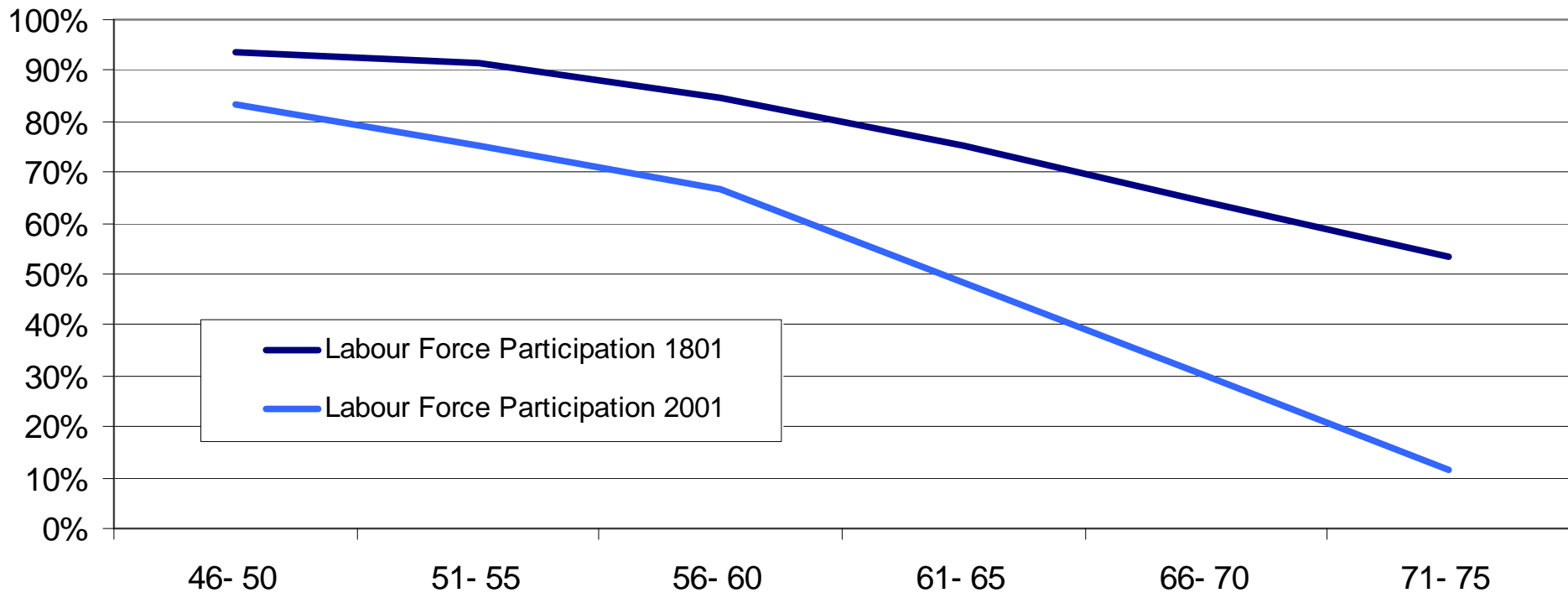
Later retirement -> stable dependency ratios

(working)/(non-working population), varying retirement age, Belgium	2010	2030	2050
ages 15- 59 years/ [ages 0-14, ages 60+]	1.33	1.01	0.88
Ages 15- 64 years/ [Ages 0-14, Ages 65+]	1.70	1.30	1.10
Ages 15- 69 years/ [Ages 0-14, Ages 70+]	2.04	1.69	1.35

Pension age varies considerably between countries

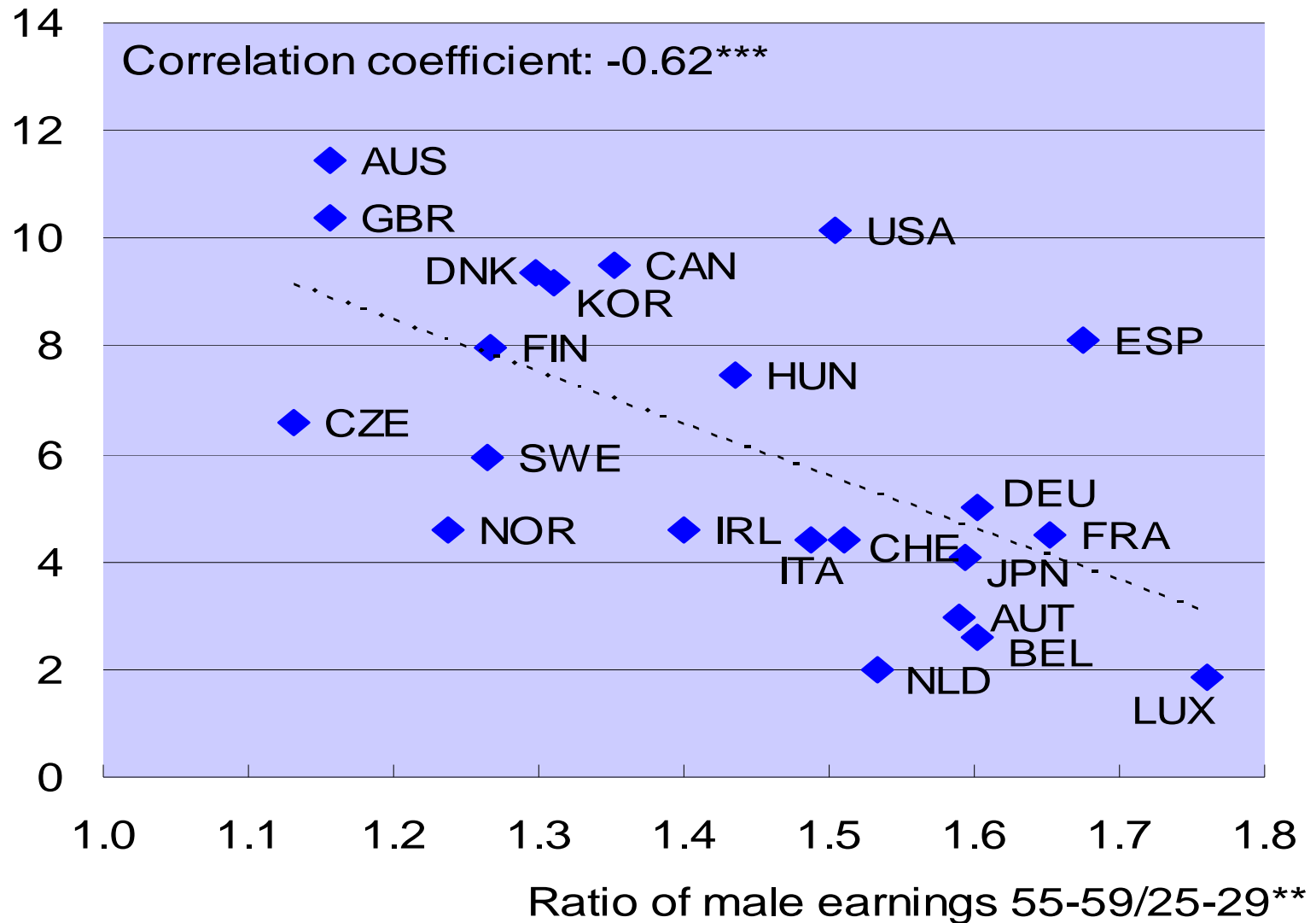
- OECD 2000-2005:
 - Male effective average retirement ages vary from 58 to 73 years
 - Belgium and Austria close to 59 years, Germany 62 years, Iceland and Japan 69 years, Mexico 73 years
- A number of factors affect retirement
 - Early retirement/disability pension generosity and practice
 - Retirement norms
 - Labour market policies

Employment by age, Norway 1801 and 2001



Lower senior wages - > increased hiring rate

Hiring rate of men 50-64 (%)*



Less steep earnings profiles relate to later retirement

- Firm data (US, Hong Kong, UK) -> elderly employment low when wage profiles are steep
- Japanese low wage but relatively high status late careers -> later retirement
- In Austria, reemployment probability of elderly displaced workers equal to that of prime age displaced workers -> when they accept lower wages

Policies for raising the age at retirement

- Work
 - Complex work with freedom to organize -> reduced cognitive decline
 - Part time positions, better career planning, incentives for longer work
 - Elderly friendly computer design, cognitive training, eyesight preventive measures
- Education and lifestyles
 - Exercise, on the job training, education, socialization, diet and lifestyles
 - Smoking lowers IQ by a fifth of a standard deviation, net of initial IQ differences
- Norms
 - End seeing 60s as the ages one should retire
 - Stop the view that senior employment is a cause of youth unemployment
 - 25-34 year about half as “entrepreneurial” as 45-54 year olds
(but Americans twice as entrepreneurial as Europeans)

Sources: Katzman 1993, Dave et al. 2006, Nilsson et al. 2003, Solfrizzi et al. 2003, Ball et al. 2002, Deary et al. 2003, Czaja and Lee 2007, Eva 2002, Cole et al. 2002; Glass et al. 1999, GEM 2008

Work performance by age

A hump shaped age-productivity profile, but high variation

Methods used to reveal age-variation in work performance include *supervisors' ratings, industry level data analyses, work samples, quantity-quality measures, ability tests, innovations, publications, entrepreneurship*. General finding: **Productivity declining or relatively stable in latter half of working life**

Unbiased estimates of productivity variation by age difficult (e.g., age implies career/promotion or retirement/demotion, confounding factors poorly measured/unobserved, estimates static - not dynamic)

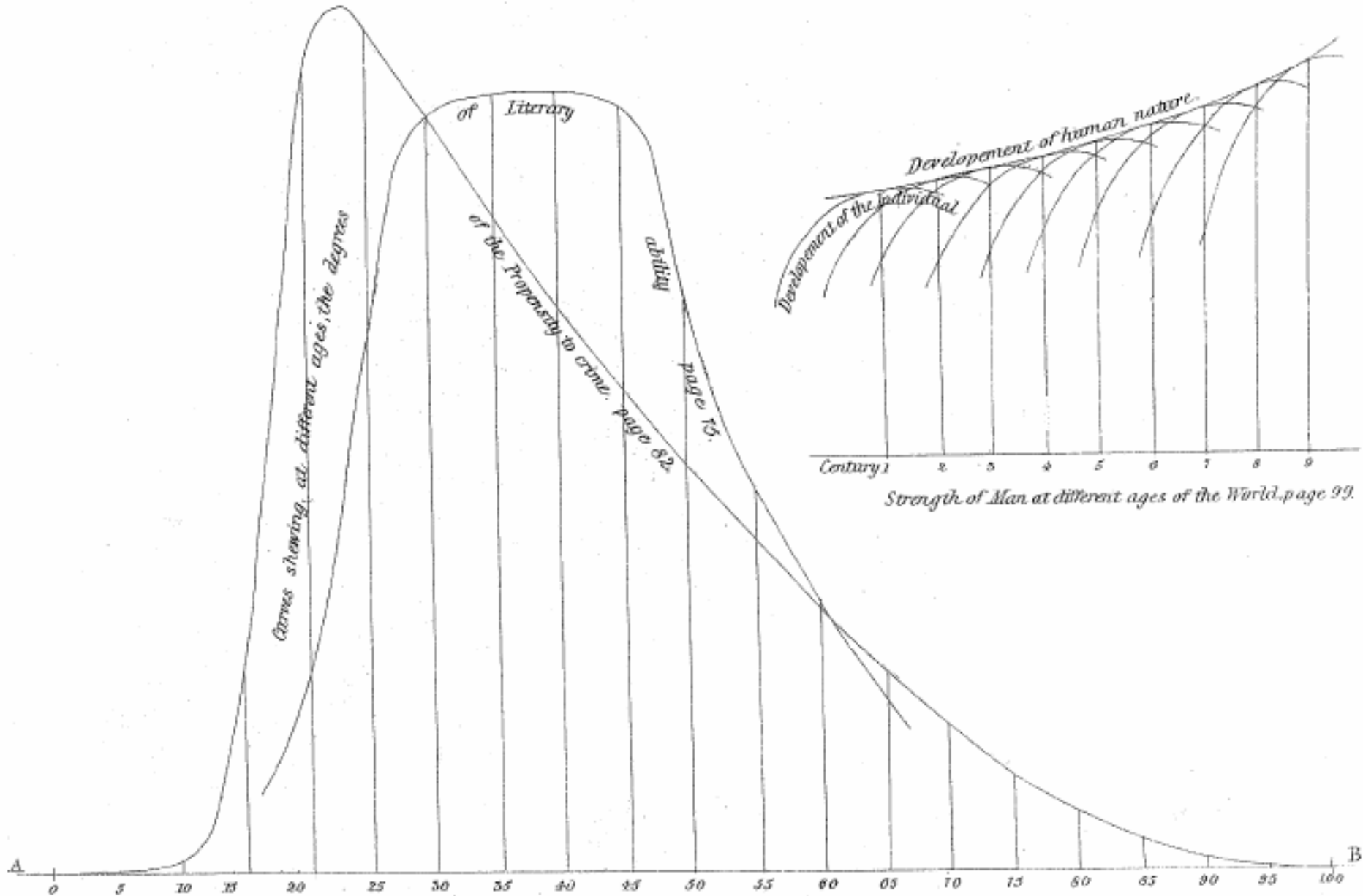
Sources: Dalton and Thompson 1971, Remery et al. 2003, Waldman and Avolio 1986, Warr 1994, Skirbekk 2004/2008

Age-productivity curves are not static

Ancient Romans described old age as *Mala Aetas* (*Bad Age*), Young Age as *Bono Aetas* (*Good Age*)

...but health and technology improvements imply that *Mala Aetas* is becoming a poor description of seniority

Age productivity variation changes over time

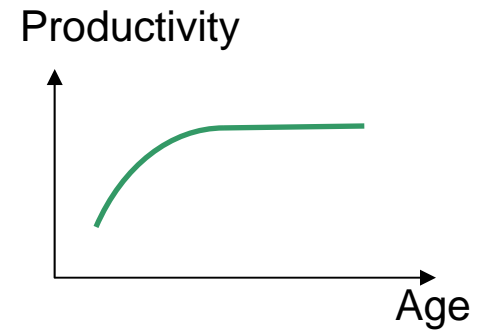
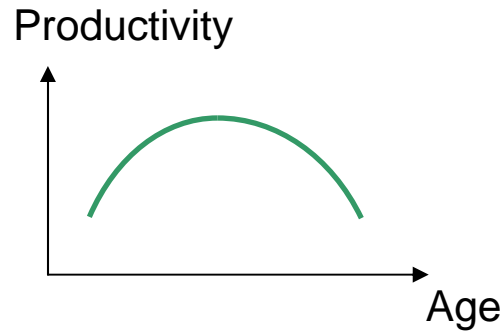


Age and productivity

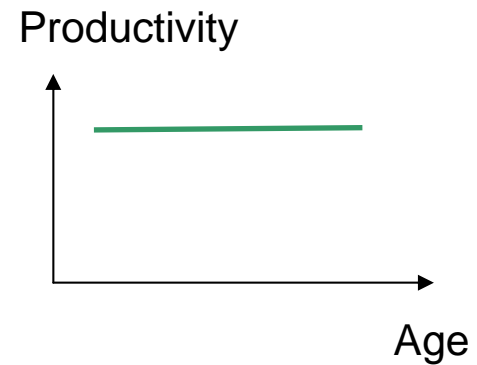
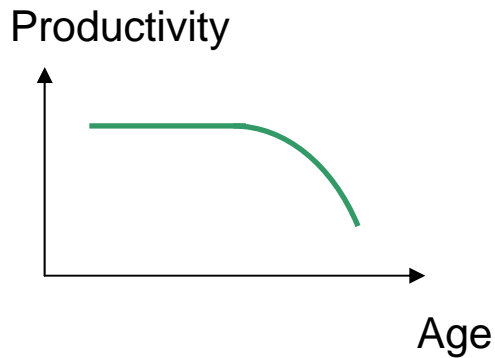
Ability requirements affected by age reductions

Ability requirements not affected by age reductions

Experience raises productivity



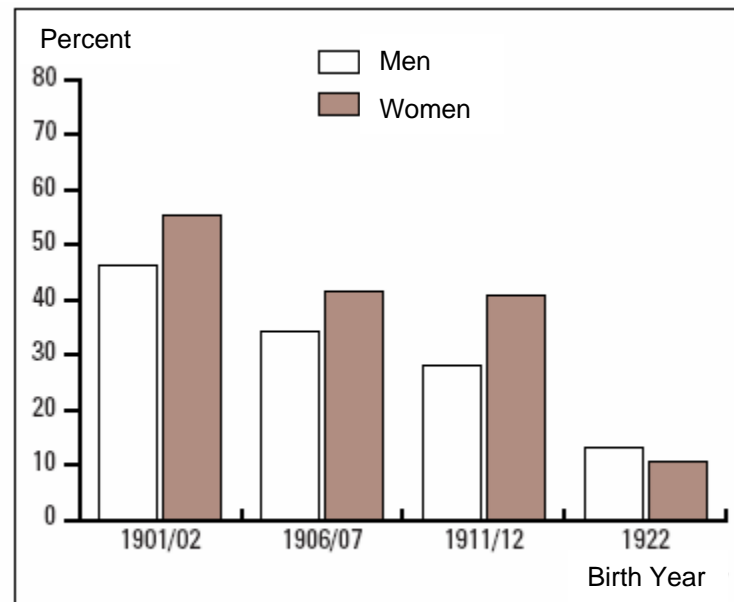
Experience does not raise productivity



Disability-free life expectancy increases

- More recent born cohorts have experienced fewer diseases, better nutrition/housing, higher income, more education, less strenuous work
- Gains in longevity
 - E.g., male UK life expectancy rose 66% in the 20th century
- paralleled by disability-free life expectancy
 - 66% drop in chronic disease, 1900-1980, US men 50 - 74 years of age
 - 75% decline in back problems due to less physical load, US 20th century

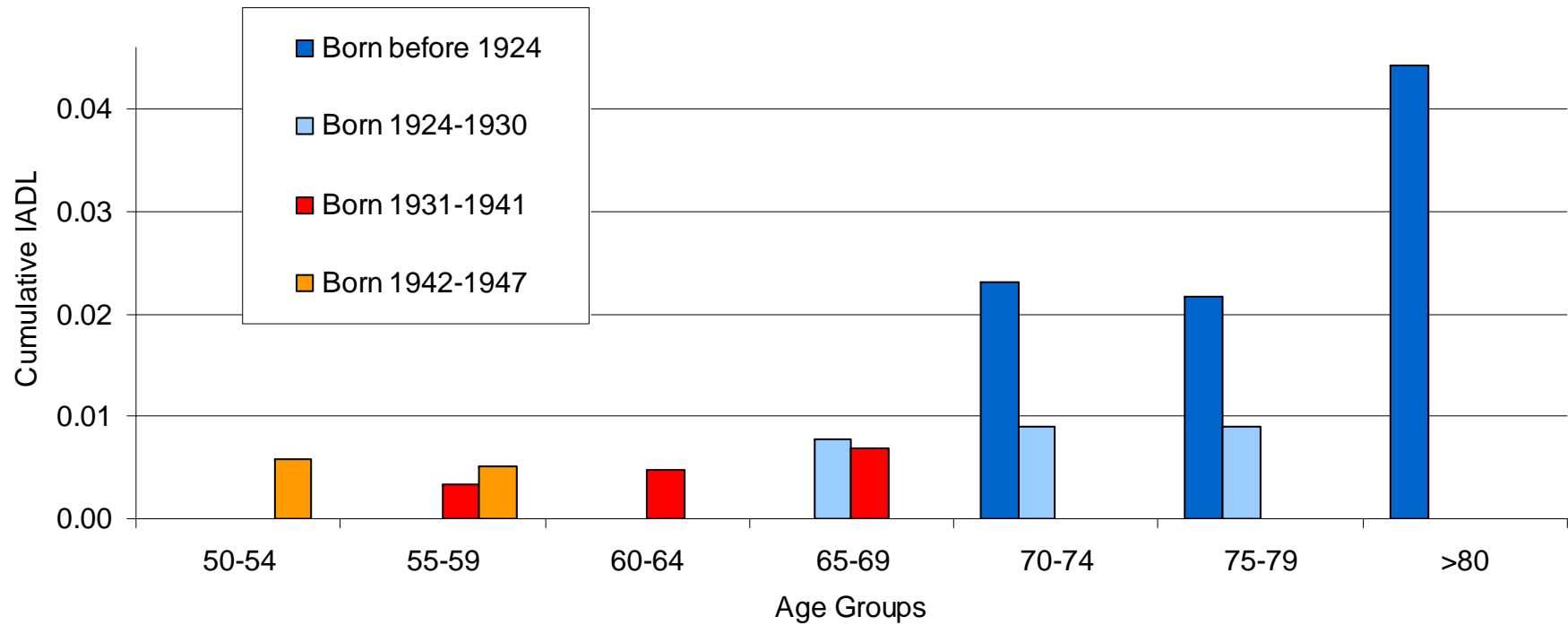
Improvements in health



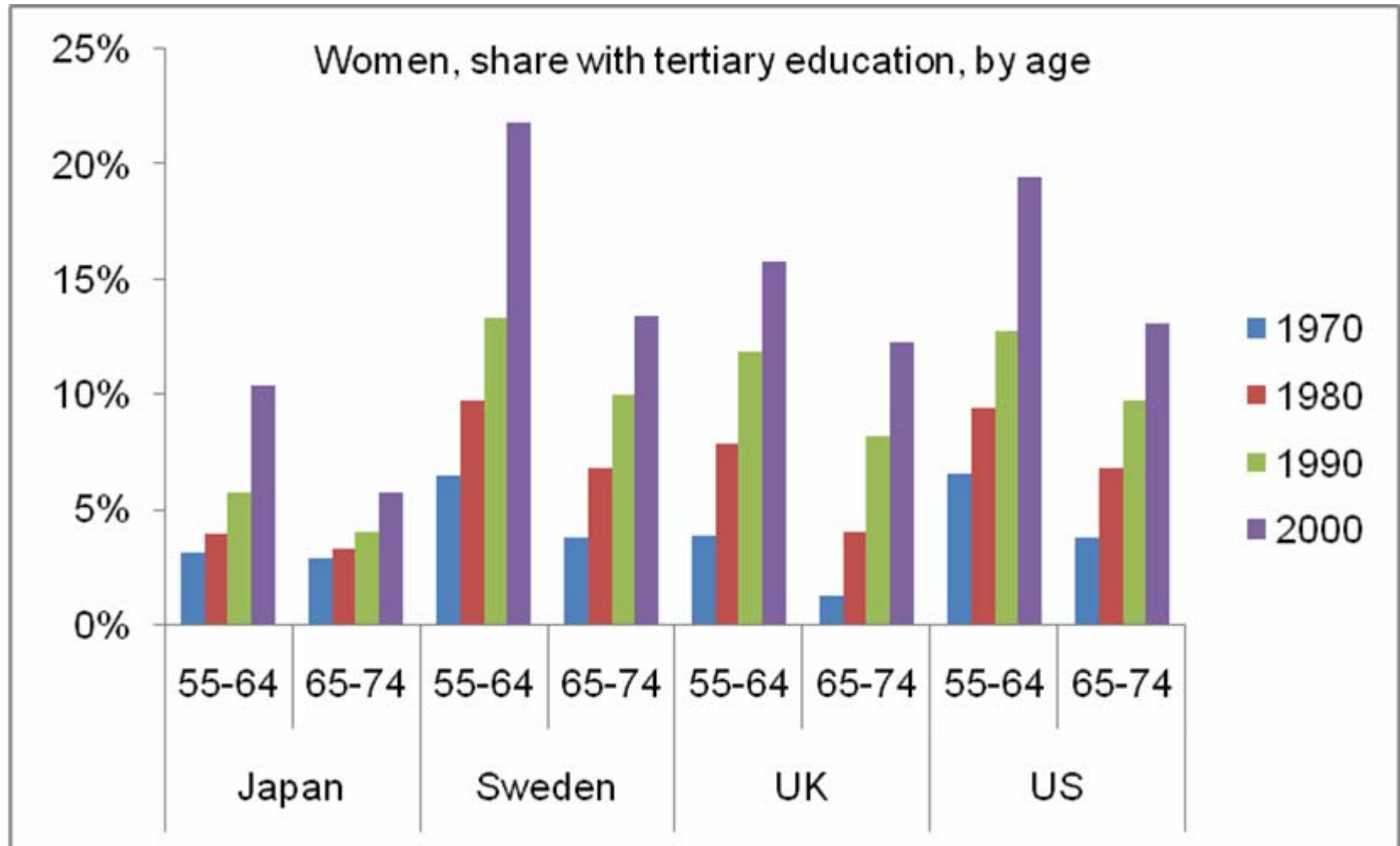
Proportion at age 70 without any own natural teeth in Sweden

Improvements in health

Functional Disabilities by Cohort, US

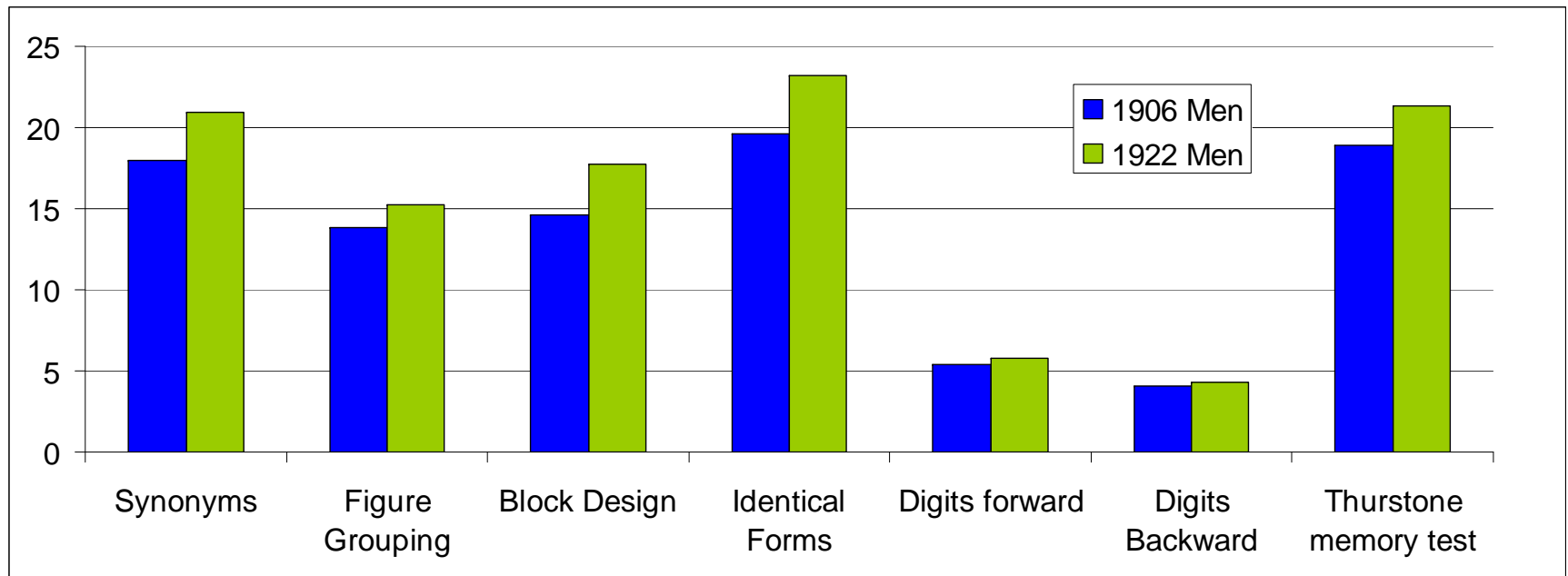


Higher education



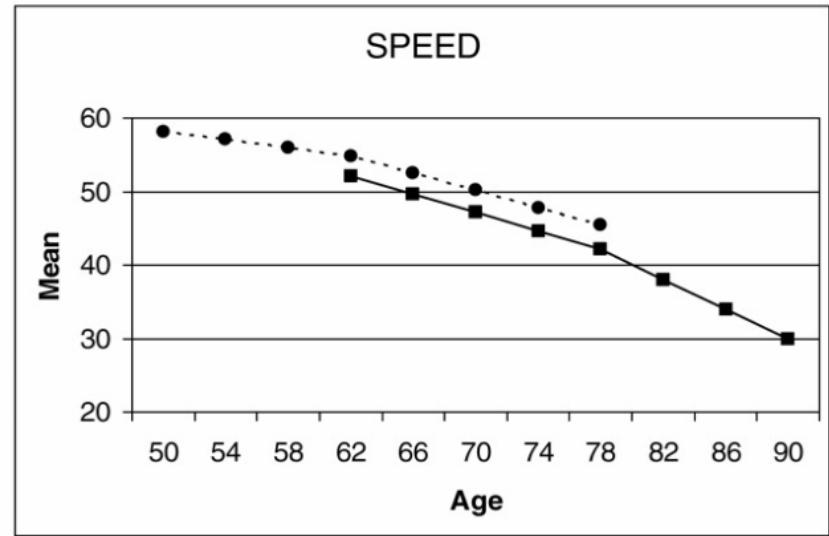
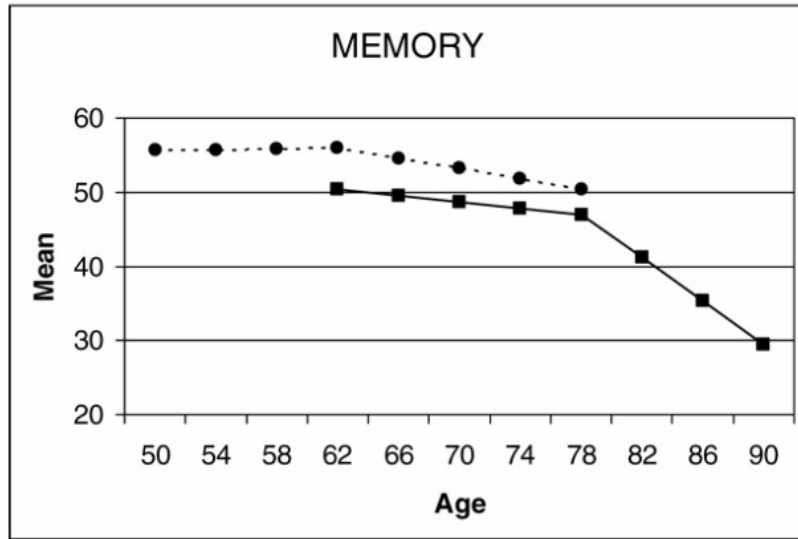
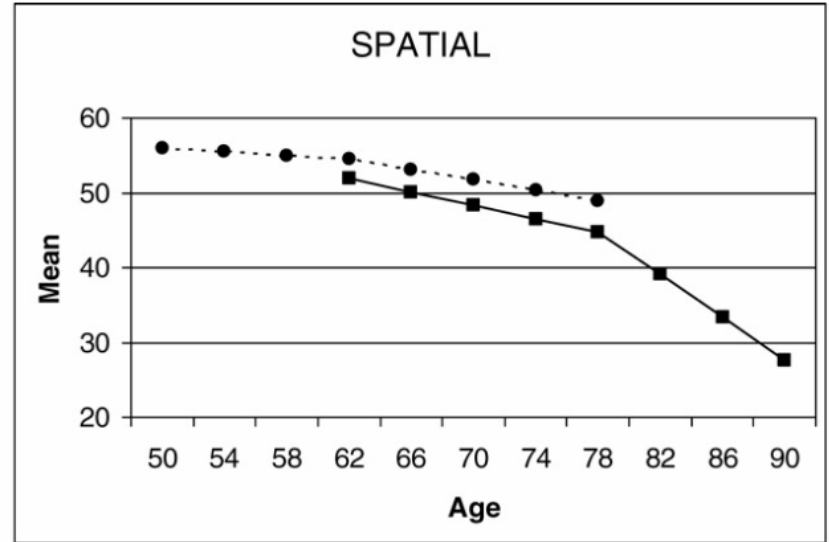
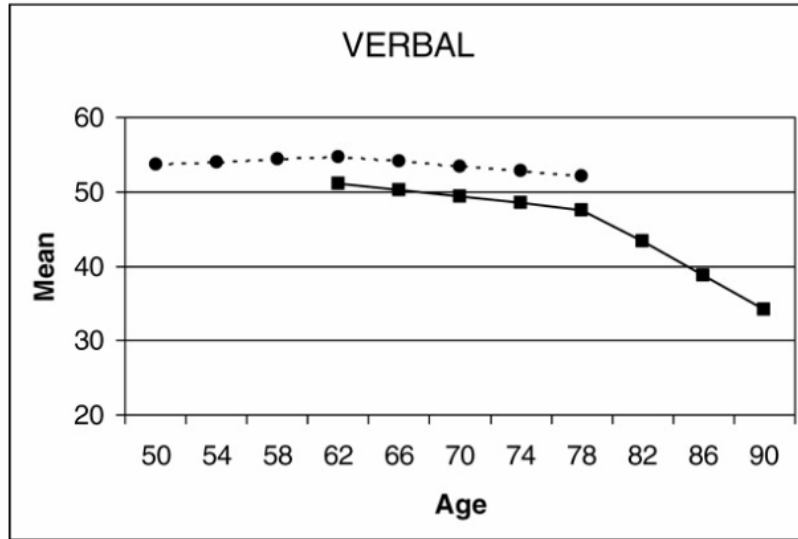
Increasing performance at age 70

Mental performance at age 70 by birth cohort, Sweden



Later born cohorts have higher cognitive performance - in several Europe countries
Source: Steen et al. 1998, Flynn 1998

Recent cohorts: higher levels, same paths



Solid line: Born 1900-1925, Dashed line: 1926-1948

Source: Finkel et al. 2007

Age and employment security

Labour market flexibility important for senior employment

- Labor market flexibility particularly important to raise senior employment
 - Seniority-based earnings systems not sustainable as population age
 - Later retirement may benefit health and cognitive functioning
 - Mental, social, professional activity stimulate mental functioning
 - Later retirement -> lower mortality (Skirbekk et al. 2009)
- Job security matters for the family formation decisions
 - Job security/income levels are key determinants of family formation
 - Young adults have relatively low wealth levels, possibly decreasing wages

Age and earnings

Country	Year	Full-time		All workers	
		Age			
		25-34	45-54	25-34	45-54
Belgium	1985	100.0	111.4	100.0	114.3
	2000	120.2	154.1	118.2	153.1
Canada	1981	100.0	106.8	100.0	107.3
	2000	85.0	113.3	81.9	116.2
Hungary	1991	100.0	103.3	100.0	99.9
	1999	84.1	86.5	76.9	76.3
Italy	1987	100.0	113.3	100.0	113.3
	2000	93.4	116.7	93.4	116.7
Netherlands	1983	100.0	114.5	100.0	115.6
	1999	104.2	137.3	103.7	135.1
United Kingdom	1986	100.0	107.8	100.0	109.5
	1999	117.9	139.1	116.1	136.5
United States	1979	100.0	120.0	100.0	120.0
	2000	84.3	115.2	84.3	112.4

Source: Skirbekk, Stonawski and Sanderson (2009)

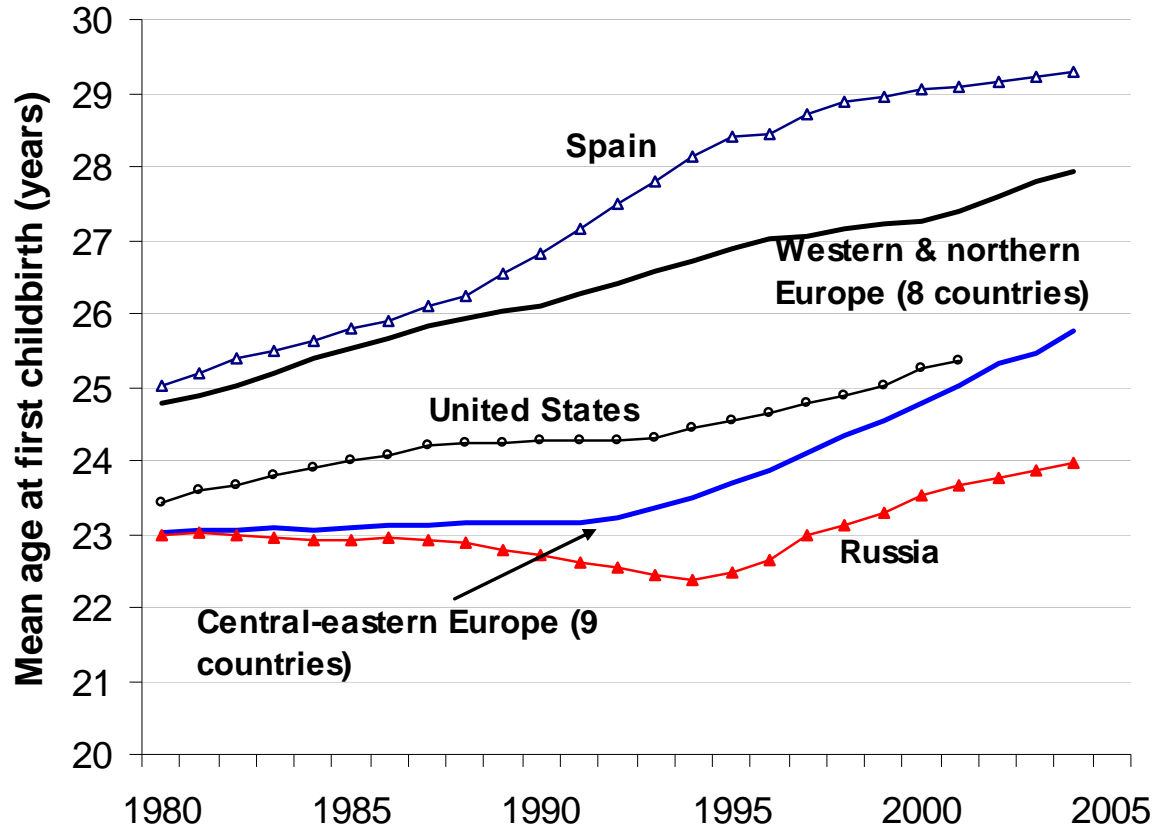
Age-earnings and fertility

- The gap between income aspirations and expected/actual income is a key determinant of timing/outcome of family formation (Lutz et al. 2006).

“The material expectations of young adults are largely the unconscious product of the environment in which they grow up. [...] And this environment is very largely shaped by the economic circumstances, or income, of one’s parents.” (Easterlin 1980, p. 40-41).

- This implies that relative earnings of the young is made worse by higher senior earnings, increasing gap between economic aspirations and actual income.

Fertility postponement



E.g., In Spain labour reforms particularly affected the young. Spanish women experienced postponed and depressed fertility.

Summing up

- Europe's population is perhaps shrinking, which has
 - challenges (lower demand, fewer younger workers, less entrepreneurial activity?)
 - benefits: (e.g., environmental gains)
- Europe is ageing
 - however, so are all of Europe's "competitors"
 - and ageing in Europe may be slower, healthier and wealthier than elsewhere
 - population ageing does NOT necessarily imply a decreased active-inactive ratio
 - will employment prospects worsen? Less so, if wages would equal productivity
- Raising retirement ages key to adapting to ageing societies
 - physical demands falling, demand for "flexibility" increases
 - increased later working life wage flexibility may raise retirement ages