POPULATION DISTRIBUTION AND DENSITY AND GROWTH

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Population is defined as the number of people living in an area at a particular time.

Population Concepts

(i) Over-population: is a situation whereby the population is considered too large for the available resources

(ii) Under-population: is a situation where the population is less than the available resources of a country.

(iii) Optimum Population: is a situation where the number of people that can be supported is the same as the available resources.

(iv) Population Density: is defined as the number of persons per unit area of land or per square kilometer of land.

$$\text{Population density} = \frac{\text{Total population}}{\text{Land Area}}$$

Population Concepts

(v) Birth rate: this is the number of live babies born per thousand of the population per year, also called natality rate.

(vi) Death rate: this is the number of death per thousand of the population per year, also called mortality rate.

(vii) Natural increase: The difference between the birth rate and the death rate.

(viii) Migration: the number of people moving in or out of a region.

Population Concepts

(ix)<u>Total Fertility Rate</u> - the average number of children a women will have in her childbearing years.

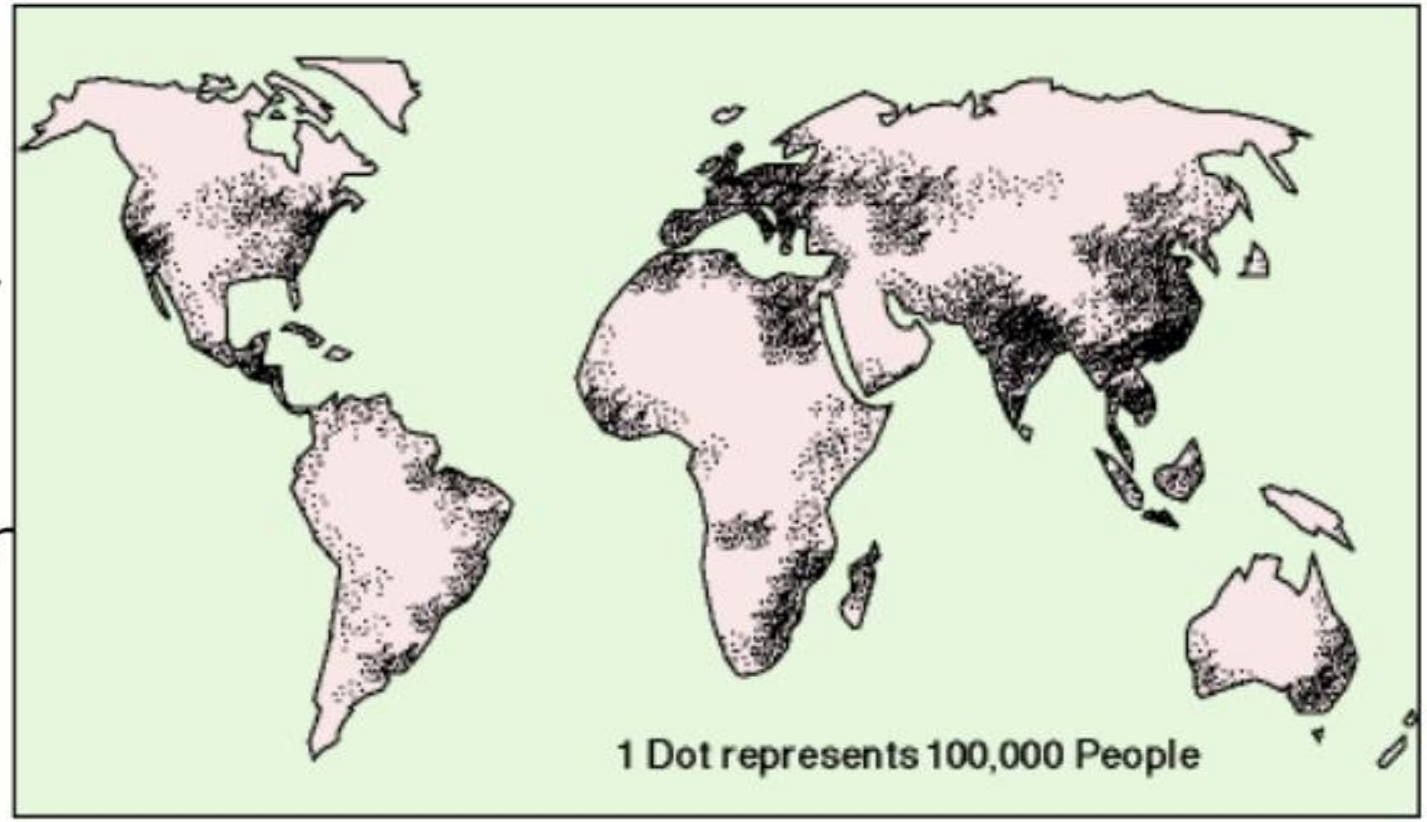
(x) <u>Infant Mortality Rate</u> – the number of deaths of children under the age of one *per thousand live births*. The rate ranges from as low as 3 (Singapore, Iceland) to as much as 150 (Sierra Leone, Afghanistan).

(xi) Life Expectancy- the average number of years a person is expected to live

Population Distribution

The way in which people are spread across a given area is known as **population distribution**. Geographers study population distribution patterns at different scales: local, regional, national, and global

Patterns of population distribution tend to be uneven. For example, in the UK there are more people living in the south-east of England and London than in Wales. It follows that populations are more or less sparse or dense in different locations, regions and countries.



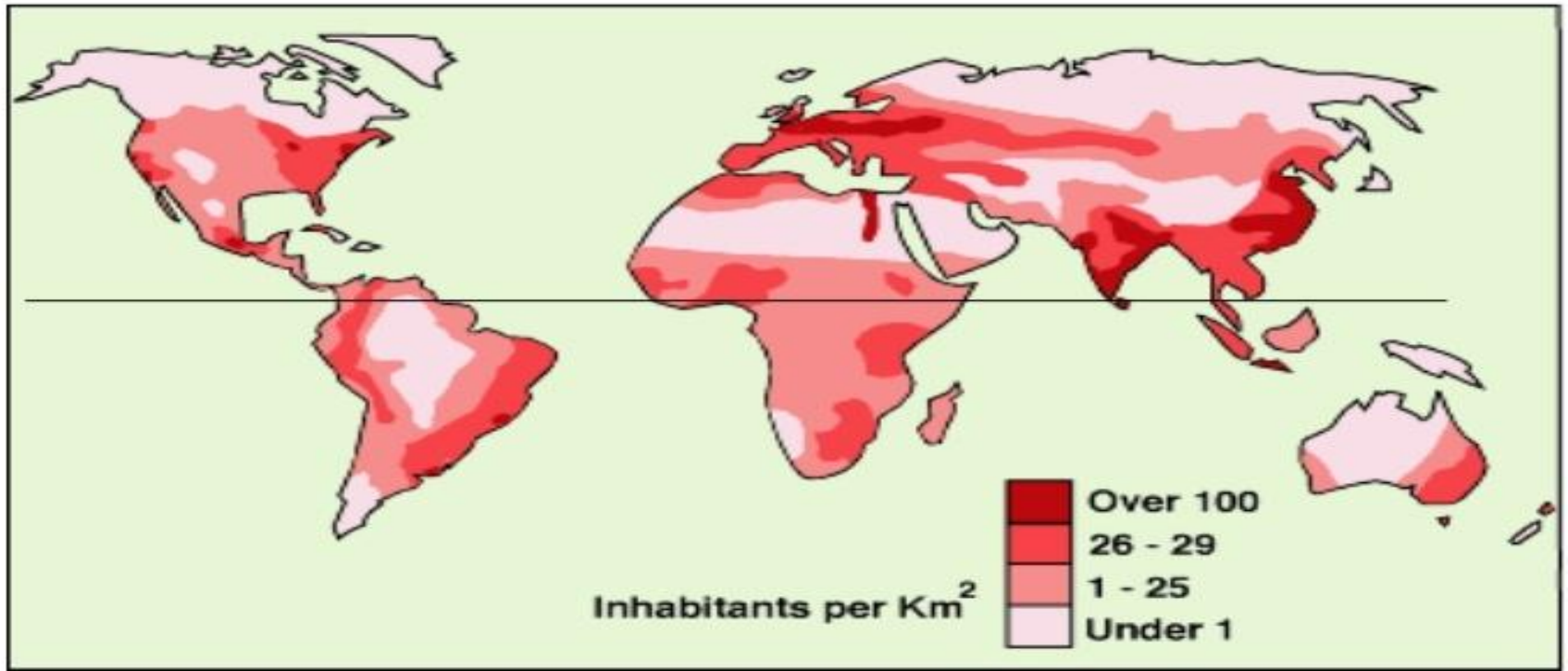

Tropic of Cancer
Pacific Ocean
Atlantic Ocean
Equator
Pacific Ocean
Indian Ocean
Tropic of Capricorn
One dot represents 100,000 people

Population density

Population density

Population density is the average number of people per square kilometre. It is a way of measuring population distribution. It shows whether an area is sparsely or densely populated.

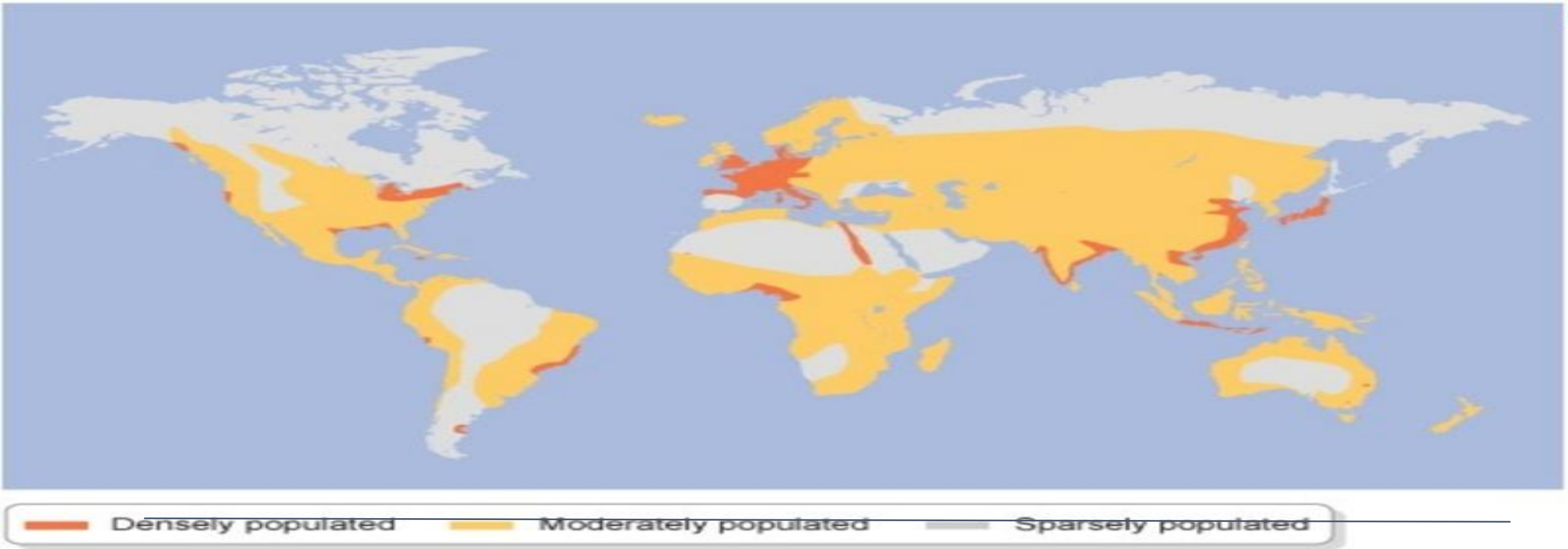
Like population distribution, population density can be calculated at a local, regional, national or global scale. The graphic shows patterns of population density on a global scale. Note that:



Population density

The map shows patterns of population density on a global scale. Note that:

- areas of high and low population density are unevenly spread across the world
- the majority of places with high population densities are found in the *northern hemisphere*



Map of the world showing population density

The population density of a country is has very little to do with its level of economic development. For example, both Bangladesh and Japan are very densely populated, but Bangladesh is a *LEDC* and Japan is a *MEDC*.

Factors Affecting Distribution and Density of Population

Physical

(i)Relief-Areas with flat plains encourage a dense population and areas with high or rugged mountain have a sparse population.e.g Bangladesh, Andes
(ii)Climate- Areas with moderate rainfall encourage a dense population (Northwest Europe)while those with little or too much rainfall discourage population Sahara desert.
(iii) Vegetation- Areas in the world having a good grassland encourage population.
(iv) Soil- Fertile soils encourage a large population while a barren soil dis courage population location. E.g Nile valley & Delta , Northern Scandinavia.

Factors Affecting Distribution and Density of Population

(v) Water resources- The existence of water in an area leads to a large population living there while regions in the world that have little or no availability of water discourage population. E.g Northwest Europe and Afghanistan.

(vi) Natural routes- Regions in the world that have accessible routes encourage a large population

Factors Affecting Distribution and Density of Population

Human

(i)Economic- Existence of good roads, railways, Industries and tourism

(ii)Political- government Investment, New town, Reclamation of land

(iii) Social- Better housing opportunities, Education, health facilities, Retirement areas

Reasons for distribution

The reasons for the uneven distribution of population can be divided into two categories:- **Physical** and **Human**

Physical factors Relief

High density

Flat areas are easier to build homes, industry for jobs and communications on (roads and railways). The soil is usually deeper and more fertile so more food can be grown for the people living there. Eg Ganges valley, India.

Low density

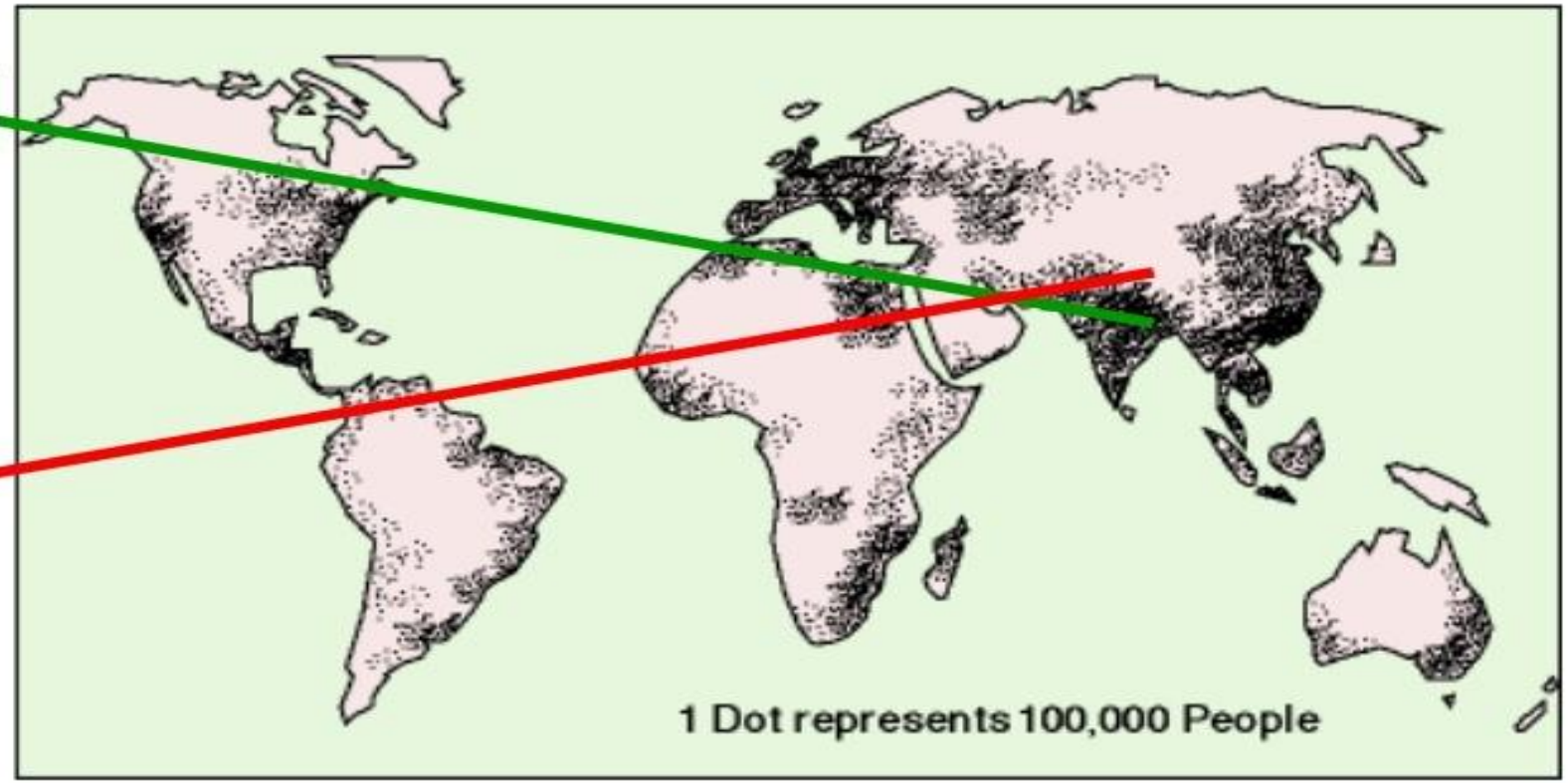
Areas that are high and steep experience a colder, wetter climate, making it more difficult to grow crops. The steepness makes it hard to build on or grow crops because the soil is easily washed to the bottom of the slope. These areas are also remote. Eg the Himalayas.

Physical factors

Relief

High density
Ganges valley, India.

Low density
the Himalayas.



Physical factors Climate

High density

These areas have a climate which is not too wet or dry, not too cold or too hot. The climate is moderate enough to allow food to be grown and and pleasant to live in. Eg the UK.

Low density

Some areas are too dry for soils to exist, so no food can be grown (deserts), or too wet so that a soil's nutrients are washed out of it (rainforest). Extreme cold can also mean a permafrost layer limits what can be grown there, and also make transport and building difficult (tundra). Eg the Sahara or Alaska.

Reasons for distribution

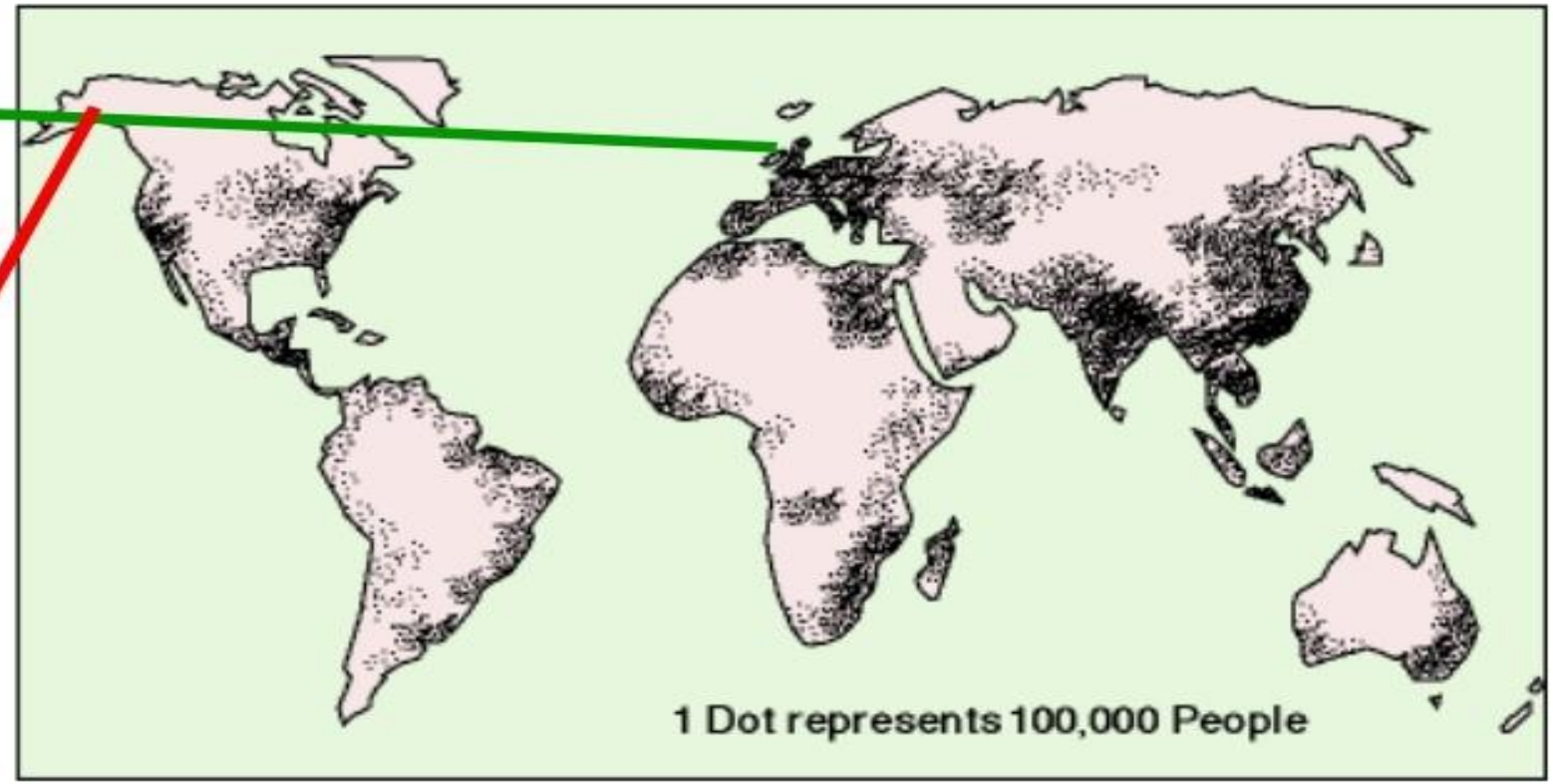
The reasons for the uneven distribution of population can be divided into two categories:- **Physical** and **Human**

Physical factors

Climate

High density
UK.

Low density
Sahara or Alaska.



Reasons for distribution

The reasons for the uneven distribution of population can be divided into two categories:- **Physical** and **Human**

Physical factors

Soil fertility

High density

Areas that have soils with plenty of nutrients will be able to grow plenty of food and be able to support a high population. Eg the Netherlands.

Low density

Areas with poorer soils – either because there is too much rain, or too little or it is too cold – will have problems growing food and so much fewer people will be able to live there. Eg Amazonia.

Reasons for distribution

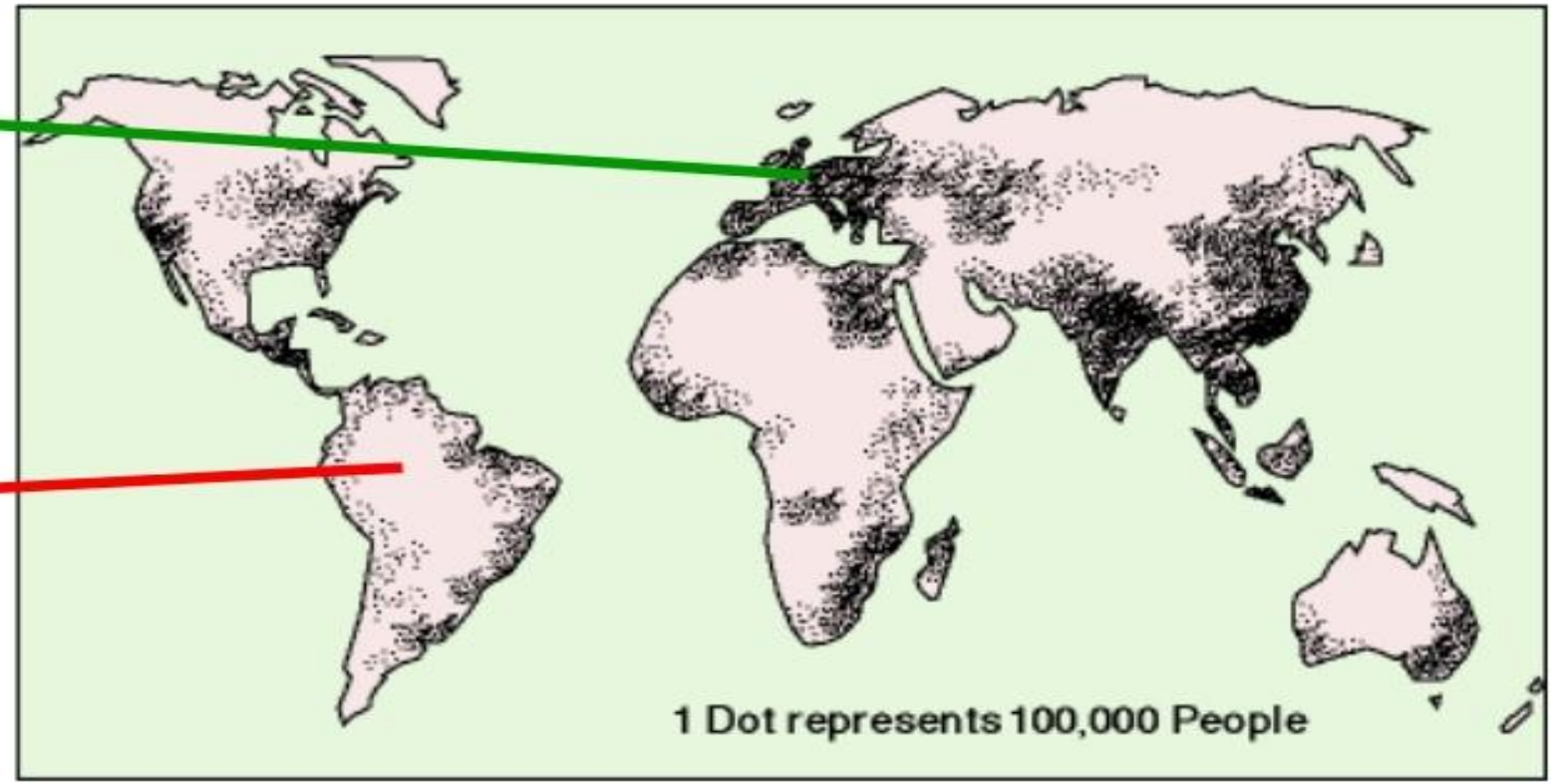
The reasons for the uneven distribution of population can be divided into two categories:- **Physical** and **Human**

Physical factors

Soil fertility

High density
Netherlands.

Low density
Amazonia.



Reasons for distribution

The reasons for the uneven distribution of population can be divided into two categories:- Physical and Human

Physical factors

Water supply

High density

Places with a moderate climate which receives good amounts of rainfall will have enough water for all the needs of humans – drinking, cleaning, cooking, transport. Eg East coast of China.

Low density

Much drier areas will have problems since soils are more easily blown away, and are left useless. Similarly, areas that have too much rain also have poor soils because the nutrients are washed out of them (leaching). Eg Arabian peninsula.

Reasons for distribution

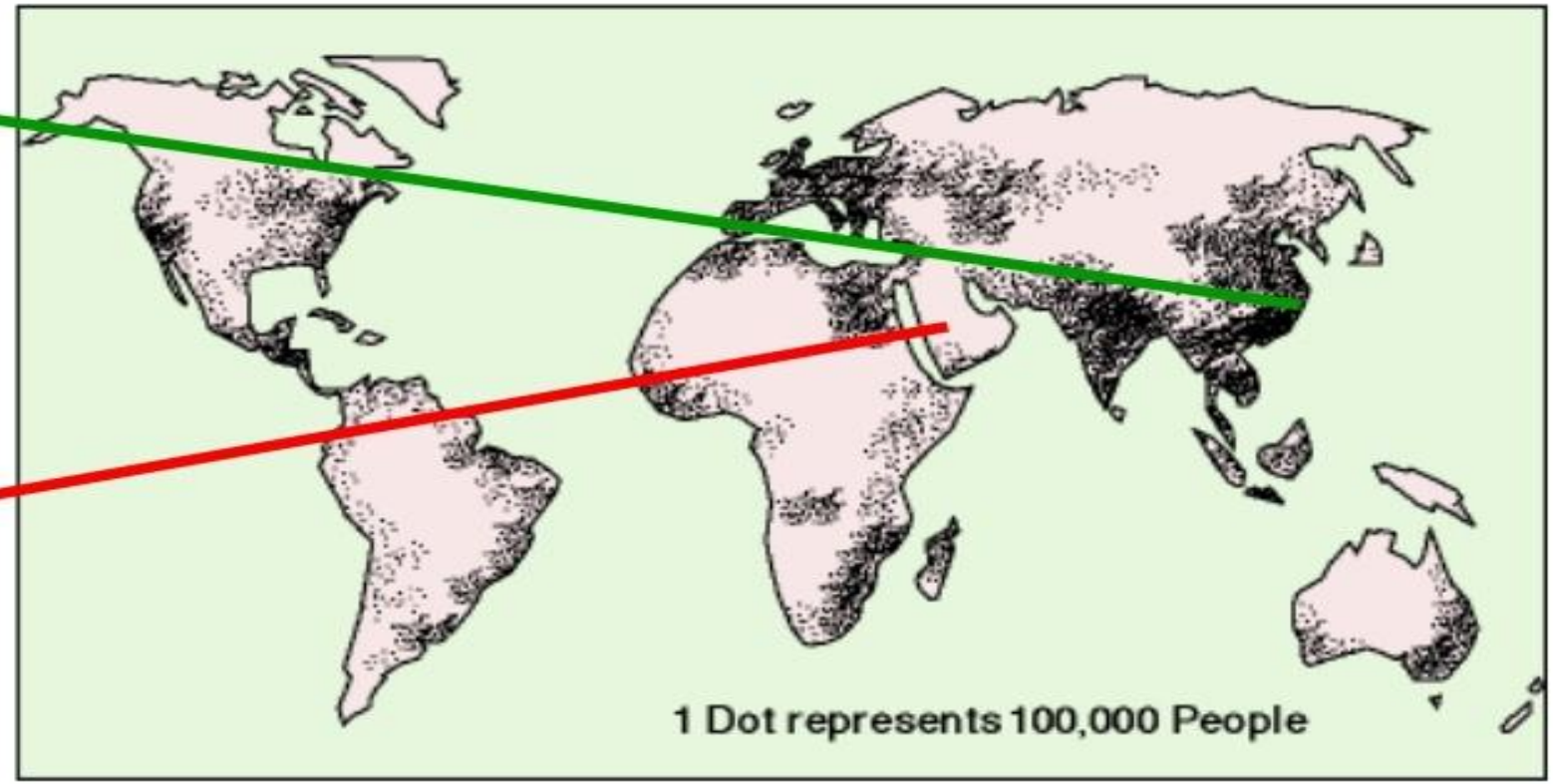
The reasons for the uneven distribution of population can be divided into two categories:- **Physical** and **Human**

Physical factors

Water supply

High density
East coast of China.

Low density
Arabian peninsula.



Reasons for distribution

The reasons for the uneven distribution of population can be divided into two categories:- **Physical** and **Human**

Human factors

Resources

High density

If an area has plenty of natural resources eg coal or iron ore, then this will attract people to go to that place for work in industry.

Low density

Areas that don't have resources will not attract so many people as there is less chance of making a living there, and consequently population density will remain low.

Reasons for distribution

The reasons for the uneven distribution of population can be divided into two categories:- **Physical** and **Human**

Human factors

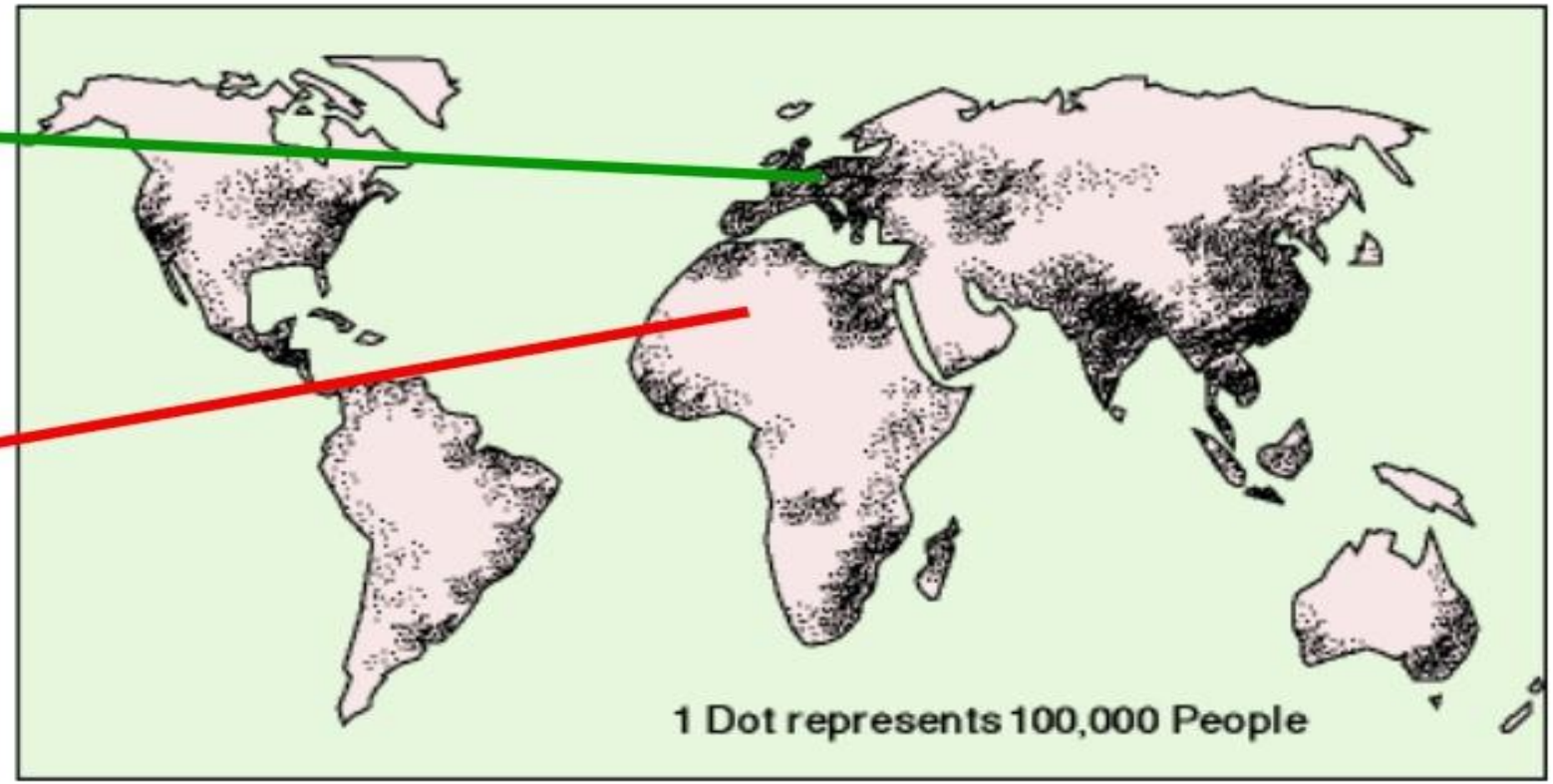
Resources

High density

Europe

Low density

Sahara



Reasons for distribution

The reasons for the uneven distribution of population can be divided into two categories:- **Physical** and **Human**

Human factors

Political

High density

Countries with stable governments tend to have a high population density and this encourages further growth e.g. Singapore

Low density

Unstable countries tend to have lower population densities as people migrate, and this hinders further growth e.g. Afghanistan.

Reasons for distribution

The reasons for the uneven distribution of population can be divided into two categories:- **Physical** and **Human**

Human factors

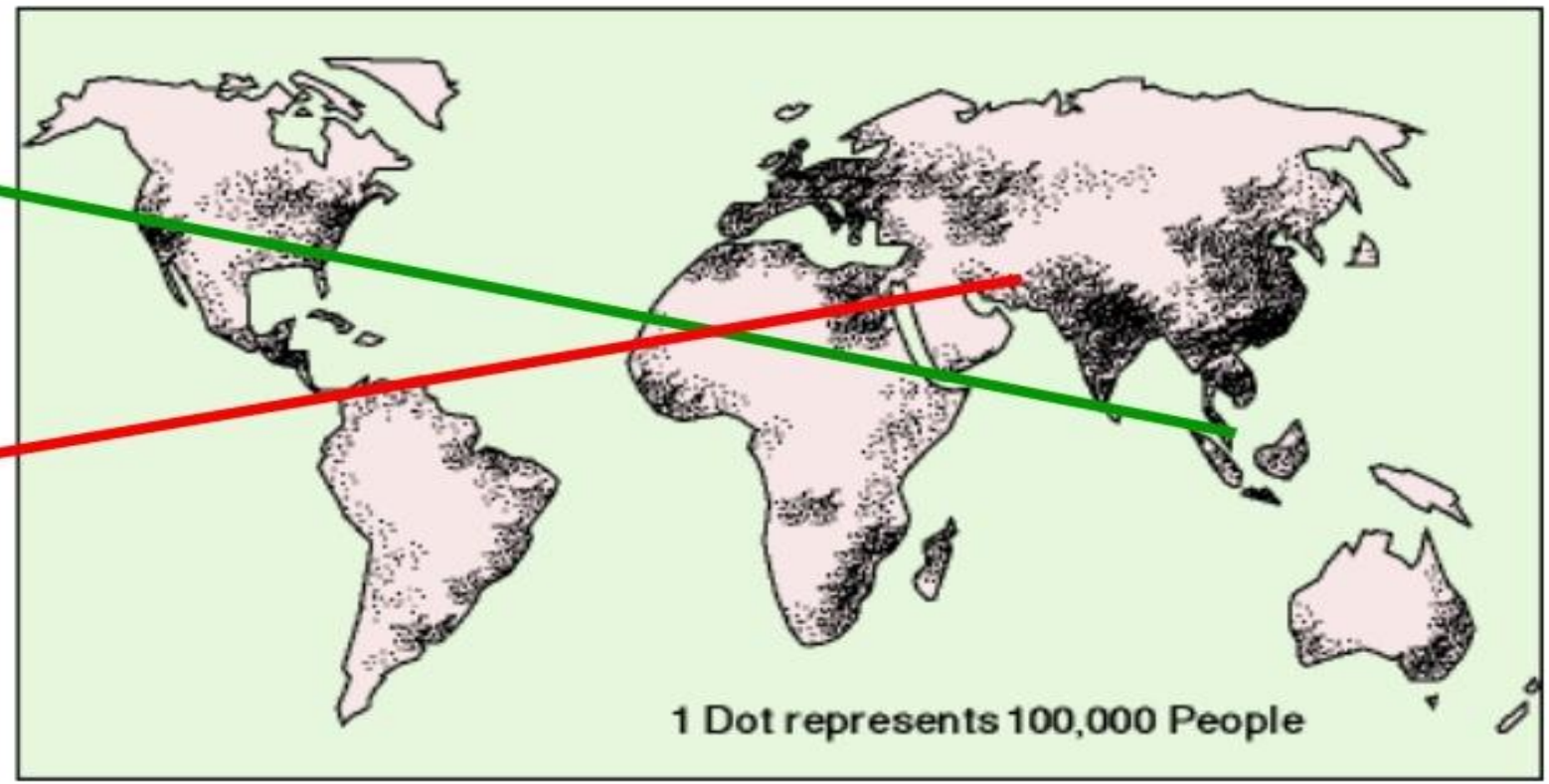
Political

High density

Singapore

Low density

Afghanistan



Factors affecting population density

There are a number of different environmental and human factors which affect why people are not spread evenly across the world.

The world is made up of a vast number of contrasting environments: Some areas have a temperate or mild climate, others are covered in ice. Some areas are **fertile**, others are desert. Some of these environments attract settlers while other environments **repel** settlers - as shown in the diagram below.

Factors attracting settlers and leading to high population densities:

1.) Temperate climate (moderate climate) e.g. the UK

2.) Low-lying flat fertile land e.g. the Bangladesh Delta (shown aboue)

3.) Good supplies of natural resources e.g. energy and building resources, such as wood

Factors repelling settlers and leading to low population densities:

1.) Extreme climates e.g Sahara Desert (shown aboue)

2.) Mountainous or highland areas e.g the Scottish Highlands

3.) Dense vegetation e.g. the Amazon Rainforest

Physical Factors	High Density	Low Density
Relief (shape and height of land)	Low land which is flat e.g. Ganges Valley in India	High land that is mountainous e.g. Himalayas
Resources	Areas rich in resources (e.g. coal, oil, wood, fishing etc.) tend to densely populated e.g. Western Europe	Areas with few resources tend to be sparsely populated e.g. The Sahel
Climate	Areas with temperate climates tend to be densely populated as there is enough rain and heat to grow crops e.g. UK	Areas with extreme climates of hot and cold tend to be sparsely populated e.g. the Sahara Desert

Human Factors	High Density	Low Density
Political	Countries with stable governments tend to have a high population density e.g. Singapore	Unstable countries tend to have lower population densities as people migrate e.g Afghanistan.
Social	Groups of people want to live close to each other for security e.g. USA	Other groups of people prefer to be isolate e.g. Scandinavians
Economic	Good job opportunities encourage high population densities, particularly in large cities in MEDCs and LEDCs around the world.	Limited job opportunities cause some area be sparsely populated e.g. Amazon Rainfo

Population Growth

Population change depends mainly on the balance between the birth and death rate. It is slightly affected by migration.

The difference between the birth rate and the death rate is either the natural increase (where the birth rate is higher) or the natural decrease(where the death rate is higher)Throughout history, the world's population has shown a natural increase except incases where the following occurred:

(i)during times of diseases: plaques, HIV/AIDS

(ii)As a result of war: World Wars I, II

(iii) due to recent improvements in family planning, female education.

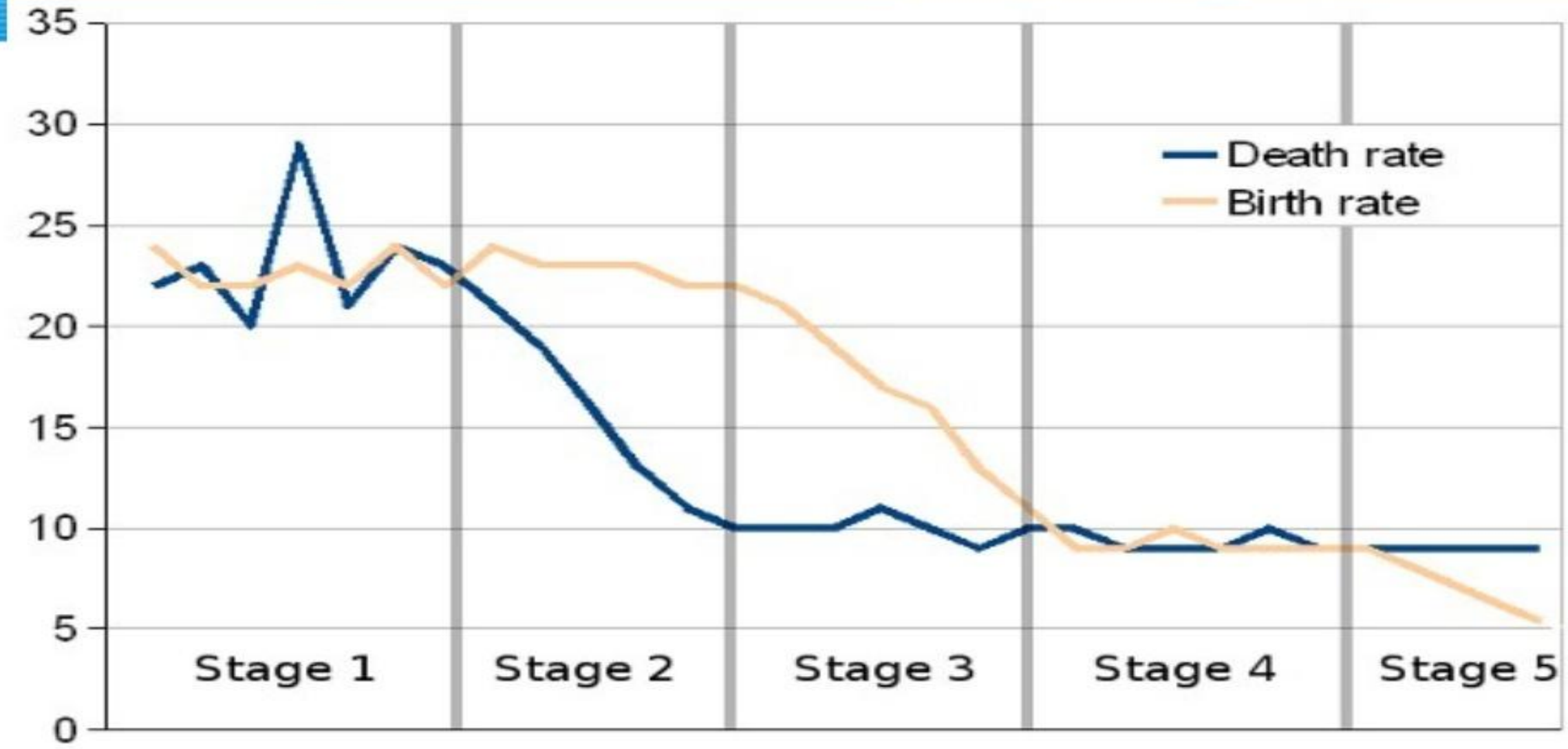
The demographic transition model shows the relationship between birth and death rates.

It describes how, over a period of time , a sequence of change in population growth rates takes place.

The model, which was based on population changes in several industrialized countries in western Europe and North America, suggest that there are four stages through which all countries will eventually pass.

UK has passed through all four stages.

Demographic Transition Model



- **Stage one (High fluctuating)**
  - Crude birth/death rate high
  - Fragile, but stable, population
- **Stage two (Early Expanding)**
  - Lower death rates
  - Infant mortality rate falls
  - Natural increase very high
- **Stage three (Late Expanding)**
  - Indicative of richer developed countries
  - Higher standards of living/education
  - Crude birth rate finally falls
- **Stage four (Low fluatuating)**
  - Crude birth and death rates low
  - Population stable
  - Populations aging
- **Stage five (Declining/ Low fluatuating)**
  - Crude birth rates exceptionally low
  - death rates low
  - Population decreasing
  - Populations aging rapidly

Problems with the Demographic Transition Model

(i) It is based on European experience, assumes all countries will progress to complete industrialization and that this is key issue

(ii) Many countries reducing growth rate dramatically without increase in wealth or industrial economies – TV and family planning seem to be at work

(iii) On the other hand, some countries "stuck" in stage 2 or stage 3, particularly in Sub-Saharan Africa and Middle East

Population Structures

The rate of natural increase, the birth rate, the death rate and life expectancy(life expectancy is the number of year that the average person in a country can expect to live) all affect the population structure of a country.

The population structure is shown by a population pyramid or age-gender pyramid.

A population pyramid shows:

(i) the total population divided into five- year age groups,e.g 5 to 9 years, 10 to 14 years.

(ii) The percentage of the total population subdivided into males and females, in each of those groups

Population Pyramids

Population Pyramids quickly show

- age distributions
- demographic booms and busts
- sex ratios
- dependency ratios

Wide base depicts young population; narrow base suggests declining birth rates or growing elderly population.

Interpretation of Population Pyramids

When interpreting a population pyramid the following features are looked at: The shape of the base, the percentage of the age groups ,the dependency or economically active ratio and the life expectancy level or ratio.

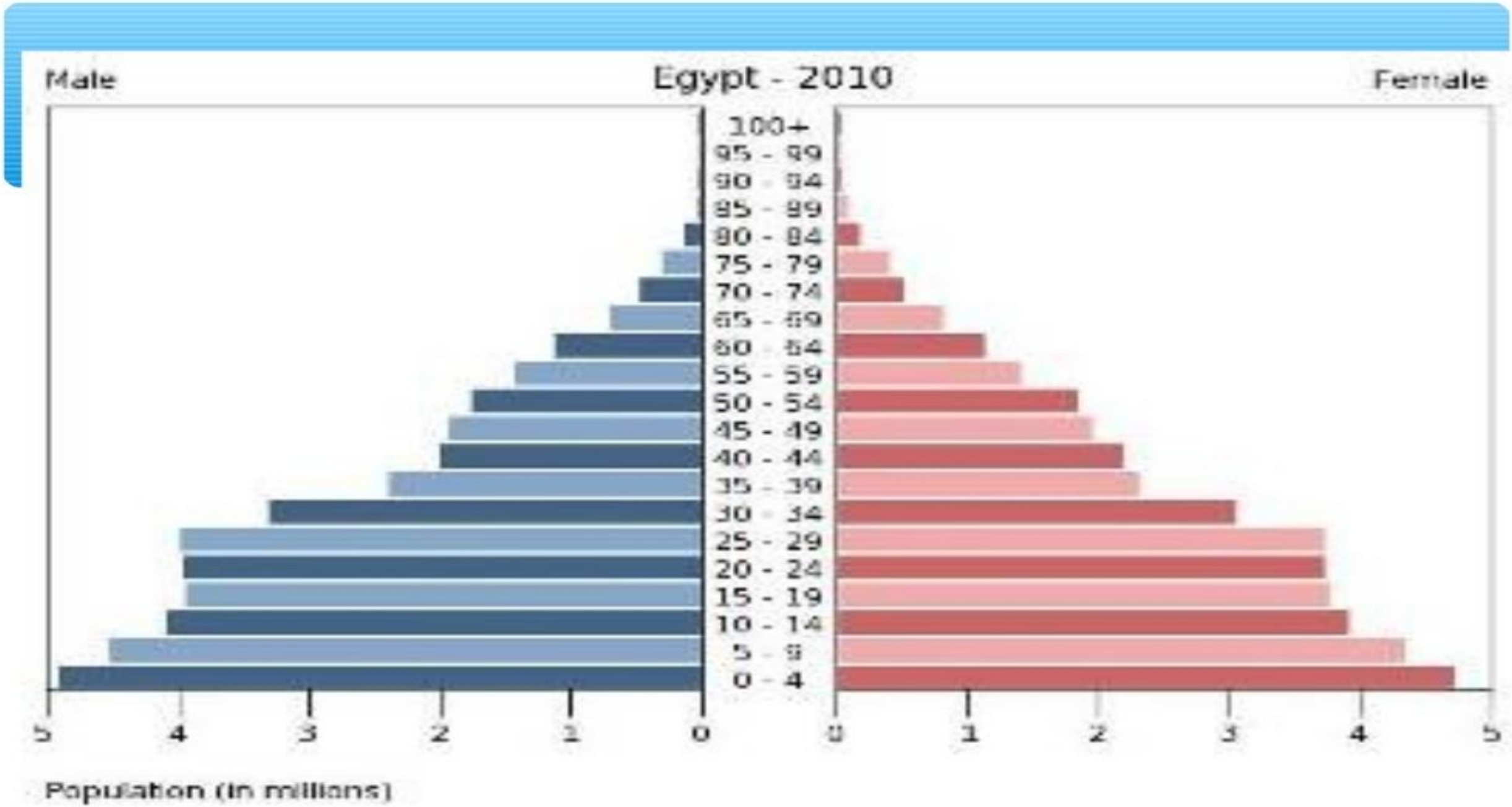
(i)A rectangular shape indicates the same number in each age group, a low death rate and a steady population growth

(ii)A narrow base indicating a low and falling birth rate found in MEDC

(iii)A broad base indication a high birth rate found in LEDC

(iv)In a population pyramid their exist the (a) economically active (15-64)years- people that are working and active

(v)Dependents- Individuals that cannot work i.e Young dependents(0-14 years) and Old dependents(65- above years).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Egypt - 2010
Female
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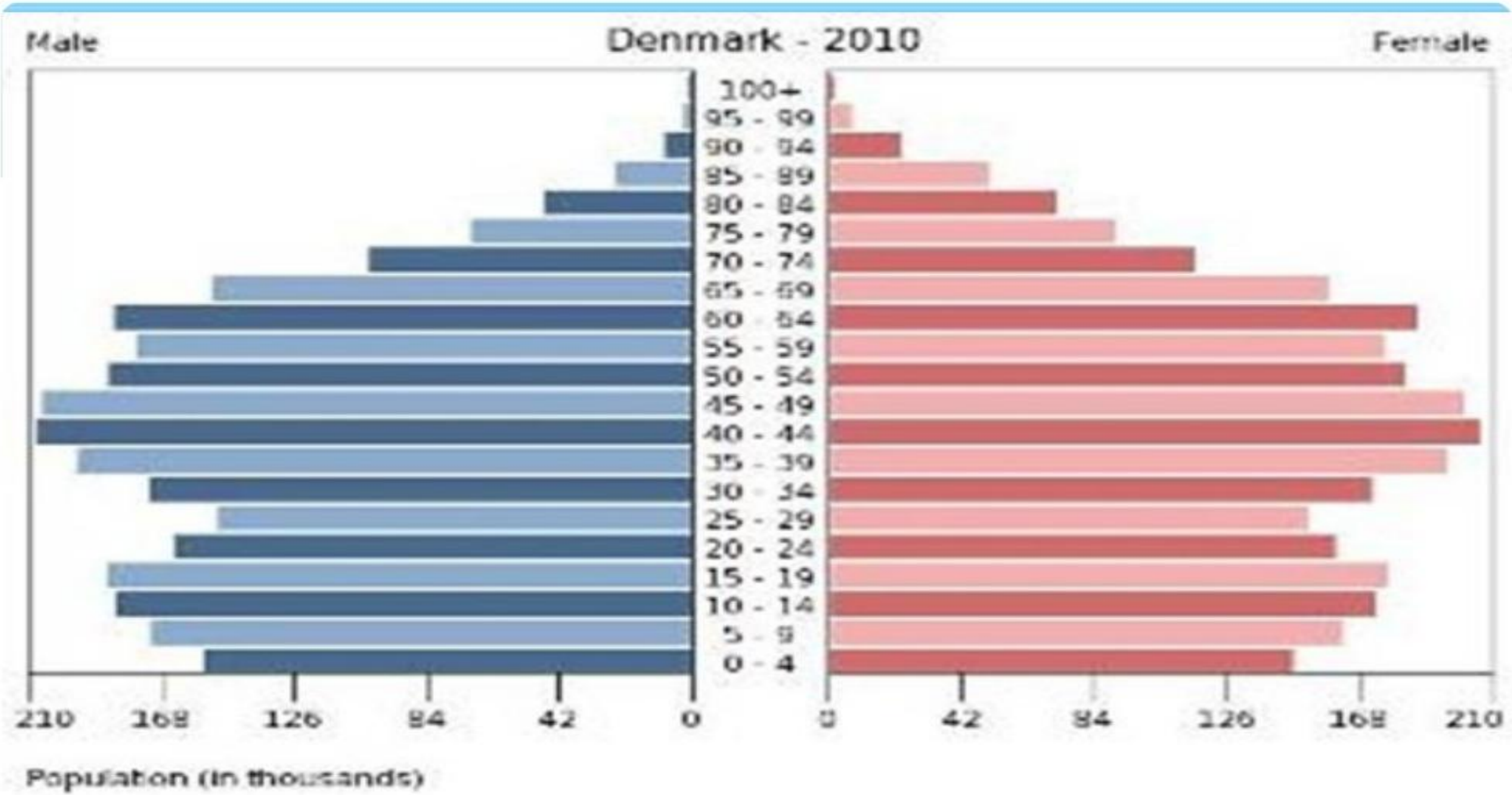
Population (in millions)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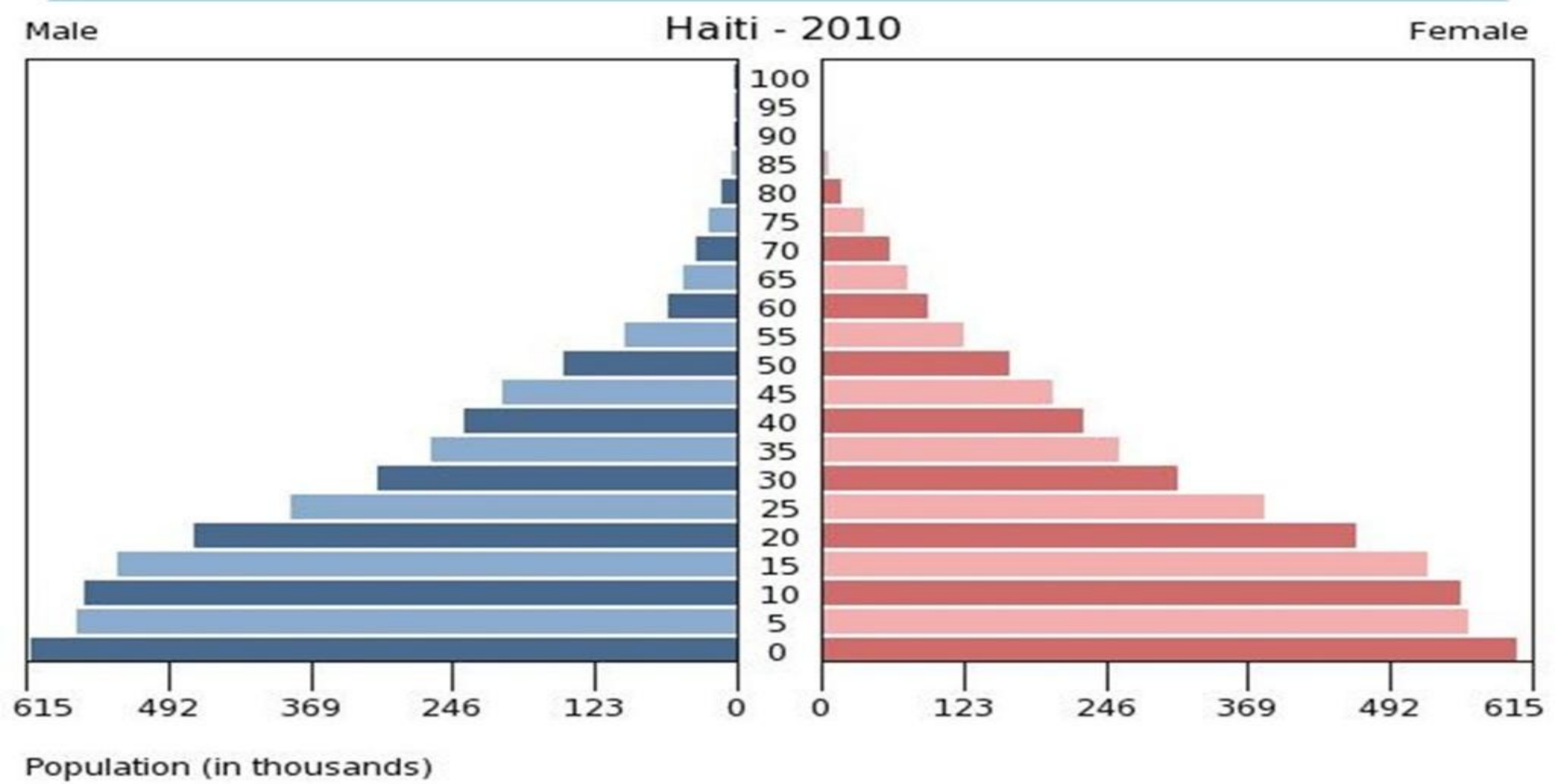
Population (in thousands)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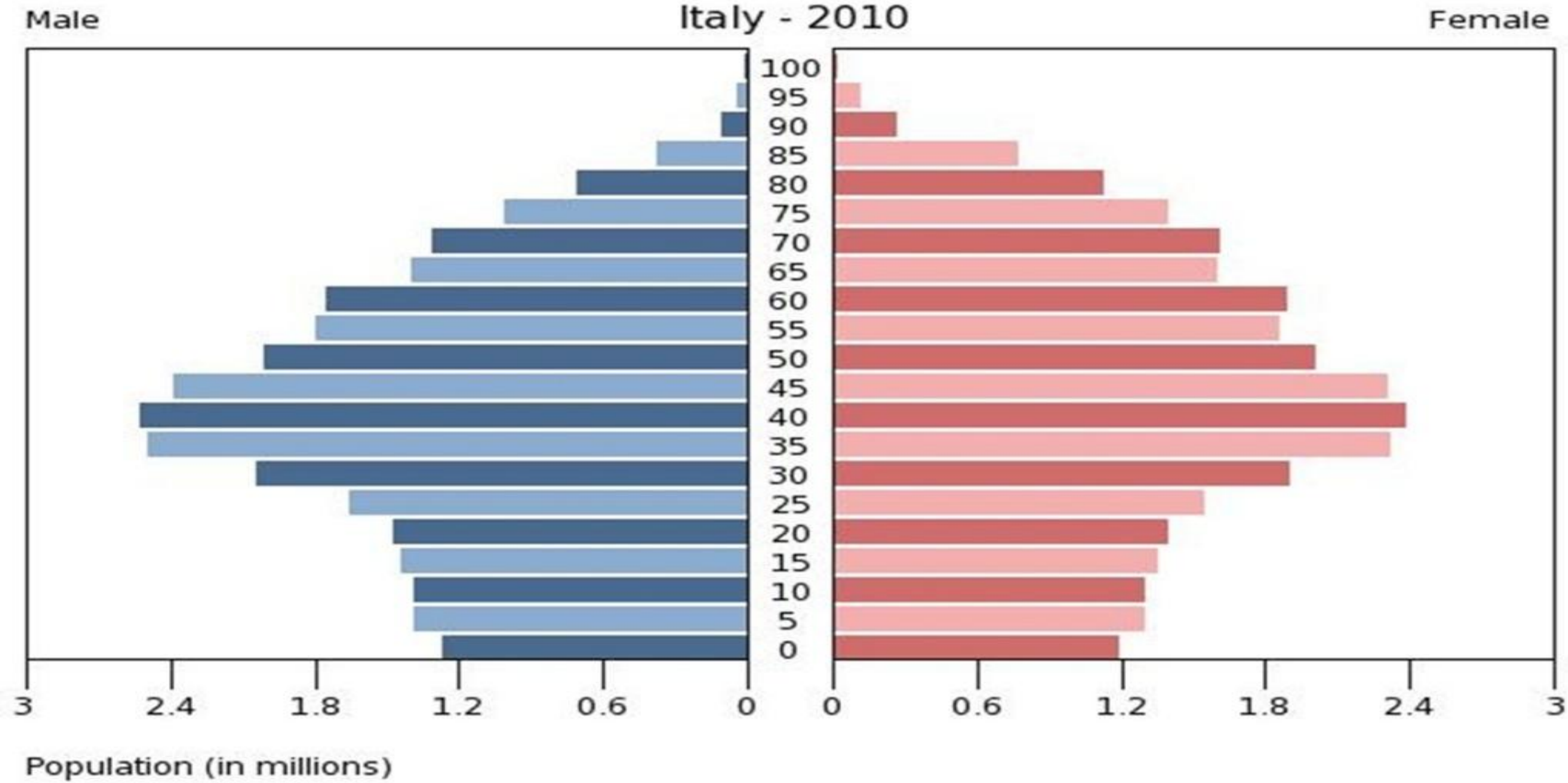
Population (in thousands)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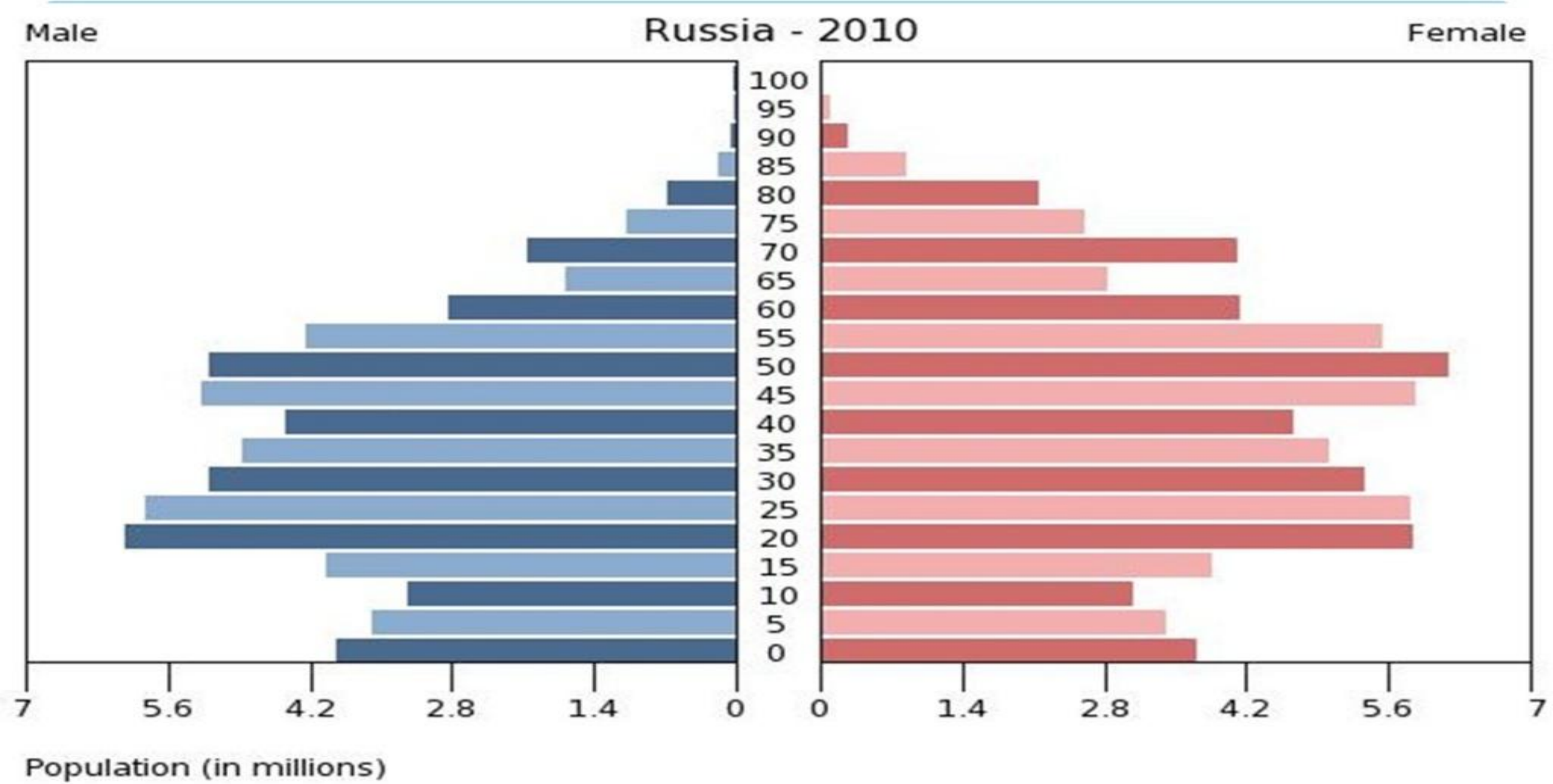
Population (in millions)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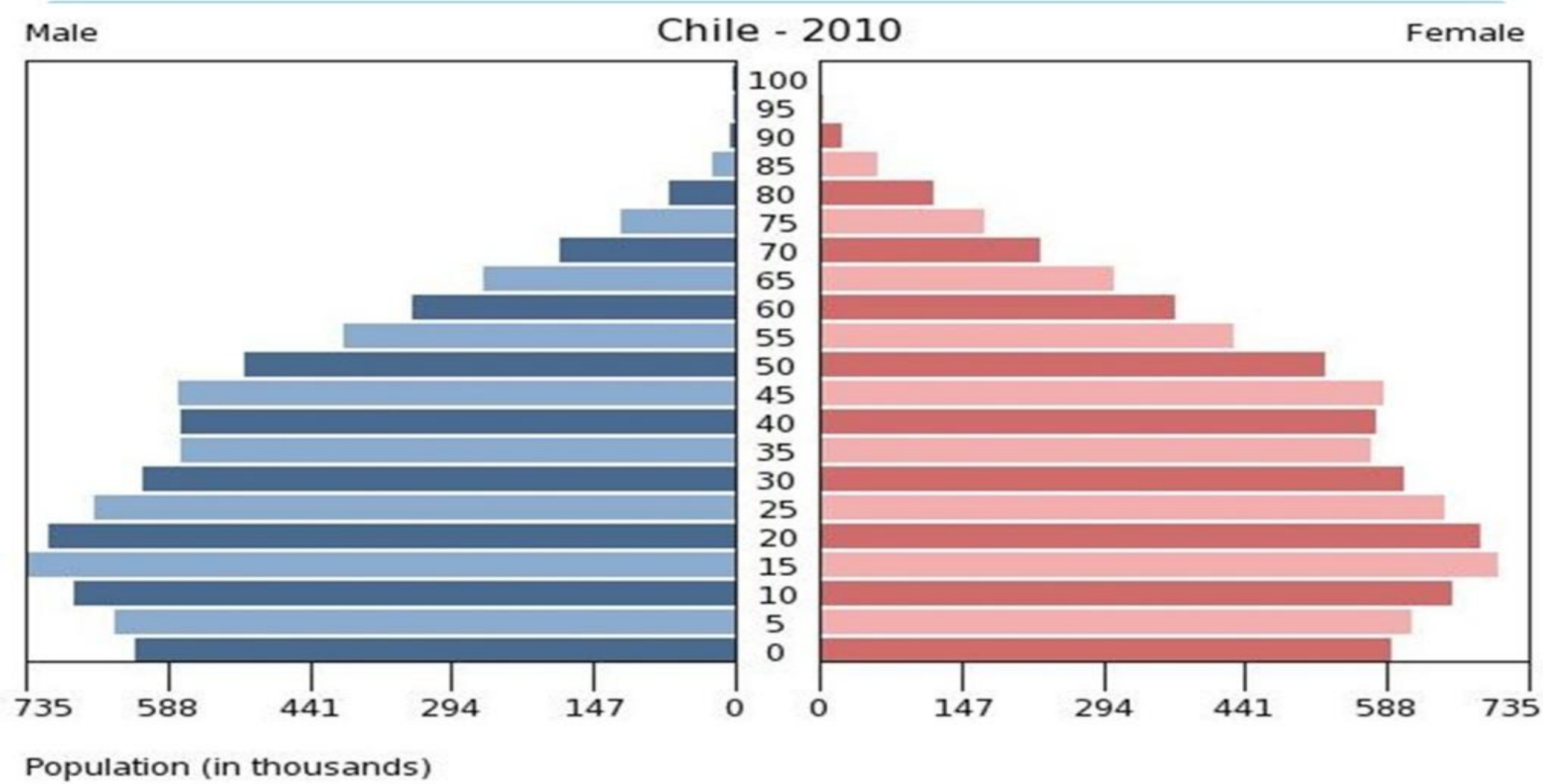
7
Population (in millions)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Chile - 2010
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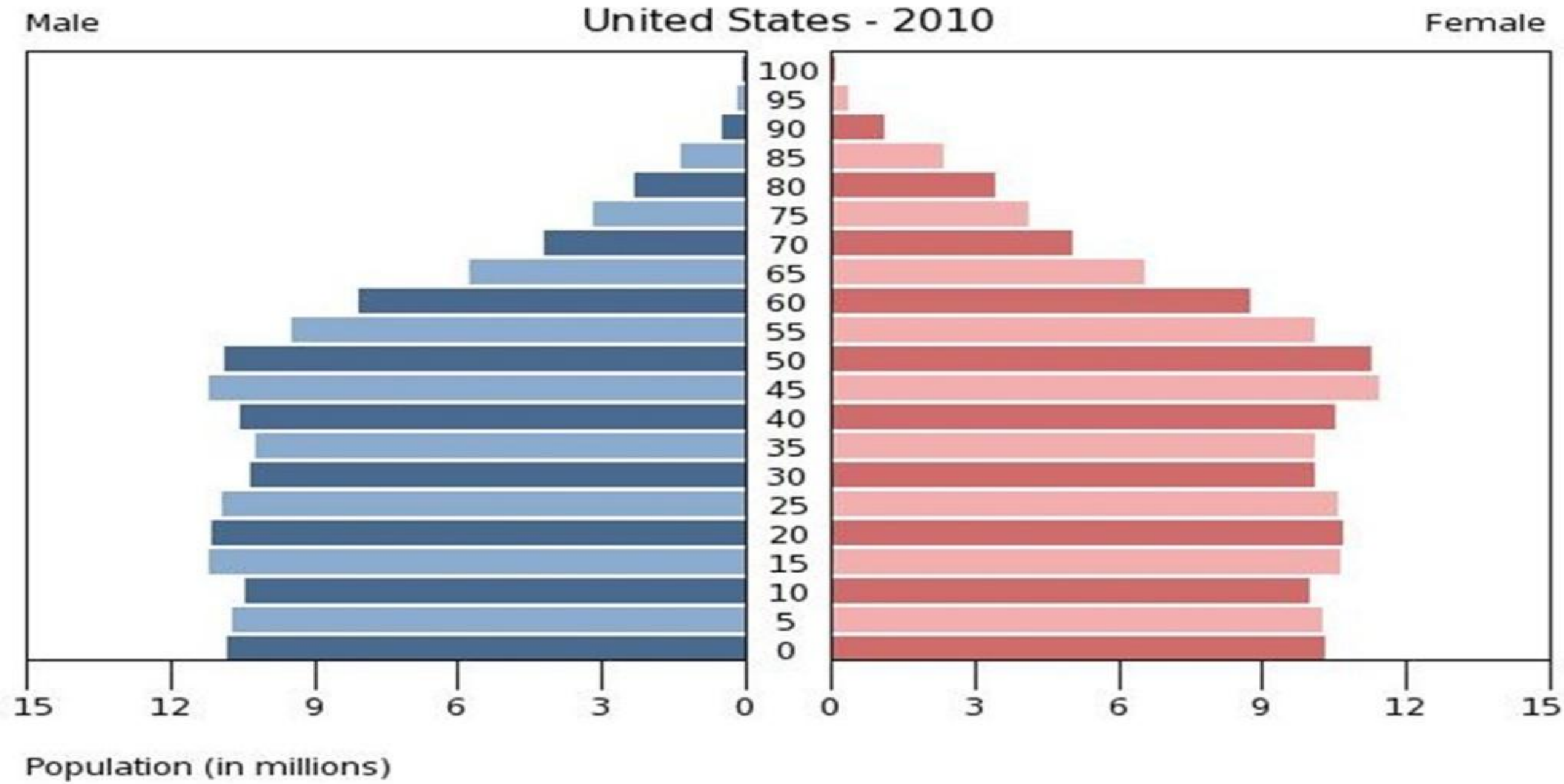
Population (in thousands)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United States - 2010
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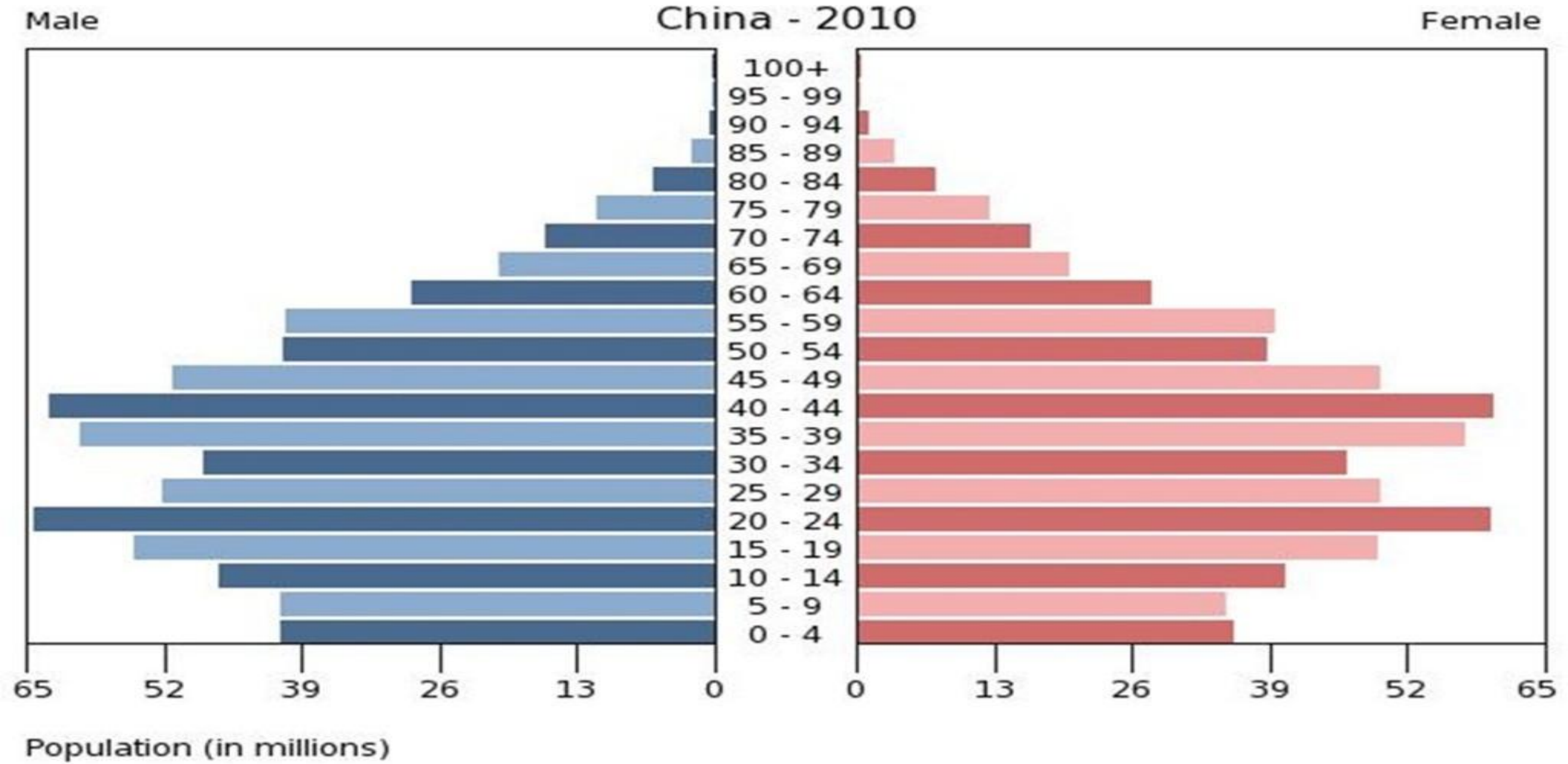
Population (in millions)


Male
China - 2010
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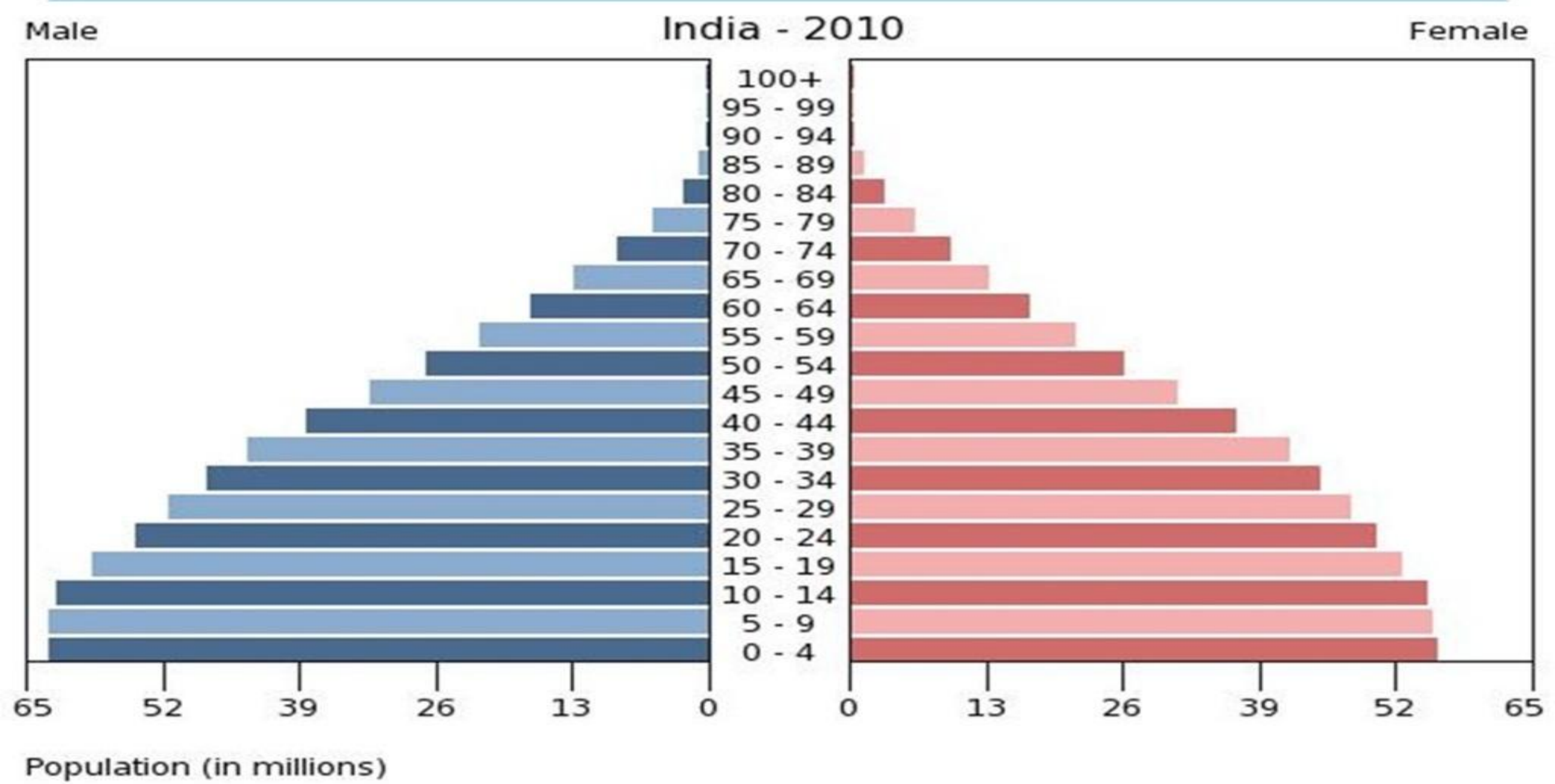
Population (in millions)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India - 2010
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Population (in millions)

Changing population Structure

MEDC'S

Population in most MEDC is low as a result of the following

(i)Family planning: Increased knowledge on contraception methods and access to family planning methods

(ii)Improvement in healthcare: This leads to safer abortions

(iii)Women education and status: This leads to delay marriage

(iv)Perception on family size: In most MEDC, the family size is normally small.

(v)improved knowledge about the importance of a balanced diet and regular exercise

(vi)improved living standards and quality of life

Changing population Structure

LEDC'S

Population in most LEDC'S is high as a result of the following

(i)Religious belief may forbid birth control
(ii)Customs of the region sometimes encourage a man marrying more than one wife
(iii)Lack of education especially for women.
(iv)Lack of access to sufficient money for contraceptives
(v)Inadequate family planning
(vi)Perception on the family size: A large family can enhance a family's reputation in the local community
(vii) The importance placed on male child in the family.
(viii) The importance of having many children to work and support the family by working.

Case Study: China's one child policy.

As a result of a large population in China in 1979, the government introduced a one child policy. The features were:

(i)Couples were encouraged to have one child

(ii)The marriageable age was placed at 22 for men and 20 for women

(iii)Couples had to apply to be married and again before having a child.

(iv)Couples who agreed were given free education and family benefits

(v)Couples who agreed were giving priority in housing

(vi)Women who became pregnant a second time were forced to have abortion

(vii) It was not observed that individuals in the rural areas

France was a country with concerns that professional women were choosing not to have children. The government were worried that the population was not going to replace itself over time.
The policies that were put in place to encourage three-children families were:
(i) a cash incentive of £675 monthly (nearly the minimum wage) for a mother to stay off work for one year following the birth of her third child
(ii) the 'carte famille nombreuse' (large family card), giving large reductions on train fares
(iii) income tax based on the more children the less tax to pay
(iv) three years paid parental leave, which can be used by mothers or fathers
(v) government subsidised daycare for children under the age of three, and full time school places for over threes paid for by the government
This has resulted that the fertility rate in France is one of Europe's highest

Reasons why LEDC countries have a high birth rate

(i) Need for children out to work to earn money working in the towns (ii) Lack of contraception which is not easily available in rural areas.

(iii) Men are considered of higher status if they have more children etc.)

(iv) Improvement in medical facilities like hospitals

(v) Religious belief- where a man can marry more than one wife, giving birth to many children

(vi) Lack of education especially for women.

Problems that would occur if a country has an increased number of aged population.

(i) With over 20% of population elderly dependents causes strain on working population;
(ii) Higher taxation as a result of increasing percentage of elderly dependents; need for more
(iii) More money to be spent on care homes/health care etc instead to develop the country.
(iv)Leads to lack of innovative in workforce which causes stagnation in electronics industries;
(v)Not enough recruitment to arm forces to defend country;
(vi) lack of workers means large need to attract immigrants workers;
(vii) Reduction in the supply of workers leads to large MNCs like Sony having to increase in rates of pay/may reduce likelihood of future investment.
(viii)Under utilization of services for young leads to inefficiency/closure of schools etc.)

Many areas in the world are now overpopulated. Describe the problems faced by people in countries which are overpopulated (Nigeria)

(i) people do not have enough natural resources/raw materials;
(ii) lack of fuel/power (or example such as electricity);
(iii) lack of work(unemployment);
(iv) poverty;
(v) inadequate food supplies;
(vi) starvation/famine;
(v) poor access to education;
(vi) poor access to health care/lack of hospitals;
(vii) high levels of disease/high death rates;
(viii) lack of/overcrowded housing/not enough space for housing;
(ix) people live in ghettos/squatter settlements;
(x) traffic congestion;
(xi)atmospheric/water pollution causing health problems (or example)
(xii) inadequate water supply;
(xiii) lack of sanitation,

For a named country you have studied, explain why the distribution of its population is uneven. Name of country: Nigeria or Brazil

Relief.
Accessibility.
Climate.
Water supply.
Employment.
Natural resources.
Impact of an extreme event.
Trade, etc.

Case study: pro-natalist policy in France

Many areas of Europe have a low fertility rate because of the following reasons:

(i) education - people are more aware of the availability of contraception and consequences an unplanned pregnancy can have on their career

(ii) women in careers - Women may choose to follow their career choice rather than start a family while young

(iii) later marriages

(iv) state benefits - couples no longer need children to help care for them when older