

# **Workshop on Demographic Measures and their Policy Implications: The Case of ECO Countries**

## **Coordinators:**

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Organized by Civil Registration Organization and  
United Nations Population Fund

Tehran, 6-7 November 2012

# Outline

- Basic demographic concepts
- Sources of demographic data
- Population growth, age-sex composition and marital status (marriage and divorce)
- Key demographic indicators
  - Fertility
  - Mortality
  - Migration
- MORTPAK for Windows: Version 4.3
  - Programmes and application
- Discussion and evaluation

# DAY 1: MORNING SESSION

# Demography defined

- **Demography is the scientific study of human population primarily with respect to their size, their structure [composition] and their development [change] (Multilingual Demographic Dictionary, IUSSP 1982,p. 101).**
- Demography describes population size and composition. It studies change in size and composition; or it studies the determinants (causes) of population trends. And it studies the consequences of these trends, including problems resulting from them.

# Hauser and Duncan, (1959: 2)

- *Demography is the study of the size, territorial distribution, and composition of population, changes therein, and the components of such changes, which may be identified as natality, mortality, territorial movement (migration, and social mobility (change of status).*

# Demography and Population Studies

- Demographic analysis is confined to the study of components of population variation and change. Population studies are concerned not only with population variables but also with relationships between population changes and other variables – social, economic, political, biological, genetic, geographical, and the like (Hauser & Duncan, 1959: 2).

# Population size and composition

- **Population size has three faces:**
  - Absolute size
  - Density
  - Distribution or relative size
- **Composition: relative size of categories**
  - Characteristics that do not change easily, age, sex, racial or ethnic
  - Traits that are basis for societal roles and economic welfare (literacy, education, occupation and income)
  - Subpopulations within populations

## Age Composition

Per cent of population in the age group 'x', 'x+n':

$$= \frac{\text{Population in the age range 'x' to 'x+n'}}{\text{Total population}} \times 100$$

Age-sex pyramid: A graphic representation of the age-sex composition of the population. Percentages will have to be calculated for each age-sex group to the total population for the pyramid to give an accurate picture of the age-sex composition. It can also be drawn using the actual population numbers.



## Sex Composition

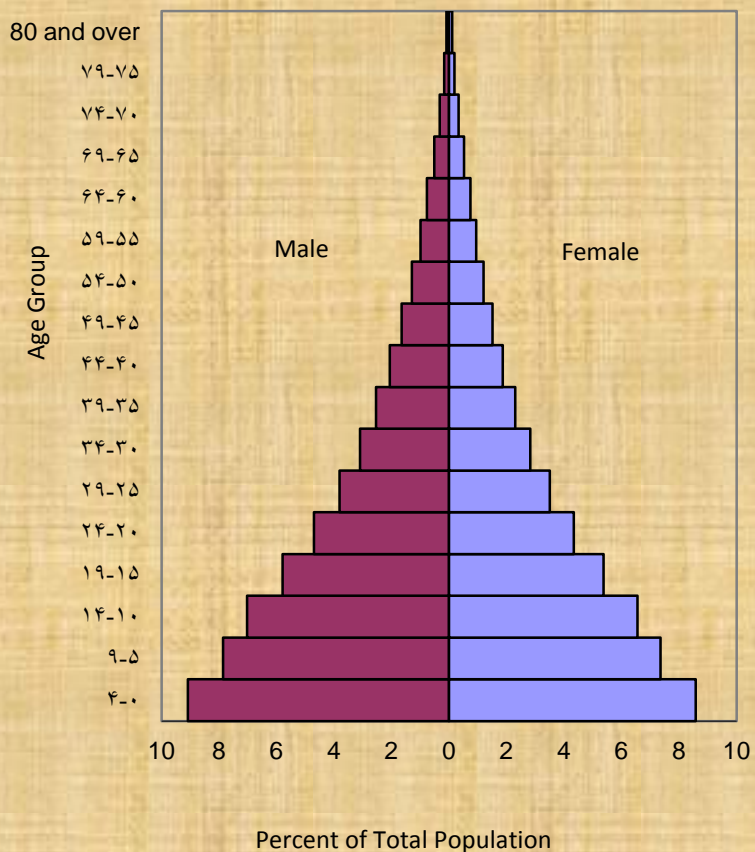
**Sex Ratio = Males /Females x100**

**Sex ratio at birth = Number of males births x  
100/Number of females births**

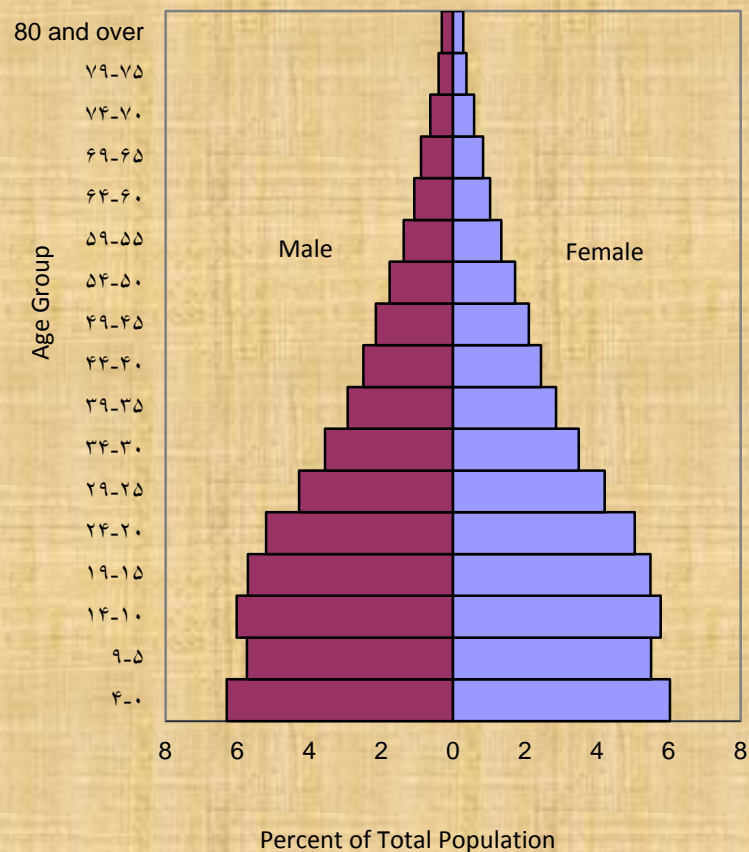
**It usually ranges between 102-108 male births per 100 female births.**

- **More males than females at younger ages and significantly more females than males at older ages**

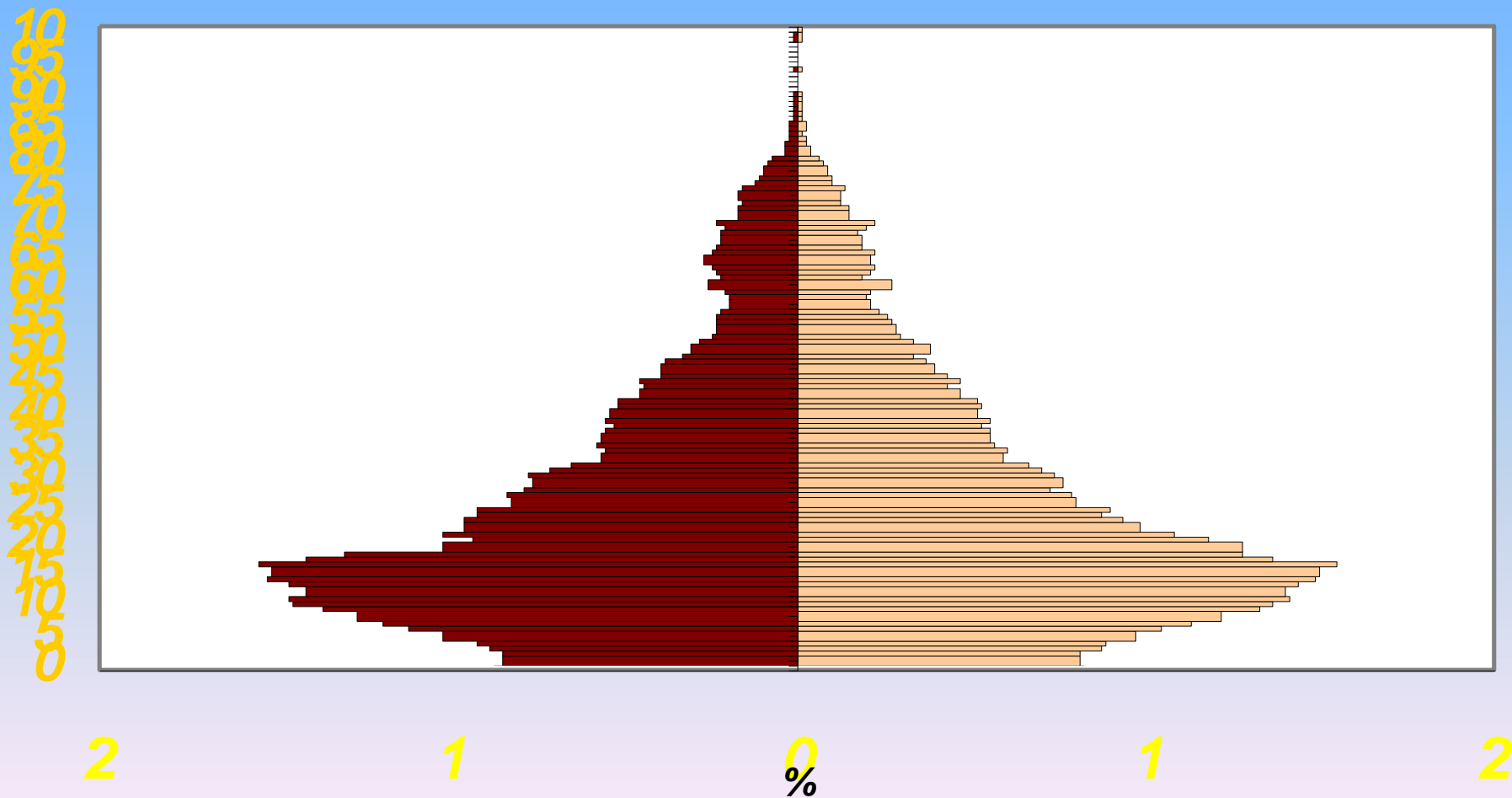
## Age-Sex Pyramid of Afghanistan, 2010



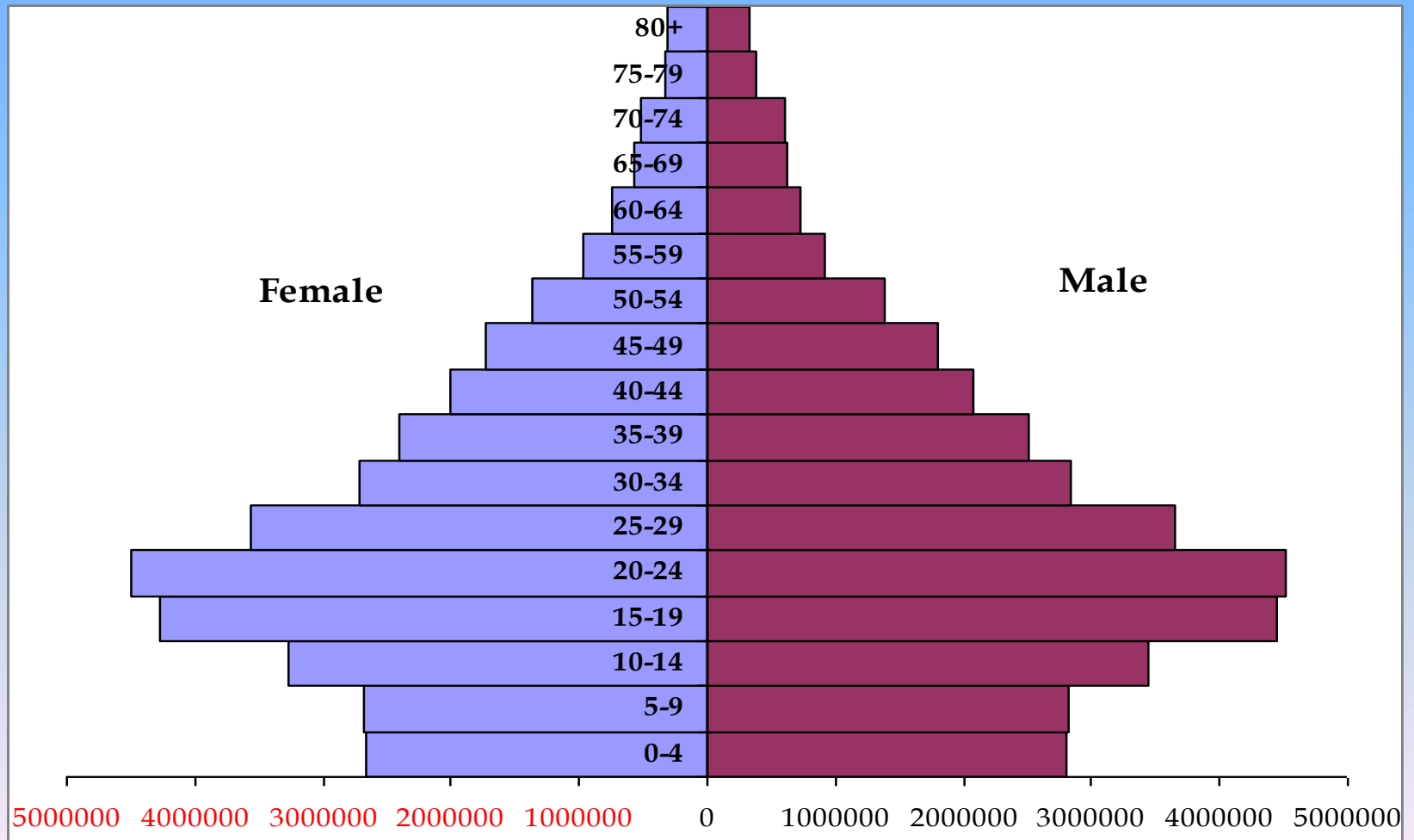
## Age-Sex Pyramid of Pakistan, 2010



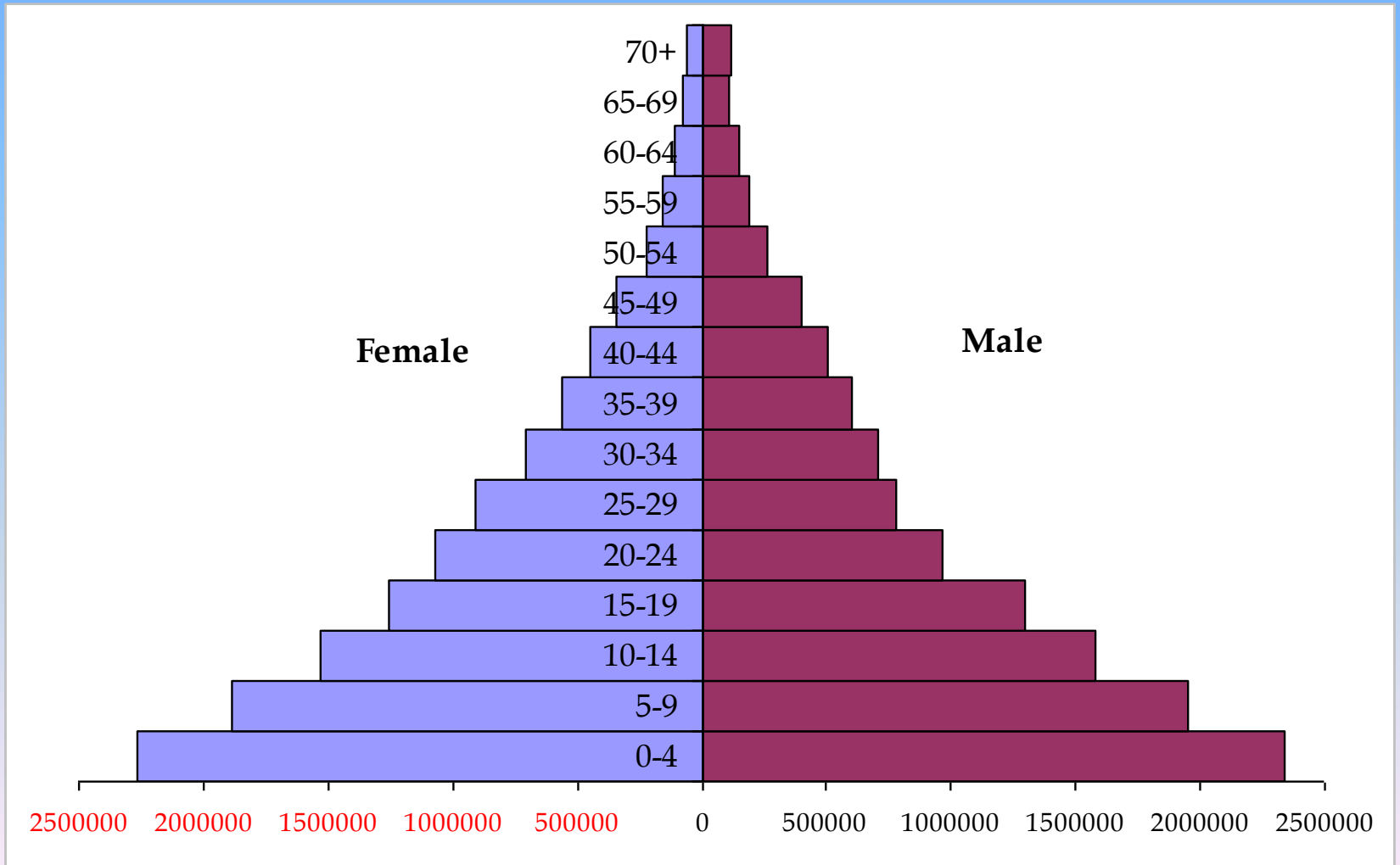
# Population age distribution of Iran, IDHS, 2000



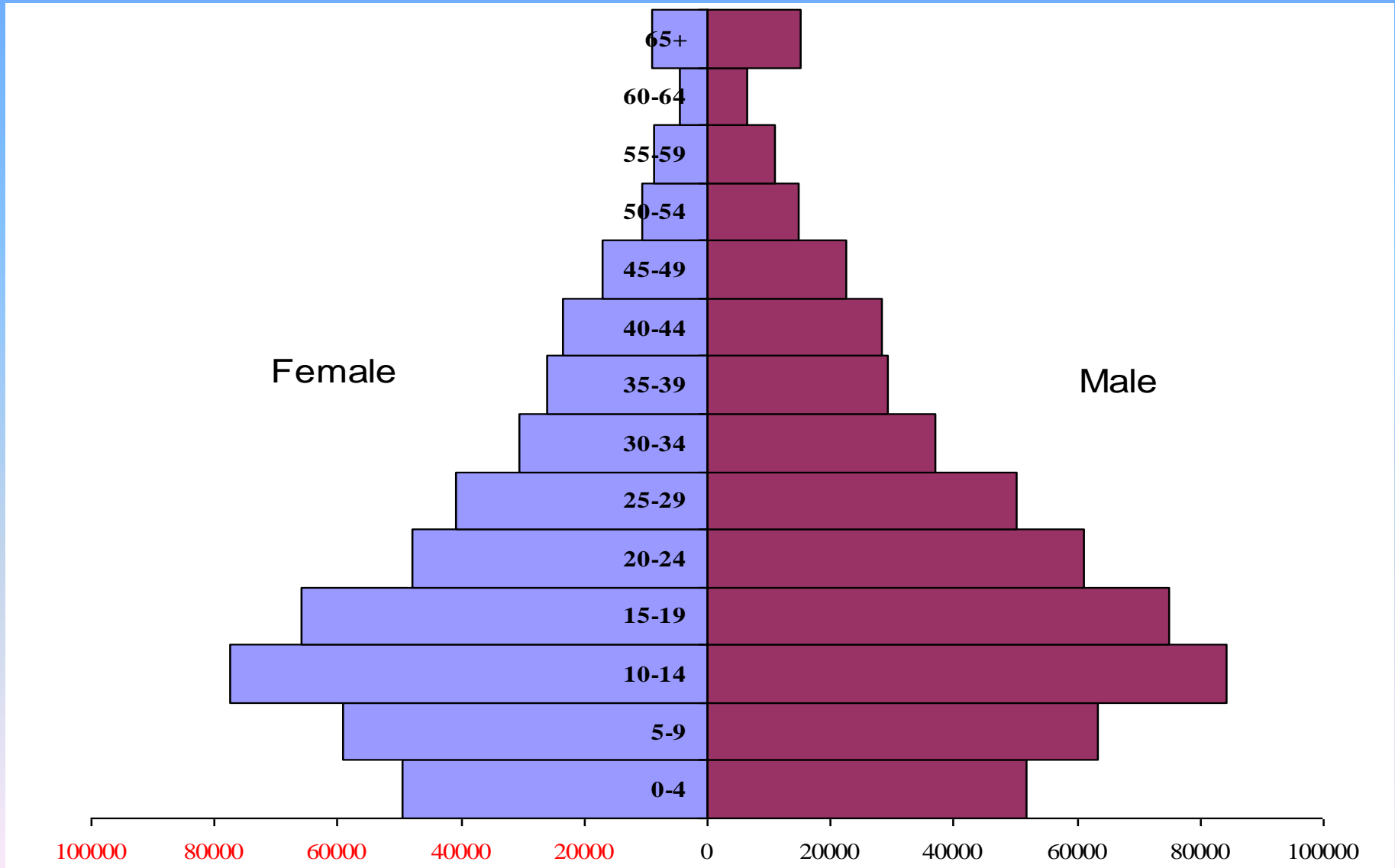
# Age pyramid of Iran, 2006 Census



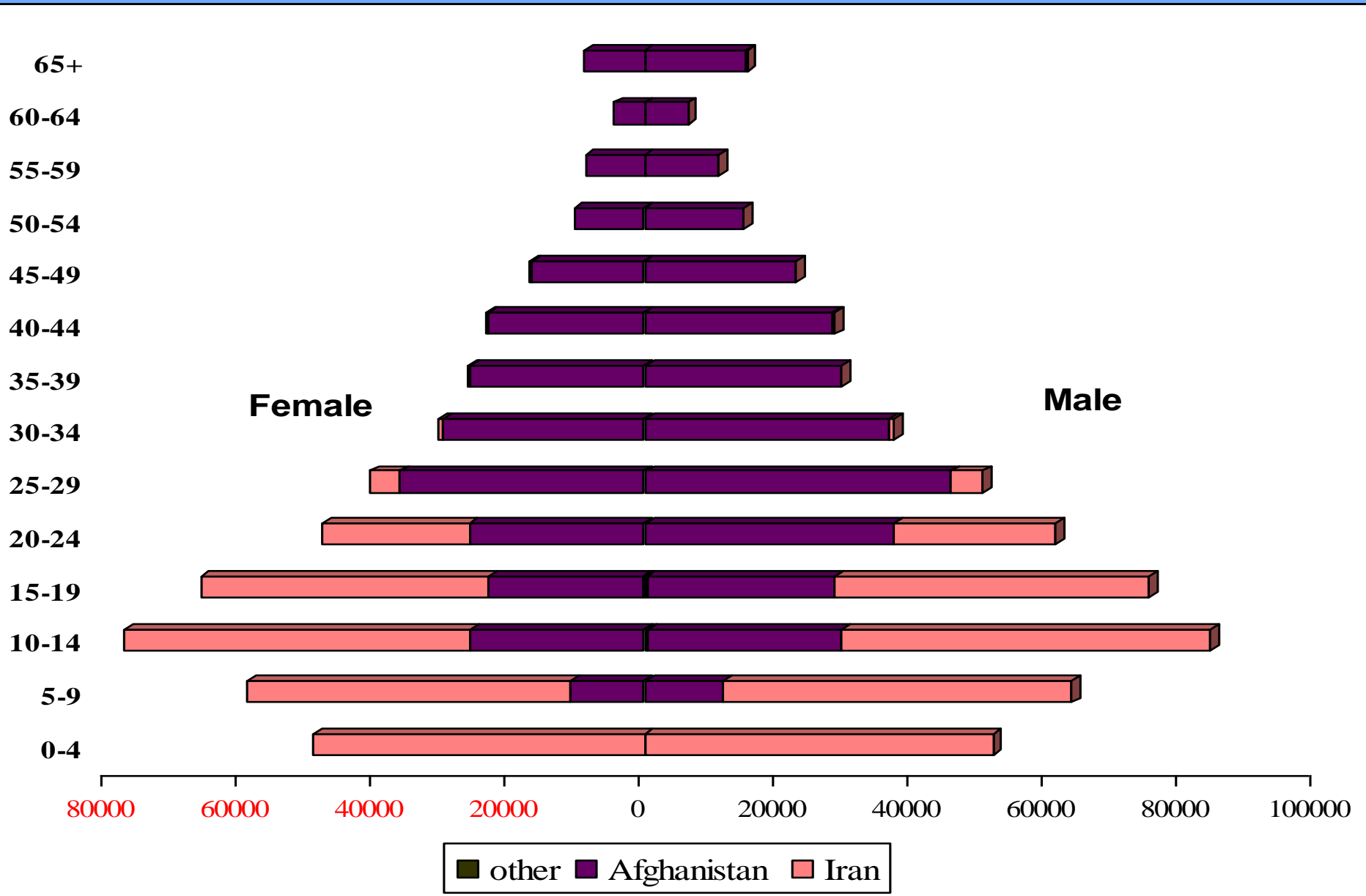
# Age Pyramid of Afghanistan, 2004



# Age pyramid for Afghans in Iran, 2005



# Age pyramid of registered Afghans in Iran, by place of birth, 2005



# Population change

- Demography, **study of population change**, especially change in size.
- To demographers, “**growth**” means **change in population size** (IUSSP 1982), even if it is negative.
- Immediate causes of growth:
  - The number of birth (B), minus the number of deaths (D), plus the net migration (M) [balance between movers in and movers out].
- **Population processes**, fertility, mortality, migration.
- Simplest measure of population growth process is the **crude rate**.



**Rate:** A rate measures the frequency of events (births, deaths etc.) in a population during a specified period of time. It is usually expressed as the number of events per unit (usually 100, 1000 or 100,000) per year.

**Ratio:** The relation of one sub-group to another sub-group in the same population.

Example: Sex ratio =  $\frac{\text{Males} \times 100}{\text{Females}}$

**Proportion/percentage:** The relationship of one sub-group to the total population.

Example: Proportion of older persons =  $\frac{\text{Population 60+}}{\text{Total population}}$

These are often expressed as percentage, multiplying by 100.

**Cohort:** A group of people sharing a common experience.

**Examples:** Group of people born or married during the same year.

## Population Growth and Composition

### Rate of Growth of Population:

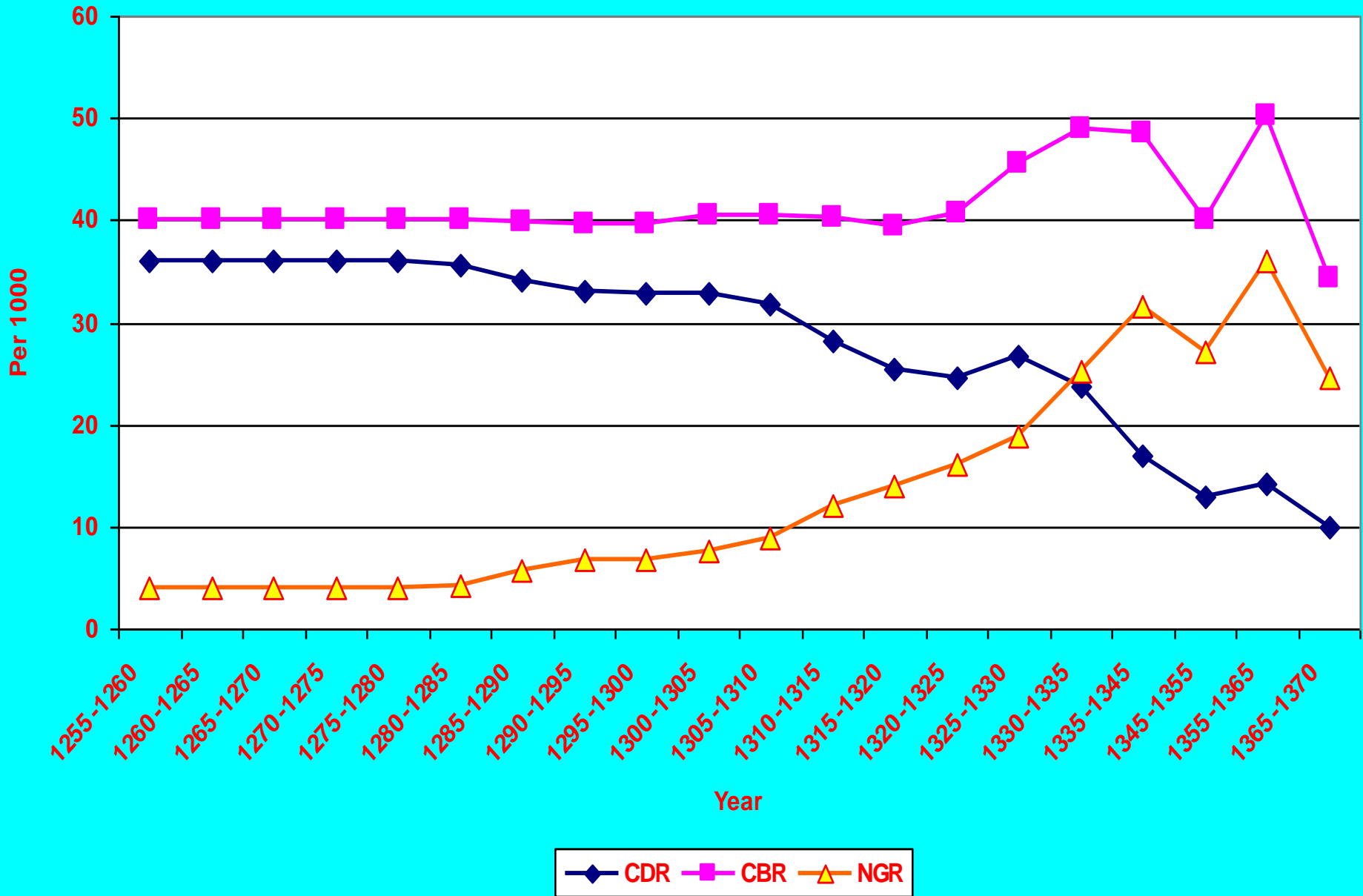
Average annual increase:  $P_t = P_0 (1 + rt)$

Geometric rate of growth:  $P_t = P_0 (1+r)^t$

Exponential rate of growth:  $P_t = P_0 e^{rt}$

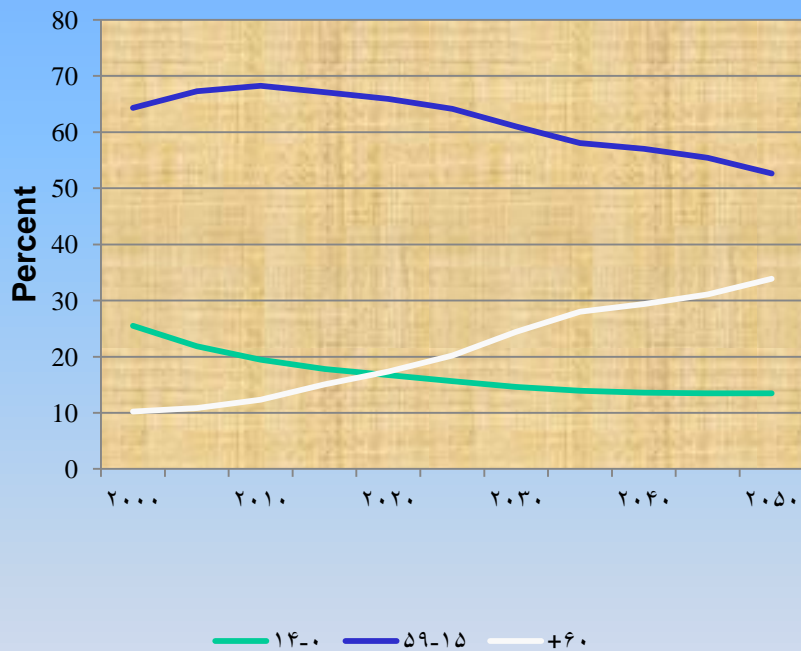
where  $P_t$  and  $P_0$  are the population at time '0' and 't' respectively, 't' is the time interval in years and 'r' is the annual rate of increase/growth (change)

## Trends of CBR, CDR and NGR, 1255-1370, Amani, 1995

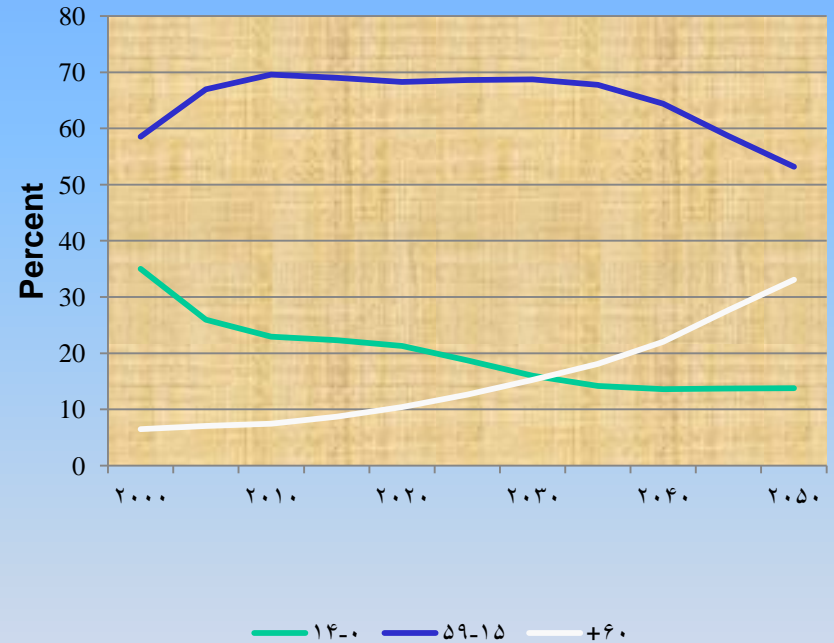


## Distribution of population by broad age groups: 2000-2050

### China

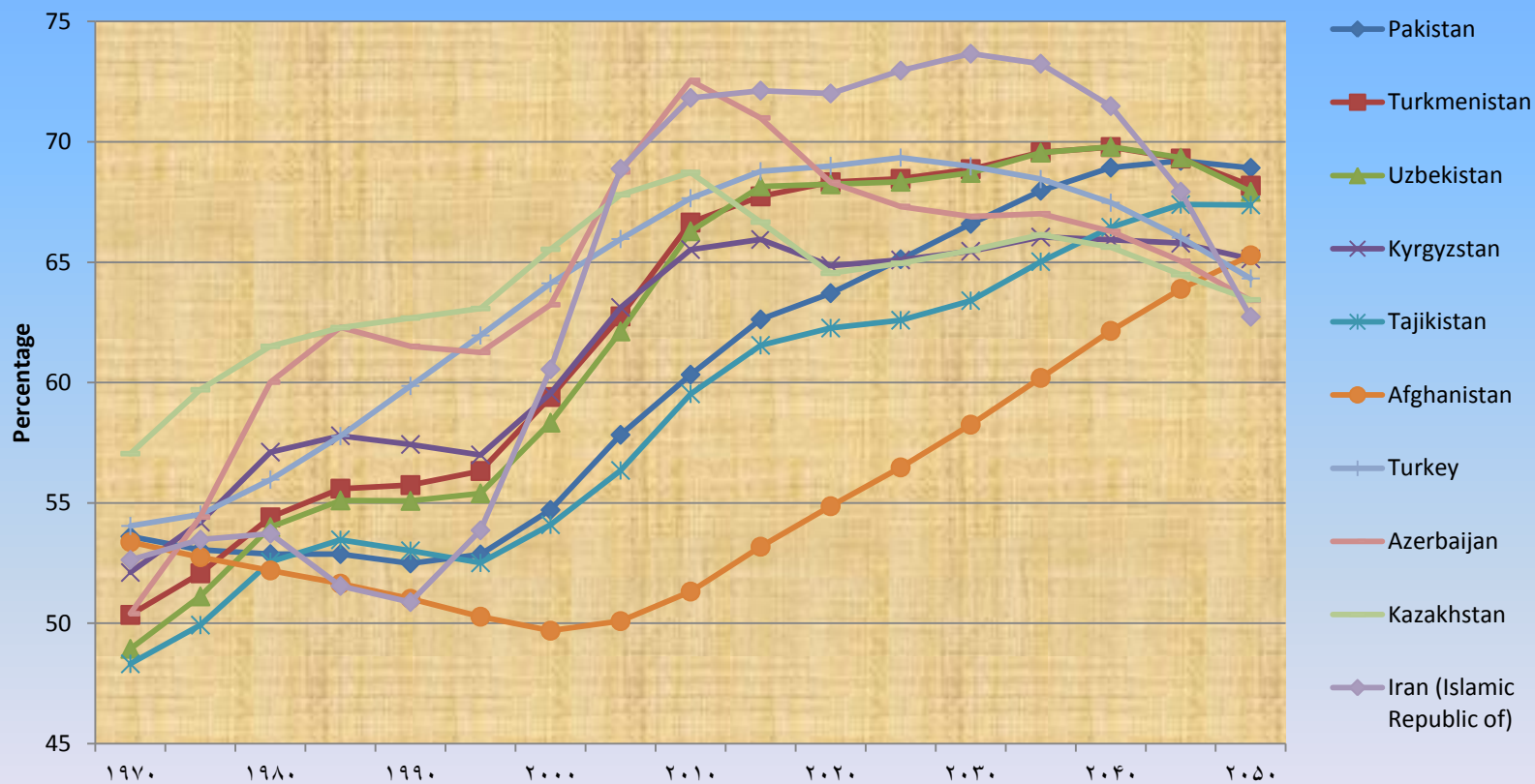


### Iran (Islamic Republic of)



**Source: World Population Prospects: The 2010 Revision, United Nations Population Division, New York (2011)**

## Demographic dividend in ECO countries: Percentage of population 15-64, 1970-2010



Source: World Population Prospects: the 2010 Revision, CD Rom Edition, United Nations, New York (2011)

## **Opportunities: Demographic dividend**

- ❖ **It is important to recognize the benefits of changing age structure, as decline in fertility and increase in life expectancy temporarily increase the relative size of the workforce, opening a unique “demographic window”.**
- ❖ **The East Asian experience provides a compelling evidence of the impact of “demographic dividend” in the region’s spectacular economic growth, studies suggesting that the demographic dividend accounts for between one-fourth and two-fifths of East Asia’s “economic miracle”.**
- ❖ **The phenomenal growth of per capita income, rising by more than 6 per cent annually between 1965 and 1990, was credited to the size of working-age population growing nearly four times faster (an average of 2.4 per cent a year) than the dependent population.**
- ❖ **With the benefits of good education and a liberalized trade environment, this huge work force was absorbed into the job market, thereby increasing the region’s capacity for economic production (Bloom, Canning and Sevilla, 2003).**

## **Opportunities: Demographic dividend (contd.)**

- ❖ **China's rapid fertility decline in the 1970s has brought a significant demographic dividend, which coincided with the economic boom experienced by China. This has further triggered the rapidly growing and dynamic economy.**
- ❖ **An abundant labour supply, combined with relatively low dependency ratio (young and old), made a significant contribution to increasing output per capita and thus the standard of living. Hence, China has effectively capitalized the benefit of favourable population structure, which contributed to 15 per cent of China's economic growth between 1982 and 2000 (Wang and Mason, 2005).**
- ❖ **Several countries in South-East Asia and South Asia are projected to have a large segment of their population in the prime working ages, with the potential of high economic output and savings. This "demographic dividend" has the potential for stimulating economic growth if appropriate social and economic policies are in place.**

❖ **David Bloom (2002), however, cautioned that:**

***“reaping the demographic dividend is not automatic”***

❖ **It depends on the policy environment that emphasises:**

❖ **population and family planning,**

❖ **good public health,**

❖ **good education,**

❖ **open labour market,**

❖ **free and fair trade,**

❖ **good governance, and**

❖ **economic management.**



- ❖ **Effective policies in those key areas allow maximum returns from concentration of the population in working ages. Transforming a youthful population into a productive workforce requires investment in education at all levels, while a larger, better-educated workforce will yield benefits only if they can find jobs.**
- ❖ **In many countries, necessary steps to reaping the benefits of the demographic dividend include strengthening the rule of law, improving the efficiency of government operation and reducing corruption.**
- ❖ **Not exploiting “demographic dividend” can be costly and it could turn out to be “demographic nightmare”.**

*High unemployment, especially among youth, wastes human resources and can lead to higher crime, social unrest and political instability, with further ramifications on socio-economic prospects. Jobless growth and high and rising unemployment among youth in the region may indicate inadequate preparation to reap the benefits of the demographic dividend” (United Nations, 2007: 32).*