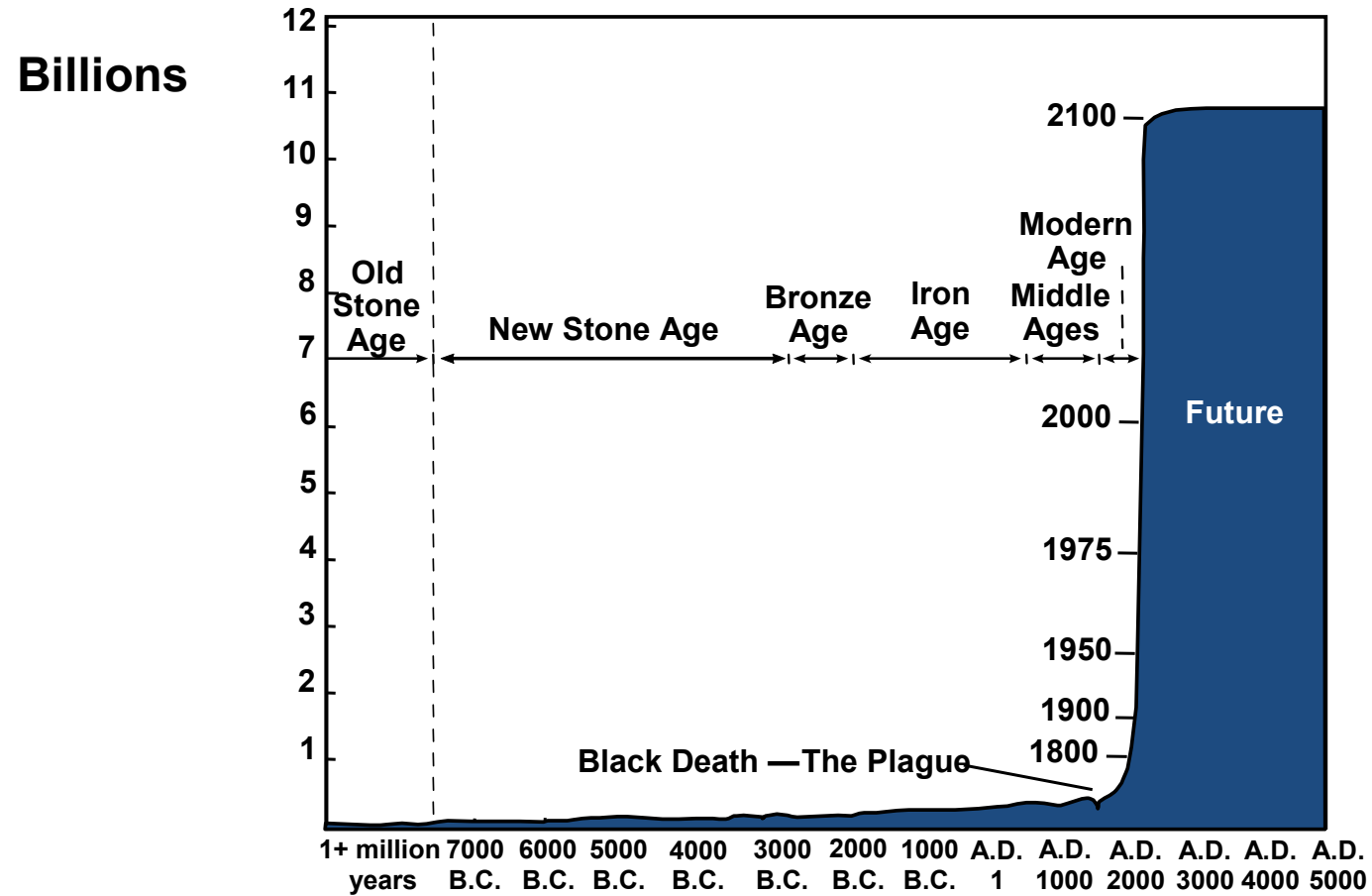


The World at 7 Billion: Demographic transition, economic development and the demographic dividend

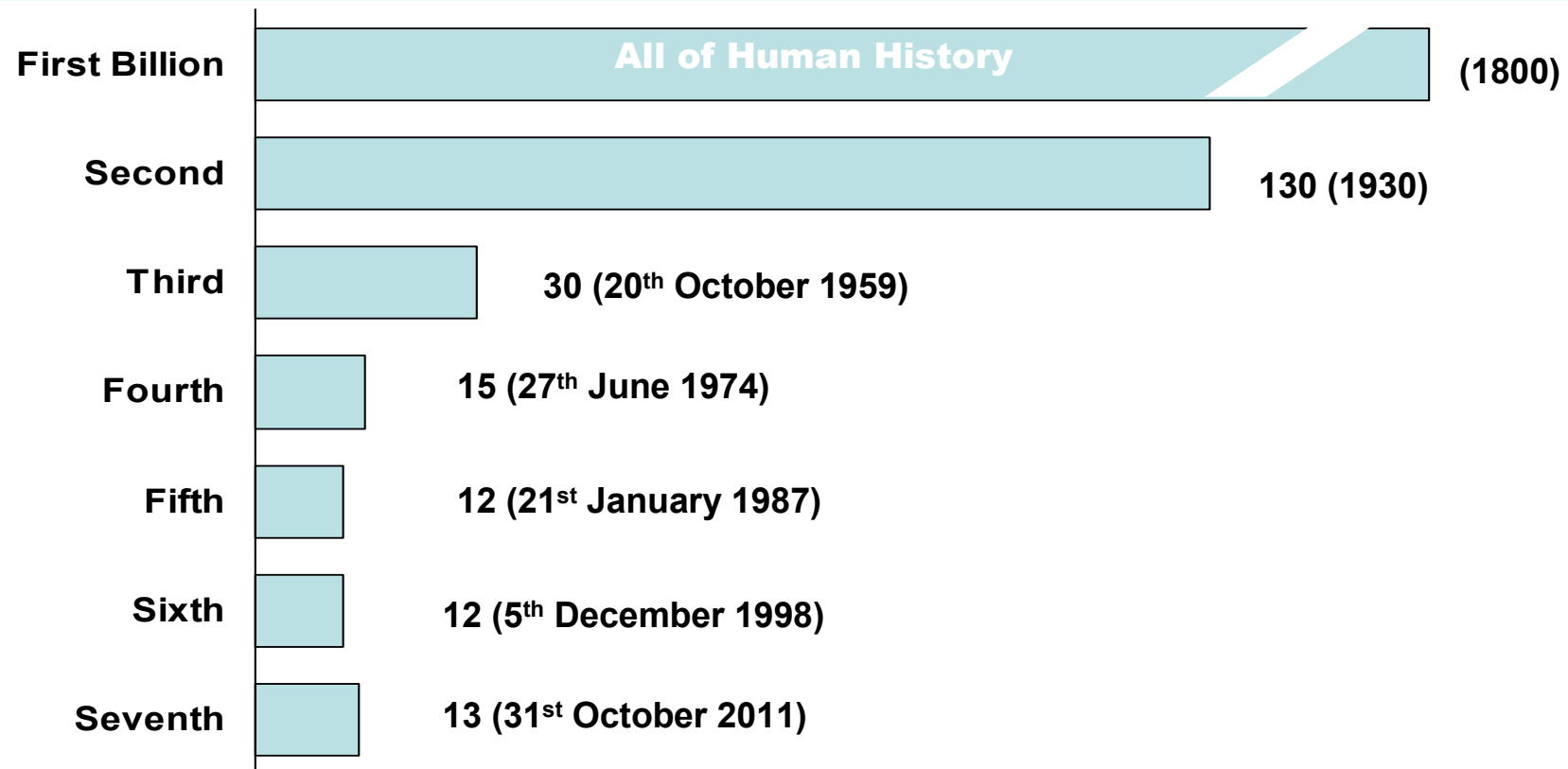
Prof Jane Falkingham
Director ESRC Centre for Population Change
University of Southampton

World Population Growth Through History



Source: Population Reference Bureau; and United Nations, *World Population Projections to 2100* (1998).

World Population Growth, in Billions

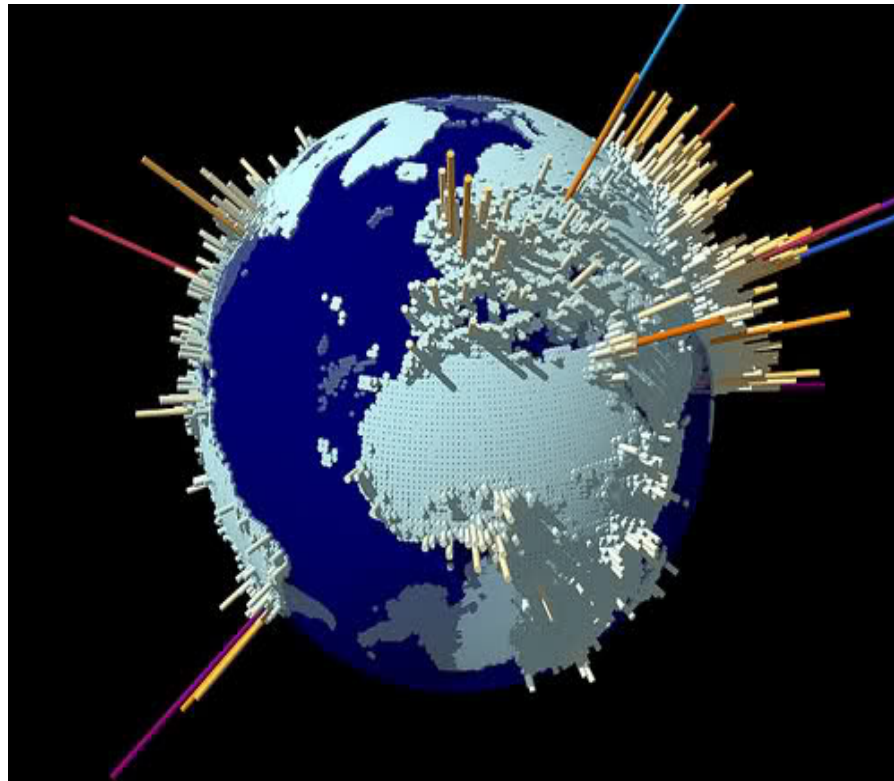


Number of years to add each billion (date reached)

Sources: First and second billion: Population Reference Bureau.

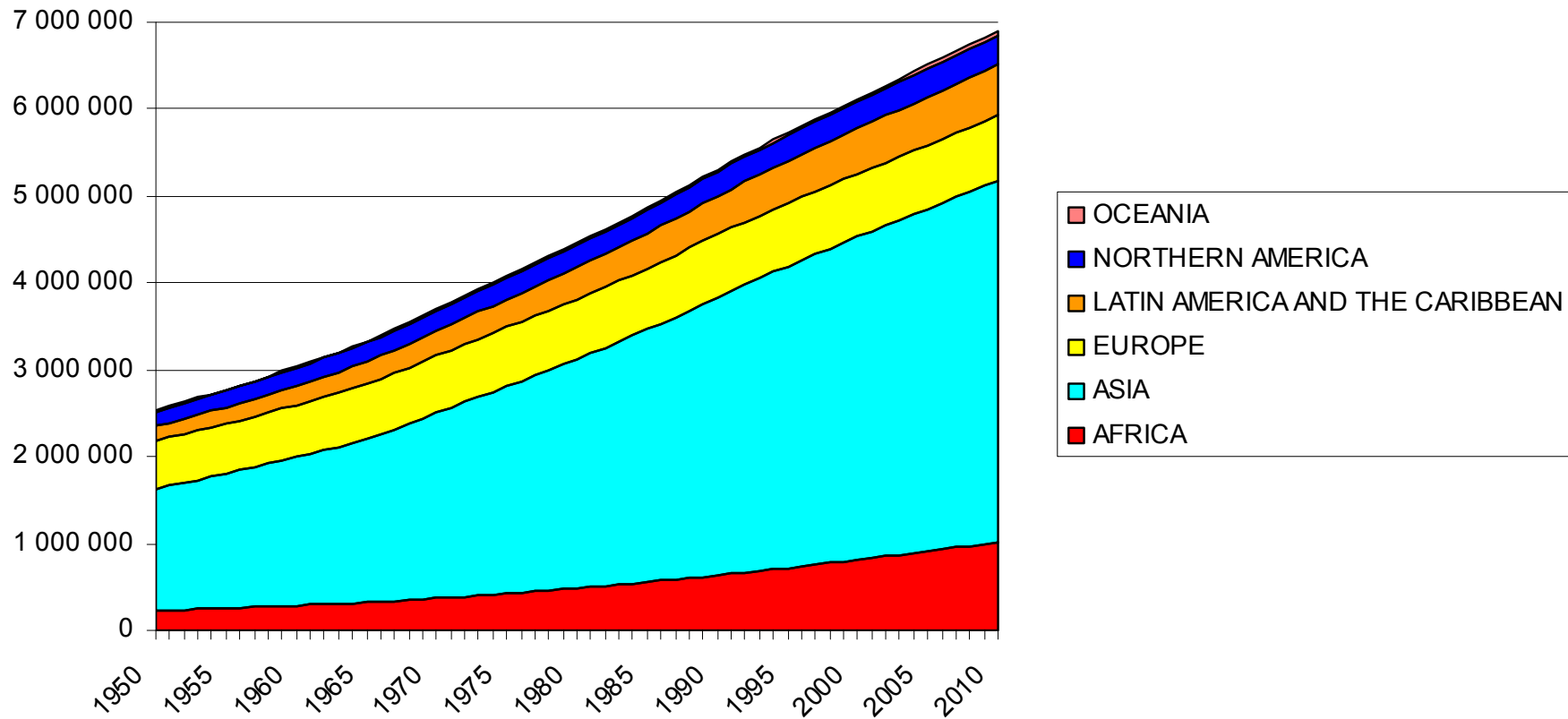
Third through seventh billion: United Nations, *World Population Prospects: The 2010 Revision*, 2011.

Where are they?



- China and India both one billion+
- Growth – high fertility, mainly African, countries
- 7 of the top 10 growth rates are in Africa
- Immigration key factor in developed countries

World Population by region, 1950-2010



Source: United Nations, *World Population Prospects: The 2010 Revision*, 2011.

What drives population change?

Population growth and its determinants

Globally: $P_{t_2} = P_{t_1} + B - D$

Sub-globally: $P_{t_2} = P_{t_1} + B - D + I - E$

Where:

P_{t_2} Population at time t_2

P_{t_1} Population at time t_1

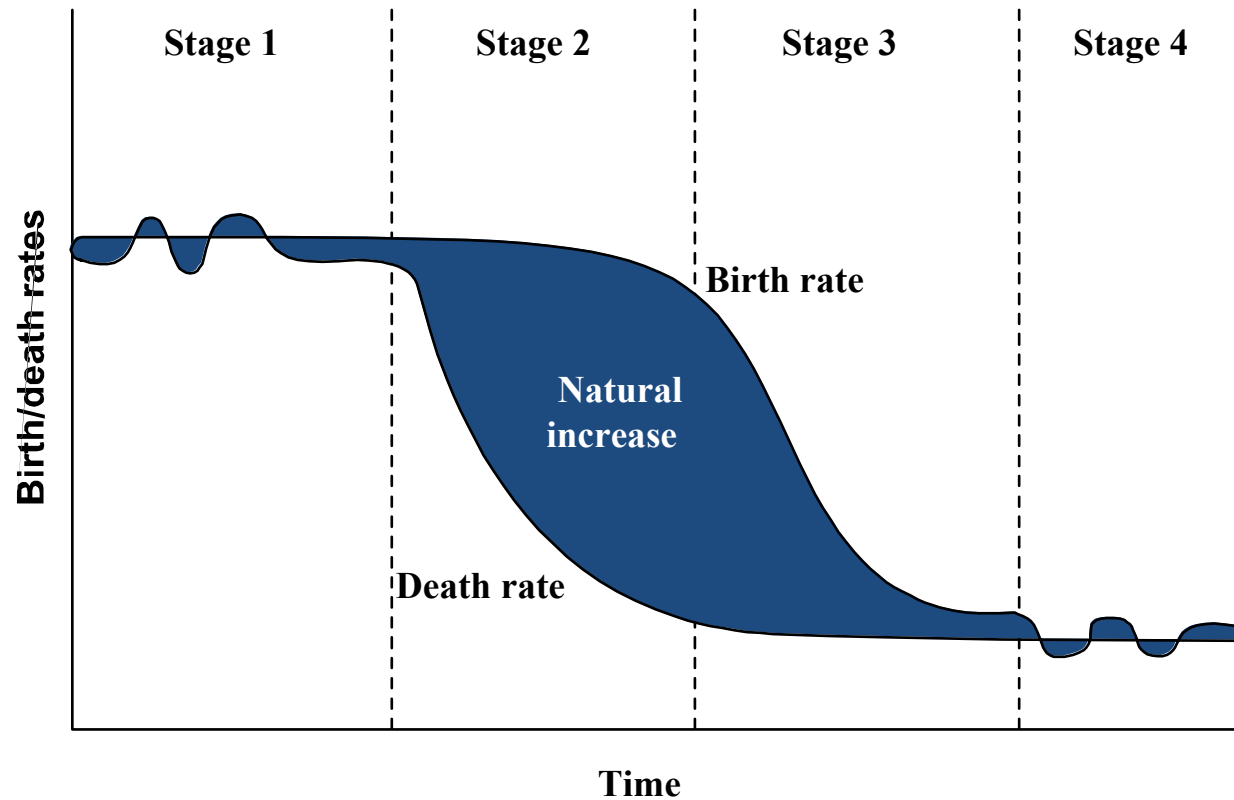
B Births

D Deaths

I In-migration

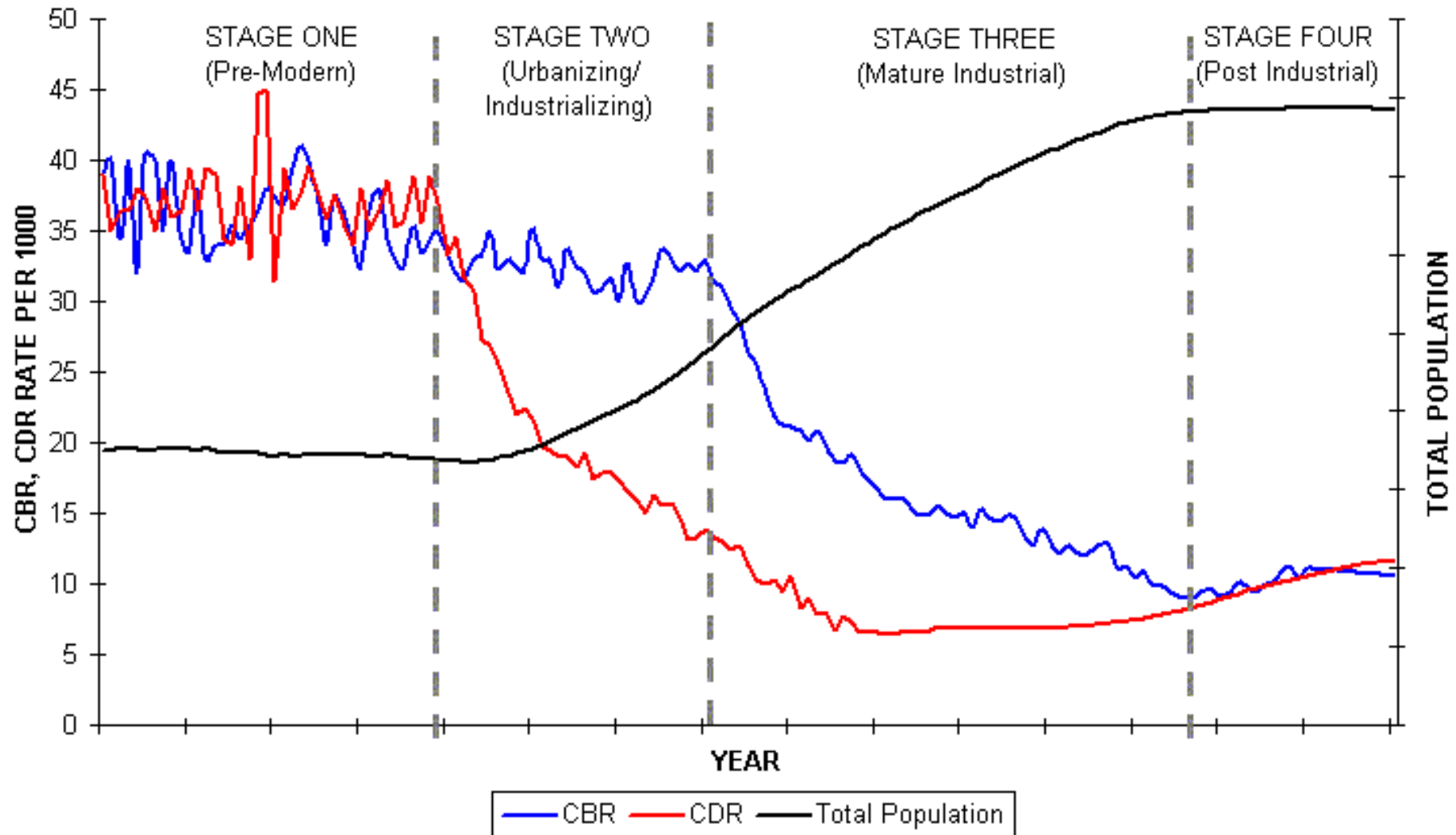
E Out-migration

The Classic Stages of Demographic Transition



Note: Natural increase is produced from the excess of births over deaths.

THE DEMOGRAPHIC TRANSITION MODEL

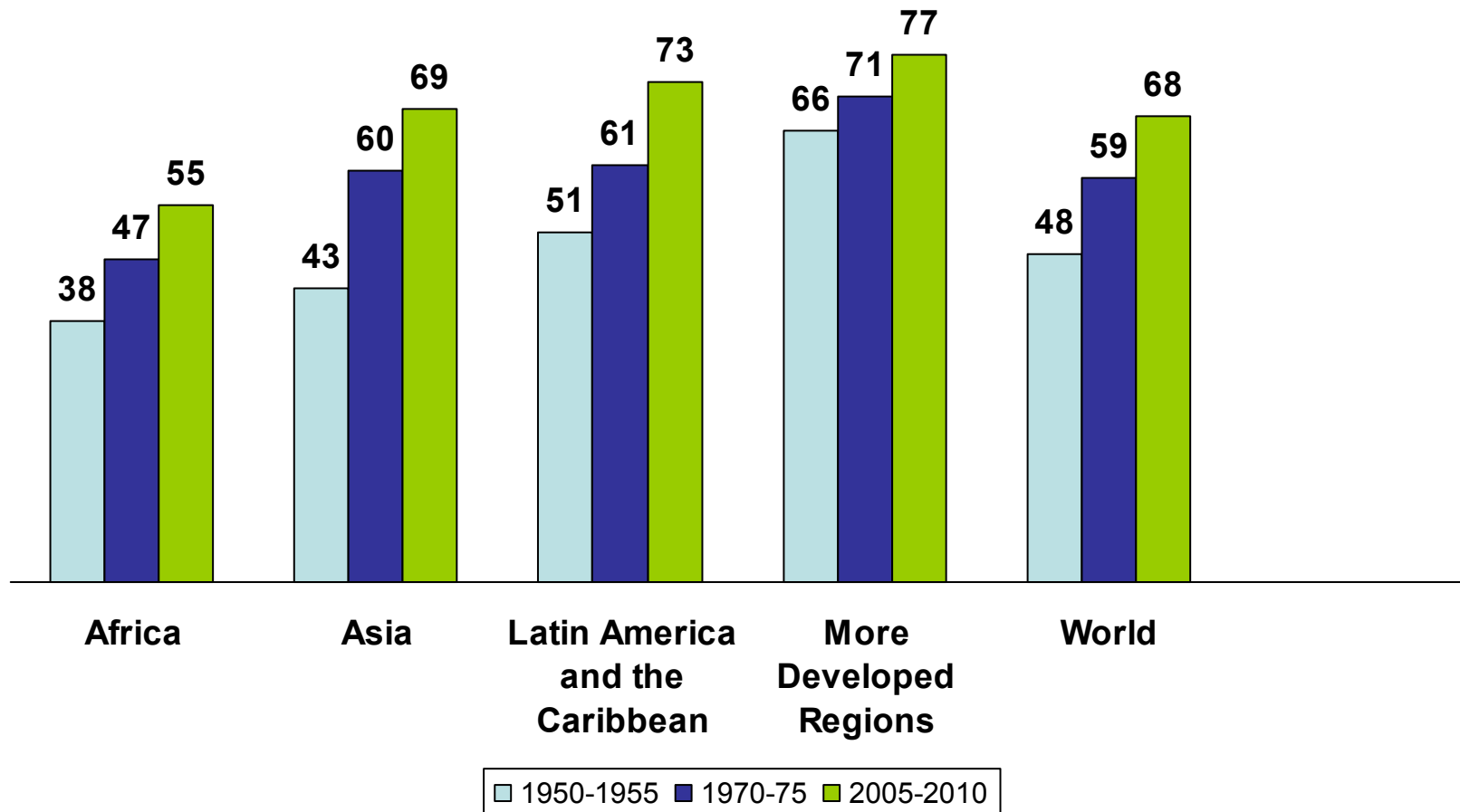


A healthier world

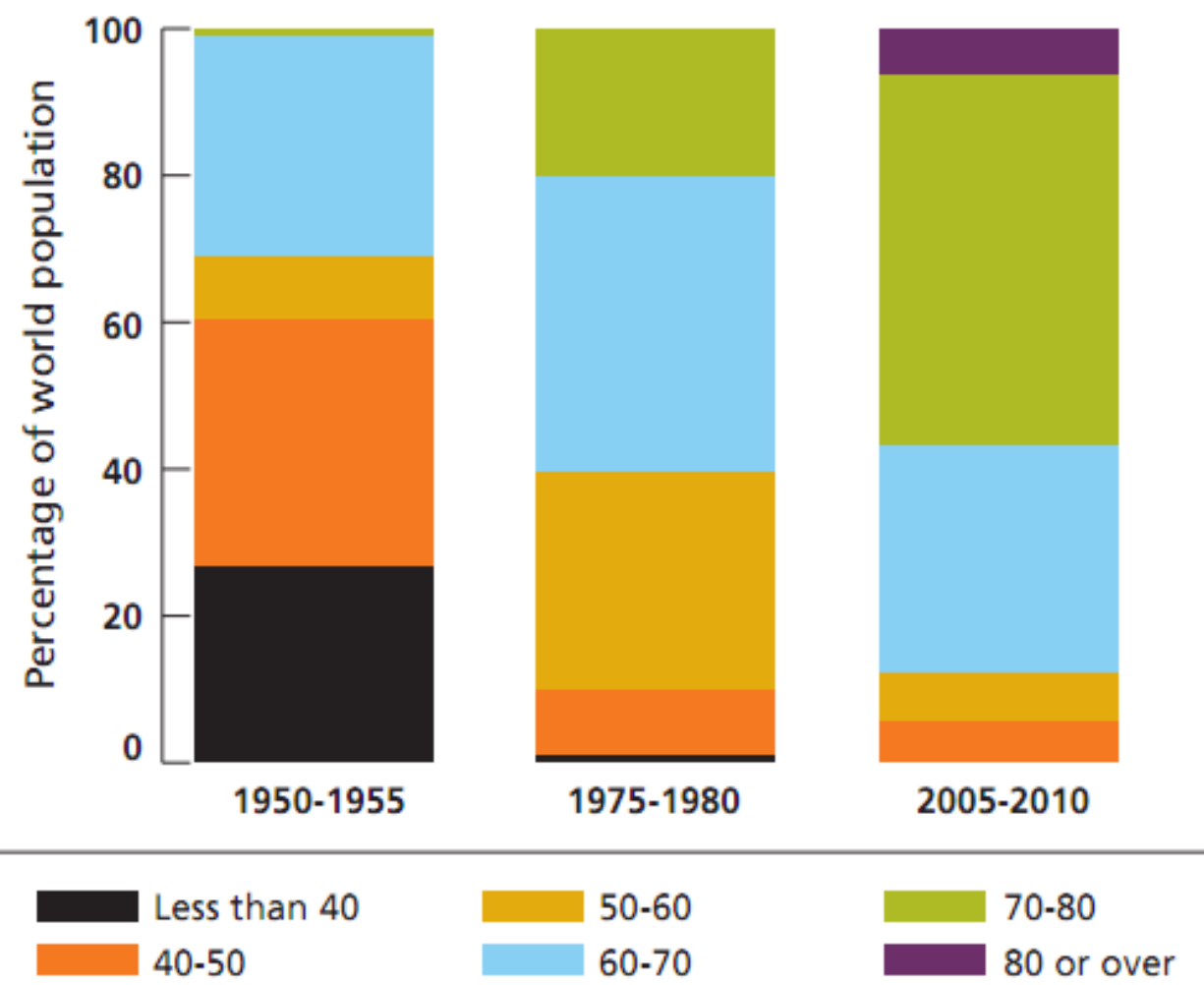
Trends in Life Expectancy



Life Expectancy at Birth, in Years



Share of world population by level of life expectancy 1950–2010



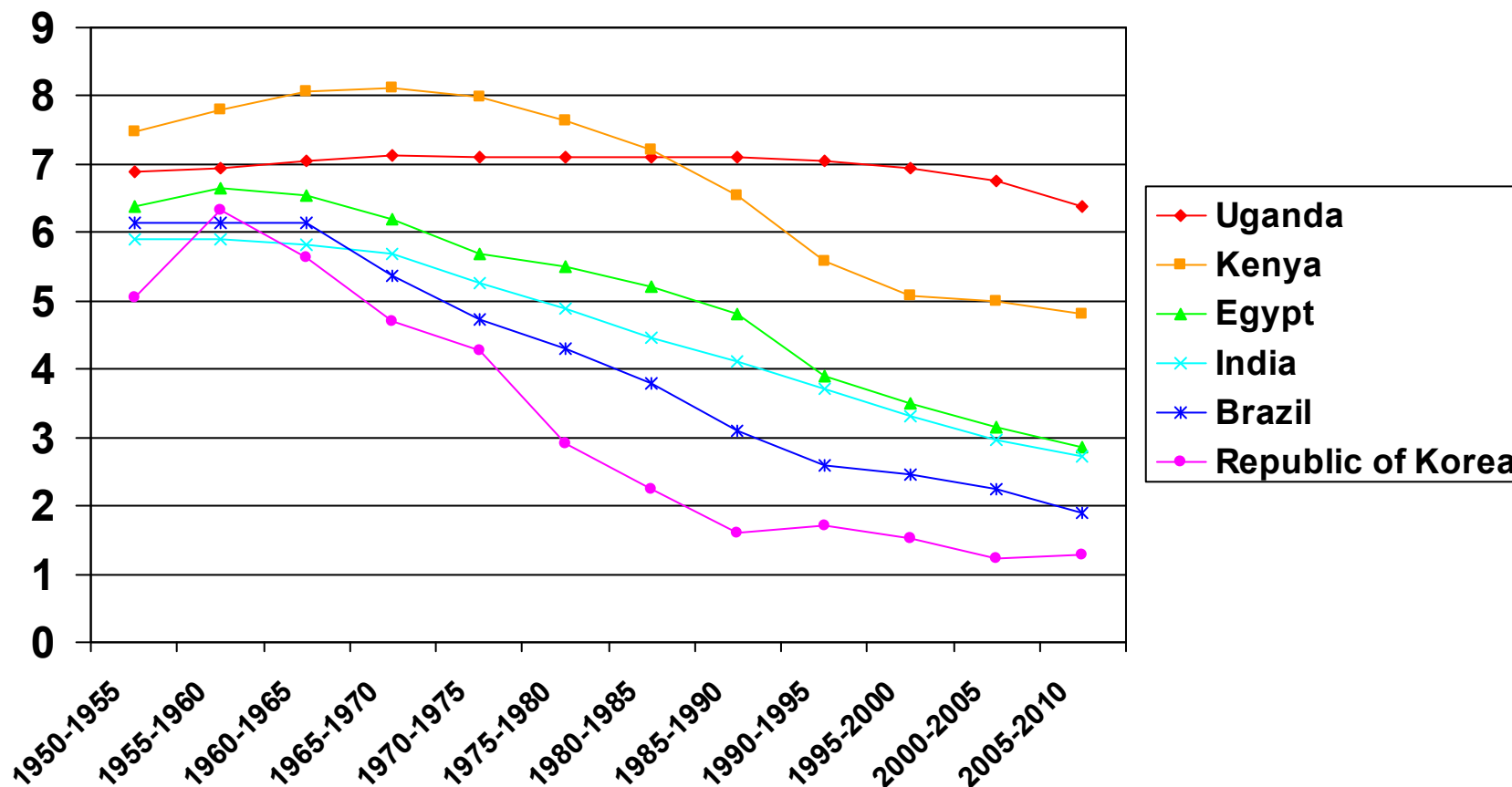
Source: United Nations, Department of Economic and Social Affairs, Population Division (2009). World Mortality 2009. Wallchart (United Nations publication, Sales No. E.09.XIII.4).

With smaller families

Trends in total fertility in selected countries

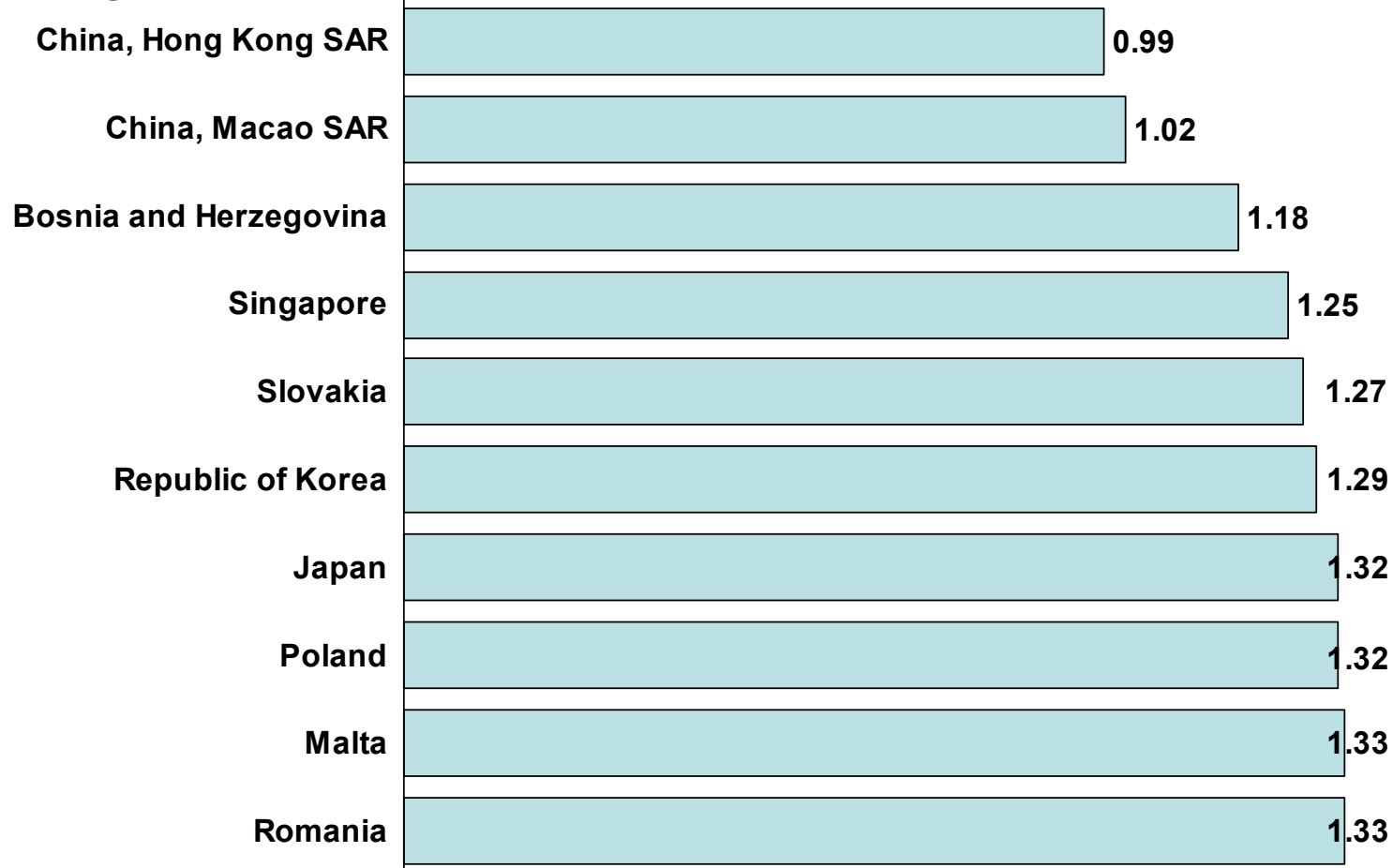


Average number of children per woman



10 Places With the Lowest Total Fertility Worldwide

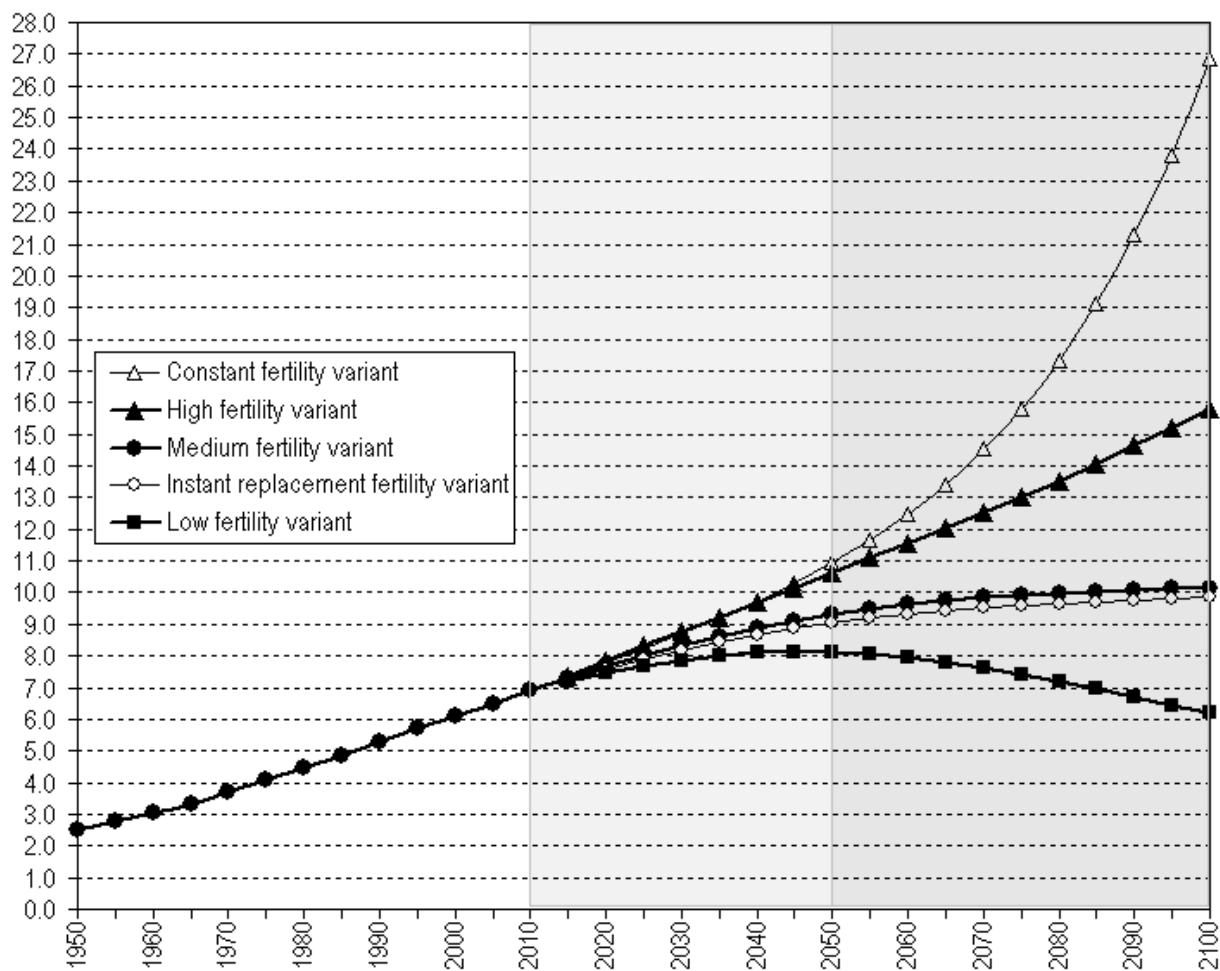
Average number of children per woman, 2005-2010



The next billion(s)?

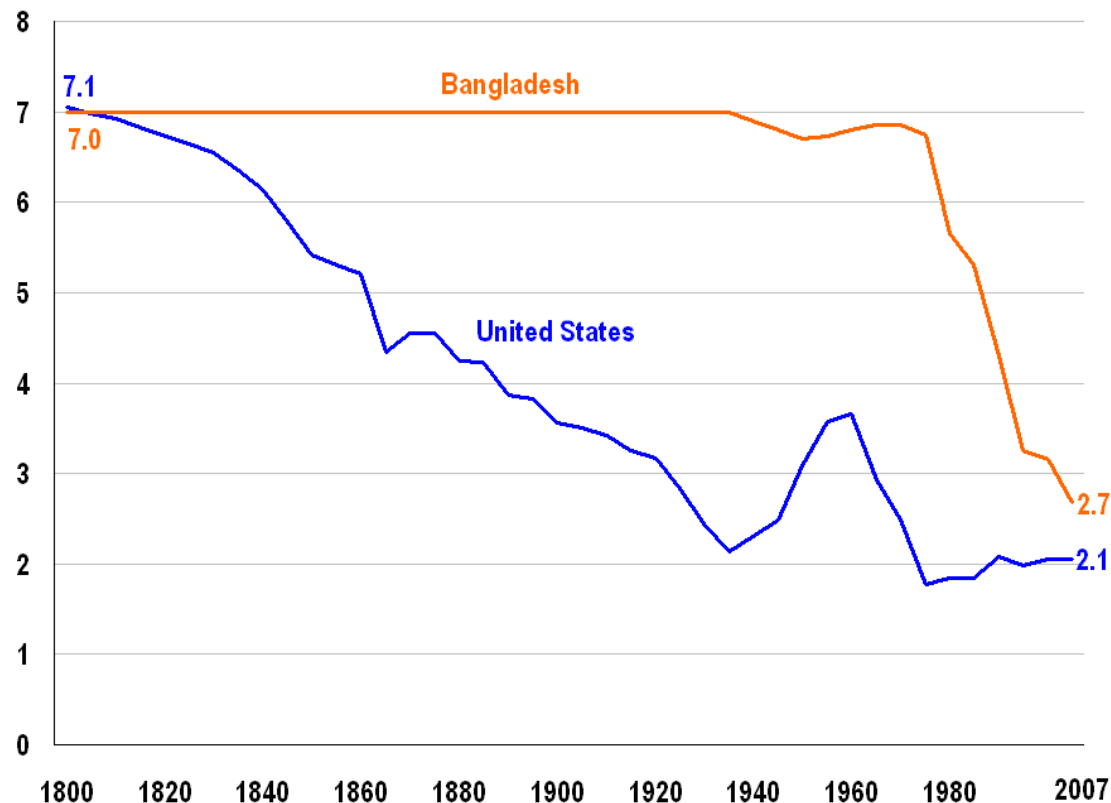
8 billion	15 June 2025
9 billion	18 February 2043
10 billion	18 June 2083

Estimated and projected world population according to different variants, 1950-2100 (billions)



To Slow Population Growth, Developing Countries' Fertility Decline Must Be Rapid.

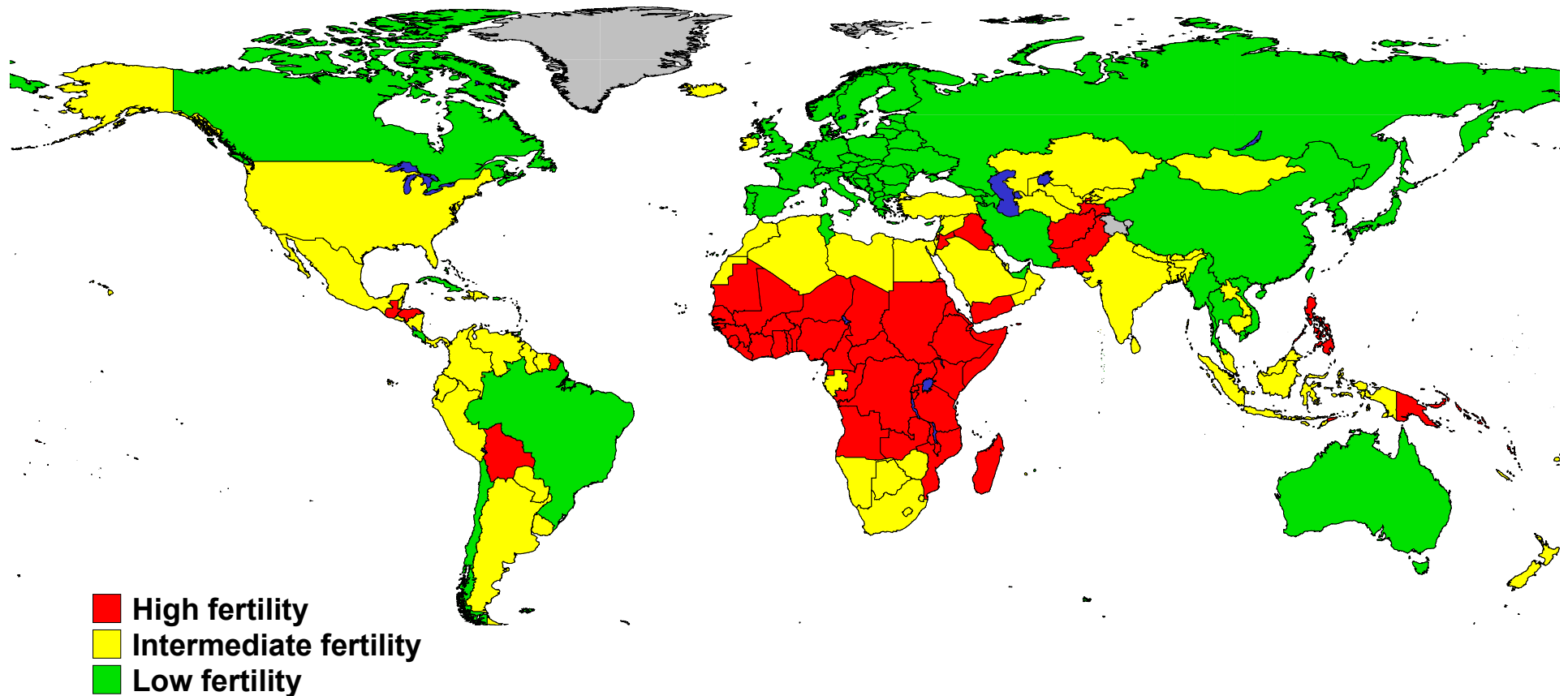
Average Lifetime Births per Woman: 1800-2007



Sources: (United States) Ansley Coale and Melvin Zelnik (1963); and National Center for Health Statistics. (Bangladesh) United Nations; Demographic and Health Surveys; and other surveys

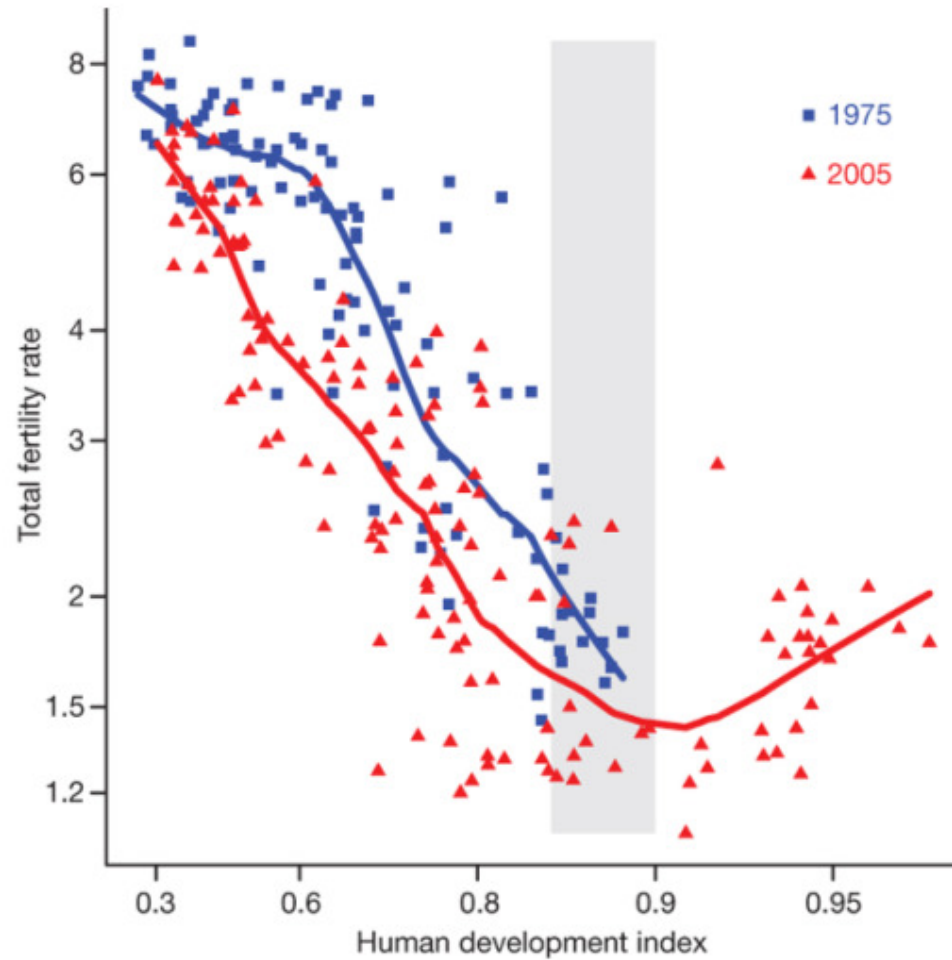
The key challenge is how fast fertility in Africa falls

Countries and areas classified by level of net reproduction rate, 2010



Note: The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations.

Better human development, lower fertility?



Population change and economic development: an on-going debate

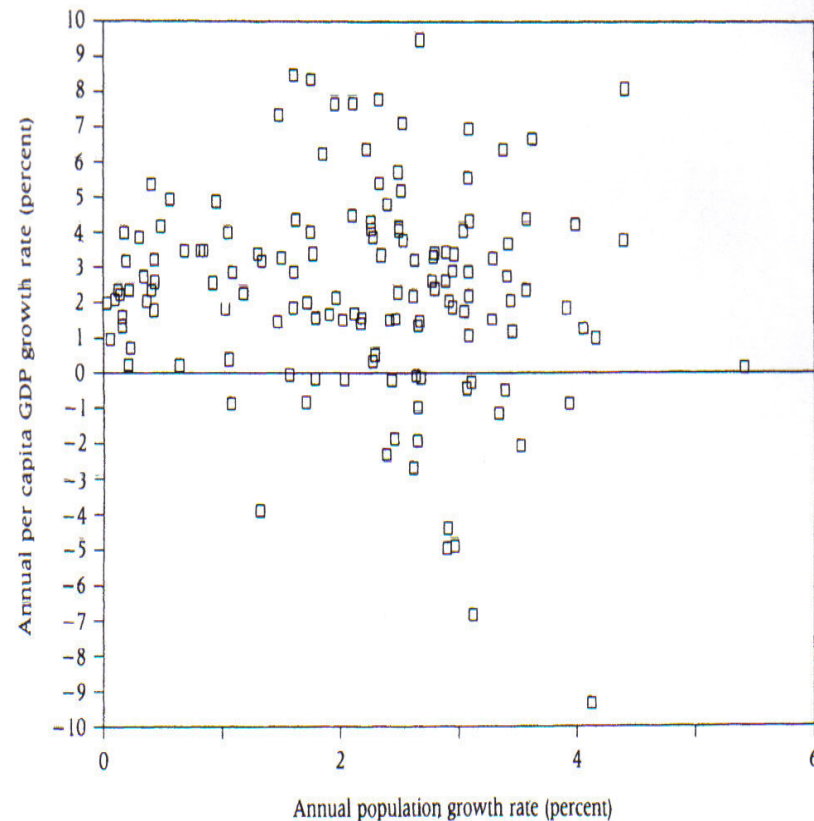
Link between population growth & economic development

- Classic text: A. J. Coale and E. Hoover, *Population Growth and Economic Development in Low Income Countries*, Princeton University Press, 1958
- Coale and Hoover undertook a basic simulation of India's (then) economic prospects, under two very different fertility scenarios (i) 'sustained' fertility and (ii) 'declining' fertility.
- Found per capita income growth would be significantly **higher** with fertility **decline**. This was because - with a slowing rate of growth of children in the population - more resources could be invested per head.

Link between population growth & economic development

- In the 1960s and 1970s there emerged considerable scepticism among academic economists as to whether population growth did have a negative effect on per capita income growth.
- Scepticism arose from the failure of simple international cross-sectional regressions to detect a negative relationship between population growth and per capita income growth.

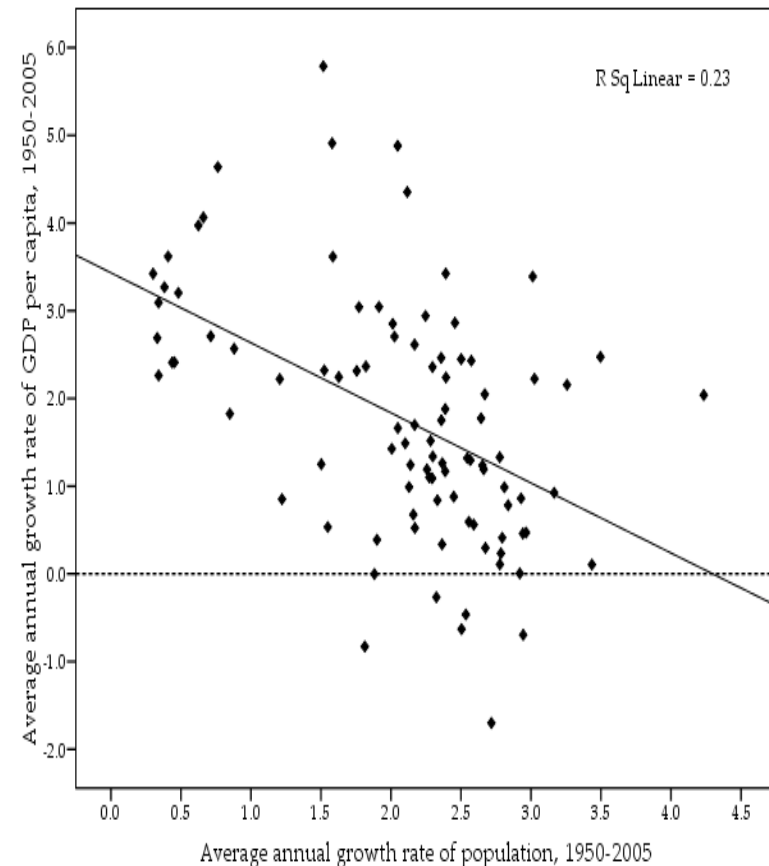
FIGURE 1 Correlation between population growth and economic growth, 144 cases



Source: Barlow 1994

Link between population growth & economic development

- From around the mid-1990s, economists became aware that a **negative** relationship was emerging.
- This negative relationship begins to become apparent from the mid-1970s on, and as data for longer periods of time become available



Source: Fox and Dyson, 2010

Link between population growth & economic development

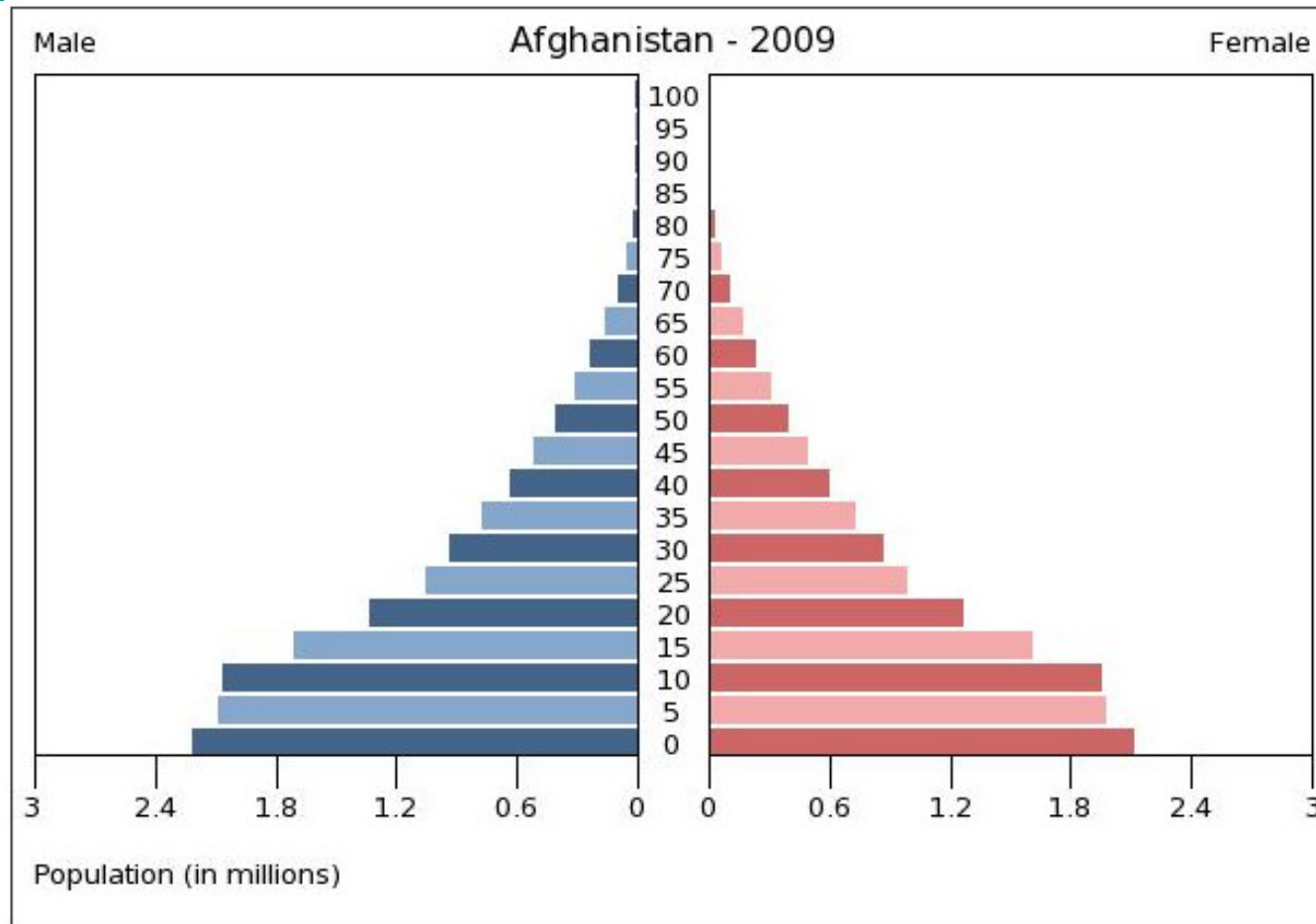
- “In contrast to assessments over the last several decades, rapid population growth is found to have exercised a quantitatively negative impact on the pace of aggregate economic growth in developing countries ... **rapid fertility decline is found to make a quantitatively relevant contribution to reducing the incidence and severity of poverty**” (Birdsall & Sinding *Population Matters*, OUP, 2001)
- “Particularly strong is the evidence in support of the increasingly adverse effects of population growth [on economic growth] in the post-1980 period, suggesting that **demographic issues should warrant greater attention than they currently receive from the policymaking community**” (Headey & Hodge *PDR* 2009)

Demographic transition and the demographic dividend

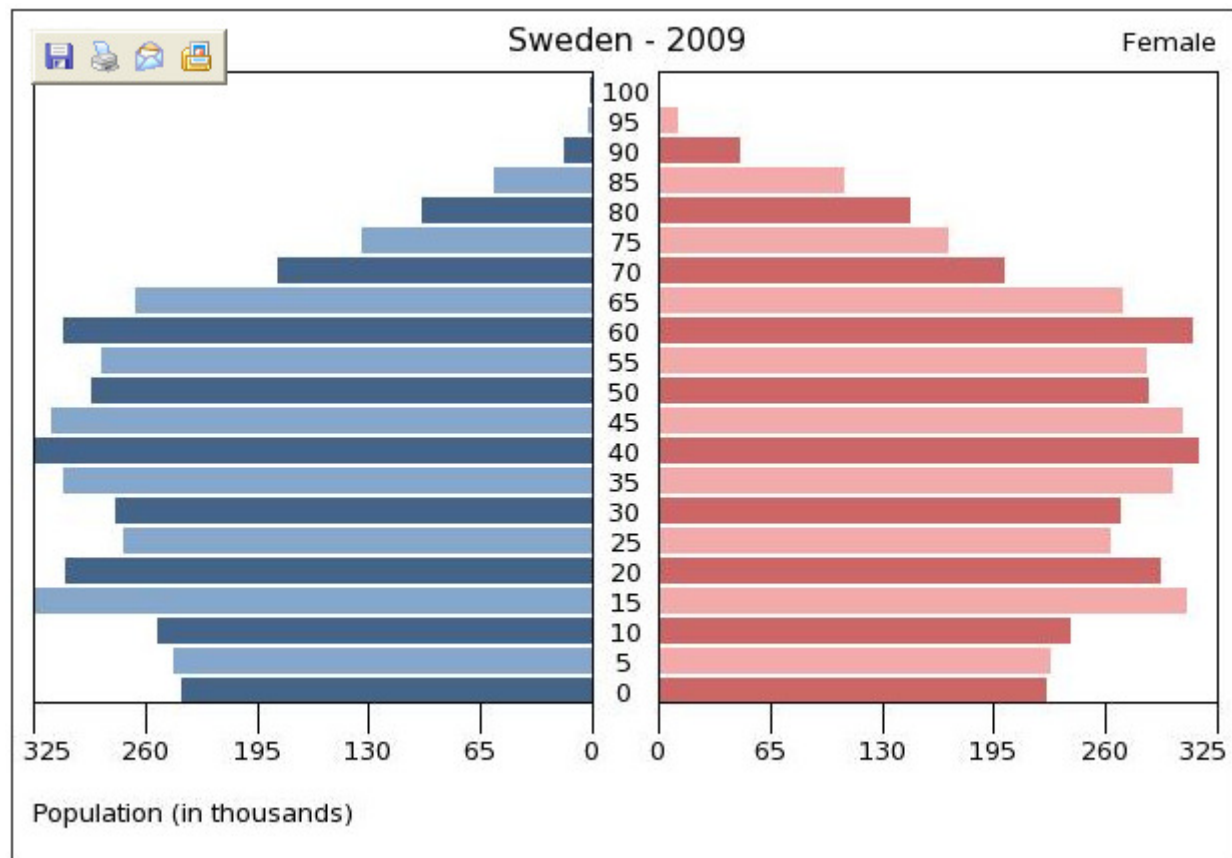
Demographic transition & the age structure of the population

- The age distribution of a population is determined by the interaction of fertility, mortality and international migration
- Where fertility is **high**, populations tend to have a **young** age structure
- Where fertility is **low** / falling, populations tend to have an **older** age structure
- Demographic transition is accompanied by the age transition

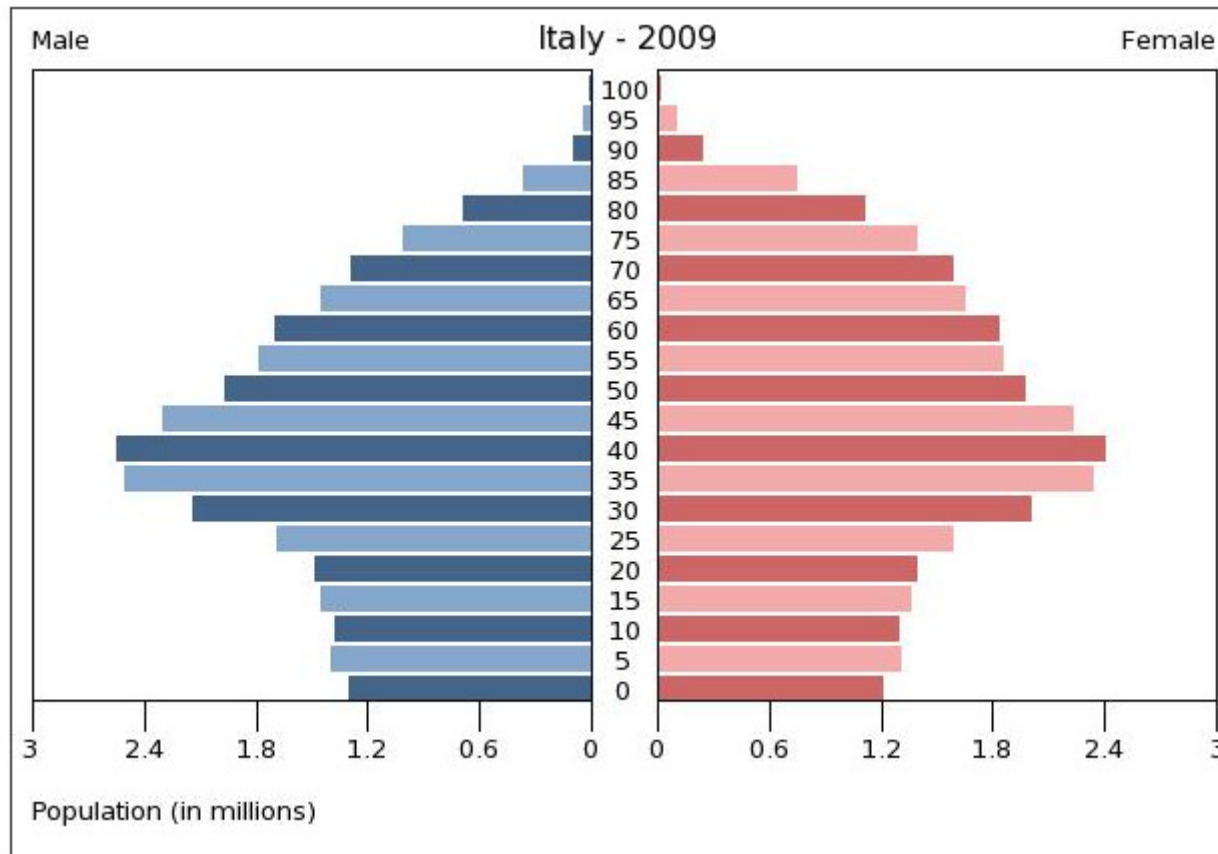
Afghanistan: a young population



Sweden: An older population



Italy: A rapidly ageing population

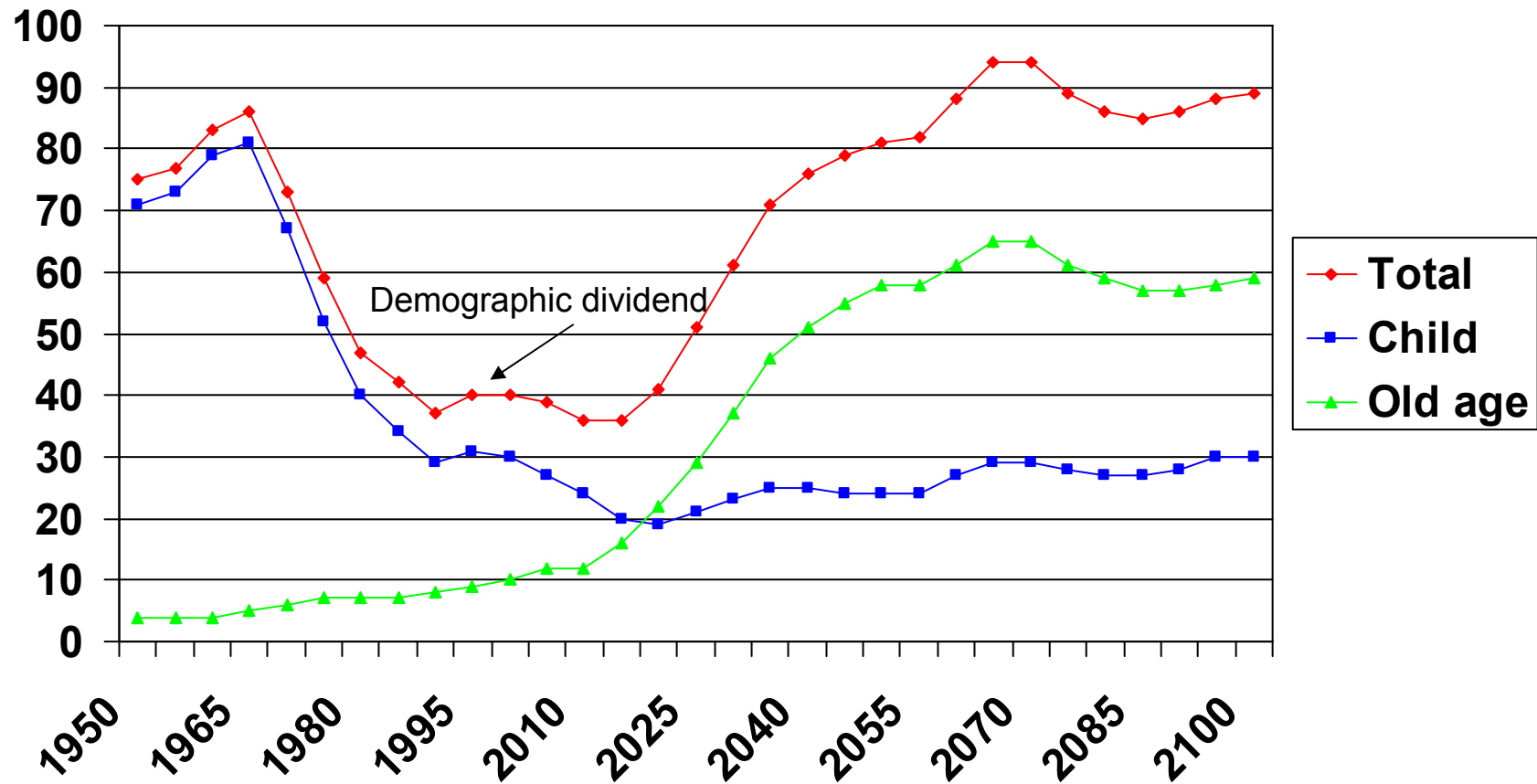


Demographic 'Window of Opportunity'



- Periods of declining total dependency ratios
 - ↓ ratio non-workers (children & older people) / workers
- Age-structure change can → economic growth
- Large, young working-age population (China vs. Germany)
- Fewer children; reduced social expenditure (or ↑ per capita spending) on the young
- 'Older' people save more → ↑ investment

Dependency ratios: Singapore, 1950-2100



Demographic 'Window of Opportunity'



-
- Capitalising on the window of opportunity means investing in
 - Education - to raise human capital
 - Jobs – to harness the productive energy of young adults
 - The future is in your hands.

Thank you !