

# Demographic Transition

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# Outline

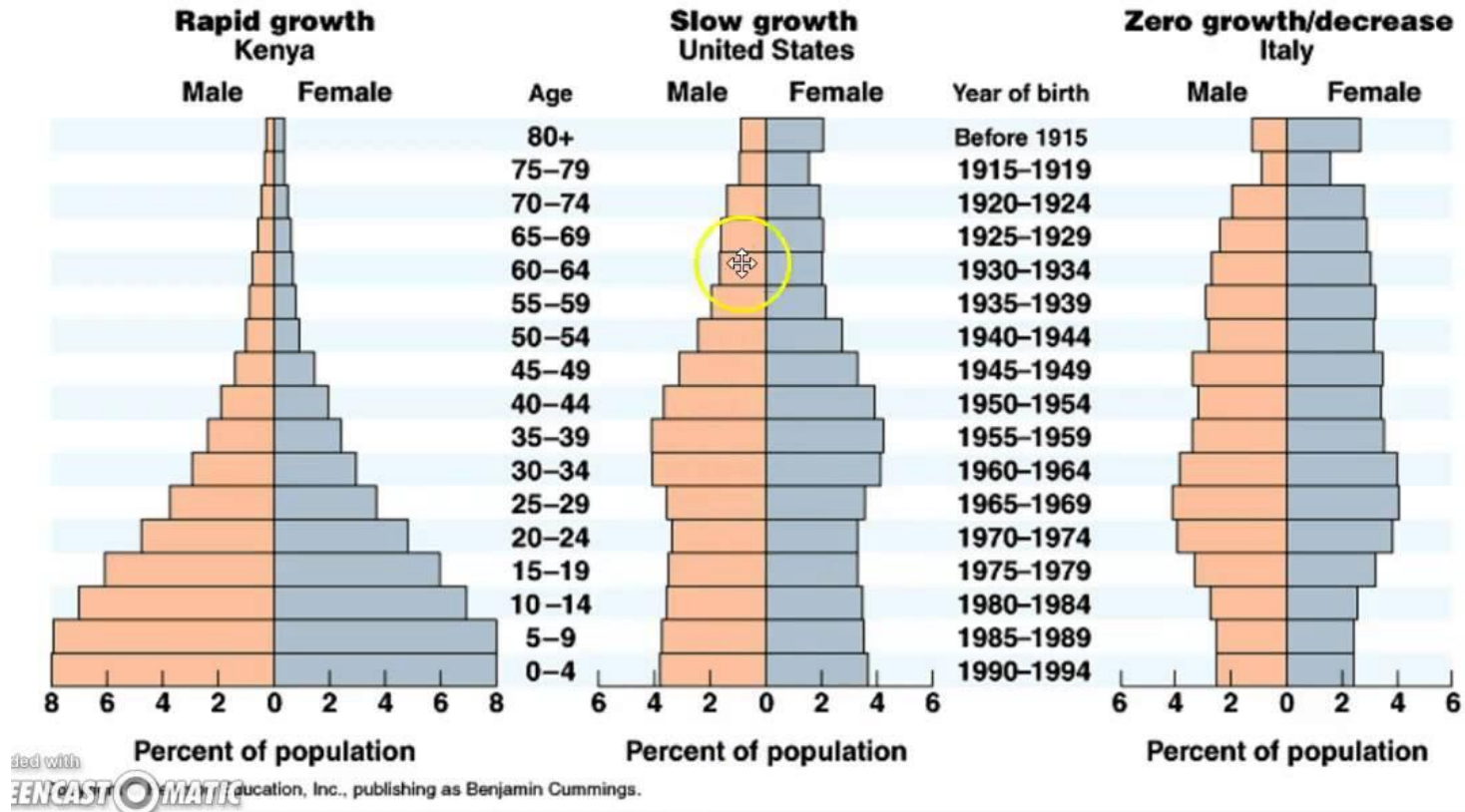
- Introduction
- Population Pyramid
- Demographic Transition
- Stages
- Demographic Transition -Sri Lanka
  - Demographic Dividend
  - Health Challenges
- References

# Introduction

- ▷ Demography
  - Statistical study of human populations
  - Size, structure, distribution and spatial and temporal changes in response to time, birth, migration, aging and death
- ▷ Population pyramid/age -sex pyramid
  - Population composition or structure of a country
  - Figures of males recorded in the left and females in the right
  - Horizontal axis - actual number or percentages from total population on each age category
  - Vertical axis - population is normally divided into 5 year age groups .eg: 0-4, 5-9, 10-14
    - Final years can be collapsed into one category . eg: 90+
    - Different age groups are also known as cohorts

# Population pyramid...

- ▷ 3 main types
  - Expansive /Broad based - Triangular shaped
  - Slow Growth -Beehive shaped
  - No growth/ Stationary -Rectangular shaped



# Demographic Transition

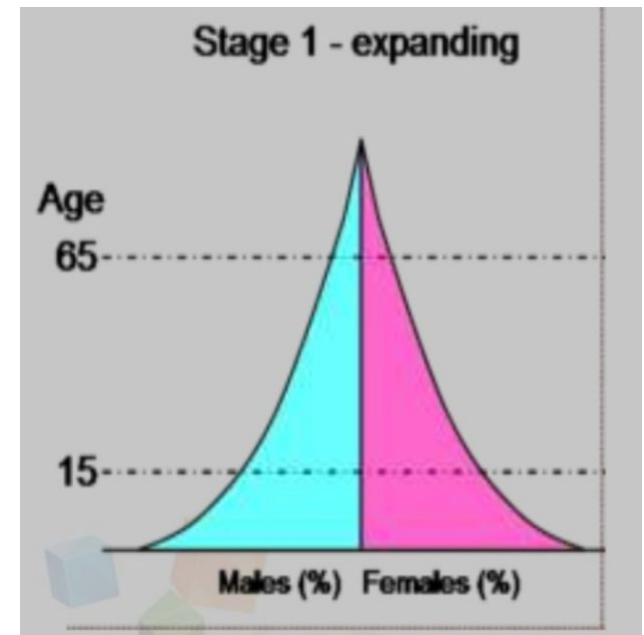
- Describes the transition from high birth and death rates to low births and death rates as the country or region progress from a preindustrial phase to industrial economic system
- Frank W. Notestein developed a more formal theory of demographic transition (DT)-(1940 -1950)
- Demographic Transition(DT) theory is the generalised description of the changing pattern of the mortality,fertility and growth rates as the society moves from demographic regime to another
- Explained in relation with population pyramid

# Demographic Transition...

- ▷ Described in 5 stages
  - Stage 1 (High stationary)- Pre-Industrial
  - Stage 2 (Early Expanding)- Developing country
  - Stage 3 (Late Expanding)- Late transition
  - Stage 4 (Low Stationary)- Post transition
  - Stage 5 (Declining)- Debated
  
- ▷ Dependency ratio
  - Ratio of **non-economically active** to **economically active** people in a population of a country

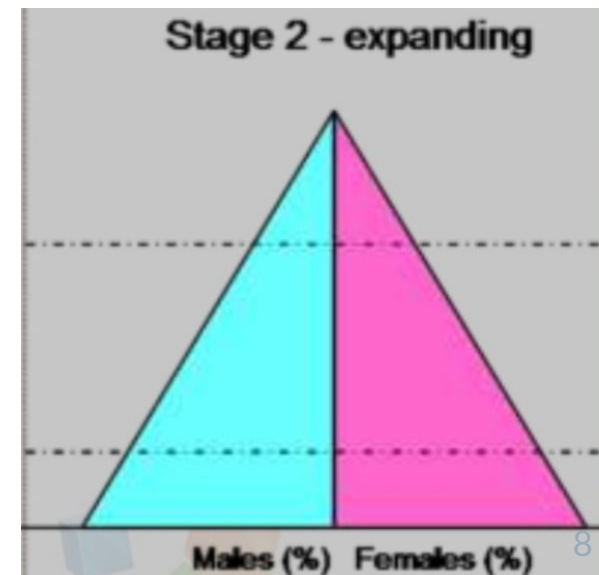
# Stage 1 (High stationary)

- ▷ Population pyramid shape : Concave triangular
- ▷ Age Structure : Rapid fall in each age groups due to high mortality, short life expectancy
- ▷ Death rates and birth rates roughly balances
- ▷ Slow population growth
- ▷ Every country has passed this stage



# Stage 2 (Early Expanding)

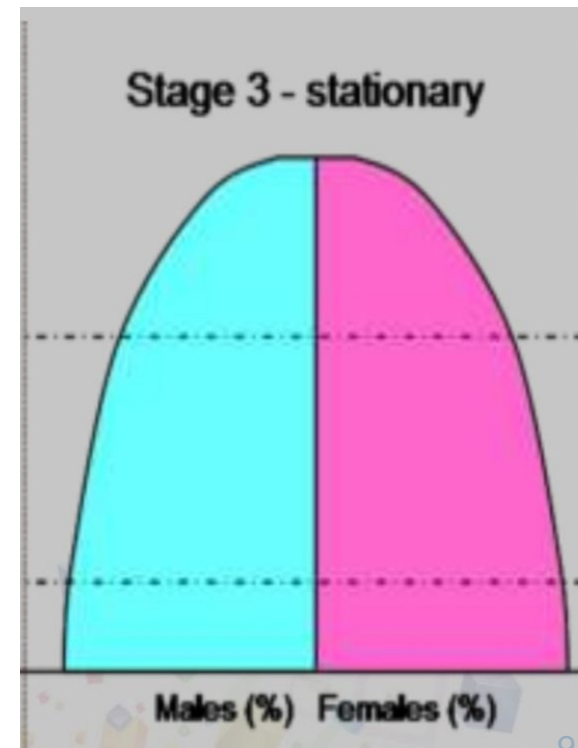
- ▷ Population pyramid shape : Triangular
- ▷ Age Structure : Growing young dependent population, increasingly youthful age structure, accelerating population structure
- ▷ Rapid drop in death rate while birth rate remains high
- ▷ Large increase in population
- ▷ Improvement in food supply and public health
- ▷ Yemen, Afghanistan, Sub- saharan countries





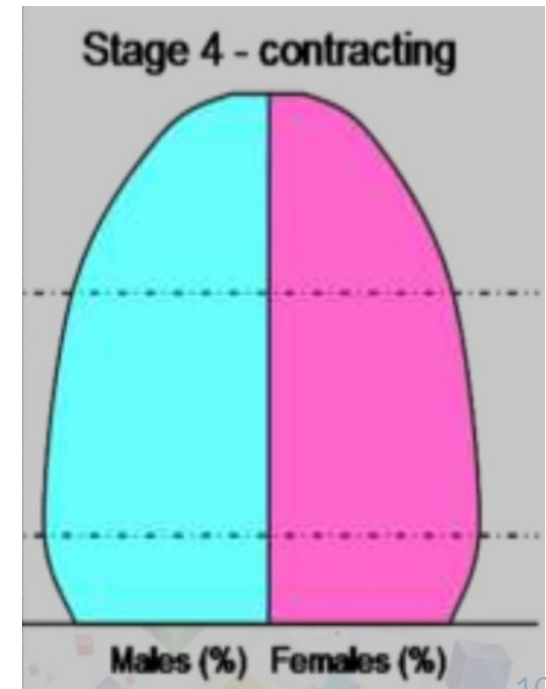
# Stage 3 (Late Expanding)

- ▷ Population pyramid shape : Columnar
- ▷ Age Structure : Decreasing TFR, Bulge in the reproductive age, Increasing life expectancy, Large working population
- ▷ Fall in birth rates due to access for contraception, urbanization, increase in wages, increase female literacy and employment
- ▷ Demographic Dividend - decreasing dependency ratio
- ▷ India, Indonesia, Malaysia, Sri Lanka



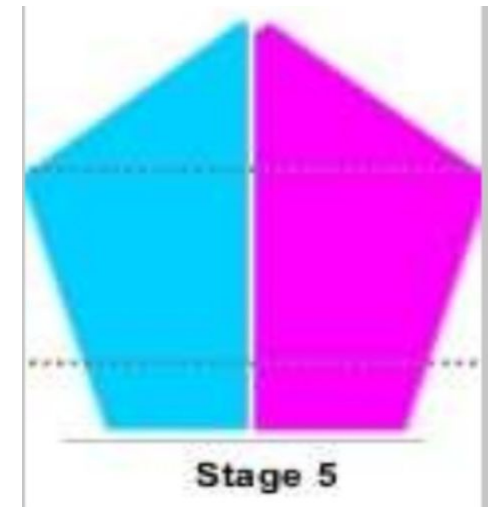
# Stage 4 (Low Stationary)

- ▷ Population pyramid shape : Inverted
- ▷ Age Structure : Low birth and Death rates, aging population
- ▷ Population growth stabilized
- ▷ Population may start shrinking
- ▷ U.S. Canada, Australia, New Zealand, Most European countries

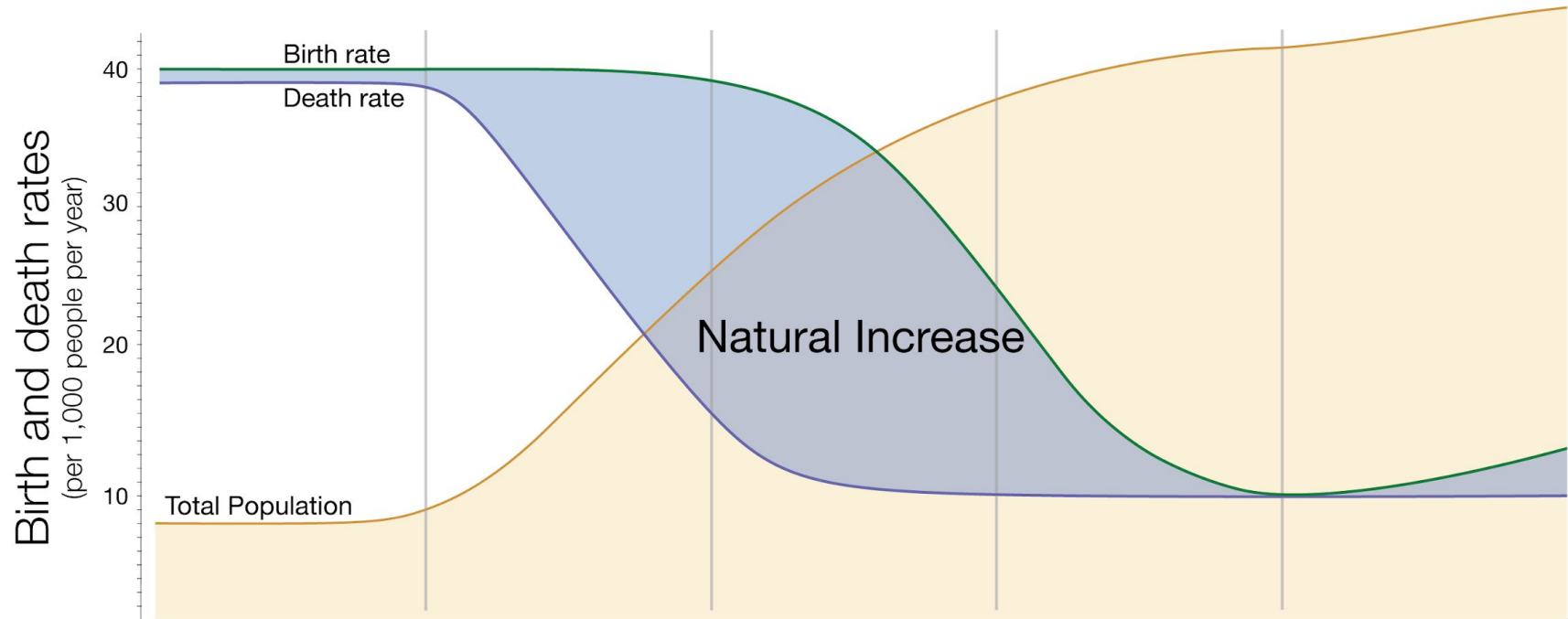


# Stage 5 (Declining)

- ▷ Special Case
- ▷ Death rate is higher than the birthrate following stage 4
- ▷ Due to this additional 5th stage is proposed
- ▷ Eg: Germany, Italy ,Japan
- ▷ Population pyramid shape : Inverted
- ▷ Age structure : Very low birth rate (Below the replacement level )
- ▷ Declining population and increasing ageing population



# The demographic transition in 5 stages


**Stage 1**
**Stage 2**
**Stage 3**
**Stage 4**
**Stage 5**
**Birth rate**

High

High

Falling

Low

Rising again

**Death rate**

High

Falls rapidly

Falls more slowly

Low

Low

**Natural increase**

Stable or slow increase

Very rapid increase

Increase slows down

Falling and then stable

Stable or slow increase

**Population Pyramid**

Age

15

65

Men

Women

Men

Women

Men

Women

Men

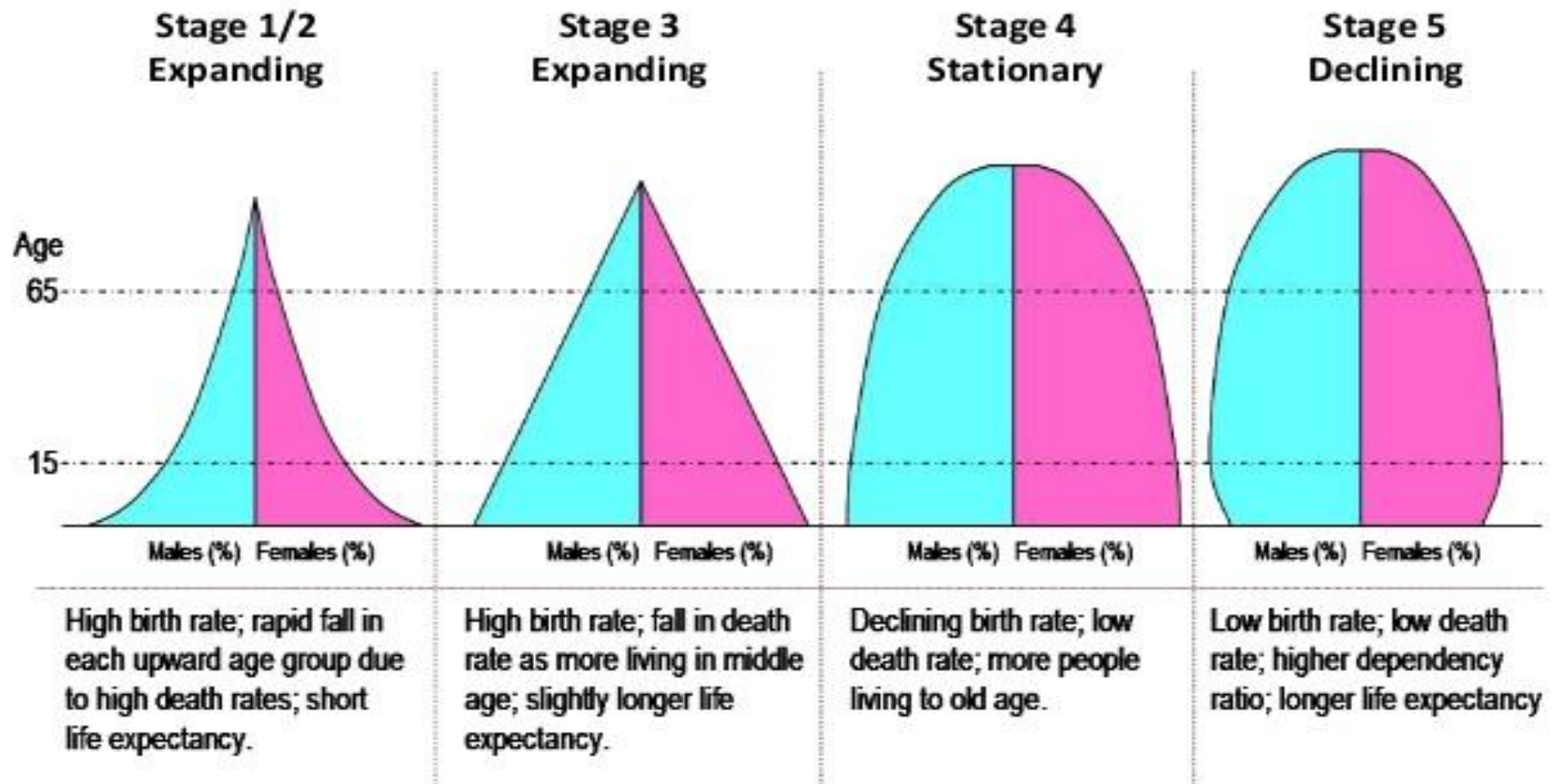
Women

Men

Women

# Summary

## The Demographic Transition Model

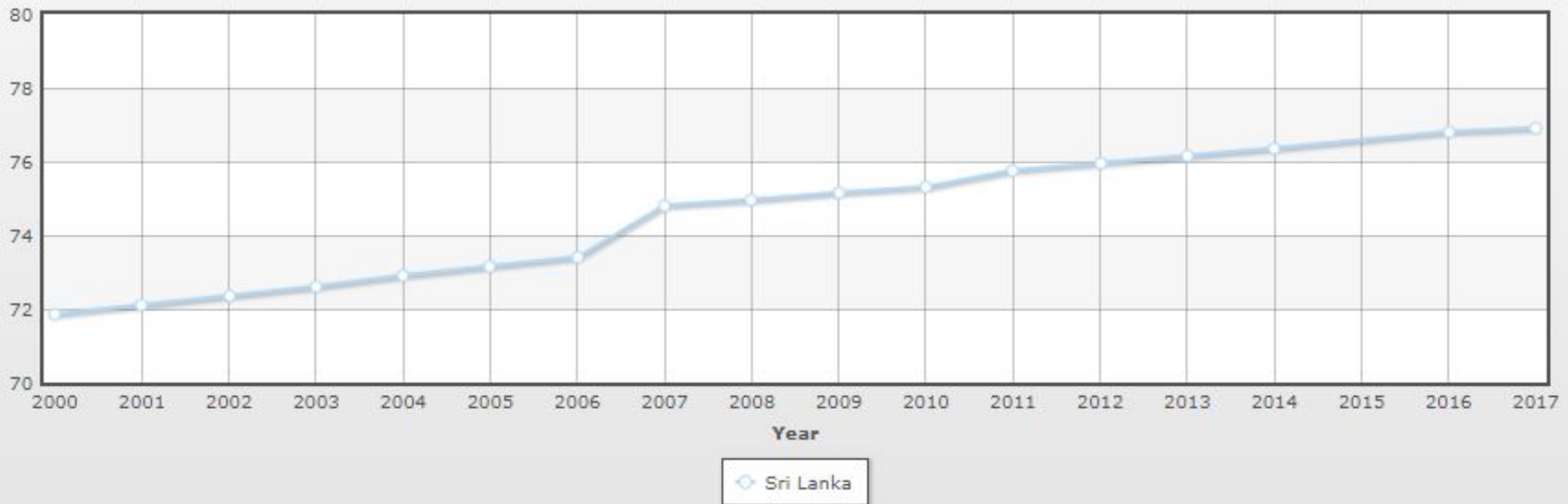


# Demographic Transition - Sri Lanka

- ▷ Mortality (deaths) of Sri Lanka declined since 1920s
- ▷ Life expectancy at birth

(source :[www.indexmundi.com](http://www.indexmundi.com))

Life expectancy at birth (years)



Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2016	2017
Sri Lanka	71.83	72.09	72.35	72.62	72.89	73.17	73.41	74.8	74.97	75.14	75.3	75.73	75.94	76.15	76.35	76.8	76.9

# Demographic Transition - Sri Lanka...

- ▷ Fertility (births) of Sri Lanka declined since early 1960s. However, since year 2000 it shows an increase

- ▷ TFR

(source :[www.indexmundi.com](http://www.indexmundi.com))

Total fertility rate (children born/woman)

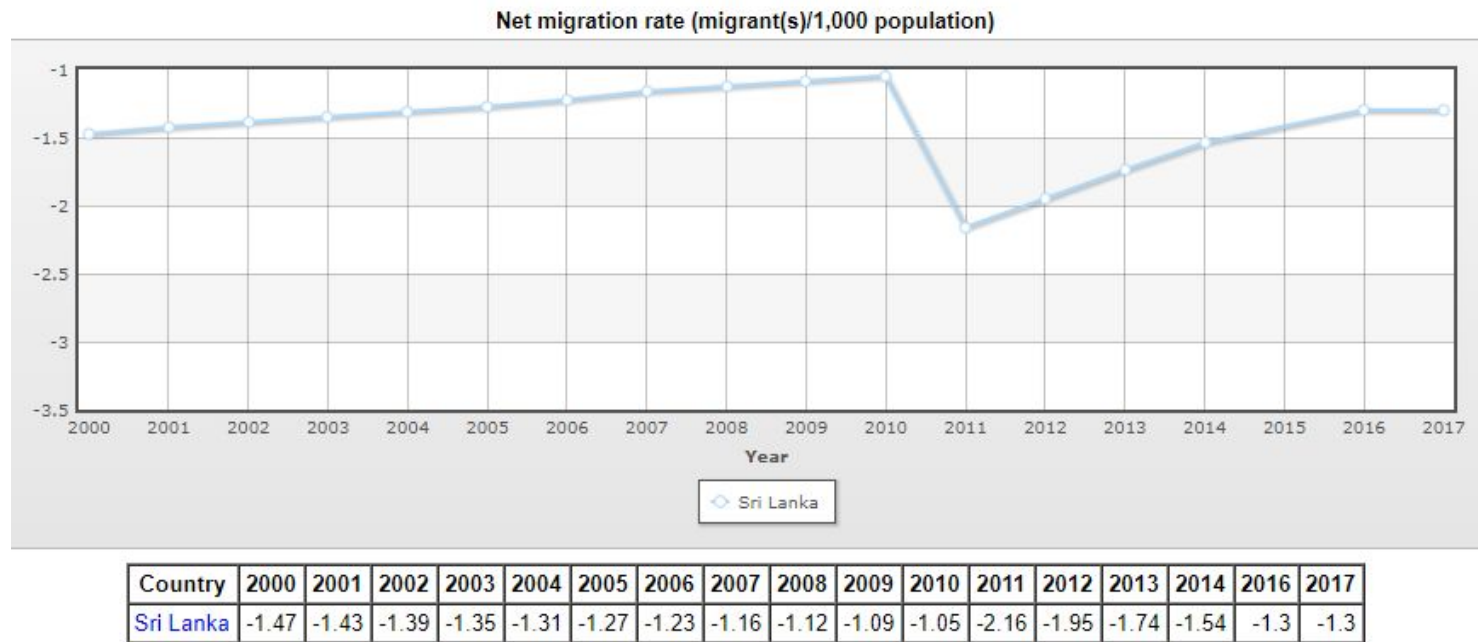


Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2016	2017
Sri Lanka	1.98	1.95	1.93	1.9	1.88	1.85	1.84	2.05	2.02	1.99	1.96	2.2	2.17	2.15	2.13	2.09	2.07



# Demographic Transition - Sri Lanka...

- ▷ Since 1970s, emigration (outbound) of Sri Lankans has accelerated – net loser
- ▷ Net Migration(source :[www.indexmundi.com](http://www.indexmundi.com))

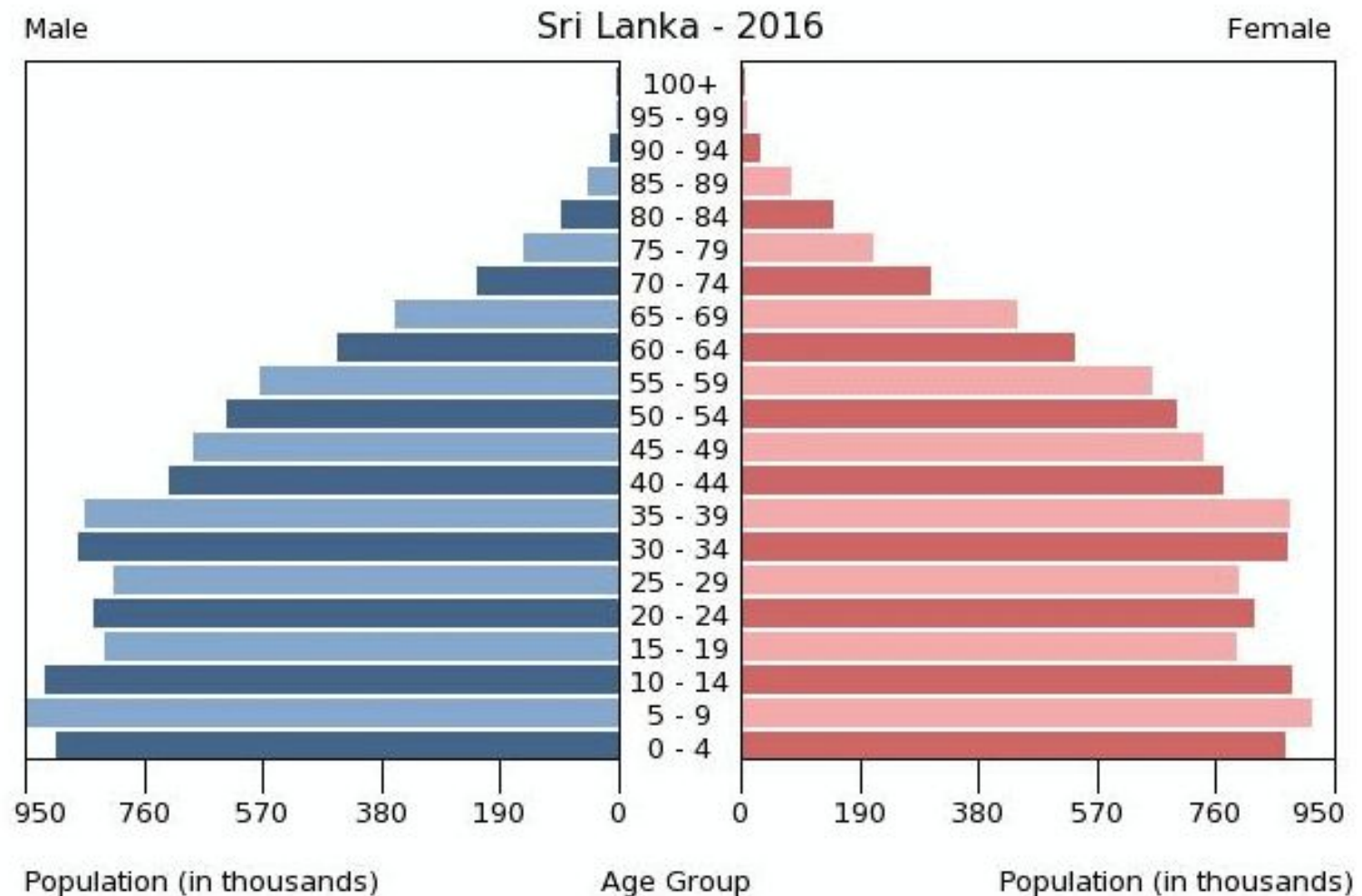


- ▷ 3.56 immigrants/1,000 population
- ▷ 9.26 emigrants/1,000 population



# Demographic Transition - Sri Lanka...

## ▷ Population pyramid- 2016

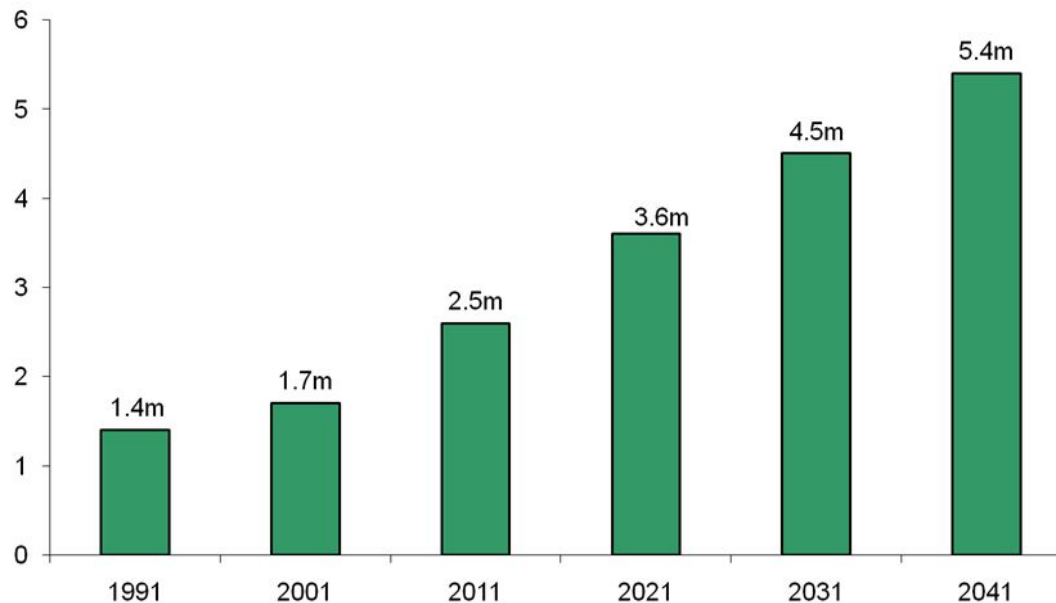


See also <http://www.worldlifeexpectancy.com/country-health-profile/sri-lanka>

# Demographic Transition - Sri Lanka...

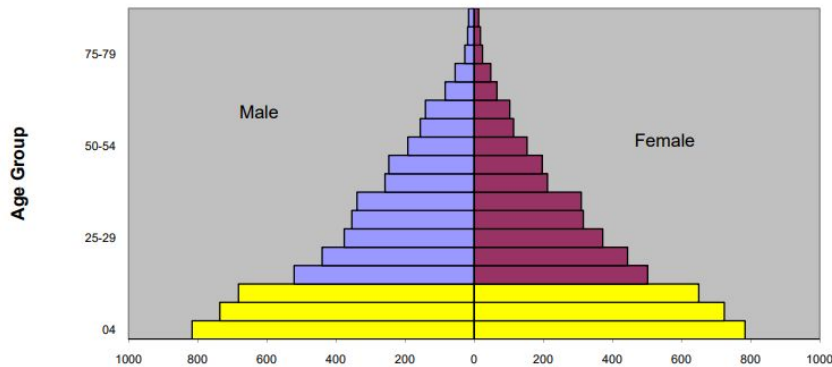
## ▷ Age Structure

- The proportion of children declined from 35% to 26% during 1981 & 2001.
- The projected proportion of elderly (60+) in 2017 & 2022 would be 14.2% & 16.3%.
- The projected proportion of elderly (65+) in 2032 would be 14.6%.

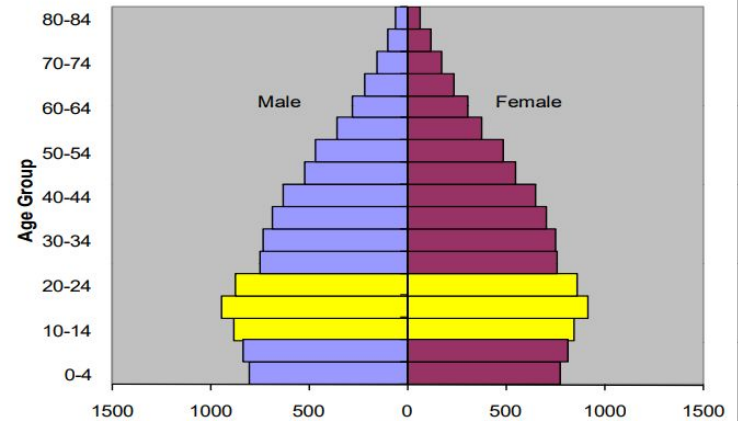


# Demographic Transition - Sri Lanka...

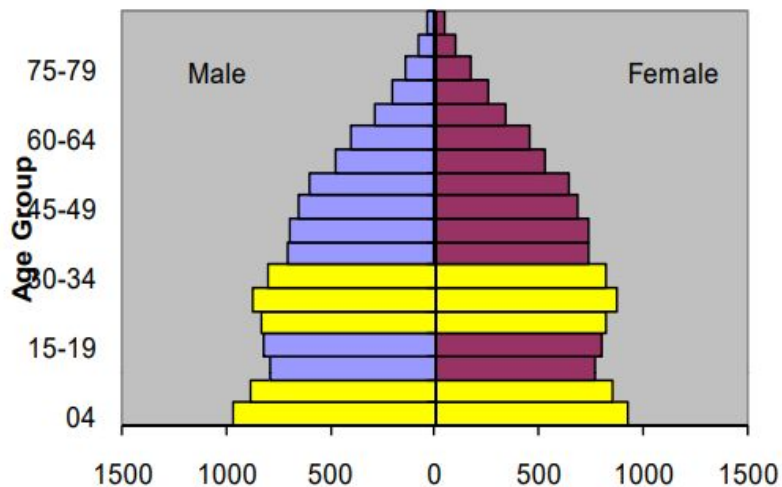
**Population Pyramid 1963**



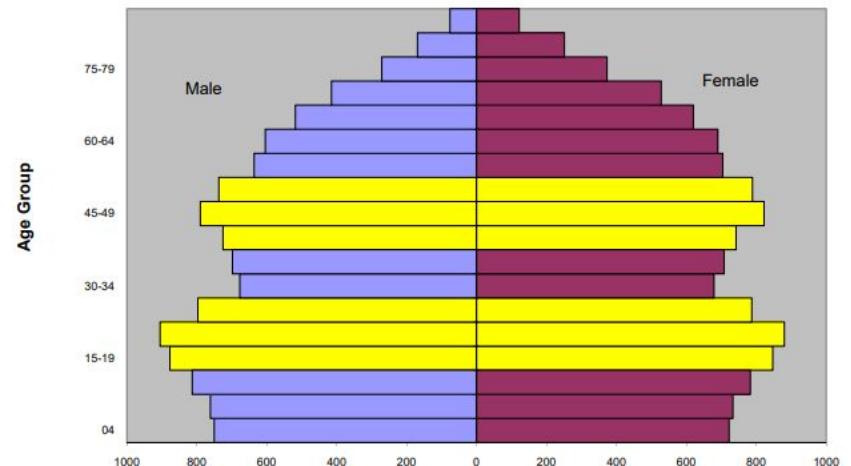
**Population Pyramid 2000**



**Population Pyramid 2010**

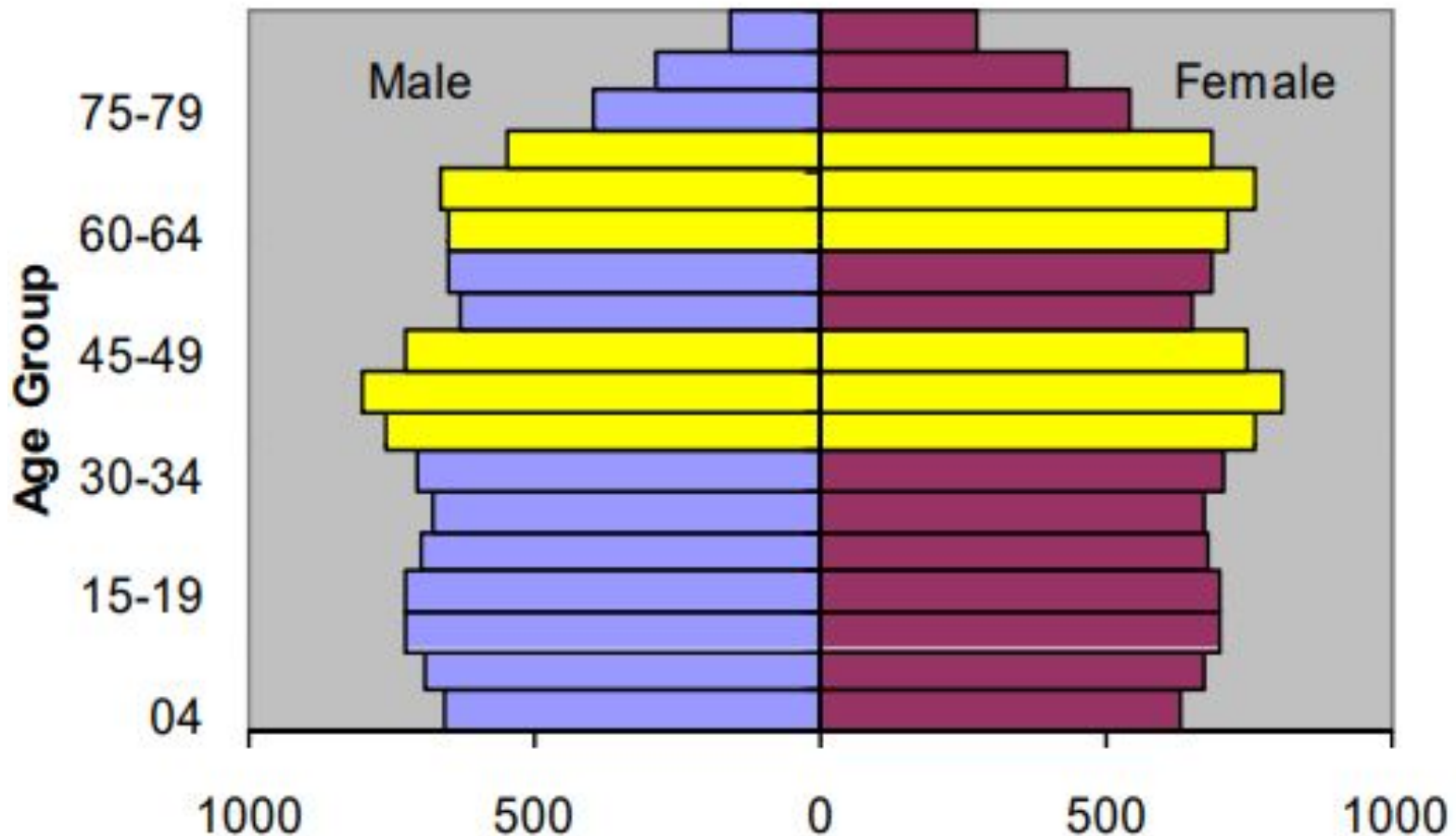


**Population Pyramid 2030**



# Demographic Transition - Sri Lanka...

**Population Pyramid 2050**



# Demographic Transition - Sri Lanka...

## ▷ Demographic Dividend(Bonus)

- First demographic dividend-
  - As children born during the high fertility regime move into working ages during the process of age structural transition, there will be a period of 'window of opportunity'
  - During this period child dependency ratio declines and proportion of working age population increases.
- Second demographic dividend
  - results from an increase in longevity, which causes individuals to save/invest in preparation of old age. This contribute to capital accumulation and economic growth
- Each country would undergo a period comprising "demographic bonus" during the age structure transition
- During demographic bonus, dependency will be at minimum level; highest proportion of population will be in working ages (15-59 or 15-64)

# Demographic Transition - Sri Lanka...

**Table 2: Dependency Ratio and the Index of Aging in Sri Lanka 1881 – 2031**

Year	Child Dependency Ratio(0-14)/(15-59)	Elderly Dependency Ratio(60+)/(15-59)	Total Dependency Ratio (0-14)+(60+)/(15-59)	Index of Ageing (60+)/(0-14)
1881	81.8	5.8	84.6	7.1
1891	81.5	5.8	83.4	7.1
1901	76.6	4.9	77.5	6.4
1911	74.6	7.8	77.5	6.5
1921	70.1	7.8	76.1	11.2
1946	64.9	9.6	71.8	14.8
1953	72.3	9.8	68.6	13.6
1963	79.0	11.4	76.1	14.5
1971	71.3	11.5	82.1	16.2
1981	60.5	11.3	76.1	18.8
1991	51.4	13.3	65.2	26.0
1995	43.8	14.3	51.3	32.7
2000	38.1	15.3	46.4	40.3
2005	35.5	17.2	44.7	48.3
2010	34.3	20.1	44.5	58.5
2015	32.5	23.8	44.9	73.2
2020	30.4	27.9	45.6	91.7
2031	24.6	36.0	60.6	126.6

Source: The Population Division

# Demographic Transition - Sri Lanka...

- ▷ Dividend onset and close
  - Japan = 1960 to 1995 (rapid eco. Growth)
  - S. Korea = 1970 to 1990 (rapid eco. Growth)
  - India = 2015 to 2050 (rapid eco. Growth - already)
  - 
  - **Sri Lanka = 1991 to 2019 ???**
  - **(working age is defined as 15-59)**
  - 
  - **Sri Lanka = 1991 to 2034 (15 yrs. remain)**
  - **(working age is defined as 15-64)**
  - **Sri Lanka - Leader in South Asia**

# Demographic Transition - Sri Lanka...

- ▷ What are the **health** challenges for Sri Lanka?
  - NCDs
  - Injuries
  - Mental and Child Health
  - Reproductive Health
  - Nutrition(Overweight/ Obesity)
  - Health Care Facilities -Geriatric / Disability Health
  - Substance Abuse
  - Environmental pollution
  - etc.



# References

- Annual Health Bulletin -2016
- Demographic and Health Survey -2016
- De Silva, W.I., 2013. The Age Structure Transition and the Demographic Dividend: An Opportunity for Rapid Economic Take-off in Sri Lanka. Sri Lanka Journal of Advanced Social Studies, 2(1), pp.3-46. DOI: <http://doi.org/10.4038/sljass.v2i1.5117>
- World Map indicators from <https://www.indexmundi.com/map/?v=29>
- Dr. H.R. Anulawathie Menike,2014 Age Structure Transition And Demographic Bonus In Sri Lanka. International Journal of Social Sciences and Entrepreneurship 1(12),pp 1-10
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# Thank you