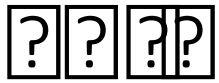


Barry Naughton
UC San Diego
UNAM February 19, 2018



- At the end of an explosive period of “miraculous growth” - 1978-2010 over 10% per year.
- What is a ‘growth miracle’?

A period when demography, economic structure and development strategy reinforce each other and support rapid growth.

◦ 8) h
decades (aggregate GDP of 7% per year, or per capita GDP growth of 6% per year). GDP quadruples in a generation.

Growth miracles always involve the rapid growth of factor inputs, plus significant positive productivity growth. Growth miracles must come to an end.

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The dominant way in which economists look at growth is through the aggregate production function.

$$Y = A \cdot L^\alpha \cdot K^\beta \cdot H^\gamma$$

Where Y = GDP, and

L = Labor; K = Physical Capital; H = Human Capital

L, K, and H are **factor inputs**, which are combined, given available technology, to produce output, or income.

Productivity growth (TFP = total factor productivity) growth the only other source of growth.

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The 2007 Commission on Growth and Development used a definition of 25 years of GDP growth at 7% or more, identified 13 economies. Why so few?

Japan

Brazil (1950-1980)

Korea

Taiwan

Hong Kong

Singapore

China

Thailand

Malaysia

Indonesia

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1993, so it will probably enter the group next year.

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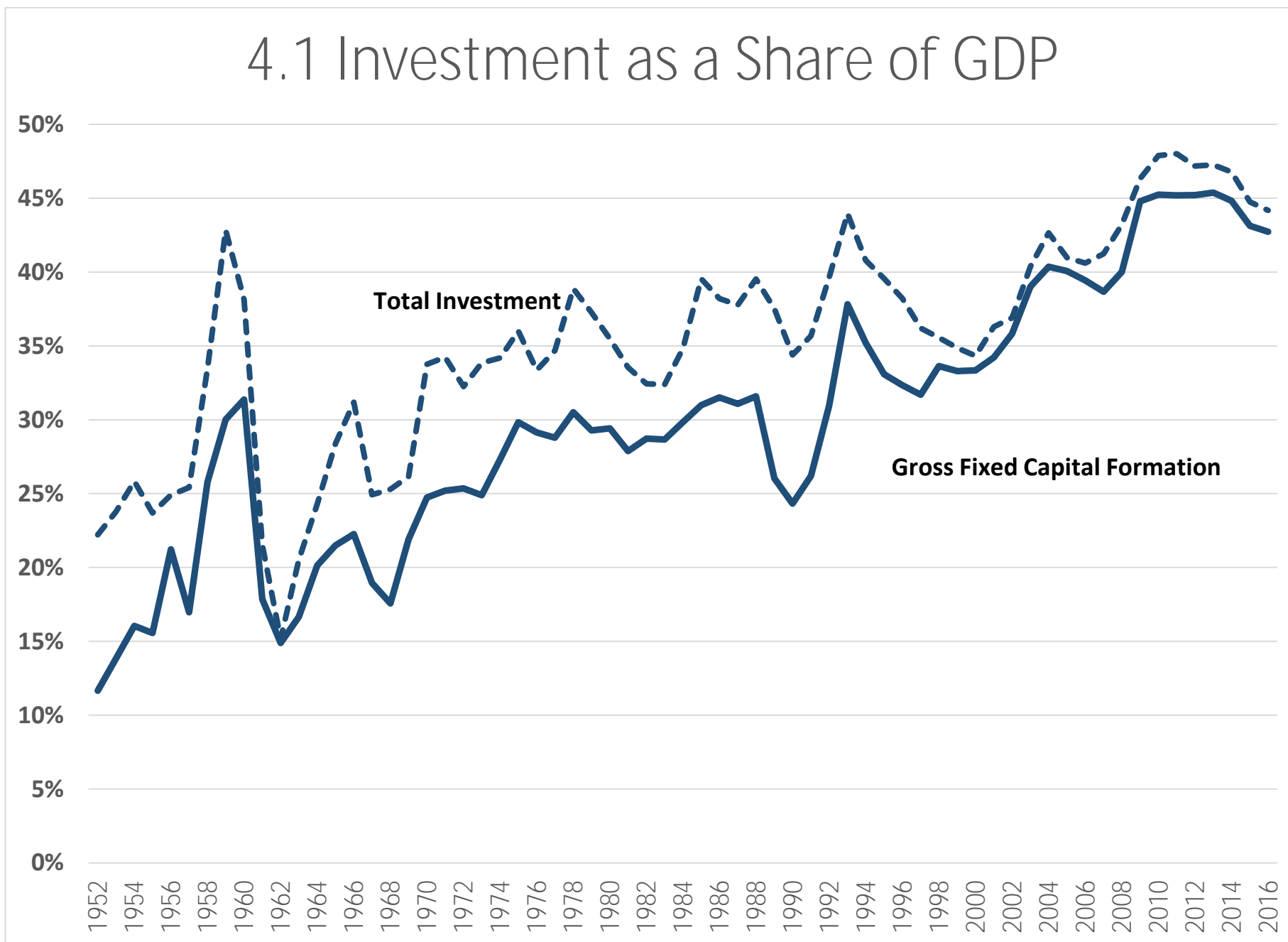
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1. From 1978 to 2010, China grew 10% per year: faster, longer, than any other economy.
2. # the command economy to a market economy.
3. Chinese institutions were unique, including the ***hukou*** system that imposed an urban-rural divide. (But every growth miracle has distinctive features).

Miracle Economies are the same, because growth miracles END, but they differ in the way in which the miracle ends.

4.1 Investment as a Share of GDP

Before
We
Start--



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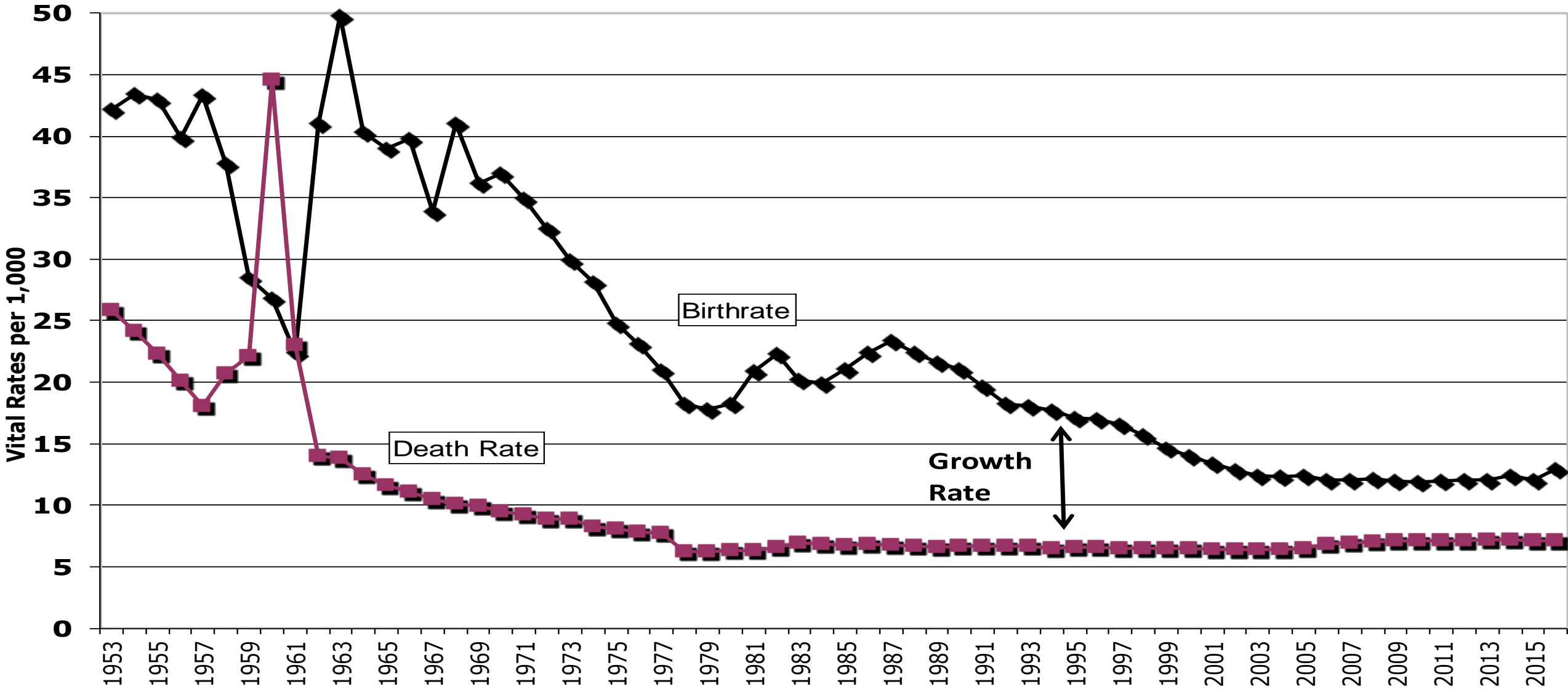
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- Rapid growth of labor inputs is a critical part of the miracle growth experience. There are regular patterns of demographic change in China, East Asia, and the world.
- The **demographic transition** describes the process through which a population passes from low growth to high growth and back to low growth, as death rates and then birth rates decline in a predictable pattern.
- The demographic transition creates a demographic dividend that can last thirty years or so, and is then followed by population aging.

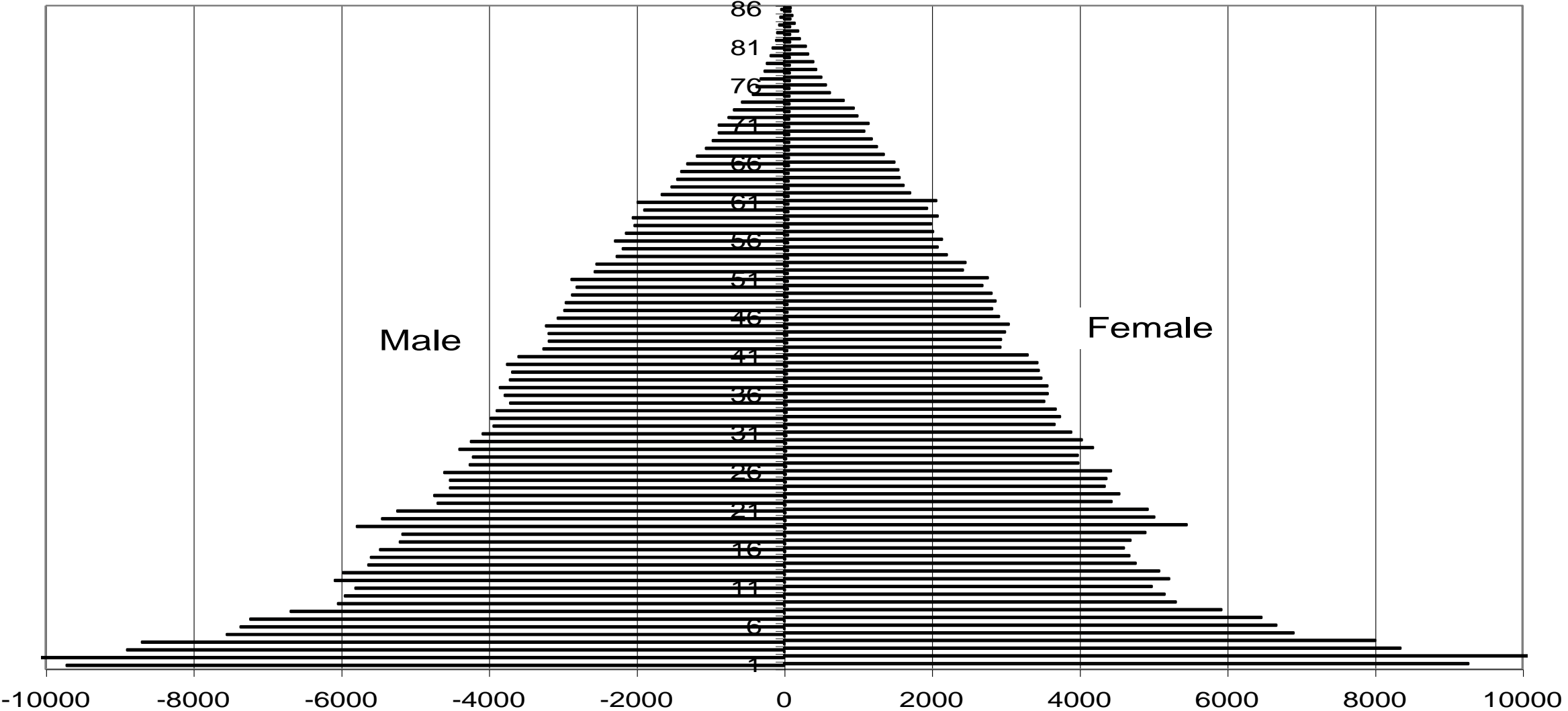
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- Death Rates decline first
 - better nutrition and sanitation
 - control infectious diseases
- Birth Rates decline later
- Traditional Population: High Birth and Death Rates. Slow population growth overall.
- Transition: High Birth, Low Death, Rapid Growth.
- Mature Population: Low Birth and Death Rates. Slow population growth overall.

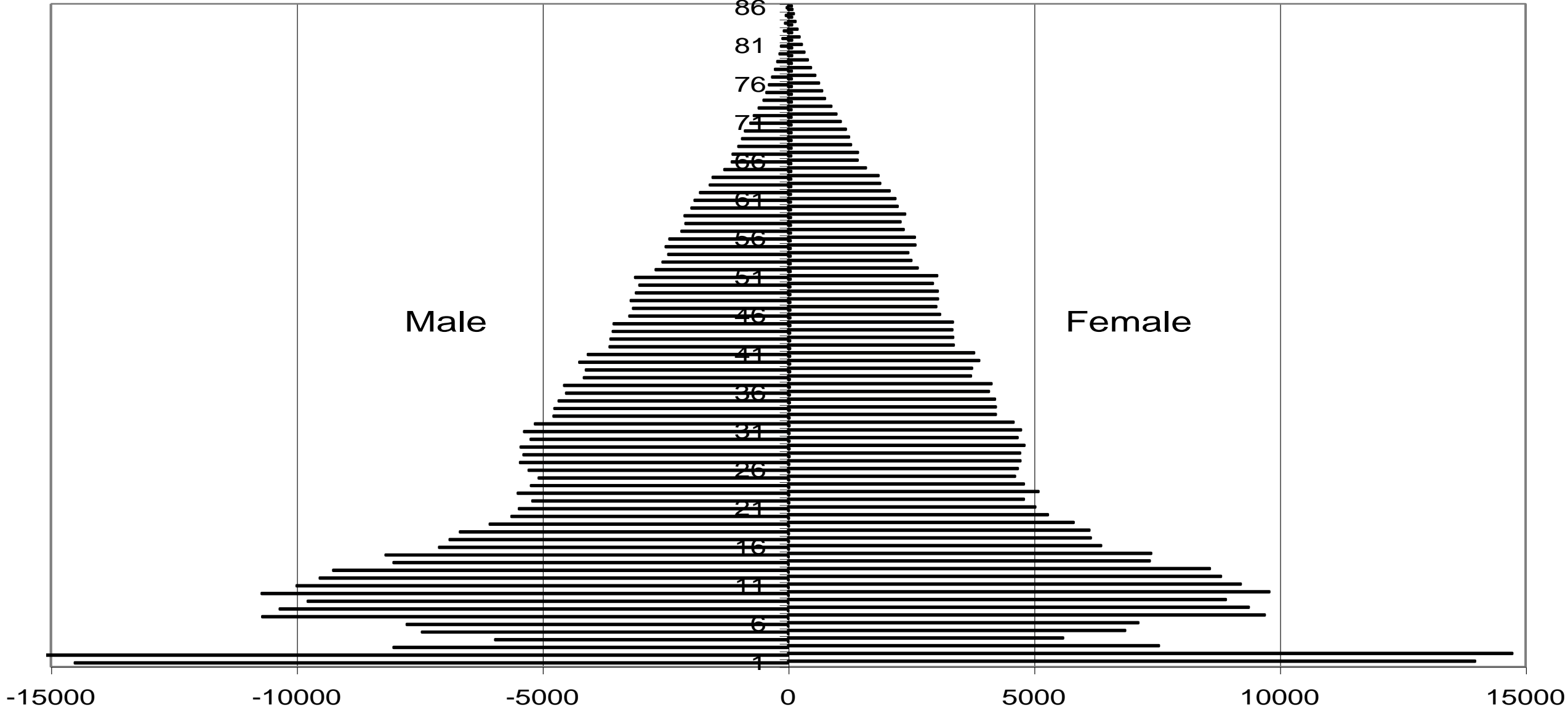
Vital Rates



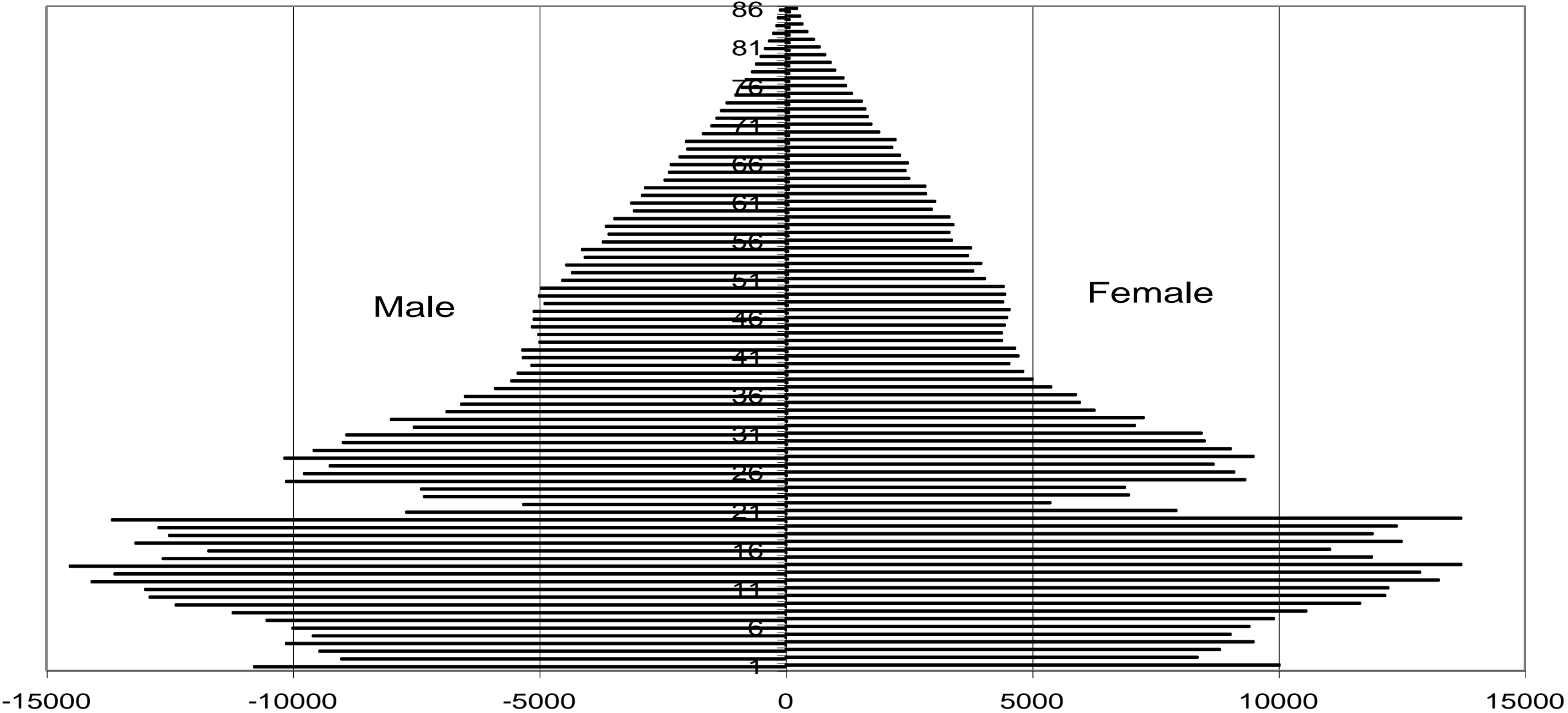
1953 Population Age Pyramid



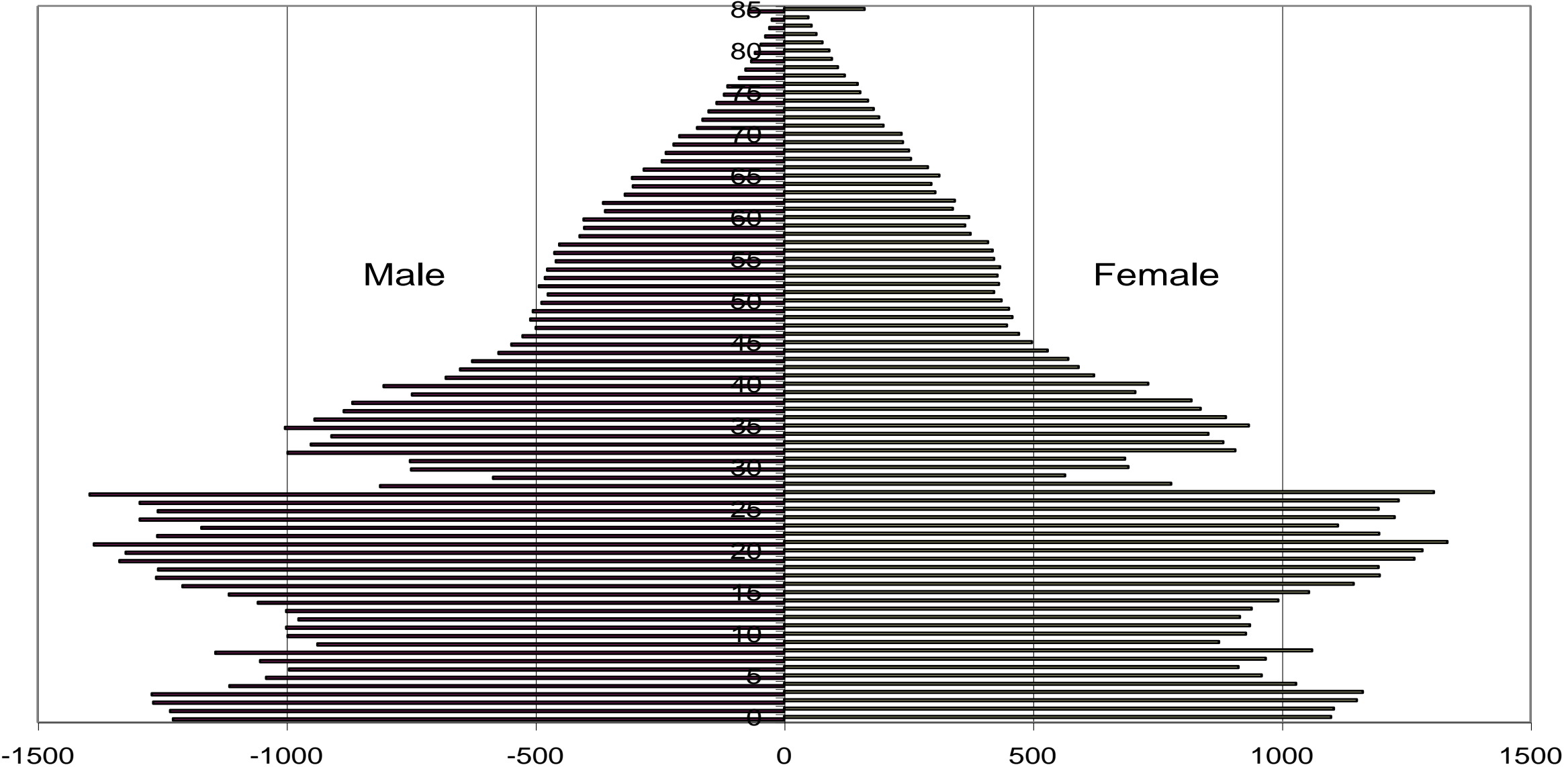
1964 Population Age Pyramid



1982 Population Age Pyramid



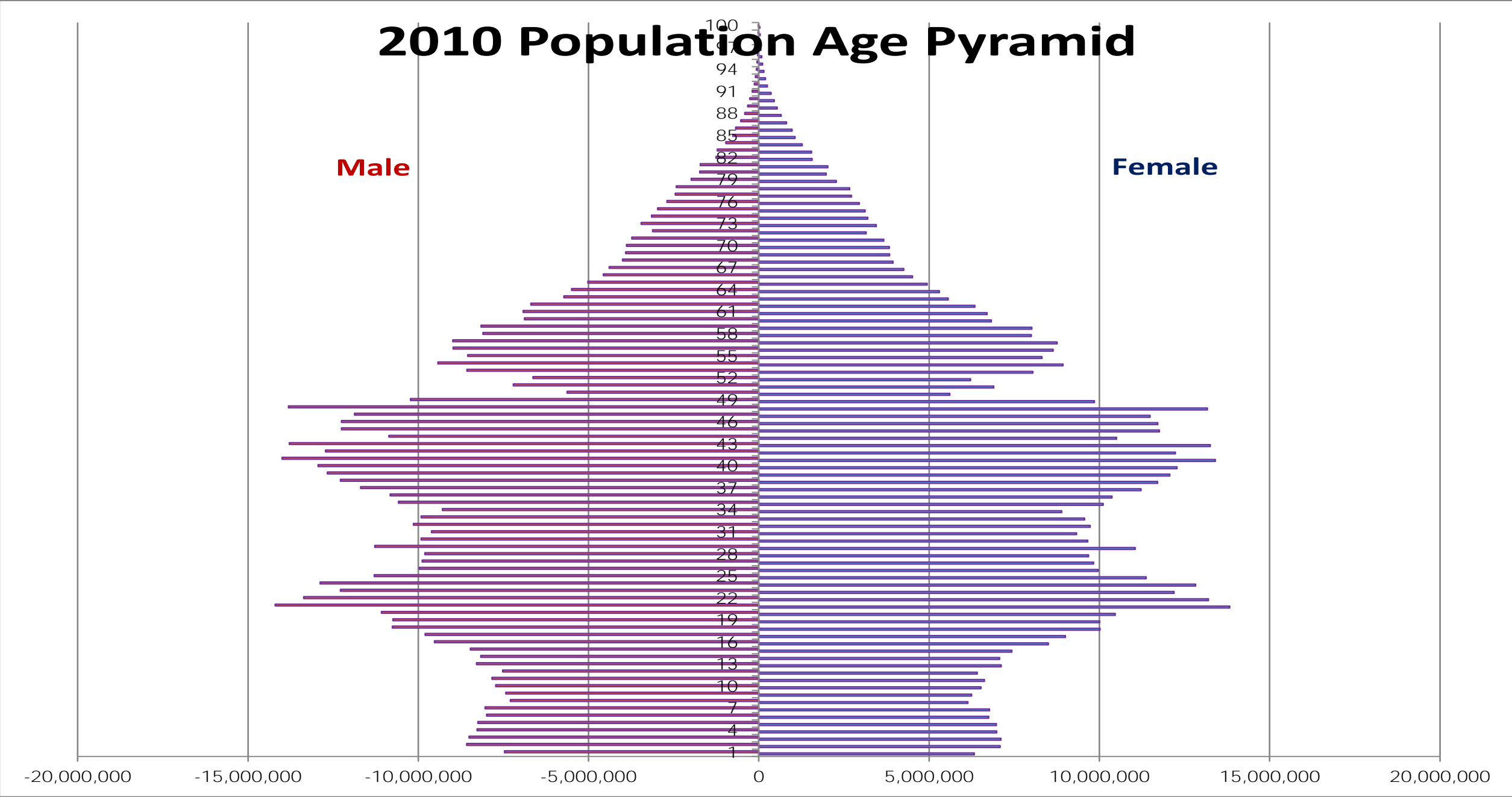
1990 Population Age Pyramid



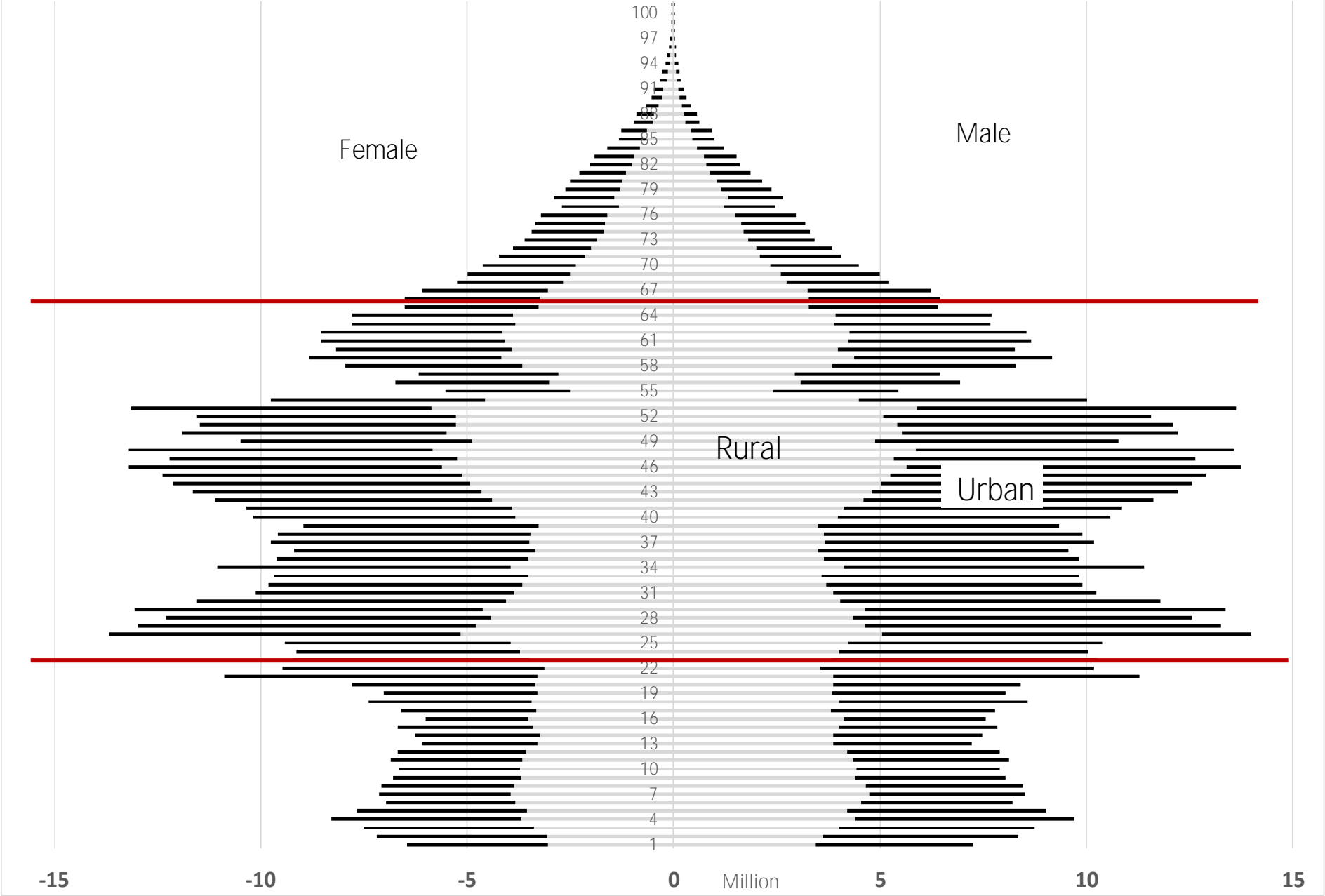
2010 Population Age Pyramid

Male

Female



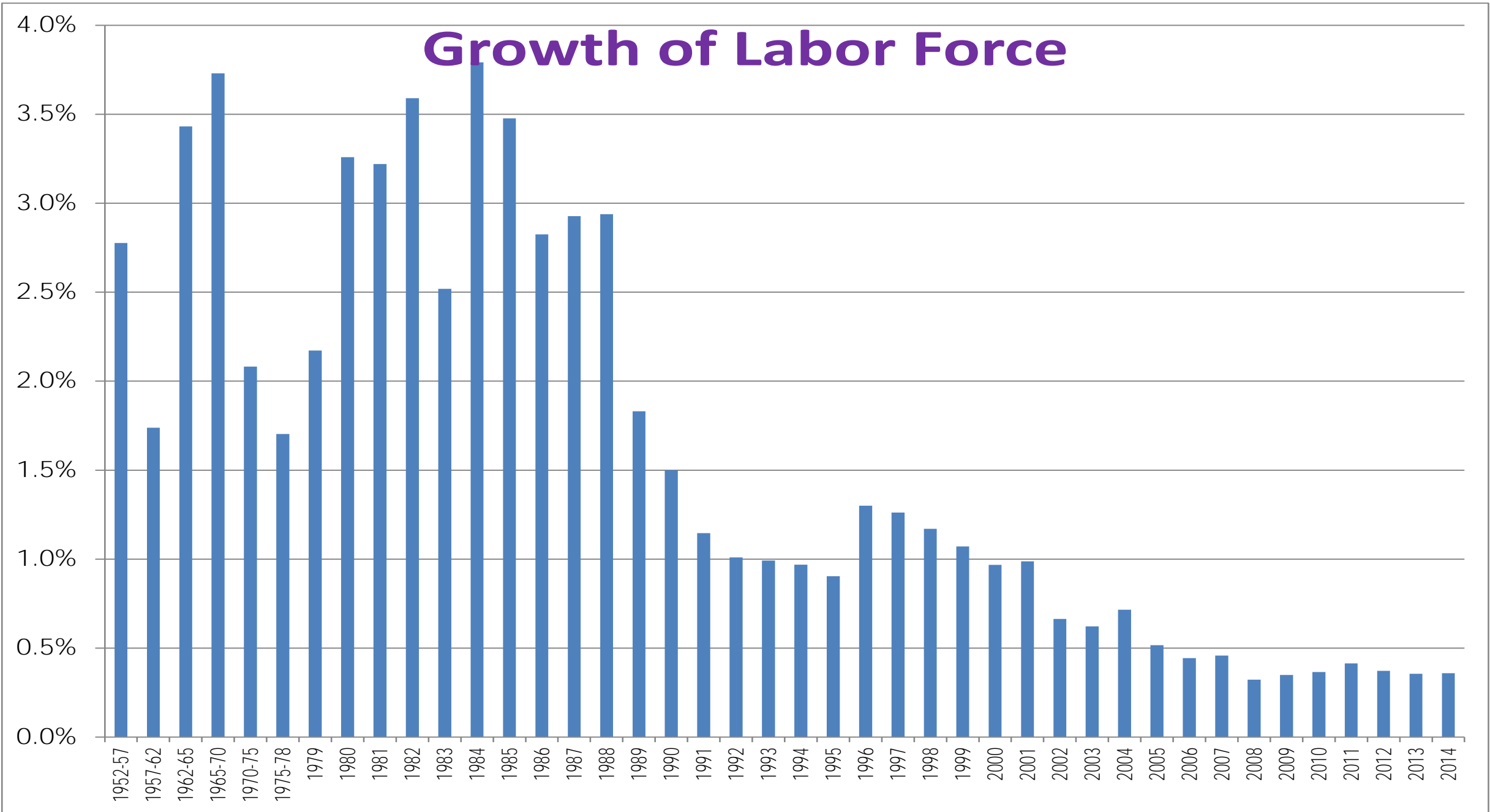
2015 Population Age Pyramid: Urban and Rural



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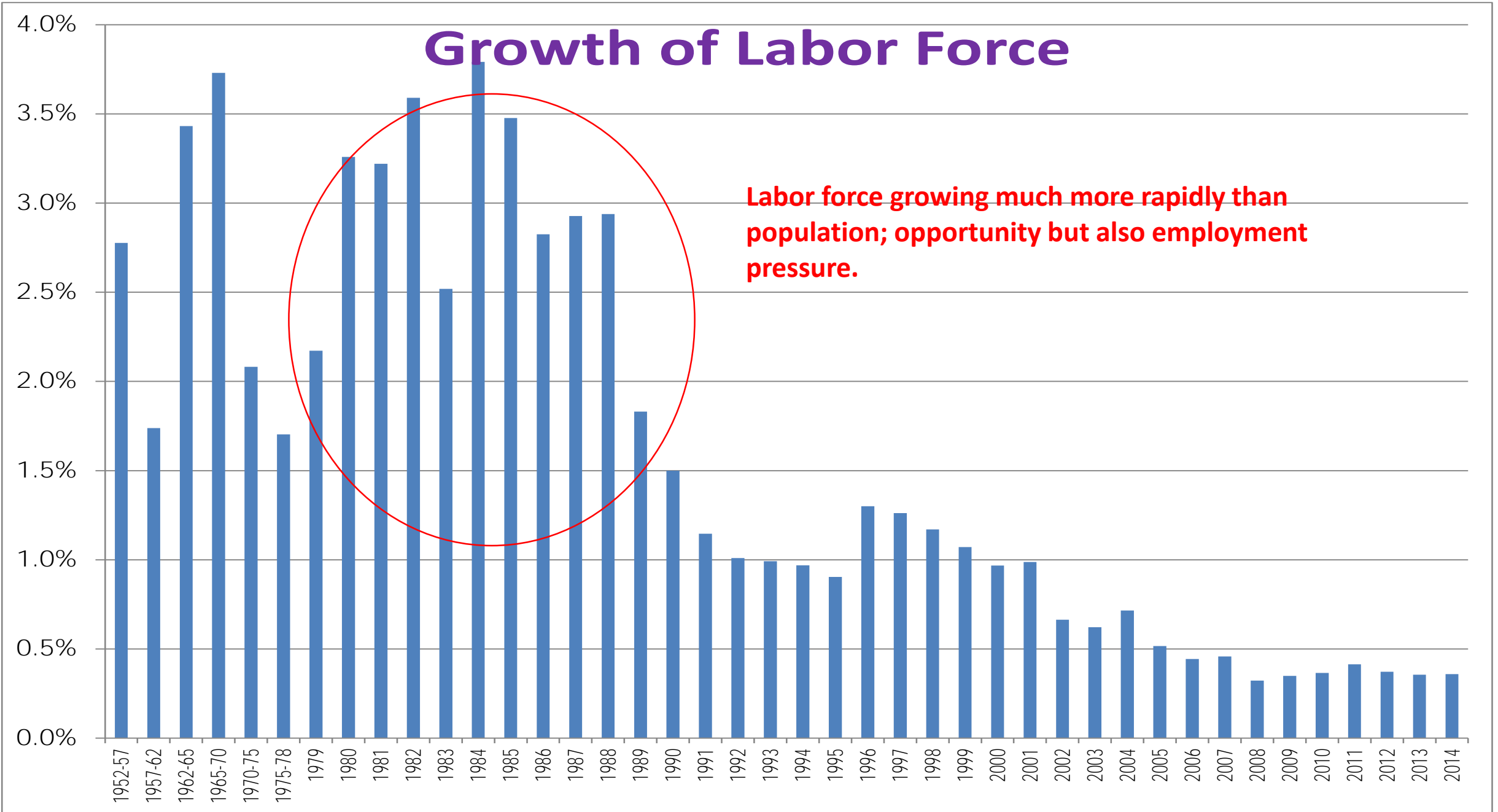
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especially favorable opportunity for development.
u -age people.
- 1. Labor force grows faster than population.
- 2. Age composition of population displays low dependency ratio.

Growth of Labor Force

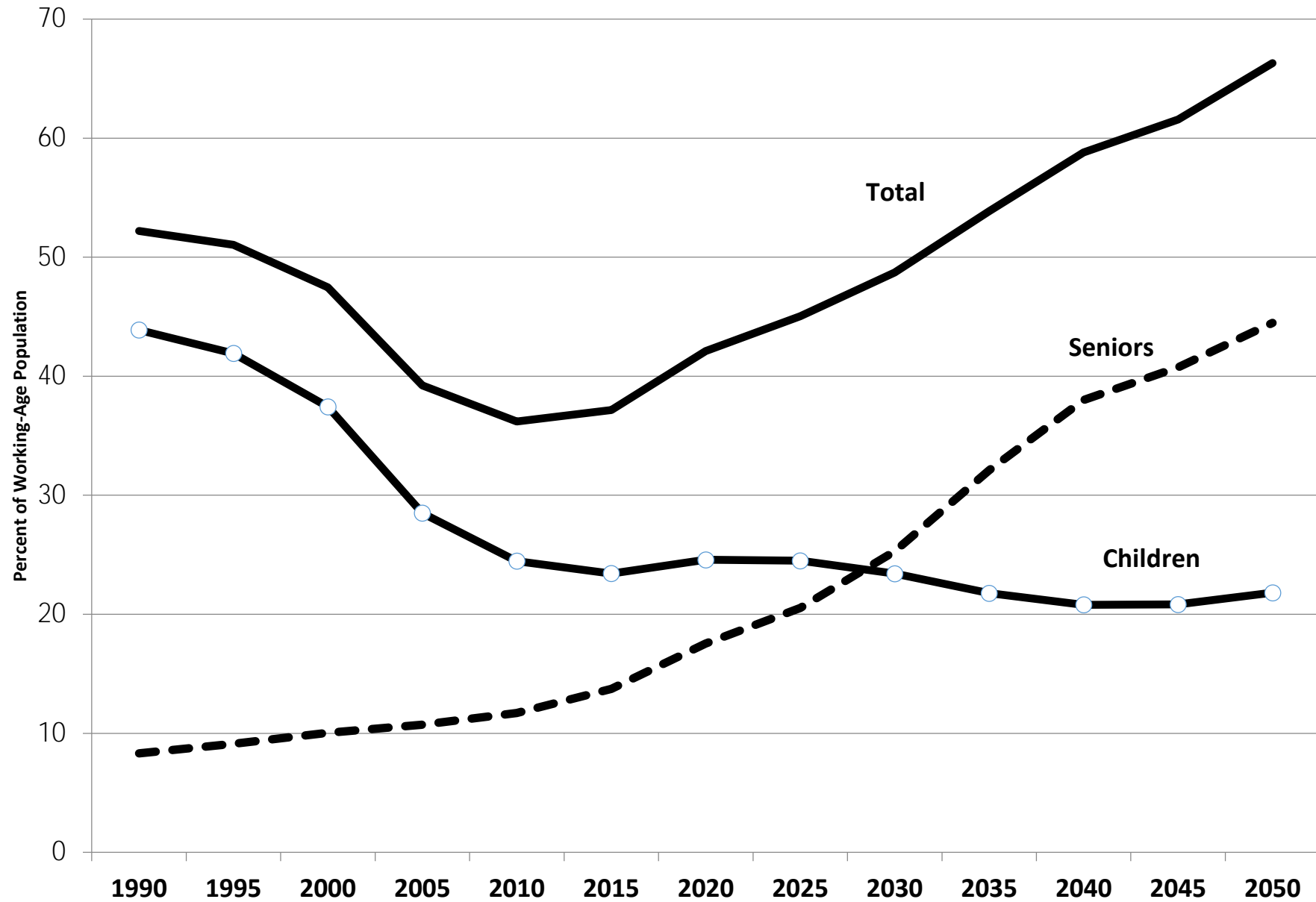


Growth of Labor Force

Labor force growing much more rapidly than population; opportunity but also employment pressure.



Dependency Rates



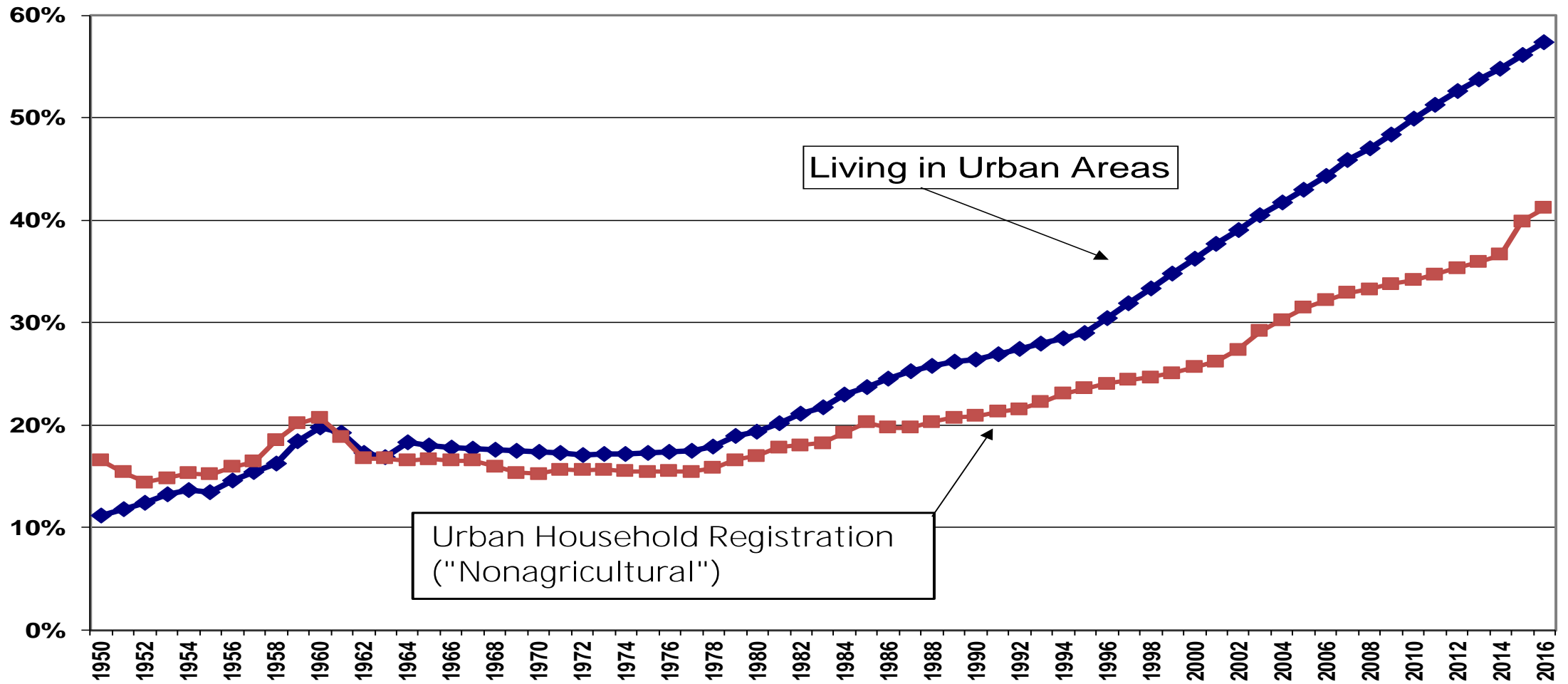
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- Growth of labor is not enough in itself; workers must also move into more productive, modern sector jobs.
- Leaving agriculture for industry and services.
- Leaving rural areas to work in the city.

Urban Share of Population



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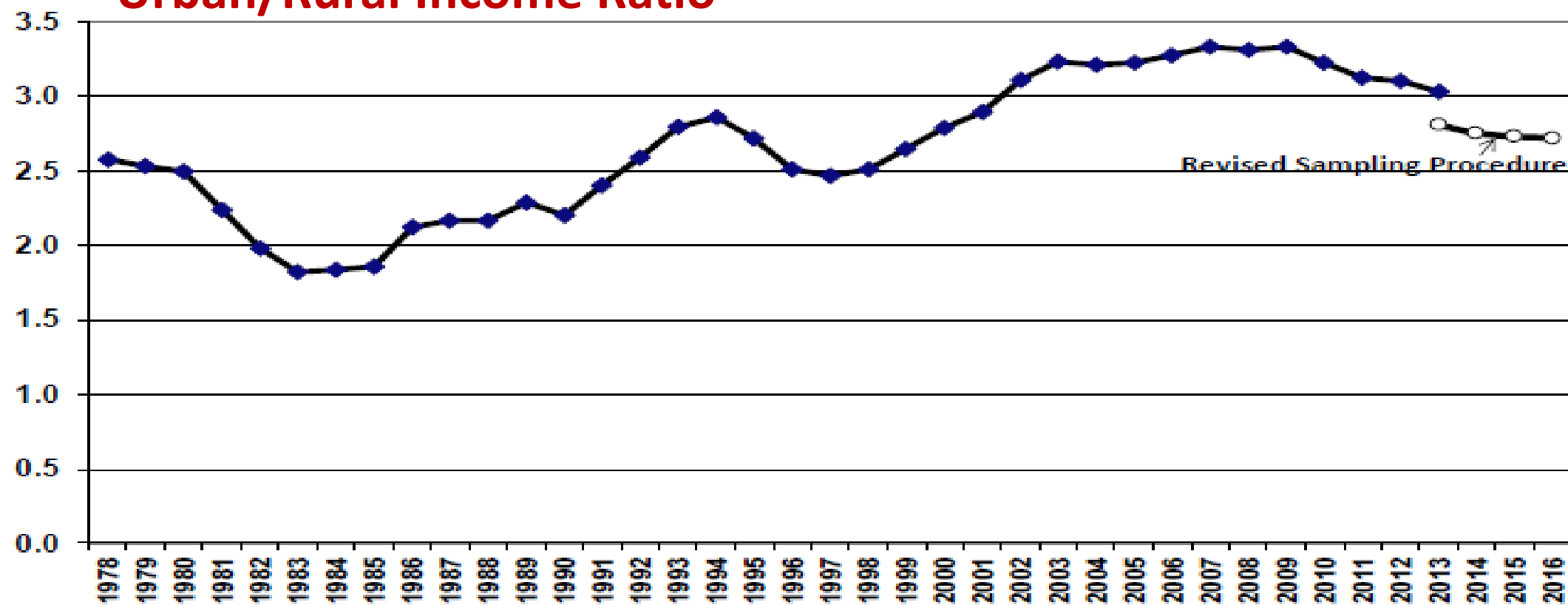
Table 6.1: Inter-provincial Migration

	(average annual net migration; million)
1990-1995	2.14
1995-2000	4.66
2000-2005	7.60
2005-2010	11.04

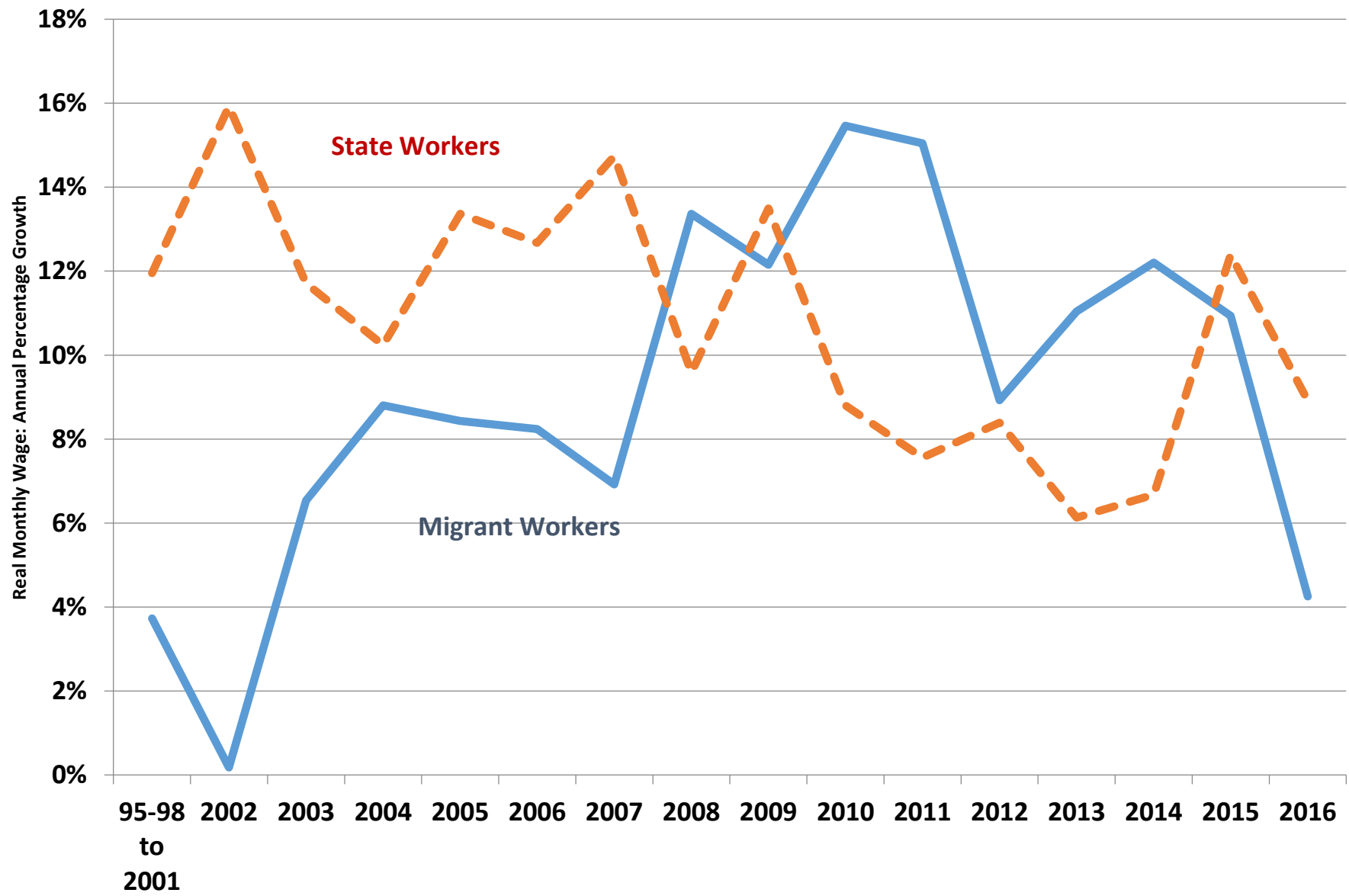
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Urban/Rural Income Ratio

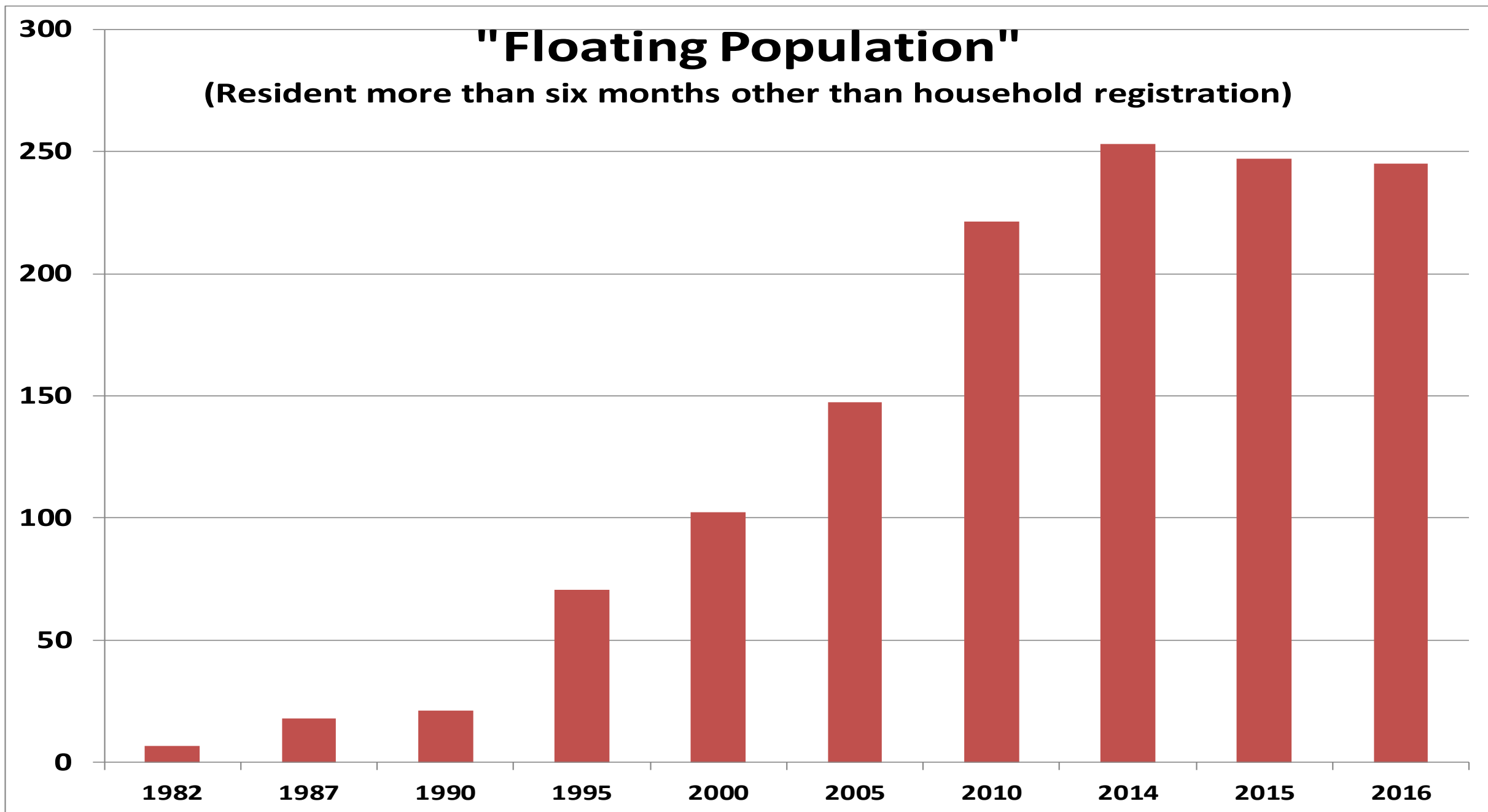


Wage Growth: Migrant and State Workers



"Floating Population"

(Resident more than six months other than household registration)



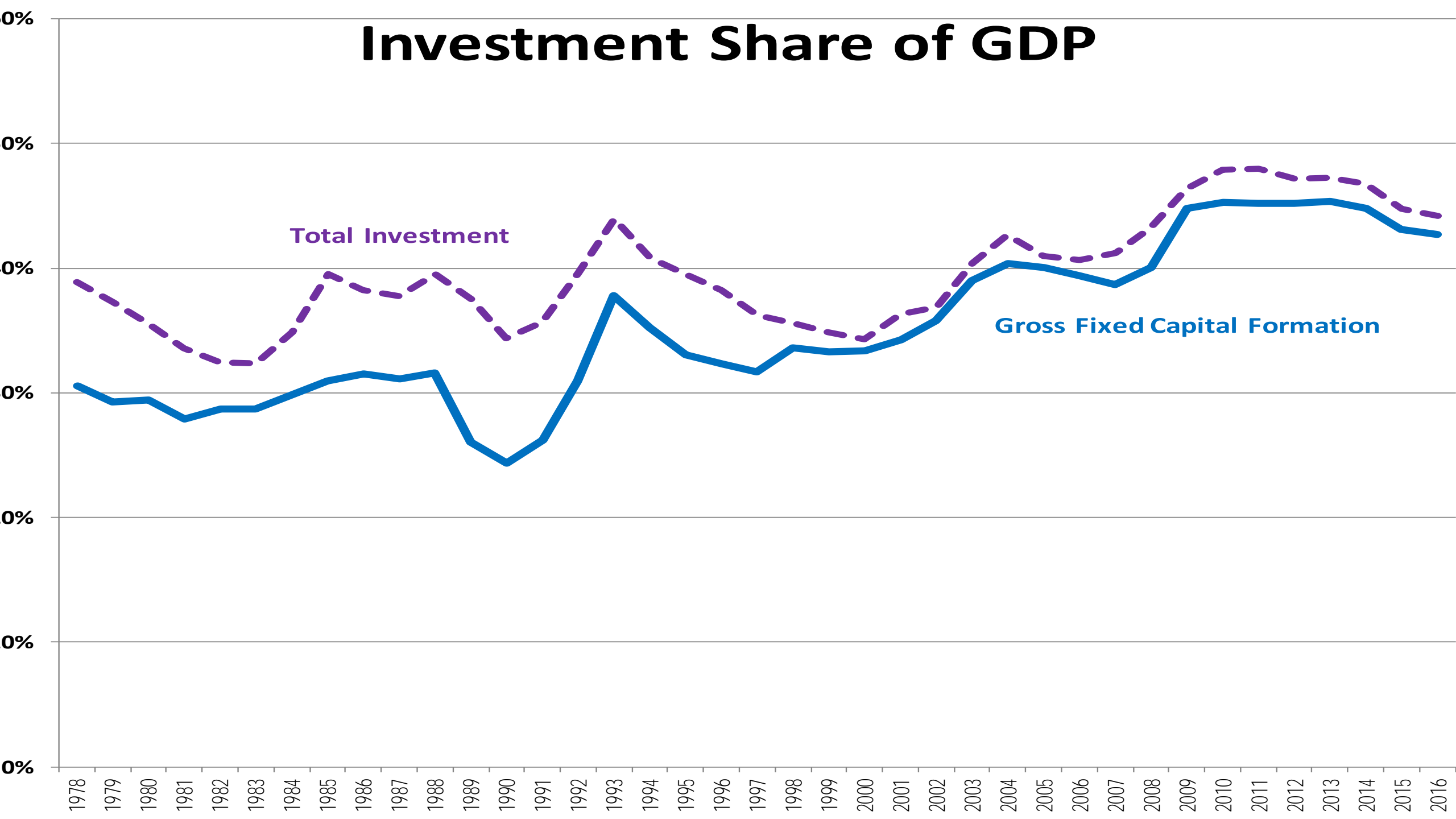







- Growth miracle economies have all pushed their aggregate investment rate up above 25-30% of GDP.
- China has gone much farther.
- High investment requires a government that actively creates a supportive environment for investment; and
- An abundant source of saving.

Investment Share of GDP



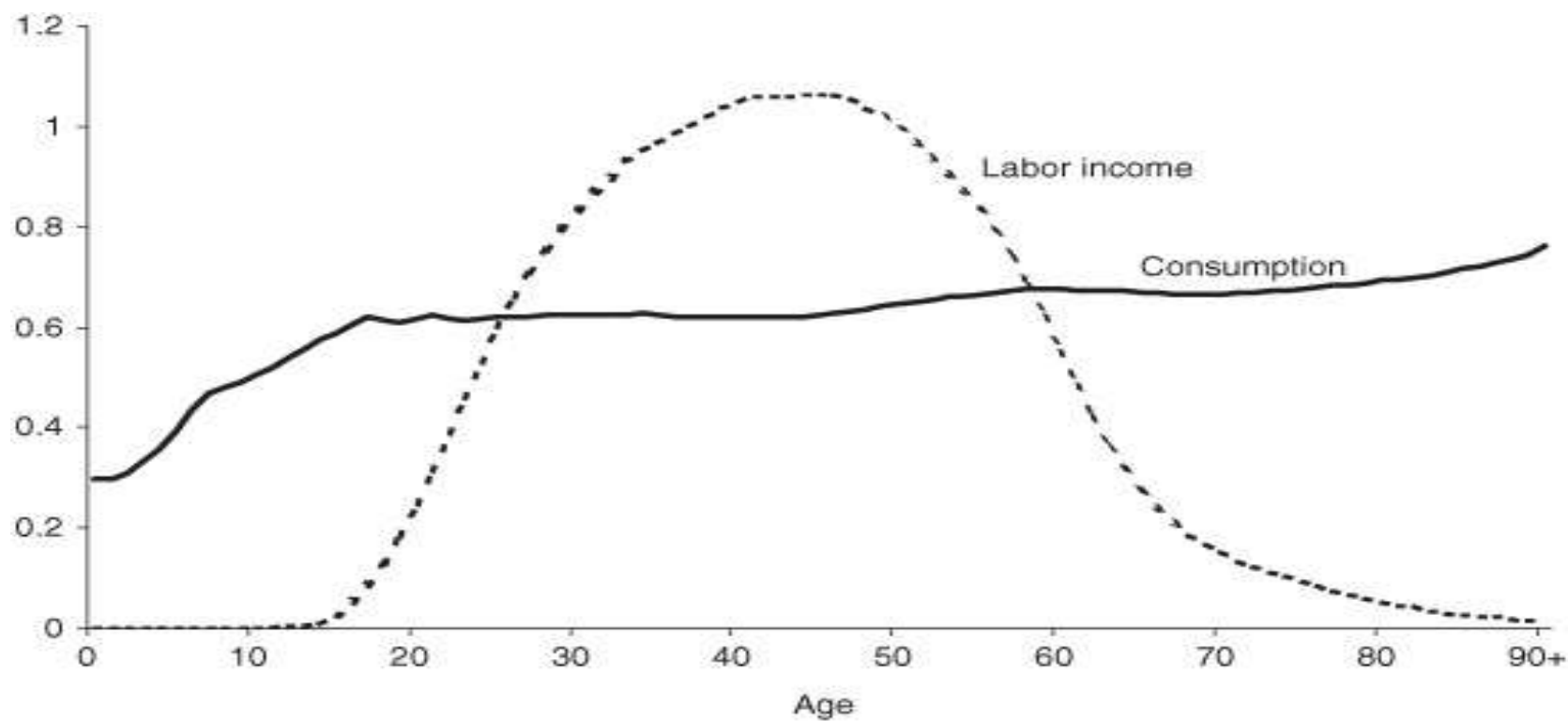
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Note: All values are simple averages of country values, normalized on per capita labor income of persons 30–49 years old.

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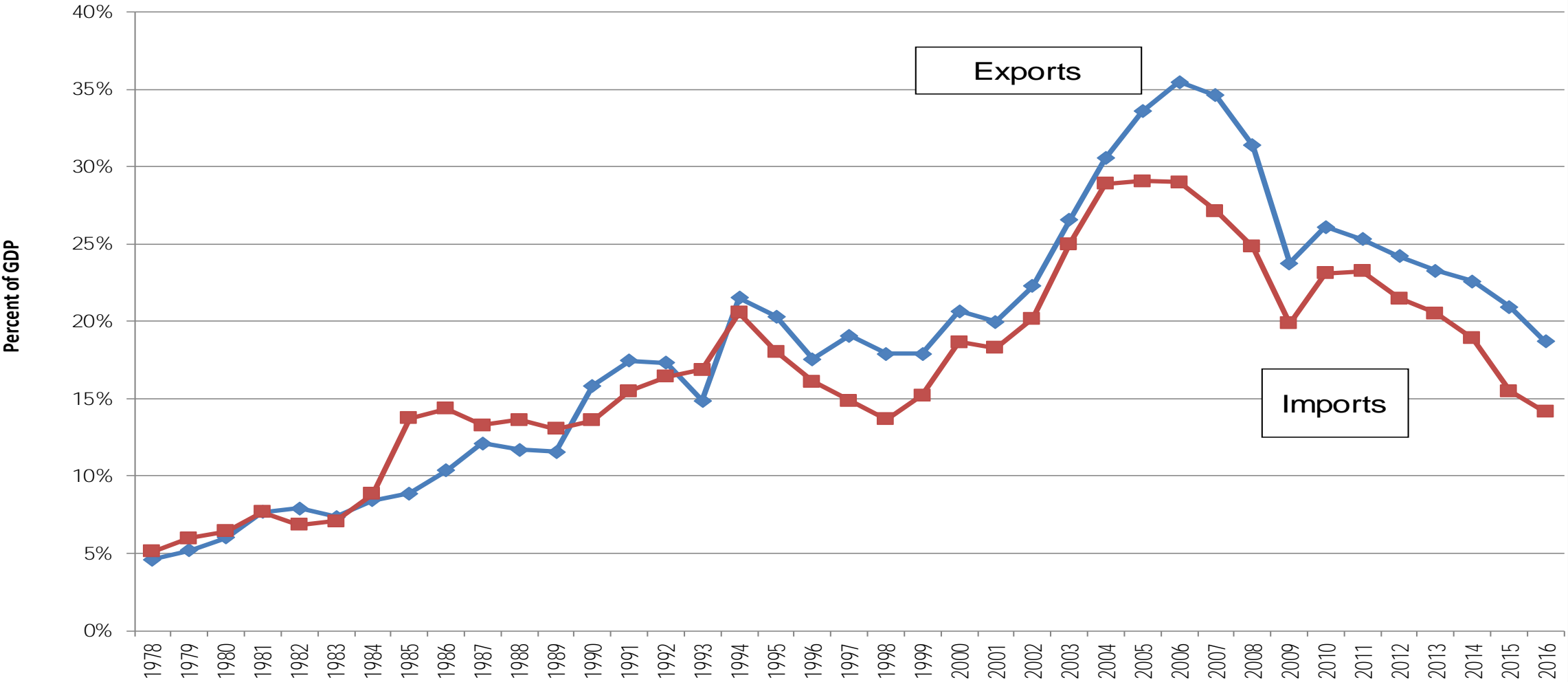
- Export Orientation.
 - Exchange rates were kept low;
 - Exporters were given favorable treatment;
 - Trade policy targeted export markets, esp. in the U.S.
- Domestic markets generally competitive and dominated by private businesses.
- High levels of investment in physical capital.
 - Government investment was significant.
 - Foreign investment played an important role.
 - Domestic private investment was also high.
- High levels of investment in human capital.
 - -

Under these conditions, the benefit of the demographic dividend could be reaped. The result was very rapid structural change: conversion from rural to urban, and from agriculture to modern industry and services.

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- All growth miracle economies have been export oriented (except perhaps Brazil).
- In the simplest sense, the highly elastic demand on the world market implies that expansion of labor-intensive manufacturing can continue almost without limits. Domestic demand does not constrain development.
- Inflows of external technology and saving can be large. Imitation and

Exports and Imports (Share of GDP)

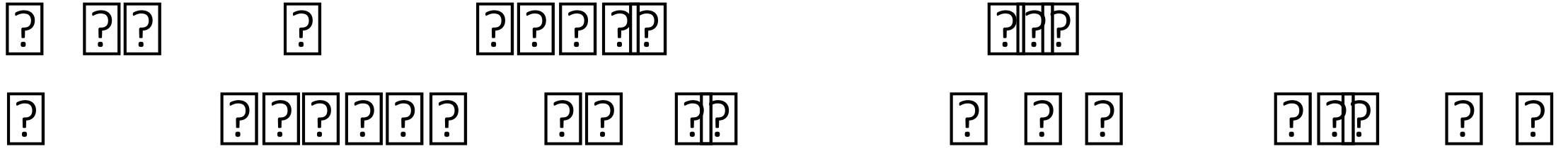


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1. Upward wage pressure; compounded by (politicized) push for improved working conditions, better benefits, and stronger unions.
2. Other cost pressures: higher real credit costs for the foreseeable future; modest RMB appreciation (index of PBC influence), etc.

True, China still possesses superb infrastructure; in-depth industrial supply base; still growing productivity; and opportunities in some sectors for the factory and changing work routines.



- Export expansion allows rapid structural change
- Income growth supports higher household saving, which contributes to higher investment rates.
- Rapid income growth, combined with higher human capital, makes the demographic transition (and demographic dividend) faster and more complete.
- Government policy contributes to higher investment.
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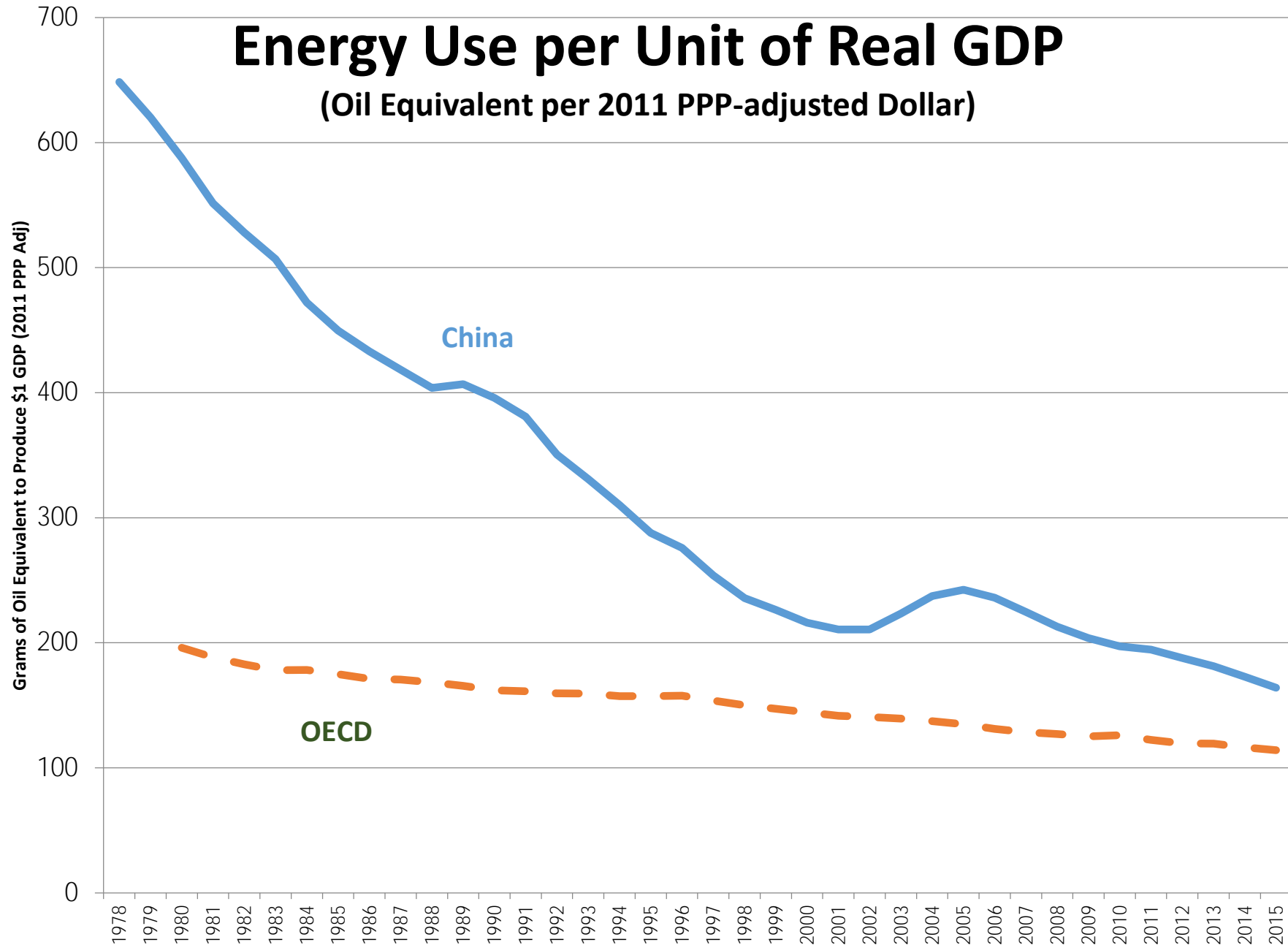
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We don't know all the answers, but part of the reason is:

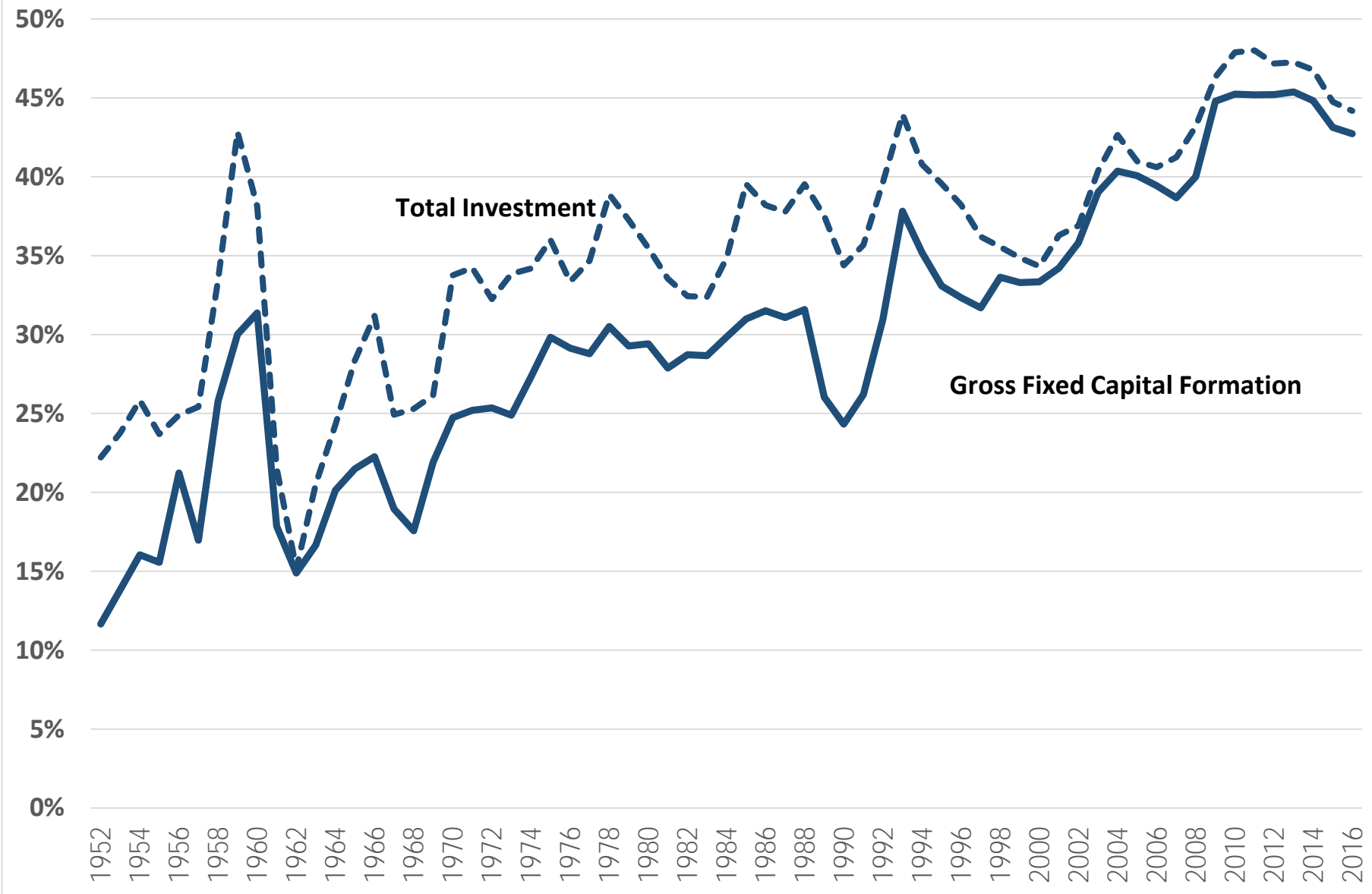
1. China's reported GDP per capita in 1978 was unusually low – the Cultural Revolution system produced “socialist poverty” and an unusually inefficient economy. When this system was unraveled, there was a surge of productivity and output, especially in the countryside.
2. China invested more than any other country!

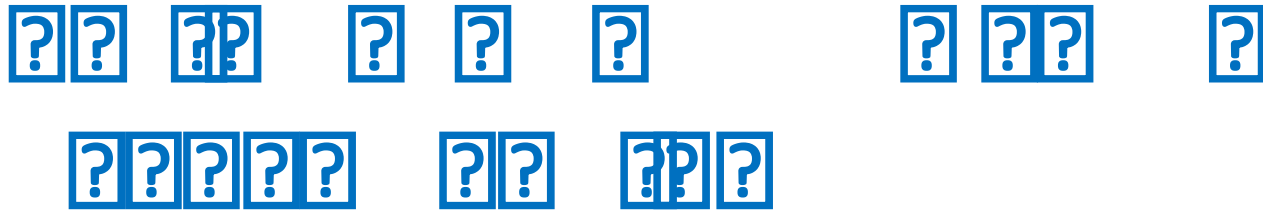
Energy Use per Unit of Real GDP

(Oil Equivalent per 2011 PPP-adjusted Dollar)

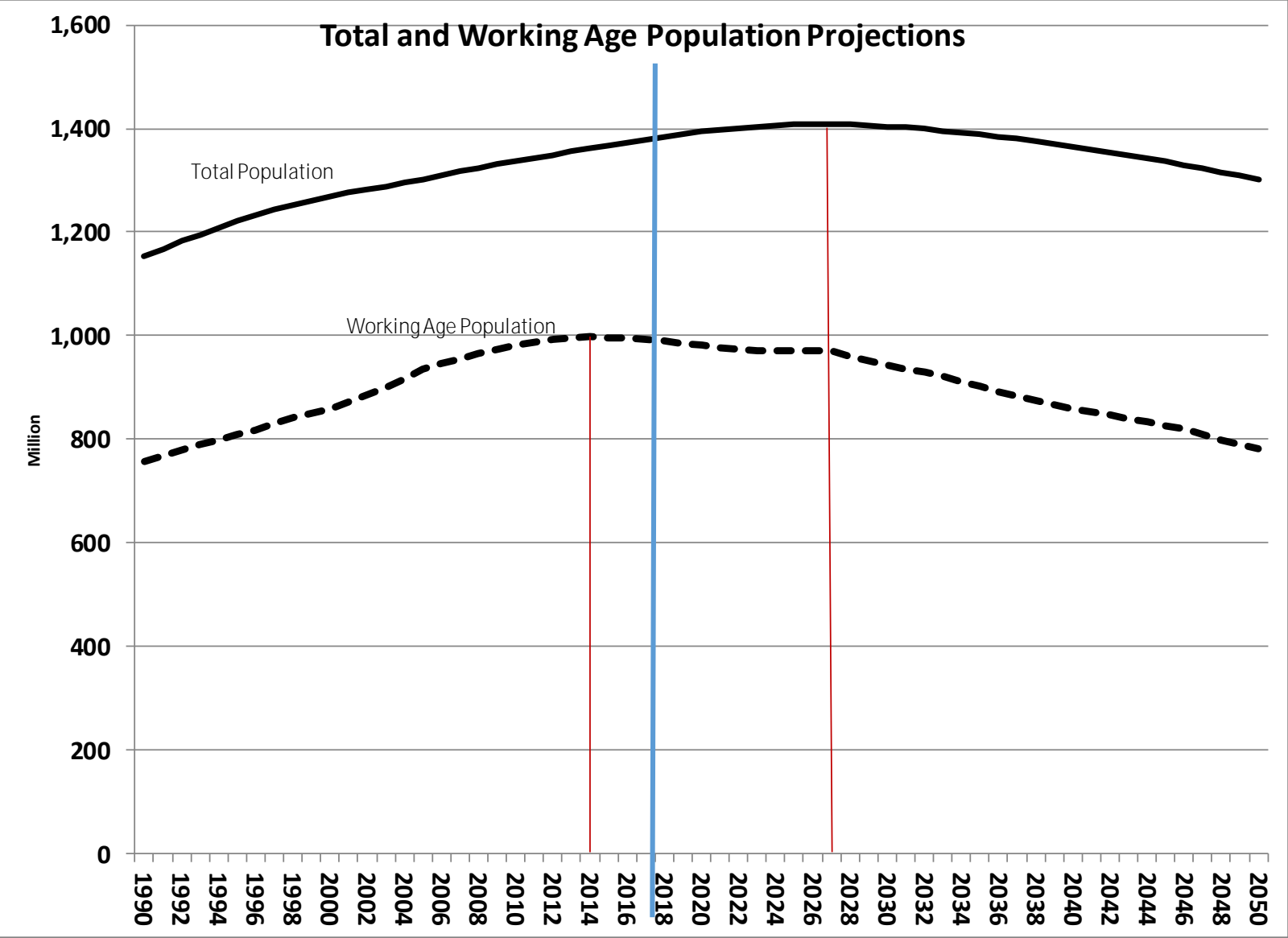


4.1 Investment as a Share of GDP





- Fundamental demographic and labor force factors:
 - A. Decline in aggregate labor force;
 - B. Reduction in rural-urban migration.
- Growth of capital stock converges to GDP growth if investment rate is unchanged; falls below if investment rate declines.
- Slower growth is not a bad thing! However, it is difficult to manage. If incomes increase at 6% per year, they double in 11 years.



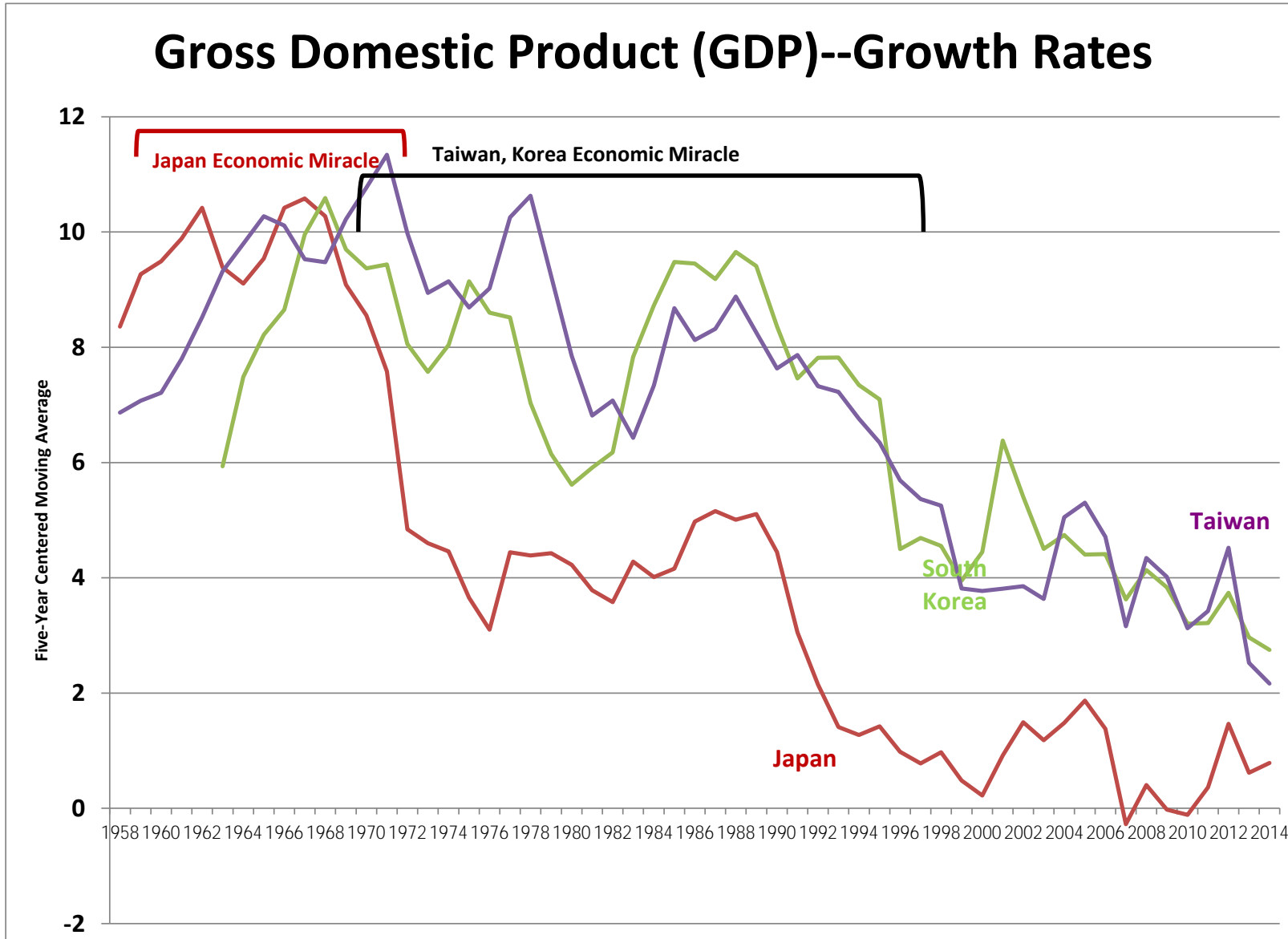
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China's Per Capita GDP (PPP) in International Context

PPP at Constant US\$ 2011 Prices

China	2017	\$15,000
Japan	1973	\$15,000
	1992	\$30,000
	2014	\$35,400
Korea, Republic of	1993	\$15,500
	1997	\$20,800
	2014	\$35,000

Source: Penn World Tables, Version 9.0

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- Nobody wants to accept the end of the very successful miracle growth period recognition is delayed.
- Rapid changes in cost conditions, and especially relative wages.
- Slowdown produces large changes in the return to investment, and therefore the types of investment needed usually investment drops, contributing to the slowdown.
- Institutional arrangements suited to the miracle growth era no longer work, and governments search for new institutions.
- Debt hangover from the mistaken investments at the end of the miracle growth period can be very difficult to deal with.

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1. China has probably reached the point where rural to urban migration is declining and perhaps ending (as returns equal new migrants). This is occurring much earlier than was the case in Japan.
2. In China, the demographic transition was completed more quickly, by compulsion, and at a lower level of income; so the **end** of the demographic dividend and the aging of society will also come more quickly, and at a lower level of income.
3. #
 declining. This occurred in Japan (and Korea) from 15 to 20 years **after** the structural changes above.
 - A. When this occurred in Japan, household saving declined. No sign of that yet in China!
 - B. Shrinking labor force affects the economy, but there is no good theory to explain why.

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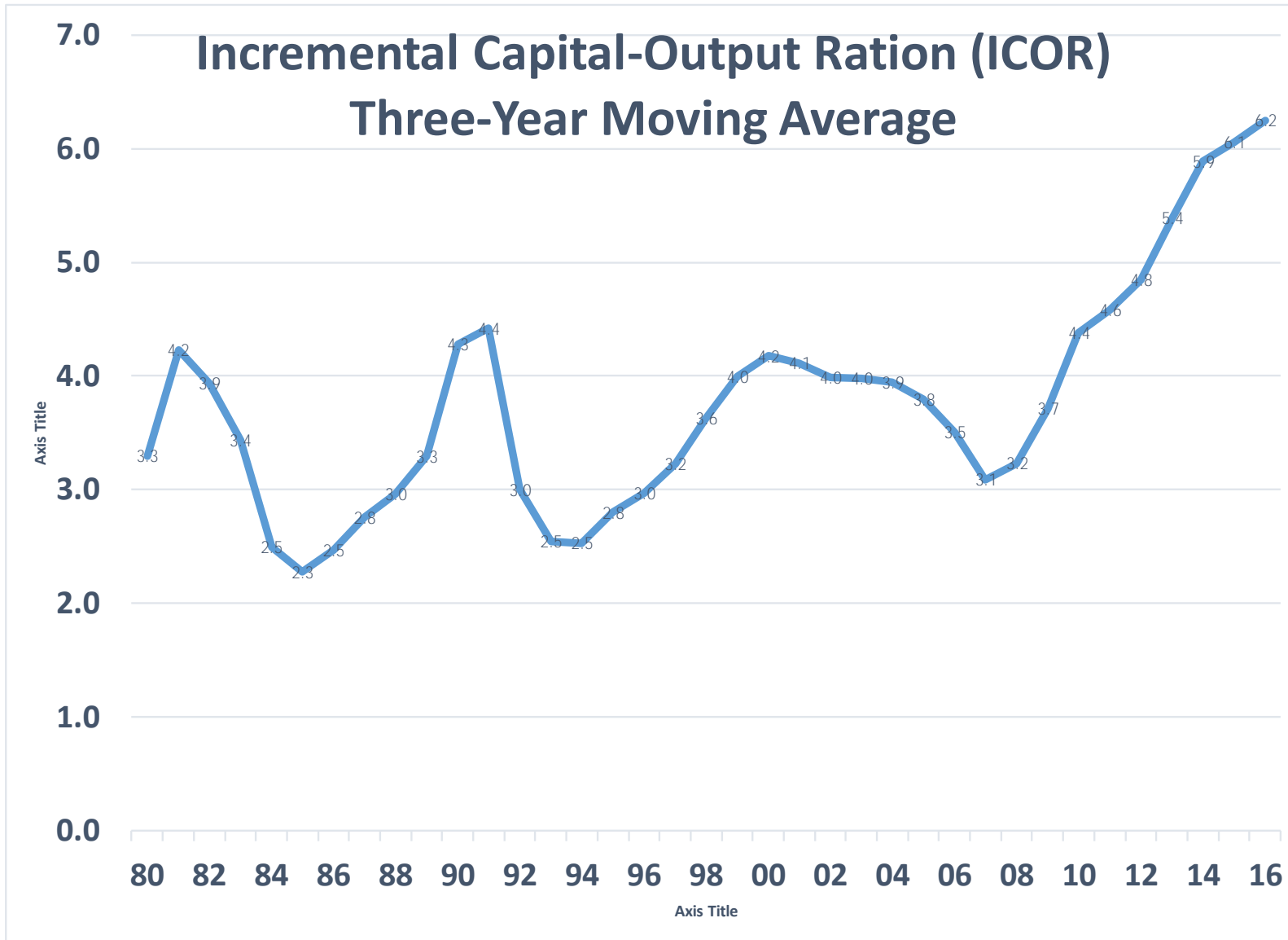
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hukou

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- The 2013 Third Plenum announced an acceleration of hukou conversion, with (later) a target of 100 million conversions by 2020.
- The way that data has been reported is not consistent with earlier data.
- While many smaller cities have significantly liberalized hukou access, larger cities put in place very rigorous point-count systems, often combined with quotas.
- Access to some big cities – especially Beijing and Shanghai – has become **more** difficult, and some existing migrants have even been forced to leave. Policy very contradictory.

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- The drive to higher technology industries: Strategic Emerging Industries
- Infrastructure investment, including High Speed Rail
- The One Belt, One Road Initiative
- Even the attempt to build State-owned Enterprises AND private enterprises into National Champions
- Extremely high levels of investment in human capital, including college graduates in science and engineering.

Human Capital
Investment
Also High

