



# Global Aging and Financial Markets

## *Overview Presentation*

by

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**CSIS Global Aging Initiative**

**MA's 16th Annual Washington Policy Seminar**

*Cosponsored by*

*Macroeconomic Advisers, LLC*

*Council on Foreign Relations*

*Center for Strategic & International Studies*

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# Structure of the Presentation.

## PART I: The Demographic Transformation

- ▶ *overview of global demographic trends*

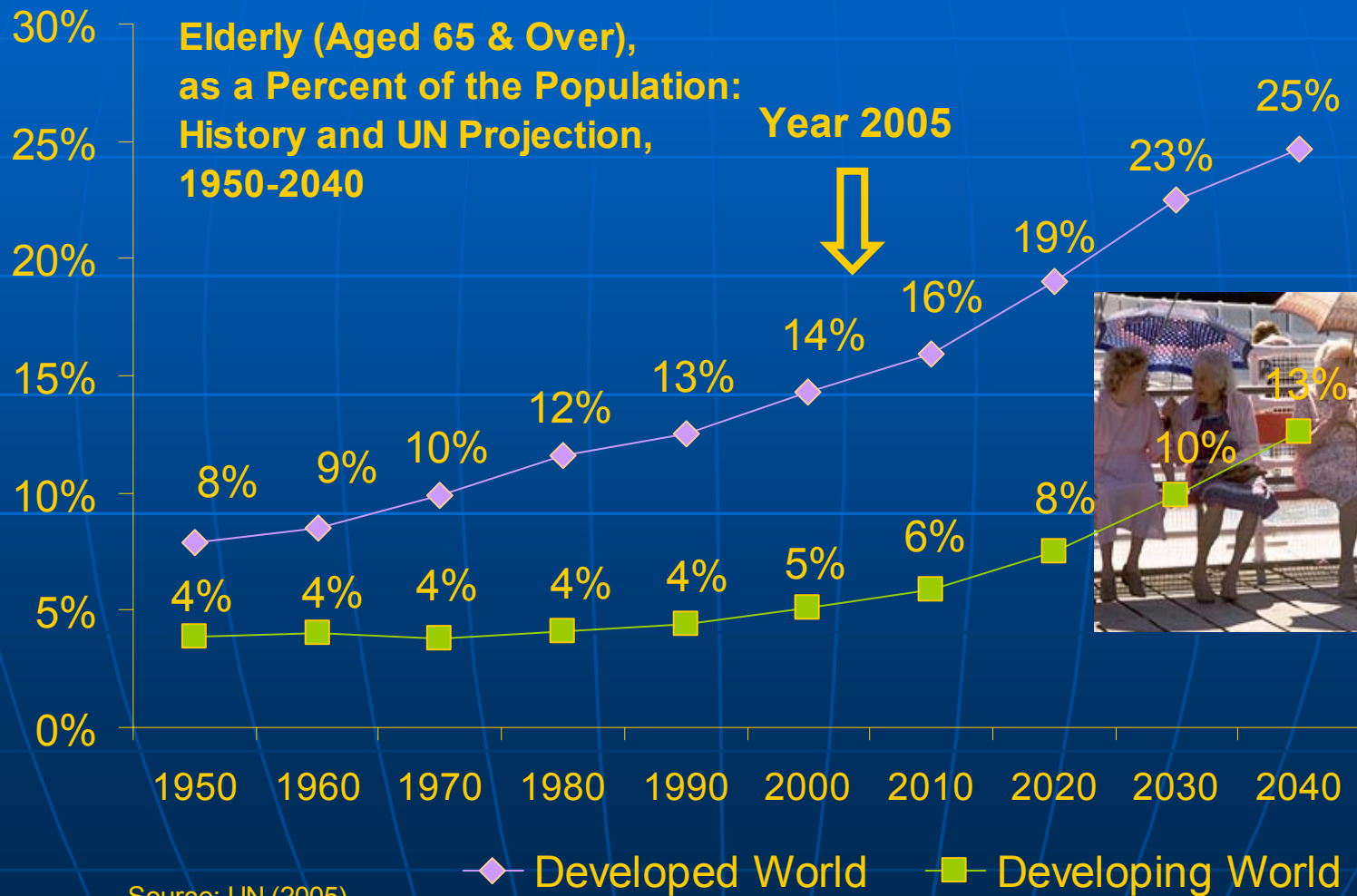
## PART II: Implications for Financial Markets

- ▶ *overview of the principal linkages  
between demography and financial markets*

# **Part I**

## **The Demographic Transformation**

# The whole world is aging—and today's developed countries are leading the way.



Source: UN (2005)

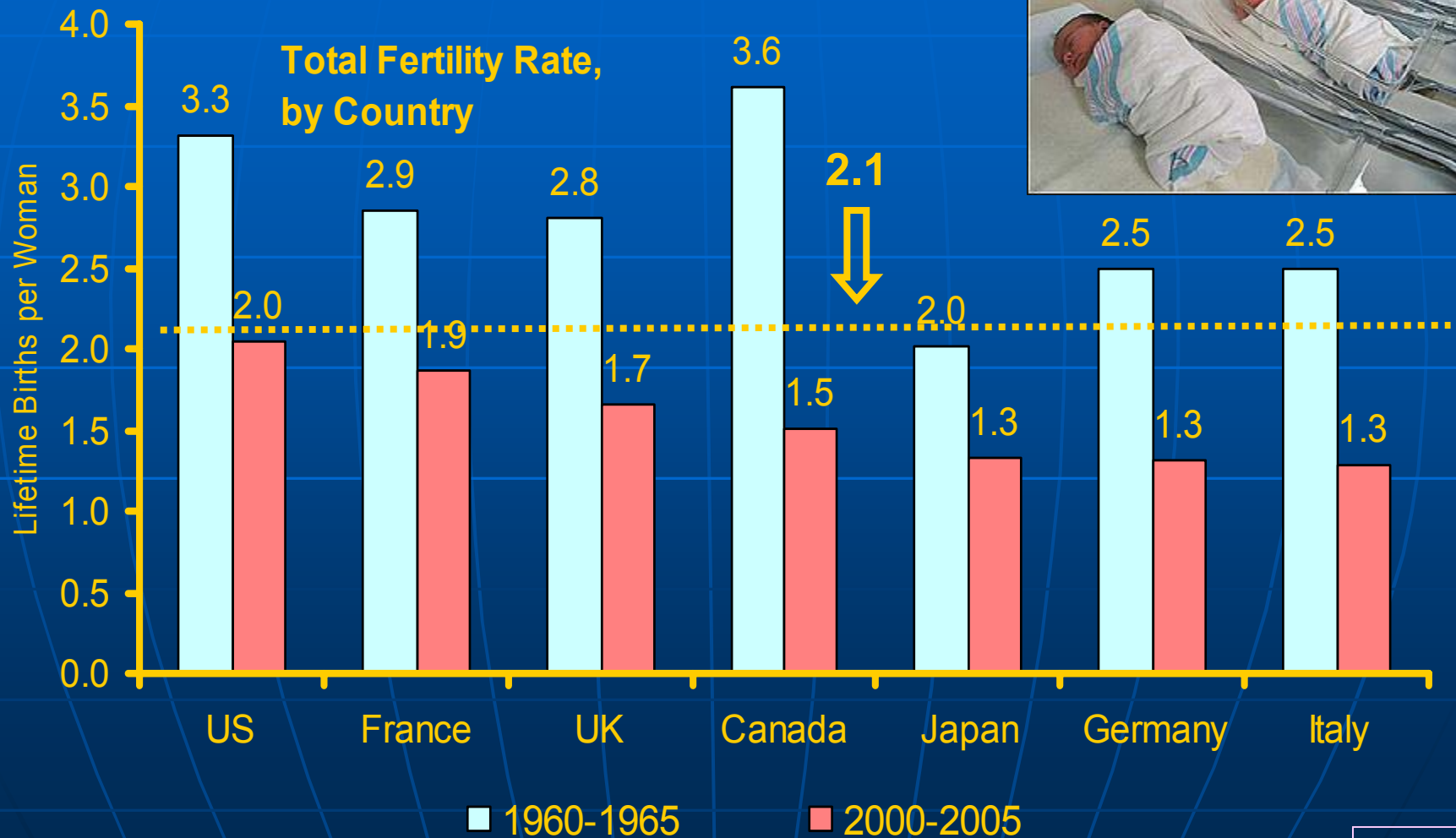
# The first force behind global aging: **FALLING FERTILITY.**

Global aging is what happens when  
people start having fewer babies.

Lower fertility shrinks the relative  
number of younger people in the  
population.



# Fertility in the developed world has fallen beneath the "replacement rate" of 2.1.



Source: UN (2005)



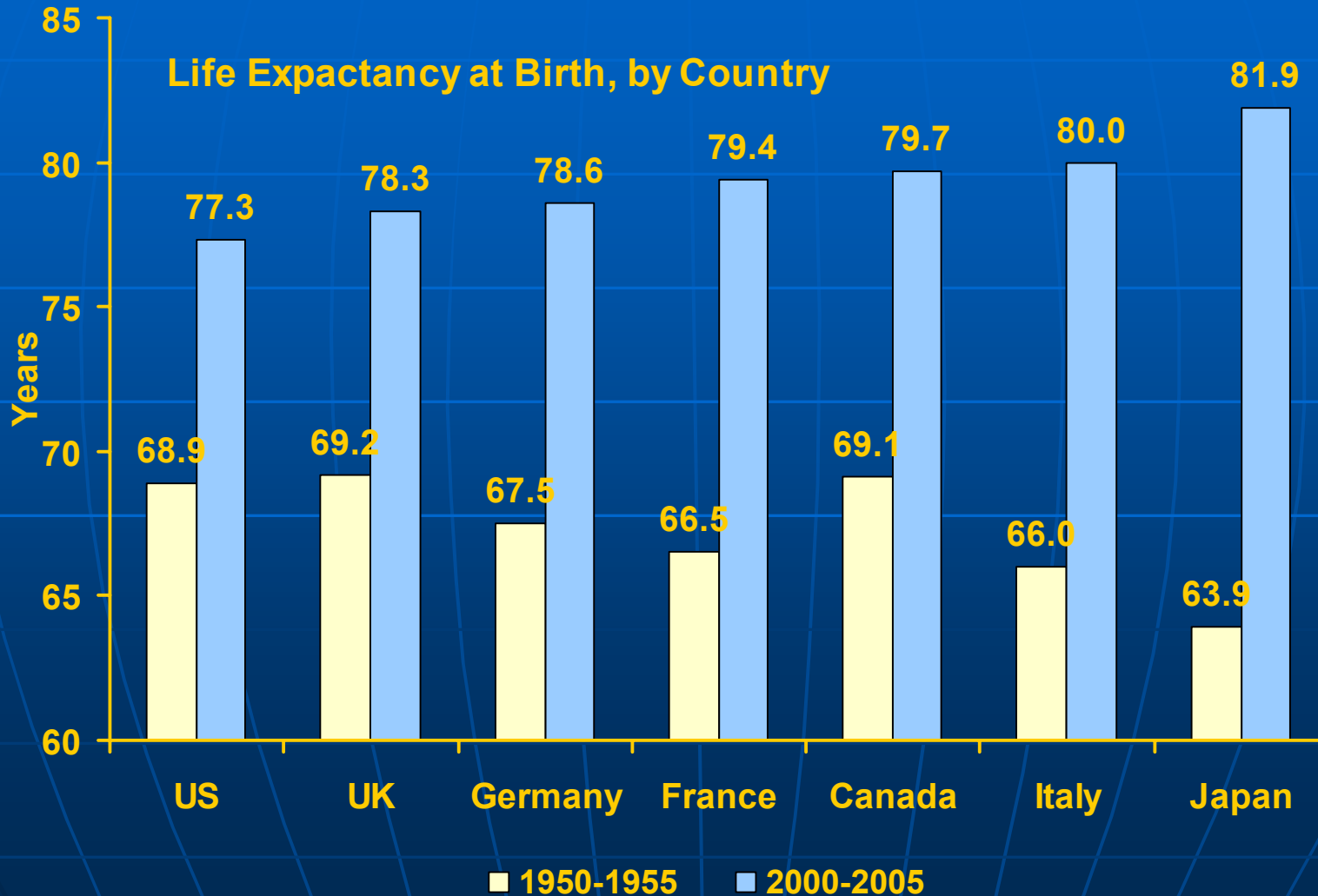
# The second force behind global aging: **RISING LONGEVITY.**

Global aging is what happens when  
people start living longer.

Longer life spans enlarge the relative  
number of older people in the  
population.



# Life spans in the developed world have risen rapidly over the past half century.

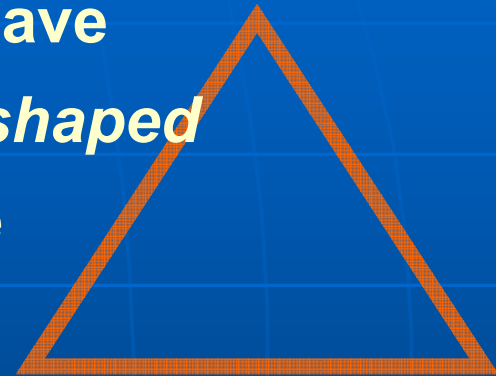


Source: UN (2005)



# A historic transformation approaches—the “inversion” of the age pyramid.

Populations throughout history have all shown a steep *pyramid-shaped* age distribution—with more young than old people.

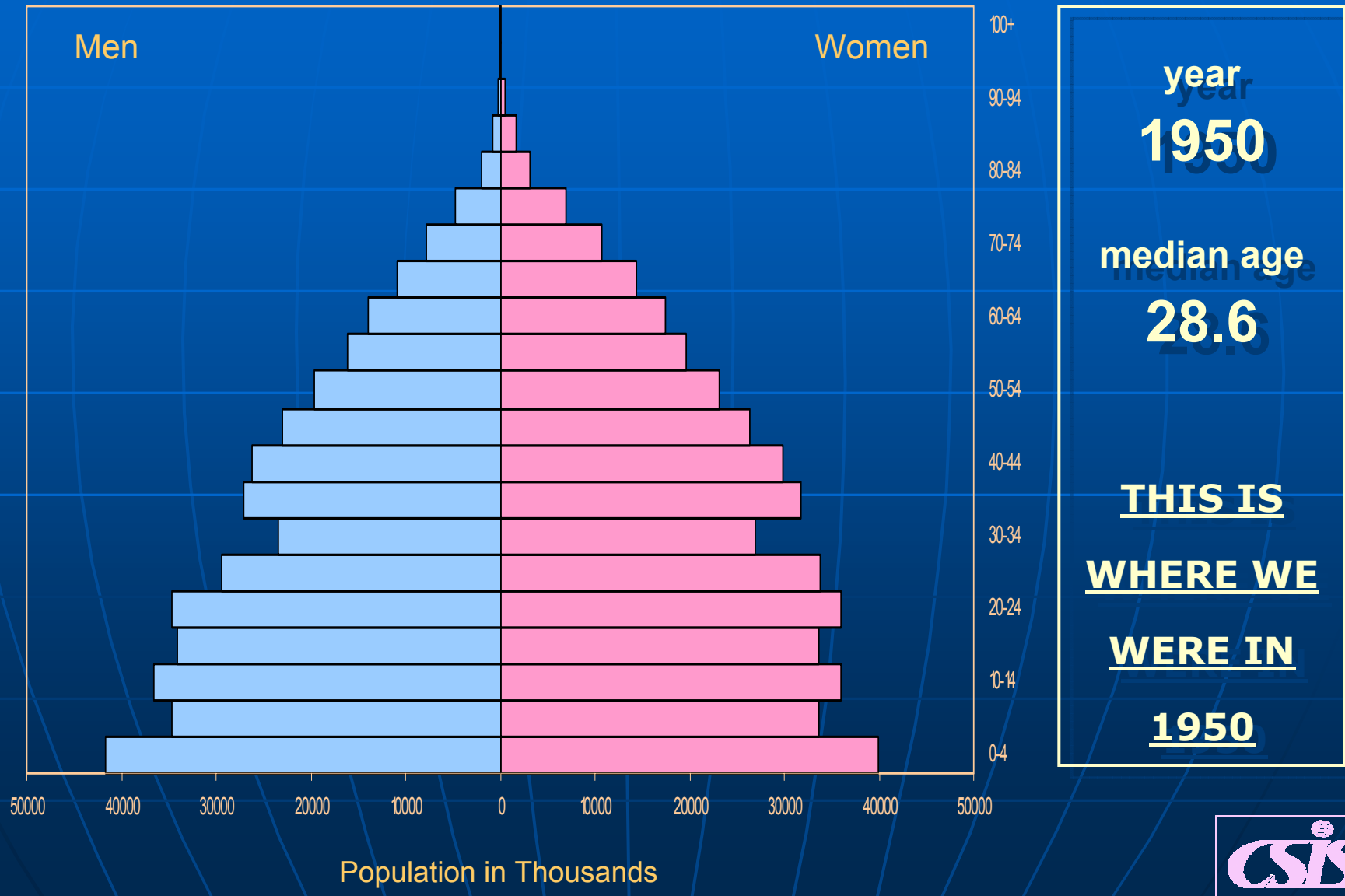


In the near future, starting with developed countries, the distribution will transform into an *inverted pyramid*—with more old than young people.



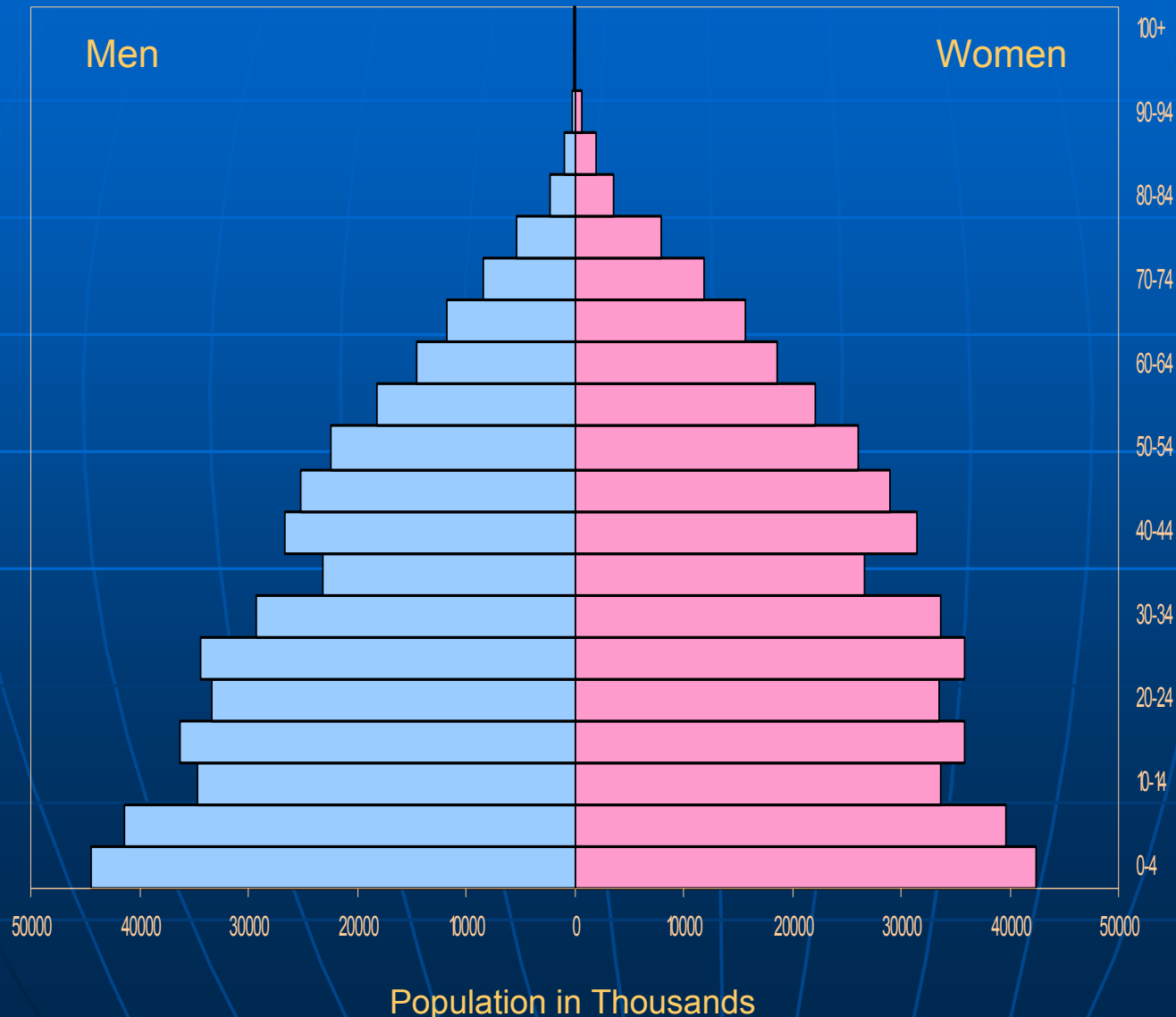
# Pyramid inversion in the developed world— 1950 to 2050.

■ More Developed Regions: UN Constant Fertility Scenario



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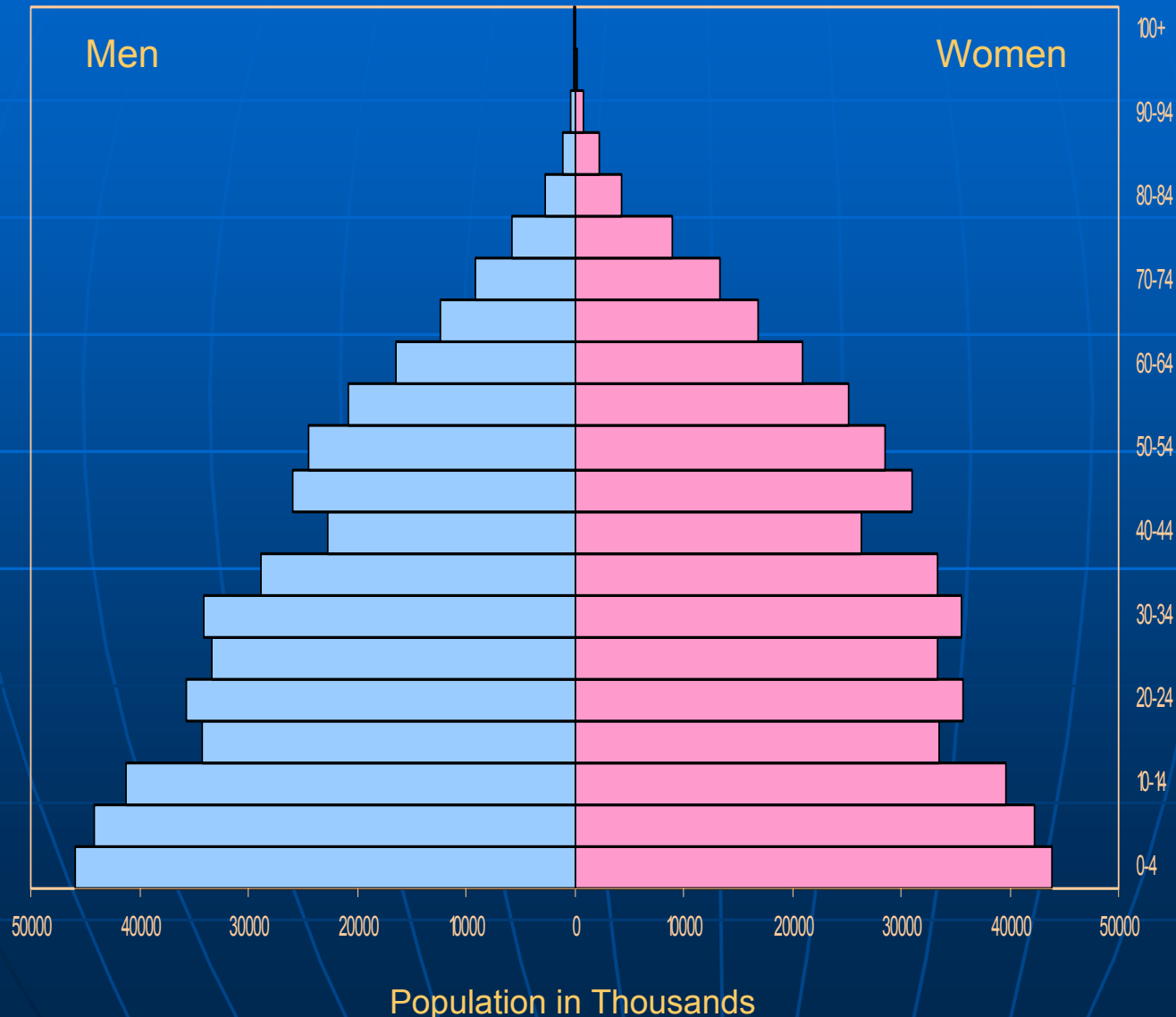


year  
**1955**  
median age  
**29.0**



# Pyramid inversion in the developed world— 1950 to 2050.

- More Developed Regions: UN Constant Fertility Scenario

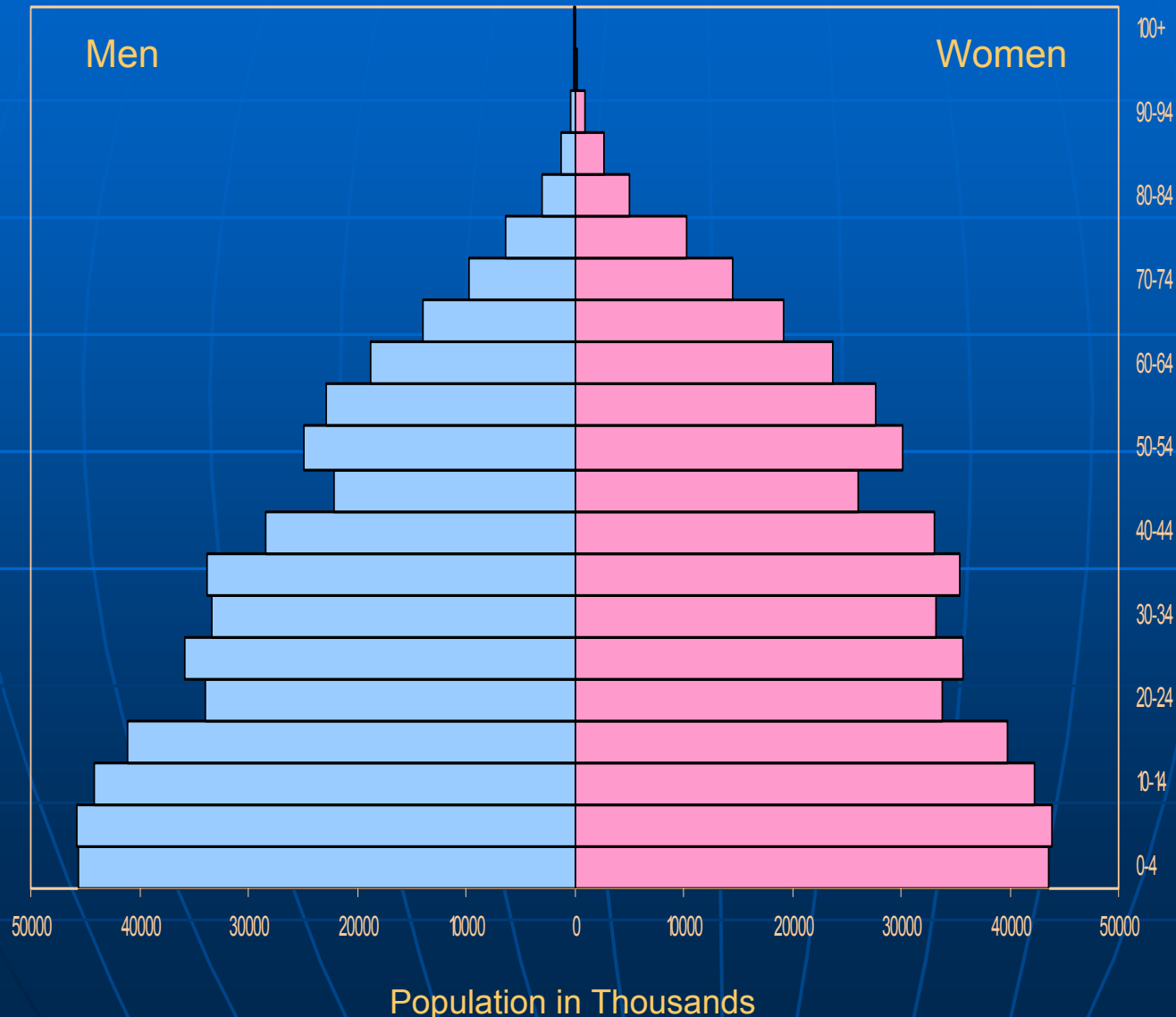


year  
**1960**  
median age  
**29.6**



# Pyramid inversion in the developed world— 1950 to 2050.

- More Developed Regions: UN Constant Fertility Scenario

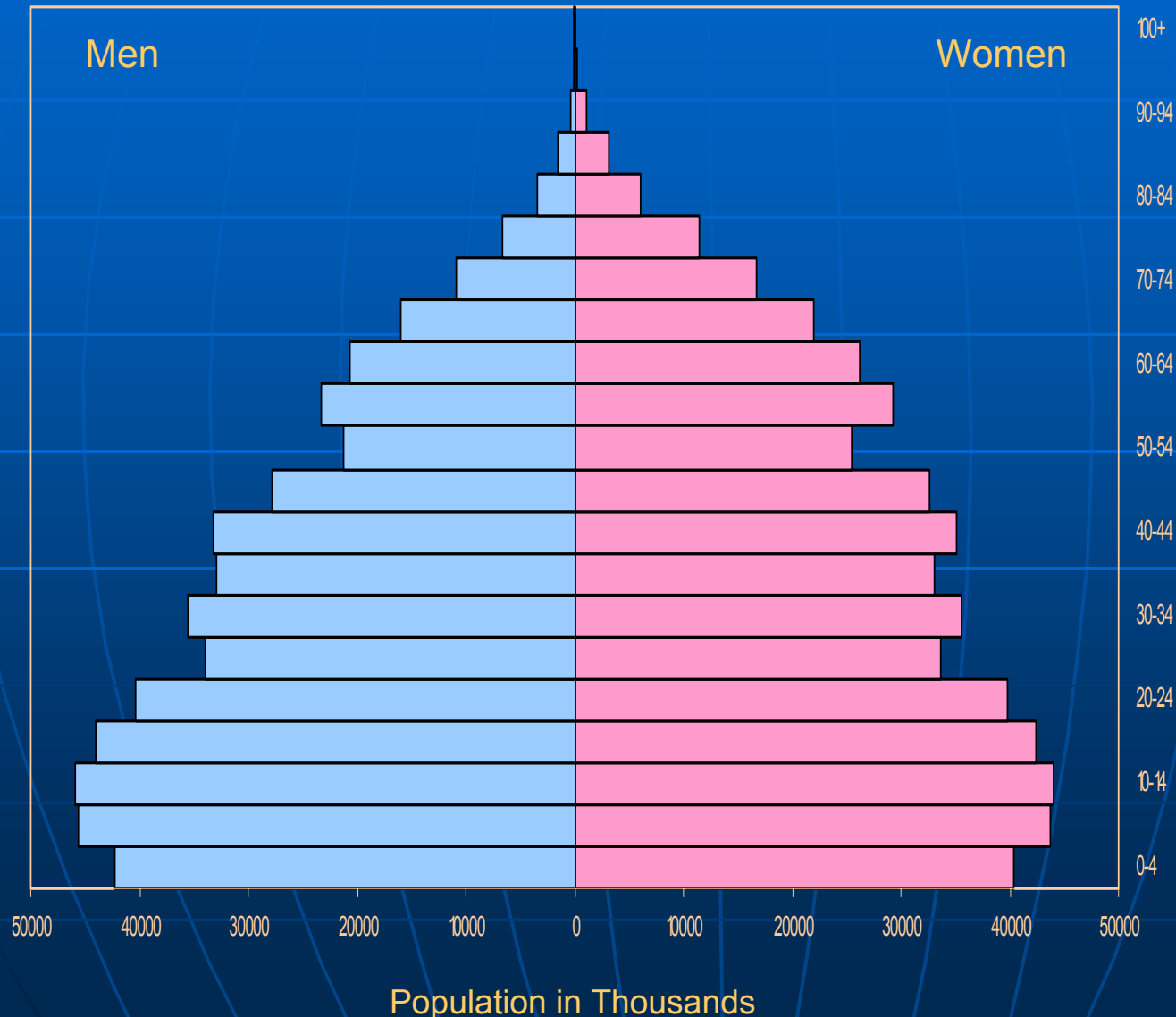


year  
**1965**  
median age  
**29.8**



# Pyramid inversion in the developed world— 1950 to 2050.

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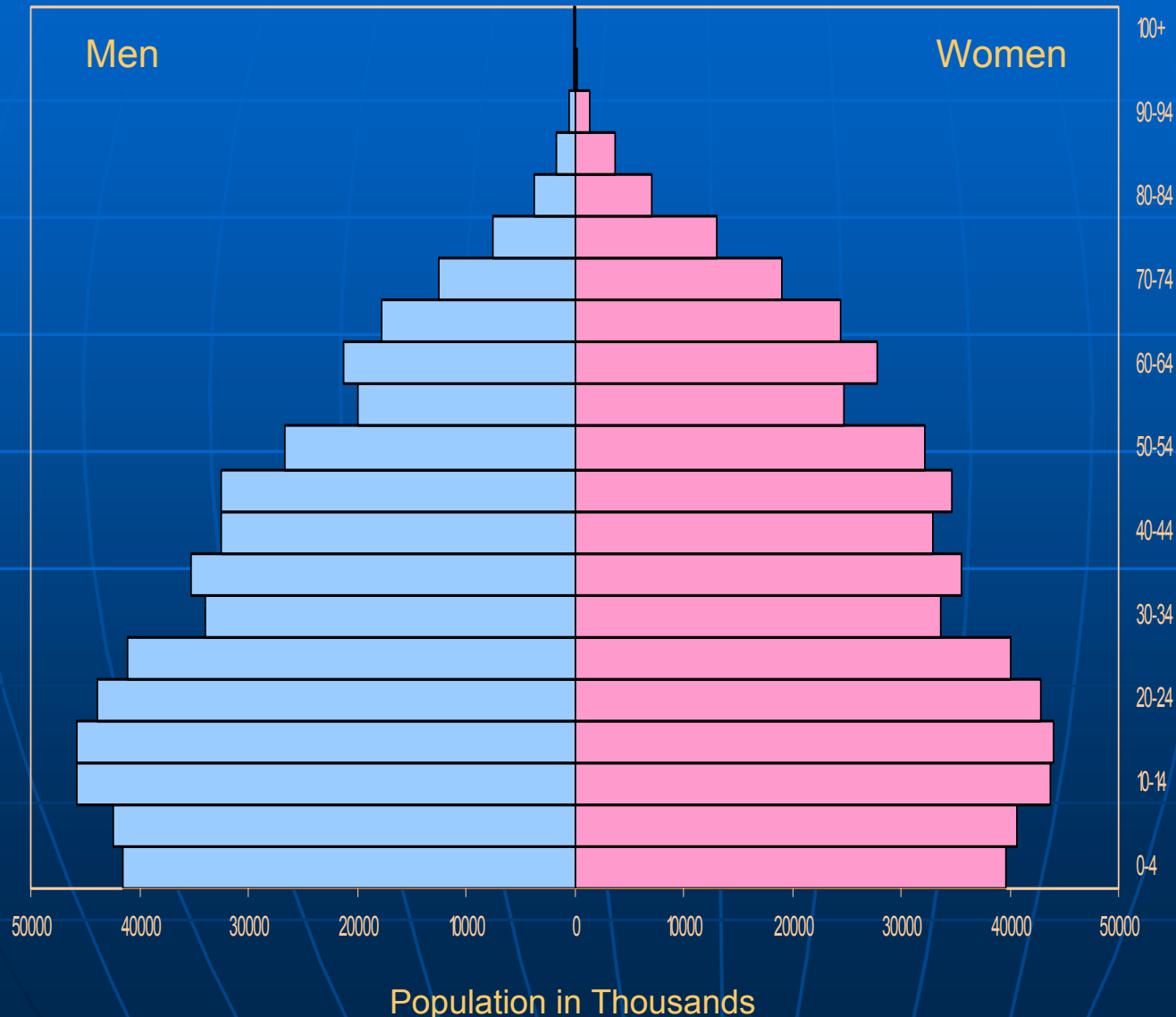


year  
**1970**  
median age  
**30.6**



# Pyramid inversion in the developed world— 1950 to 2050.

■ More Developed Regions: UN Constant Fertility Scenario



year  
**1975**

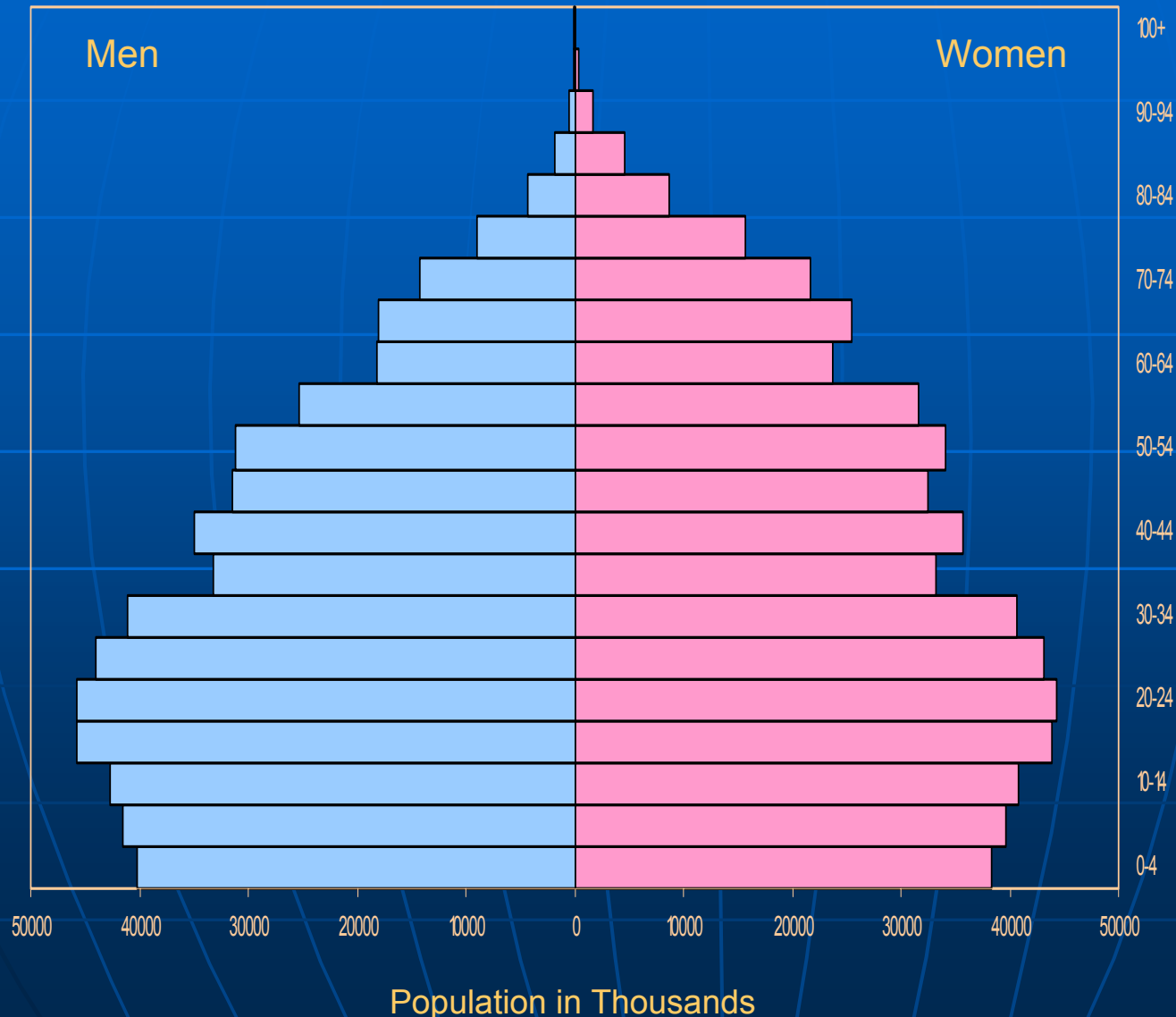
median age  
**30.9**





# Pyramid inversion in the developed world— 1950 to 2050.

■ More Developed Regions: UN Constant Fertility Scenario

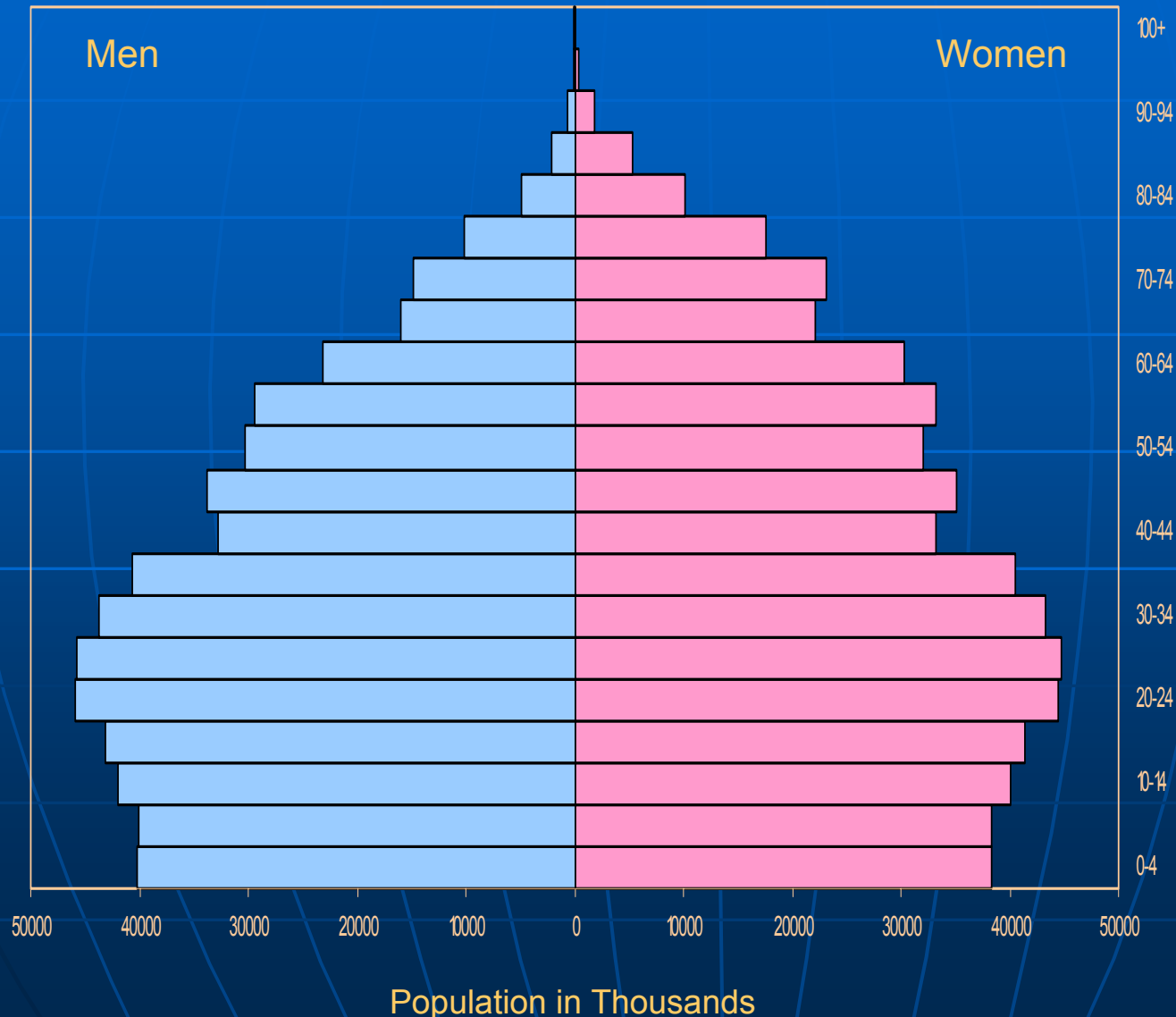


year  
**1980**  
median age  
**31.9**



# Pyramid inversion in the developed world— 1950 to 2050.

■ More Developed Regions: UN Constant Fertility Scenario

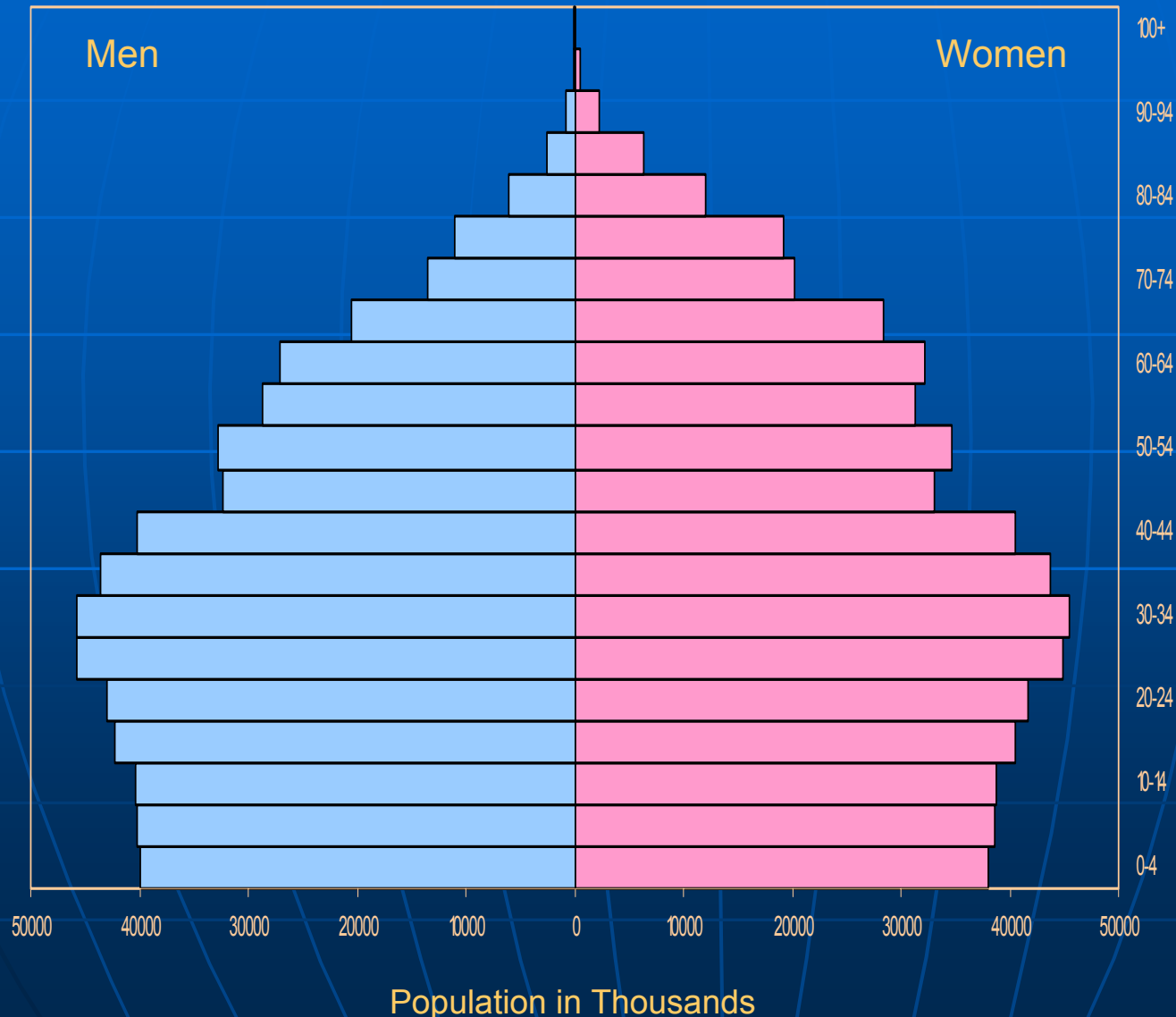


year  
**1985**  
median age  
**33.1**



# Pyramid inversion in the developed world— 1950 to 2050.

■ More Developed Regions: UN Constant Fertility Scenario

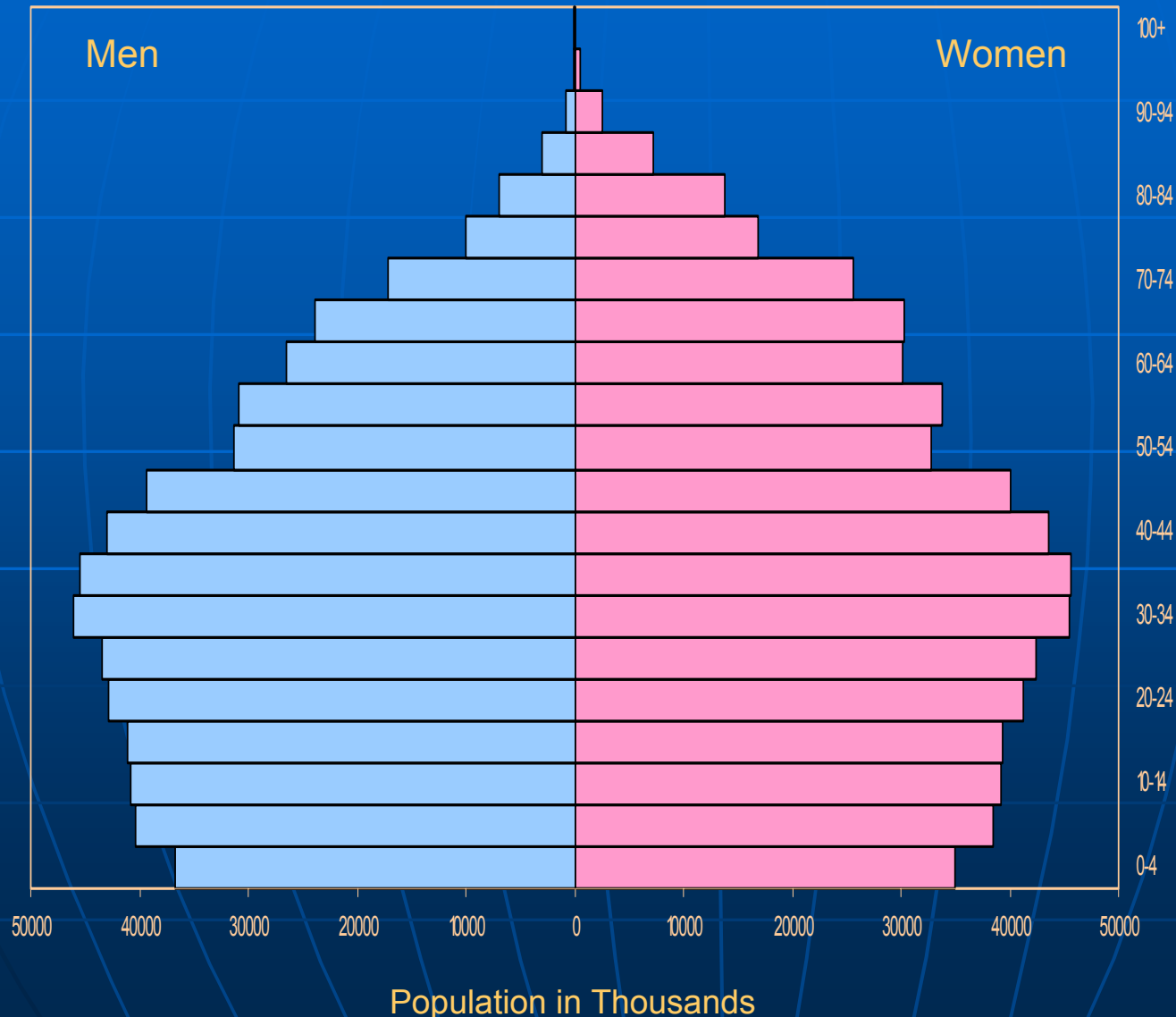


year  
**1990**  
median age  
**34.4**



# Pyramid inversion in the developed world— 1950 to 2050.

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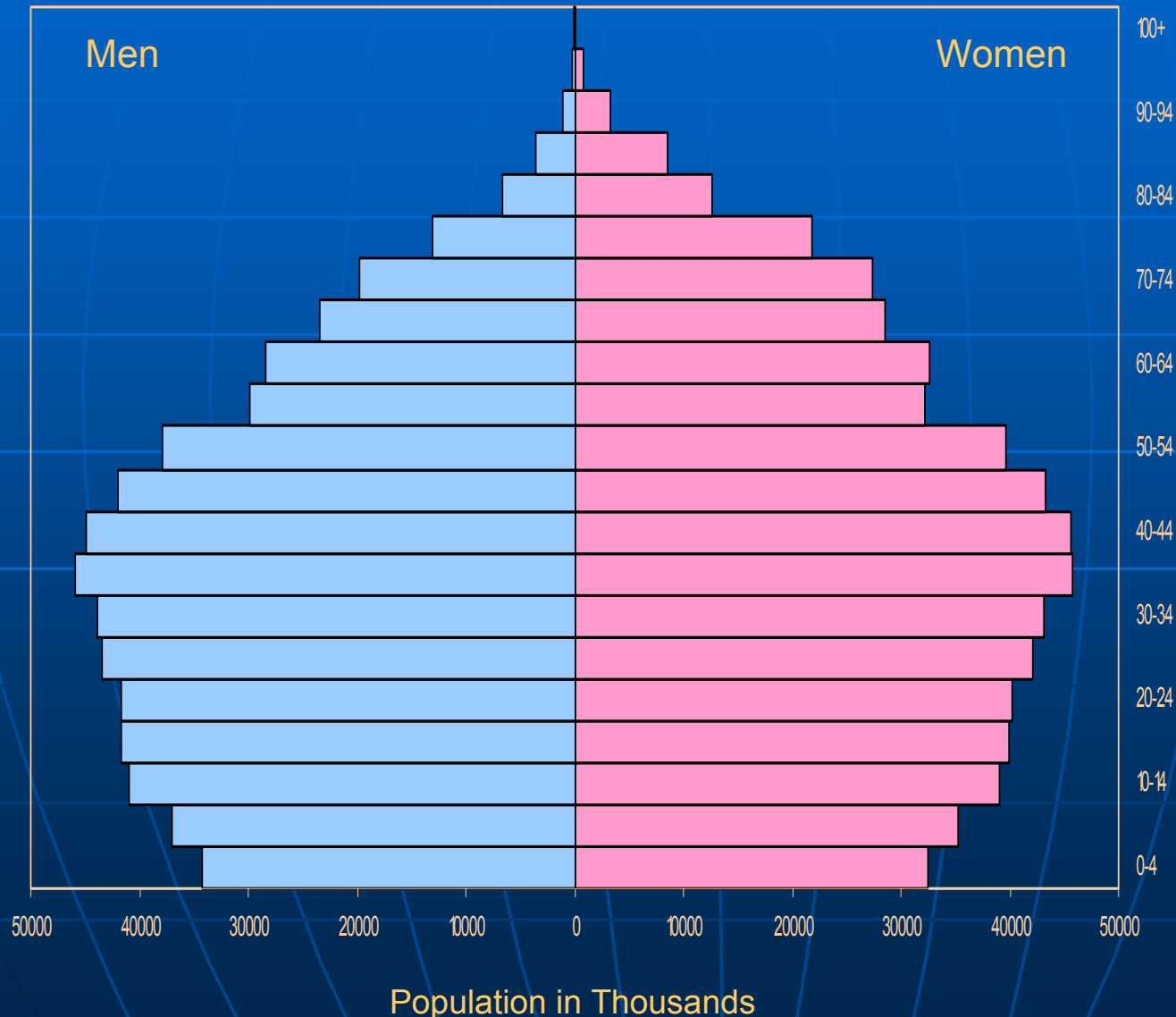


year  
**1995**  
median age  
**35.8**



# Pyramid inversion in the developed world— 1950 to 2050.

■ More Developed Regions: UN Constant Fertility Scenario



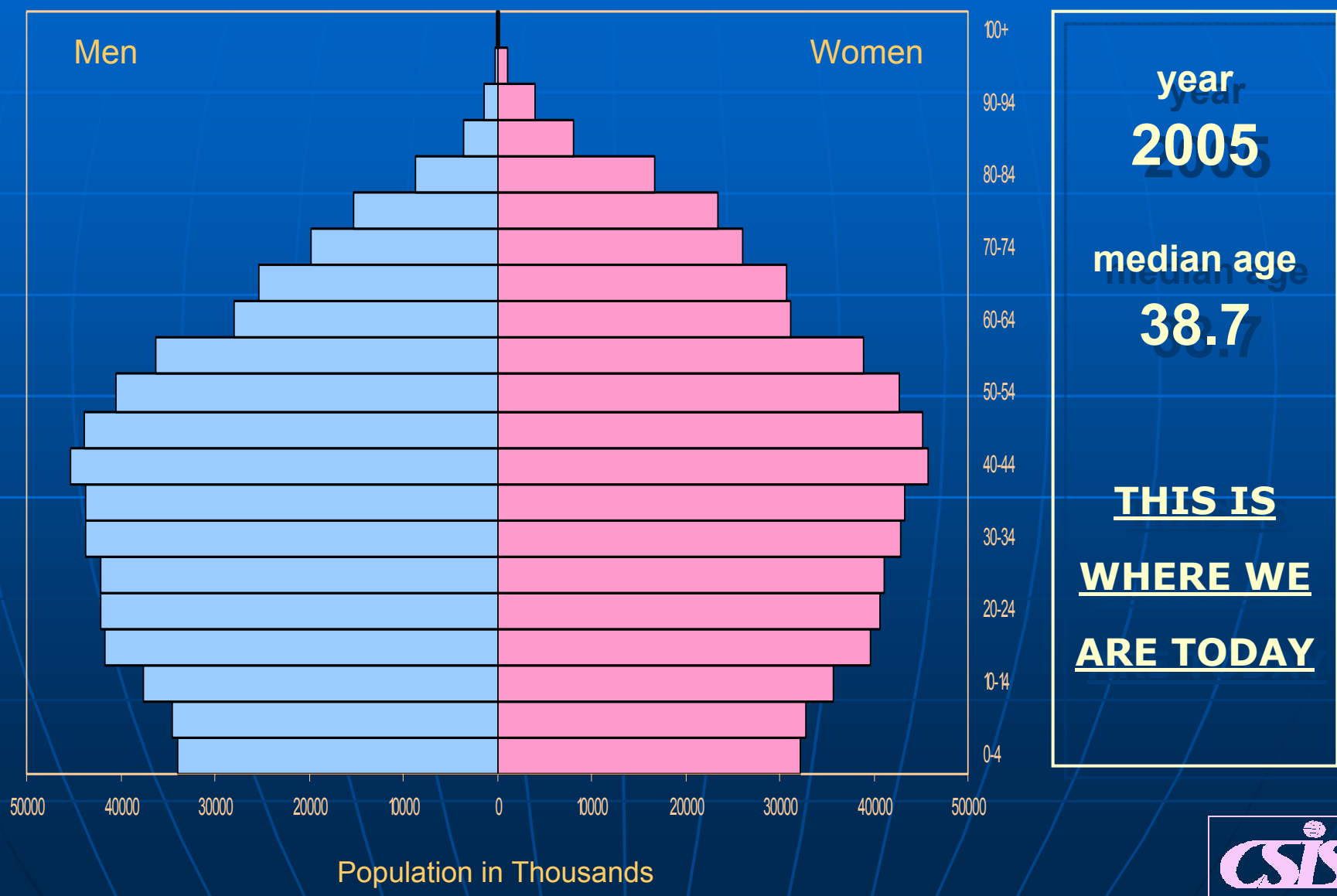
year  
**2000**

median age  
**37.3**



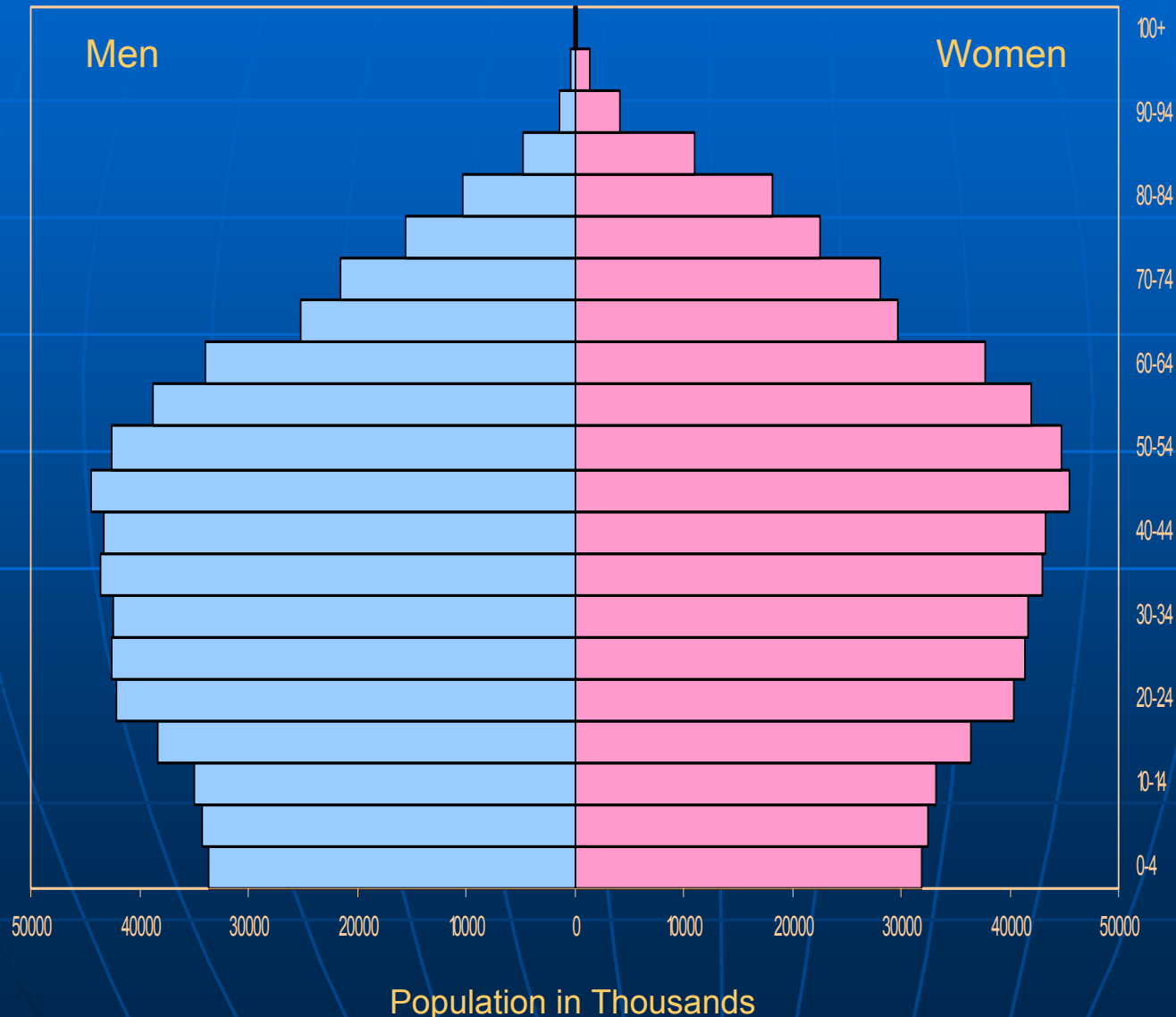
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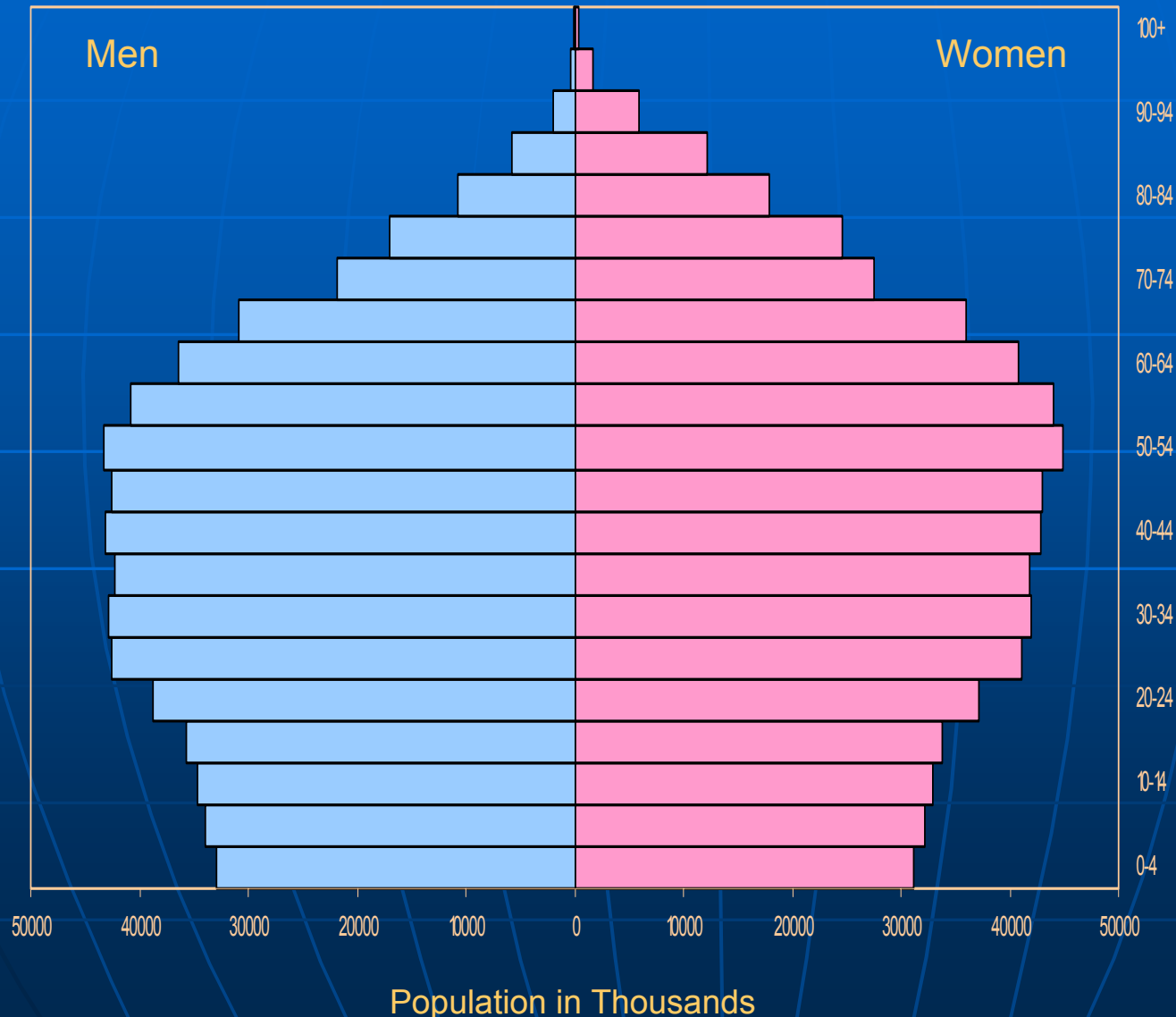
year  
**2010**  
median age  
**40.0**





# Pyramid inversion in the developed world— 1950 to 2050.

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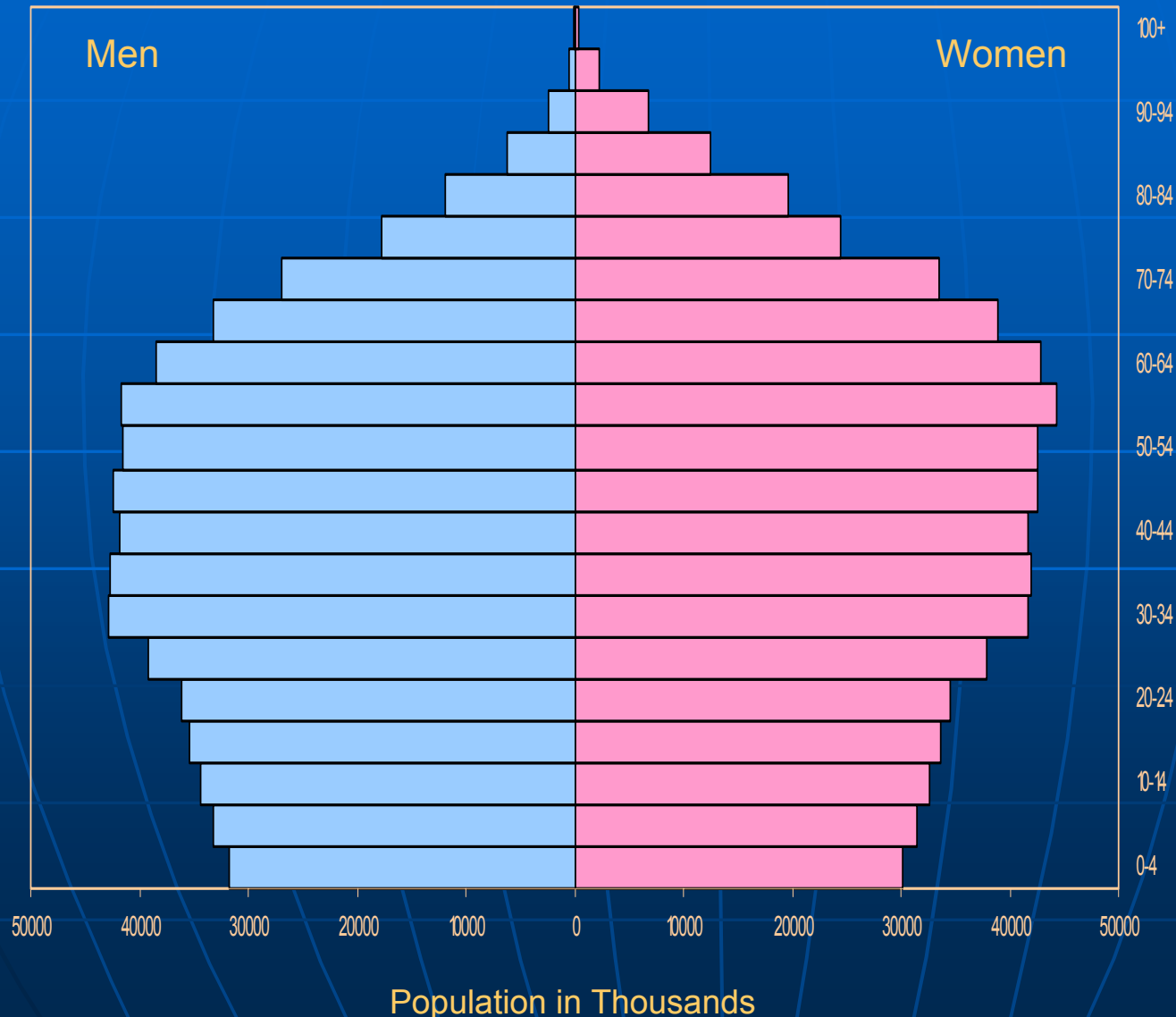


year  
**2015**  
median age  
**41.2**



# Pyramid inversion in the developed world— 1950 to 2050.

■ More Developed Regions: UN Constant Fertility Scenario

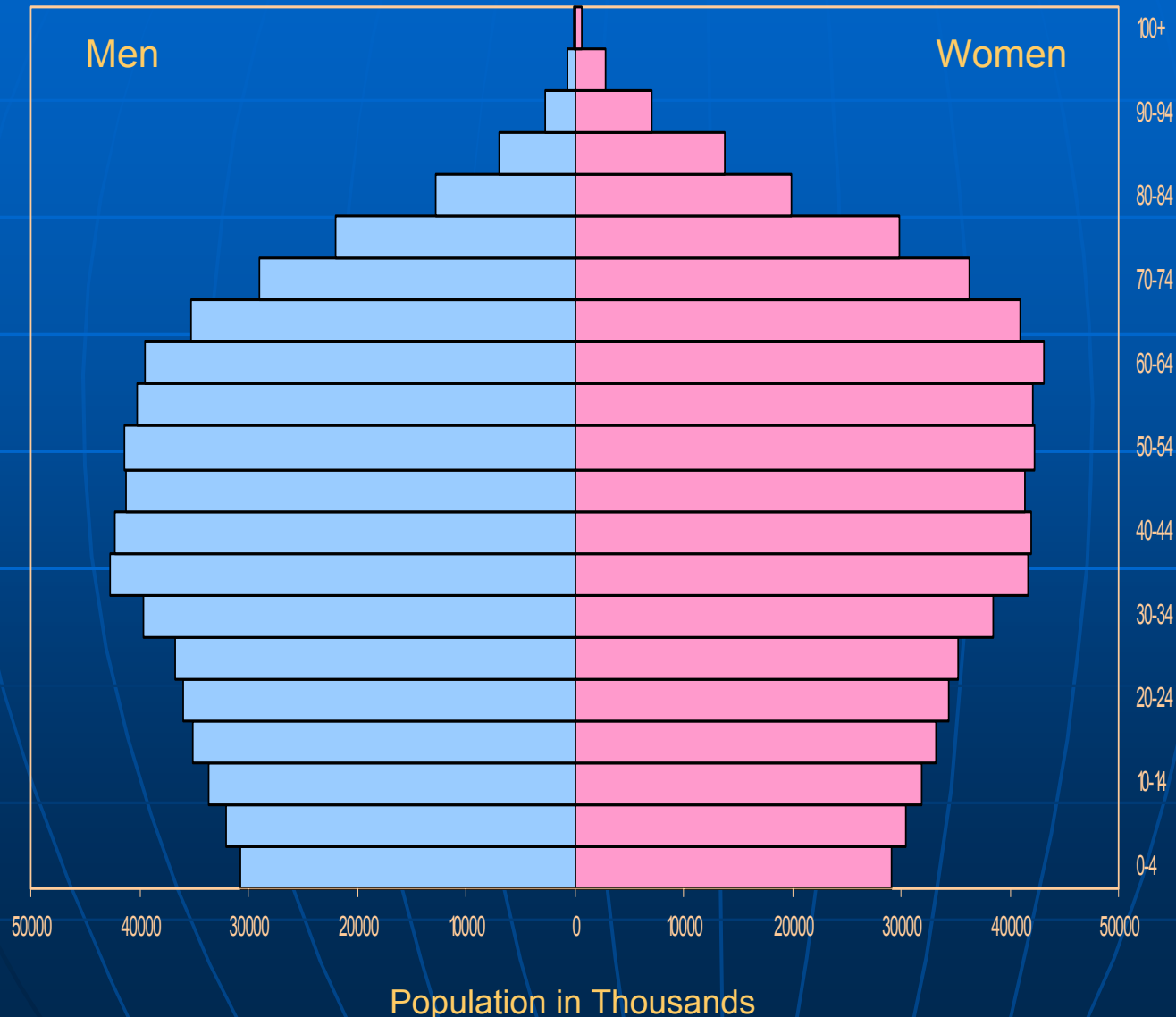


year  
**2020**  
median age  
**42.3**



# Pyramid inversion in the developed world— 1950 to 2050.

■ More Developed Regions: UN Constant Fertility Scenario

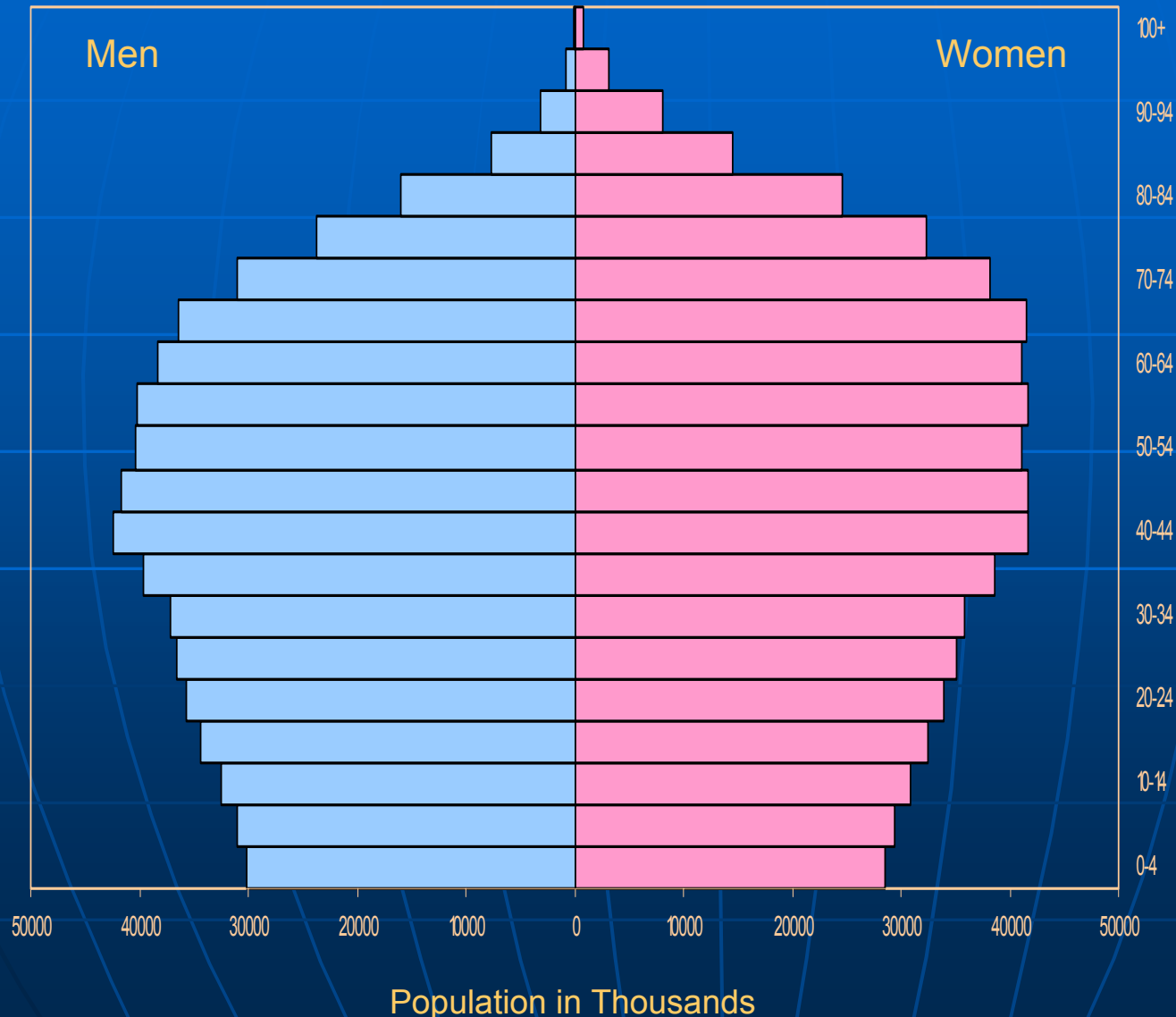


year  
**2025**  
median age  
**43.4**



# Pyramid inversion in the developed world— 1950 to 2050.

■ More Developed Regions: UN Constant Fertility Scenario

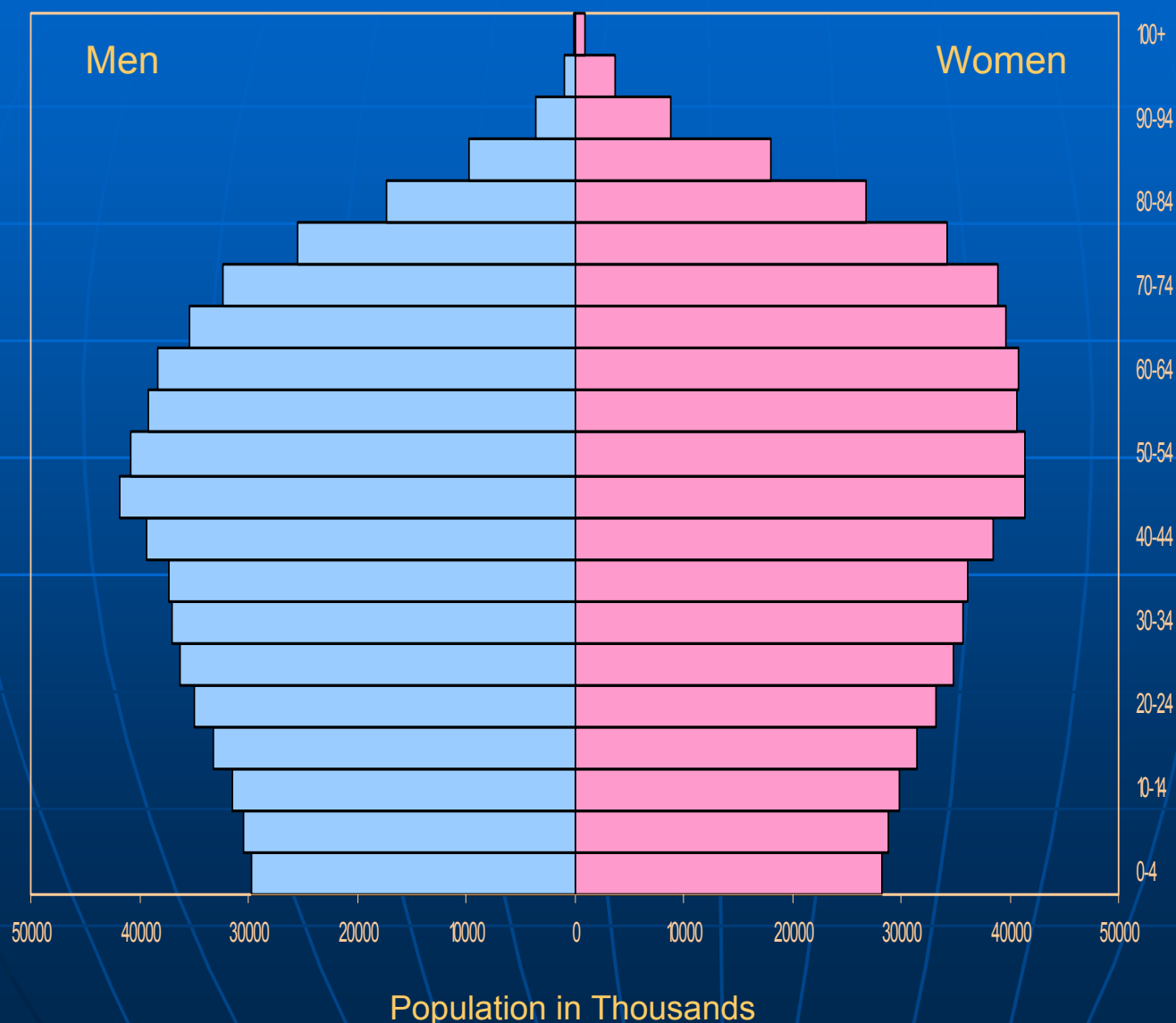


year  
**2030**  
median age  
**44.5**



# Pyramid inversion in the developed world— 1950 to 2050.

■ More Developed Regions: UN Constant Fertility Scenario

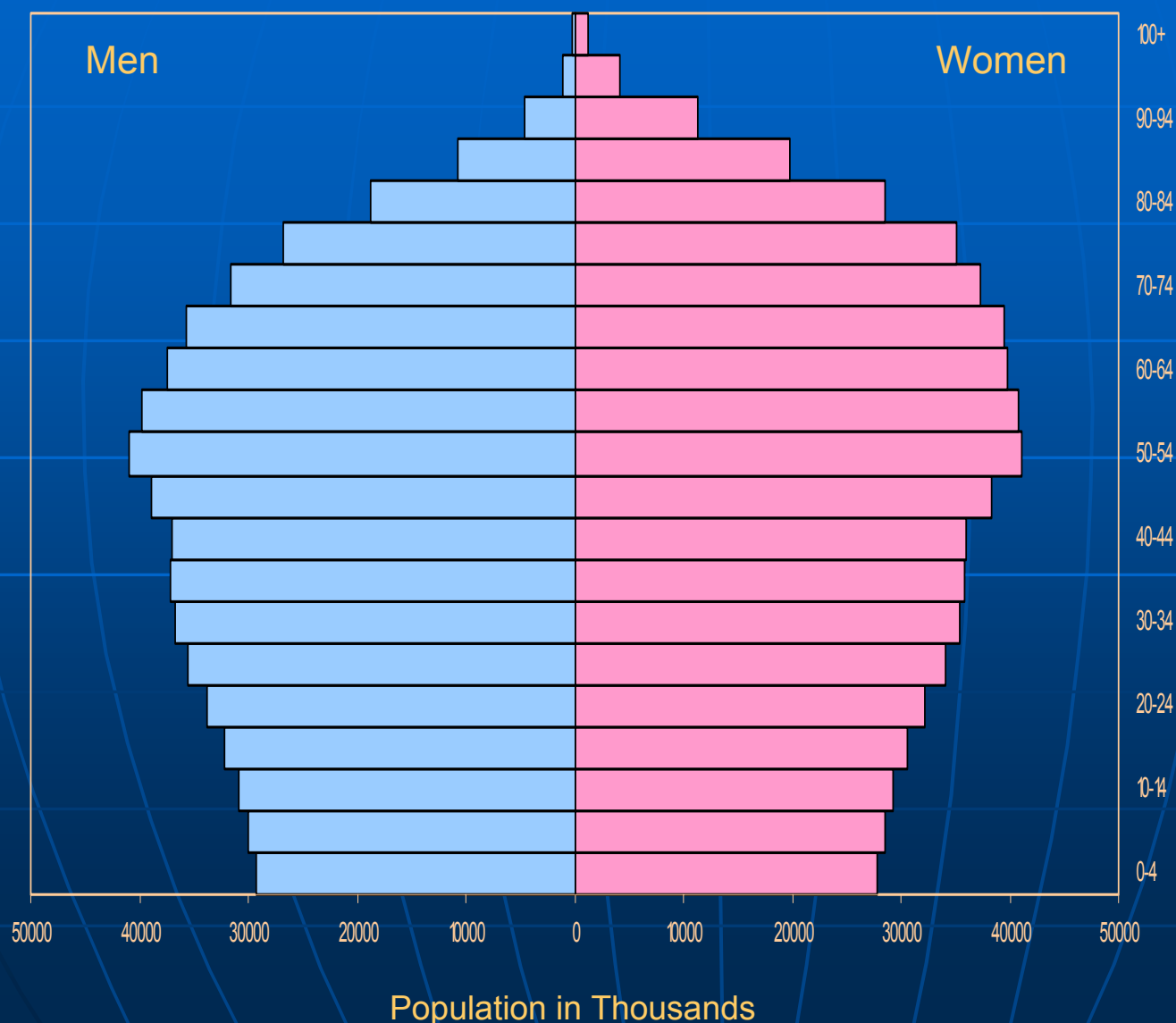


year  
**2035**  
median age  
**45.4**



# Pyramid inversion in the developed world— 1950 to 2050.

■ More Developed Regions: UN Constant Fertility Scenario

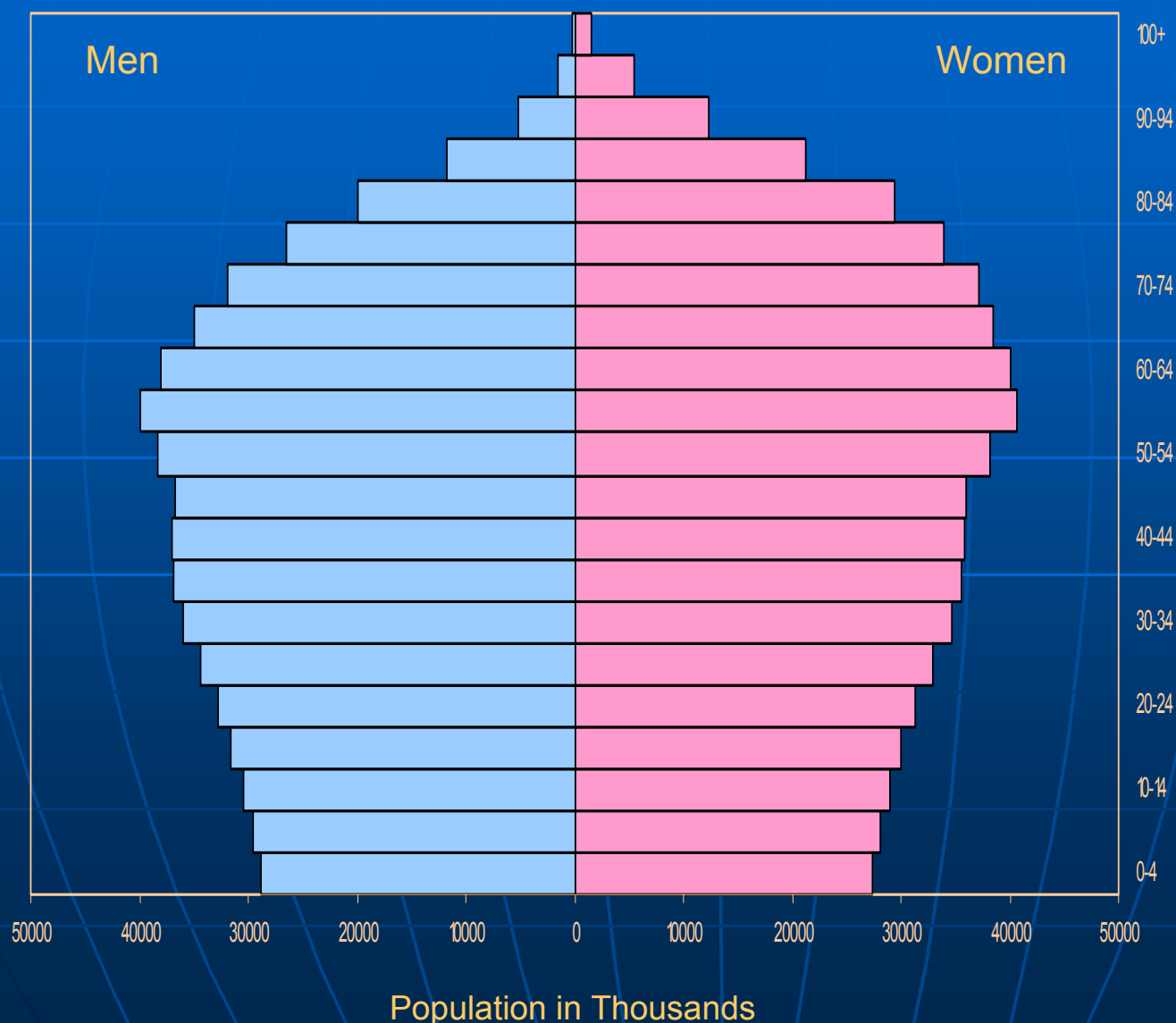


year  
**2040**  
median age  
**46.0**



# Pyramid inversion in the developed world— 1950 to 2050.

■ More Developed Regions: UN Constant Fertility Scenario



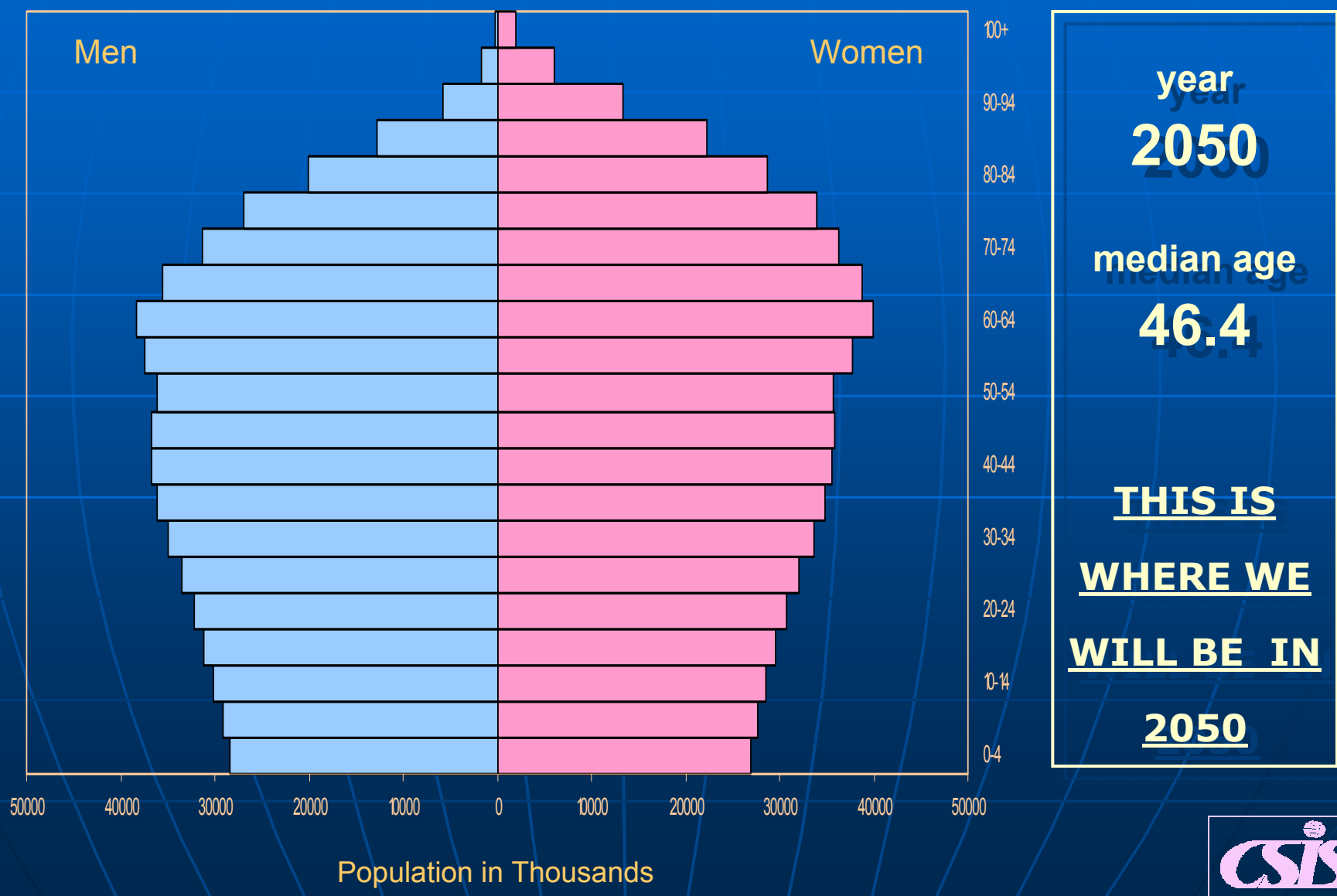
year  
**2045**  
median age  
**46.3**



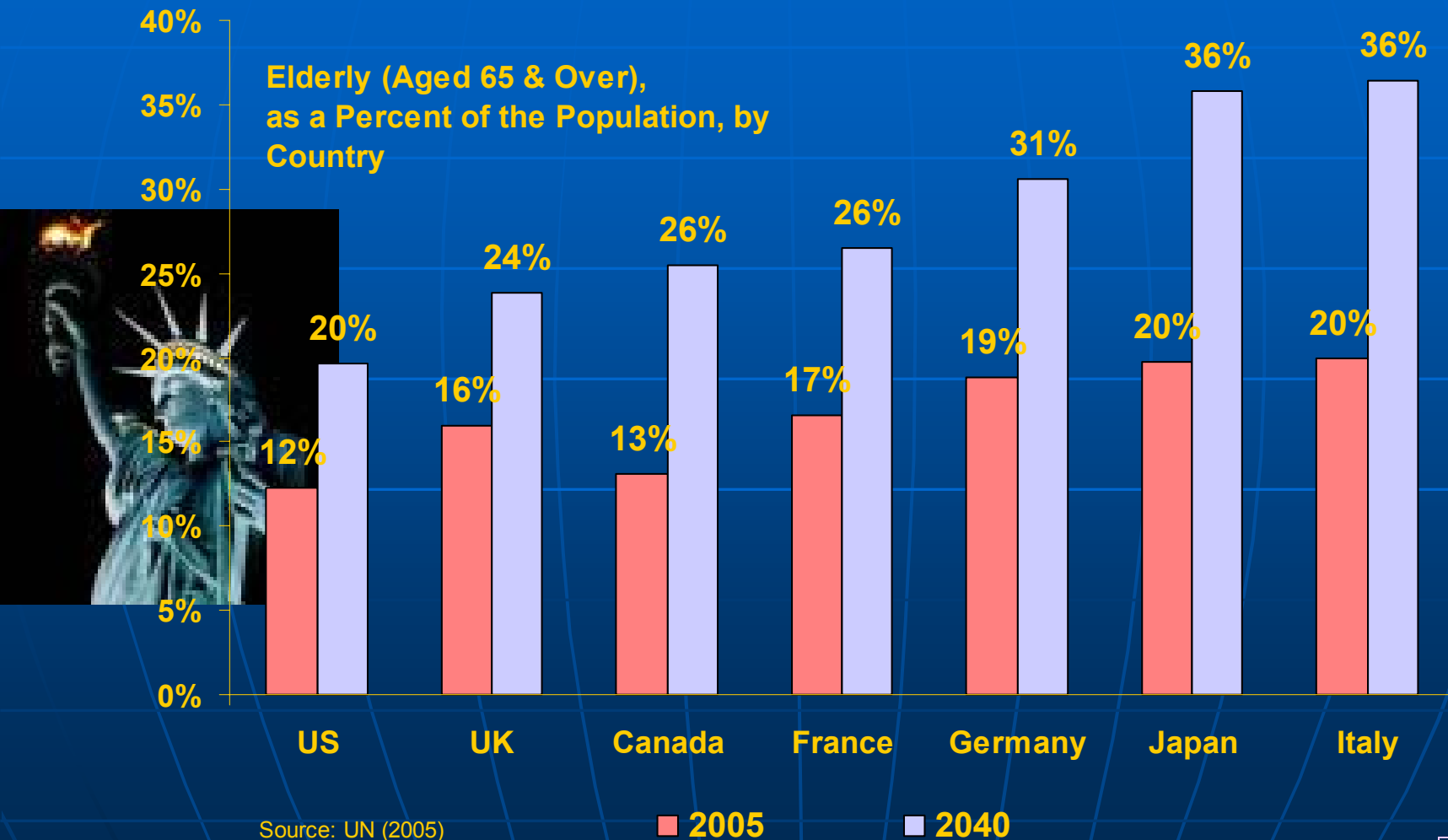


# Pyramid inversion in the developed world— 1950 to 2050.

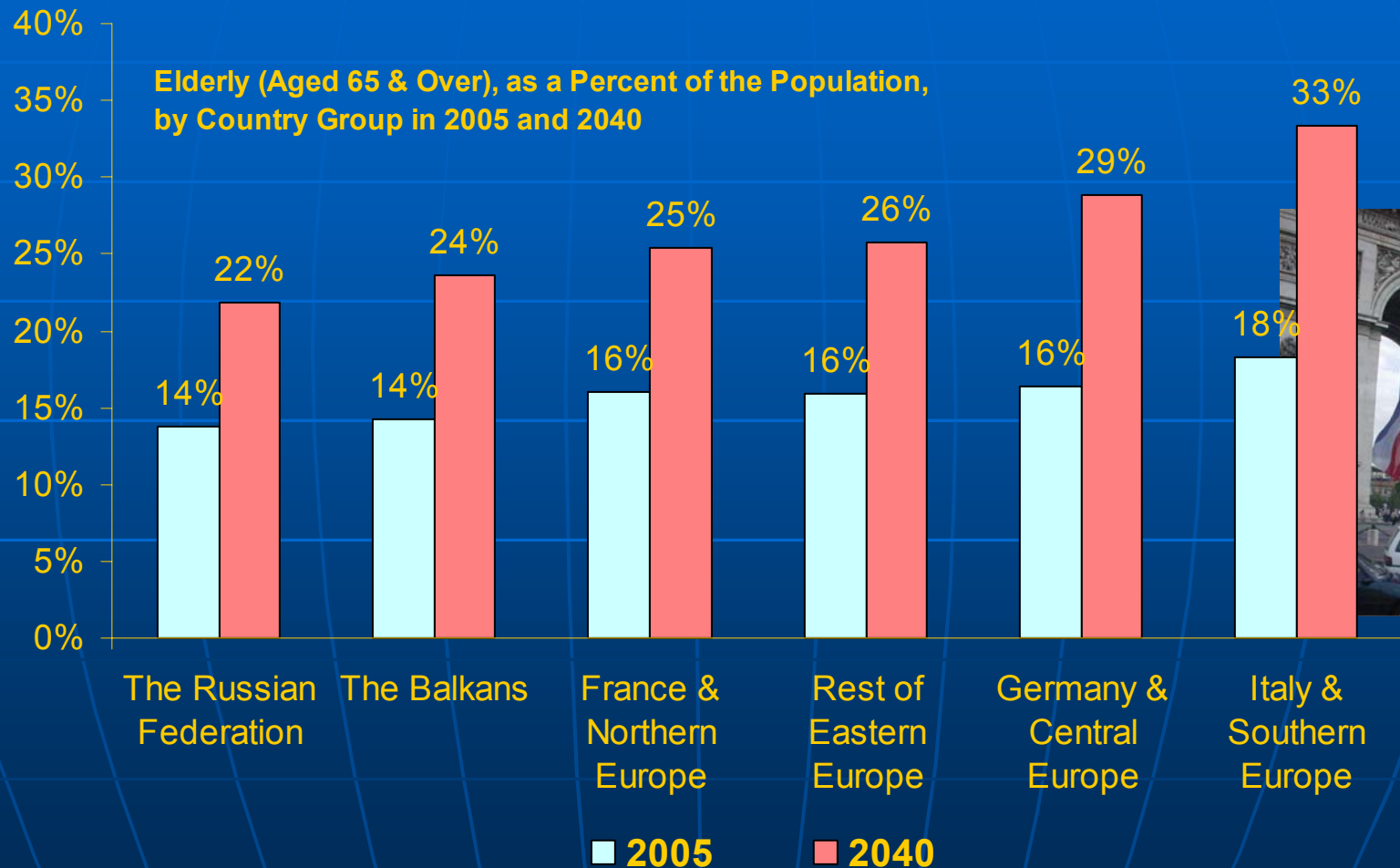
■ More Developed Regions: UN Constant Fertility Scenario



# Behind the averages: The United States will age less than Europe and Japan.



# Behind the averages: Northern Europe will age less than Southern and Eastern Europe.

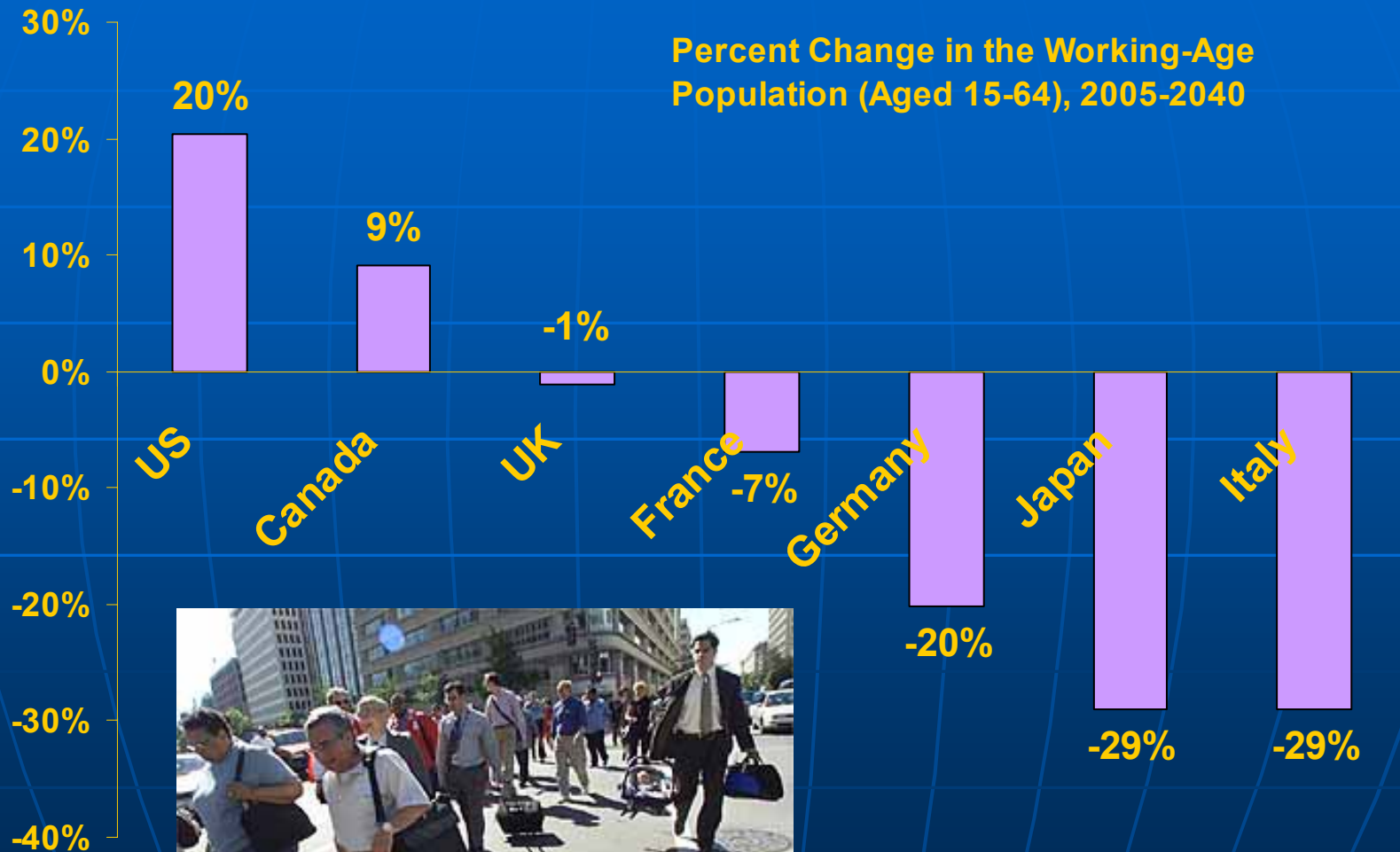


Source: UN (2005)



**Falling fertility and rising longevity are not only transforming the traditional population pyramid, they are also ushering in an era of unprecedented workforce and population decline.**

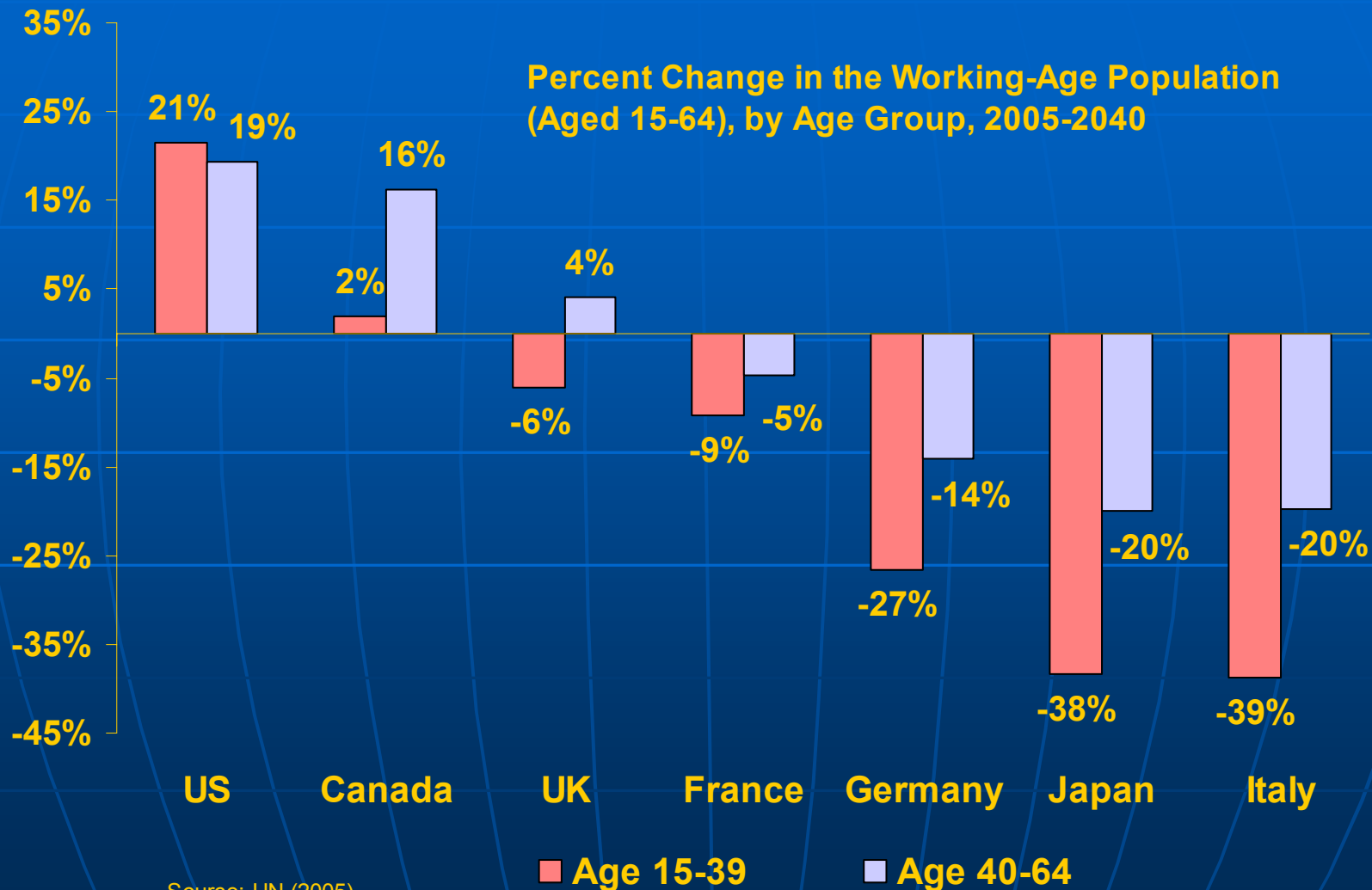
# In many developed countries, the working-age population will shrink dramatically.



Source: UN (2005)



# The number of young working-age adults will shrink even faster than the overall number.



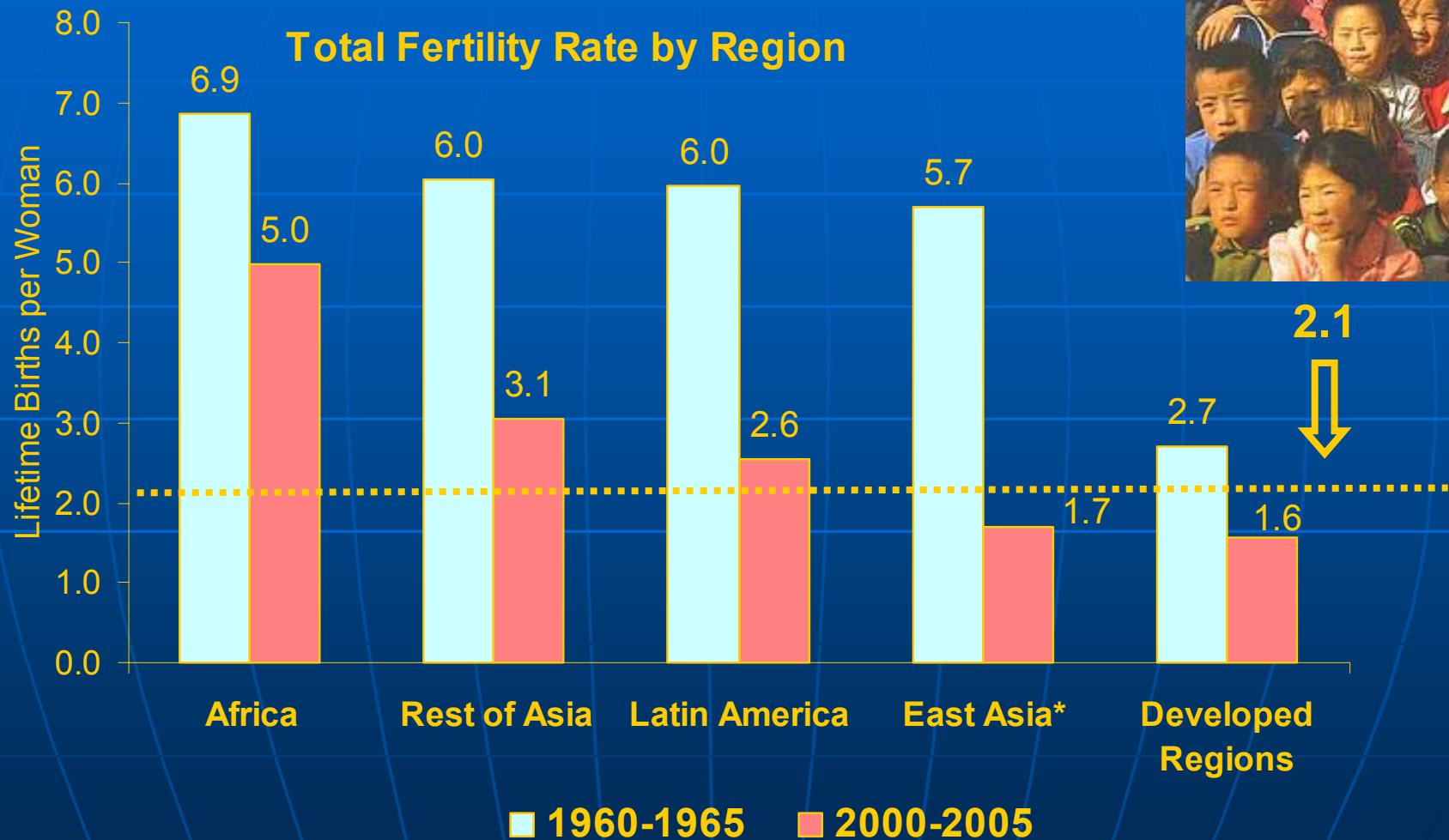
Source: UN (2005)

**Although the developing world is still much younger than the developed world, some fast-aging countries in East Asia and Latin America may catch up by the middle of the century.**



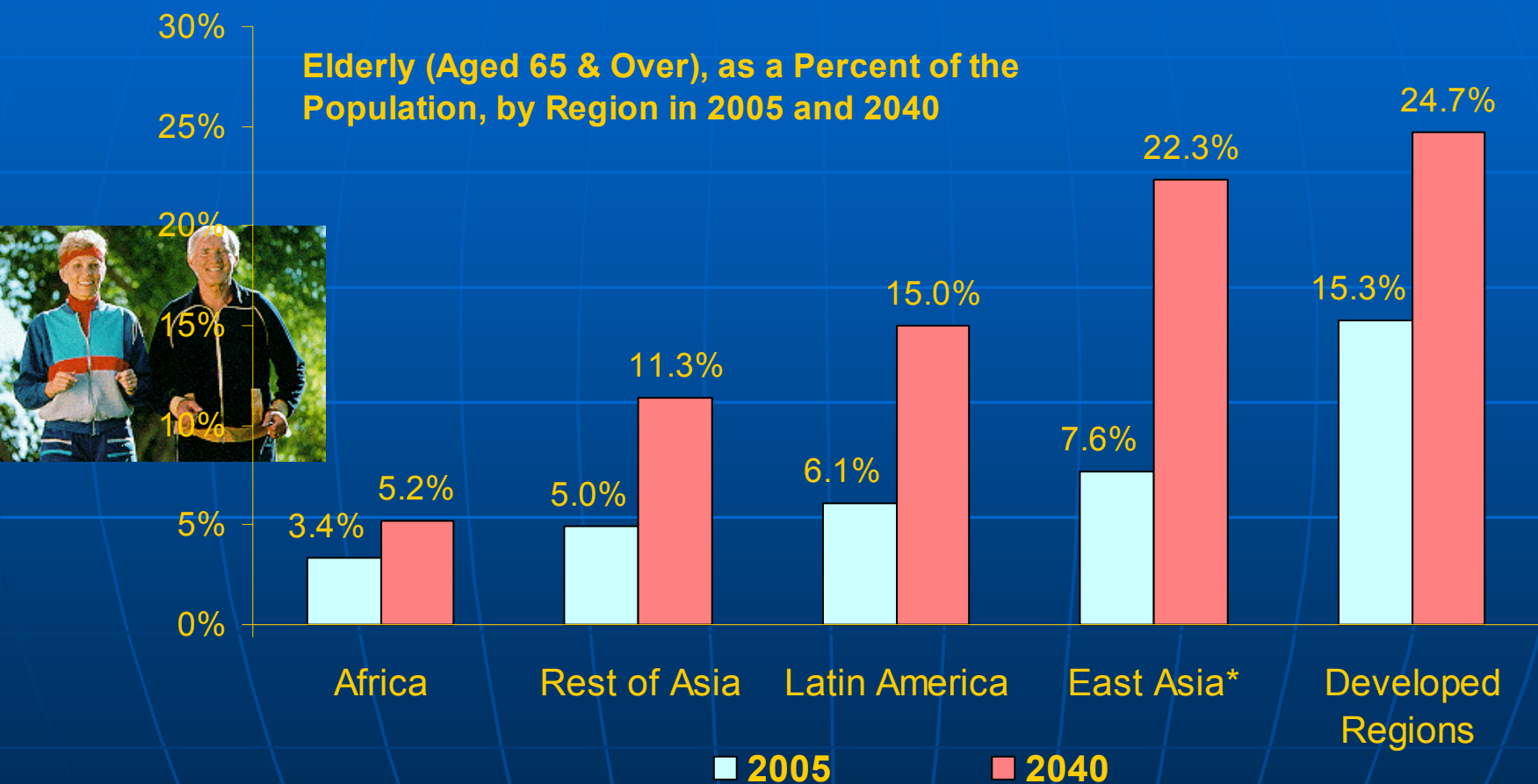


# Fertility remains high in some parts of the developing world—but has plunged in others.



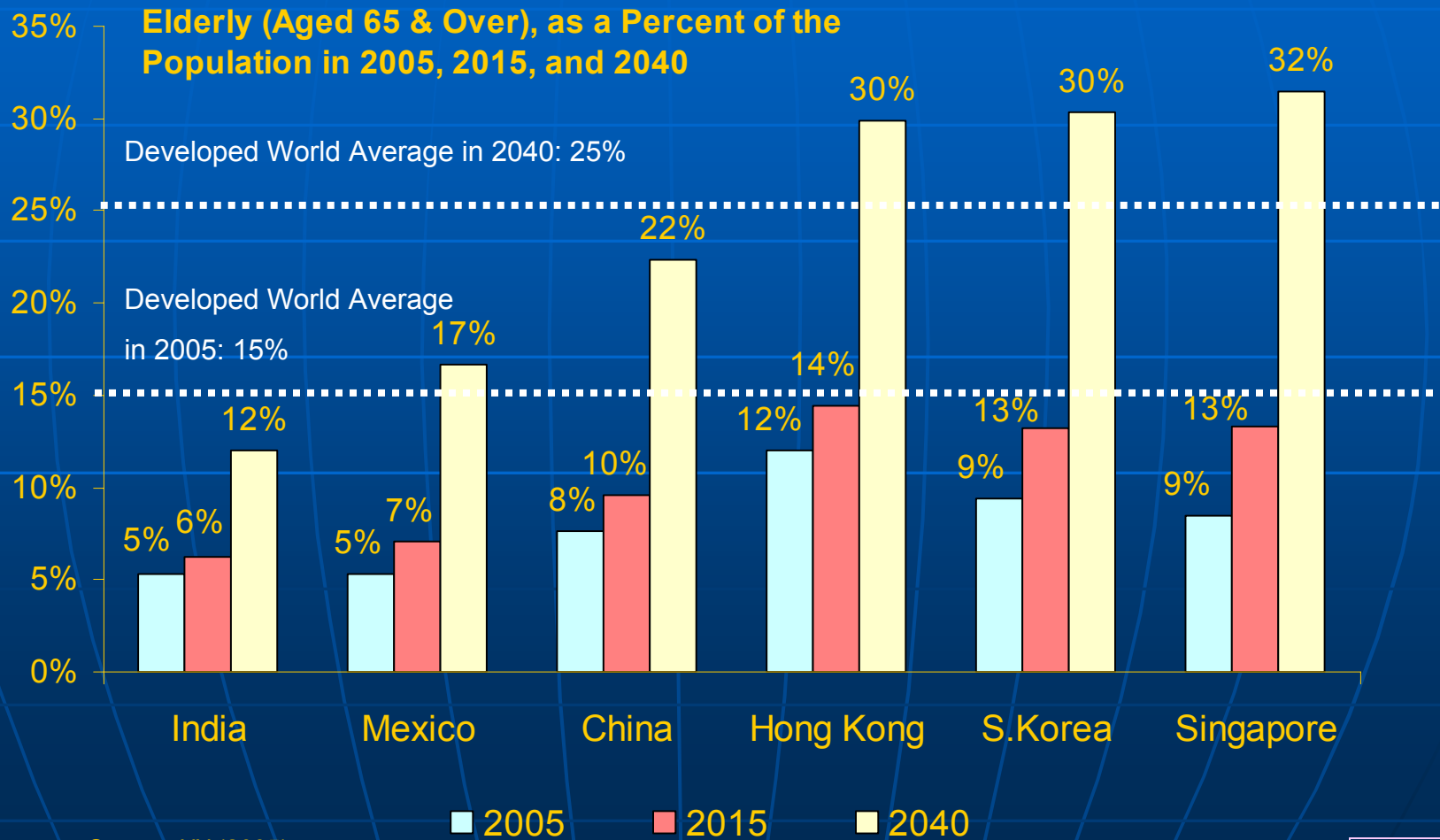
\* Includes Oceania and excludes Japan, Australia, and New Zealand.  
Source: UN (2005)

# Different regions of the developing world are therefore aging at very different rates.



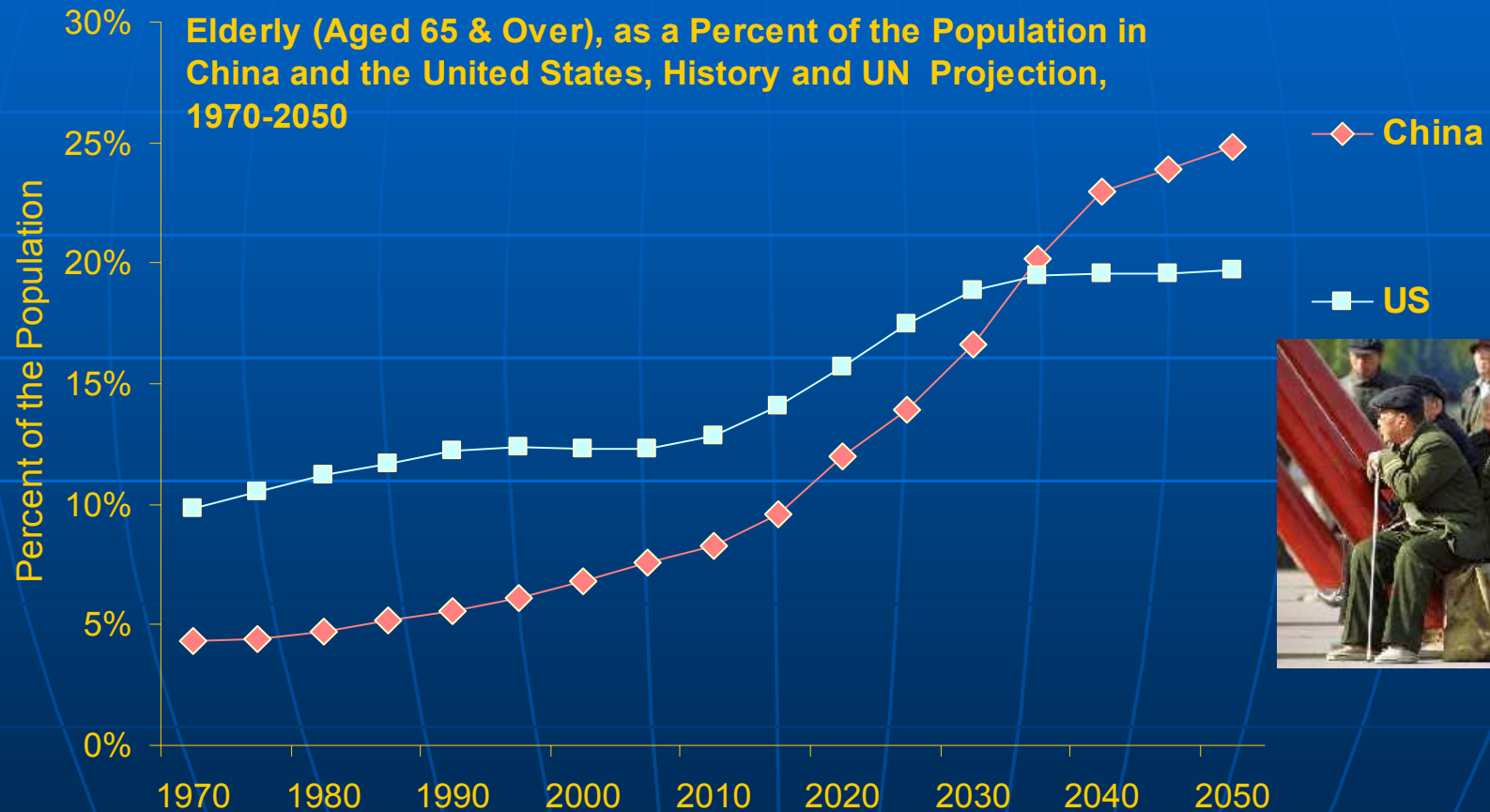
\* Includes Oceania and excludes Japan, Australia, and New Zealand.  
Source: UN (2005)

# East Asia and Latin America: The “second wave” of global aging.



Source: UN (2005)

# Within a generation, China will have an older population than the United States.



Source: UN (2005)



# The certainty of global aging.

- ☐ **Fertility?** Even a sharp rise in fertility rates would have no appreciable impact on the rate of growth of the workforce or old-age dependency ratios for a quarter century.
- ☐ **Life expectancy?** Longer life spans are desirable—and in any case the risk is that future improvements will be greater than projected.
- ☐ **Immigration?** Large and destabilizing waves would be required to slow—much less reverse—the aging of the population.

# **Part II**

## **Implications for Financial Markets**

# Four Principal Linkages.

- ❑ **Fiscal Linkage:** rising old-age dependency burden  $\Rightarrow$  higher tax rates and/or deteriorating fiscal balances
- ❑ **Lifecycle Savings Linkage:** declining private savings rates  $\Rightarrow$  falling asset prices
- ❑ **Workforce Growth Linkage:** slower GDP growth  $\Rightarrow$  lower returns to capital
- ❑ **Capital Flow Linkage:** changes in fiscal balances, private savings, and GDP growth could all affect global capital flows

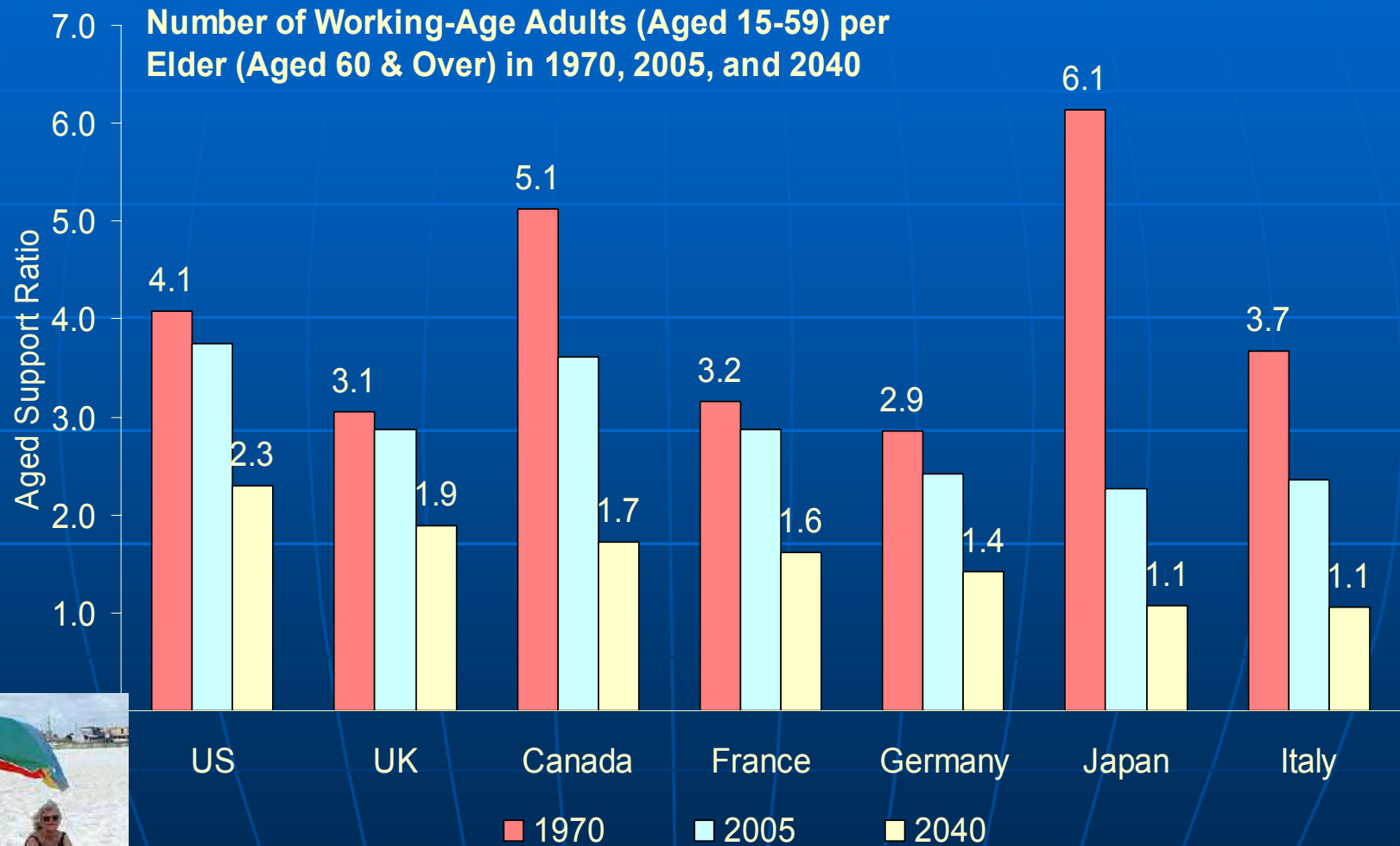
# The FISCAL Linkage.

- ❑ Falling fertility and rising longevity translate directly into a falling “support ratio” of workers to retirees—and a falling support ratio in turn translates into a rising cost rate for pay-as-you-go benefit programs.
- ❑ Three options: Large tax hikes, large benefit cuts, or an exploding public debt.
- ❑ If old-age benefits are left on autopilot, widening deficits, via higher interest rates, could increasingly crowd productive investment out of private capital markets.





# Demographic "support ratios" will fall throughout the developed world.



Source: UN (2005)

# The cost of old-age benefits is due to grow by at least 10% of GDP in most countries.

## Public Benefits to the Elderly (aged 60 & Over), as a % of GDP

	2000	2010	2020	2030	2040
<b>UK</b>	12%	13%	14%	17%	18%
<b>US</b>	9%	11%	15%	19%	20%
<b>Canada</b>	9%	11%	16%	20%	23%
<b>Sweden</b>	13%	15%	18%	21%	23%
<b>Germany</b>	15%	15%	18%	23%	26%
<b>Netherlands</b>	12%	14%	18%	23%	26%
<b>Japan</b>	12%	16%	20%	22%	27%
<b>France</b>	16%	18%	23%	27%	29%
<b>Italy</b>	17%	19%	23%	28%	32%
<b>Spain</b>	13%	14%	17%	24%	33%

Source: CSIS Aging Vulnerability Index (2003)

# Widening pension deficits could consume the savings of the developed world.



# **The LIFECYCLE SAVINGS Linkage.**

**According to the lifecycle savings theory,  
people borrow when young to pay for  
school and set up households, become  
large net savers in middle age, then  
dissave in old age to finance retirement.**

**As the share of the population in the harvest  
years rises, individuals (and their pension  
funds) may sell off assets on a large scale,  
putting downward on equity prices.**

# The share of the population in the “harvest years” will rise sharply.

## Adults Aged 20 & Over by Age Group, as a Percent of All Adults

		2005	2010	2020	2030	2040
<b>US</b>	Age 20-34	28%	28%	28%	26%	26%
	Age 35-59	48%	47%	42%	41%	41%
	Age 60 & Over	23%	25%	30%	33%	33%
<b>EU15</b>	Age 20-34	25%	24%	22%	20%	19%
	Age 35-59	46%	46%	44%	40%	38%
	Age 60 & Over	29%	31%	34%	40%	43%
<b>Japan</b>	Age 20-34	25%	22%	18%	18%	16%
	Age 35-59	42%	41%	41%	38%	34%
	Age 60 & Over	33%	37%	41%	45%	50%

# Questions about the lifecycle savings linkage.

- ☐ To what extent does the typical elder in different countries actually dissave today?
- ☐ Will fiscal reforms that reduce the generosity of old-age benefits change the typical age-savings profile in the future?
- ☐ Is equity ownership concentrated among a relatively small number of affluent elders?
- ☐ Will there be enough young buyers in developing countries to take up the slack?

# **The WORKFORCE GROWTH Linkage.**

**More slowly growing (or declining) working-age populations could mean more slowly growing economies.**

**Slower economic growth could in turn mean lower returns to capital. As workforces grow more slowly, investment demand in the developed world may fall, reducing returns to capital. Over the long run, moreover, returns to capital cannot indefinitely exceed the growth rate of the economy.**

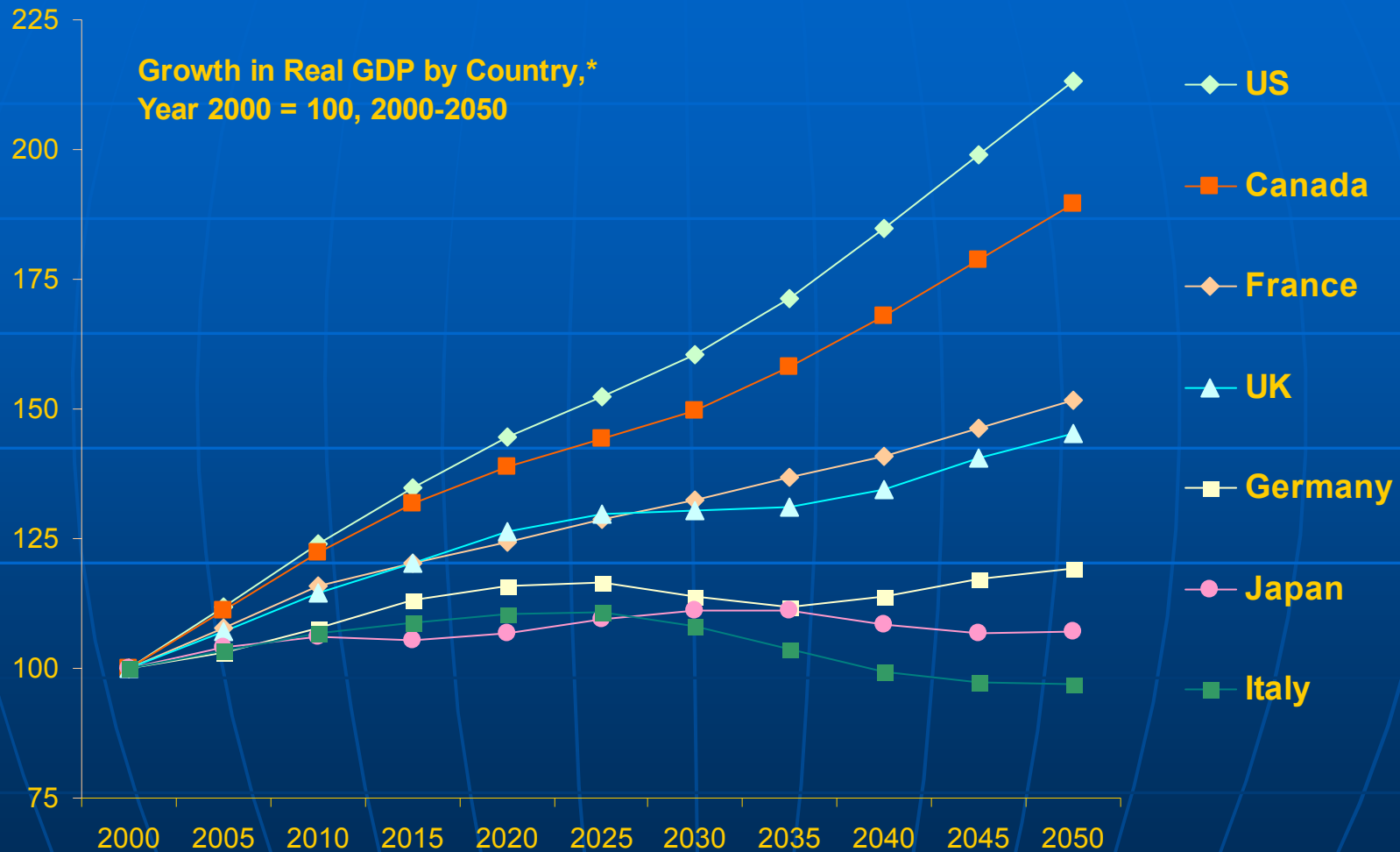
# Growth in the working-age population will slow—and in many countries turn negative.

## Average Annual Growth Rate in the Working-Age Population (Aged 15-64), by Decade

	1980s	1990s	2000s	2010s	2020s	2030s
<b>Canada</b>	1.3%	1.1%	1.2%	0.3%	-0.1%	0.2%
<b>France</b>	0.8%	0.3%	0.4%	-0.2%	-0.3%	-0.3%
<b>Germany</b>	0.6%	0.2%	-0.2%	-0.3%	-1.0%	-0.9%
<b>Italy</b>	0.7%	0.0%	-0.3%	-0.5%	-1.1%	-1.7%
<b>Japan</b>	0.9%	0.1%	-0.5%	-0.9%	-0.7%	-1.5%
<b>UK</b>	0.4%	0.3%	0.5%	0.0%	-0.2%	-0.1%
<b>US</b>	1.0%	1.1%	1.1%	0.5%	0.3%	0.6%



# The fastest aging countries could see a secular stagnation in GDP growth.



\* Assumes constant labor-force participation and productivity growth of 1 percent per year.  
Source: UN (2001) and CSIS (2004)

# Does aggregate growth matter?

- ❑ **Neoclassical view:** What really matters is per capita GDP growth—and demographic trends won't affect this. Aging and slowly growing economies will need less savings and investment to maintain the same rate of growth in the capital-to-labor ratio.
- ❑ **Alternative view:** Demographically growing economies may be more dynamic. To the extent that innovation depends on market expansion and “learning by doing,” slower aggregate growth may adversely affect productivity and living standards.

# The CAPITAL FLOW Linkage.

The countries and regions of the world are aging at different rates. International capital flows can match savings with investment opportunities—potentially mitigating the economic and financial market impacts of global aging.



# Two Capital Flow Scenarios.

- ❑ **Capital Export Scenario:** Investment demand in an aging and slowly growing developed world falls faster than savings. Developed-country savers continue to earn higher returns by investing in younger and faster growing developing countries.
- ❑ **Capital Import Scenario:** Savings falls faster than investment demand. In a reversal of historical roles, developed economies rely on savers in developing countries to prop up consumption and maintain minimum levels of investment.

# Questions about the capital flow linkage.

- ☐ Do the two scenarios represent alternative futures—or near-term and long-term futures?
- ☐ In the “capital export” scenario, are investment opportunities in the developing world likely to be sufficient to offset falling investment demand in the developed world?
- ☐ In the “capital import” scenario, what are the economic and financial market implications of paying an indefinitely rising debt service charge to the rest of the world?
- ☐ How long will the population age and growth differentials driving both scenarios persist?

# Workforce growth is rapidly decelerating in many of today's large emerging markets.

## Average Annual Growth Rate in the Working-Age Population (Aged 15-64), by Decade

	1980s	1990s	2000s	2010s	2020s	2030s
<b>China</b>	2.6%	1.2%	1.2%	0.1%	-0.3%	-0.8%
<b>EU15</b>	0.7%	0.3%	0.2%	-0.2%	-0.6%	-0.6%
<b>India</b>	2.4%	2.2%	2.0%	1.6%	1.1%	0.6%
<b>Japan</b>	0.9%	0.1%	-0.5%	-0.9%	-0.6%	-1.2%
<b>Mexico</b>	3.4%	2.5%	1.9%	1.3%	0.6%	0.0%
<b>US</b>	1.0%	1.1%	1.1%	0.5%	0.3%	0.4%

# Conclusion.

- ❑ Populations in the developed world are due to age dramatically over the next few decades—and in many cases enter a gathering decline.
- ❑ Global aging could affect financial markets through several avenues: rising old-age dependency burdens, falling private savings rates, slower growth in GDP and investment demand, and shifts in the magnitude (and possibly direction) of global capital flows.
- ❑ Assessing the likely magnitude of the impact is not just a matter of empirical research. It also requires judgments about the stance of future fiscal policy and the course of globalization.



# **ANNEX CHARTS**



## Elderly (Aged 65 & Over), as a Percent of the Population

	2005	2010	2020	2030	2040
<b>Canada</b>	13%	14%	18%	23%	26%
<b>France</b>	17%	17%	21%	24%	26%
<b>Germany</b>	19%	20%	22%	27%	31%
<b>Italy</b>	20%	21%	25%	30%	36%
<b>Japan</b>	20%	22%	28%	31%	36%
<b>UK</b>	16%	16%	19%	22%	24%
<b>US</b>	12%	13%	16%	19%	20%

# Average Annual Growth Rate in the Population, by Decade

	1980s	1990s	2000s	2010s	2020s	2030s
<b>China</b>	1.5%	1.0%	0.6%	0.5%	0.2%	-0.1%
<b>EU15</b>	0.3%	0.4%	0.3%	0.1%	0.0%	-0.1%
<b>India</b>	2.1%	1.9%	1.5%	1.2%	0.8%	0.6%
<b>Japan</b>	0.6%	0.3%	0.1%	-0.1%	-0.3%	-0.4%
<b>Mexico</b>	2.2%	1.7%	1.2%	1.0%	0.7%	0.4%
<b>US</b>	1.0%	1.1%	0.9%	0.8%	0.6%	0.5%

Source: UN (2005)

## Public Benefits in 2000, as a Percent of After-Tax Elderly Income

	<u>Average</u>	<u>3rd Quintile</u>
<b>US</b>	<b>35%</b>	<b>54%</b>
<b>Japan</b>	<b>35%</b>	<b>NA</b>
<b>Canada</b>	<b>42%</b>	<b>62%</b>
<b>Sweden</b>	<b>57%</b>	<b>70%</b>
<b>Netherlands</b>	<b>54%</b>	<b>74%</b>
<b>UK</b>	<b>50%</b>	<b>75%</b>
<b>Spain</b>	<b>64%</b>	<b>77%</b>
<b>France</b>	<b>67%</b>	<b>78%</b>
<b>Italy</b>	<b>59%</b>	<b>83%</b>
<b>Germany</b>	<b>61%</b>	<b>84%</b>