

The Demographic Transition and the Global Economy

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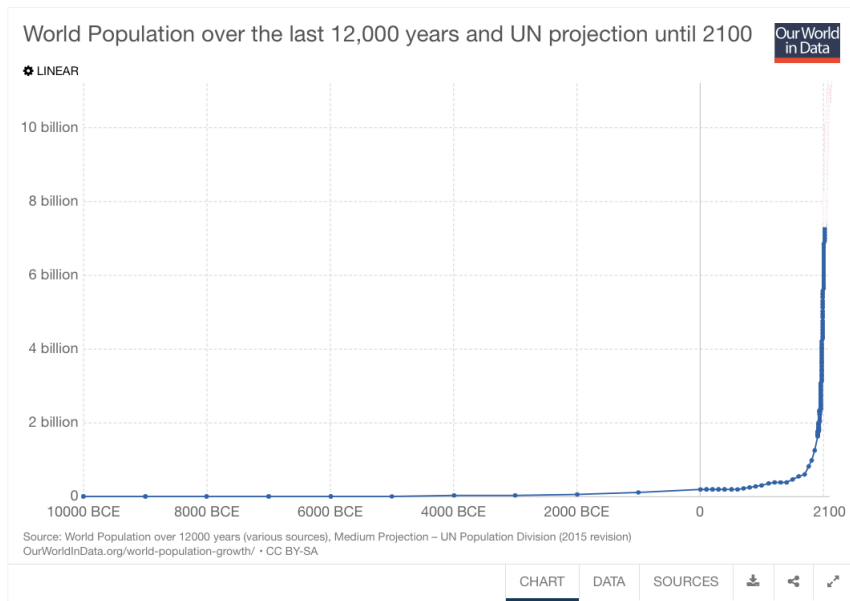
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- 1 A profound **global demographic transition**.
- 2 **Macroeconomic drivers**
 - 1 (Economic) Differences across different age cohorts.
 - 2 Young (children), Middle (working age), Old (retired age) (No offense).
 - 3 Changes in the following exert changes in macroeconomy
 - 1 Proportions of age cohorts,
 - 2 Family size
 - 3 Dependency ratios,
 - 4 Aging

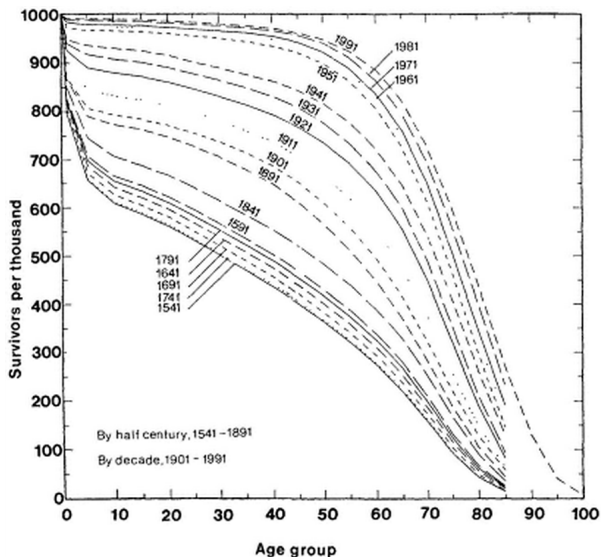
Economic Consequences

- 1 Demographic changes are predictable, but typically ignored in macroeconomic analysis.
 - 1 National saving rates, interest rates, asset values
 - 2 Economic growth rate
 - 3 Monetary policy effectiveness
 - 4 Viability of social security and medicare
- 2 Emphasis on **global**
 - 1 Integrated financial markets
 - 2 Trade, integrated global supply chains.
- 3 Plan of talk (interrupt any time)
 - 1 Facts about demographic transition
 - 2 Economic consequences
 - 3 Case study: Japan

World Population in History



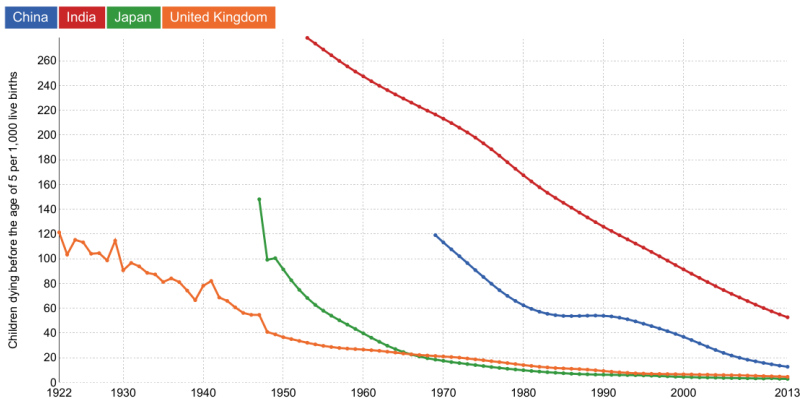
UK Survival Chances across the Ages



Child Mortality

Child mortality, 1922 to 2013

Number of children per 1,000 live births who die before reaching the age of 5.



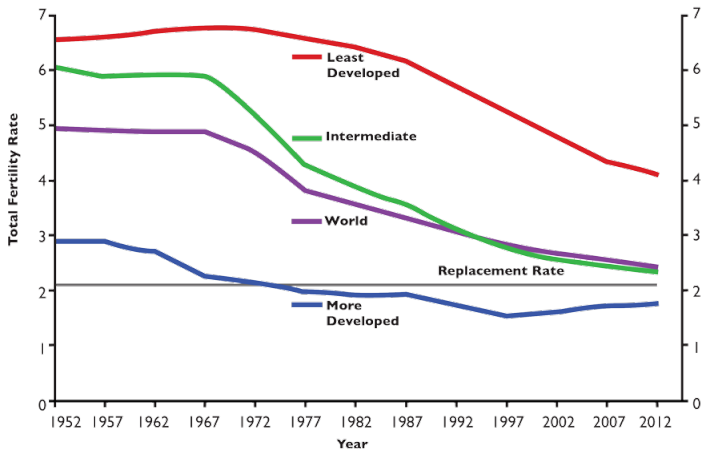
Data source: Our World in Data based on Human Mortality Database and UN Child Mortality Estimates

OurWorldInData.org/child-mortality/ • CC BY-SA

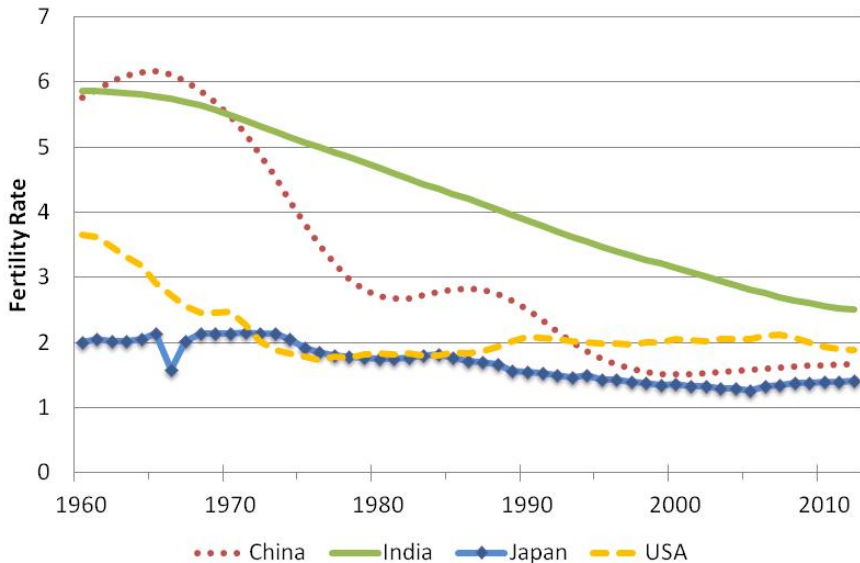
Fertility

Figure: Fertility

Figure 1: Total Fertility Rates by Level of Development¹



Fertility: China, India, USA, and Japan



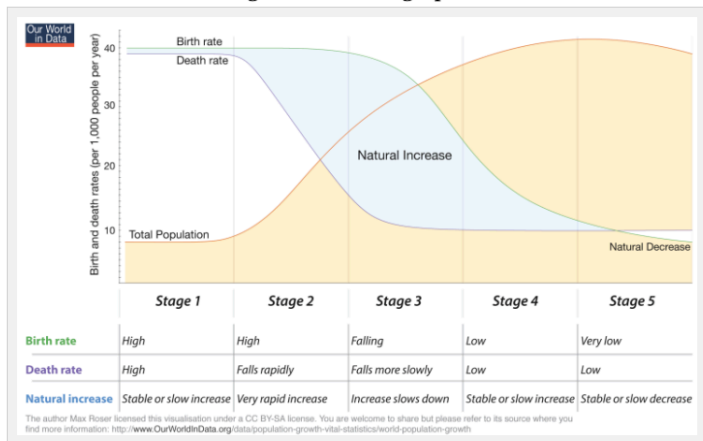
Fertility in numbers (selected countries)

Table: Fertility rates. (source: index mundi)

Singapore	0.8
Hong Kong	1.17
South Korea	1.25
Poland	1.33
Italy	1.42
Germany	1.43
China	1.55
United States	2.05
Afghanistan	5.43
Niger	6.89

Stylized Demographic Transition

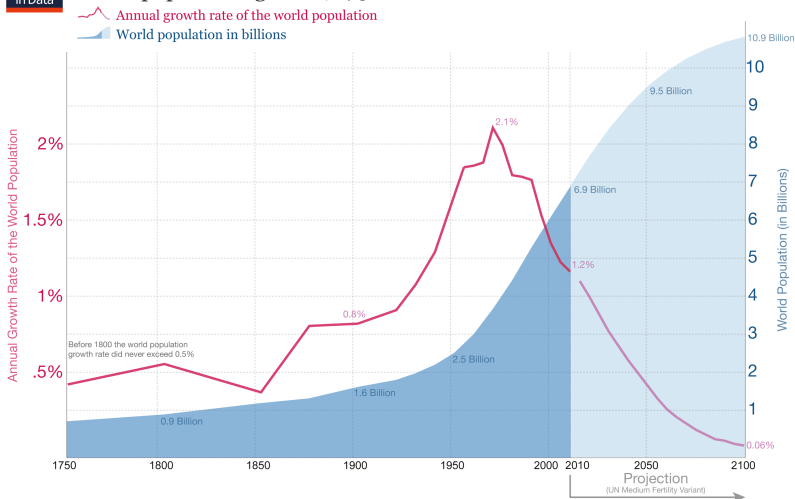
The five stages of the demographic transition



Population and Growth



World population growth, 1750-2100

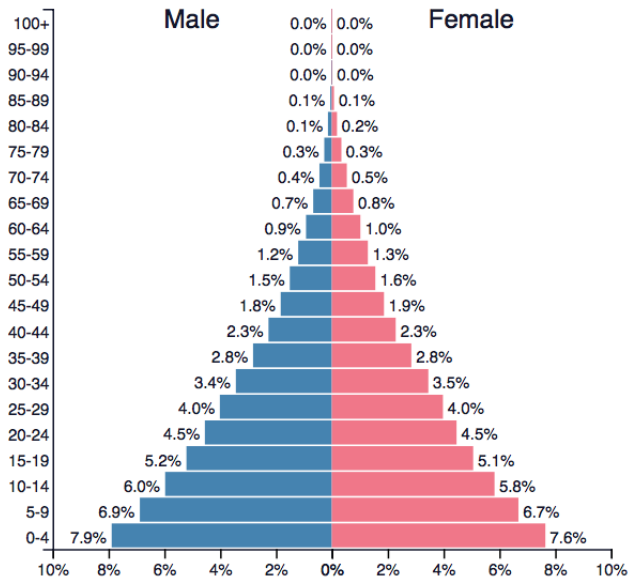


Data sources: Before 1940: Kremer (1993) – "Population Growth and Technological Change: One Million B.C. to 1990"; After: UN Population Division (2012), including population projection (medium variant). The data visualization is taken from OurWorldinData.org. There you find the raw data and more visualizations on this topic. Licensed under CC-BY-SA by the author Max Roser.

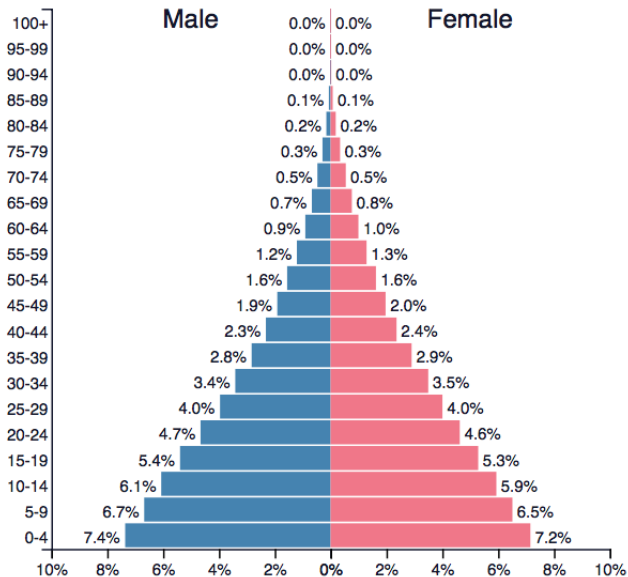
Population Trees

- 1 Percentage of population in each age group, by gender.
- 2 Historically looks like Christmas Tree
- 3 Current cohorts work their way up the tree, minus deaths
- 4 Look for bulges in trees.
 - 1 Least developed bulging in children
 - 2 China bulge in working age.
 - 3 Japan bulging in retirees

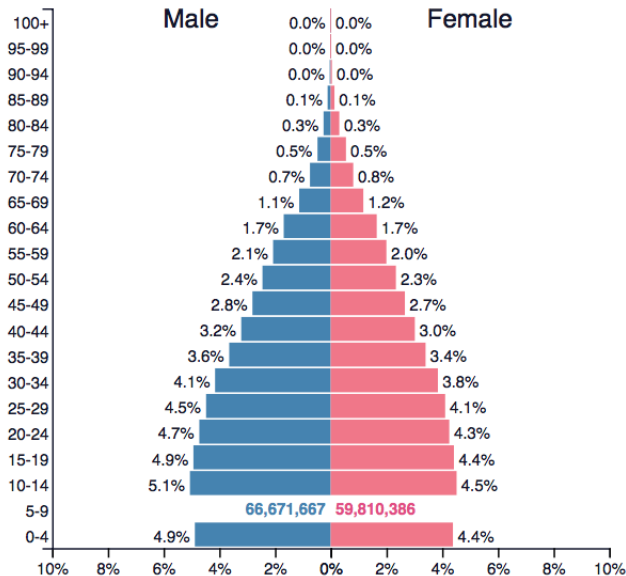
Africa



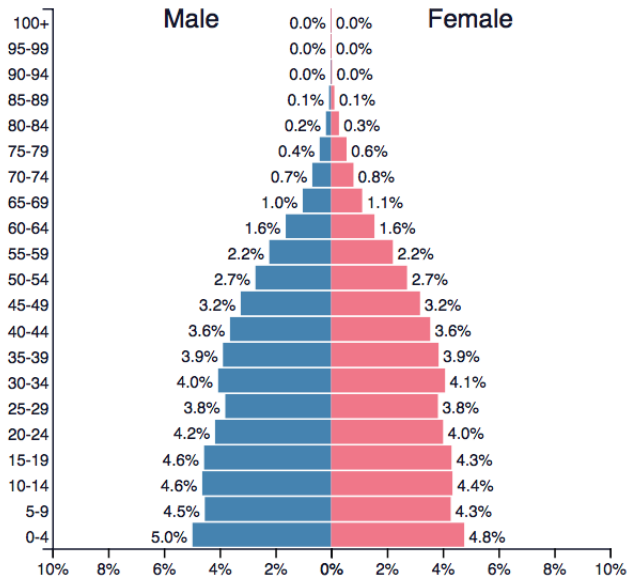
Least Developed Countries



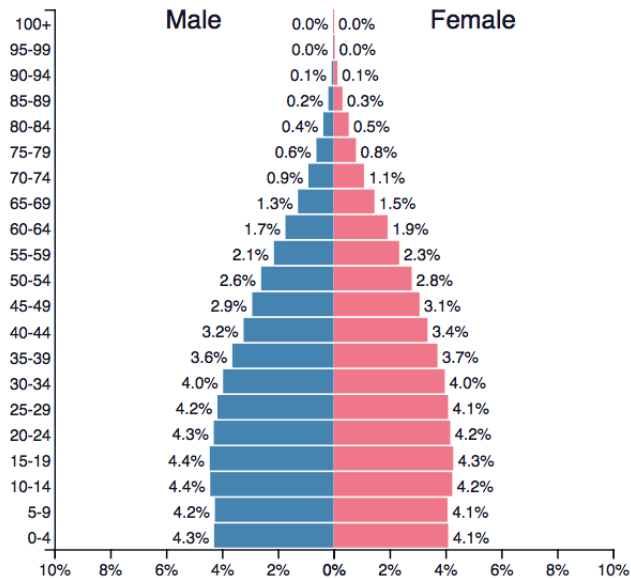
India



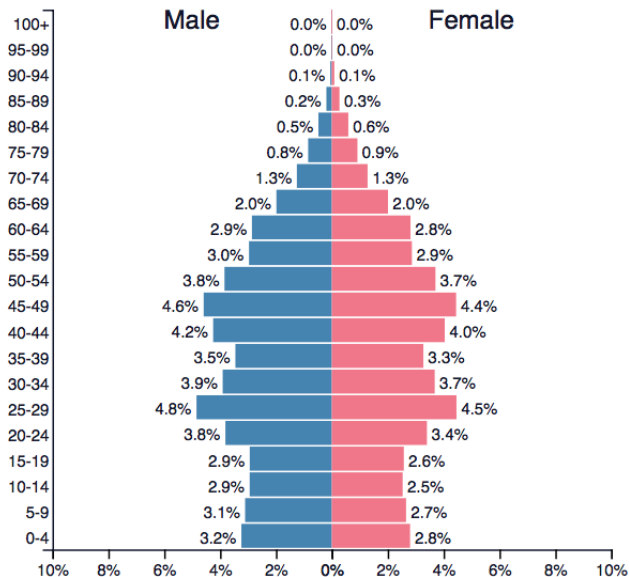
Indonesia



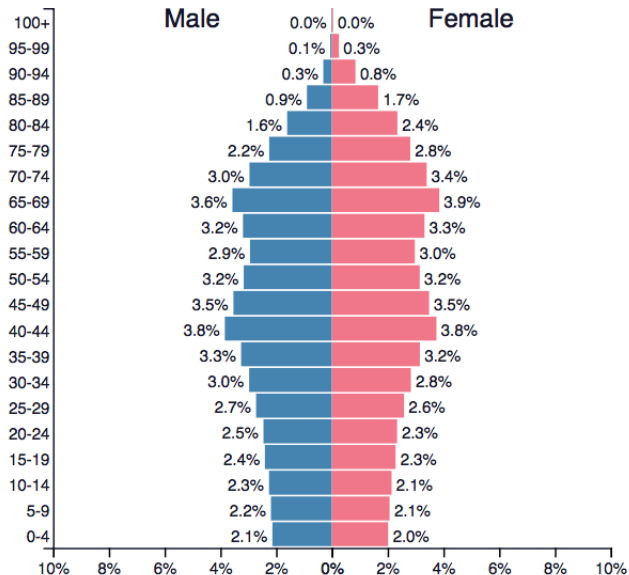
Latin America



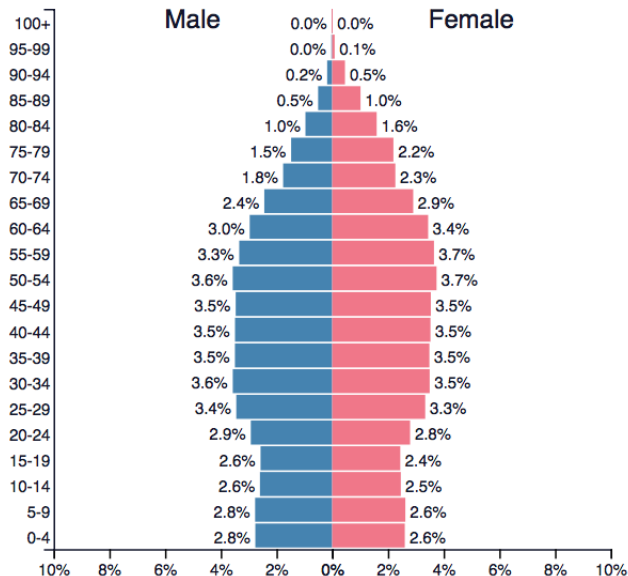
China



Japan



Europe



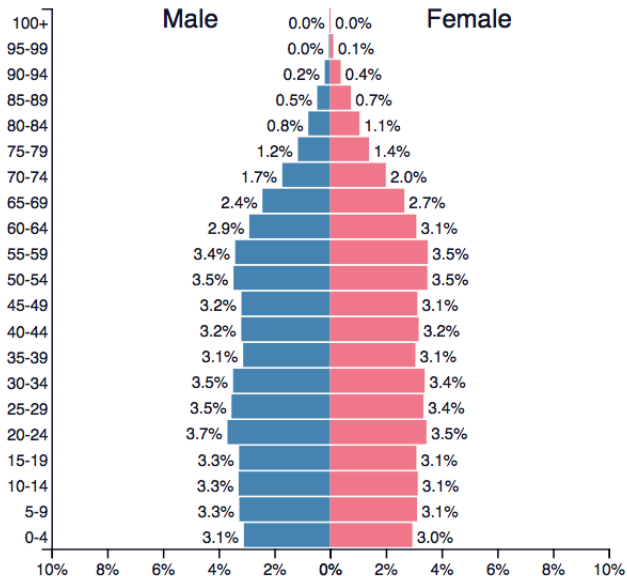
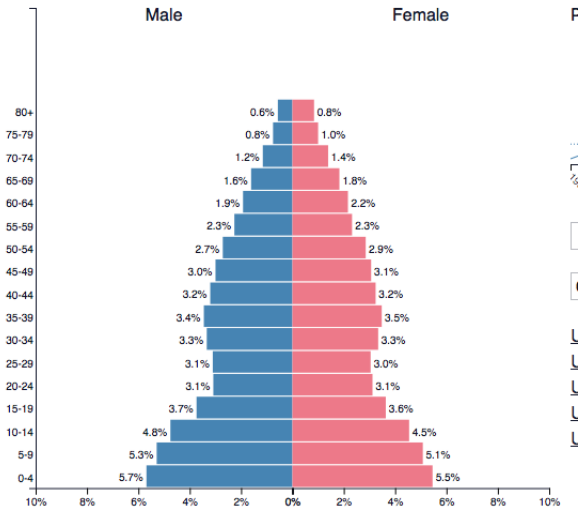


Figure: USA 1960



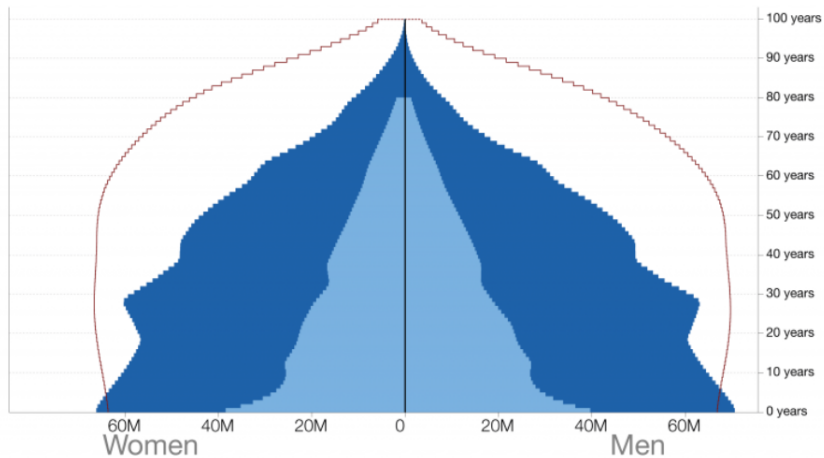
World over Time

The World Population Pyramid in 1950, 2016 and 2100⁶

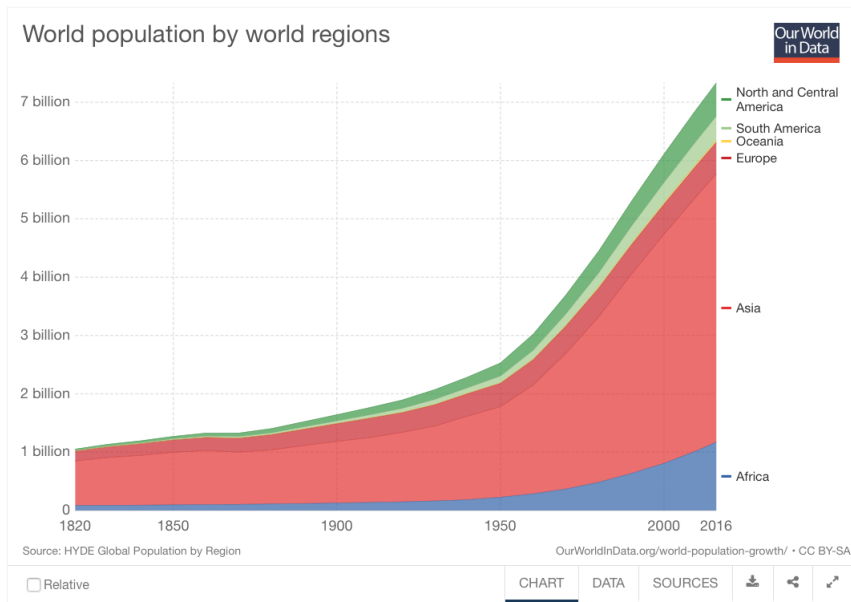
The World Population Pyramid in 1950, 2016 and 2100

Our World in Data

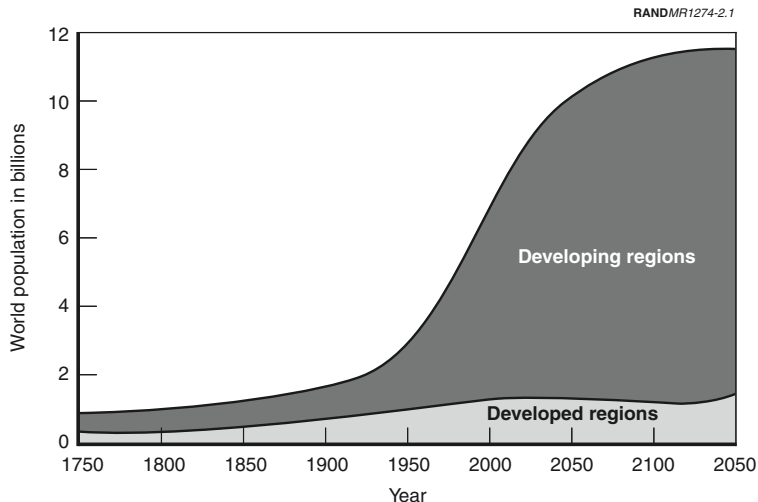
▲ 1950 ▲ 2016 ◡ 2100
Projection by the UN



Where are the People? Asia!



What are we Transitioning to?



SOURCE: Population Reference Bureau, *Human Population: Fundamentals of Growth, Population Growth, and Distribution*, 2001. Available at http://www.prb.org/Content/NavigationMenu/PRB/Educators/Human_Population/Population_Growth/

Growth and Demographic Dividend

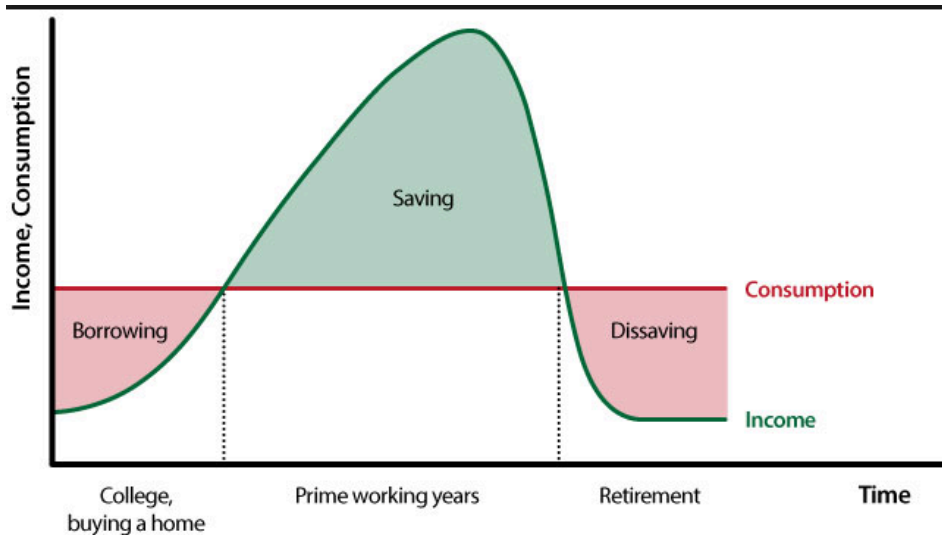
- ① Growth: Working people spend money (an aggregate demand driver)
- ② Dividend: As bulge works its way into working age, per capita GDP increases, due to fewer dependents.
 - ① Dividend lasts a long time (50-60 years)
 - ② What does country do with the 'surplus?'
 - ① Invest in education, health, infrastructure, debt reduction, capital, technology, to create conditions for productive employment. Reap a second dividend. (East Asia?)
 - ② Squander? Slide backwards when bulge retires.

Aging and Growth

Potential drag on growth. In US, 70% of GDP is private consumption expenditures

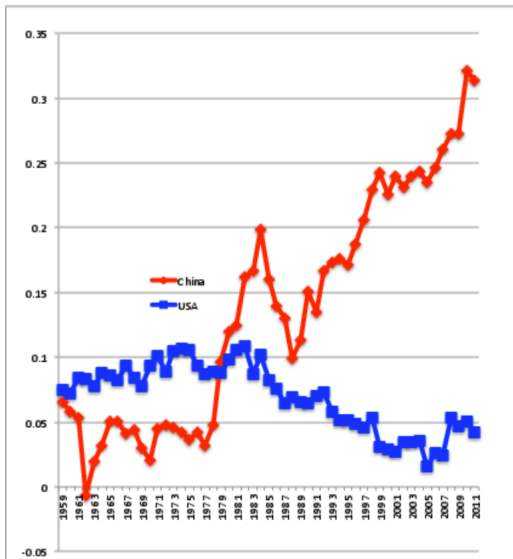
- 1 Older people don't spend as much
 - 1 No work-related expenses (clothing, transportation commuting).
 - 2 Downsized homes
 - 3 Time to find bargains
 - 4 Home production
- 2 Stress on pensions and social security tax burden on working aged

Life-Cycle Saving

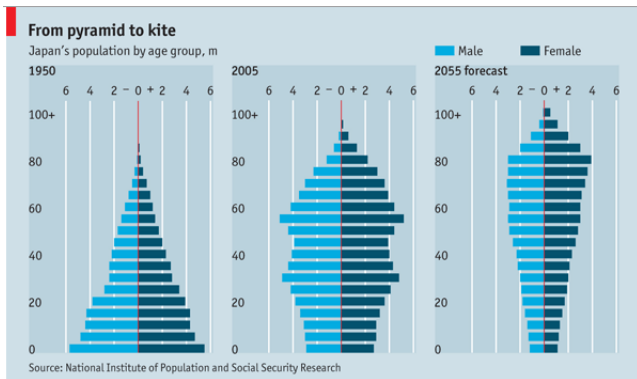


China Saves!

Figure 1: Historical Saving Rates



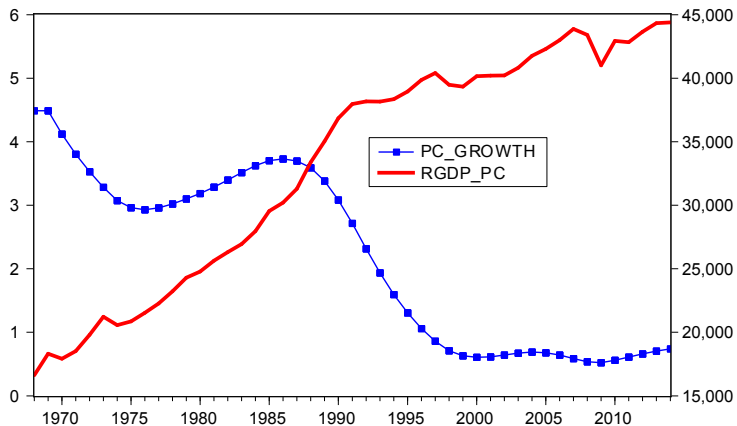
Case Study: Japan



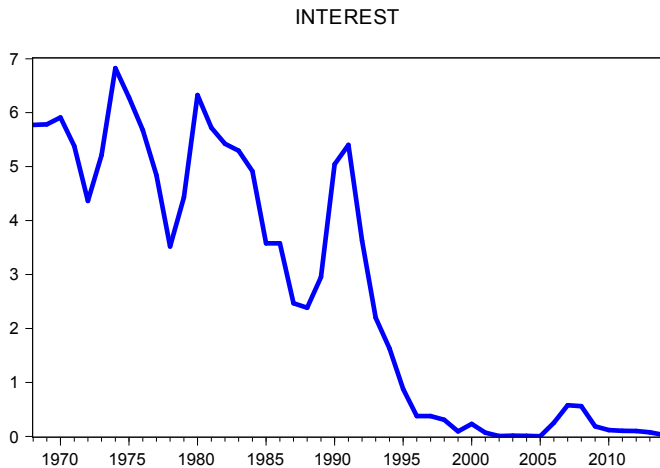
Case Study: Japan

- Features
 - ▶ Rise (1980s-Japan Inc.) and fall (two decades of low or no growth)
 - ▶ Ineffective fiscal and monetary stimulus
 - ▶ No immigration
 - ▶ Old society
 - ▶ Losing 1 million people per year since 2009
 - ▶ Labor shortage. 3.1% unemployment rate
 - ▶ Reduced capital investments generally, but leader in robotics. Housing stock. Education school consolidation. (Detroit)
 - ▶ Reduced demand for consumer durables
 - ▶ Looking to foreign markets for growth
 - ▶ Long living, early retiring. Pension liabilities look bad
- Demographics deserves much of the credit/blame
- Monetary stimulus will not address these issues

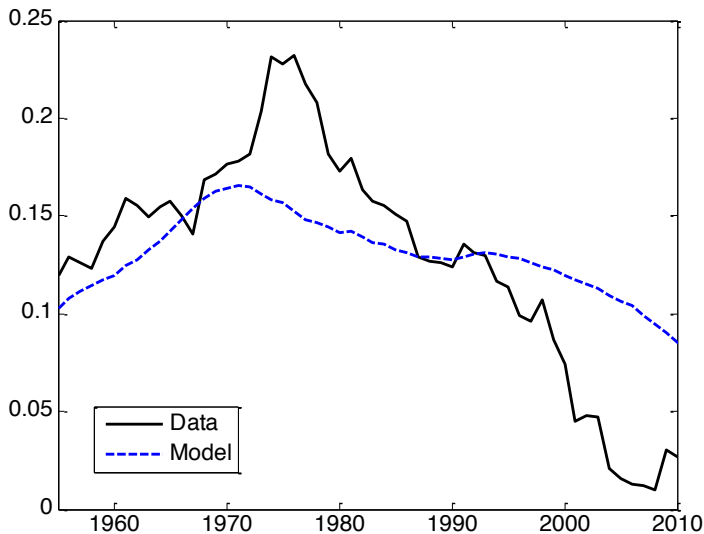
Japan GDP Growth



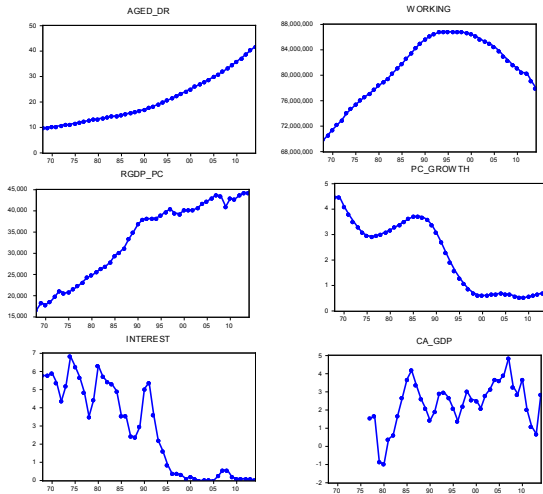
Japan Interest Rates



Japan Aggregate Household Saving



Japan: Consolidated



Conclude

- Demographic transition is a real thing.
- Economic policies usually focused on short-run. Monetary/fiscal stimulus, temporary tax changes, etc.
- Moves slow, but like a change in the tide. Has noticeable economic effects.