

Royal Geographical Society Oxford  
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# The twilight of parenthood: herald of a shrinking world?



David Coleman

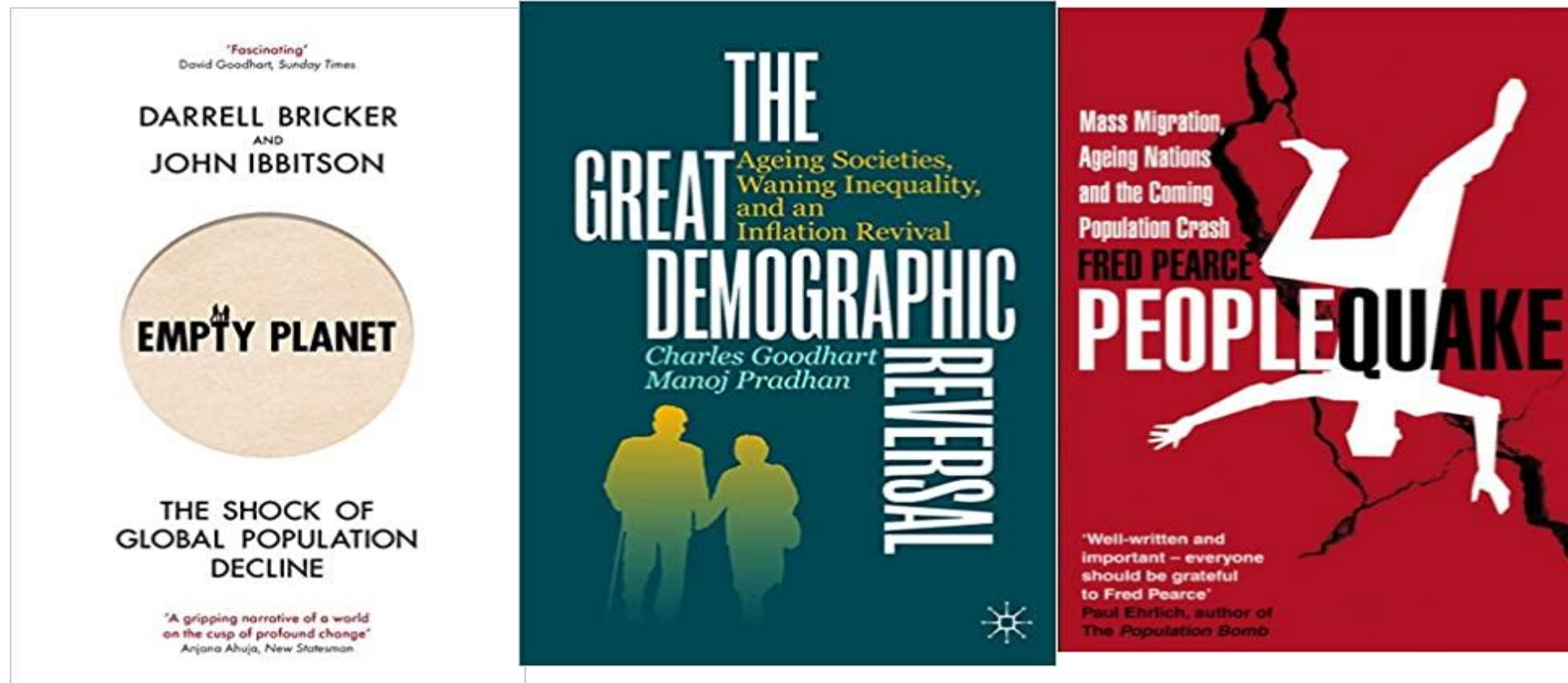
With thanks to Professor Anna Rotkirch and Professor Stuart Gietel-Basten

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The people that brought you *The Population Explosion*  
now present *Global Population Decline* – the latest  
demographic sensation!

,



# *So now two global problems at once.*

*(‘population is the driver of the most toxic issues on the political agenda’)*

## ***Additional three billion people nearly certain***

But almost all remaining growth in poorest countries, mostly in Africa, especially Francophone West Africa..

*All the rest have fertility near, or below, replacement rate,*

***Implying pervasive future population decline and population ageing.***

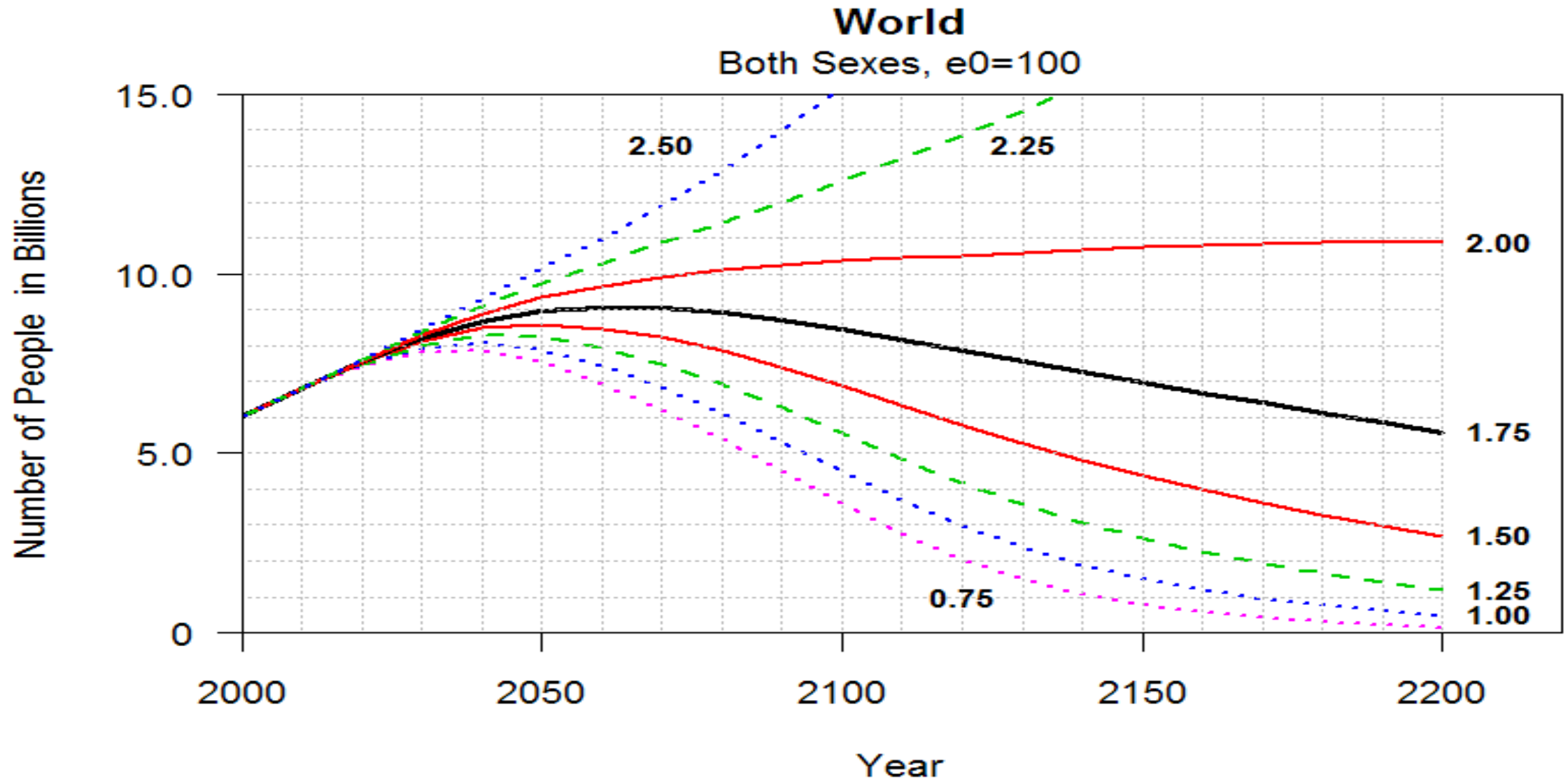
For most countries low fertility, therefore population decline, seems inevitable.

But climate change makes population decline necessary.

May be forced on us as habitable world shrinks (Lutz and Striessnig 2015).

Nerds’ corner. ‘Replacement TF is not fixed at 2.1 but depends on mortality. ‘TF’ = total fertility. ‘NeoEuropes’ = Australia, Canada, NZ, USA.

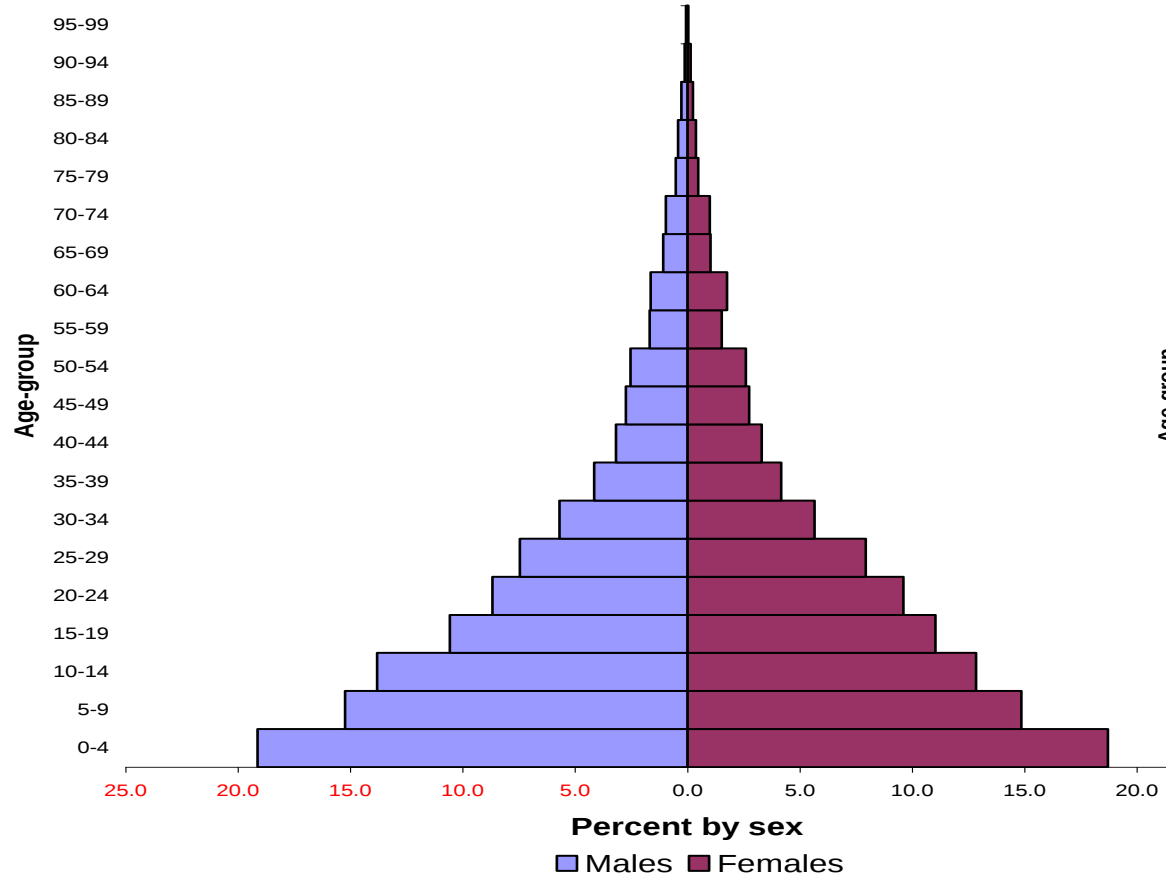
The long-term impact of sub-replacement fertility. World population projected to 2200 under different fertility assumptions (fertility fixed after 2050, survival limited to 100 years).



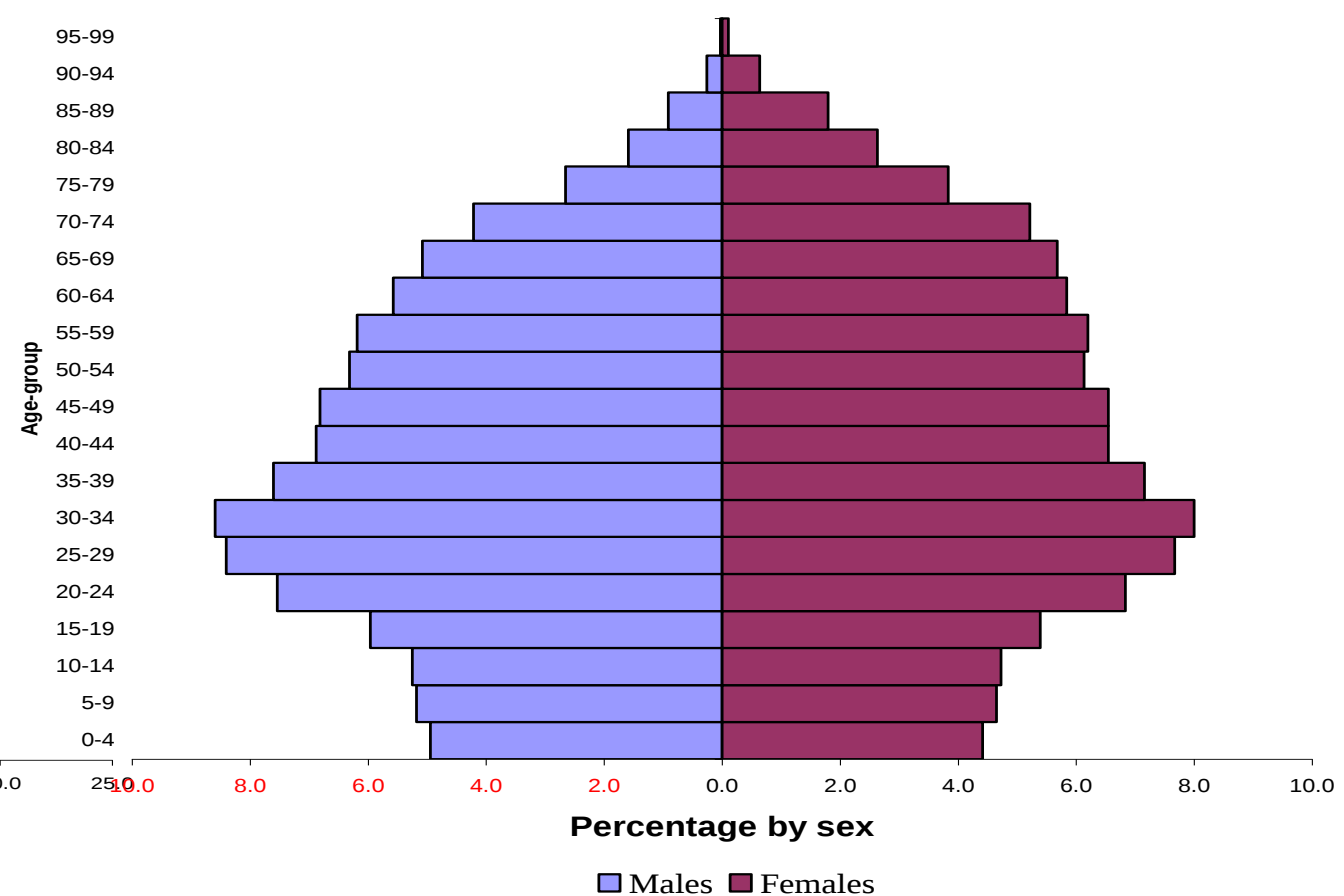
# Can we trust projections? Momentum – positive and negative

## Makes big trends difficult to reverse, but helps projections

**Population by sex and age, Uganda 1991  
(percent)**



**Population by sex and age, Italy 1998  
(percent)**



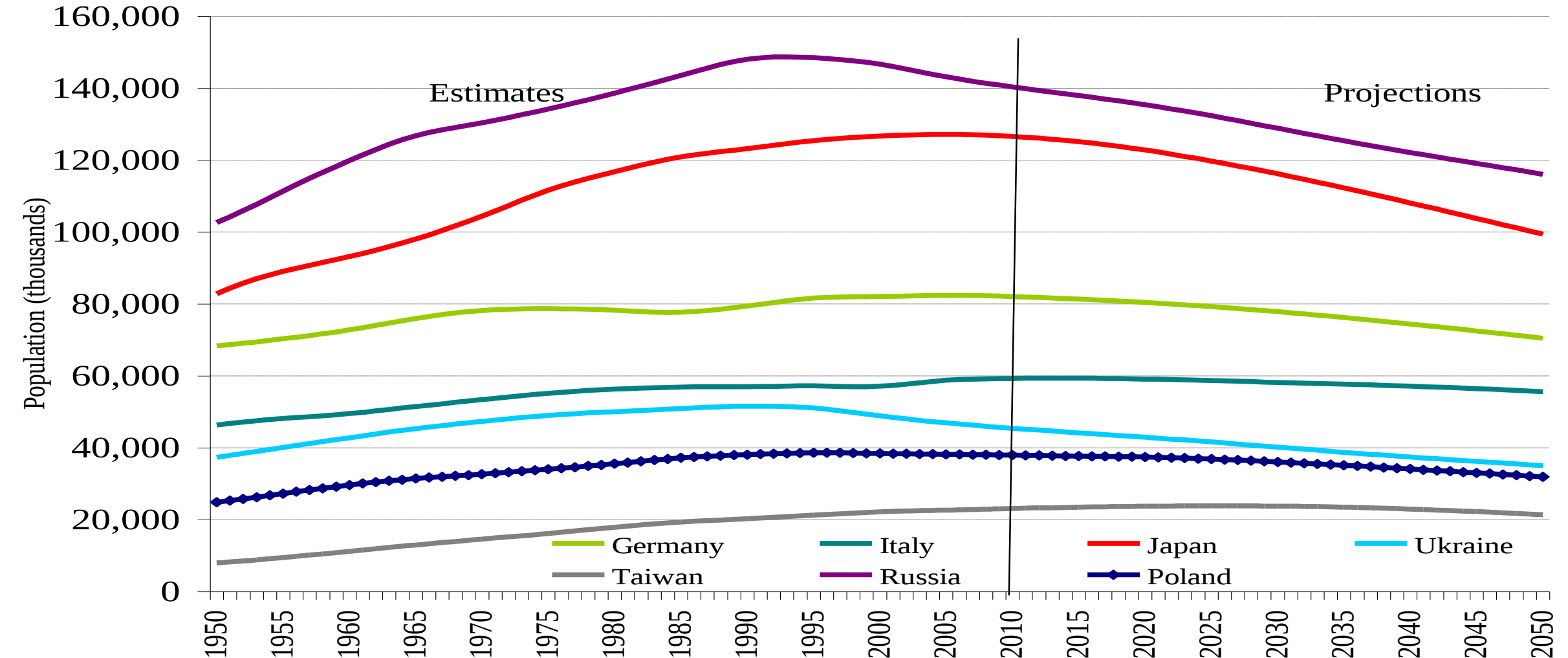
A real change: Large countries with TF below replacement – altogether over half the world's population, over 100 countries.

|            |      |        |      |
|------------|------|--------|------|
| Bangladesh | 2.08 | Mexico | 1.73 |
| Brazil     | 1.75 | Russia | 1.6  |
| China      | 1.45 | India  | 2.07 |
| All EU     | 1.62 | Japan  | 1.39 |
| Iran       | 1.92 | Turkey | 1.91 |
| Indonesia  | 1.99 | USA    | 1.84 |

Nerds' corner: replacement fertility depends on the **death** rate; it's not fixed at 2.1.

# Population decline – an increasing trend

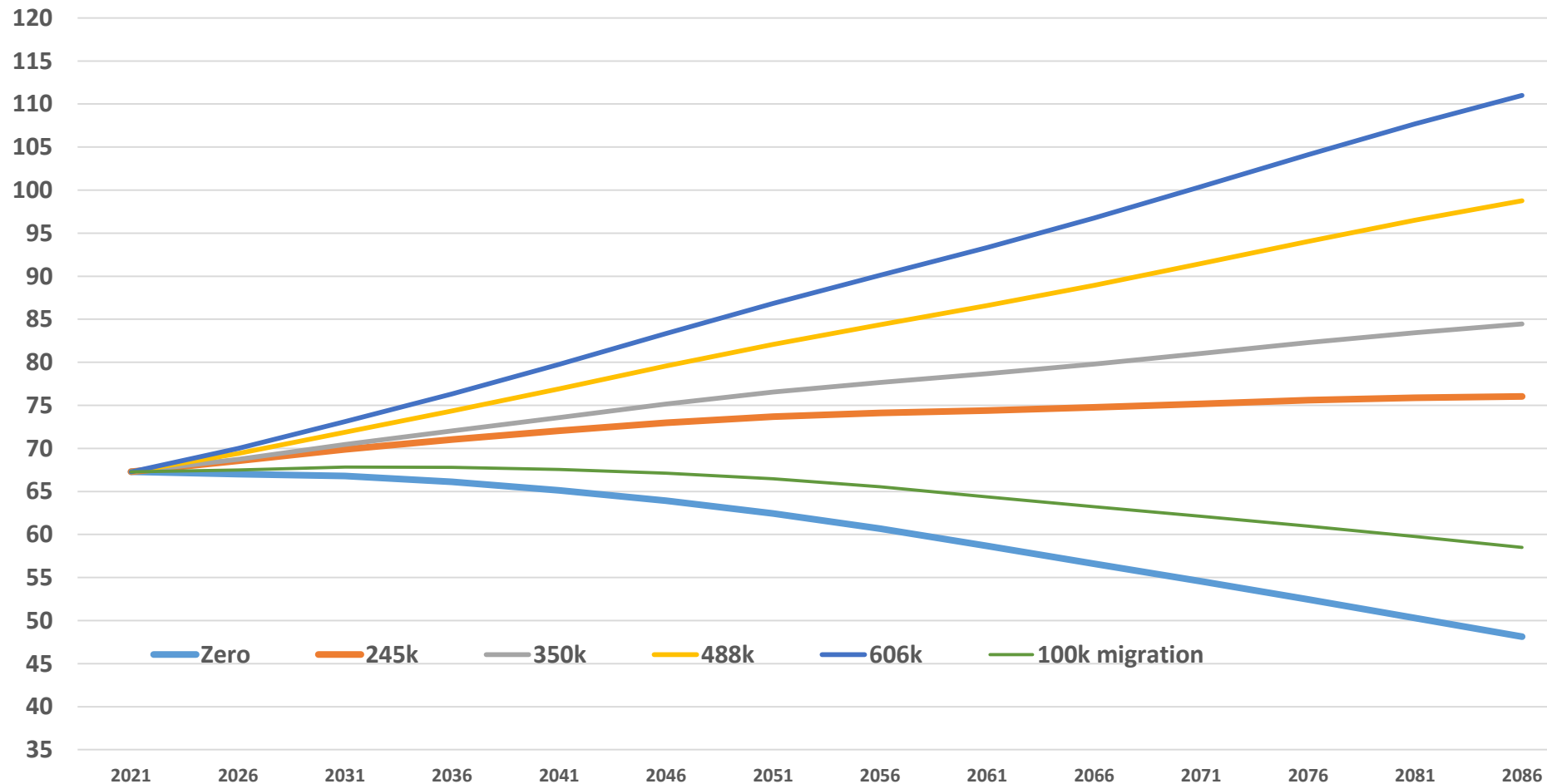
**Population trends 1950- 2050 selected developed countries (thousands).** Source UN 2009 and Taiwan ROC 2009.



# Immigration can counter population decline

Projected population of the UK 2021-2086 (millions) at various levels of net migration.

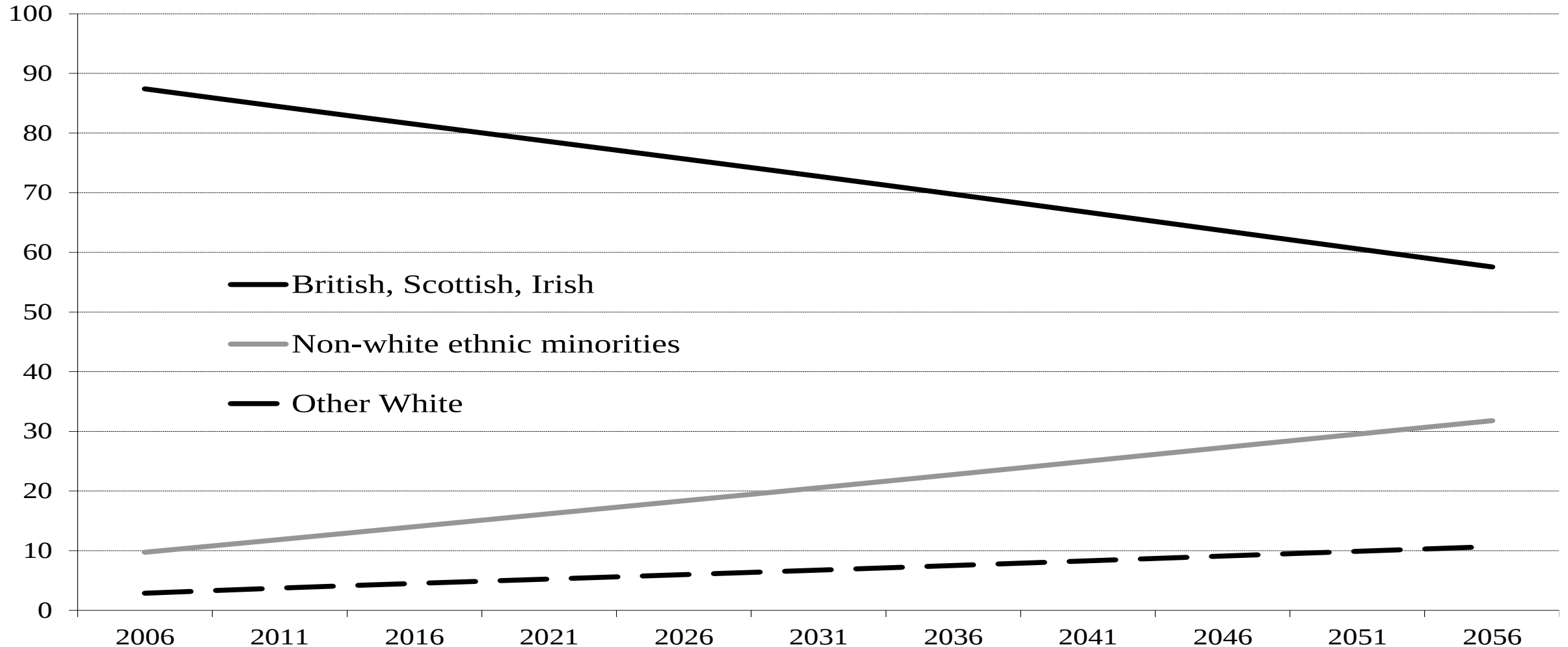
TFR = 1.53. Assumes 51% female, 49% male.



# Although there are consequences

Ethnic change in the UK: percent of population in three ethnic categories 2006  
– 2056 (net migration 180k). *(Source: Coleman, Population and Development Review 2010 )*

**Percent of UK population in three major ethnic categories, 2006 - 2056**



But not ageing - no salvation from immigration.  
A demographic Ponzi scheme.

Immigration can stop population decline,

But only moderate, not ‘solve,’ ageing even with constantly increasing inflow.

Evades addressing social pathologies which cause low fertility

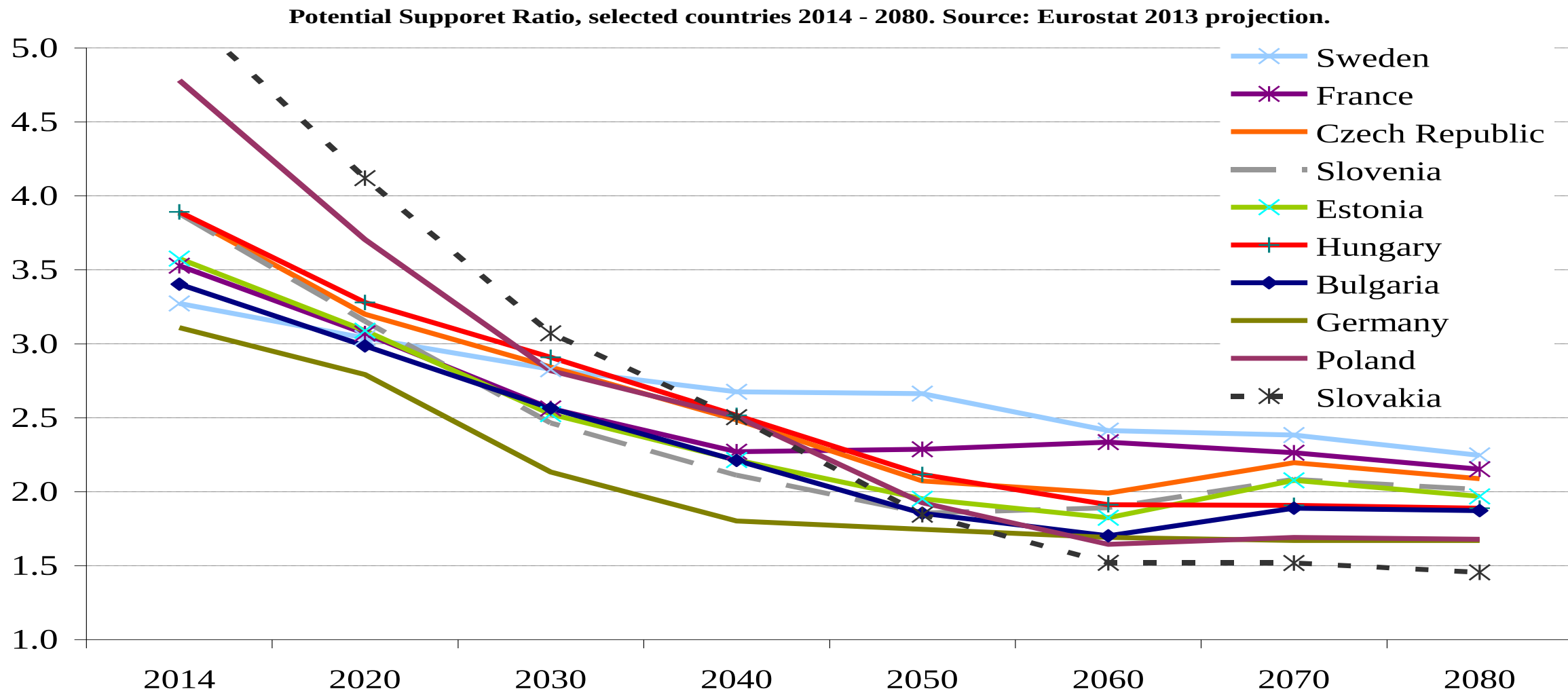
Population growth not desirable in era of climate change.

‘Any population with sub-replacement fertility which maintains size or age-structure through migration will eventually be completely migrant-descended’. (Feichtinger and Steinmann 1992 and many others)

# Ageing –a universal trend, but not to oblivion.

Potential support ratio (population 20-64 / population 65 and over) selected countries, 2014-2080.

Source: Eurostat 2013 projections.

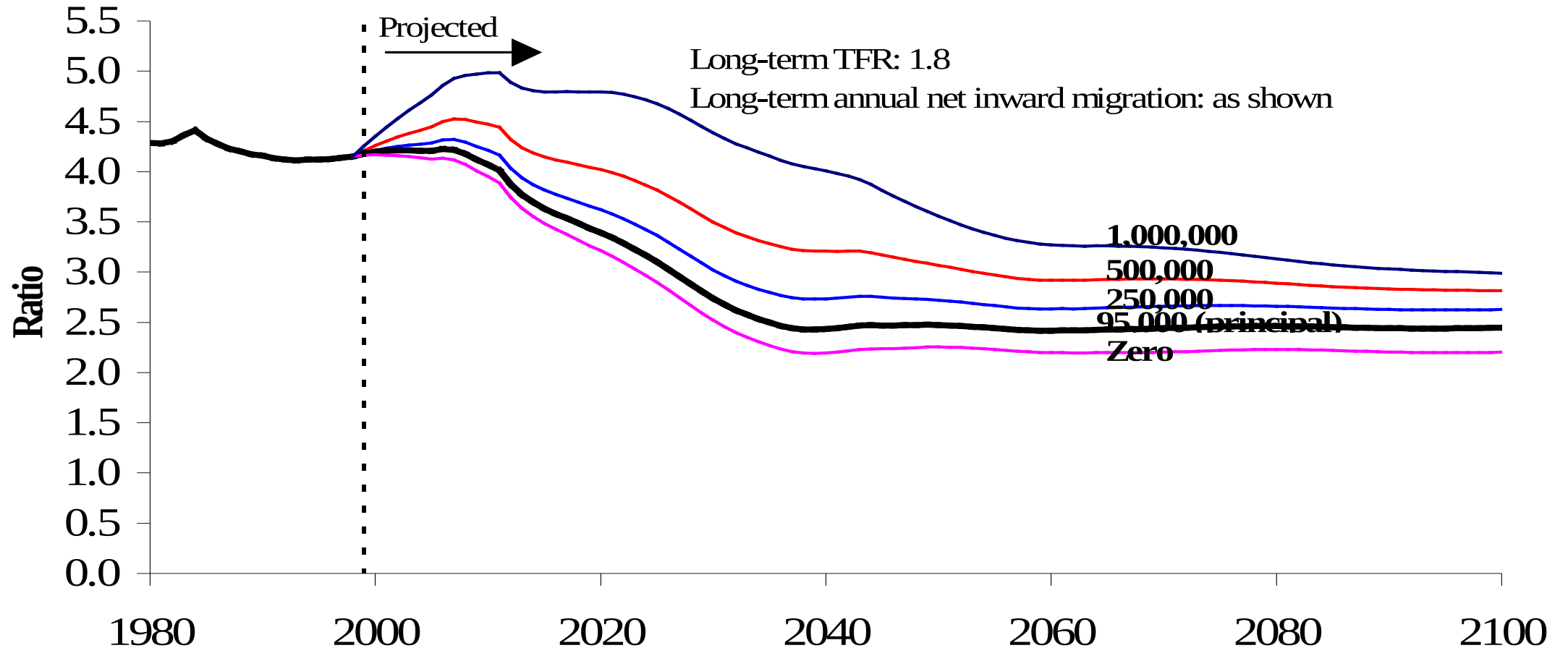


# No amount of immigration can solve population ageing.

*Population Trends 103*

**Figure 8 Support ratio under alternative assumptions, United Kingdom, 1980-2100**

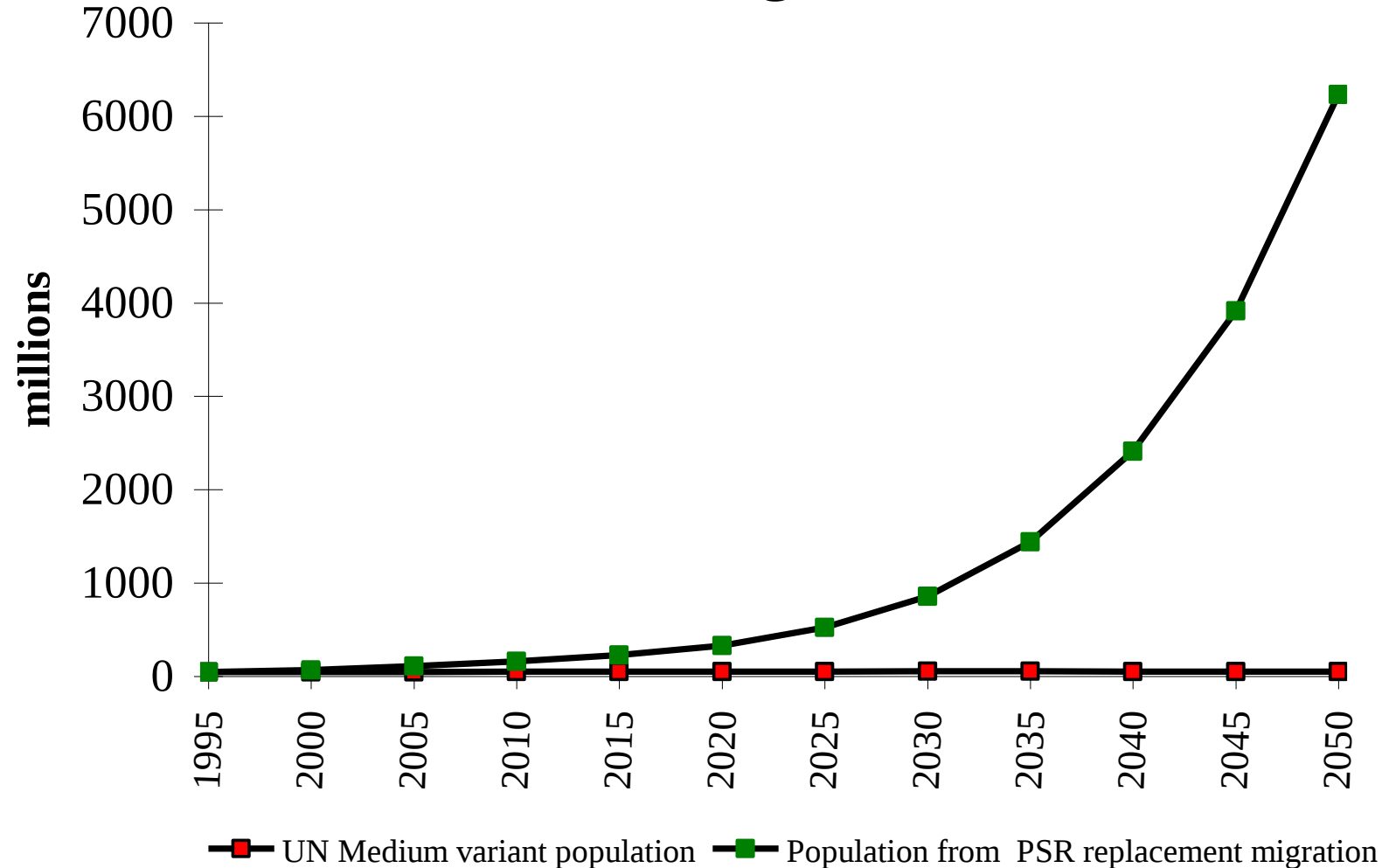
**(a) alternative migration assumptions**



And needs acceleration numbers of migrants.  
Migrants needed from 1998 to 2050 to preserve the 1998 age-structure of Korea (i.e. prevent population ageing).

Data from United Nations 2000. Coleman 2001

## All the world must go to live in Korea



Population ageing an inevitable consequence of control of death and fertility.  
An escape from the birth and death rates *circa* 1700 before the demographic transition.

No nostalgia! Best kept in the past!

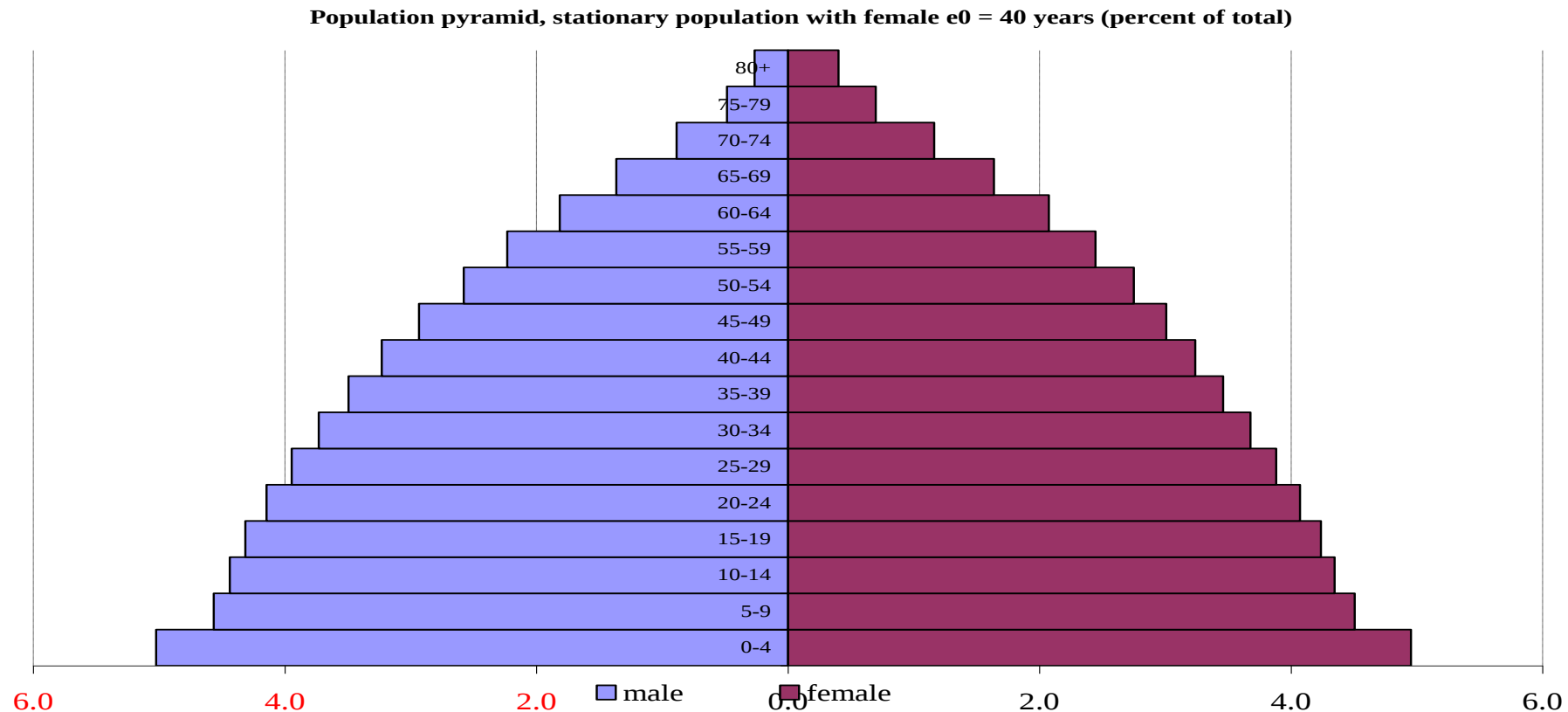
Expectation of life at birth male 37 years, female 40 years.

Infant mortality = 193 infant deaths per 1000 live births.

Population aged under 15 years 28%; population aged 65 and over 7%.

Growth rate zero.

Source: Coale and Demeny West Level 9 model life table.



# Why does it matter?

## **Population ageing**

Below TF of about 1.6, economic burdens (e.g. pensions, elderly care and welfare, medical) difficult to counter with non-demographic methods. Impoverishment, maybe crisis, follows.

Less creative, innovative, productive society.

## **Population decline.**

Erodes optimism

Shrinking workforce and fewer consumers

Poor incentive for investment. Property values fall.

Redundant infrastructure, increased maintenance costs.

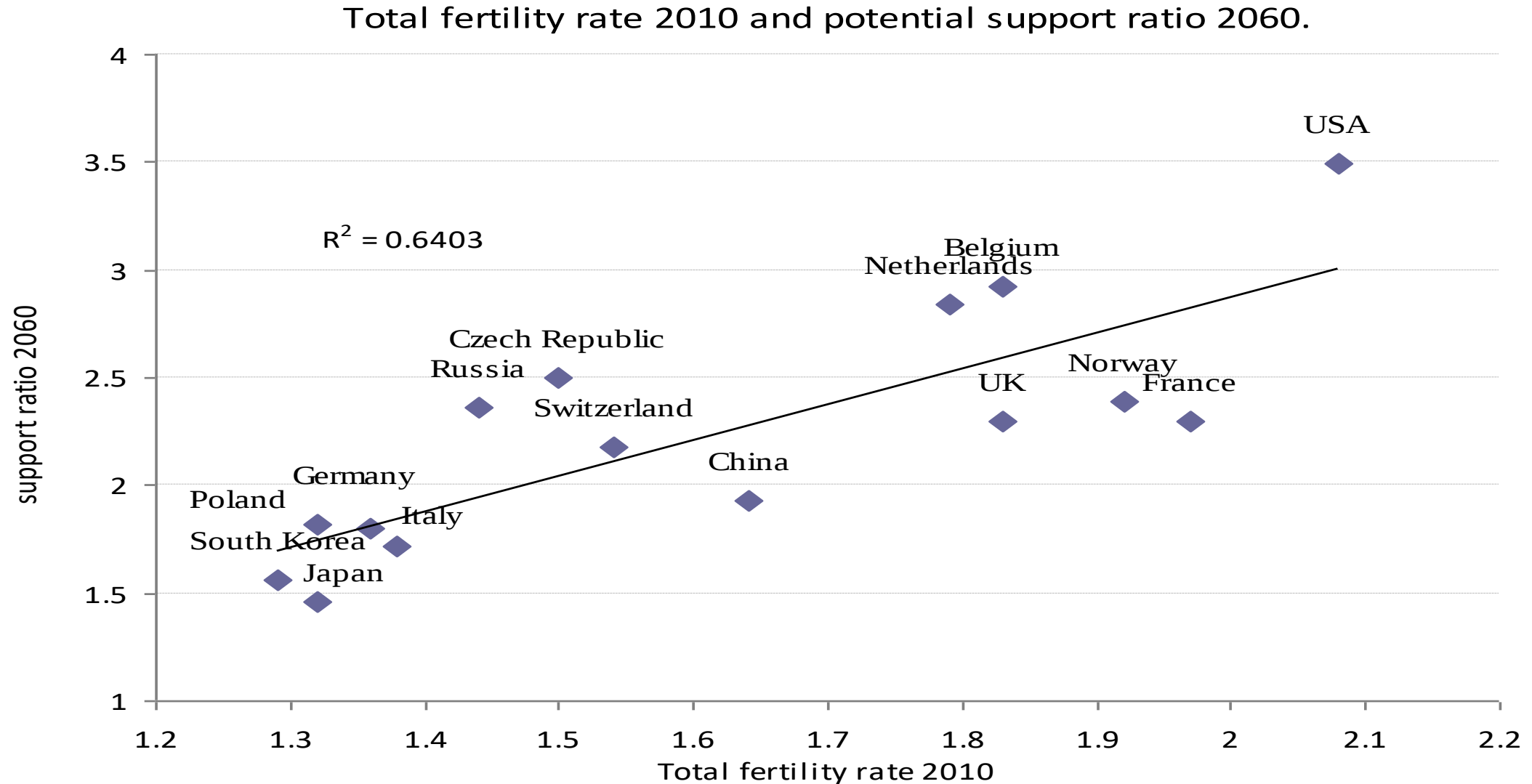
Less weight on the international scene, military, economic, diplomatic.

# Lower birth rates bring more severe ageing.

Total fertility rate in 2010 and projected aged potential support ratio in 2060, selected developed countries.

Source; data from UN . 2010

Support ratio: proportion of working age-groups to retirement age groups.



# There are advantages to low fertility and ageing

Better maternal, child health.

Less violence, competition

Less pressure on housing, infrastructure

More resources for educating young. increases productivity, health and wealth.

The per capita welfare decline caused by rising dependency ratios can be counterbalanced by the improved education of the smaller young cohorts.

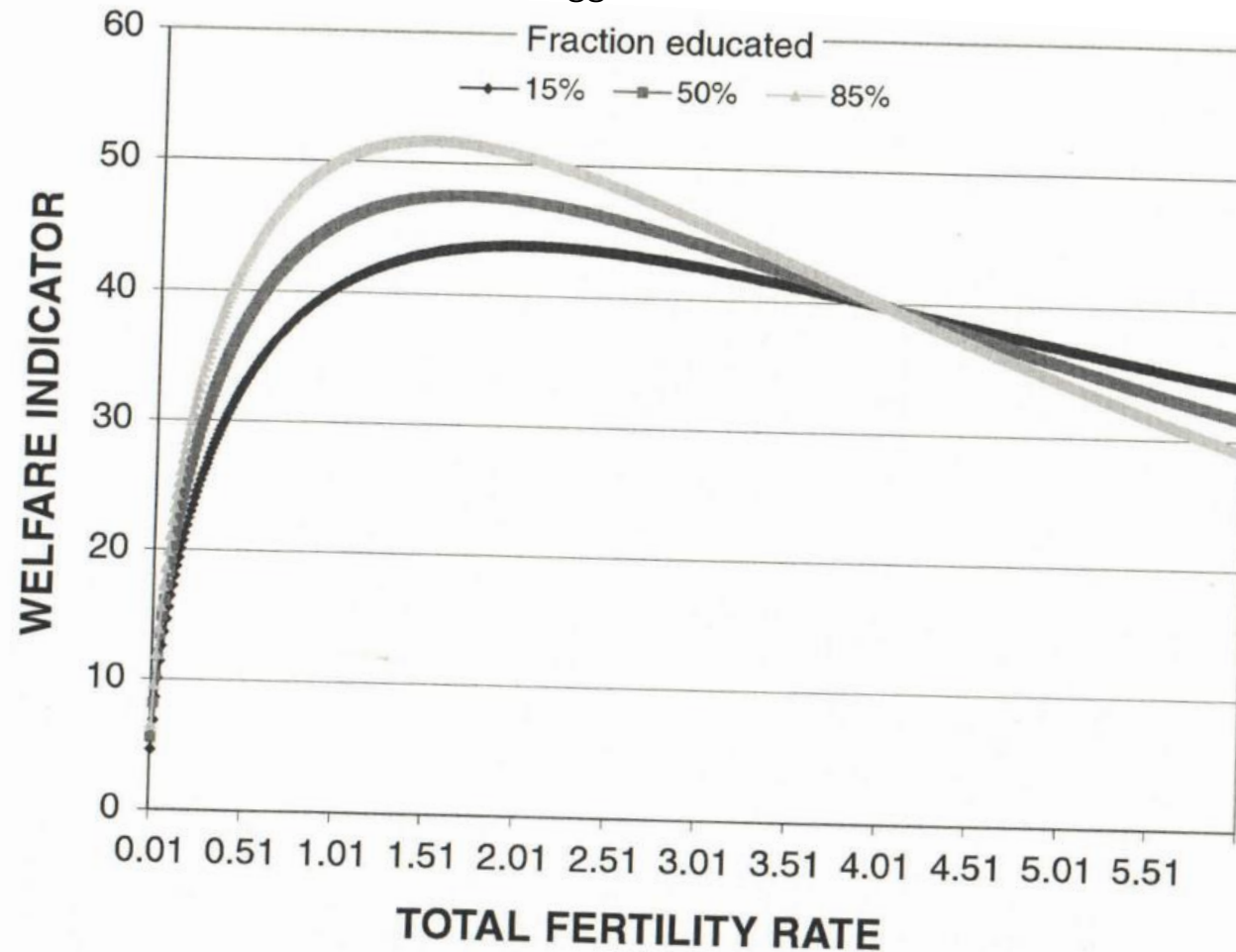
Education increases their productivity and healthy old age, offsetting the costs of rising conventional dependency ratios. Smaller young cohorts cost less at a given level of education expenditure per child.

(Skirbekk 2023, Striessnigg and Lutz 2013)

# Welfare, fertility and education – a surprising conclusion.

Optimum family size about 1.7 (Striessnig and Lutz 2013)

Striessnig and Lutz 2013.



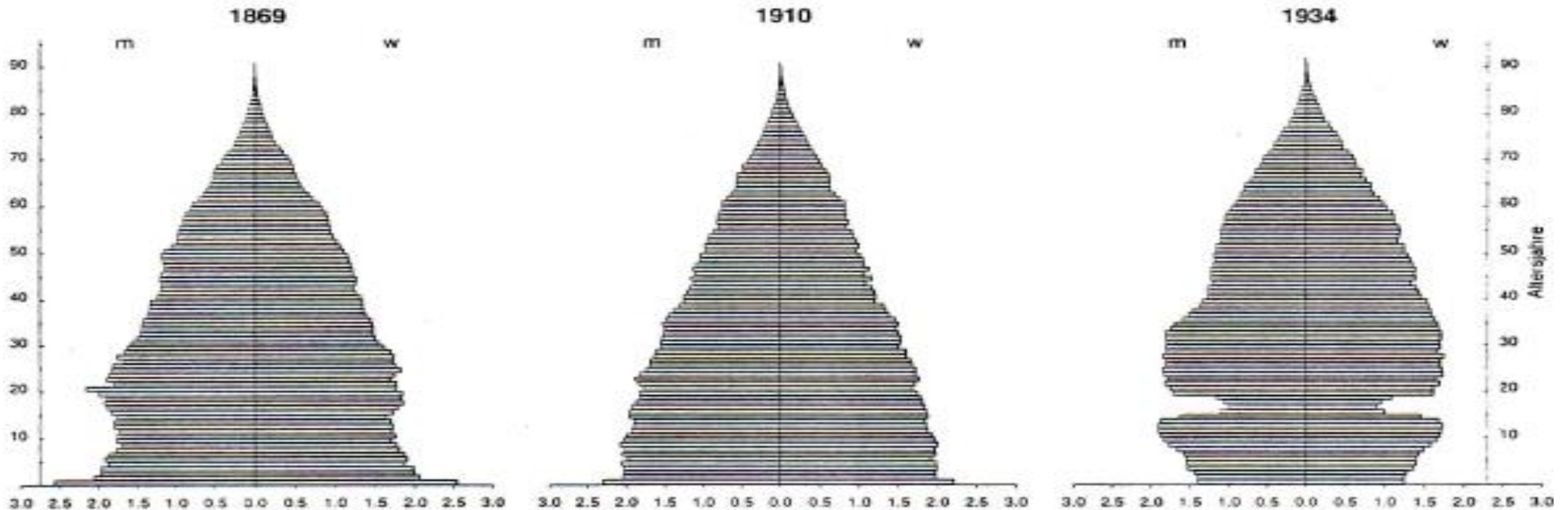
**Fig. 1** Welfare indicator for stable populations by fraction educated and total fertility rate, baseline parameters

But try to avoid this extreme:  
**from Christmas tree to coffin *via* swallowing a goat**

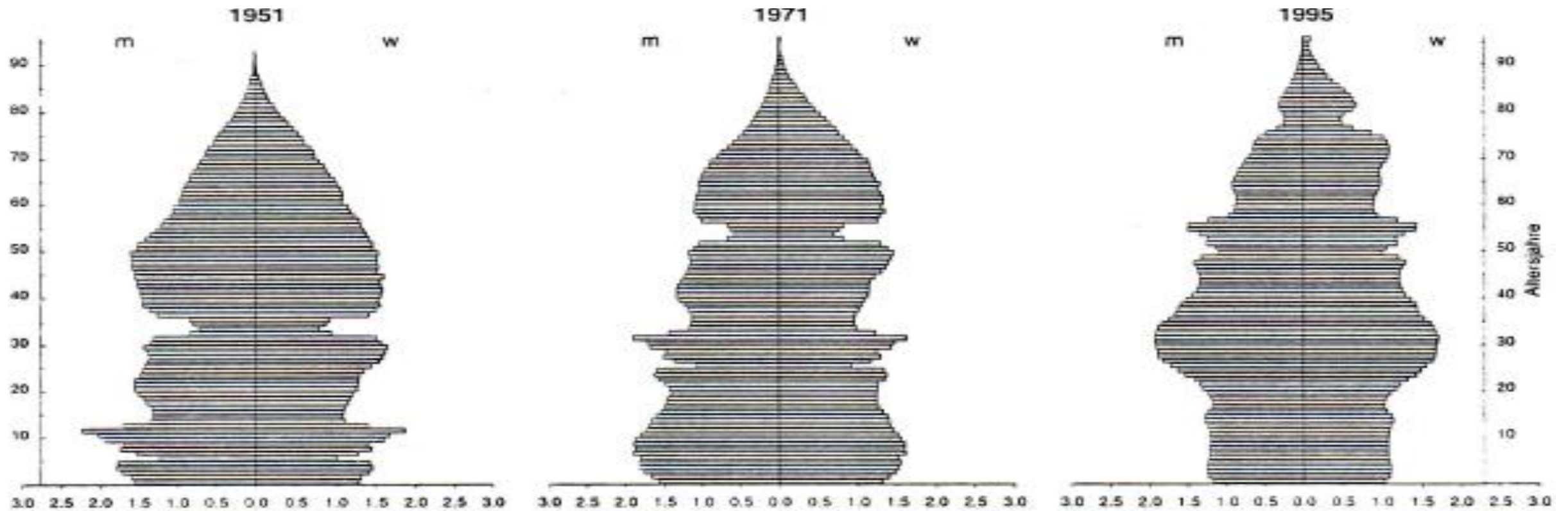
Evolution of a new age-structure in Austria 1869-2050.: 1. 1869 – 1934.

Source: Demografische Informationen 1995/6 page 109.

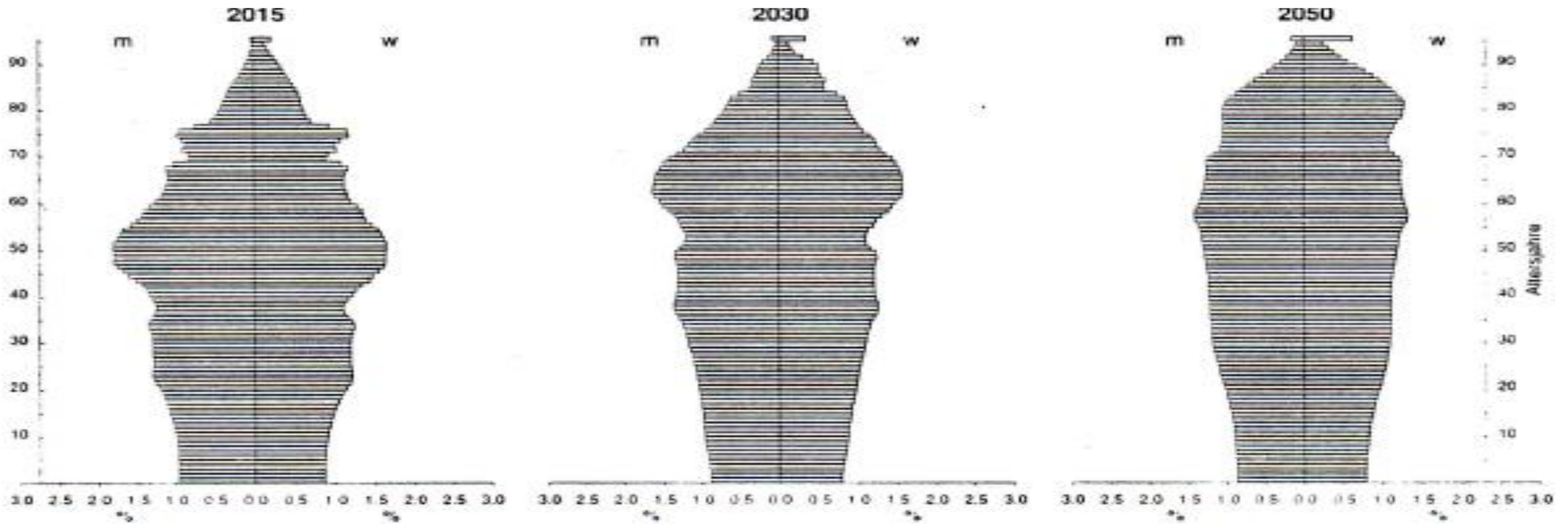
Abbildung 1: Der Altersaufbau der österreichischen Bevölkerung im zeitlichen Wandel



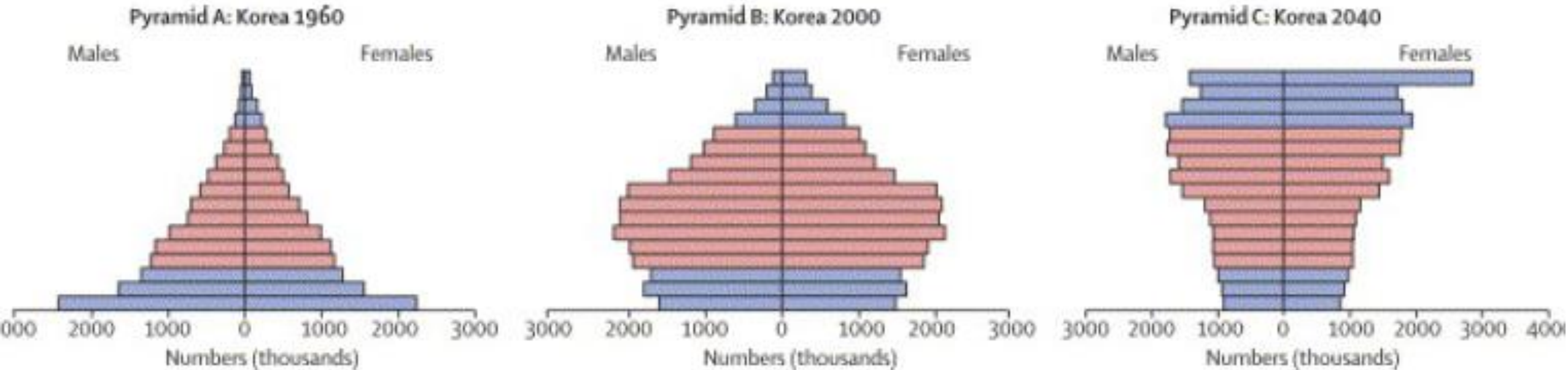
## Evolution of a new age-structure in Austria 2: 1951 – 1995.



## Evolution of a new age-structure Austria. 3: 2015 – 2050.



The most extreme example:  
ageing of Korean population 1960 - 2040



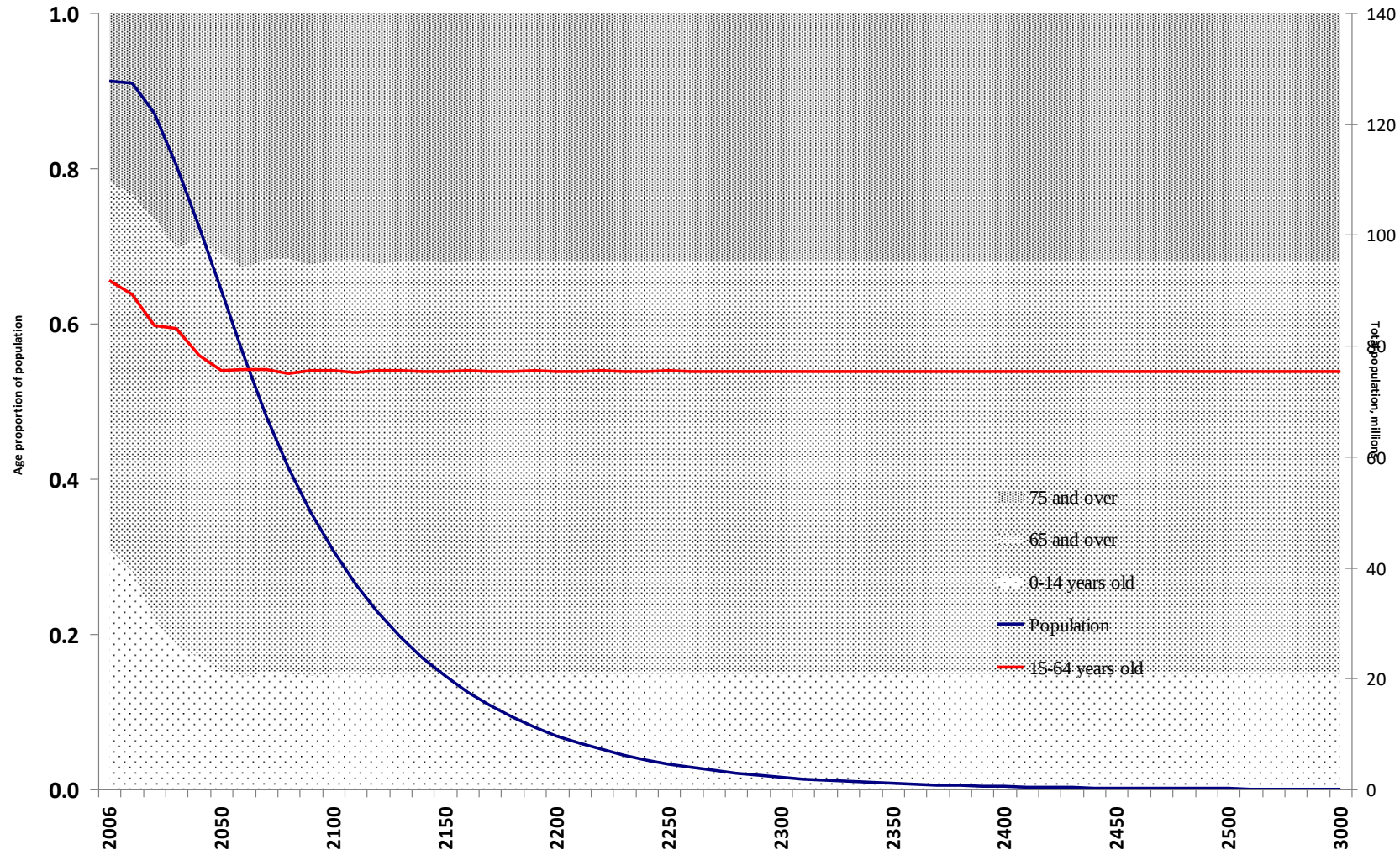
# East Asian apocalypse? – not quite yet.

*‘There is a great deal of ruin in a nation.’ Adam Smith, 1777.*

Korea: extinction threatened by 2750

Japan: down to the last Japanese by 3000.

Source: National Institute for Social Security and Population Research, Japan.

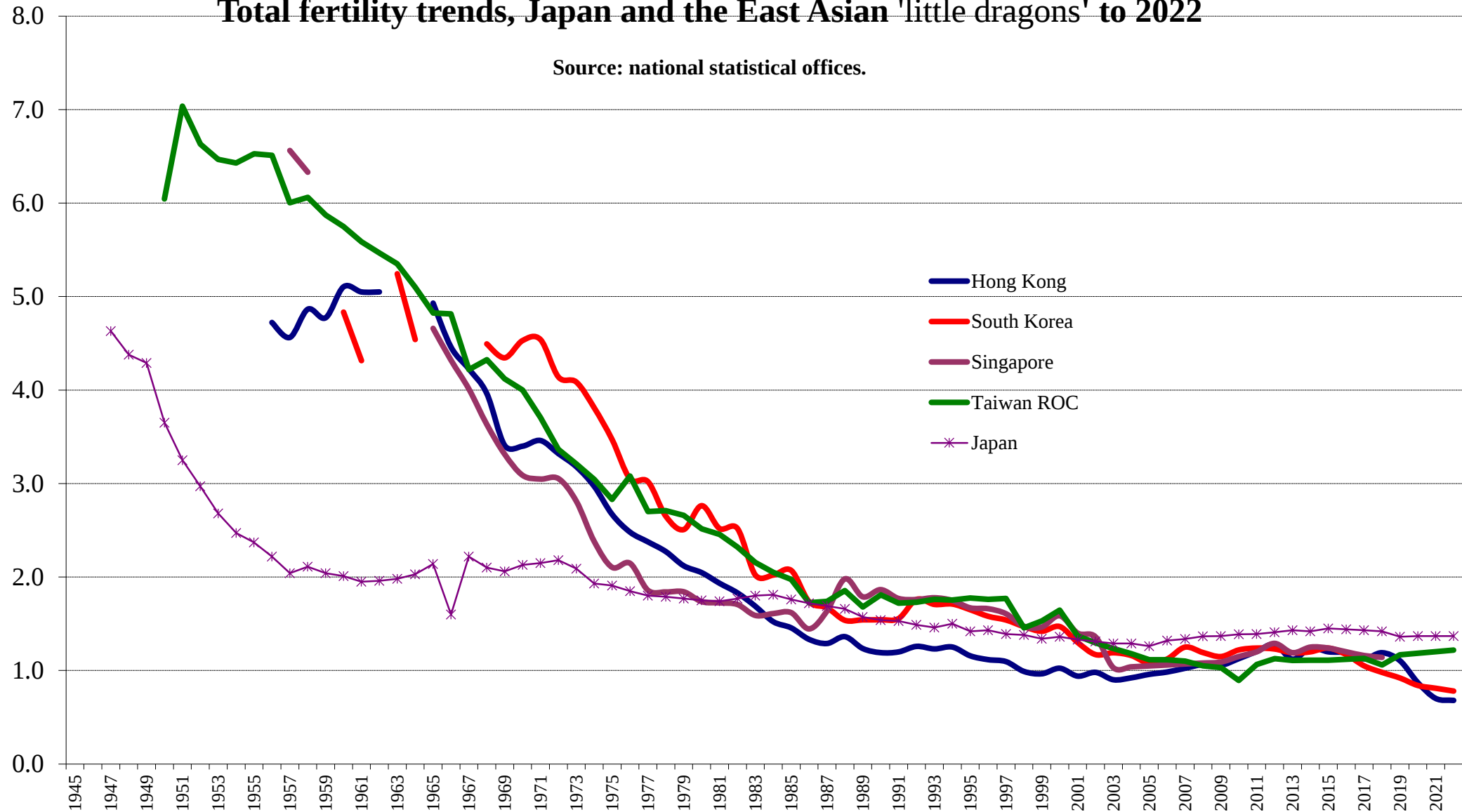


# The worst case – East Asia (Korea *et al.*)

. The countries with the lowest total fertility.

## Total fertility trends, Japan and the East Asian 'little dragons' to 2022

Source: national statistical offices.



# Why are birth rates so low in East Asia? Special handicaps:

**Very rapid economic change since 1970s not matched by social change.** Modern economy, archaic attitudes on relation between the sexes.

**Familism and patriarchy.** Family comes first. And family burdens are for women, even more onerous when women move into education and paid work.

**Gender gap in education narrowing but persistent big pay gap (100:65)**

**Small apartments in big cities constrain family size.**

**Extreme work culture. ‘Workism’** (DeRose and Stone 2021 ) Very long work hours – third longest in OECD. Employment insecure. Obligations after work.

**Extreme education culture, ‘Examination fever’** (Anderson and Kohler 2012). Severe competitive pressure to get high grades – impact on wives, made sharp by economic slowdown.

**Ideal family up to 1.9, unique mismatch with actual TF 0.7.** Persistent low birthrate creating new norm; a ‘low fertility trap’ (Lutz et al. 2006, 2008).

**Lifestyle makes marriage unattractive for women**

**Women cannot ‘do it their way’,** cohabitation not ‘normal’, few births outside marriage. Birth registration inimical to care of children born outside marriage.

# Otherwise, the future of East Asian fertility – going to the dogs? Some of Japan's pampered pets.

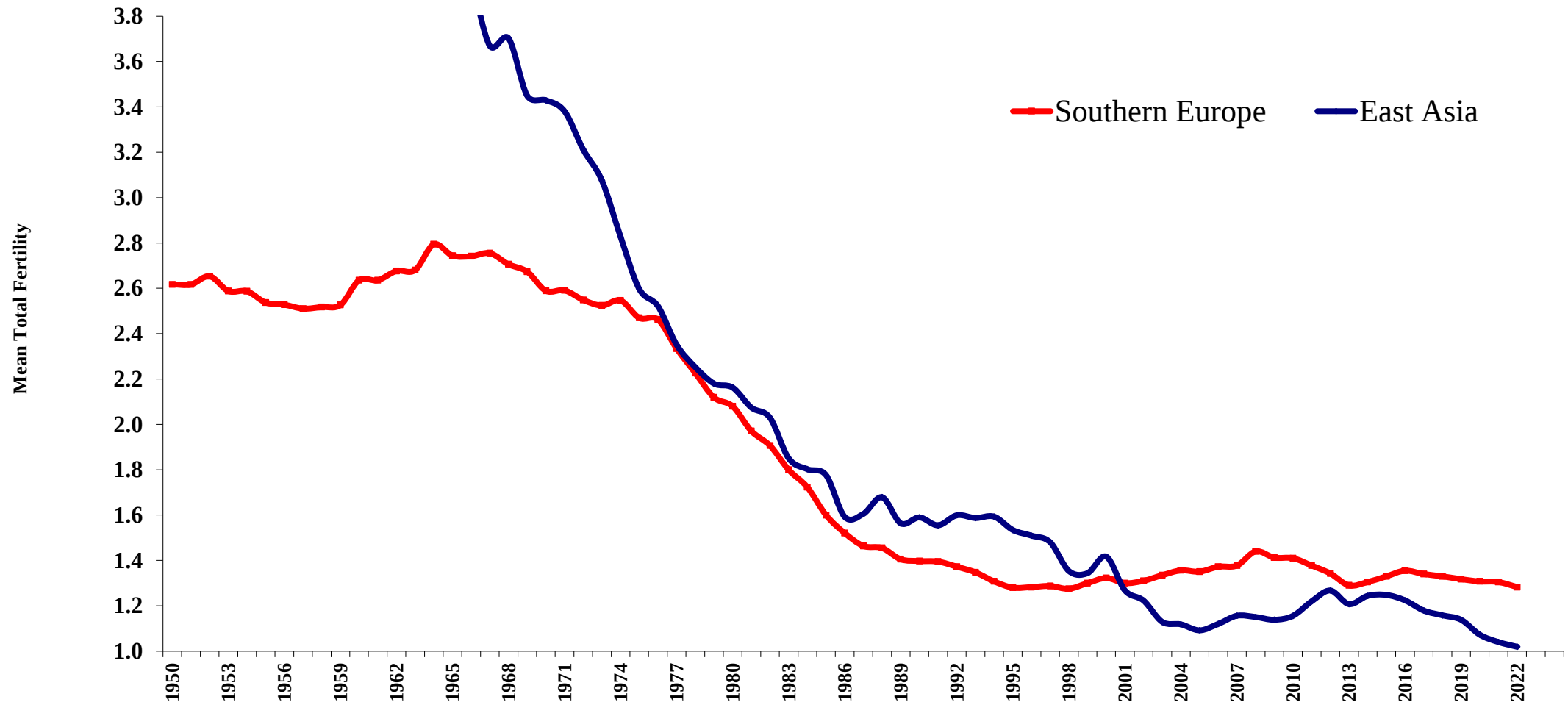
Source: Guardian 8 June 2012. <http://www.guardian.co.uk/lifeandstyle/2012/jun/08/why-japan-prefers-pets-to-parenthood>



# Southern Europe. The other low fertility region.

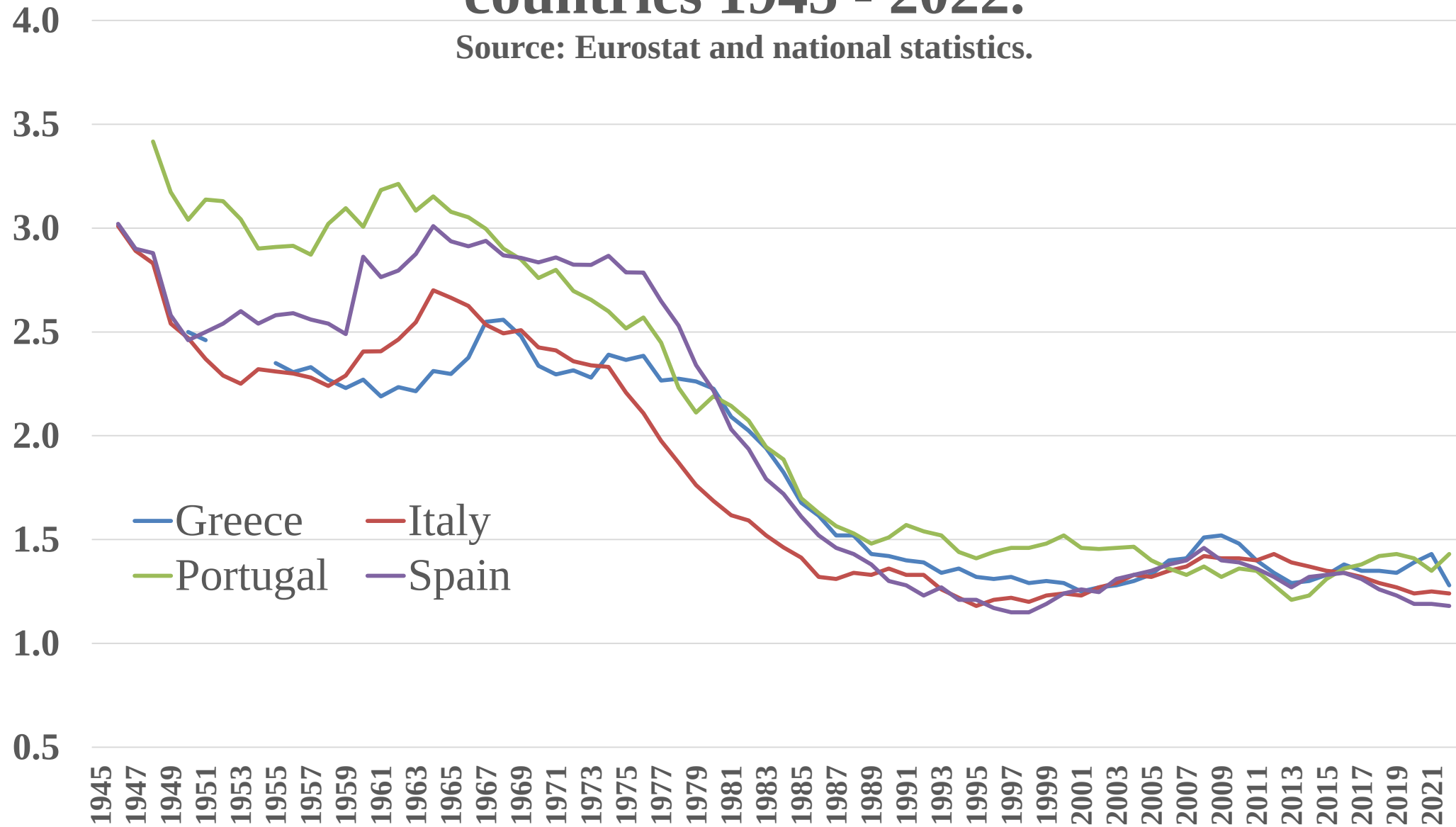
## Total Fertility trends, Far Eastern and Southern European countries 1950 - 2022 (unweighted means)

Source: Council of Europe and national statistical yearbooks



# Total Fertility, individual Southern European countries 1945 - 2022.

Source: Eurostat and national statistics.



East and South – 'familism' the enemy of larger families in the modern world.

**'Patriarchal amoral familism'** (Lee and Hsiao 2010, Helle 2017, Siu-Kai, 1981) a prevalent social attitude in East Asia and Southern Europe. Primacy of family ties over civic responsibilities. (not uncontroversial).

Duties and rights relating to family are primary, not responsibilities to strangers. Affects civil society, politics; associated with low level of trust and of state support for families

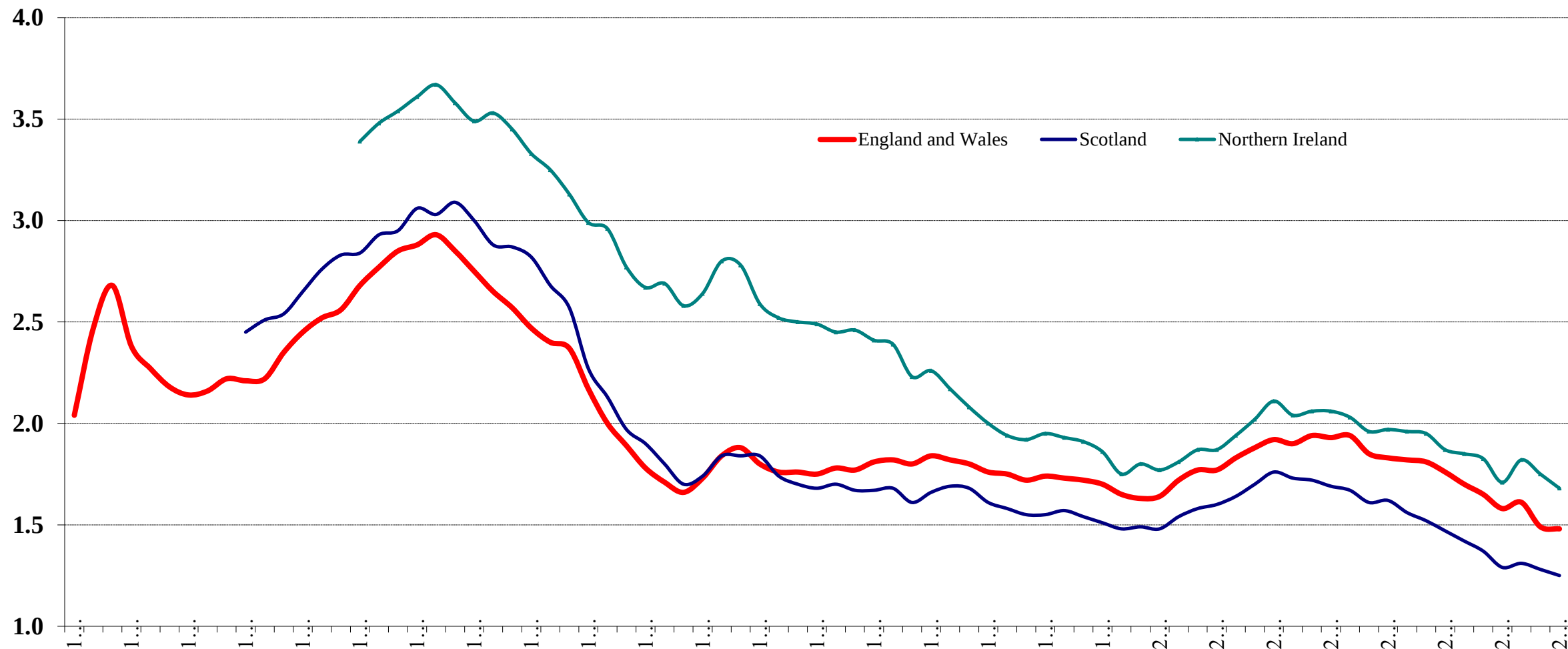
When women limited to domestic realm, familism no impediment to family size.

Today, women's opportunities for education and employment conflict with family duties (including to extended family) which still mostly devolve on women.

Hence downward pressure on family size, low fertility.

# Of course we're not like that.

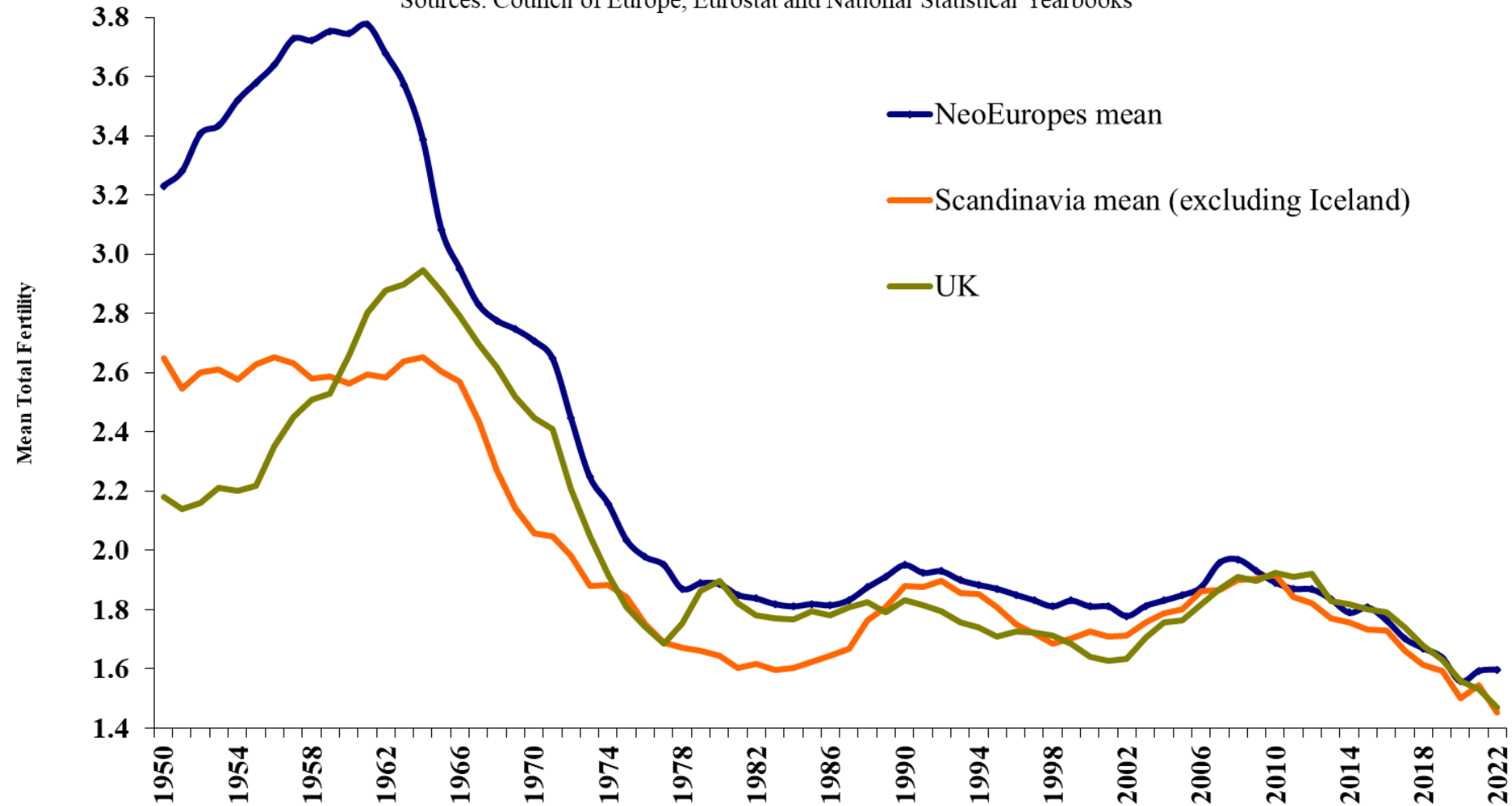
**Total Fertility, components of the UK 1945 - 2023.** Source: ONS



Two groups of 'higher' fertility countries. Similar birth rates, contrasting culture, environment and policy (no fertility policy, in 'NeoEuropes').

**Total Fertility trends, UK, Northern Europe and 'Neo-Europes' 1950 - 2022**  
(unweighted means)

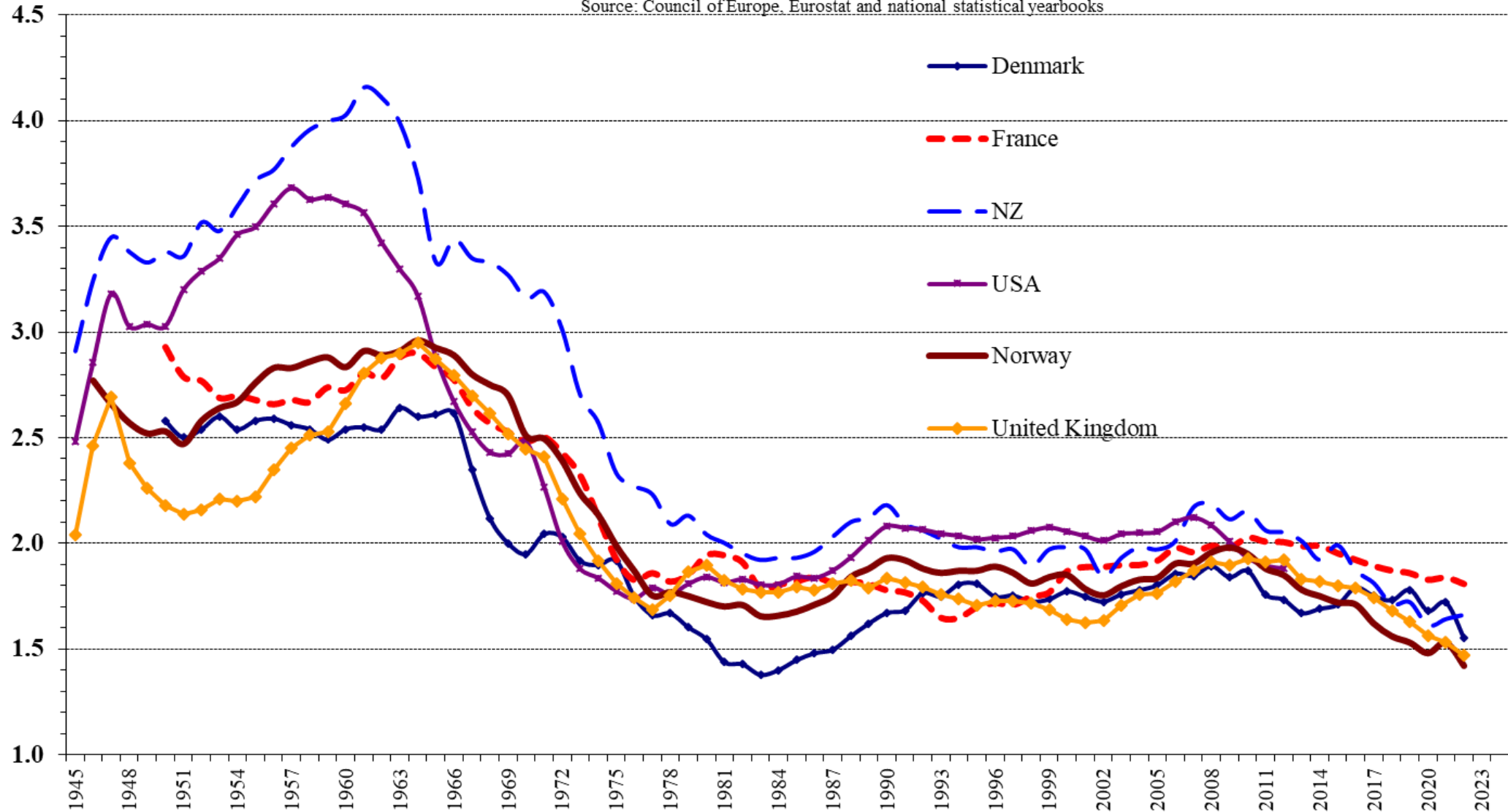
Sources: Council of Europe, Eurostat and National Statistical Yearbooks



# Some (former) higher fertility countries.

Total Fertility trends, industrial higher-fertility countries 1945-2018

Source: Council of Europe, Eurostat and national statistical yearbooks



# Accounting for the fall

An uneven decline – e.g. France little affected (TF 1.84 in 2021).

Some tempo change – delayed childbearing. End of demographic momentum.

More emphasis on work (DeRose and Stone) following economic slowdown.

Response to economic crises from 2008, Covid 2019 and Ukraine war 2022 (Matysiak et al 2021.) Therefore possibly temporary?

In England huge increase 5% to 20% in young people not wanting children ‘definitely not’ greater than ‘definitely yes’. Housing and childcare costs.

Ageing - more caregiving of old, reduces desire for children among carers.

Systemic job insecurity (D’Ambrosio et al. 2023, Fleckenstein et al.2023, Peng 2012,Ranan 1999),

Concern about climate change and the future for children

Lower trust arising from greater diversity .

See [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Fertility\\_statistics](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Fertility_statistics)

•

## **More generally...**

Economic irrationality of childbearing for the individual.

Delay in union and reproduction, childlessness. Improvement in women's status; difficulties of combining children with higher education, workforce participation and other opportunities.

Spread of individualistic values, 'post-materialism', 'second demographic transition'.

The 'Low fertility trap'.

Biomedical problems from delay, environment.

Response to higher density, environmental consciousness, fears for the future.

Unstable indeterminacy – negotiation of male/female preferences, role of fashion.  
(after Lutz and others, 2006)

# Demographers puzzled. Some gurus speak: (‘frankly I haven’t a clue’)

- *“In Scandinavia we thought they got it right, there was a very comprehensive package, focused on gender equality, that ticks all the boxes, and in the past year fertility is going down. **So we are scratching our heads and trying to work out what’s going on,**”* Anne Gauthier. The Guardian 4 March 2020.
- *‘It is particularly puzzling given that these countries used to be seen as the prime examples for the premise that ensuring the compatibility of work and family and having generous child support systems will result in relatively high fertility levels... **Demography is still groping in the dark for explanations for these changes.*** Wolfgang Lutz, (2020) p.67.

# Could we expect a long term recovery of the birth rate?

*Desired* family size in most countries was around 2 children for decades (Sobotka and Beaujouan 2014) (but now faltering)

*Achieved* family size between 0.8 and 1.8. So just find and remove obstacles?

Little faith in 'natural' homoeostatic recovery to replacement level (Lutz).

Danger of falling into 'low fertility trap' (Lutz, Skirbekk and Testa 2007, Lutz 2008)

Failure of desired and actual family size to increase after end of China one-child policy (Lucero-Prisno et al. 2022),

Marriage and children no longer seen as essential.

## **Longer term considerations**

No 'sound barrier' in demography.

Some populations have fertility close to 'replacement'.

Role of immigrants and high-fertility groups. haridim, laestradians.

Relationship of fertility with wealth returning to former positive pattern (i.e. the rich get children).

High childlessness compatible with relatively high fertility.

Changing relationship with workforce participation and income

'Second Demographic Transition' enhances fertility?

Increase in gender equity, decay of 'familism'?

Persistent preference for family size around two (although now uncertain).

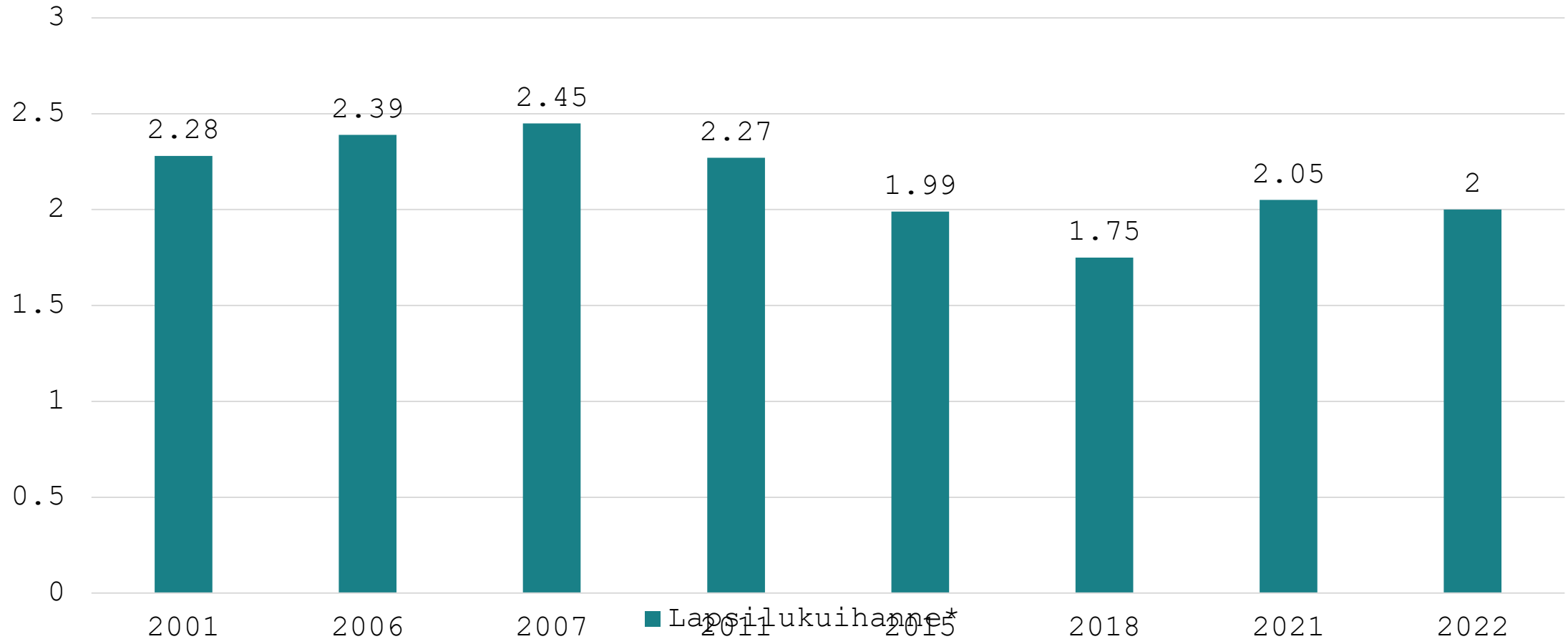
Family welfare and pronatalist policies.

Homoeostatic mechanisms? long-term response to population decline?

Revival of religion?

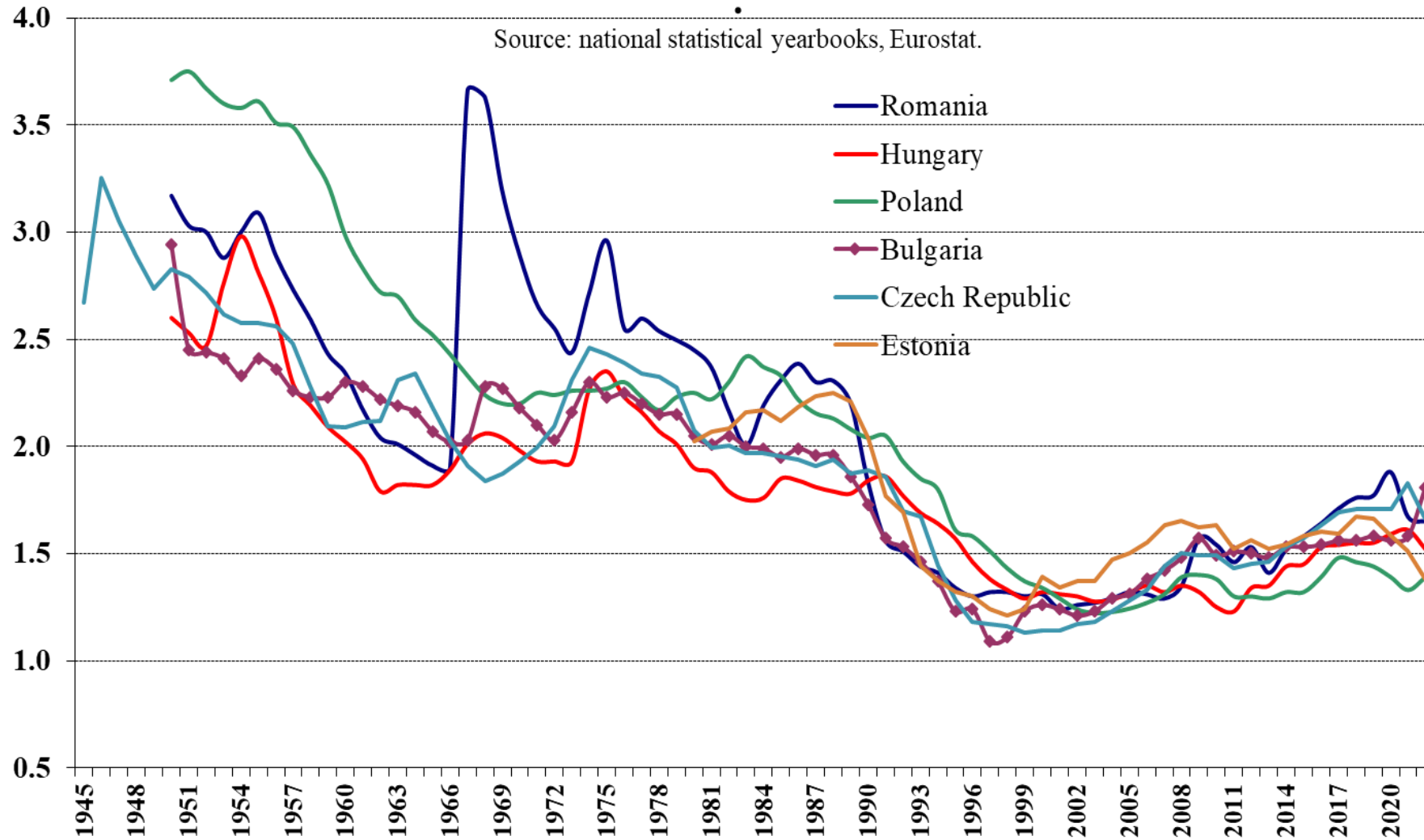
# Usually fertile Finns go wobbly

Own ideal numbers of children in different surveys (20-45 year old Finns with 0-3 children)



# But birth rates can go up as well as down. Central and East Europe, recovery of total fertility up to 2022.

Total Fertility trends, Selected Eastern and Central European countries  
1948 - 2022



And let's not frighten ourselves with bad ageing measures.

The conventional Old Age Dependency Ratio (OADR) is (pop 65+ / pop 20-64).

Static and obsolete – leads to misleadingly unfavourable forecasts.

‘Prospective ageing’ takes into account increases in expectation of life. Like adjusting economic trends for inflation.

The Prospective Old Age Dependency Ratio (POADR) measures ageing by years of life remaining, not years of life lived. It takes old age to begin at the age at which life expectancy is down to 15 years. That is,  $e_x = 15$  is the cut-off, not  $x=65$ . That should continually increase.

POADR is the number of people in age groups with life expectancies of 15 or fewer years, divided by the number of adults in age groups with life expectancies greater than 15 years.

Like the OADR, the lower, the better.

(Sanderson and Scherbov 2010).

# Ageing old and new

n.b. Prospective OADP estimates assume survival improvement.

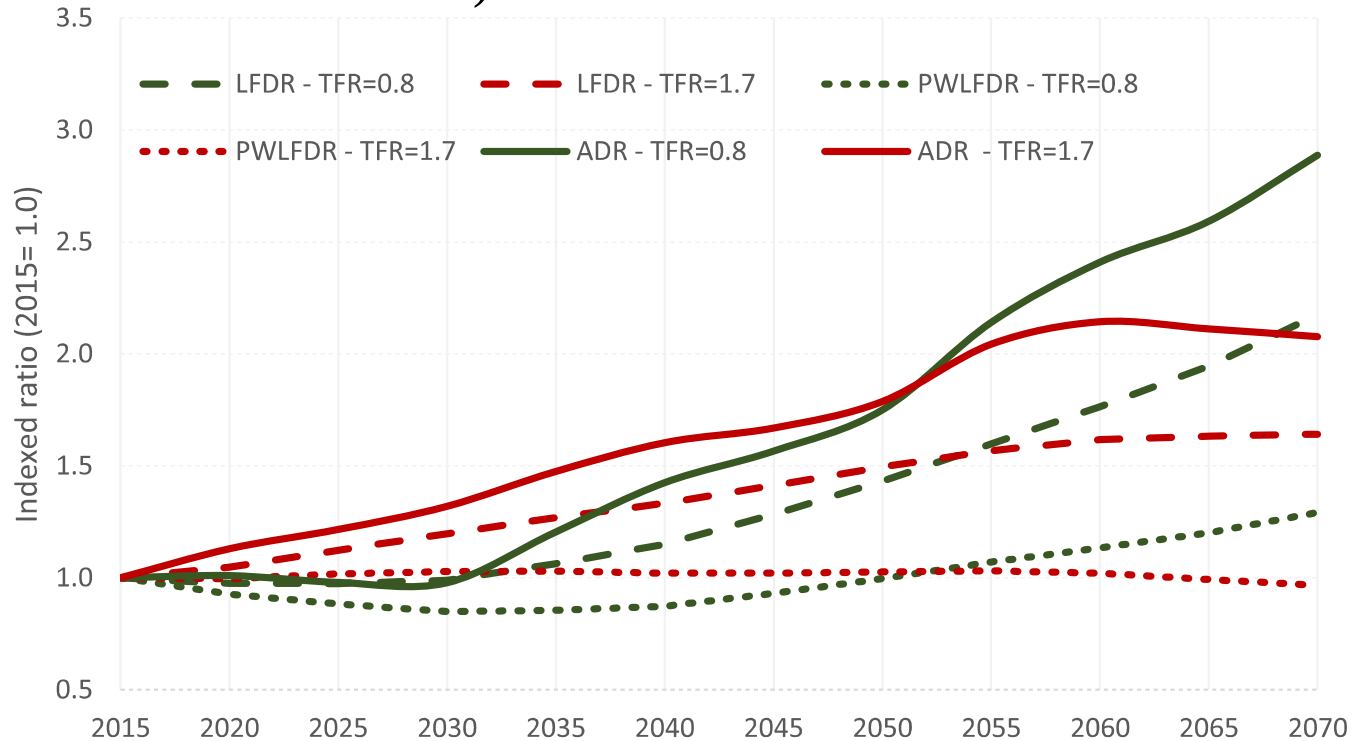
## Comparison of OADP with Prospective OADP, 2005 - 2050.

|         | Conventional OA Dependency Ratio  |         |         | Prospective OA Dependency Ratio |         |         |
|---------|-----------------------------------|---------|---------|---------------------------------|---------|---------|
|         | Dependents per 100 active adults. |         |         |                                 |         |         |
|         | 2005-10                           | 2025-30 | 2045-50 | 2005-10                         | 2025-30 | 2045-50 |
| Germany | 33                                | 45      | 63      | 21                              | 25      | 34      |
| France  | 28                                | 44      | 51      | 18                              | 21      | 24      |
| UK      | 27                                | 36      | 41      | 19                              | 20      | 22      |
| ITALY   | 33                                | 45      | 68      | 20                              | 23      | 31      |
| Japan   | 35                                | 55      | 78      | 18                              | 27      | 29      |

Source: Sanderson and Scherbov 2010. 239 1287 - 1288

# Other ameliorating factors- productivity, workforce.

In some ageing societies, educational levels, hence productivity, and labour force participation, increase substantially with each successive cohort. For China (TF=1.3, 2015-2070) incorporating this (dotted red, blue) can counteract nominal deterioration of conventional dependency (solid red, blue) averting crisis. Scale is current dependency=1.0. (Marois, Gietel Basten et al. 2021)..



# *The Ultimate Question...*

Why bother to have children at all?

Damnably expensive.

Twenty years partial house arrest.

# Persuasive arguments?

Economic models axiomatically assume desire for ‘child services’.  
Immortality by proxy.

Primary group ties – children provide a close community in an impersonal world, and a source of love.

Novelty and fun – children as pets provide amusement, novelty and surprise.

Creativity and accomplishment – children as indicators of adults status and creativity.

Power over others – children as pupils, disciples to be led, taught and be influenced.

Vicarious achievement possibilities – children as a second chance, replacements for own failure.

Curiosity – one should always try everything at least once.

Minimizing uncertainty in one of life’s major areas.

Sources: Hoffman and Hoffman (1973), Friedman *et al.* (1994), Schoen *et al.* (1997).

# Still, why have children at all

Voluntary childlessness- increasing levels.

Stigma, but no psychological / social disadvantage?

Spectrum of reasons (Letherby 1998)

- Environmental 'duty'
- Don't like children
- Think will be a poor parent
- Political – 'Childfree' / feminist
- Materialism
- Work
- Never met partner
- Too busy doing other things

Increasing social acceptability

- Online social networks

Still access to children – nephews/nieces, while stocks last.





# Social capital, social health

## Social capital functions

Social security in old age. Very important for actual care provision. But deterrent to childbearing?

Entry to parenting networks (to make friends, get a child or a dog).

‘Adults use children to get on with their lives, to grow up, and to accomplish a full set of life experiences’ (Kvamme 2000)

Selfish genes and maternal instincts – a ‘need to nurture’ ? (sex is not enough).

Psychological data (sex differences in empathy, toys, pets, ‘cuteness’ syndrome, ‘baby fever’ )

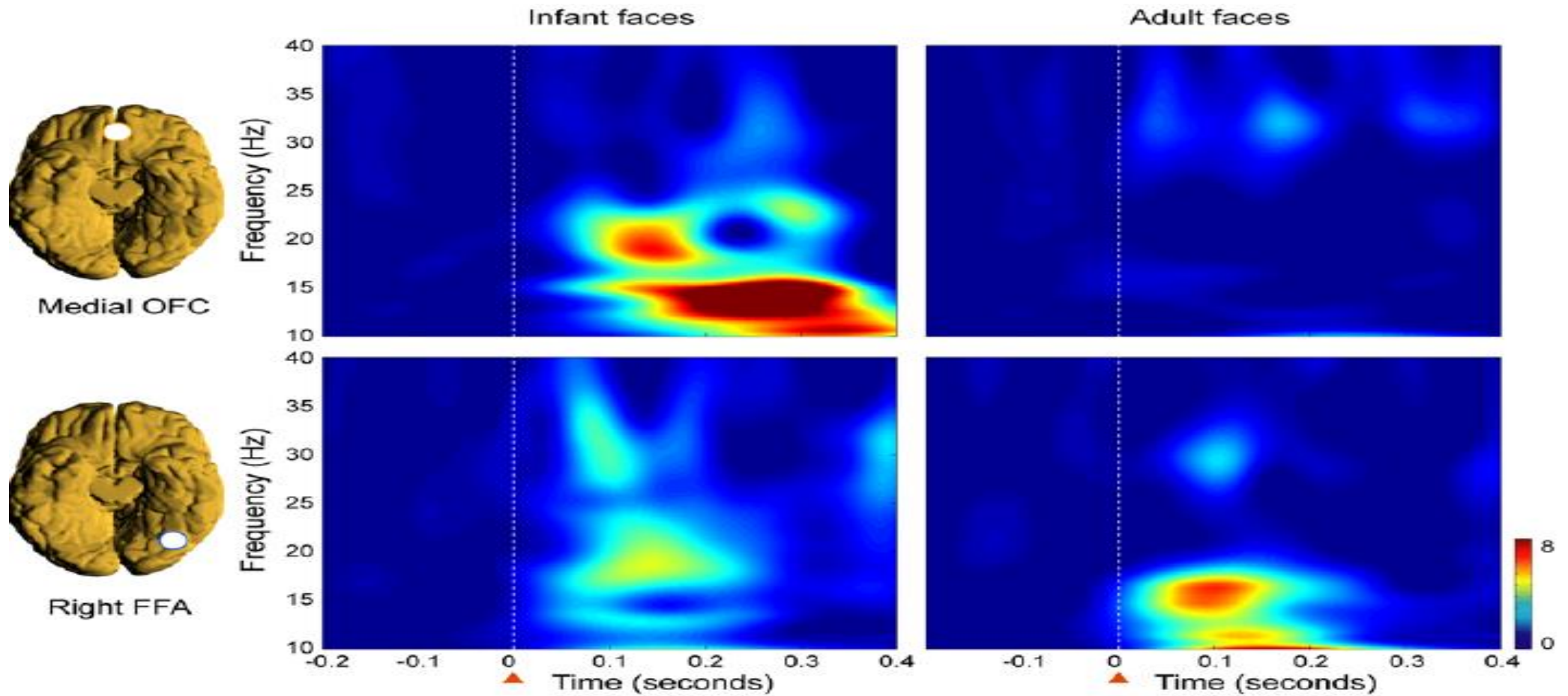
Neurophysiological data (Kringelbach et al. 2008)

Animal models – genetics (*Mest*, *Peg1*, *Peg3*, *Dio3*, etc. Creeth et al. 2018. Also Gardner, Neville et al. 2022)

Animal models – behaviour (sex roles and toys, induction of maternal behaviour, adoption, etc)

BUT nonetheless voluntary childlessness increasing, maybe doubled..

# A parental / nurturing instinct?



(Kringelbach *et al.*, 2008)

# Conclusions

A new stage has begun in world demographic development

A global change in ideals between cohorts: work and friends, more than family and children?

More worries about the future, lower family size ideals

Balance of evidence points to new lower fertility level as normal.

Would imply faster pace of ageing and numerical decline BUT has advantages. In any case climate change will enforce reduction.

In Western Europe/Anglosphere native population diminishes, immigrant origin population expands.

Ageing stabilises with a new older stable age structure.

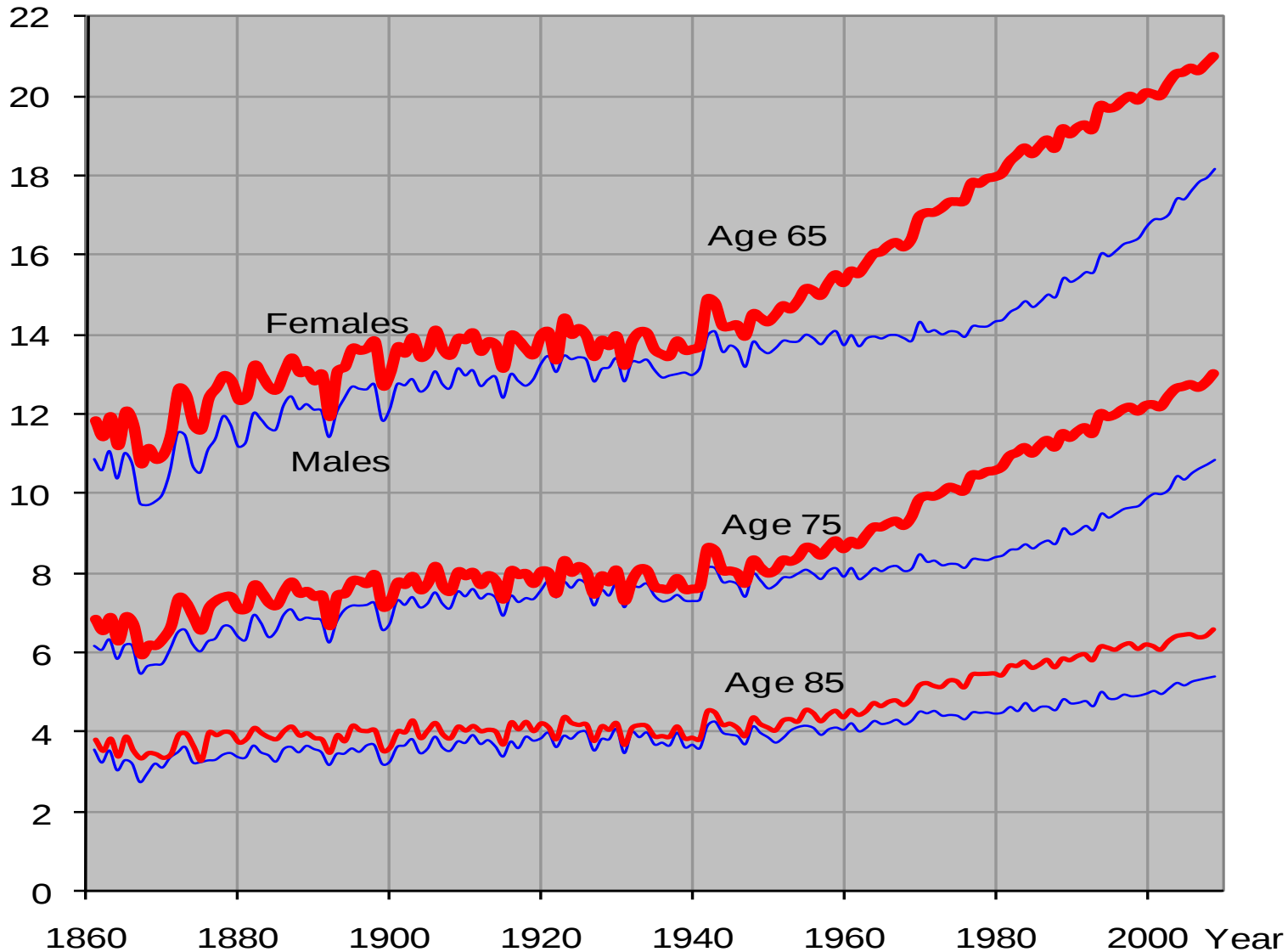
Policy might be demanded to keep TF above 1.5 (but seldom works).

Adaptation needed to a new form of society.

Radical culture change needed in East Asia. 'Koreans must stop being so Korean'.

# New developments - remaining life expectancy at age 65, 75 and 85, Sweden 1861-2009.

Source: Lundstrom 2010



And girl monkeys prefer dolls...

**Figure 11: Vervet monkeys contacting sex-typed toys. Left: female with doll. Right: male with car (Hines 2009)**



# Primate evidence

- Adoption of unweaned orphans common
  - Fortuitous (Quiatt 1982)
  - ‘Strong attraction of females toward neonates, especially of females who are near parturition who have recently lost their own infant’ (Shirley 2005)
- Kidnapping and adoption

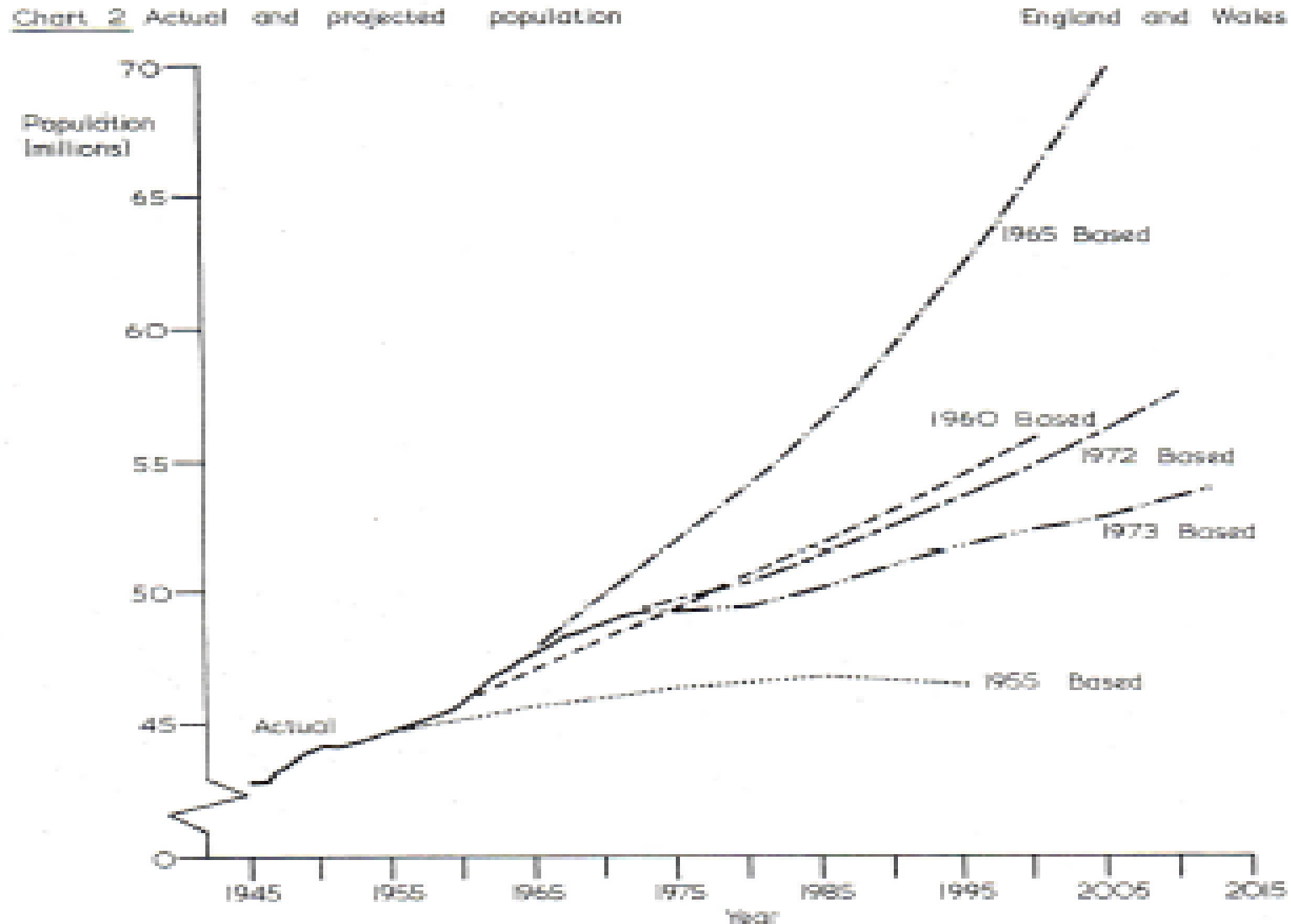
# Cute pets



# England and Wales, population projections 1955 – 1973.

## Egg on the face for demographers.

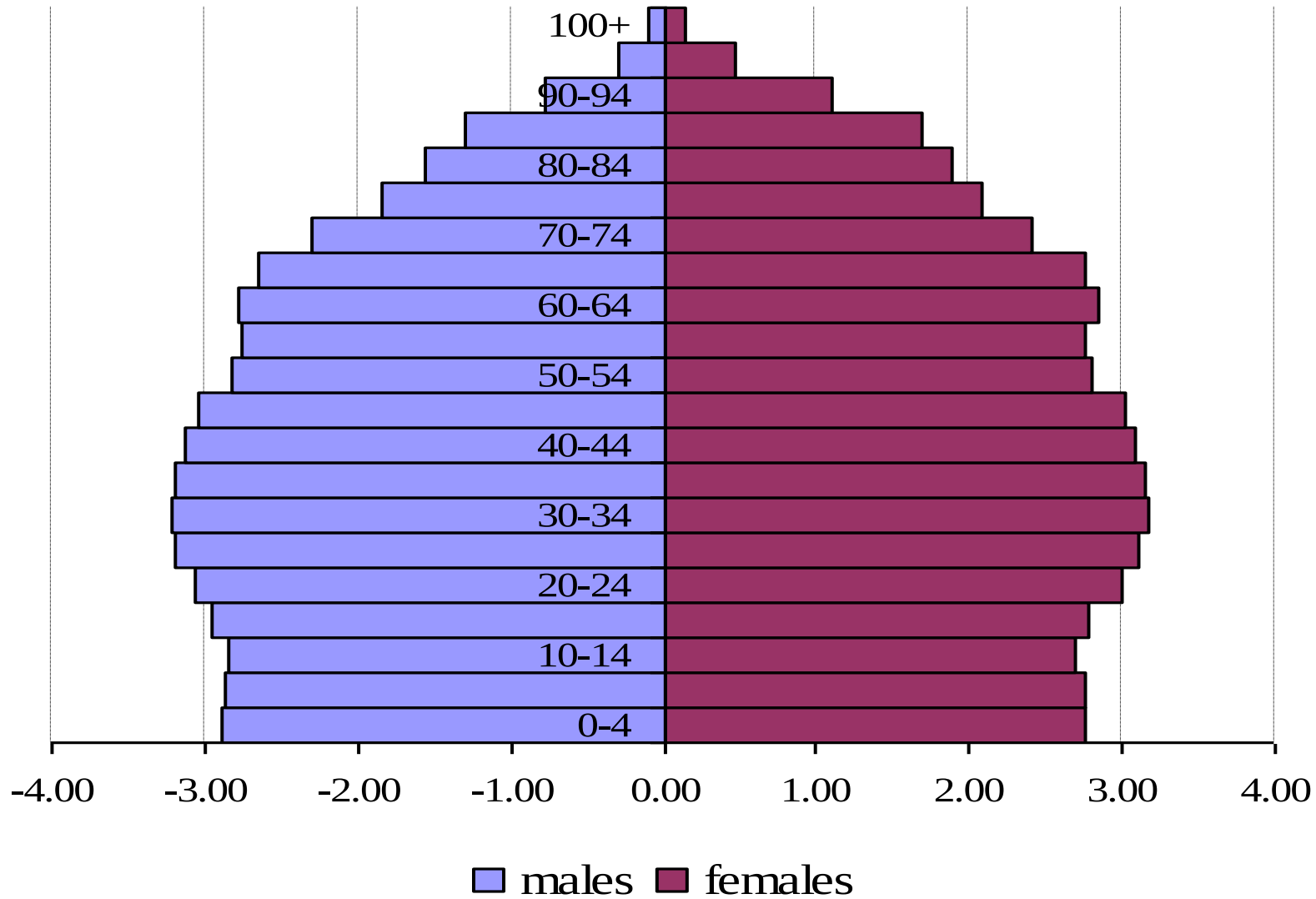
Source: OPCS RGQR 501, 1974, p.50.



Germany protests against 'Agenda 2010' welfare / pensions / retirement reform 2003.



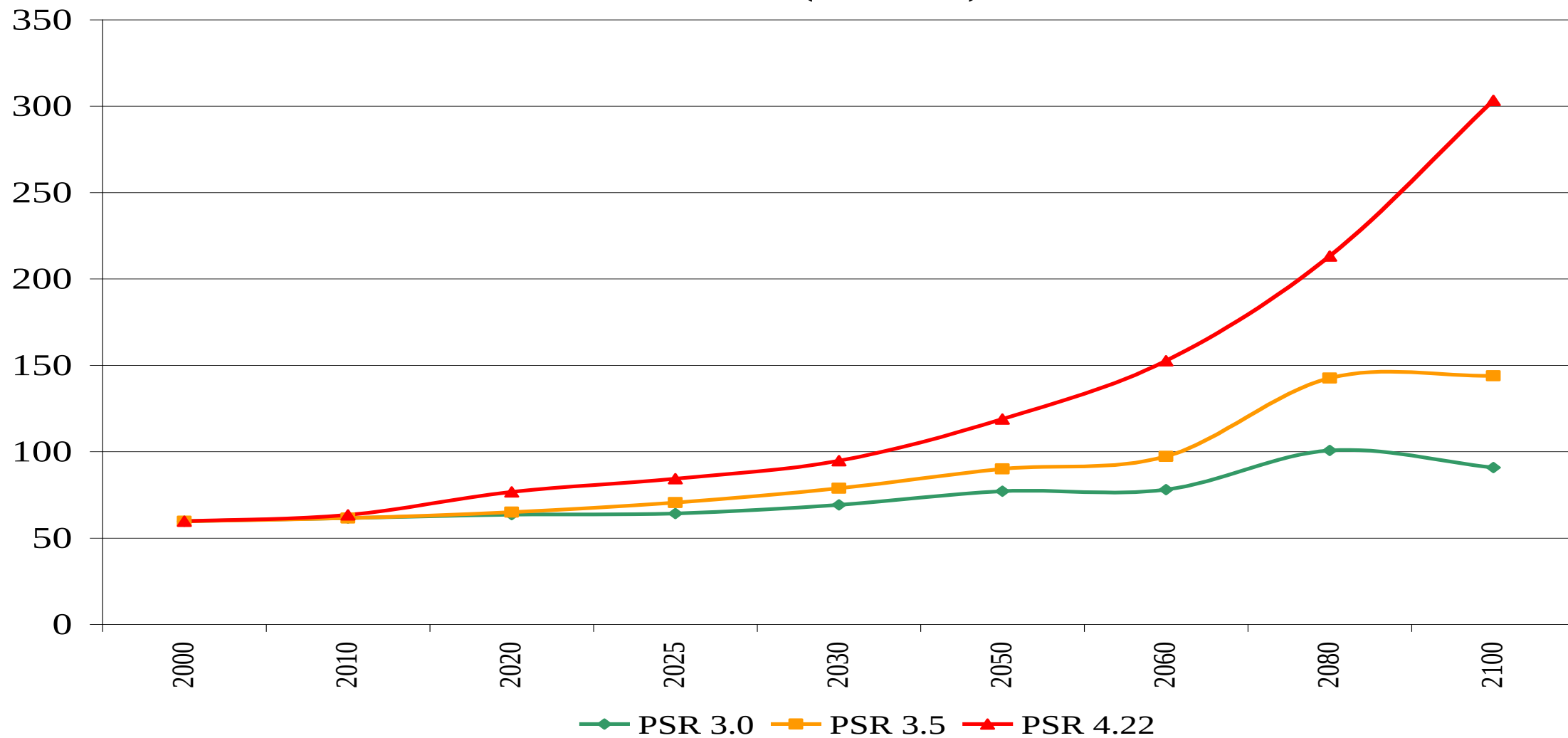
**UK population distribution by age and sex 2056 (percent)**  
**GAD 2004-based PP assumptions**



# Primate evidence

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# UK population size required to maintain given PSRs by immigration, 2000 - 2100 (millions)



France protests against pension / retirement reform 1995, 2003, 2007, 2009 etc.





'Dingo baby' inquest seeks  
to throw fresh light  
on case after 30 years  
Page 34



# World

# Nation grinds to halt in protest at President's shake-up of pensions

## France

Charles Bremner Paris

Nicolas Sarkozy faces his biggest challenge from unions and the street today with mass demonstrations and the start of an open-ended strike by transport and energy workers against a two-year rise in the retirement age.

For the President and the left-wing Opposition the battle is a make-or-break test of his ability to impose reforms amid unpopularity and in the face of public resistance. Nearly 70 per cent of the French, including 34 per cent of Mr Sarkozy's supporters, are against the new retirement age of 62.

If Mr Sarkozy beats the resistance over the next week the path will clear for a re-election campaign in 2012. He is to seek a second wind with a new government under a new prime minister at the end of the month.

Railway and air services are likely to be disrupted, but not paralysed, around the country today. Many schools, post offices, medical and other state services will be closed as the unions lead their fourth day of national mass marches in the past few months.

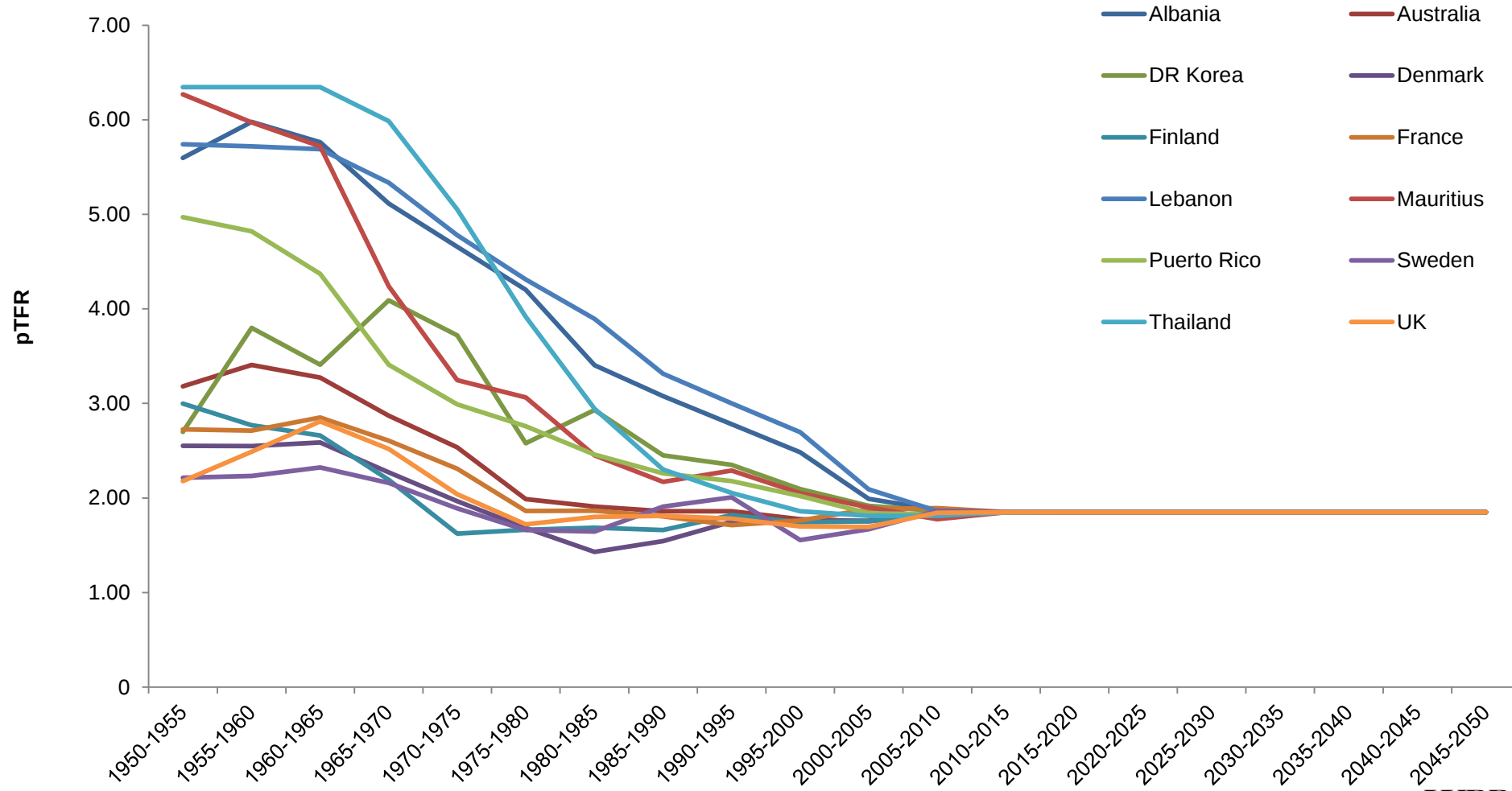
This time, with parliament on the verge of completing the pension reform, the unions have taken a gamble. The main railway, Paris transport and energy unions want their open-ended strike to ignite an uprising



AGENCE FRANCE PRESSE / GETTY IMAGES

UN population forecast to 2100

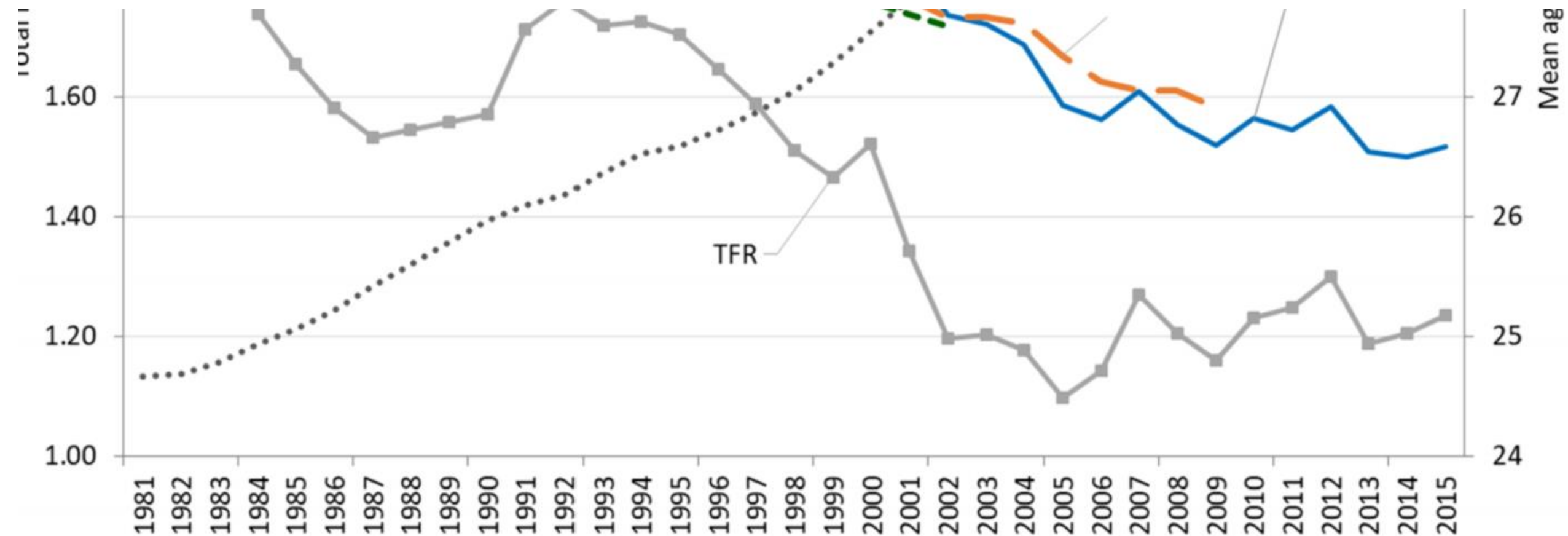
UN assumption – fertility returns to replacement level as before the demographic transition.



WPP 2008

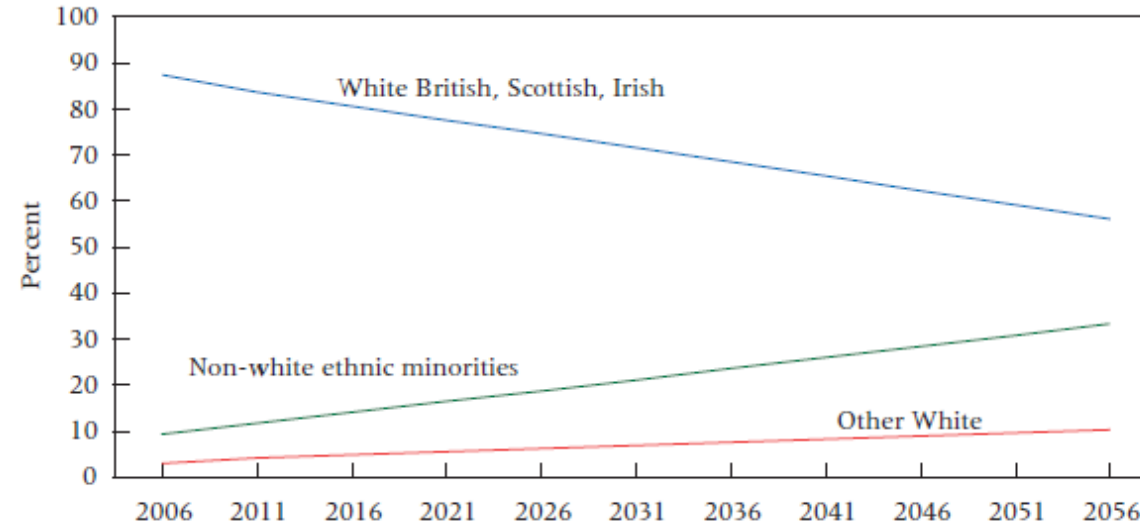
**Age and parity-adjusted total fertility (Blue line) compared with unadjusted total fertility 1984 to 2015 (Grey line); in 2015, 1.5 compared with 1.2). Orange line is completed cohort fertility lagged by mean age at childbearing (31 in 2015)**

(source: Yoo and Sobotka 2018, Figure 1)

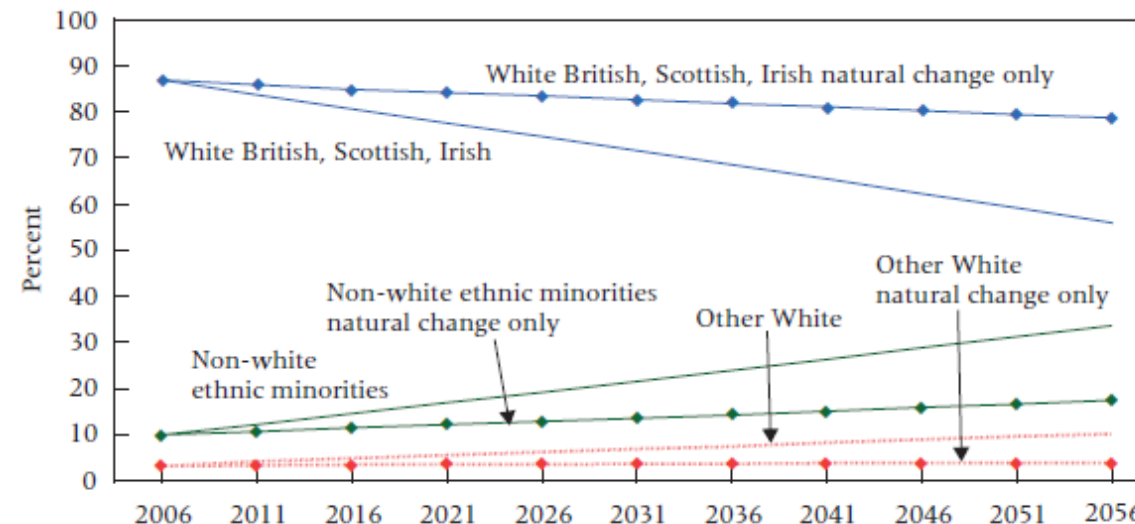


A projection of ethnic change in the UK 2006 – 2056. TFR = 1.84, net immigration = 180,000 / year. Source: Coleman 2010.

**FIGURE 2** Standard scenario, percent of UK population in three major ethnic categories, 2006–2056



**FIGURE 4a** Percent of population in three major ethnic categories 2006–2056, standard scenario and natural change scenario



# Relative size of live births, natural increase and net migration around 2010, selected Western countries.

| Selected Western countries                                            |              |                   |          |           |                      |
|-----------------------------------------------------------------------|--------------|-------------------|----------|-----------|----------------------|
| Comparisons of live births, net immigration and natural increase 2010 |              |                   |          |           |                      |
|                                                                       | Population   | Live              | Natural  | Net       | Net migration        |
|                                                                       | 1st Jan 2010 | births            | increase | migration | as percent of births |
|                                                                       |              | data in thousands |          |           |                      |
| Switzerland                                                           | 7786         | 80                | 13       | 61        | 75                   |
| Belgium                                                               | 10840        | 127               | 23       | 89        | 70                   |
| Norway                                                                | 4858         | 61                | 17       | 42        | 69                   |
| Italy                                                                 | 60340        | 562               | -7       | 312       | 55                   |
| Austria                                                               | 8375         | 79                | 2        | 27        | 35                   |
| Denmark                                                               | 5535         | 63                | 9        | 17        | 27                   |
| UK                                                                    | 62027        | 807               | 246      | 163       | 20                   |
| Germany                                                               | 81802        | 678               | -181     | 130       | 19                   |
| Spain                                                                 | 45989        | 485               | 107      | 60        | 12                   |
| France mét                                                            | 62791        | 802               | 262      | 75        | 9                    |
| Greece                                                                | 11305        | 115               | 6        | -1        | -1                   |
| Total of above                                                        | 361648       | 3860              | 495      | 975       | 25                   |
|                                                                       |              |                   |          |           |                      |
| Australia                                                             | 22696        | 293               | 149      | 176       | 60                   |
| Canada                                                                | 34108        | 381               | 127      | 216       | 57                   |
| New Zealand                                                           | 4370         | 64                | 35       | 10        | 16                   |
| United States                                                         | 298363       | 4217              | 1840     | 844       | 20                   |

# The faces of the future?



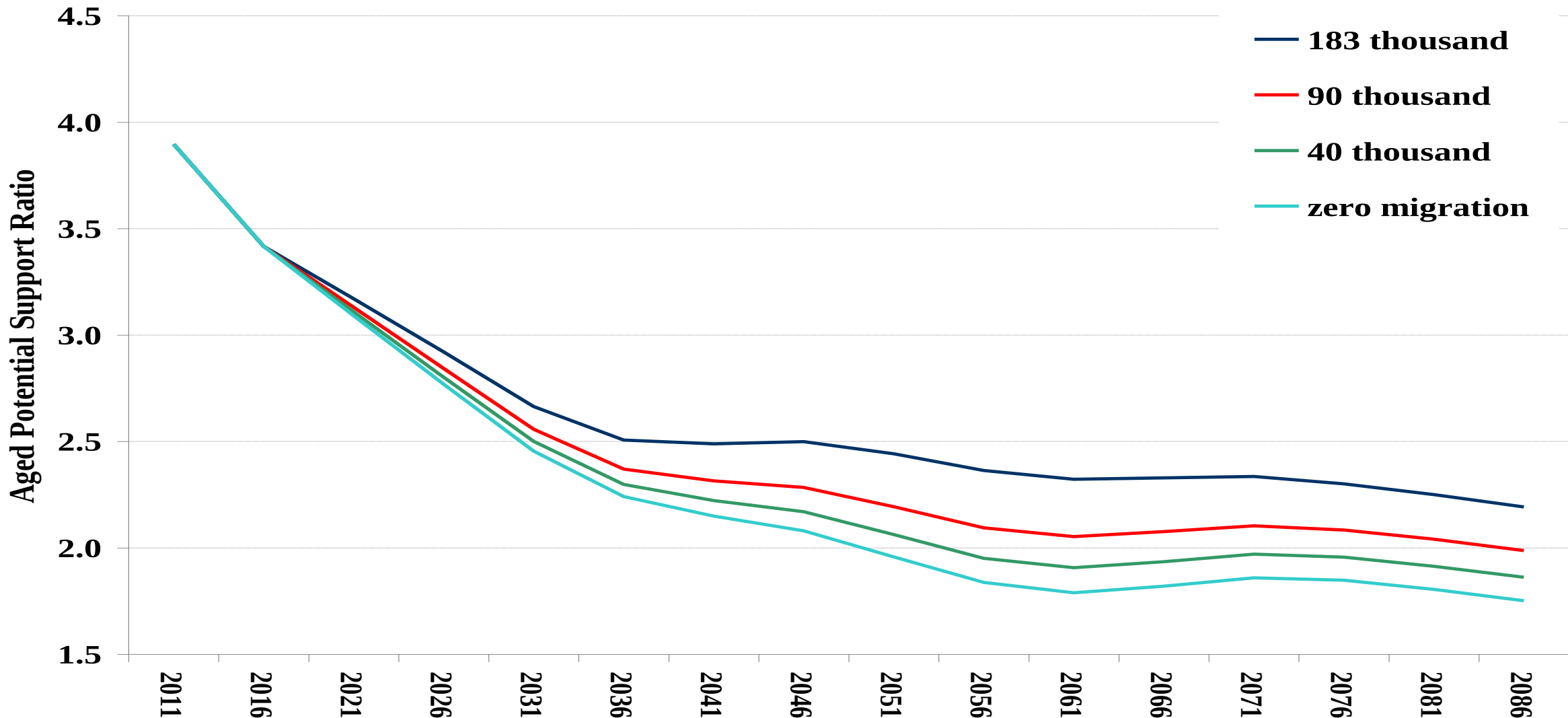
# Family size preferences not declining

**Mean personal ideal family size by country and sex.  
Eurobarometer rounds 2001, 2006. Selected countries only.**

|             | <b>Males</b> |             |               | <b>Females</b> |             |               |
|-------------|--------------|-------------|---------------|----------------|-------------|---------------|
|             | <b>2001</b>  | <b>2006</b> | <b>change</b> | <b>2001</b>    | <b>2006</b> | <b>Change</b> |
| Austria     | 1.89         | 1.66        | -0.23         | 2.03           | 1.82        | -0.21         |
| Denmark     | 2.33         | 2.46        | 0.13          | 2.46           | 2.64        | 0.18          |
| France      | 2.31         | 2.45        | 0.14          | 2.52           | 2.59        | 0.07          |
| Germany     | 1.66         | 2.17        | 0.51          | 1.96           | 2.24        | 0.28          |
| Italy       | 2.23         | 2.05        | -0.18         | 2.36           | 2.13        | -0.23         |
| Netherlands | 2.20         | 2.18        | -0.02         | 2.31           | 2.49        | 0.18          |
| Spain       | 2.23         | 2.23        | 0.00          | 2.35           | 2.34        | -0.01         |
| Sweden      | 2.39         | 2.39        | 0.00          | 2.49           | 2.64        | 0.15          |
| UK          | 2.39         | 2.34        | -0.05         | 2.53           | 2.52        | -0.01         |
| <b>EU15</b> | <b>2.14</b>  | <b>2.25</b> | <b>0.11</b>   | <b>2.32</b>    | <b>2.38</b> | <b>0.06</b>   |

Source: Testa 2006, Table 6, Special Eurobarometer 253)

Effects upon age-structure. UK Potential Support Ratio 2011-86 (population 15-64 / population 65+) at different levels of net annual immigration.



**Total Fertility and births outside marriage 2021, 43 developed countries.**  
**No 'higher' fertility unless about 30% of births outside marriage.**  
*Without births outside marriage, TF would be 1.0 - 1.3 in most countries below.*

