

# *Population Ageing: Crisis or Opportunity?*

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# Outline

- Declining mortality
- New dynamics of family formation and fertility
- Population projections
- Supporting an ageing population
- Investing in children
- Ageing, family formation and housing markets
- Conclusions

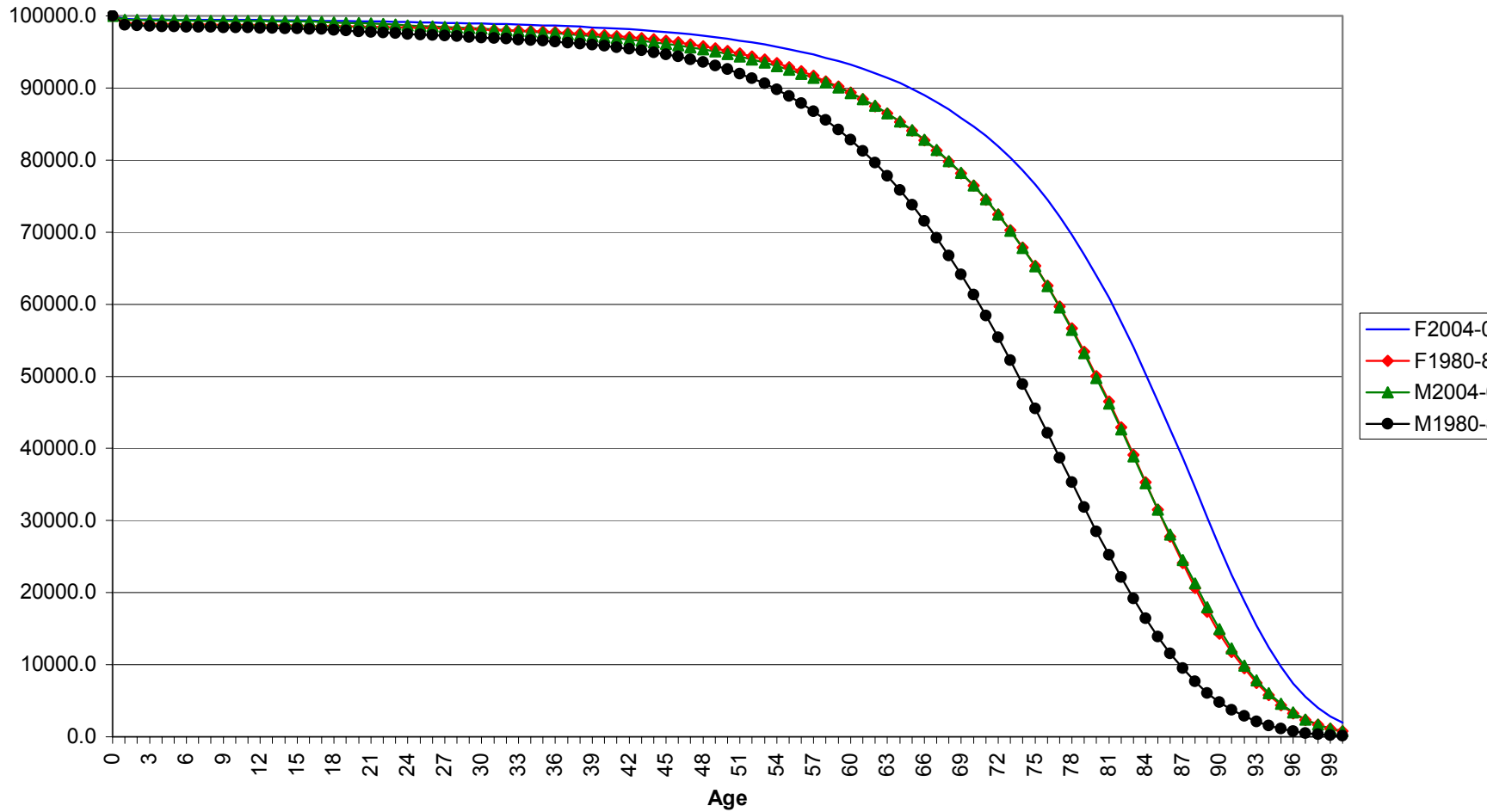
# Cautions

- Economies and societies that will exist in 2030 may be very different from today's.
- The exercise here should be strongly qualified by uncertainty.
- We should be sceptical of *particular* scenarios that may suggest themselves from today's perspective.
- Develop policies and institutions that have the ability to react to events rather than relying on ability to predict them:
- *Flexibility* should be our guiding principle.

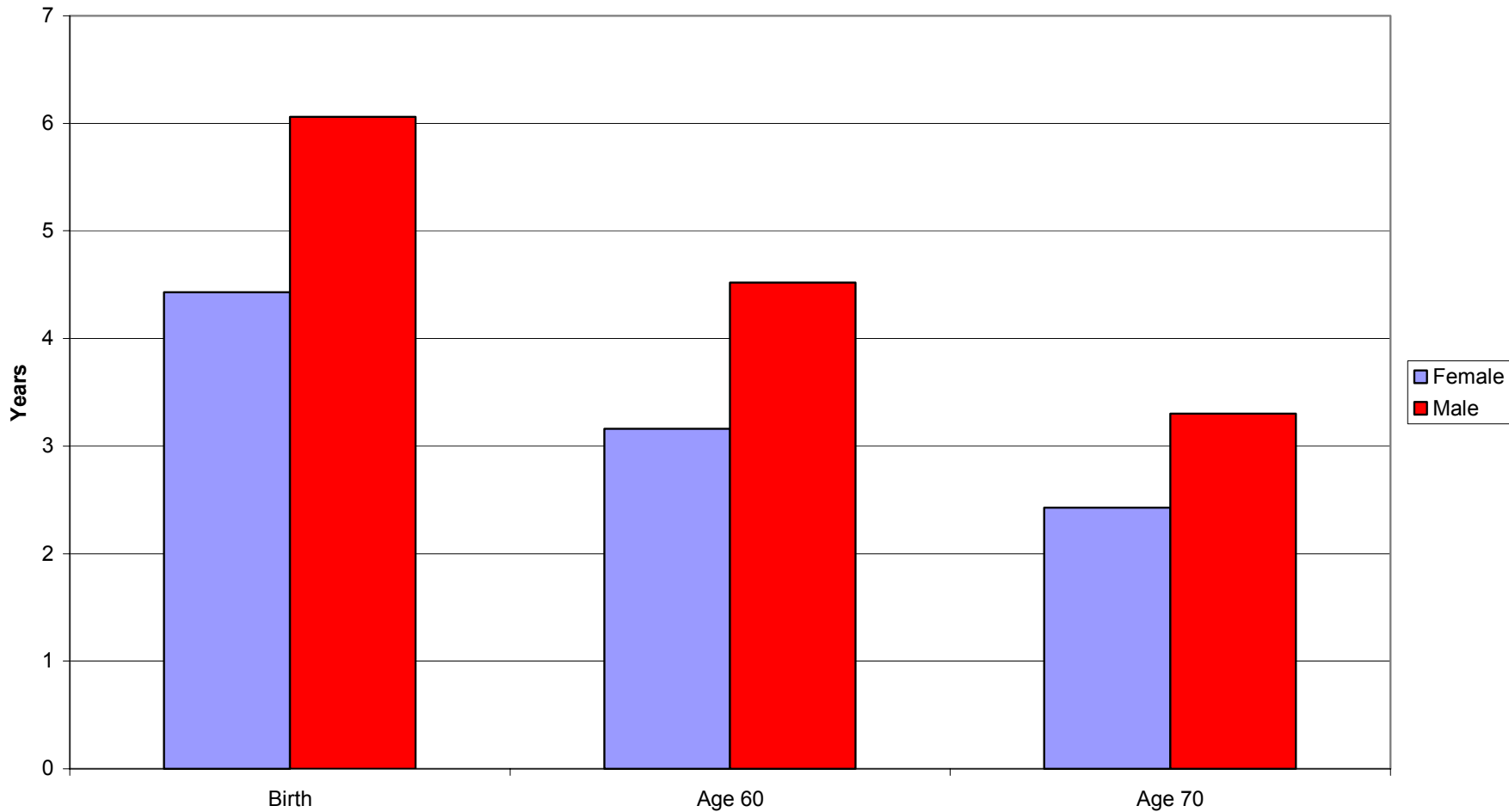
# 1. Declining Mortality

- *Life tables*: number per 100,000 births surviving at each age if the age-specific mortality rates in particular years were experienced by a new born throughout his or her life.
- Compare 1980-82 and 2004-2006 English life tables

Figure 1: Proportion Surviving: Comparing 1980-82 and 2004-2006 Lifetables by Sex



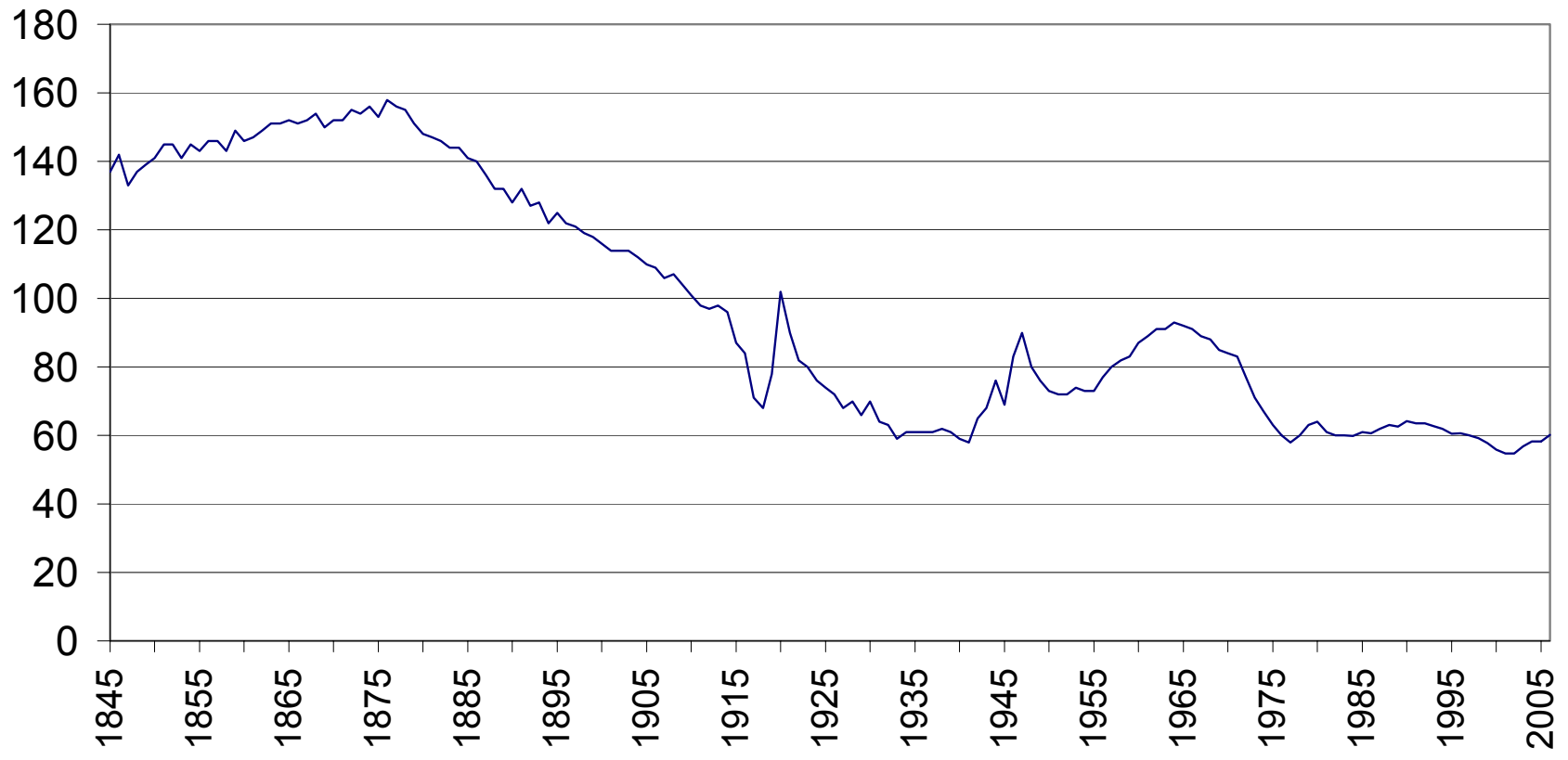
**Figure 2: Gains in Expectation of Remaining Life, Comparing 1980-82 and 2004-06 Lifetables**



# Population Ageing

- Proportion of older people in the population clearly rises as mortality declines.
- Over the longer term (e.g. 1875-1940), declining fertility made a large contribution to population ageing.
- But post-war fertility fluctuations also have important effects on the age distribution.

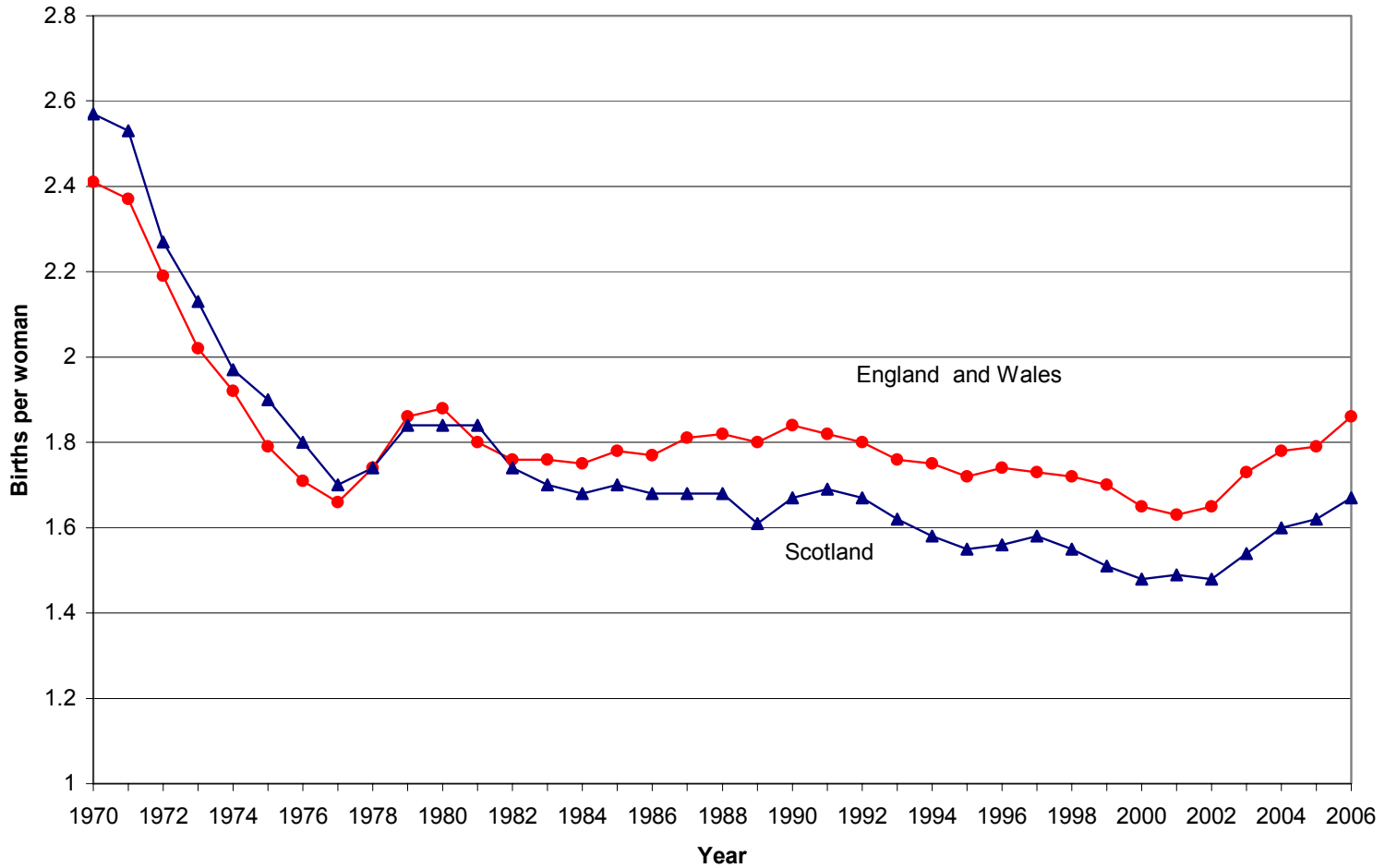
**Figure 3: General Fertility Rate (per 1000 women aged 15-44),  
England and Wales**



## 2. New dynamics of family formation

- Recent changes in 'Total Fertility Rate' (TFR): number of children a woman would have in her life if she experienced the current year's age-specific fertility rates.
- Compare England and Scotland
- Cross-over point in early 1980s
- Rise in TFR since 2002 in both countries.

Figure 4: Total Fertility Rate, England and Scotland



# Context of fertility decisions

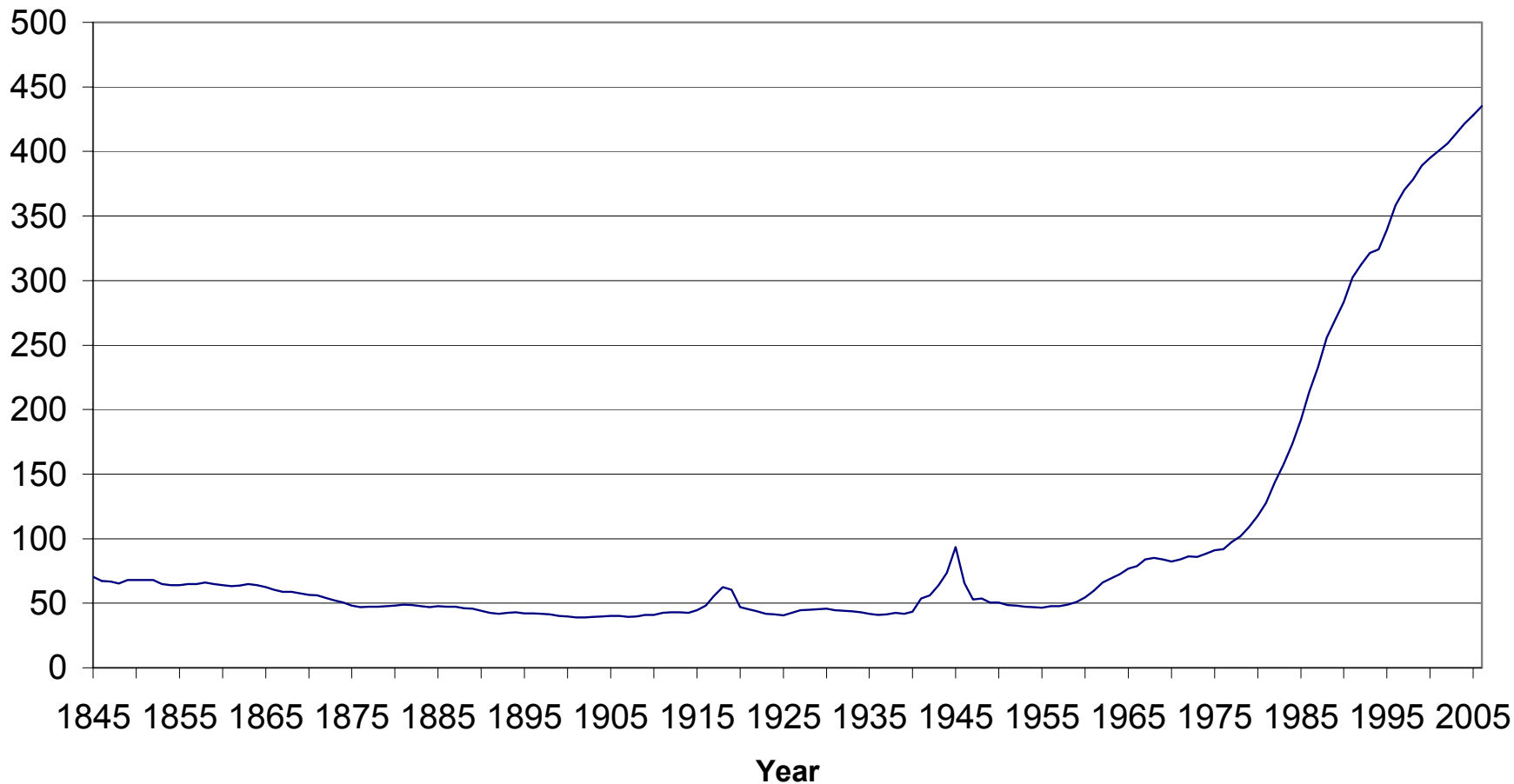
- Live-in partnerships (formal marriage or not) have been forming later in people's lives:
  - comparing women born in the 1950s with those born in the 1970s, the age by which one-half had their first live-in partnership increased from 22 to 25.
- The vast majority of partnerships now begin as informal, cohabiting unions:
  - Rising from 25% (born 1950s) to 80% (1970s)

- These two changes lie behind the large postponement of marriage and motherhood in women's lives.
- Less educated (GCSE or less) women partner earlier than more education women
  - aged 24 cf. 26 among the 1970s cohorts.
- More educated women were pioneers in adopting cohabitation as the form of their first union--by the 1970s cohorts, however, there was little difference by educational attainment.

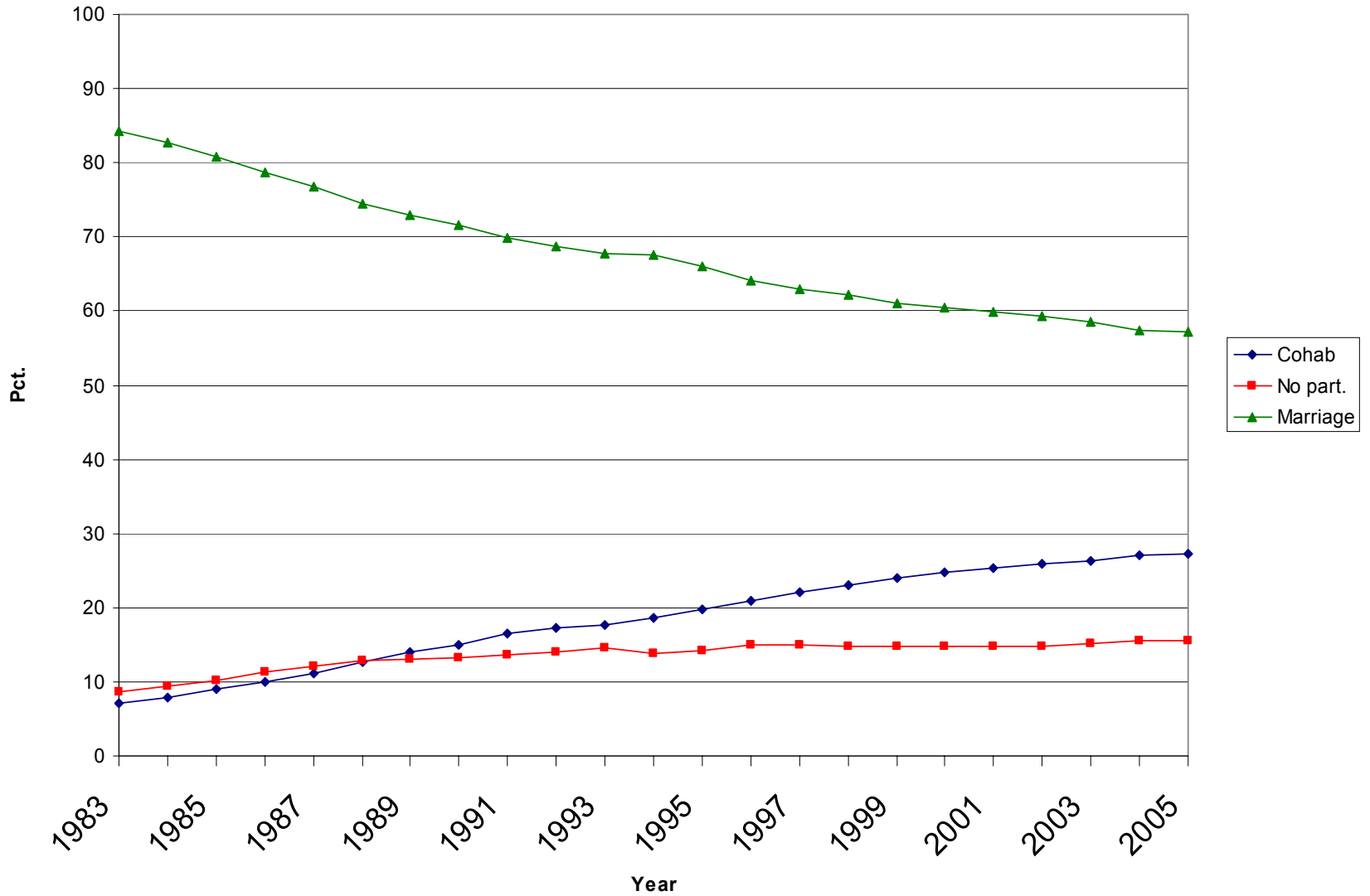
# Marriage and Childbearing

- Median age at marriage now the same for more and less educated women.
- Marriage was postponed more than childbearing for less educated women:
  - the difference in median ages of marriage (32) and motherhood (26) was 6 years for less educated women born in the 1970s.
- An explosion of non-marital childbearing after at least 130 years of stability
  - Even higher percentage in Scotland: 48%.

**Figure 5: Births Outside Marriage per 1000 Live Births,  
England and Wales**



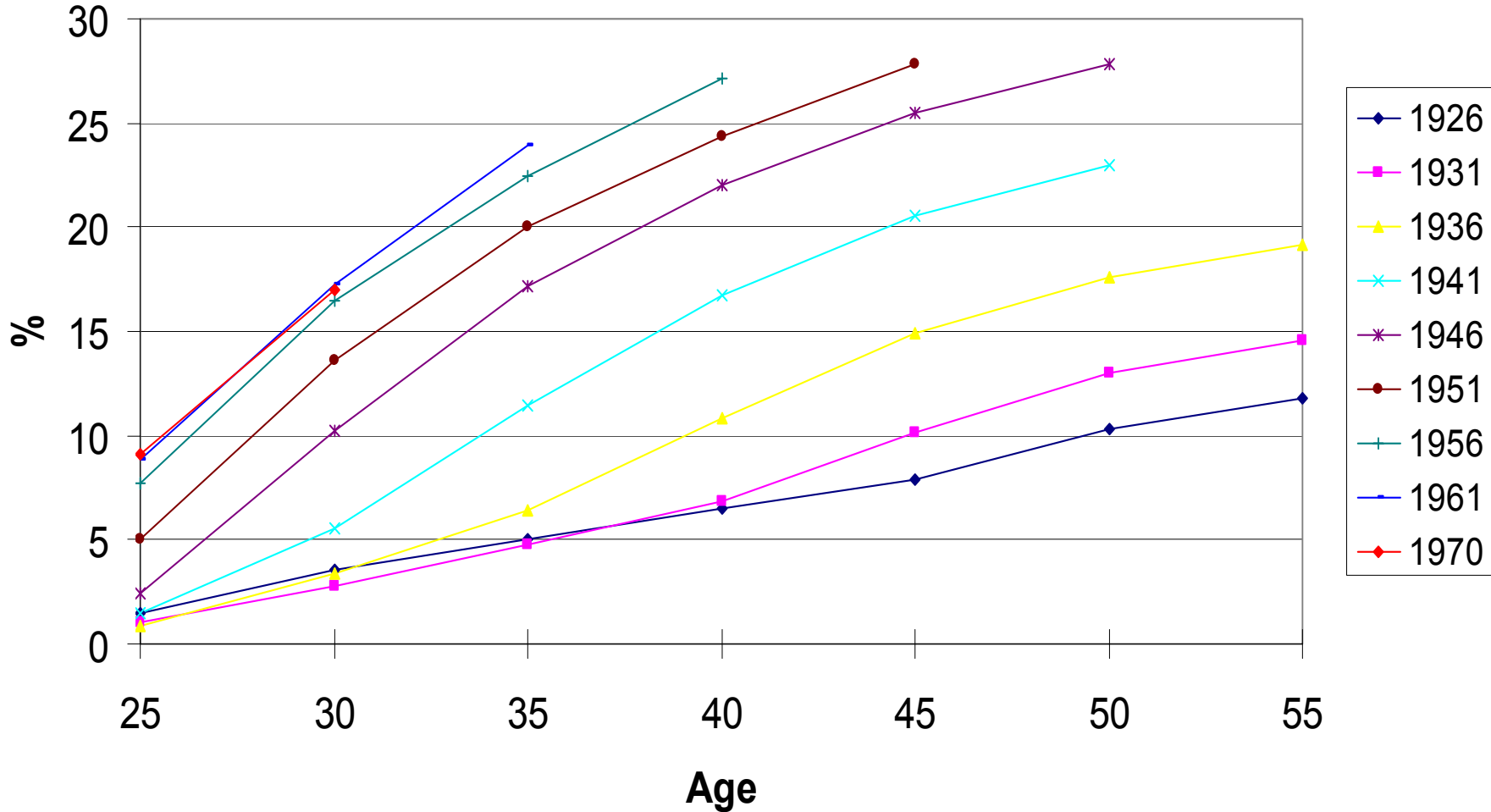
# Partnership Status of Birth



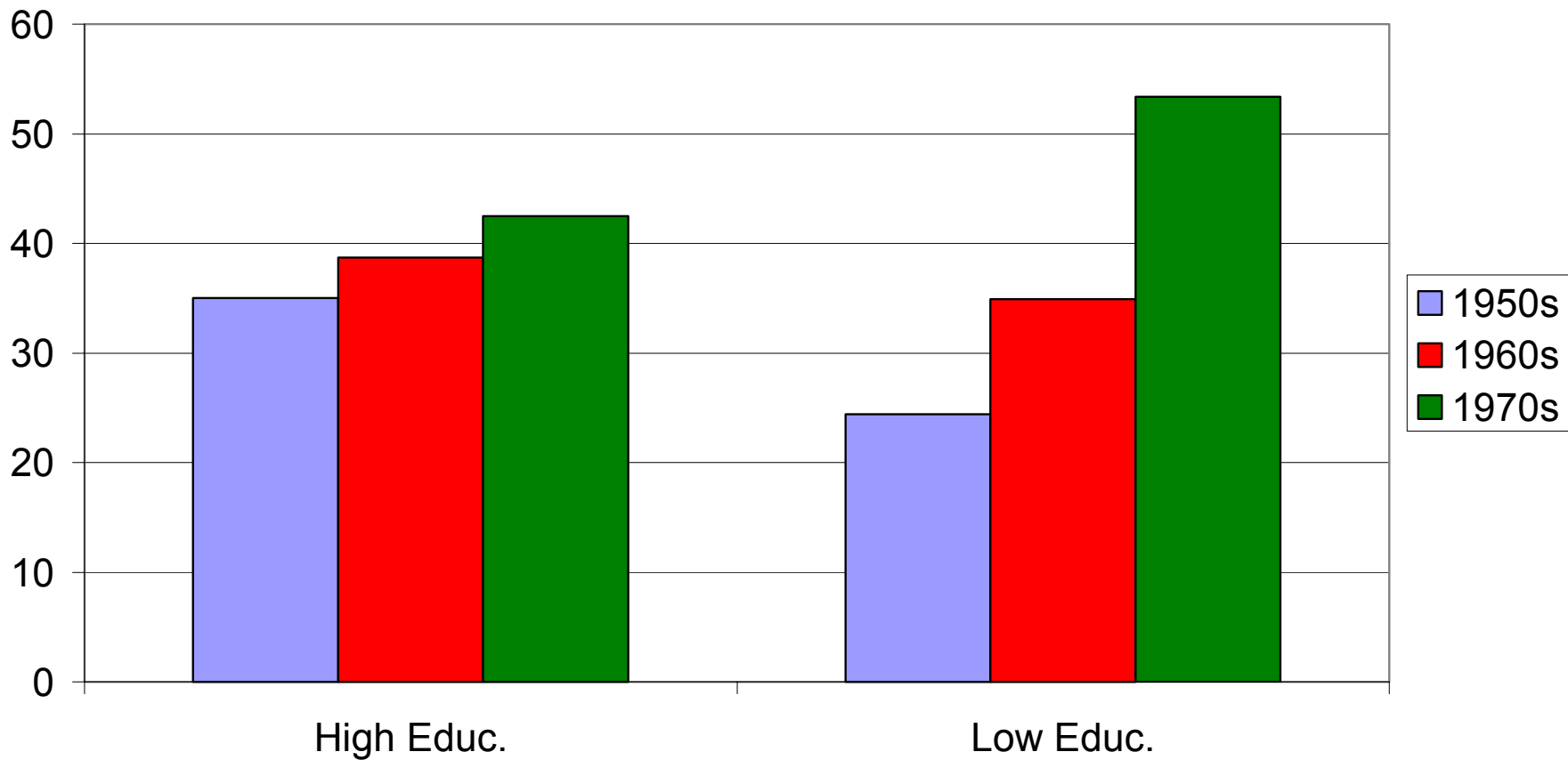
# Family Dissolution

- Divorce became more common for successive cohorts born from 1926 to 1961.
  - Higher divorce rate for less educated women.
- Cohabiting unions have a high dissolution rate, and it has increased over time:
  - Now 50% of the cohabiting unions eventually dissolve (50% turn into marriage).
  - Higher dissolution rate for less educated.

# Percent Ever-Divorced among Ever-married Women by Birth Cohort



**Figure 6: Percentage Dissolving their First Cohabiting Union by Educational Attainment and Cohort**



# Fertility Decisions in an Environment of Partnership Instability

- While majority of births are to parents living together, these unions are not very stable.
- Percent of children born who will *not* live their entire childhood with both natural parents:
  - Born within marriage: 30%
  - Born in cohabiting union: 65%
- Over one-third of birth to parents who do not live together (at time of registration).

# Social Selection into Lone Parenthood

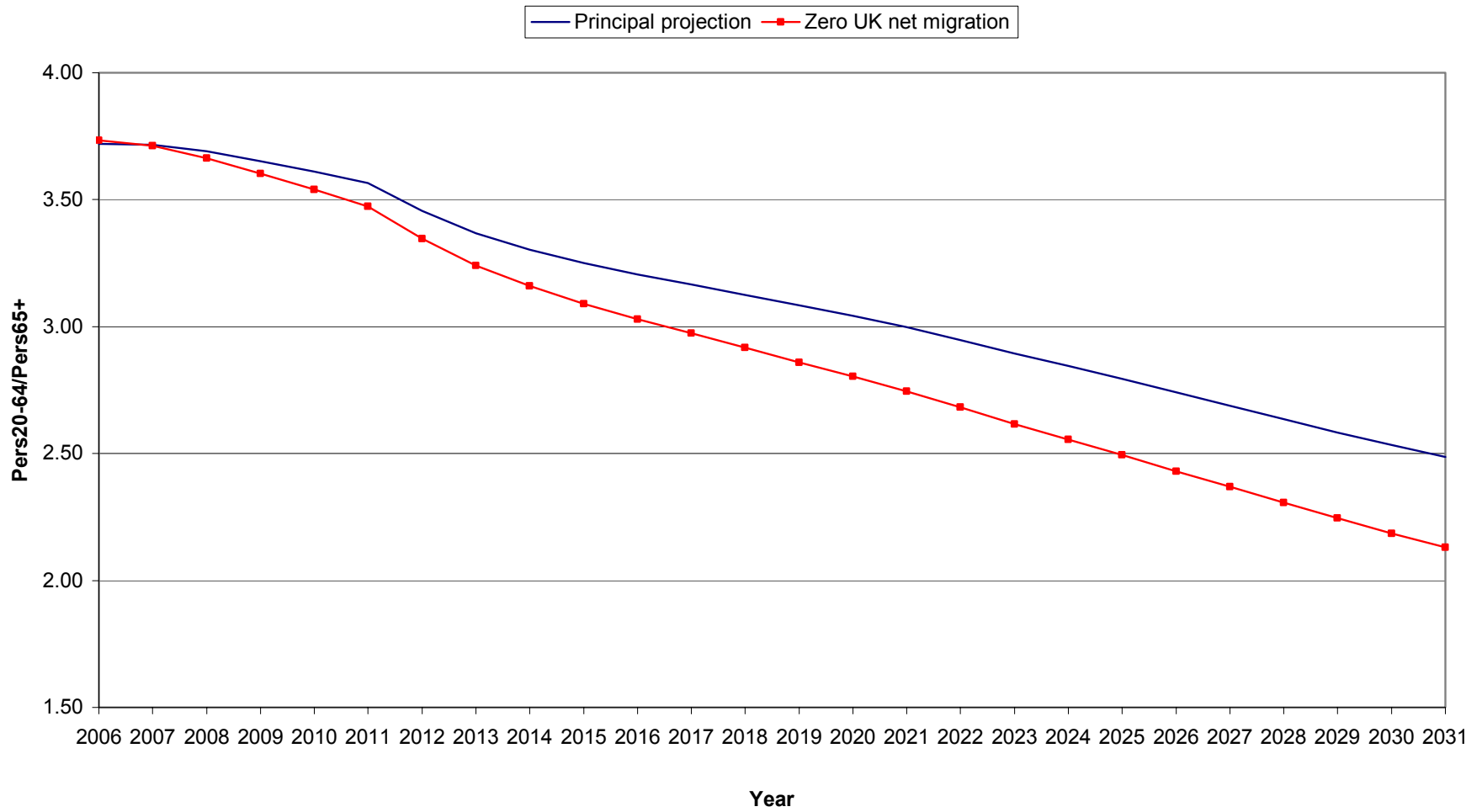
Less educated women are more likely to:

- (1) have a child outside of a live-in partnership;
- (2) have a child within a cohabiting union;
- (3) dissolve a cohabiting union;
- (4) dissolve a marriage.

# 3. Population Projections

- ‘Aged support ratio’: Persons aged 20-64 *divided by* Persons aged 65 and over.
- Falls from 3.7 (2006) to 2.5 (2031).
  - Zero net migration: 2.1 in 2031.
- Compare Britain and other countries.
- Three other key ages:
  - 20-24
  - 25-29
  - 80 and over.

Figure 7: Aged Support Ratio, Great Britain



**Figure 8: Aged Support Ratio**  
**Ratio of Population Aged 20-64 to 65 and over**

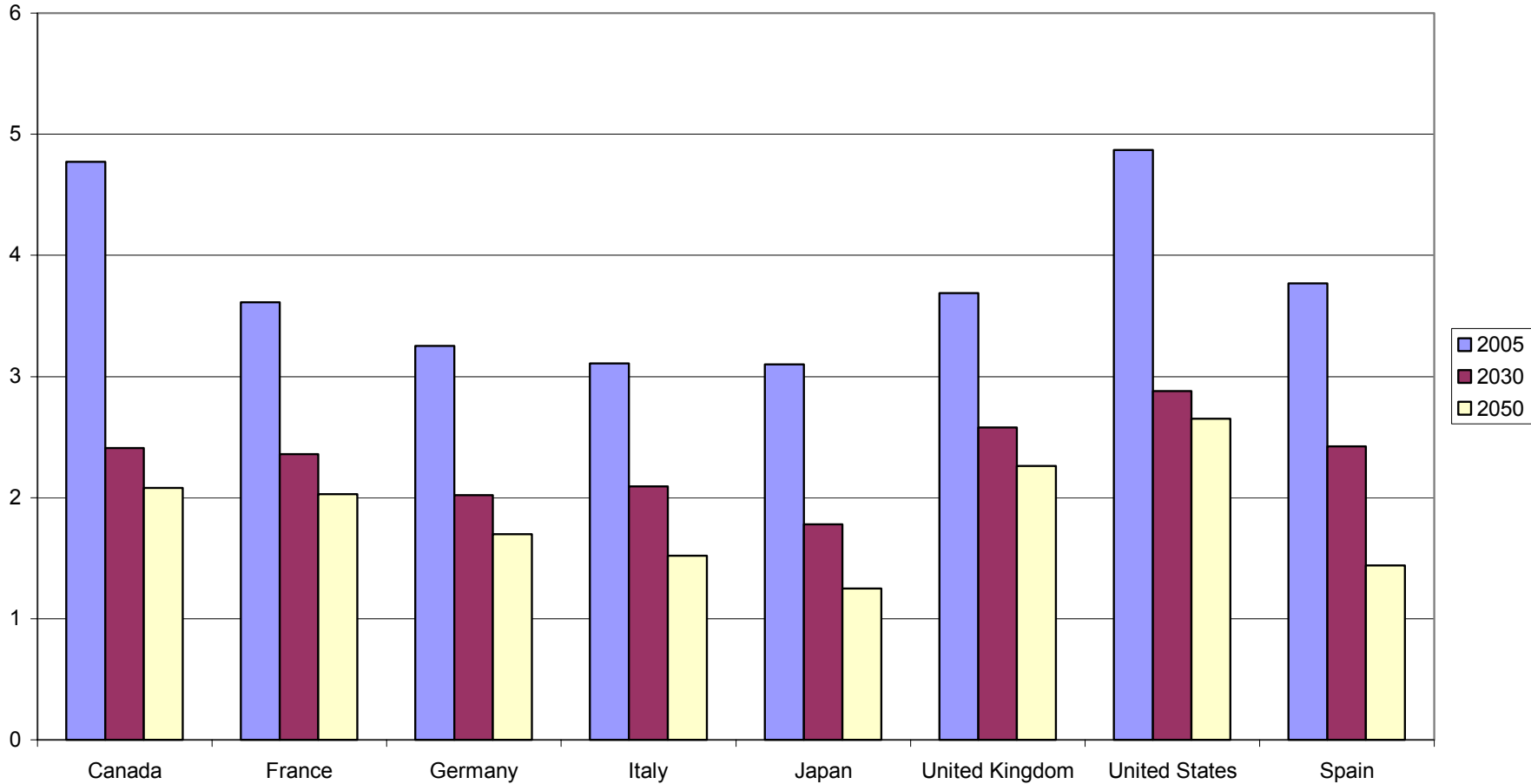
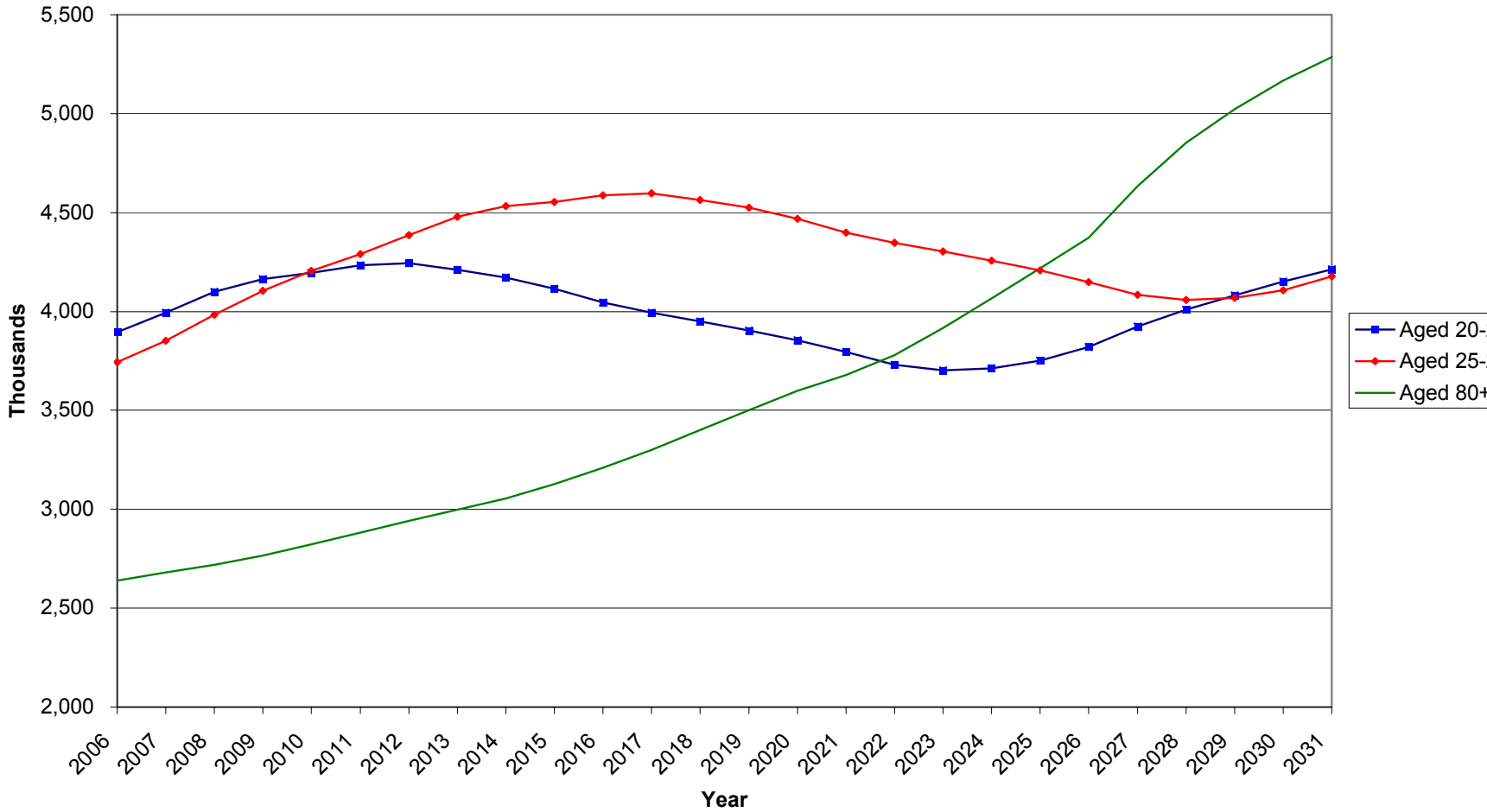


Figure 9: Persons of Key Ages, Great Britain



# 4. Supporting an Ageing Population

Somehow output must be transferred from those producing it to the retired population through either:

1. transfers within the family, or
2. retirees' private claims to the production of others (returns on capital, including funded pensions), or
3. through government transfers paid by current taxes (unfunded pensions).

# Through the Family?

- Historical evidence that people did *not* assume automatic responsibility for elderly parents.
- David Hume-like self-enforcing 'social contract' between generations?
- Extra-family support (Poor Laws) discourage family financial support.
- Today, only about 5% of parents receive regular or frequent financial support from adult children.

# Through the Market?

- Theoretical steady-state comparison: with slower population growth (lower aged support ratio) forward-looking people would save more:
  - providing more capital per person
  - higher real wages
  - higher discounted lifetime consumption
- Lower aged support ratio presents no problems, only opportunities.

# Limitations of this view

- Not a steady-state: large fluctuations in fertility and declining mortality.
- Not all (or even most) people are so far-sighted.
- Pay-as-you-go (PAYG) pension systems can be viewed as offsetting the effect of people's planning myopia on their retirement income.

# Through PAYG?

- Can maintain real benefits per pensioner without increasing contributions if there is compensating growth in real wages.
- In Fig. 7, aged support ratio falls by one-third—real wage growth of one-third in 25 years can maintain real benefits.
- Consistent with GAD projections:
  - NI (employer + employee) contribution rate falls from 19.3% (2005) to 17.7% (2031) with price uprating only.

- But pensioners do not share in increase in standard of living of the working population.
- With 2% annual real earnings growth:
  - pension/wages falls by 40% in 25 years
  - basic pension falls from 19% of median weekly earnings (2007) to 12% (2031).

# Are today's older workers, anticipating this and saving more?

- Little evidence of such behaviour yet in financial assets of people in their 50s:
  - three-fourths have net fin. wealth < £57,000.
  - one-half have less than £17,000 (ELSA 2002).
- Uncertainty with funded Defined Contribution pensions
- Population ageing challenges to Defined Benefit pensions

# Raising PAYG contributions

- This evidence suggests a large part of people retiring in the coming decades will rely on state retirement pension.
- Suppose pensions are increased proportionately with earnings.
- NI contribution rate needs to rise by one-third.
- Close to GAD projection:
  - 32% rise from 19.3% (2005) to 25.4% (2031),

# Important considerations

- **Uncertainty of Demographic Developments and PAYG**
  - Addressed by Lee and Anderson in context of US Social Security pensions.
  - Characterised by probability distribution of hypothetical immediate and permanent tax increase needed to balance the system over the very long run.
  - With 95% probability, this tax increase is between 1.3% and 10.5% (of payroll).
    - Understates uncertainty.
- Can future higher pension contribution rates be sustained?
- Are such rises equitable across generations?

# Generational Accounts

- Future PAYG pension liabilities represent just part of future generations' fiscal liabilities, e.g.
  - Public debt
  - Higher NHS expenditure
- Generational accounts = the present value of taxes paid minus transfer payments received (net taxes) that individuals of different age cohorts are expected, under current policy, to pay over their remaining lifetimes.
  - Cardarelli et al (2000) have constructed generational accounts looking forward from 1996.

# Inter-temporal budget balance (IBB)

- Baseline policy: transfer payments price-indexed.
- To achieve IBB, an immediate and permanent increase in income taxes of 6% (i.e. 2p in the basic rate) is needed.
- If, however, all benefits increase with earnings, the increase in income taxes to achieve IBB would be 32% and NI contributions rise by 46%.

# Generational balance

- A situation in which future generations face the same fiscal burden as do current generations when adjusted for growth (i.e. when measured as a proportion of their lifetime earnings).
- Similar tax increases required to achieve generational balance as IBB.

# Consequences of Imbalance

- Considerable burden on future generations, experienced through either
  - higher taxes, or
  - smaller transfer receipts, or
  - less expenditure on these generations.
- By affecting net incomes, higher taxes are likely to influence future generations' saving behaviour and therefore the economy's capital accumulation.

# Simulating the Consequences

- Fehr et al (2005): four regions—USA, EU, China and Japan—in general equil. model.
- Illustrate important role of international capital markets in affecting the impacts of population ageing over the next 25 years.
- Without China in their model, the depressing effect of higher taxes for pensions and health care on after-tax incomes so depresses capital accumulation that real wages stagnate.

- When China is included in their model
  - even a China which gradually adopts Western spending habits,
- It is such a source of capital that capital deepening and real wage growth occurs over the next 25 years in all four regions
  - despite the rising burden of taxation to pay for pensions and health care.

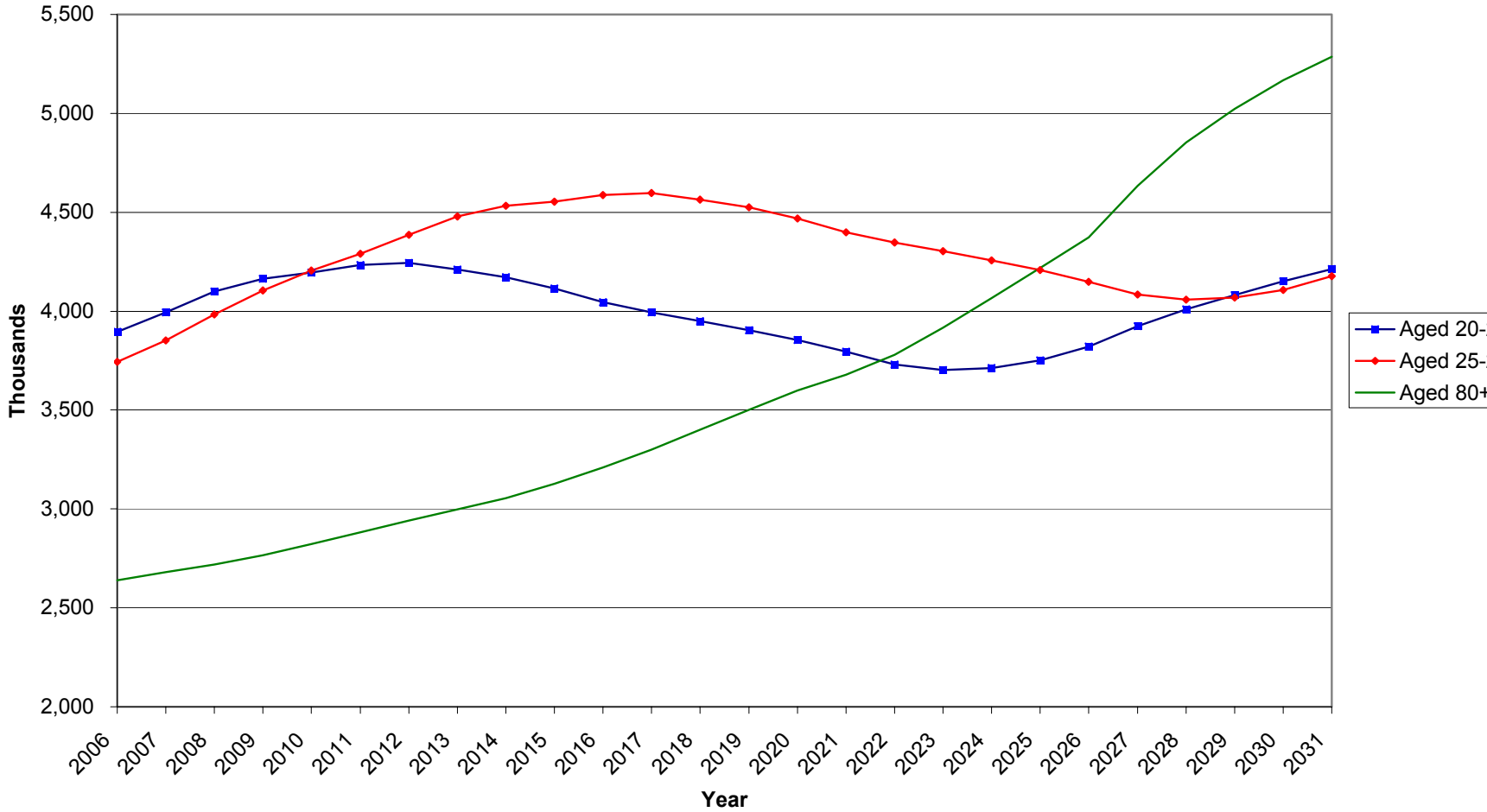
# Investing in Children

- The changes in family formation and dissolution patterns that have increased the incidence of lone parent families have been unfavourable to investment in children born in recent years.
- Yet it is these children who increasingly will be called upon to support a growing retired population.

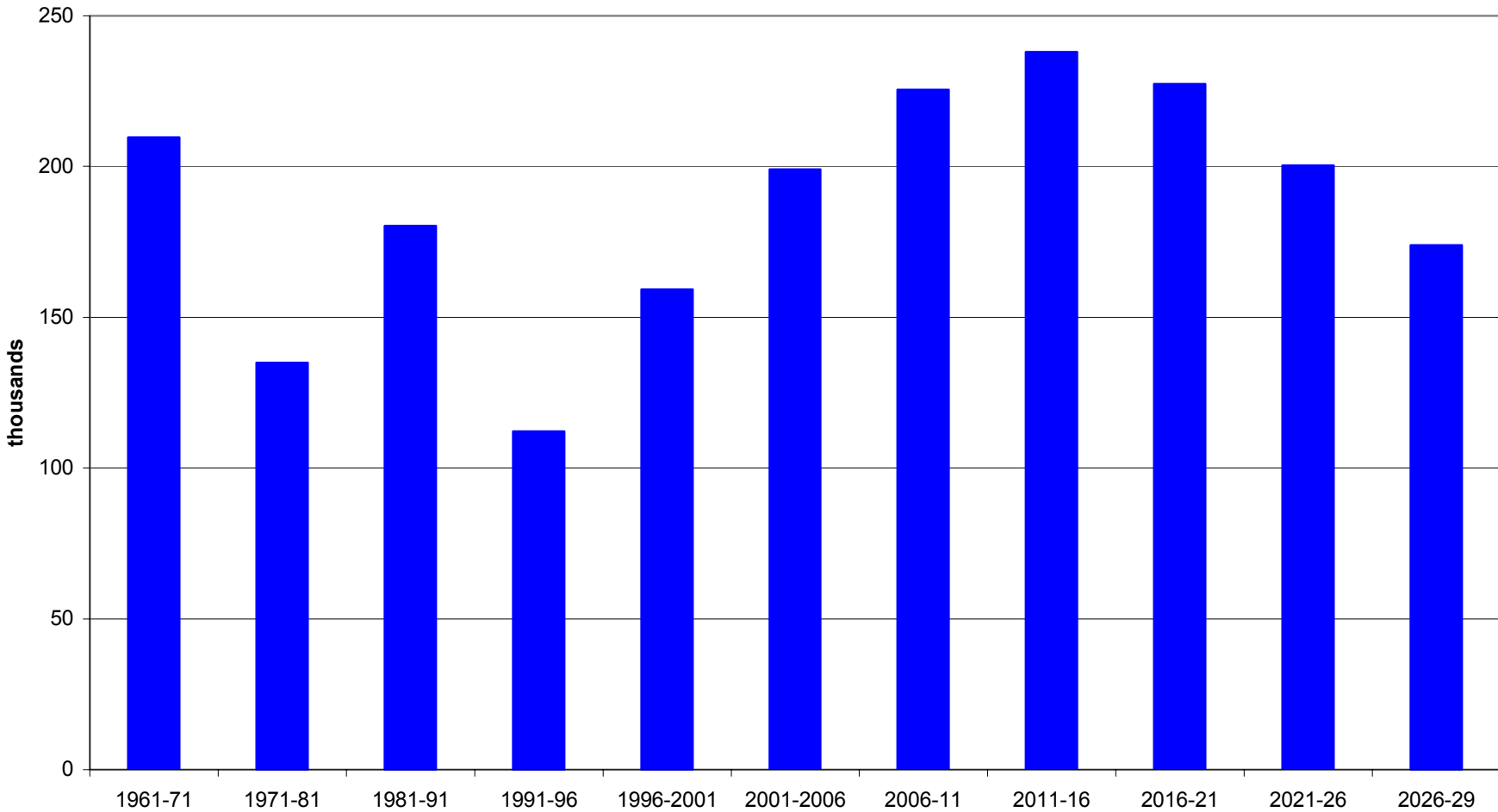
## 5. Ageing, family formation and Housing Markets

- Household formation among the young (aged 20-24)
- Other developments affecting household formation:
  - Partnership break-up
  - Re-partnering
  - Ageing
- Household projections

Figure 9: Persons of Key Ages, Great Britain



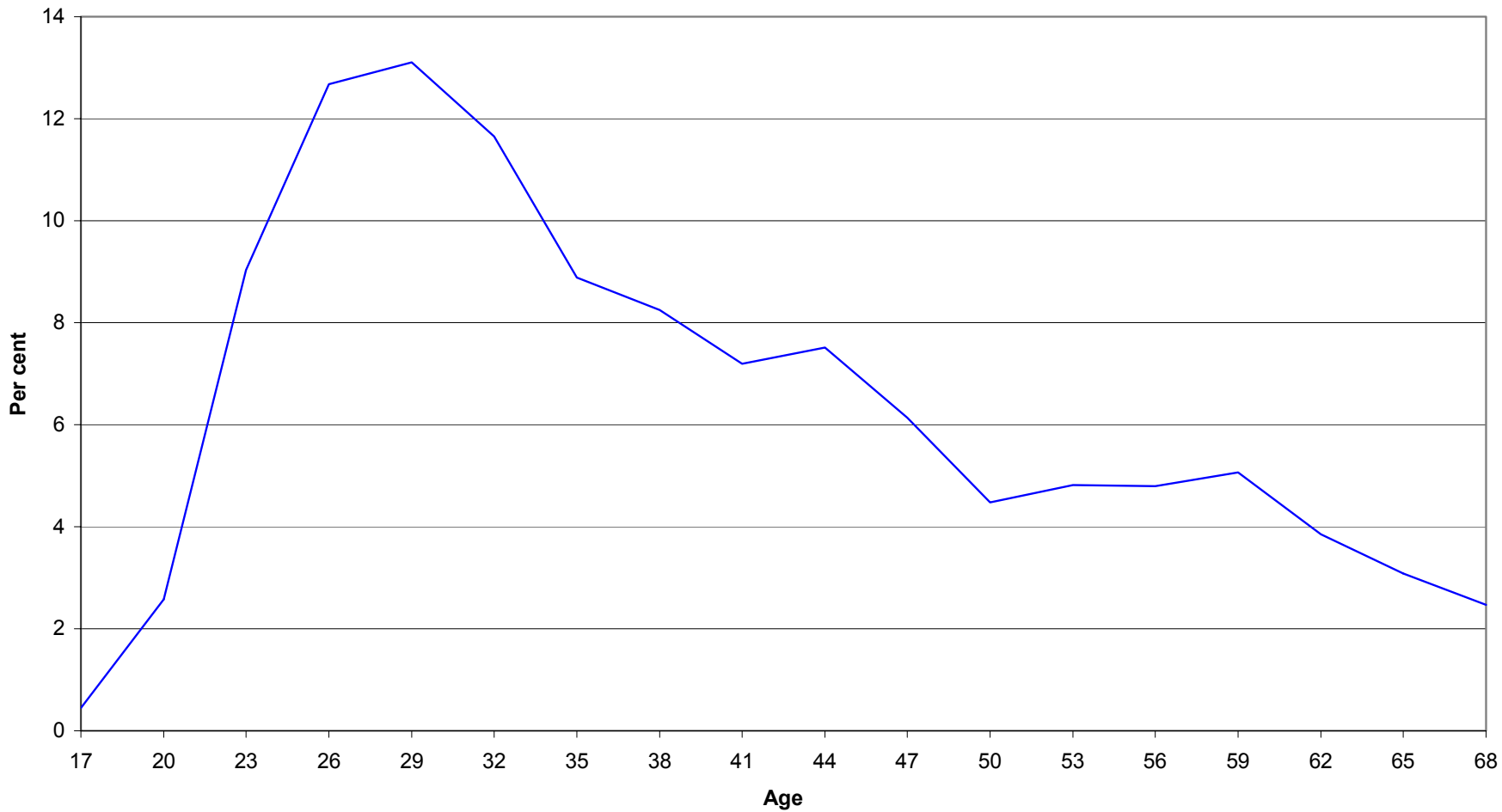
**Figure 10: Annual Average Change in Number of Households, Actual and Projected, England**



# Homeownership

- First-time buyers (FTB)
- Entry to owner-occupation rises steeply up to the age of 29 and then declines.
- Importance of 25-29 age group for FTB

**Figure 11: Per cent of Women who Become Homeowners by Age, Great Britain (BHPS), 1992-2006**



# Turnover and the Housing Market

- Turnover is influenced by
  - Family formation (e.g. fertility) and Dissolution (e.g. divorce)
  - Changes in households' economic circumstances (e.g. changes in household income).
- A helpful framework for analysis: a model in which imperfect information makes it necessary for households to search for a dwelling that meets their needs.

# Example

- Assume that there are two types of household (e.g. couples and families), and
- Two types of house (e.g. small and large).
- Households are 'matched' when they reside in the appropriate type of house (e.g. couples in a small house).
- When children arrive, a couple becomes a family and when they leave they revert to a couple.

# Implications of Higher Turnover

- Let  $\beta$  be the rate at which changes in household type occur.
- Compare steady-states with different  $\beta$ .
- A higher  $\beta$  means that
  - There are more people searching relative to vacancies, which increases the rate at which vacant houses sell.
  - But there are also smaller gains to search, because it is more likely that a household returns to the matched state, which reduces search effort, the rate at which households are matched and the probability of sale.
  - Former effect tends to dominate: rate of sale rises.

# Impact of Turnover on House Prices

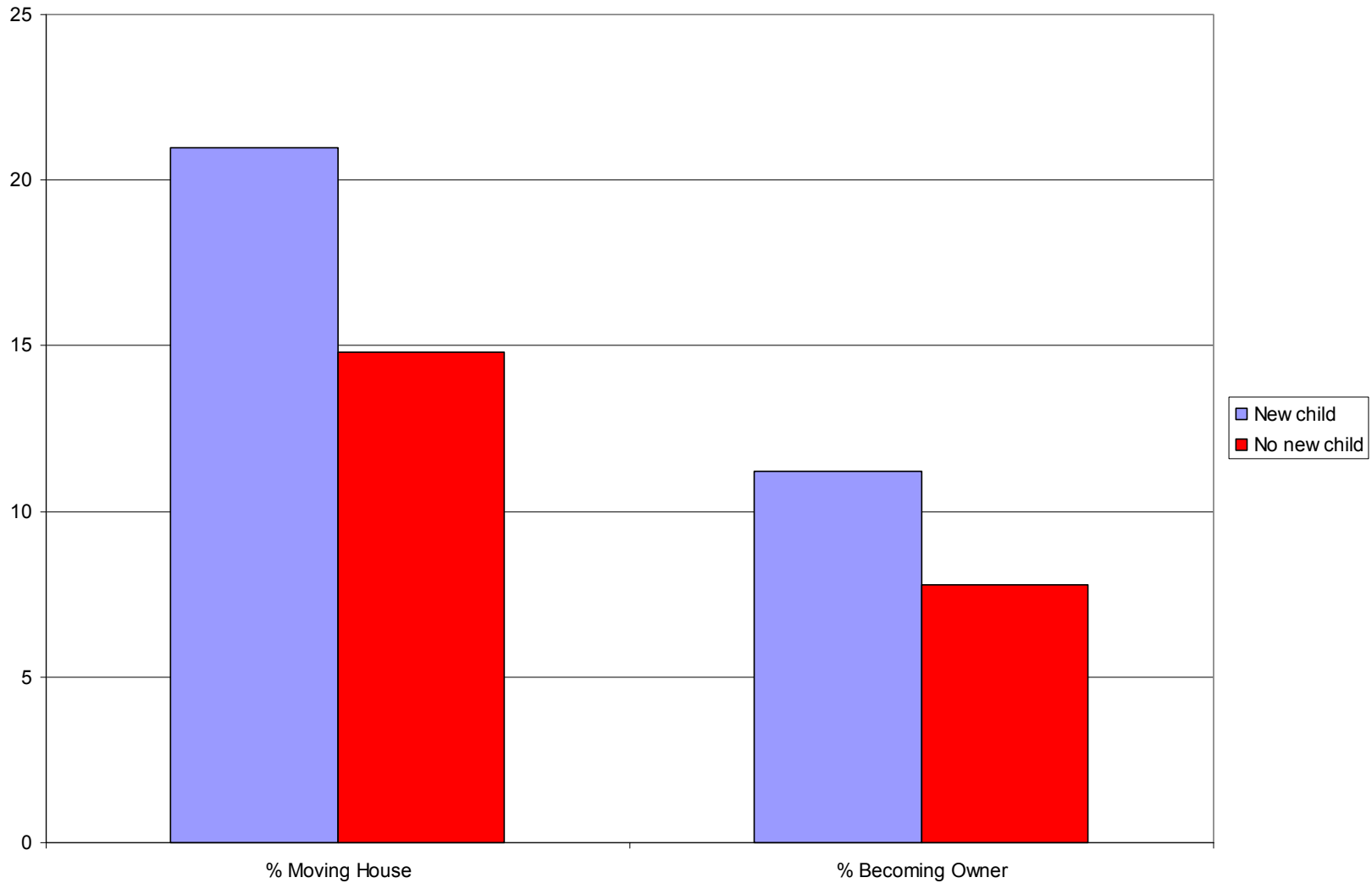
- Buyers and sellers split the gain from the transaction.
- For a given probability of sale, a higher  $\beta$  tends to lower house prices by reducing the buyer's gain from purchase, because it is more likely that things will change in the future so that he can give up searching.
- But a higher probability of sale raises house prices by increasing the net gains to a house purchaser.

- Wheaton (1990) shows that  $\beta$  tends to increase the rate of sale enough that house prices tend to rise with  $\beta$ .
- This suggests that a higher rate of family formation/dissolution could raise house prices.

# Empirical Analysis

- Examine the extent to which the arrival of a child affects a person's demand for housing.
  1. Whether this event stimulates a residential move;
  2. Whether it encourages a move into owner-occupation among tenants;
  3. Among owners, the effect of childbirth on the change in housing consumption, as measured by the change in the real value of the house in which they live: increase 14% more for those having a birth within the year

## Childbearing and Housing Changes



4. Forming a new partnership increases the odds of moving house by a factor of 6.
5. Forming a new partnership increases the odds of becoming a homeowner by a factor of 13.

## **Implications:**

- Higher fertility and more partnership formation (more people in their 20s) and re-partnering puts upward pressure on house prices by increasing housing market turnover.

# Conclusions

- Growing challenge over next 30 years: supporting the incomes of pensioners without suppressing the net incomes of the working population and capital accumulation too much.
- Given uncertainty, it is important to have adaptable or self-correcting policies.
- More complicated effects of demographic changes on the housing market arising from fluctuations in the numbers in key ages and in family formation.