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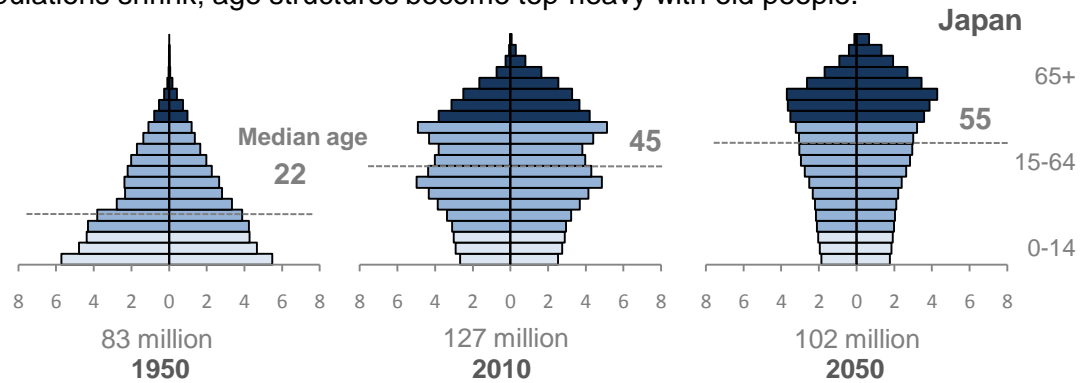
## Populations Shift to Older People: Pyramid to Cube

As fertility falls and longevity increases, a country's age profile changes from a pyramid with a broad base of young people to a cube with a more even distribution across age brackets. If fertility remains low, the population will become top-heavy with older people.

The share of older people (65+) is increasing almost everywhere, but at different rates depending on changes in fertility and longevity. These population age shifts have profound impacts on everything from a country's work-force growth and economic prospects to public and personal budgets, security risks, cultural institutions and family structures.

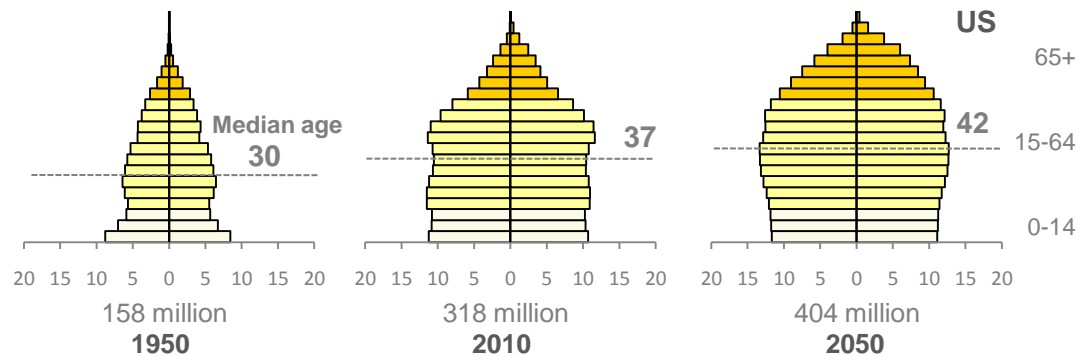
### Oldest Countries: Working-age populations shrink; age structures become top-heavy with old people.

- Fertility has been below replacement level of 2.1 births per woman for the last 15-20 years.
- Working-age population (15-64) is shrinking.
- Declining work-force growth combined with the increasing fiscal burden of retirees threatens economic growth and current living standards.
- Selected countries: *Germany, Greece, Italy, Japan, Singapore, South Korea.*



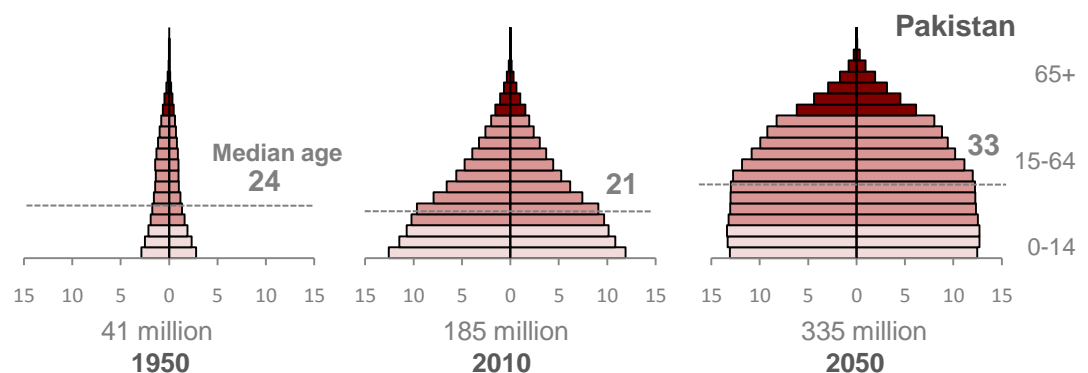
### “Middle-Age” Countries: Work-force growth continues but at a slower pace; age structures become cube-like.

- Fertility rates are approaching or already below replacement rate.
- Work-force growth will be slow or moderate, eventually becoming negative in some countries.
- Sustained economic growth will require productivity gains to offset slower work-force growth.
- Selected countries: *Australia, Brazil, Canada, China, Ireland, Mexico, Thailand, Tunisia, United States, Vietnam.*



### Young Countries: Rapid growth in working-age population threatens economic and political stability.

- Fertility rates are falling but still relatively high; age structure remains pyramidal.
- Working-age population will continue to grow rapidly, though the pace will slow.
- “Youth bulges” increase the risk of violent conflict; the challenge is to provide work for a large share of young adults.
- Selected countries: *Afghanistan, Bolivia, Nigeria, India, Iraq, Pakistan, Philippines, Uganda.*

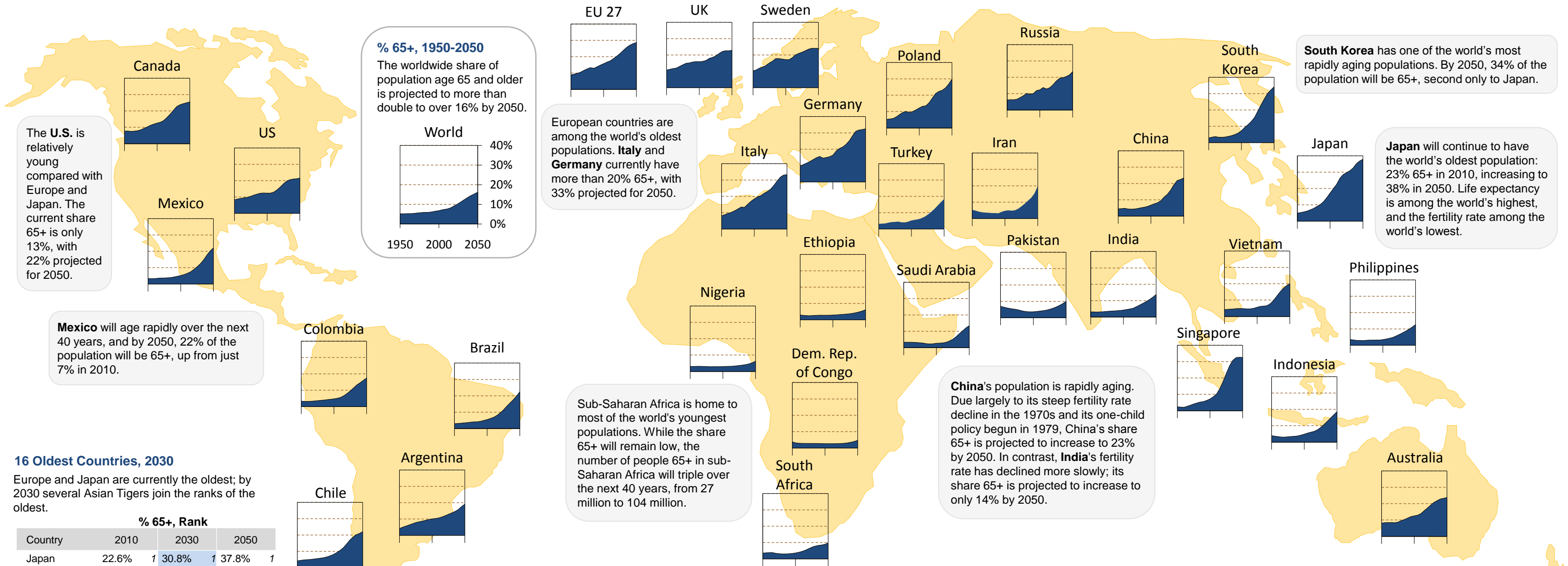


Population in millions by five-year age bracket from 0-4 to 100+. Males on left, females on right.

# Global Aging

## Share of Population Age 65 and Older

Dramatic and unprecedented shifts toward older age brackets are occurring at vastly different rates around the world. Understanding these differences is critical for developing policies that effectively address the economic and geopolitical challenges of population aging.



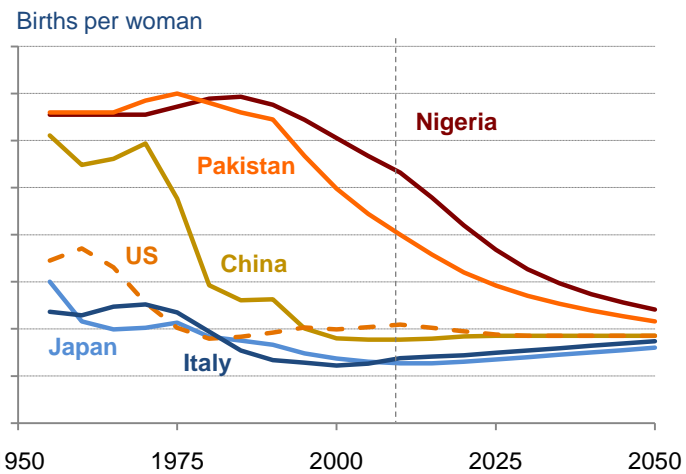
### 16 Oldest Countries, 2030

Europe and Japan are currently the oldest; by 2030 several Asian Tigers join the ranks of the oldest.

Country	2010	2030	2050	Rank
Japan	22.6%	30.8%	37.8%	1
Germany	20.5%	28.2%	32.5%	6
Singapore	10.2%	27.5%	32.6%	4
Italy	20.4%	26.8%	33.3%	3
Hong Kong	12.9%	26.3%	32.6%	5
Finland	17.2%	25.1%	25.9%	27
Austria	17.6%	24.8%	29.4%	15
Slovenia	16.4%	24.6%	30.2%	13
Portugal	17.9%	24.5%	32.1%	7
France	17.0%	24.3%	26.9%	20
Belgium	17.4%	24.1%	26.6%	21
Switzerland	17.3%	24.1%	26.0%	24
Greece	18.3%	24.0%	31.3%	9
Netherlands	15.4%	23.8%	25.6%	29
Croatia	17.3%	23.8%	28.2%	18
South Korea	11.0%	23.2%	34.2%	2
US	13.0%	19.8%	21.6%	
EU 27	17.5%	23.8%	28.7%	
World	7.6%	11.7%	16.3%	

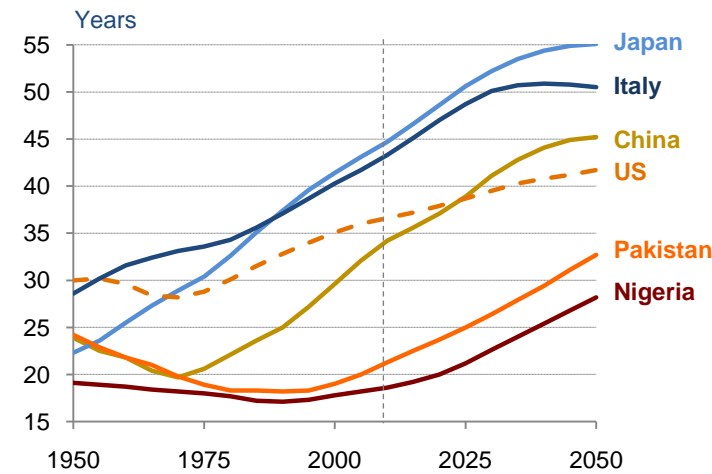
### 1. Declining Fertility Rates

Fertility has decreased worldwide, but at different rates.



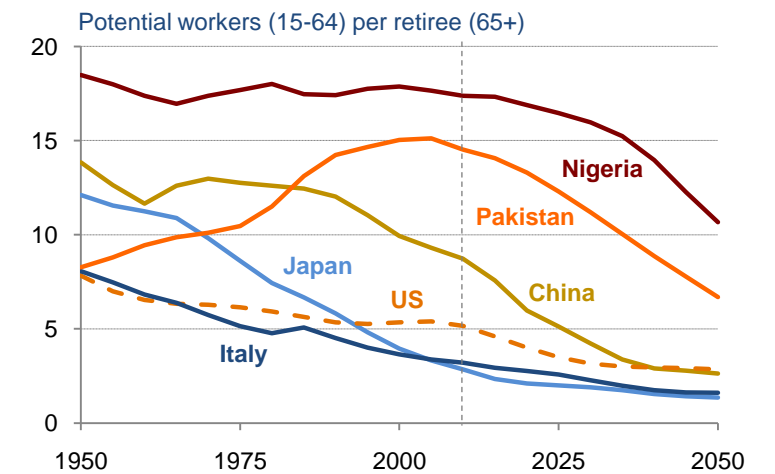
### 2. Rising Median Age

The pace of aging varies dramatically; many countries face steep gains in median age.



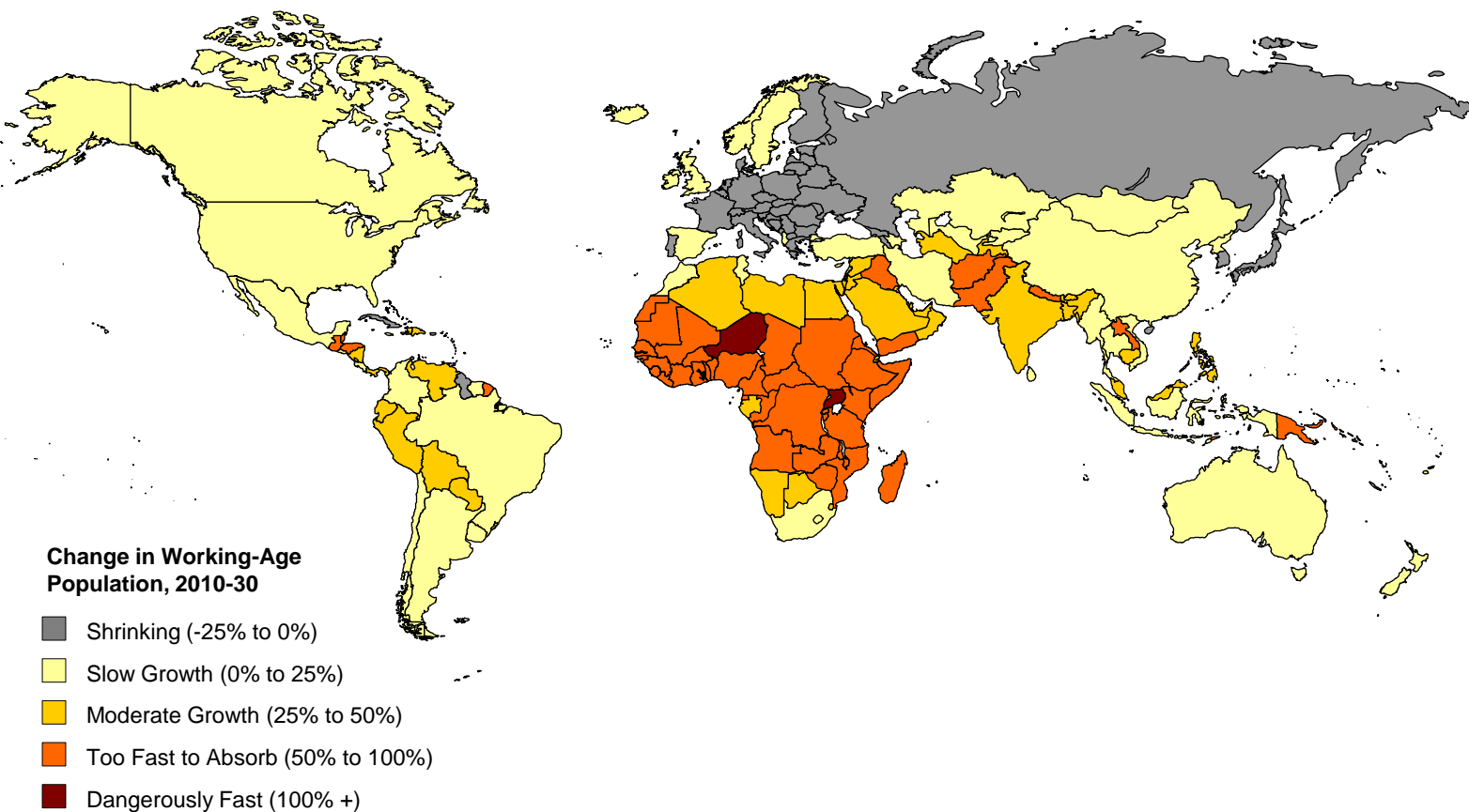
### 3. Declining Potential Support Ratios

As countries age, the ratio of potential workers (15-64) to retirees (65+) declines, increasing the fiscal burden on workers.



## Most advanced economies face shrinking workforces, while many young countries face explosive growth.

Europe's working-age population is projected to decline by 10%, or nearly 50 million. Less developed countries are projected to see a work-force gain of nearly 1 billion, with about half of that occurring in Asia and nearly 40% in Africa.



**The Global Aging Program** at the Stanford Center on Longevity focuses on the economic and political implications of longevity. The program specifically addresses the risks and opportunities of population age shifts around the world. Understanding the implications of these Population Age Shifts will be critical for effective policy making.

**The Stanford Center on Longevity** is working to transform the culture of human aging. The Center studies the nature and development of the entire human life span, looking for innovative ways to use science and technology to solve the problems of people over 50 and improve the well-being of people of all ages. To inspire change of this scale, the Center brings together the best minds in academia, business and government to target the most important challenges and solutions for older populations. The Center was founded by two of the world's leading authorities on longevity and aging, Stanford professors **Laura L. Carstensen**, PhD, and **Thomas Rando** MD, PhD, and received its initial funding from Texas investor Richard Rainwater.

**Adele Hayutin, Ph.D., Senior Research Scholar and Director of SCL's Global Aging Program**, is a leader in the field of comparative international demographics and population aging. Dr. Hayutin combines broad knowledge of the underlying data with the ability to translate that data into practical, easy to understand language and implications. She has developed a comparative international perspective that highlights surprising demographic differences across countries and illustrates the unexpected speed of critical demographic changes. Previously she was director of research and chief economist of the Fremont Group (formerly Bechtel Investments) where she focused on issues and trends affecting business investment strategy. Dr. Hayutin received a BA from Wellesley College and a Master's in Public Policy and a Ph.D. in economics from the University of California at Berkeley.

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