Ankara University
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Population Growth and Change

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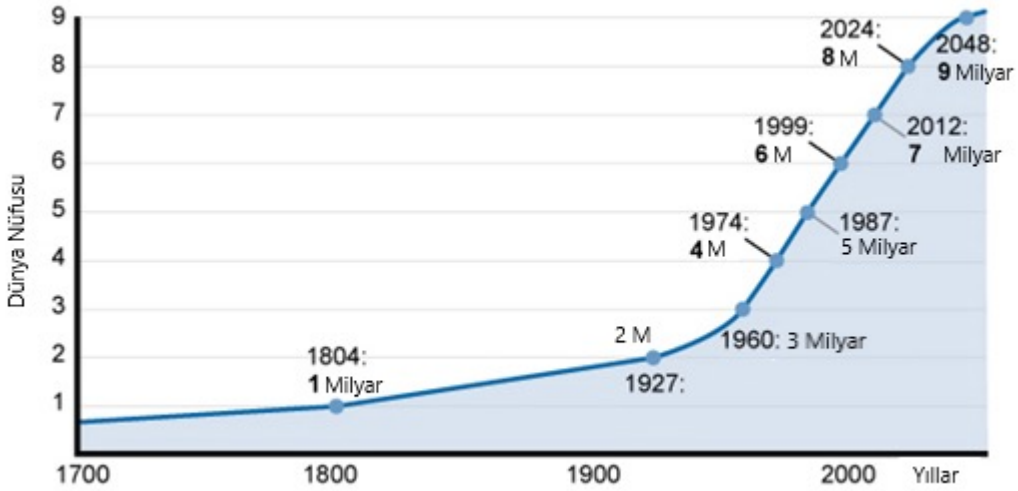


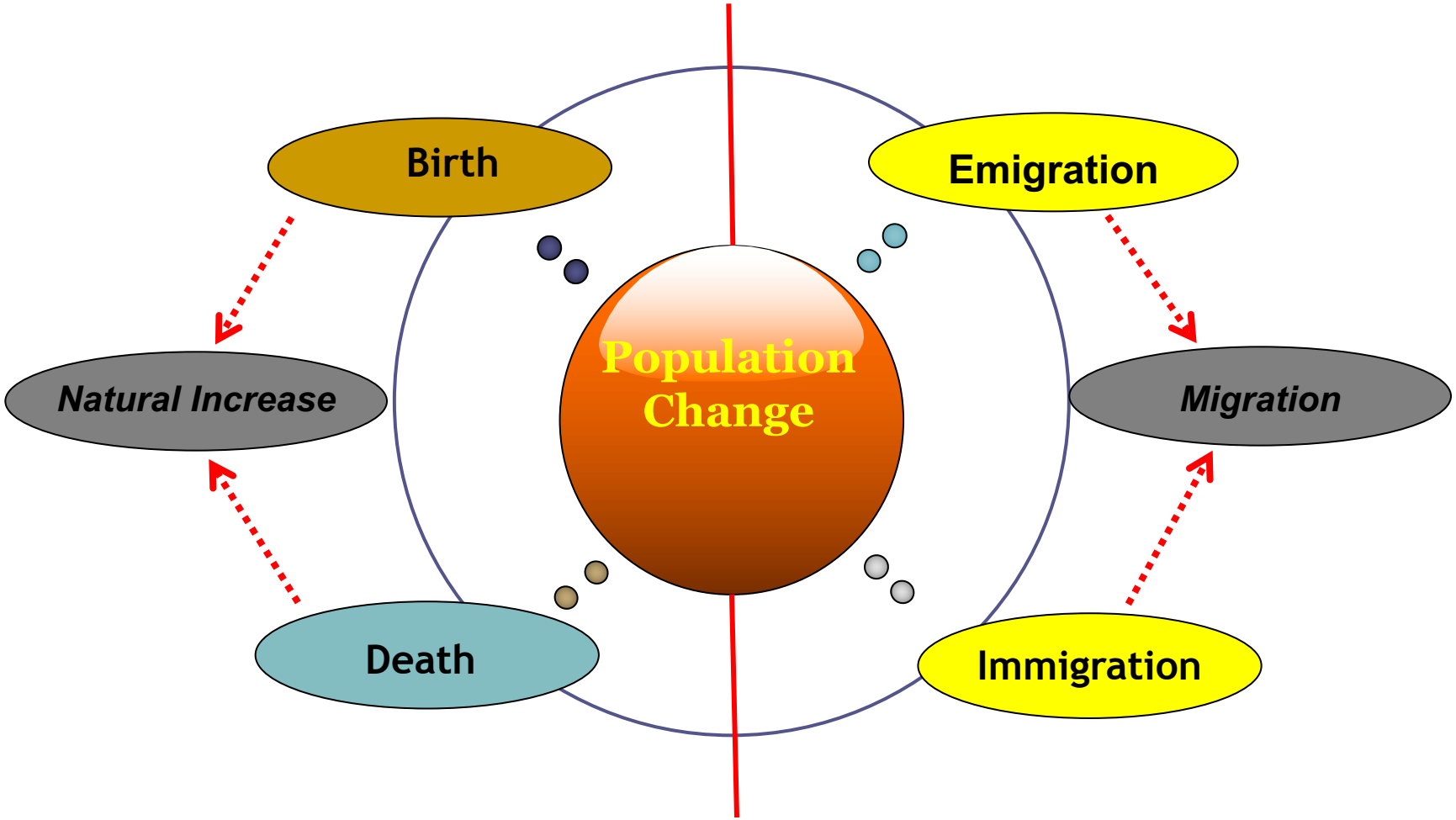
The content of this course is exactly compatible with the program in which the same course is taught in Turkish, and the open course materials prepared by Prof. Dr. E. Murat Özgür are used.

$$P_n = P_o \times e^{r.n}$$

1. Measuring Population Growth and Change
- Basic Demographic Equity
- Natural Increase Rate
- Population Growth Rate
- Basic Measurement Methods of Population Change

2. World population
- World Population Growth: Historical Development
- World Population Today
- Population Projections

Components of Population Change

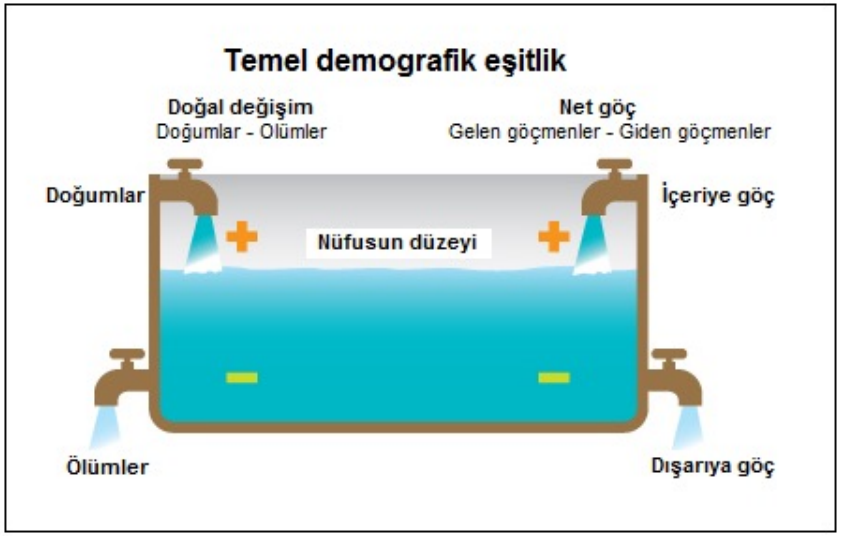


Measuring Population Change

- To understand the population processes that shape the size and composition of a region's population, population growth and change must be measured in a variety of ways.
- The most basic characteristic of a population is its size. The main population processes are births, deaths and migrations.
- The population of an area increases with a birth there and/or a person arriving from another place.
- The population of the same area also decreases with the death of someone and/or migration to another place.

Basic Demographic Equity

- Births, deaths, and immigration produce basic demographic equality.



FP = SP + B - D + I - O

FP = Final Population (After a certain time interval from the starting population

SP = Starting Population

(During the time interval)

B = Birth

D = Death

I = Immigartion

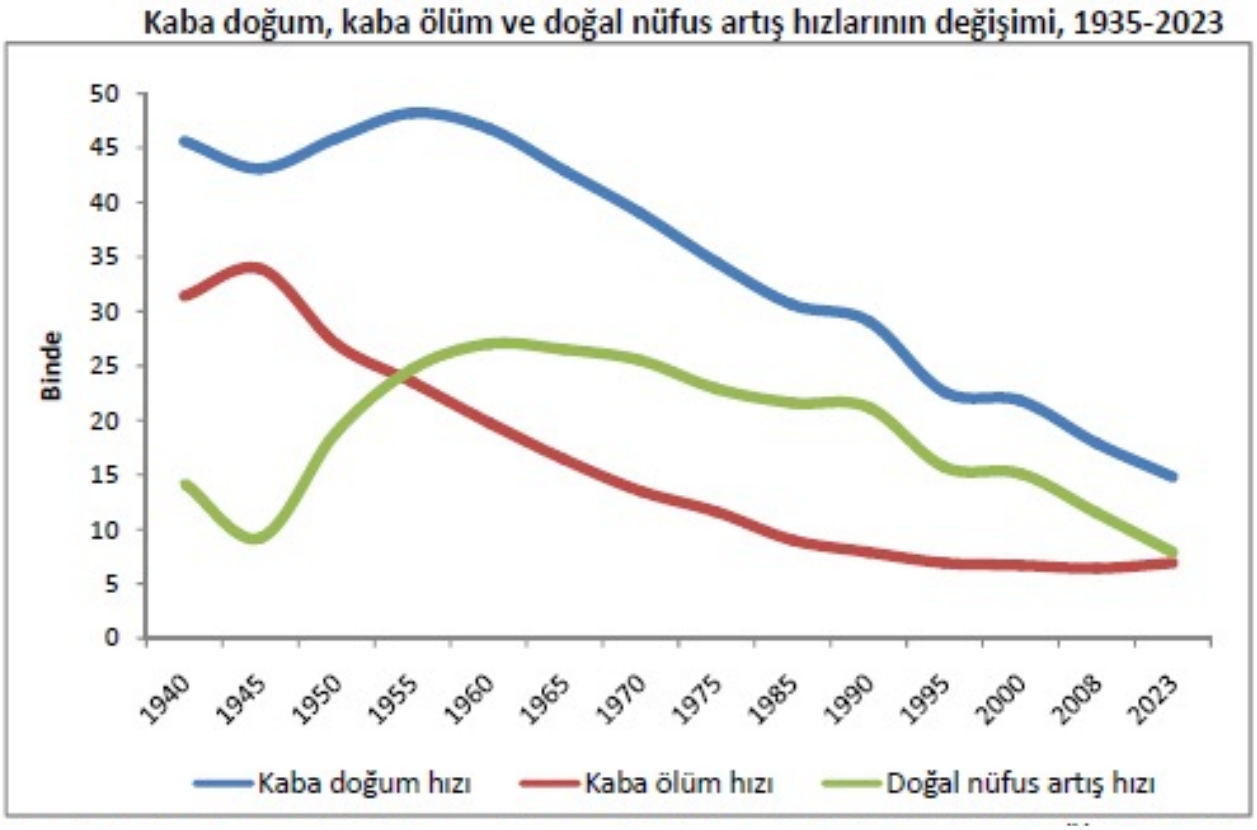
O = Out Migration (Emigration)

Measuring Population Change

- The easiest and most widely used method of measuring population change is the calculation of crude birth and death rates.
- **Crude birth rate**
- **CBR = (Number of live births: Mid-year total population) x 1000**
- Crude birth rate (CBR) is the number of births in a place in a year divided by the total mid-year population of the same year. Speed is normally displayed in thousandths.
- *Example:* In region A, where mid-year population of 20,000, if there are 420 births during a year, the mid-year population (crude birth) rate of births is 0.021 (21/1000, 21 per thousand).
- **Crude death rate**
- **CDR = (Number of deaths: Mid-year total population) x 1000**
- Crude death rate (CDR) is the number of deaths in a year divided by the total mid-year population of the same year.
- *Example:* In region A (population 20,000), if 180 people died in a year, the crude death rate was 0.009 (9/1000, 9 per thousand).

- **Rate of natural increase, RNI**
- **RNI = (Crude birth rate- Crude death rate)**
- The natural population growth rate, which does not include population changes due to migration or departure of people from an area, is the difference between birth and death rates and is a value usually expressed as a percentage (or ‰).
- *Example 1:*
- RNI *World* = *18 - 7.5 = ‰ 10.5 or %1.05 (2019)*
- *Example 2:*
- In a country with a population of 5,000,000 (B), if the birth rate is 35 per thousand and the death rate is 14 per thousand; In this country, where the natural rate of increase is 2.1% (0.035-0.014= 0.021), the population will be 5.105.000 people one year later.
- In other words, at the end of one year in country (B), 175,000 babies will be born and 70,000 will have died.

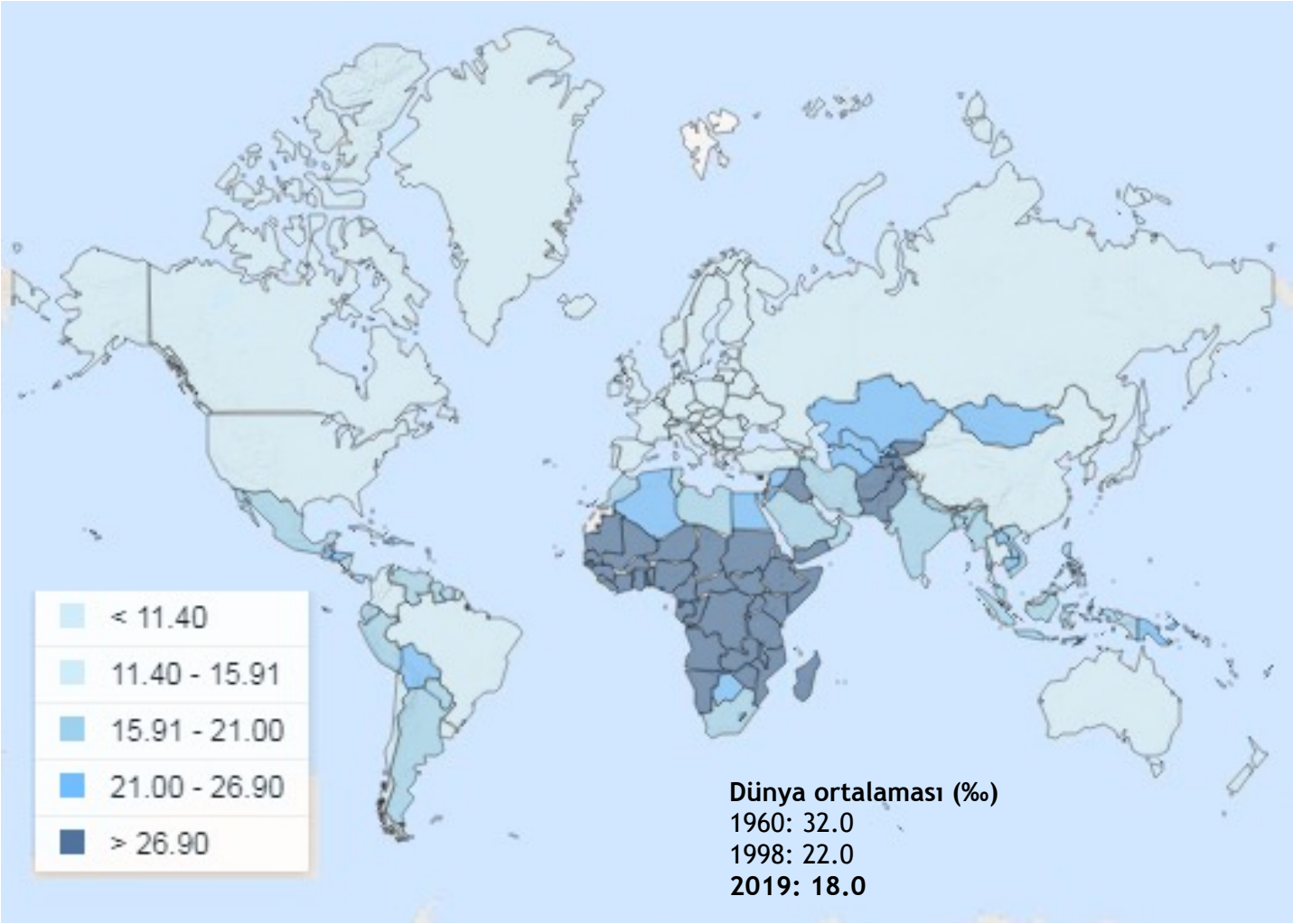
Change in Natural Population Growth Rate in Turkey



Kaynak: Koç vd. 2010, http://www.hips.hacettepe.edu.tr/TurkiyeninDemografikDonusumu_220410.pdf

Crude Birth Rate, 2019

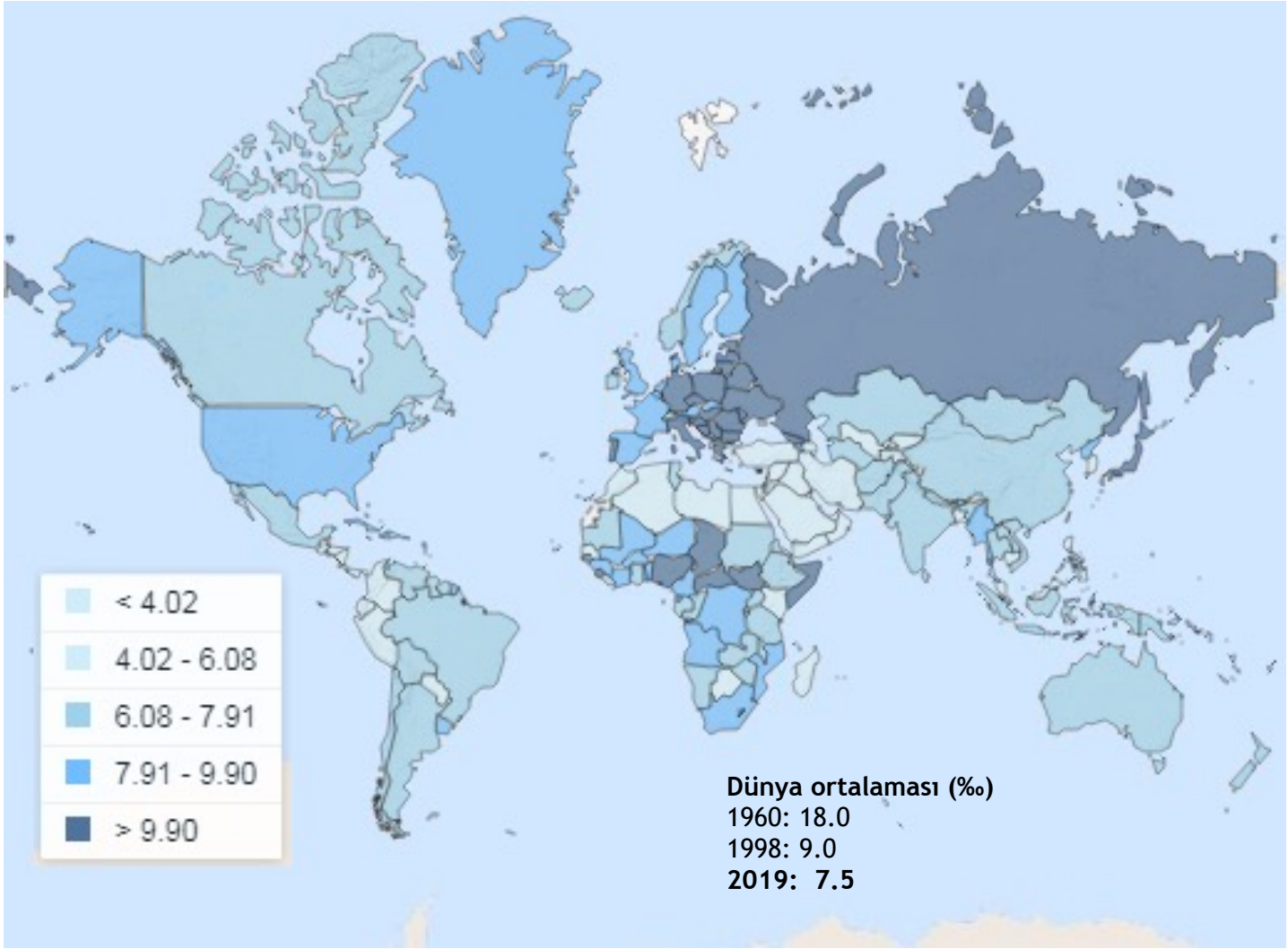
(Annual number of births per 1000 people)



Kaynak: https://data.worldbank.org/indicator/SP.DYN.CBRT.IN?end=2019&start=1960&view=map

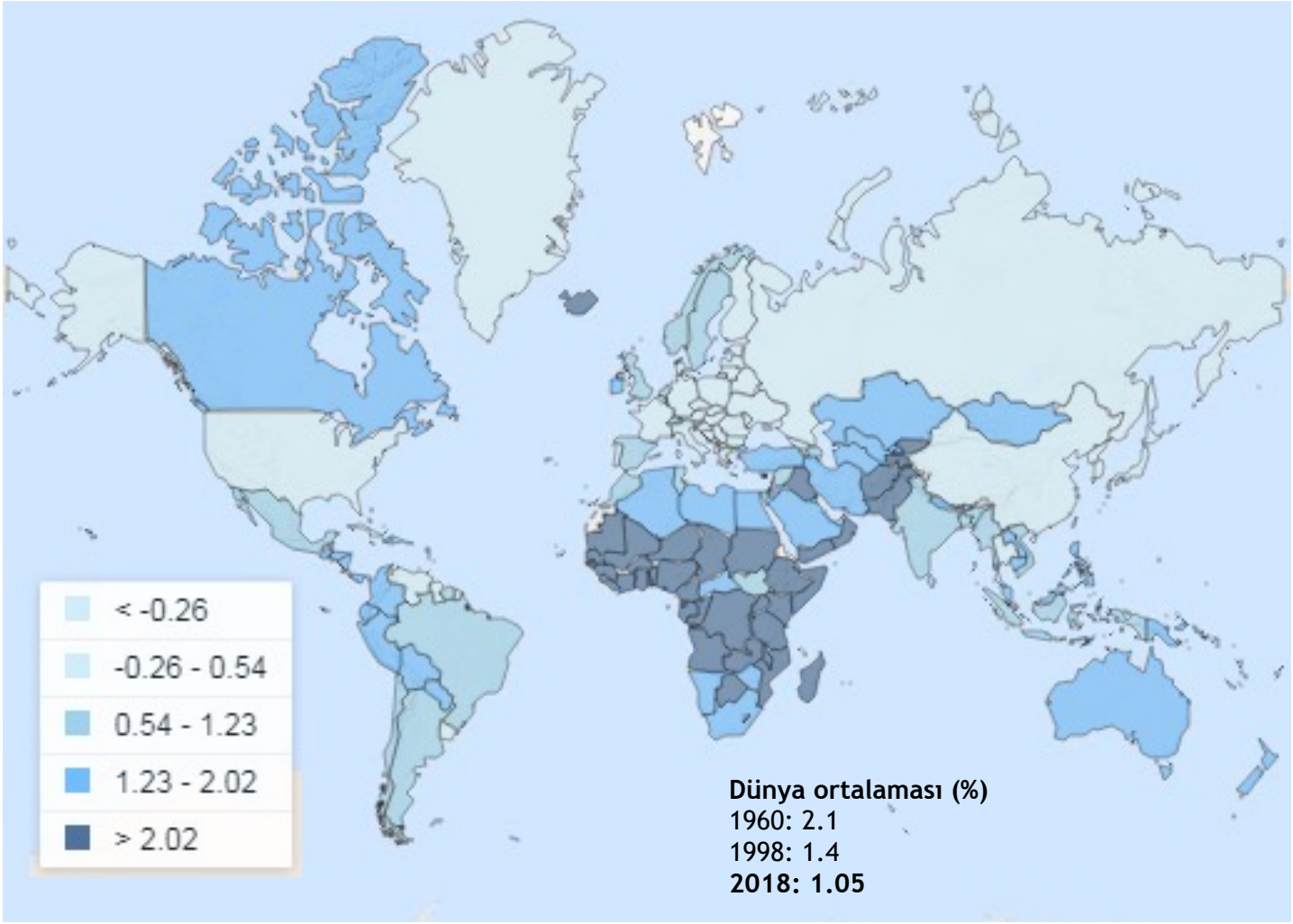
Crude Death Rate, 2019

(Annual number of deaths per 1000 people)



Kaynak: https://data.worldbank.org/indicator/SP.DYN.CDRT.IN?end=2019&start=1960&view=map

[Natural] Annual Population Growth Rate, 2019



Kaynak https://data.worldbank.org/indicator/SP.POP.GROW?end=2019&start=1960&type=shaded&view=map

Rate of population growth

Rate of population growth, RPG

RPG =[(Birth amount-death amount) ± Net migration rate] : Mid-year total population x 100

RPG = [Natural rate of increase + Net migration rate] : Mid-year total population x 100

1) In a place, those born in the same year are subtracted from those who die (natural population growth),
2) +/- net migration amount is added/subtracted from the obtained value,
3) The value found is divided by the total mid-year population of that year;
4) The result is multiplied by 100 and the annual average growth rate is obtained.

Example: If country B, which has reached a population of 5,105,000 by natural increase, has received a net migration of 100,000 people in a year; year-end population will reach 5,205,000; in this case, the rate of increase would be 4.1%.

Basic Measurement Methods of Population Change

1) Absolute change-AC

- AC= *Pn* - *Po*
- AC = 162.356.000 – 98.787.000
- AC = 63.569.000

2) Percentage change-PC

- PC = (*Pn* - *Po*) : *Po* x 100
- PC = (63.569.000 : 98.787.000) x 100
- PC = 64.35 %

3) Average annual increase AAI

- AAI = (*Pn* - *Po*) : *n*
- AAI = 63.569.000 : 50
- AAI = 1.271.380

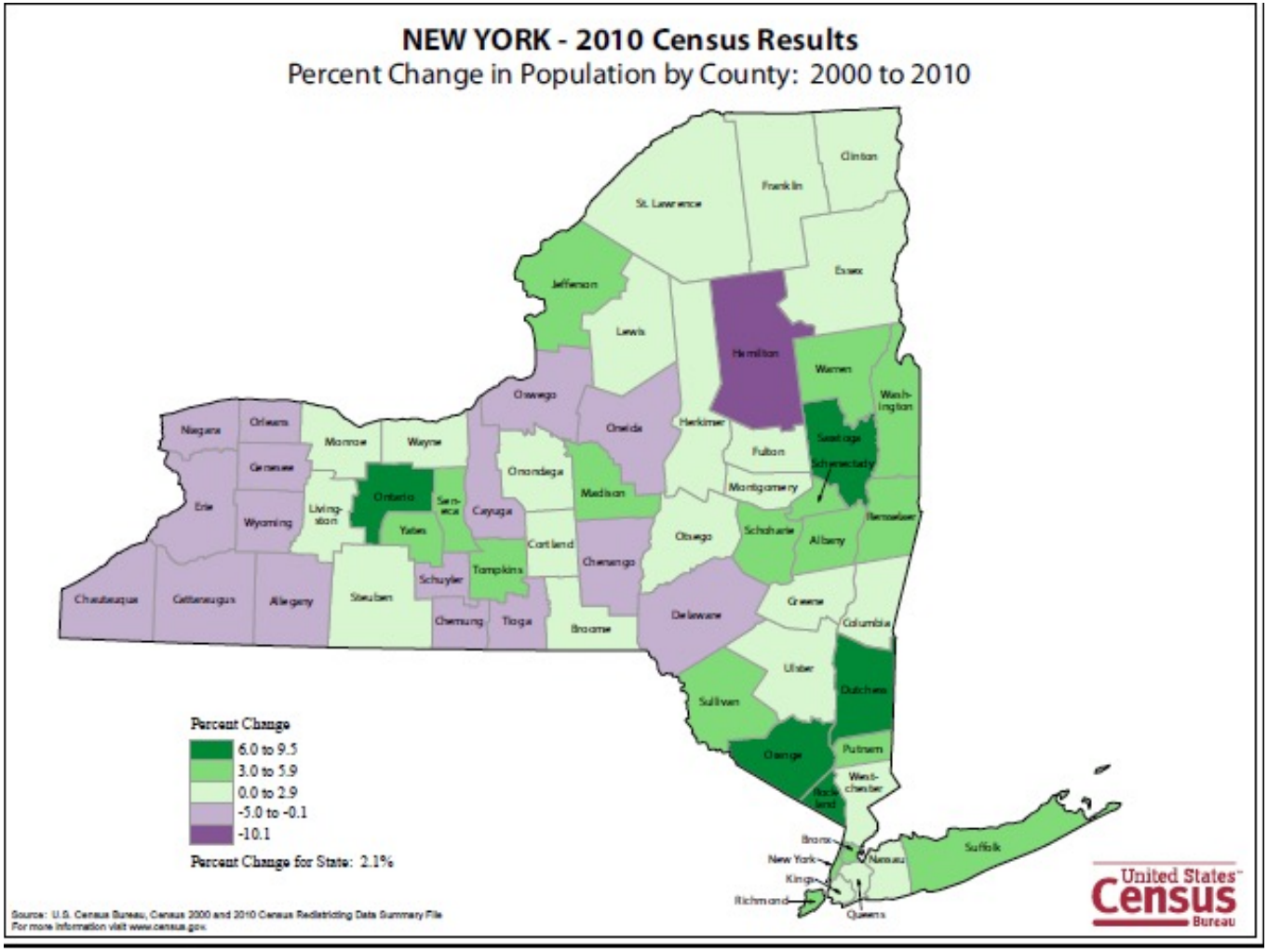
4) Arithmetic growth rate - AGR

- AGR = [(*Pn* - *Po*) : *n*] : *Po* x 100
- AGR = 1.271.380 : 98.787.000 x 100
- AGR = 1.29 %

- Definitions
- *Po* = First (beginning of term) population
- *Pn* = Last (end of term) population
- *n* = Time between P*o* and P*n*

- Example: Mexico
- *Po* = 98.787.000 (2000)
- *Pn* = 162.356.000 (2050)
- *n* = 50 years

Percentage Population Change : New York, 2000-2010



Amount and Rate of Increase in Population in Turkey by Census, 1927-2000

Year	Population	Annual Average Rate of Increase* (%)
1927	13.648.270	-
1935	16.158.018	2,11
1940	17.820.950	1,96
1945	18.790.174	1,06
1950	20.947.188	2,17
1955	24.064.763	2,78
1960	27.754.820	2,85
1965	31.391.421	2,46
1970	35.605.176	2,52
1975	40.347.719	2,50
1980	44.736.957	2,07
1985	50.664.458	2,49
1990	56.473.035	2,17
2000	67.803.927	1,83

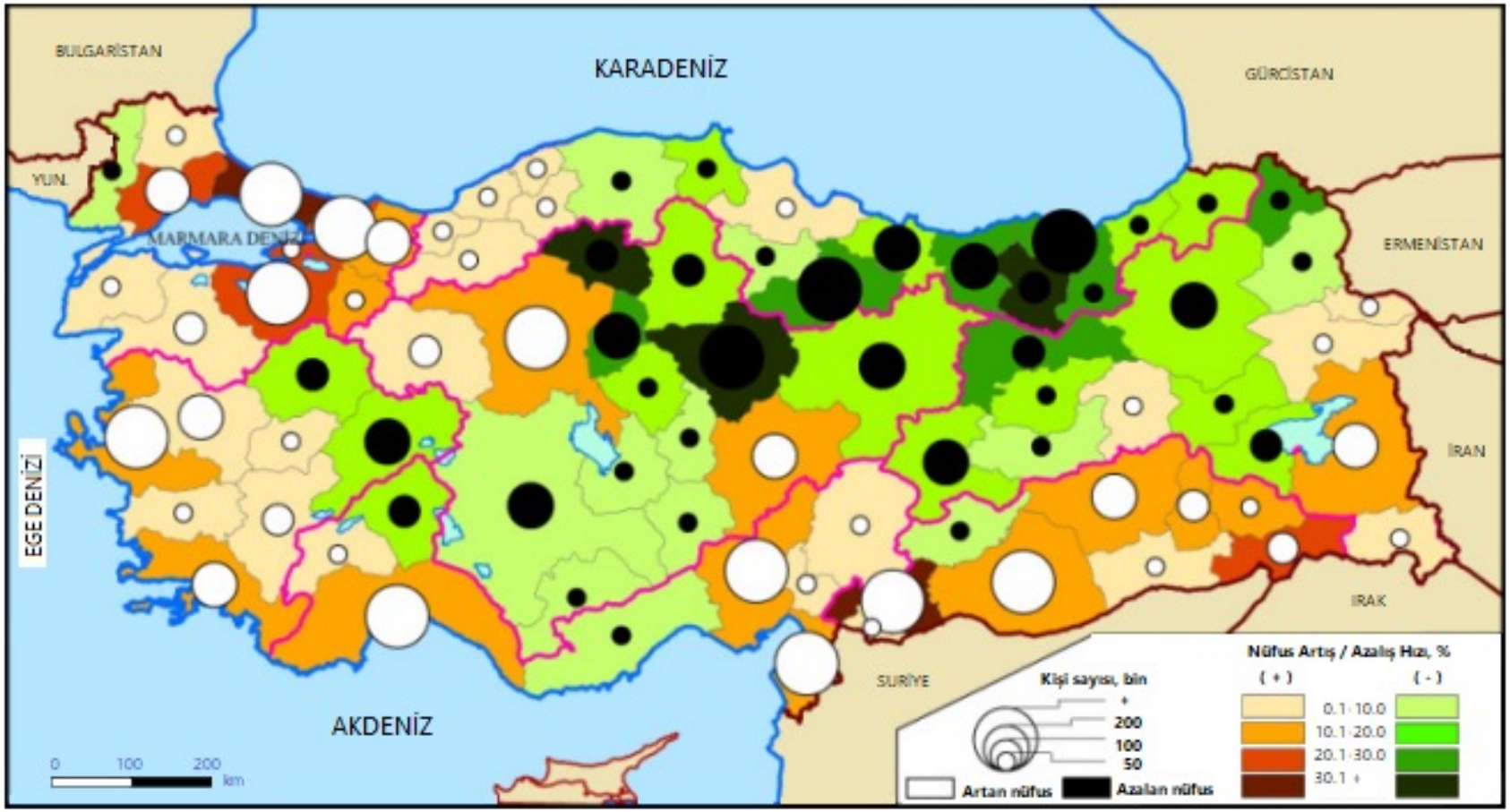
* Calculated using the exponential rate of change.

Amount and Rate of Increase in Turkey According to ABPRS (ADNKS), 2007-2020

Registration Year	Population Amount (person)	Absolute Increase Amount (person)	Annual Average Rate of Increase* (%)
2007	70.586.256		-
2008	71.517.100	930.844	1,31
2009	72.561.312	1.044.212	1,45
2010	73.722.988	1.161.676	1,59
2011	74.724.269	1.001.281	1,35
2012	75.627.384	903.115	1,20
2013	76 667 864	1.040.480	1,37
2014	77.695.904	1.028.040	1,33
2015	78.741.053	1.045.149	1,34
2016	79.814.871	1.073.818	1,35
2017	80.810.525	995.654	1,24
2018	82.003.882	1.193.357	1,47
2019	83.154.997	1.151.115	1,39
2020	83.614.362	459.365	0,55
2021	84.680.273	1.065.911	1.27

* Calculated using the exponential rate of change.

Turkey's Population Change, 2000-2010



Kaynak: Yakar, 2012: 387

Population Estimate

$$P_n = P_o \times e^{r.n}$$

Calculation of Annual Increase Rate (r)

r = [LN (Pn : Po)] : n
r = (LN (62.526 : 50.664)) : 10
r = (LN 1,23413) : 10

Definitions

Pn= Period-end population (estimated population after n years)

Po= Population at the beginning of the period (if the period is 1985-1990; 1985 population)

e= logarithm (e x value of 1 continuing as 2.7182818…)

r= Annual population growth rate (If this rate is 1%, it is written as 0.01)

n= number of years between Po and Pn (5 years for 1985-1990)

Population Doubling Time

- The doubling time is the number of years required for the population to double in size, which is assumed to continue to increase at a given annual rate.
- This growth is similar to the increase in money in a bank.
- The doubling times of the population according to different growth rates are as follows:

Annual population growth rate (%)	Doubling Time (year)
0.5	139
1.0	70
1.5	46
2.0	35
3.0	23
7.0	10

Doubling Time(dt) = LN 2/r

Dt = LN 2 : 0,0139

Dt = 50 year

r = % 1,39 (Annual population growth rate of Turkey in 2018-2019 period)

In a simpler way, the doubling time can be calculated with the formula dt=70/r..

The annual population growth rate (r) of Turkey between 2020-2021 is 1.27%.

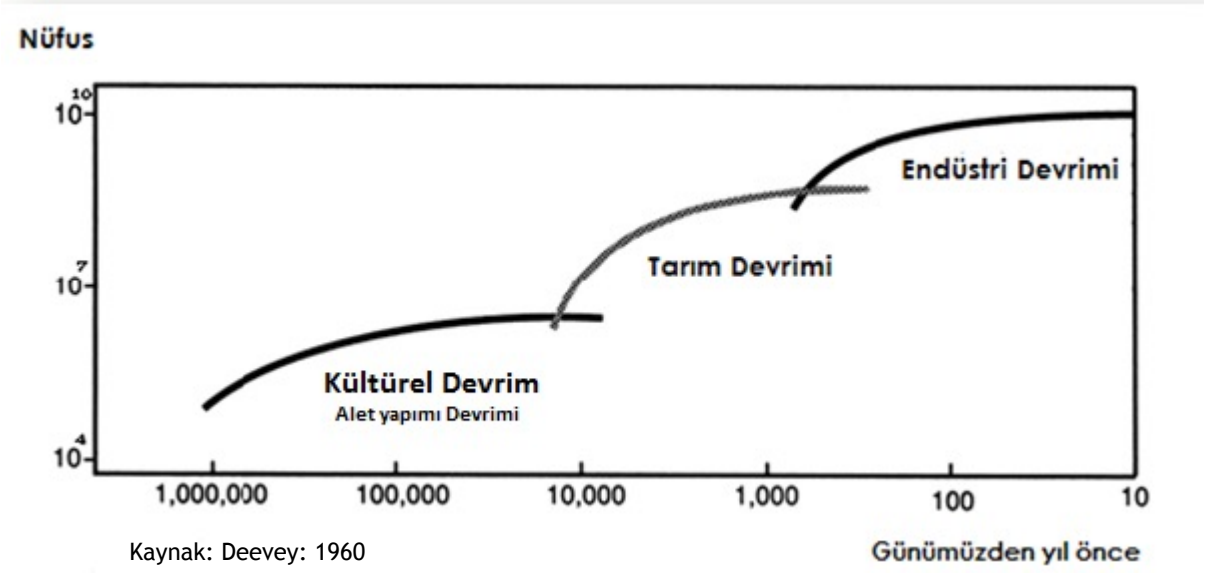
According to this; Tdt = 70/1.27 = 55 years.

Population in Selected Areas of the World, 2012

	Population mid-2012 (millions)	*Total fertility rate*	*Natural increase (annual, %)*	*Doubling time (years)*	*Projected population 2025 (millions)*
World	7,058	2.4	1.2	58	8,082
North America	349	1.9	0.5	139	391
Central America	160	2.5	1.6	43	185
South America	397	2.1	1.1	63	441
Caribbean	42	2.3	1.1	63	46
Oceania	37	2.5	1.2	58	44
Northern Europe	101	1.9	0.3	231	111
Western Europe	190	1.6	0.1	693	194
Eastern Europe	295	1.5	−0.2	—	287
Southern Europe	154	1.4	0.1	693	158
Asia (excluding China)	2,910	2.5	1.4	50	3,377
Asia (including China)	4,260	2.2	1.1	63	4,779
Western Asia	244	2.9	1.9	36	303
South Central Asia	1,823	2.6	1.6	43	2,145
Southeast Asia	608	2.3	1.3	53	696
East Asia	1,585	1.5	0.5	139	1,635
Sub-Saharan Africa	902	5.1	2.6	27	1,245
Northern Africa	213	3.1	1.8	39	263
Western Africa	324	5.4	2.6	27	450
Eastern Africa	342	5.1	2.8	25	477
Middle Africa	134	5.9	2.7	26	193
Southern Africa	59	2.5	0.7	99	63

Source: Population Reference Bureau, 2012 *World Population Data Sheet.*

Three breaking points in world population growth



Kaynak: Deevey: 1960

- Three breaking points, which can be called revolution, are of great importance in the increase of the world population:

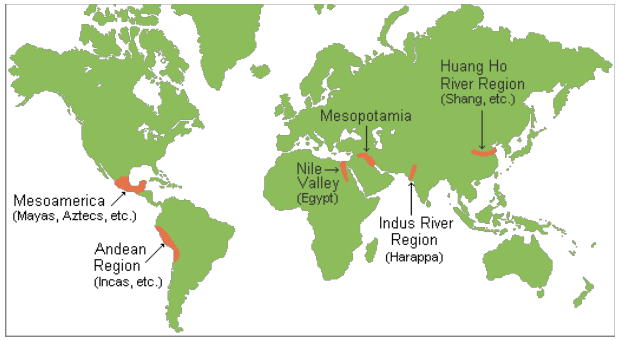
1. The Cultural Revolution made life easier thanks to the making of tools and provided the first people with opportunities for nutrition and food storage.
2. The breaking point known as the Agricultural Revolution is a radical change that started with plant and animal breeding 10 thousand years ago.
3. The breaking point corresponding to the Industrial (Industrial) Revolution emerged with the conversion of fossil fuels into energy, which enables the use of machinery in production.

- Agricultural and Industrial Revolutions are important because they create changes in land use, settlement patterns, economy, migration patterns and social mobility depending on population.

World Population Growth: The Cultural Revolution

- 10 thousand years ago, few people lived on earth (an estimated 5-10 million people).
- Before the Agricultural Revolution, human societies of hunters and gatherers spread throughout the world.
- These groups, living separately and in isolation from each other, showed a low density of 4 people per 100 km^2.
- In this population of groups of less than fifty people, the men hunted while the women gathered plants for food.
- Mortality rates were high due to consumption of poisonous plants, vulnerability to disease and hunger, miscarriage, human slaughter, and predatory and poisonous animal attacks.
- Birth rates were also high.

World Population Growth: Agricultural Revolution



The First Settled and Agricultural Areas in the World

- The Agricultural Revolution is the process of controlling, increasing and improving the plant and animal existence that human can benefit from.
- Thanks to the chemical energy taken from the plants and animals they raised for food, the heat energy obtained from some plants and the mechanical energy obtained from the pack animals, the total amount of energy gained by humans reached levels that could not even be imagined in Paleolithic societies.
- Thanks to the increased energy, the population of humanity began to multiply, exceeding the highest amount it could reach until then.
- With the beginning of living in more crowded communities in the villages, thanks to the accumulation of surplus surplus products, people who got rid of the necessity of searching for food, turned to the division of labor, gave birth to some high culture and mental activities that needed free time, and made many discoveries and inventions.

World Population Growth: Agricultural Revolution

- With the development of agriculture, people had the opportunity to eat better, to gain resistance to diseases over time, to increase life expectancy a little, and thus the population could increase.
- Since it is known that the population increased during the transition to agricultural society, birth rates increased probably due to the nutrition system in this period.
- Social change in society may also have affected the increase in population.
- It is known that there are significant fluctuations in the population of pre-industrial societies related to the fluctuations in mortality rates due to diseases.
- **Some Demographic Characteristics of Agricultural Society**
- Periodic famine and undernourishment
- susceptibility to skin diseases
- Relatively short lifespan
- High infant mortality and mortality rates
- Fluctuations in mortality
- High birth rates
- Although there are periods when it decreases, the population increase in general

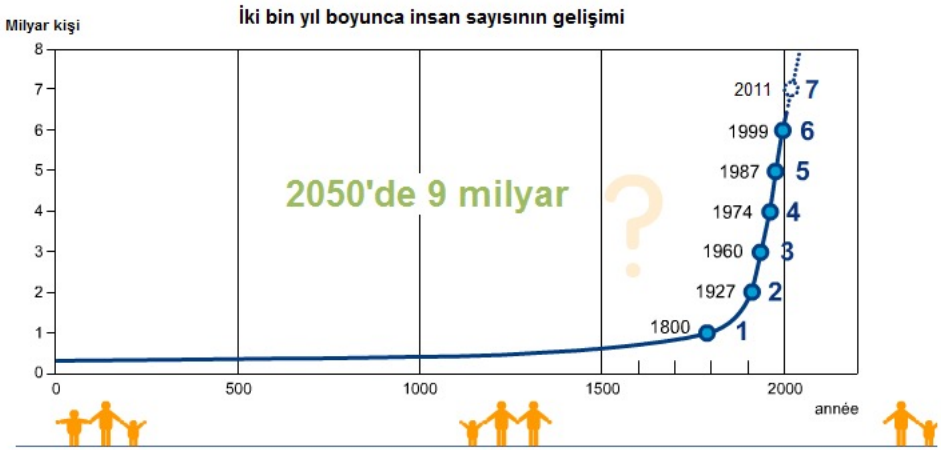
Growth of World Population: Industrial Revolution

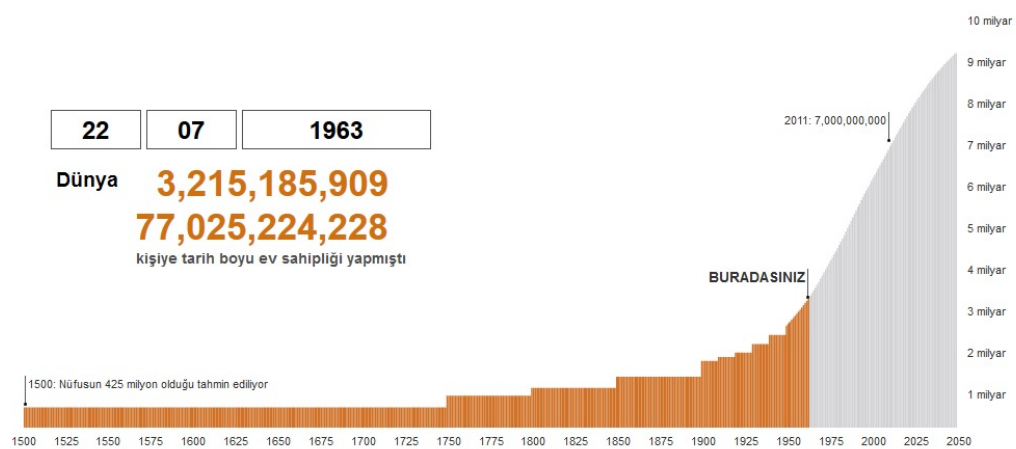
- The Industrial Revolution originated in England in the second half of the 18th century, although its roots go back further.
- From England it spread rapidly to Western European countries and the United States, reaching Russia and northern Italy in the early 20th century. Japan was the first Asian country to experience this revolution.
- The Industrial Revolution continues today and has spread to only a part of the developing countries.
- **Some Characteristics of Industrial Society**
- Change in economic structure (transition from agriculture to manufacturing)
- Use of machine power instead of man power
- Increase in per capita production
- Rather than the local market of the products; start to be sold in regional, national and international markets
- **Increase in birth rates**
- **The death rate begins to slow**
- **Population explosion (increasing trend)**

A Brief Summary of World Population Growth

- For most of human history, the world's population was small and its growth was slow. The transition from hunter-gatherer to agricultural society (between 8000 BC and 5000 BC) due to food security allowed the population to increase.
- The world population was probably a little over 200 million in the first years of the BC.
- 500 million in the early 1600s (beginning in the mid1600s, the population began to grow faster as life expectancy at birth slowly increased with trade, food production and security, and nutrition).
- 1 billion in 1803 (Thanks to the Industrial Revolution, the population doubled in the 19th century, especially in Europe. The population of the less developed countries grew more slowly during this time, but they already held the majority of the world's population. Advances in medicine and health have increased survival and life expectancy).

World Population Growth



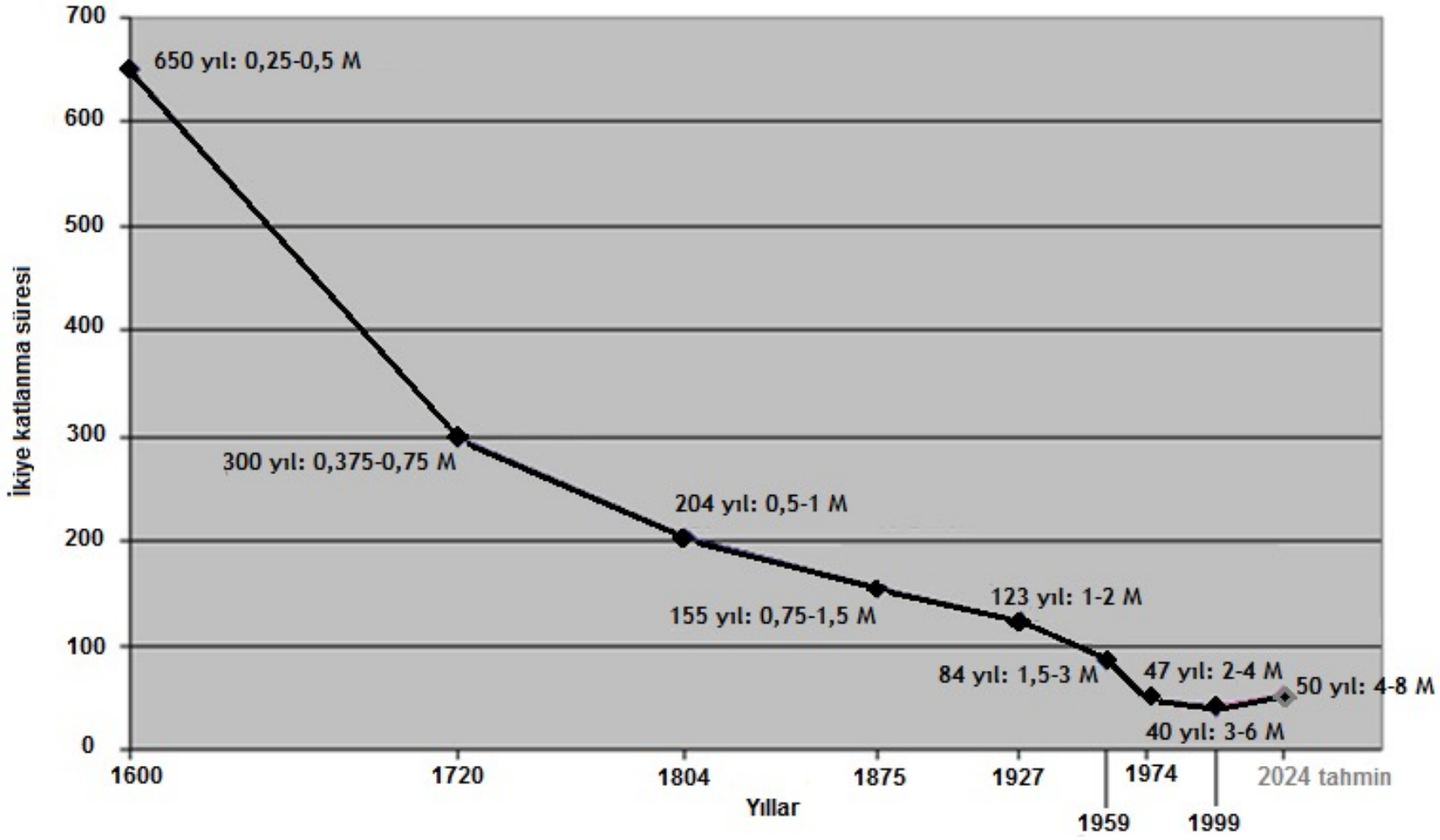


http://www.bbc.co.uk/turkce/ozeldosyalar/2011/10/111028_world_population.shtml

Today's World Population

- According to historical records, the acceleration of the increase in the world population started in European countries and in the lands where Europeans settled overseas (in the USA, Canada, Australia).
- The areas with the fastest population growth today are; developing countries in Africa, Asia, and Latin America. In these places where more than ¾ of humanity lives, 90% of the world population growth takes place.
- Although the birth rate in these countries is two times higher than in developed countries; death rates have fallen over the past 25-30 years.
- Today, although we do not fully know what the earth's capacity to carry people is, many people think that the limits of this capacity are approaching, and even exceeded.

Doubling Time of World Population



World Population Today: Regional Differences

- In the 20th century, the Cold War caused the growing population and change in people's geographic concentration to be ignored.
- Population growth during these years was geographically unevenly distributed. Population growth patterns observed around the world are not the same. The world can be roughly divided into three broad areas in this respect: the developed, the underdeveloped and the least developed worlds.
- In developed countries, the annual average population growth rate in the 2015-2020 period is 0.3%. However, in the underdeveloped world as a whole, this rate is 1.3%; In the least developed world, which is low-income, economically fragile, and has poor human development indicators, most of them in Sub-Saharan Africa, it is 2.3%.
- Population growth rates in most of the developed world indicate either very little increase or decrease.
- Although the population growth rate across Europe is 0.1% (which means, in a way, zero natural growth); 0.5% in Northern Europe; It can be mentioned that there is an increase of 0.4% in Western Europe and a decrease of -0.1% in Eastern and Southern Europe.

- According to the data of the United Nations, a large part of the world's population growth; While underdeveloped countries constitute 84% of the global population, they are the areas where 97% of the world population growth takes place (United Nations, 2019).
- From another perspective, approximately 69 million children were born in developed and industrialized countries during the period 2010-2015, and more than 632 million children were born in underdeveloped countries. In other words, 9 out of 10 children born were born in underdeveloped countries (United Nations, 2017).
- In the underdeveloped world in general, there are great differences in population growth regimes, even between countries.
- Annual population growth rate at country level in the period 2015-2020 is 3.8% in Niger; Although it is 3.6% in Uganda and 2.5% in Afghanistan; 1.4% in Turkey; 1.1% in Mexico; 0.5% in Germany; 0.1% in Russia; -1.1% in Latvia and -1.5% in Lithuania (UN World Population 2019).

- The current outlook for population growth rates could be a symptom of a demographic crisis for Eastern and Southern European countries. Annual population growth rates in these regions are as follows: Bulgaria(-0.7%), Romania(-0.7%), Ukraine(-0.5%) and Hungary(-0.2%); Such as Bosnia and Herzegovina (-0.9%), Croatia (-0.6%), Greece (-0.4%) (the rate of increase is also zero in Italy and Spain)
- China, the world's most populous country, has a natural rate of growth of only 0.5%, so its population is growing at a slow rate and may eventually face population decline soon. With a total fertility rate of 1.7 children, China has already faced the problem of population aging due to the one-child policy it has implemented for many years. 12% of the Chinese population is aged 65 and over.
- India, the second most populous country in the world, has an annual population growth rate of 1.0% and a fertility rate of 2.2; that is, its population is growing faster than China and it is estimated that India's population will surpass China before 2030.

- Africa (26 per thousand) and especially East and Central African countries have an increase of 2.7% and 3.0% respectively and fertility rates of 4.4 and 5.5.
- In some countries in these regions, the rate of increase is at the level of 3.0-3.5%. In short, population growth rates are very high and long-term population growth is achieved.
- Population growth rates are lower in Central America, South America and the Caribbean than in Africa (between 0.4% and 1.2%), the population continues to increase for now as fertility rates are between 1.9 and 2.2 children.
- The annual population growth rate of Turkey in the 2015-2020 period is 1.4%, the fertility rate is 2.0 (United Nations, 2019). In this way, the population of the country will continue to increase for a while.

Today's World Population

- Today, in almost all developed countries, fertility is below the replacement level, which corresponds to 2.1 children per woman, and the population growth rate is 0.3% on average.
- In contrast, a high percentage of population growth will occur in developing countries that will not be able to absorb the additional population in the coming decades.
- It is expected that the international migration caused by the capital concentrated in the rich countries and the young population mainly concentrated in the poor countries over the decades will prevent economic globalization.
- Another comparison between developed and developing countries can be made over the different age structures of their populations.
- In countries with a rapidly growing population, the young population is high. In rapidly congested areas of the world (Africa, Asia and Latin America), a significant portion of the population (40-60%) consists of those under the age of 25. Youth rates are significantly lower (30% less) in North America, Europe and Oceania (Peters and Larkin, 2005; United Nations, 2019).

World Population Clock, 2016

Population Clock, 2016

		WORLD	MORE DEVELOPED COUNTRIES	LESS DEVELOPED COUNTRIES
Population		7,418,151,841	1,254,309,821	6,163,842,020
Births per	Year	147,183,065	13,714,857	133,468,215
	Day	403,241	37,575	365,666
	Minute	280	26	254
Deaths per	Year	57,387,752	12,580,616	44,807,108
	Day	157,227	34,467	122,759
	Minute	109	24	85
Natural increase per	Year	89,795,313	1,134,242	88,661,107
	Day	246,015	3,108	242,907
	Minute	171	2	169
Infant deaths per	Year	5,226,233	65,229	5,160,998
	Day	14,318	179	14,140
	Minute	10	0.1	10

Kaynak: http://www.prb.org/pdf16/prb-wpds2016-web-2016.pdf

- So far we have reviewed the situation of the world's population in the perspective of the past. At this point, the following questions should be asked:
- What will the current world population be in the future?
- Will the distribution of this population around the world change?
- The answer to these questions depends on a set of estimates of population dynamics over a given period, and this is a population projection.
- The projection for population size at a particular date in the future is based on a set of assumptions regarding birth and death for the world-wide and additional migration processes for different parts of the world, which can affect population growth over time.
- How accurate are the assumptions regarding these processes; the projection will be as close to reality.
- Despite their difficulties, projections are considered necessary and useful because they prompt us to consider the consequences of population trends.

- The total fertility rate of the developing world has halved since the mid-20th century (6.06 in 1955 and 2.6 in 2019; 2.8 excluding China) that is, some analysts expect fertility rates to continue to decline, with some evidence of a transition from high to low fertility. argues that the risk of population growth is greatly reduced, the new problem is a population gap and the aging of the world population.

- Others argue that the threat of world population growth is now a regional rather than a global issue, and as a result, the risk is observed in countries with high fertility regimes.
- In reality, to say that population growth is a regional problem is to ignore the problem for the Western world, but this is a view that puts the West at risk.

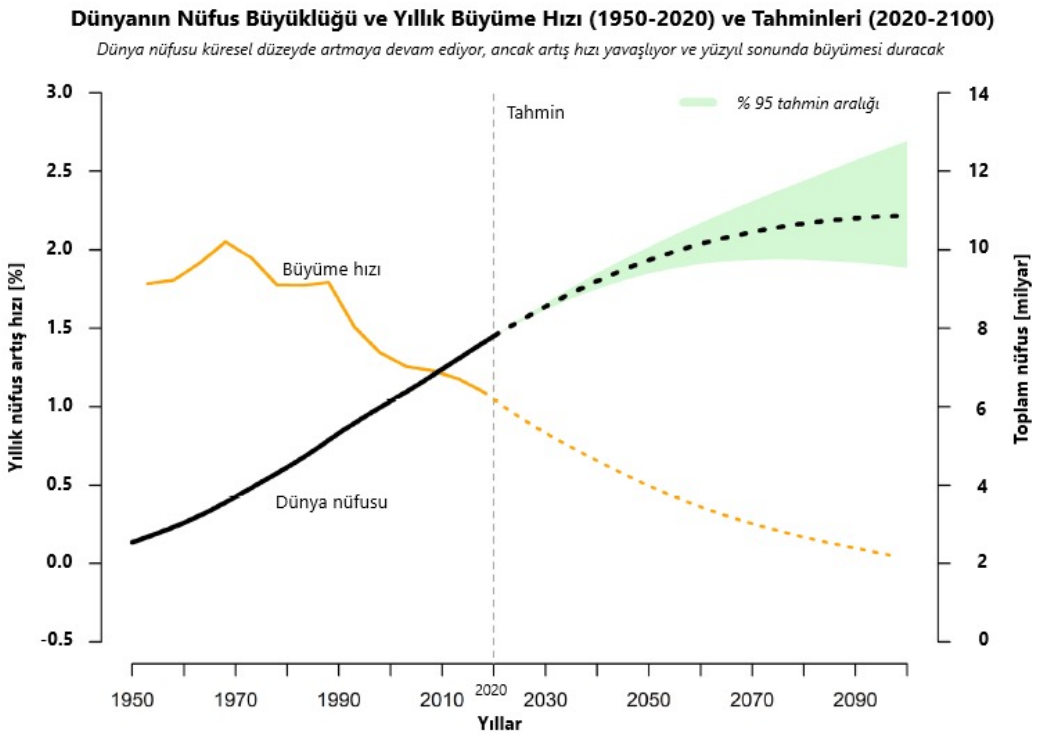
Total fertility for the world, SDG regions and selected groups of countries, 1990, 2019, 2050 and 2100, according to the medium-variant projection

	Average number of live births per woman			
Region	1990	2019	2050	2100
World	**3.2**	**2.5**	**2.2**	**1.9**
Sub-Saharan Africa	6.3	4.6	3.1	2.1
Northern Africa and Western Asia	4.4	2.9	2.2	1.9
Central and Southern Asia	4.3	2.4	1.9	1.7
Eastern and South-Eastern Asia	2.5	1.8	1.8	1.8
Latin America and the Caribbean	3.3	2.0	1.7	1.7
Australia/New Zealand	1.9	1.8	1.7	1.7
Oceania*	4.5	3.4	2.6	2.0
Europe and Northern America	1.8	1.7	1.7	1.8
Least developed countries	6.0	3.9	2.8	2.1
Land-locked Developing Countries	5.7	3.9	2.7	2.0
Small Island Developing States	3.2	2.4	2.1	1.8

Data source: United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019.*
* excluding Australia and New Zealand

Population Projections for the Future

- Today, the world population continues to increase, although at a slower rate than in the recent past (2.1 percent in the 1960s). Ten years ago, the global population was growing at a rate of 1.24% per year. Now it is growing at a rate of 1.1% per year, adding 83 million people to the world's population each year.
- The world population is projected to increase to 8.5 billion (between 8.4 and 8.7 billion) in 2030, 9.7 billion (between 9.4-10.2 billion) in 2050, and 10.9 billion (between 9.6-13.2 billion) by 2100.



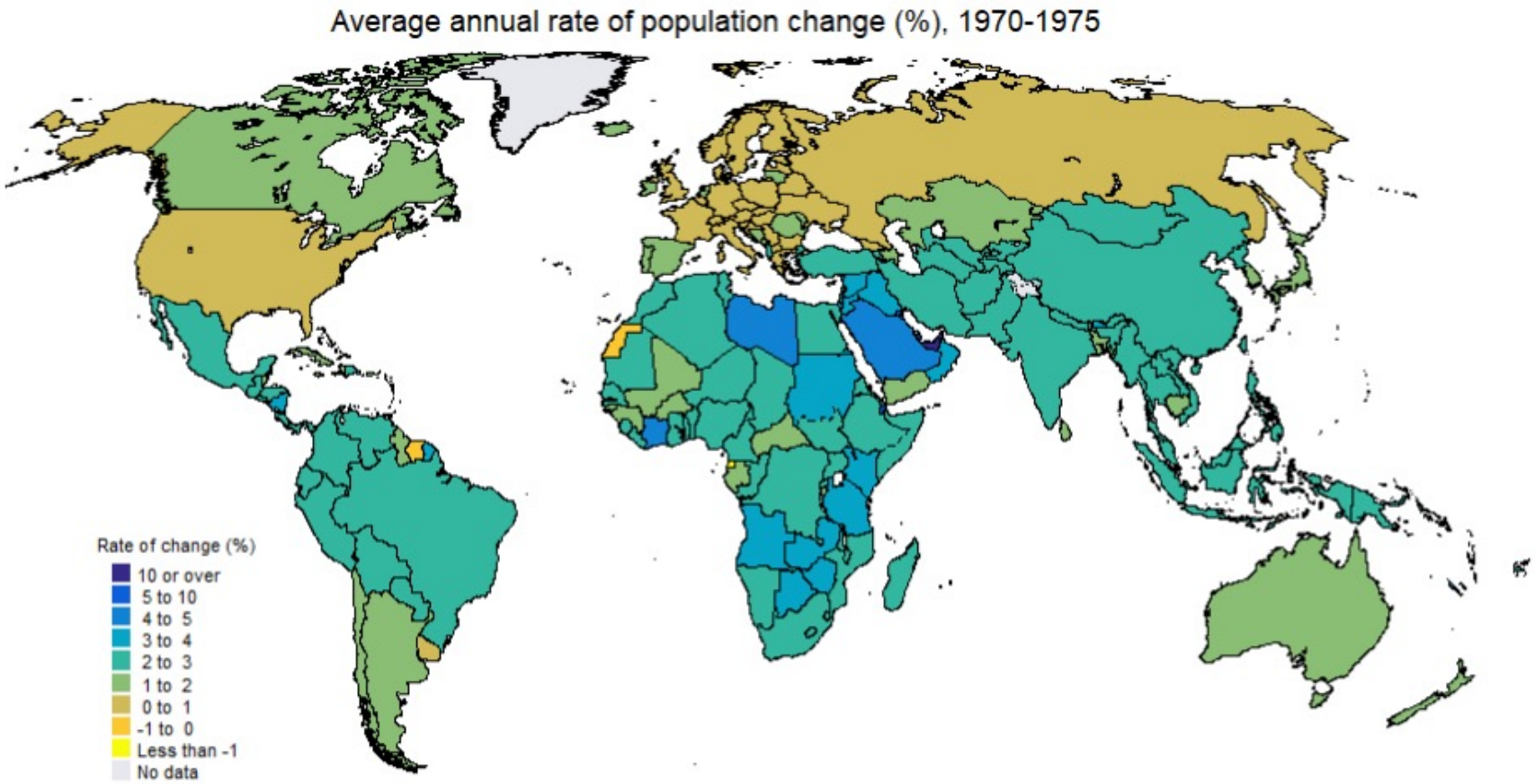
Population Projections for the Future

- UN analysts predict that future population growth will occur in less developed parts of the world, especially in Africa. More than half of the expected growth in global population from 2017 to 2050 is expected to occur in Africa. In this period, 1.3 billion of the 2.2 billion people to be added to the world population will be living in Africa and 750 million will be living in Asia.
- Africa and Asia will be followed by Latin America and the Caribbean, North America and Oceania, where growth is expected to be more modest. In the mid-level projection, Europe is the only region that will have a smaller population in 2050 than in 2017.
- After 2050, Africa is projected to be the main region to contribute to global population growth.

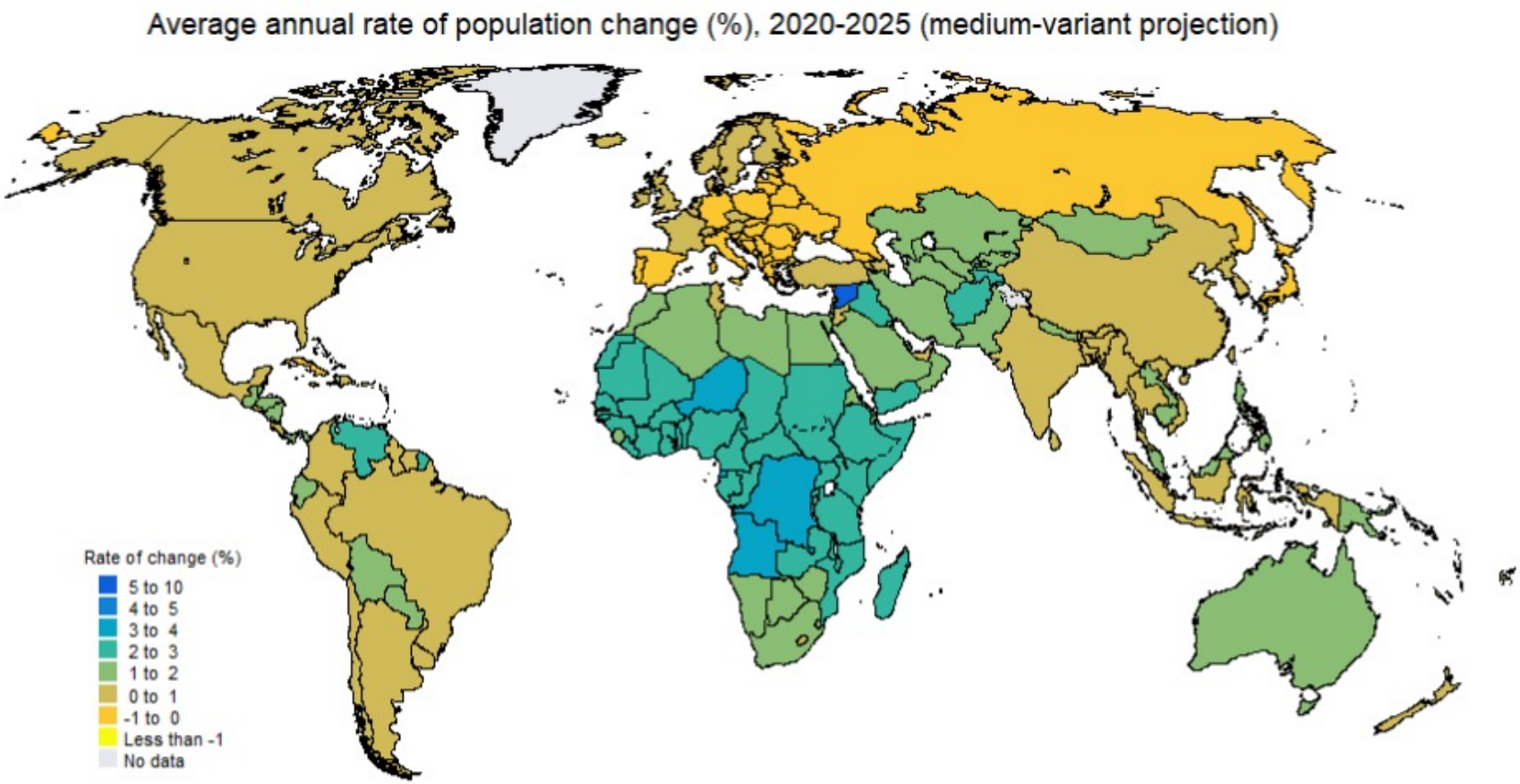
POPULATION OF THE WORLD AND REGIONS, 2017, 2030, 2050 AND 2100, ACCORDING TO THE MEDIUM-VARIANT PROJECTION

Region	*Population (millions)*			
	2017	*2030*	*2050*	*2100*
World	7 550	8 551	9 772	11 184
Africa	1 256	1 704	2 528	4 468
Asia	4 504	4 947	5 257	4 780
Europe	742	739	716	653
Latin America and the Caribbean	646	718	780	712
Northern America	361	395	435	499
Oceania	41	48	57	72

Source: United Nations, Department of Economic and Social Affairs, Population Division (2017). *World Population Prospects: The 2017 Revision*. New York: United Nations.

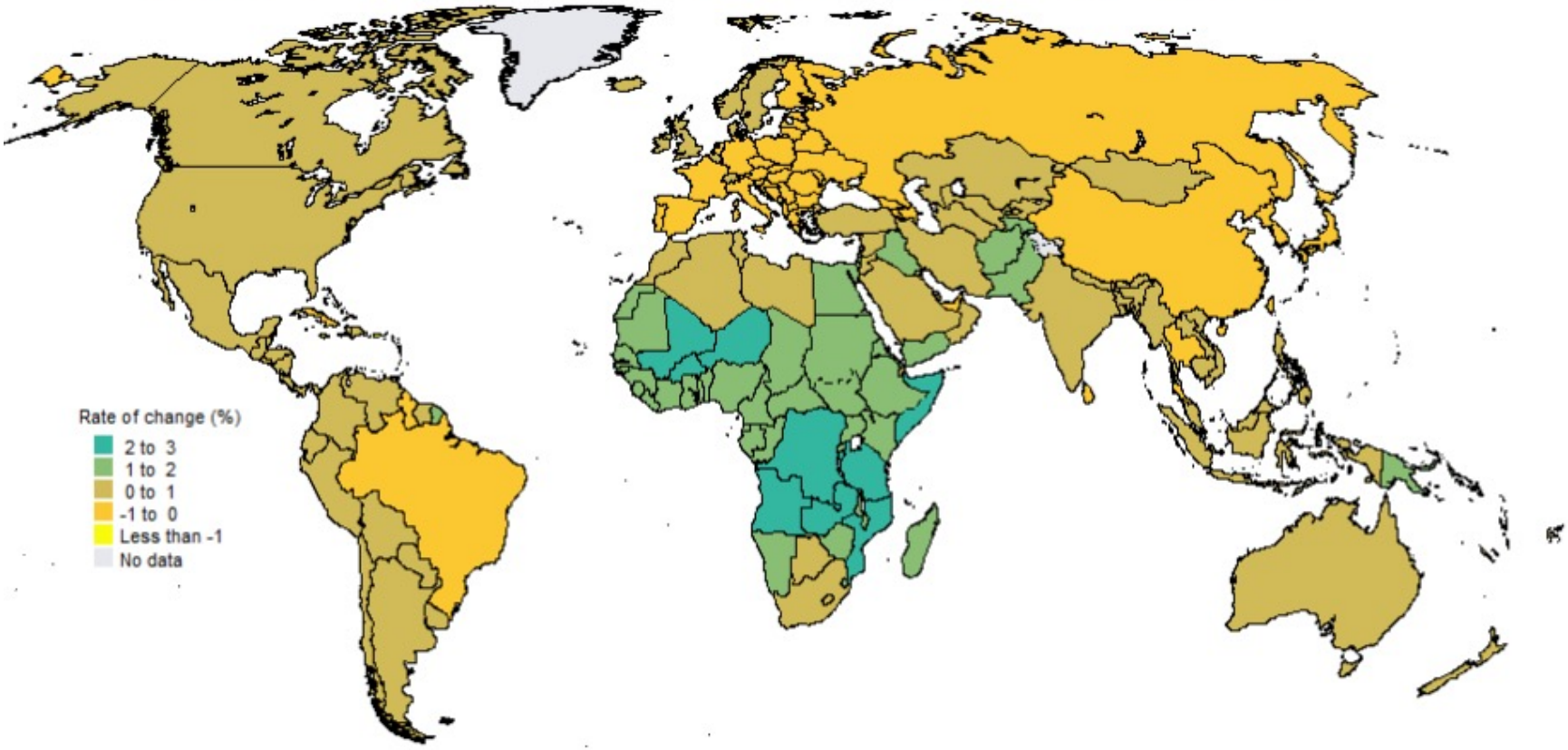


Kaynak: https://population.un.org/wpp/Maps/



Kaynak: https://population.un.org/wpp/Maps/

Average annual rate of population change (%), 2045-2050 (medium-variant projection)



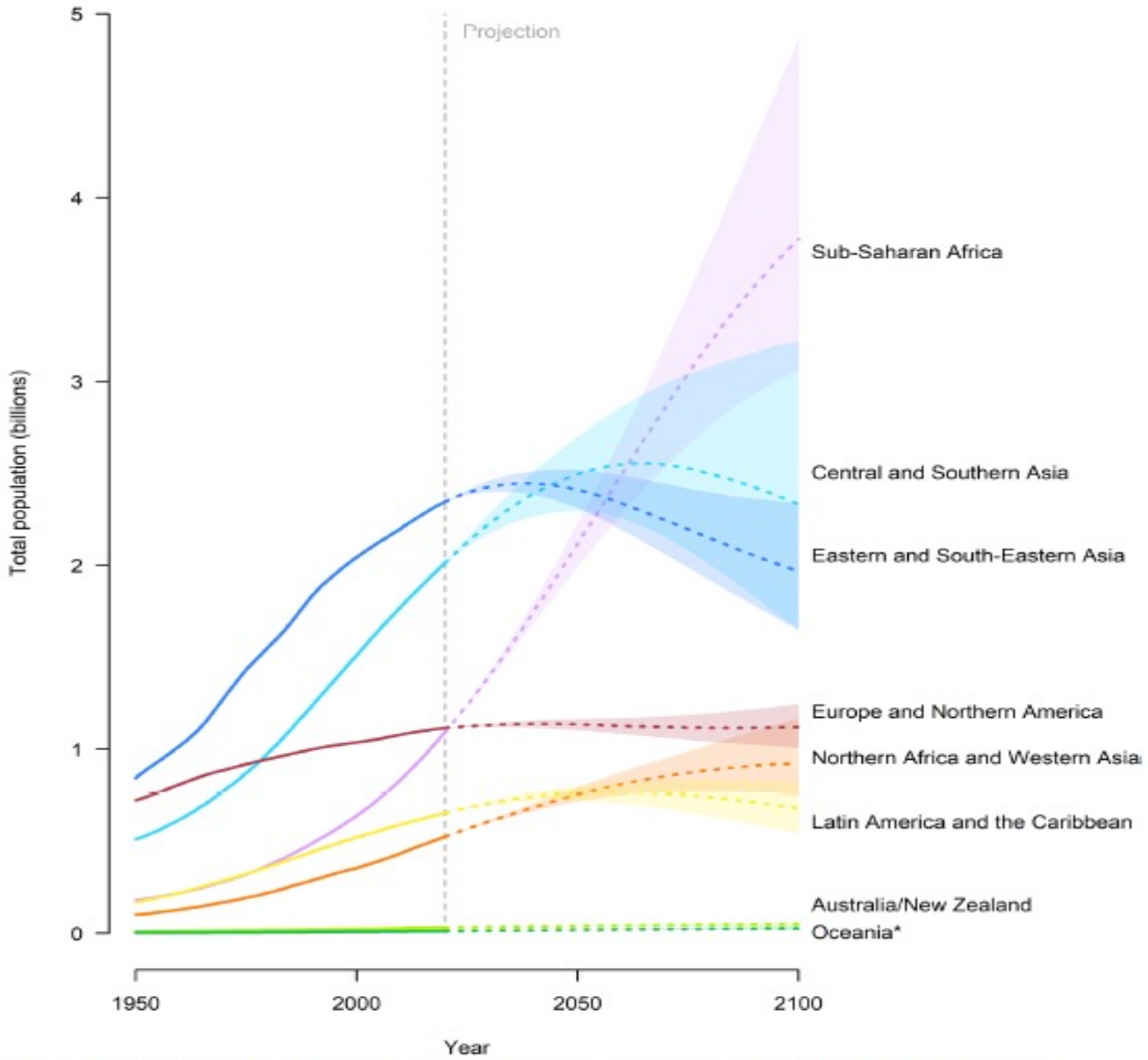
Population of the world, SDG regions and selected groups of countries, 2019, 2030, 2050 and 2100, according to the medium-variant projection

Region	Population (millions) 2019	2030	2050	2100
World	**7 713**	**8 548**	**9 735**	**10 875**
Sub-Saharan Africa	1 066	1 400	2 118	3 775
Northern Africa and Western Asia	517	609	754	924
Central and Southern Asia	1 991	2 227	2 496	2 334
Eastern and South-Eastern Asia	2 335	2 427	2 411	1 967
Latin America and the Caribbean	648	706	762	680
Australia/New Zealand	30	33	38	49
Oceania*	12	15	19	26
Europe and Northern America	1 114	1 132	1 136	1 120
Least developed countries	1 033	1 314	1 877	3 047
Land-locked Developing Countries	521	659	926	1 406
Small Island Developing States	71	78	87	88

Data source: United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019.*
* excluding Australia and New Zealand

Population by SDG region: estimates, 1950-2020, and medium-variant projection with 95 per cent prediction intervals, 2020-2100

Of the eight SDG regions, only sub-Saharan Africa is projected to sustain rapid population growth through the end of the century, according to the medium-variant projection



Data source: United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*.
* excluding Australia and New Zealand

Total population at mid-year by region and subregion: estimates and medium variant, 1950-2100

Estimates: 1950-2015

Region and subregion	Population (thousands)									
	1950	1960	1970	1980	1990	1995	2000	2005	2010	2015
World	2 536 275	3 033 213	3 700 578	4 458 412	5 330 943	5 751 474	6 145 007	6 542 159	6 958 169	7 383 009
More developed regions (a)	814 865	917 068	1 009 082	1 084 244	1 146 999	1 171 325	1 190 505	1 210 546	1 235 143	1 253 207
Less developed regions (b)	1 721 410	2 116 145	2 691 496	3 374 167	4 183 944	4 580 149	4 954 502	5 331 614	5 723 027	6 129 802
Least developed countries (c)	195 259	240 742	308 486	393 279	510 828	585 496	664 805	754 118	848 792	956 631
Other less developed countries (d)	1 526 151	1 875 402	2 383 009	2 980 888	3 673 117	3 994 653	4 289 697	4 577 496	4 874 235	5 173 171
Less dev. regions, excl. China	1 157 197	1 444 524	1 847 895	2 357 419	2 985 062	3 312 455	3 642 371	3 980 077	4 332 607	4 701 441
High-income countries (e)	672 896	761 558	851 319	929 939	1 000 109	1 035 595	1 070 130	1 106 702	1 148 592	1 180 061
Middle-income countries (e)	1 734 481	2 115 931	2 652 001	3 275 988	4 006 282	4 342 278	4 647 490	4 944 486	5 246 882	5 558 264
Upper-middle-income countries (e)	956 204	1 161 553	1 447 954	1 751 425	2 079 414	2 208 017	2 307 578	2 397 644	2 489 411	2 588 363
Lower-middle-income countries (e)	778 277	954 378	1 204 047	1 524 562	1 926 868	2 134 261	2 339 912	2 546 842	2 757 470	2 969 901
Low-income countries (e)	128 097	154 670	195 911	250 969	322 686	371 553	425 130	488 441	560 007	641 859
Sub-Saharan Africa (f)	179 621	221 490	283 310	372 310	493 329	564 807	645 007	736 925	845 136	969 234

Total population at mid-year by region and subregion

2020-2100: Medium variant

Population (thousands)										Region and subregion
2020	2025	2030	2040	2050	2060	2070	2080	2090	2100	
7 795 482	8 185 614	8 551 199	9 210 337	9 771 823	10 222 598	10 575 847	10 848 708	11 050 055	11 184 368	**World**
1 269 277	1 281 296	1 289 937	1 297 496	1 298 069	1 293 887	1 288 199	1 285 254	1 285 091	1 284 957	**More developed regions (a)**
6 526 205	6 904 318	7 261 262	7 912 841	8 473 754	8 928 712	9 287 647	9 563 455	9 764 964	9 899 411	**Less developed regions (b)**
1 073 984	1 200 441	1 334 196	1 618 985	1 916 742	2 215 712	2 504 276	2 770 009	3 003 212	3 198 860	Least developed countries (c)
5 452 221	5 703 877	5 927 066	6 293 857	6 557 013	6 713 000	6 783 371	6 793 446	6 761 752	6 700 551	Other less developed countries (d)
5 069 640	5 432 967	5 787 196	6 462 522	7 077 398	7 609 339	8 049 438	8 399 843	8 665 641	8 852 508	**Less dev. regions, excl. China**
1 207 775	1 230 492	1 249 896	1 275 679	1 287 798	1 291 438	1 291 296	1 290 199	1 289 124	1 288 172	**High-income countries (e)**
5 852 576	6 121 661	6 362 054	6 764 840	7 067 079	7 261 389	7 367 298	7 410 952	7 410 319	7 375 603	**Middle-income countries (e)**
2 670 122	2 727 929	2 767 247	2 802 739	2 790 496	2 732 373	2 649 070	2 560 277	2 475 338	2 397 021	Upper-middle-income countries (e)
3 182 454	3 393 732	3 594 807	3 962 101	4 276 584	4 529 016	4 718 229	4 850 676	4 934 981	4 978 582	Lower-middle-income countries (e)
732 133	830 289	935 905	1 166 159	1 413 034	1 665 664	1 912 979	2 143 143	2 346 100	2 516 036	**Low-income countries (e)**
1 106 573	1 256 240	1 418 333	1 776 791	2 167 652	2 573 400	2 977 424	3 360 850	3 706 303	4 001 756	**Sub-Saharan Africa (f)**

Average annual rate of population change by region and subregion: estimates and medium variant, 1950-2100

Estimates: 1950-2015

Region and subregion	Annual rate of change (per cent)									
	1950-1955	1960-1965	1970-1975	1980-1985	1985-1990	1990-1995	1995-2000	2000-2005	2005-2010	2010-2015
World	1.78	1.93	1.95	1.78	1.79	1.52	1.32	1.25	1.23	1.19
More developed regions (a)	1.20	1.07	0.78	0.58	0.55	0.42	0.33	0.33	0.40	0.29
Less developed regions (b)	2.05	2.29	2.37	2.15	2.15	1.81	1.57	1.47	1.42	1.37
Least developed countries (c)	1.96	2.40	2.36	2.57	2.66	2.73	2.54	2.52	2.37	2.39
Other less developed countries (d)	2.06	2.27	2.37	2.10	2.08	1.68	1.43	1.30	1.26	1.19
Less dev. regions, excl. China	2.09	2.46	2.44	2.43	2.29	2.08	1.90	1.77	1.70	1.63
High-income countries (e)	1.22	1.21	0.95	0.74	0.71	0.70	0.66	0.67	0.74	0.54
Middle-income countries (e)	2.00	2.15	2.22	2.02	2.00	1.61	1.36	1.24	1.19	1.15
Upper-middle-income countries (e)	2.07	2.03	2.11	1.67	1.77	1.20	0.88	0.77	0.75	0.78
Lower-middle-income countries (e)	1.91	2.31	2.34	2.42	2.27	2.04	1.84	1.69	1.59	1.48
Low-income countries (e)	1.66	2.23	2.51	2.40	2.63	2.82	2.69	2.78	2.73	2.73
Sub-Saharan Africa (f)	1.99	2.39	2.66	2.83	2.80	2.71	2.66	2.67	2.74	2.74

Average annual rate of population change by region and subregion (continued) **2015-2100: Medium variant**

Annual rate of change (per cent)										Region and subregion
2015-2020	2020-2025	2025-2030	2035-2040	2045-2050	2055-2060	2065-2070	2075-2080	2085-2090	2095-2100	
1.09	0.98	0.87	0.70	0.56	0.42	0.32	0.24	0.17	0.11	**World**
0.26	0.19	0.13	0.04	0.00	-0.04	-0.04	-0.02	0.00	-0.01	**More developed regions (a)**
1.25	1.13	1.01	0.81	0.64	0.49	0.37	0.27	0.19	0.12	**Less developed regions (b)**
2.31	2.23	2.11	1.87	1.63	1.39	1.17	0.96	0.76	0.59	Least developed countries (c)
1.05	0.90	0.77	0.55	0.36	0.20	0.08	-0.01	-0.06	-0.10	Other less developed countries (d)
1.51	1.38	1.26	1.05	0.86	0.68	0.53	0.40	0.28	0.19	**Less dev. regions, excl. China**
0.46	0.37	0.31	0.17	0.08	0.02	0.00	-0.01	-0.01	-0.01	**High-income countries (e)**
1.03	0.90	0.77	0.57	0.39	0.23	0.12	0.04	-0.01	-0.06	**Middle-income countries (e)**
0.62	0.43	0.29	0.08	-0.09	-0.25	-0.32	-0.35	-0.33	-0.32	Upper-middle-income countries (e)
1.38	1.29	1.15	0.92	0.71	0.53	0.37	0.25	0.15	0.07	Lower-middle-income countries (e)
2.63	2.52	2.40	2.13	1.85	1.58	1.32	1.08	0.85	0.65	**Low-income countries (e)**
2.65	2.54	2.43	2.19	1.92	1.65	1.40	1.15	0.92	0.72	**Sub-Saharan Africa (f)**

Total population at mid-year by region and subregion: constant-fertility variant, 2020-2100

Region and subregion	Population (thousands)									
	2020	2025	2030	2040	2050	2060	2070	2080	2090	2100
World	7 794 799	8 218 501	8 651 761	9 553 186	10 543 230	11 733 077	13 245 025	15 240 708	17 948 823	21 632 737
UN development groups (a)	...	...	...	...	...	...	...	...	...	...
More developed regions (b)	1 273 304	1 281 312	1 285 149	1 283 648	1 271 850	1 253 480	1 233 311	1 216 283	1 203 621	1 193 578
Less developed regions (c)	6 521 494	6 937 189	7 366 612	8 269 537	9 271 380	10 479 597	12 011 714	14 024 425	16 745 201	20 439 159
Least developed countries (d)	1 057 438	1 196 420	1 358 280	1 754 212	2 271 555	2 971 226	3 921 401	5 216 967	7 003 839	9 471 934
Other less developed countries (e)	5 464 056	5 740 769	6 008 331	6 515 325	6 999 825	7 508 371	8 090 313	8 807 458	9 741 363	10 967 225
Less dev. regions, excl. China	5 050 208	5 447 627	5 871 549	6 793 653	7 848 715	9 135 978	10 755 343	12 854 097	15 655 359	19 420 746
Land-locked Developing Countries (f)	533 143	603 070	683 847	880 835	1 136 345	1 478 490	1 938 342	2 558 210	3 405 404	4 564 942
Small Island Developing States (g)	72 076	75 778	79 542	86 856	94 227	102 296	111 744	123 176	137 362	155 158
World Bank income groups	...	...	...	...	...	...	...	...	...	...
High-income countries (h)	1 263 093	1 283 092	1 299 324	1 319 714	1 324 307	1 319 641	1 312 416	1 307 017	1 305 171	1 307 555
Middle-income countries (h)	5 753 052	6 037 699	6 316 760	6 858 314	7 391 715	7 967 370	8 640 595	9 482 960	10 590 391	12 057 069
Upper-middle-income countries (h)	2 654 816	2 722 058	2 773 298	2 837 891	2 860 363	2 848 794	2 822 439	2 801 098	2 798 075	2 818 496
Lower-middle-income countries (h)	3 098 235	3 315 641	3 543 462	4 020 423	4 531 352	5 118 577	5 818 156	6 681 862	7 792 315	9 238 574
Low-income countries (h)	775 711	894 581	1 032 349	1 371 422	1 823 072	2 441 498	3 286 938	4 445 064	6 046 913	8 260 982
No income group available	2 944	3 129	3 327	3 736	4 136	4 568	5 075	5 666	6 348	7 131
Geographic regions (i)	...	...	...	...	...	...	...	...	...	...
Africa (j)	1 340 598	1 525 889	1 742 280	2 279 591	2 989 132	3 944 427	5 237 692	6 992 812	9 392 372	12 677 031
Asia (k)	4 641 055	4 837 315	5 016 762	5 321 851	5 563 350	5 773 028	5 974 678	6 200 811	6 492 500	6 869 508
Europe (l)	747 636	745 573	740 549	725 023	704 645	679 110	652 104	629 314	611 642	595 884
Latin America and the Caribbean (m)	653 962	684 426	713 384	763 009	802 030	832 769	855 984	873 457	889 252	906 886
Northern America (n)	368 870	379 819	390 451	409 569	423 848	436 875	450 270	461 602	470 614	479 538
Oceania (o)	42 678	45 480	48 337	54 142	60 225	66 868	74 297	82 712	92 442	103 889

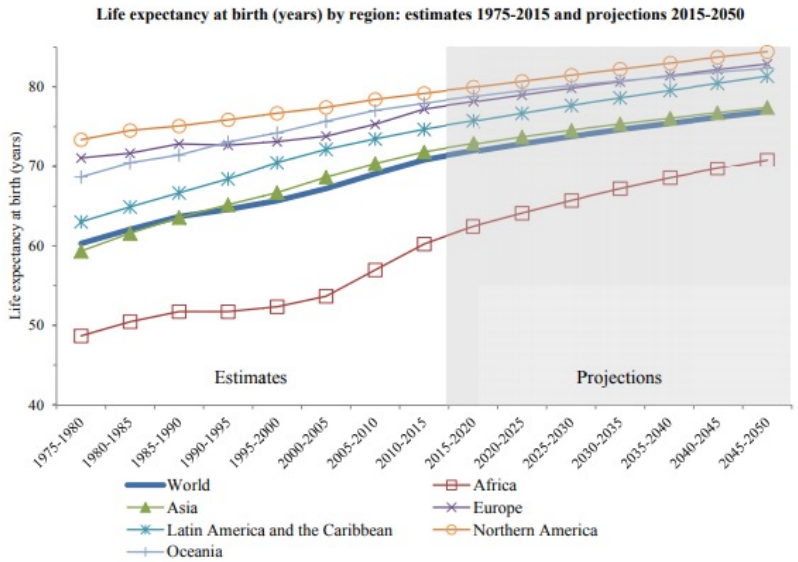
United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Volume I: Comprehensive Tables (ST/ESA/SER.A/426).

- Rapid population growth means that in the second half of the 20th century, the share of the world's population living outside the developed world rose from 68 percent to 84 percent and will rise to 87 percent by 2050, according to UN projections. The continuation of global population growth is based on three assumptions.

1. **Increase in life expectancy:** This will contribute to population growth as individuals will survive longer. Their long life expectancy will increase a child's likelihood of surviving infancy and childhood and allow him to complete the reproductive years.
2. **Excess population of childbearing age:** This age structure of the population is important for the expected population growth in the future: Although women have fewer children than in the past, there are women who are old enough to have more children.
3. **Probability of fertility rates remaining above replacement level:** It is not known whether there will be further declines in fertility rates, although declines have been noted in many regions.

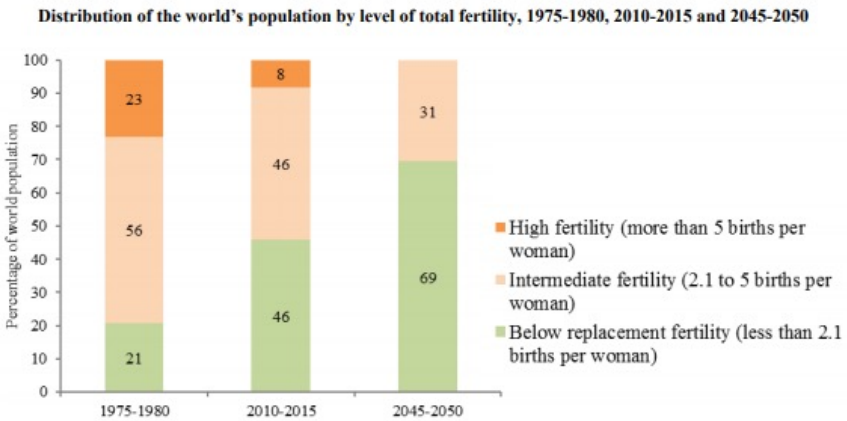
Population Projections for the Future

(1)



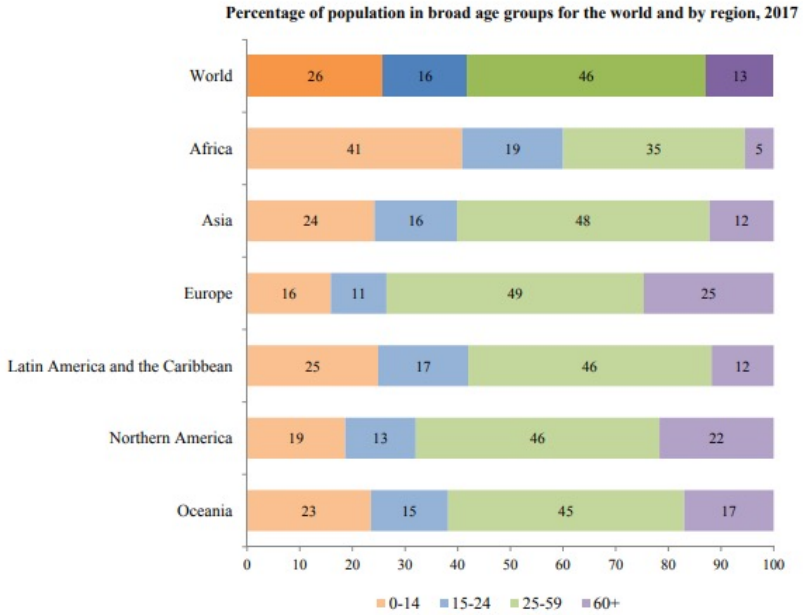
Source: United Nations, Department of Economic and Social Affairs, Population Division (2017). *World Population Prospects: The 2017 Revision*. New York: United Nations.

(3)

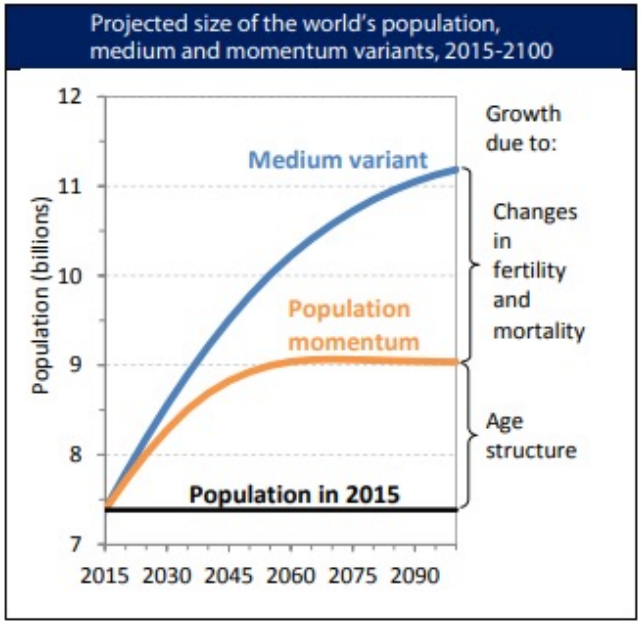


Source: United Nations, Department of Economic and Social Affairs, Population Division (2017). *World Population Prospects: The 2017 Revision*. New York: United Nations.

(2)



Source: United Nations, Department of Economic and Social Affairs, Population Division (2017). *World Population Prospects: The 2017 Revision*. New York: United Nations.



Population Projections for the Future

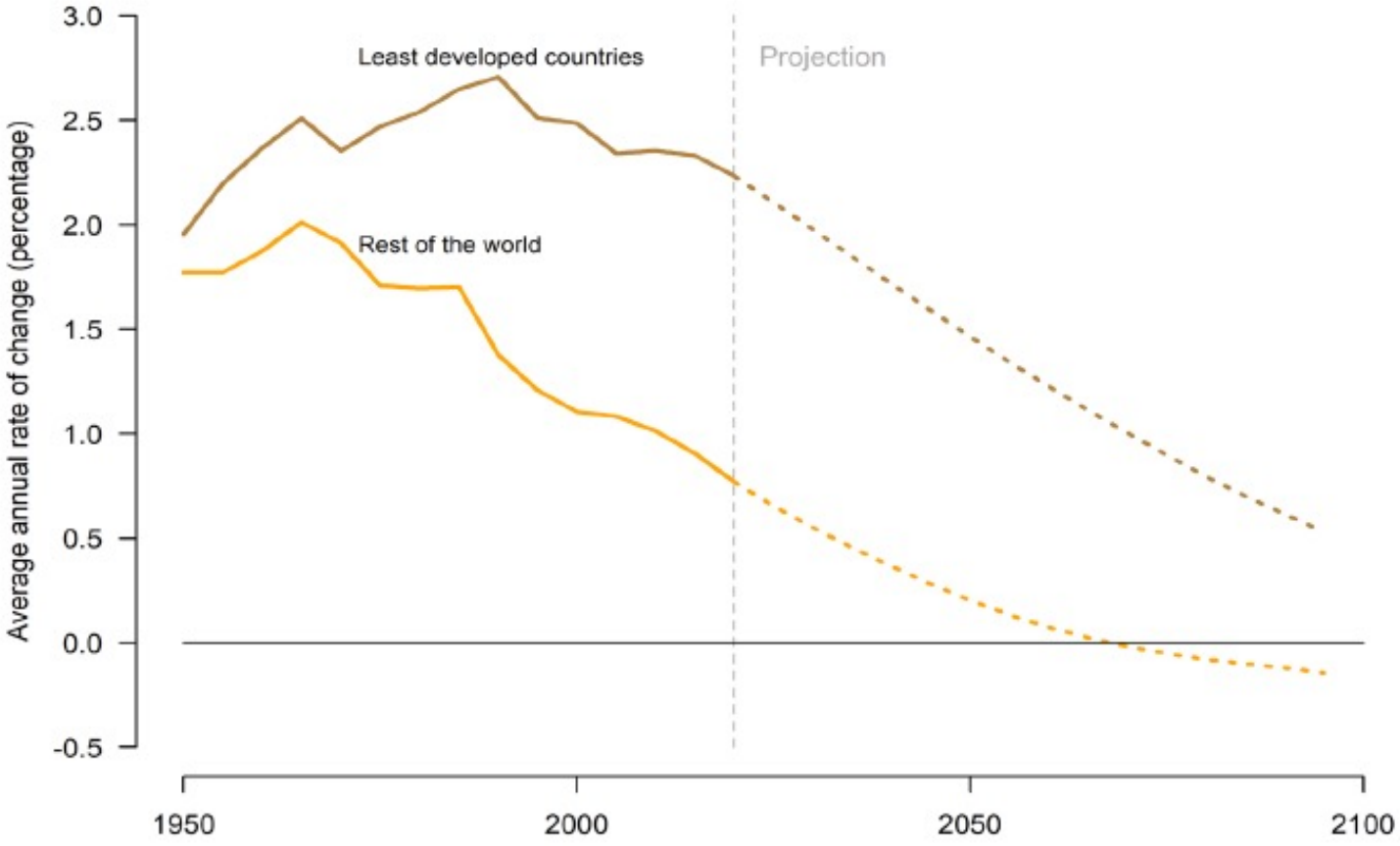
- The current total fertility rate-TFR (2.6 children per woman) in the underdeveloped world translates into a growth rate of 1.3% (1.5% excluding China).
- This means that the population of the underdeveloped world will double in approximately 50 years (assuming growth continues at current rates) or 40 years if China is excluded.
- TFR remains stubbornly high (TFR 4.0) in the world's least developed countries, even as it drops in Asia, Latin America and the Caribbean. With the rate of increase in 2019 (2.3%), the population in these countries can be predicted to double in 30 years.
- In Sub-Saharan Africa, it was TFR 4.7 from 2015-2020. Moreover, in countries where fertility rates are declining, the young age structure of the population will ensure continued growth over the next 20-30 years.
- In other words, a large part of the world's population has not yet begun to have children.

Population Projections for the Future

- The continued rapid population growth in underdeveloped countries poses challenges for sustainable development.
- The population growth rate remains high in 47 countries designated as least developed by the United Nations, including 32 countries in Sub-Saharan Africa.
- With an average annual growth of 2.3% from 2015 to 2020, the total population of least developed countries (LDCs) as a group is growing 2.5 times faster than the total population of the rest of the world.
- Although the growth rate of LDCs is predicted to slow in the future, the population of this country group, which was 1 billion in 2019, is estimated to increase to 1.9 billion in 2050 and 3.0 billion in 2100.
- Most LDCs expected to double in population size are the poorest countries in the world, with a per capita gross national income of less than US$1,000 (UN, World Population Prospects 2019: Highlights).

Estimated and projected annual rates of population growth for the 47 least developed countries and the rest of the world, 1950-2100, according to the medium-variant projection

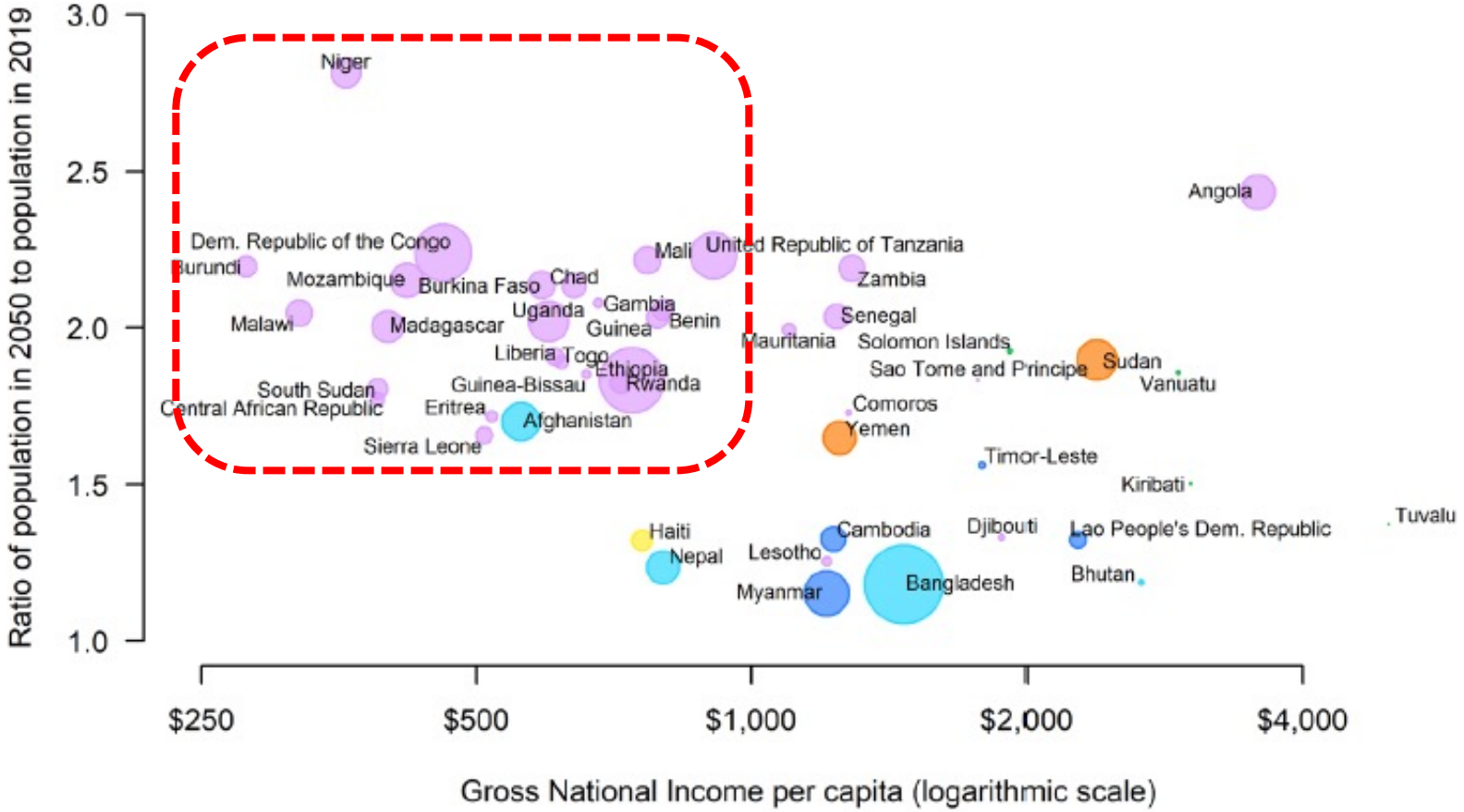
The total population of the least developed countries is growing at a rate that is 2.5 times faster than the growth rate of the total population of the rest of the world



Kaynak: UN, *World Population Prospects 2019: Highlights*

Ratio of medium-variant projection of population in 2050 to estimated population in 2019 and per capita annual gross national income of the least developed countries

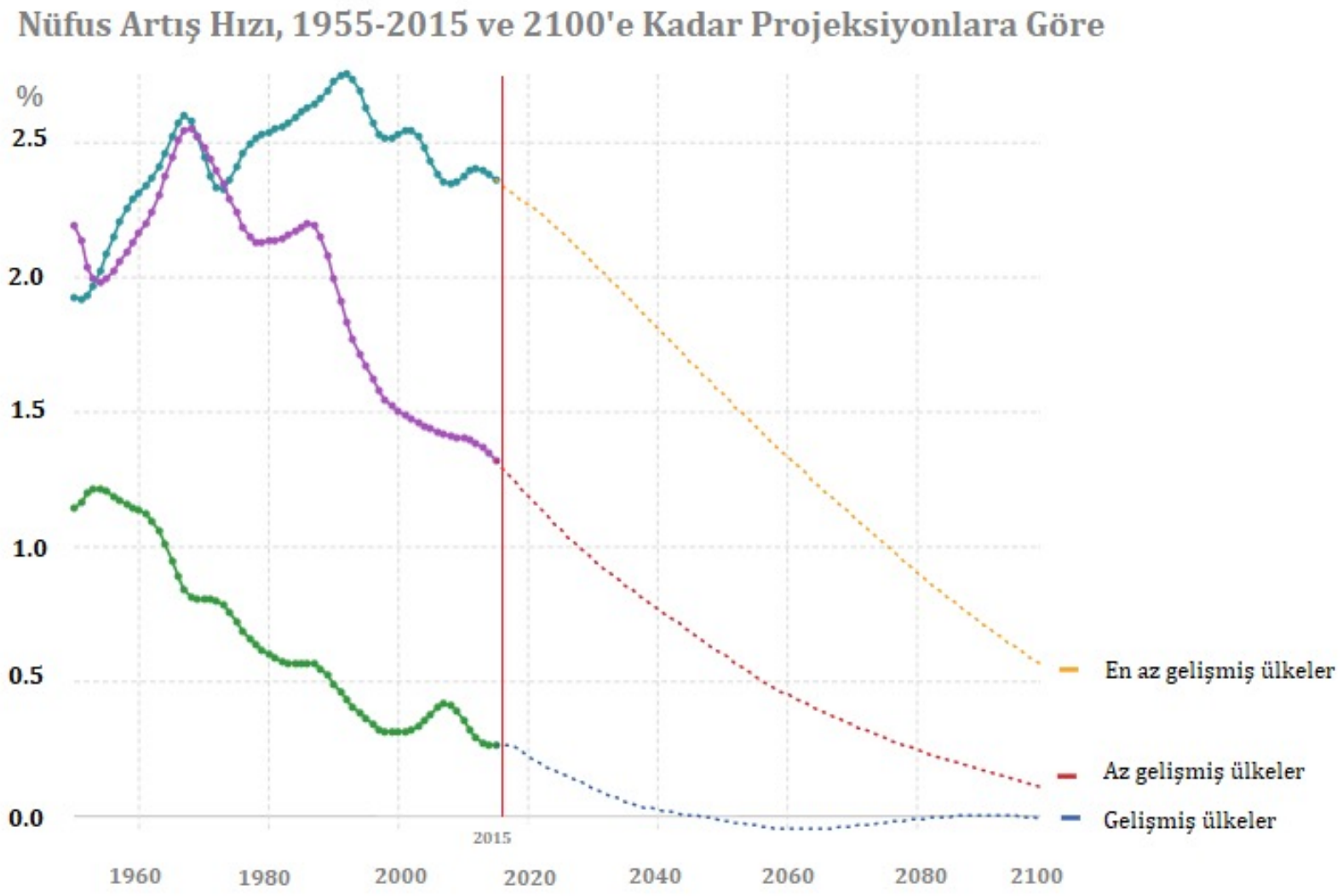
Many of the least developed countries that are anticipating rapid population growth are also among the poorest with per capita annual GNI below US$1,000



Bubble size is proportional to total population in 2019

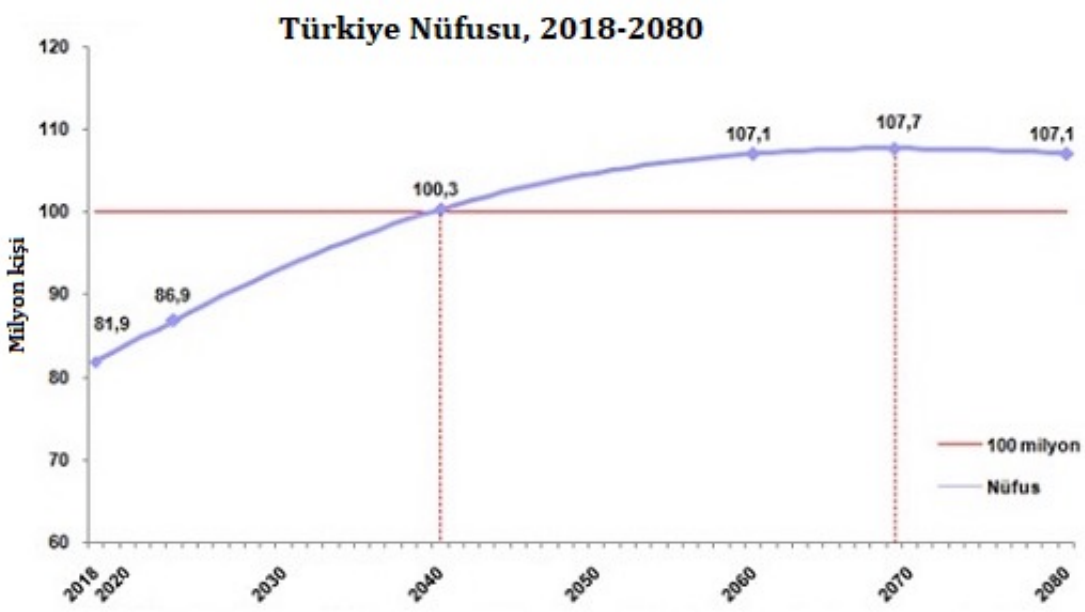
- Sub-Saharan Africa
- Northern Africa and Western Asia
- Central and Southern Asia
- Eastern and South-Eastern Asia
- Latin America and the Caribbean
- Oceania*

Population Growth Rate According to Projections Up to 1955-2015 and 2100



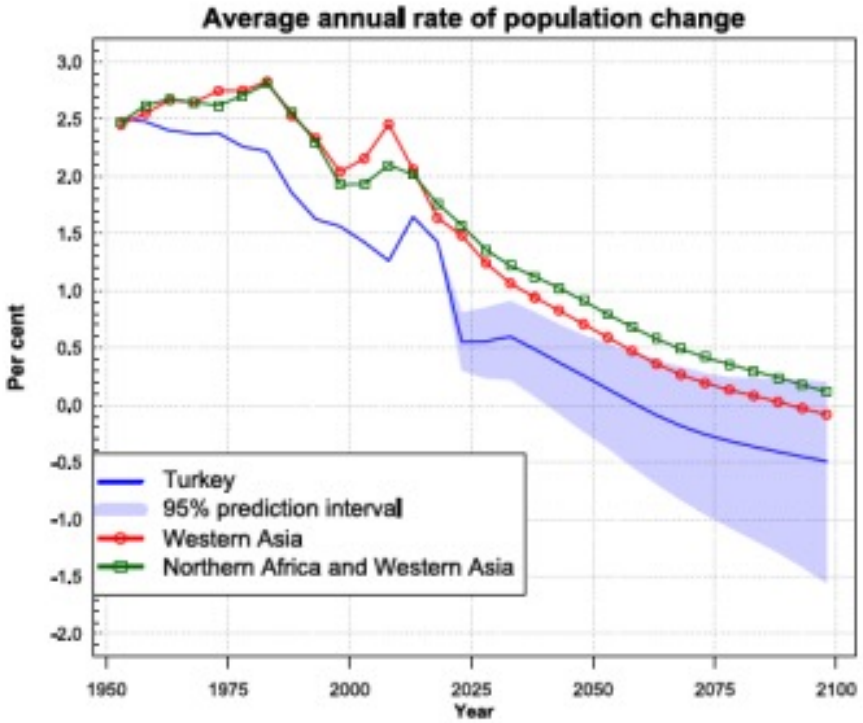
Population of Turkey in the Future

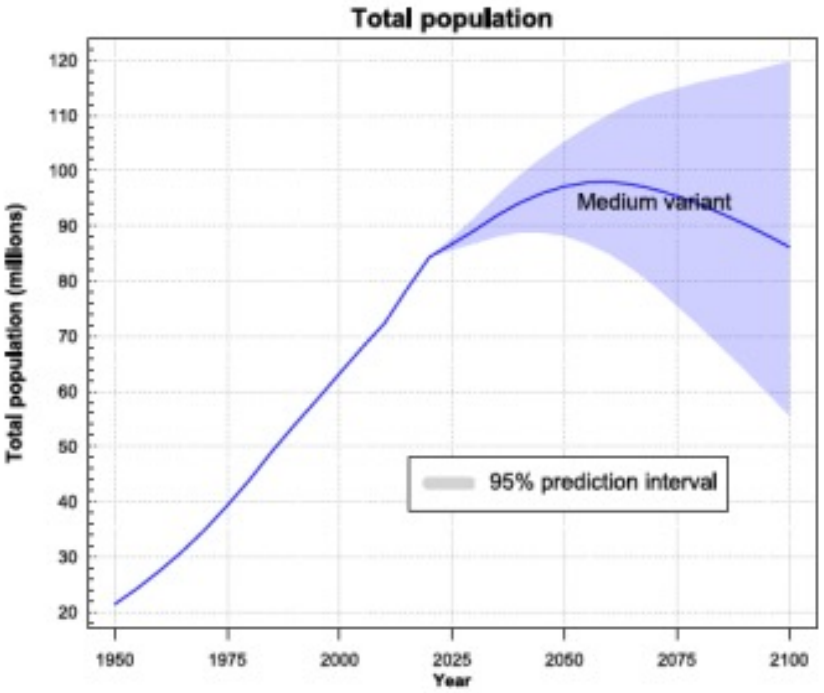
- According to the results of the 2021 ABPRS, the population of Turkey has been determined as 84.7 million people with an annual increase of 1.27%.
- If the current trends in demographic indicators continue, the population of Turkey will reach 86.8 million people by the end of 2023.
- According to the estimations of TurkStat, the population of Turkey is expected to reach 100.3 million people in 2040, and it is expected to continue to increase until 2069, reaching its highest value with 107.7 million people.
- The population of the country, which is expected to decrease from this year, is estimated to be 107.1 million people in 2080 (TurkStat, 21 February 2018).



Population of Turkey in the Future

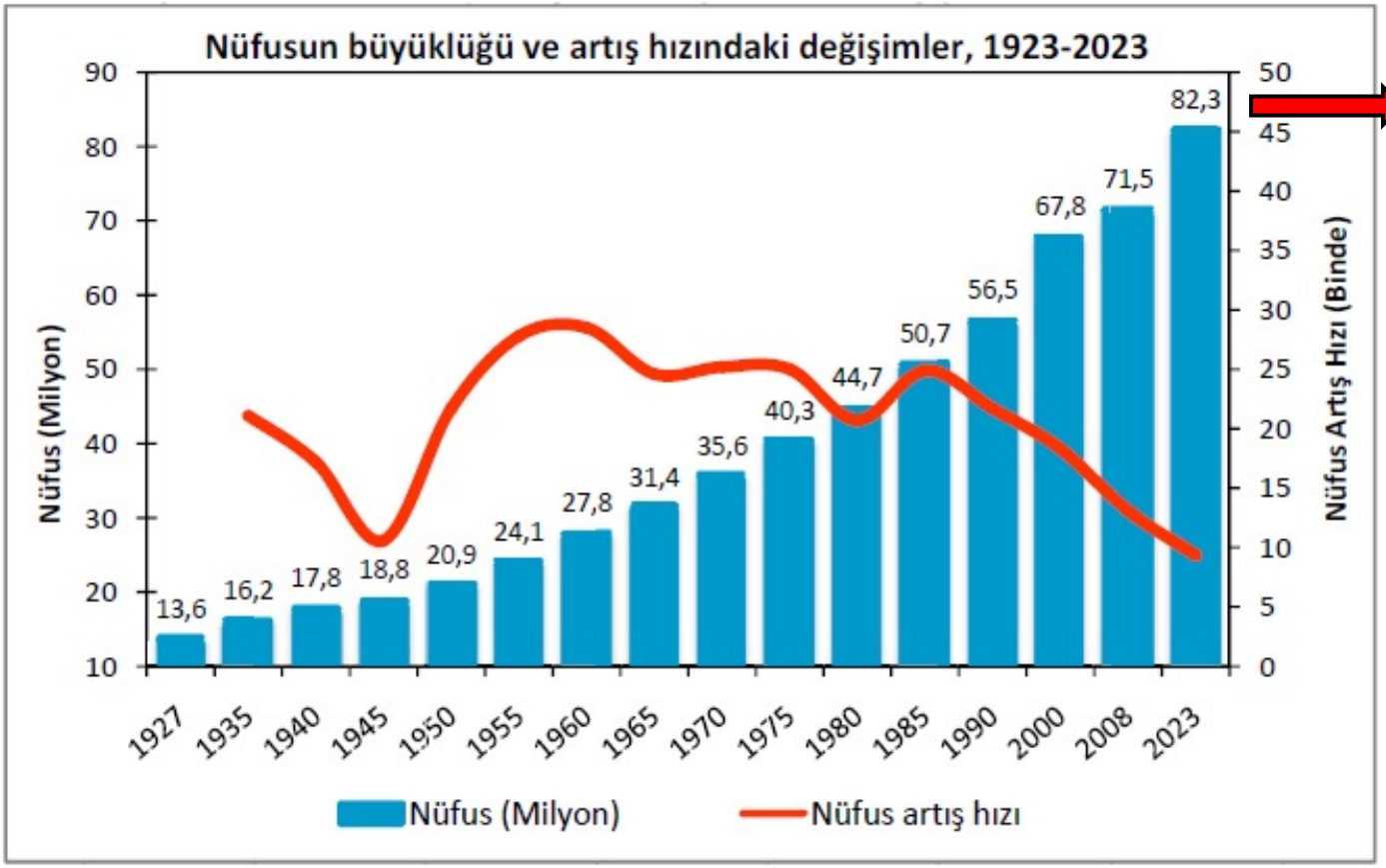
The UN's estimates for Turkey also show a similar outlook to that drawn by TUIK. However, UN projections predict that the country's population will begin to decline before reaching 100 million. It is also observed that Turkey has lower growth rates than the West Asian Region in which it is located.





Kaynak: https://population.un.org/wpp/Publications/Files/WPP2019_Volume-II-Demographic-Profiles.pdf

Change in Turkey's Population

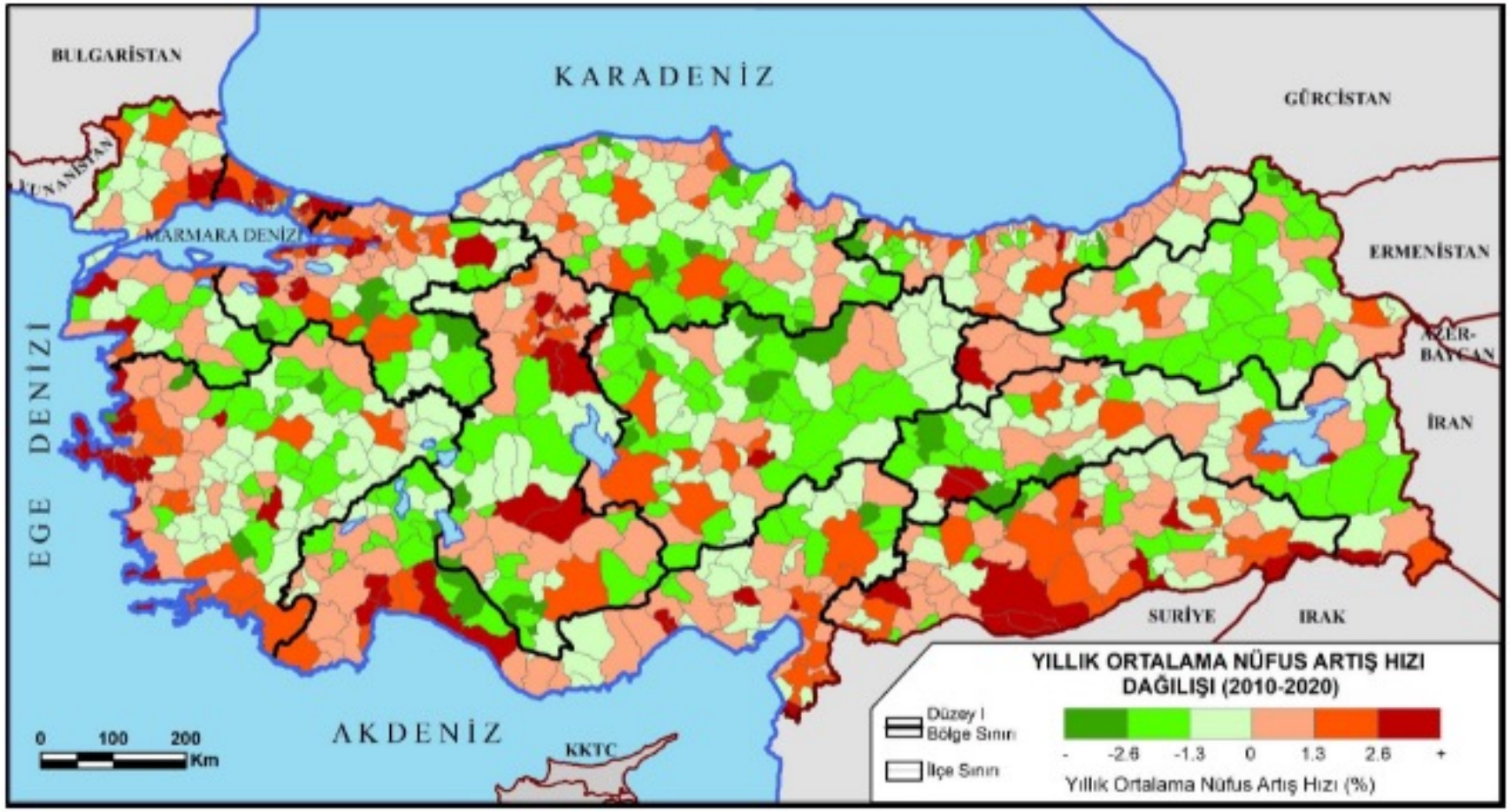


Yeni tahmin:86.8

Kaynak: Koç vd., 2010, http://www.hips.hacettepe.edu.tr/TurkiyeninDemografikDonusumu_220410.pdf

Annual Average Population Growth Rates by Districts in Turkey, 2010-2020

It is observed that the population growth rates in Turkey's subnational regions (Level 1 Statistical Region, Province or District) differ significantly, especially depending on fertility and net migration rates.



Source: Prepared by Prof. Dr. Mustafa Yakar.

Average annual rate of population change by region, subregion, country and area

Estimates: 1950-2015

Region, subregion, country and area	Annual rate of change (per cent)									
	1950-1955	1960-1965	1970-1975	1980-1985	1985-1990	1990-1995	1995-2000	2000-2005	2005-2010	2010-2015
Western Asia	2.50	2.69	2.76	2.84	2.52	2.29	2.07	2.12	2.47	2.07
Armenia	2.88	3.31	2.30	1.47	1.18	-1.90	-0.94	-0.58	-0.71	0.27
Azerbaijan (9)	2.57	3.29	1.82	1.61	1.66	1.42	0.87	1.00	1.13	1.25
Bahrain	2.89	2.86	4.52	3.06	3.35	2.56	3.29	5.82	6.67	2.01
Cyprus (10)	1.41	0.28	1.14	0.53	1.71	2.19	1.96	1.71	1.59	0.85
Georgia (11)	1.03	1.74	0.67	0.76	0.75	-1.50	-1.22	-1.02	-1.17	-1.37
Iraq	2.57	2.78	3.28	2.63	2.29	2.91	3.07	2.73	2.60	3.21
Israel	6.24	3.76	3.16	1.73	1.95	3.40	2.40	1.87	2.35	1.65
Jordan	7.00	4.59	3.65	3.97	4.13	5.00	2.19	2.26	4.57	4.86
Kuwait	3.45	11.27	6.33	4.74	3.77	-5.30	4.83	2.09	5.51	5.44
Lebanon	2.76	2.96	2.29	0.54	0.20	2.31	1.29	4.18	1.68	5.99
Oman	1.66	2.49	3.95	5.22	3.80	3.92	0.57	2.04	3.83	6.45
Qatar	7.22	8.82	8.13	10.12	5.00	1.50	2.86	7.57	14.43	6.65
Saudi Arabia	2.62	3.40	4.83	6.06	4.27	2.75	2.06	2.82	2.75	2.81
State of Palestine (12)	1.16	2.16	3.23	3.06	3.56	4.40	4.16	2.08	2.57	2.73
Syrian Arab Republic	2.73	3.22	3.42	3.52	3.12	2.84	2.69	2.17	2.78	-2.30
Turkey	2.51	2.40	2.38	2.22	1.86	1.63	1.56	1.42	1.26	1.58
United Arab Emirates	2.68	9.69	17.12	5.77	5.81	5.50	5.07	7.45	11.82	2.03
Yemen	1.59	1.75	1.96	3.86	4.05	4.79	3.08	2.82	2.74	2.62

2015-2100: Medium variant

Annual rate of change (per cent)										
2015-2020	2020-2025	2025-2030	2035-2040	2045-2050	2055-2060	2065-2070	2075-2080	2085-2090	2095-2100	Region, subregion, country and area
1.73	1.49	1.30	1.07	0.85	0.63	0.45	0.33	0.22	0.12	Western Asia
0.15	-0.03	-0.18	-0.34	-0.47	-0.66	-0.77	-0.84	-0.83	-0.76	Armenia
0.98	0.67	0.45	0.23	-0.02	-0.20	-0.30	-0.35	-0.32	-0.33	Azerbaijan (9)
4.26	1.85	1.56	0.77	0.48	0.28	0.10	-0.12	-0.35	-0.50	Bahrain
0.78	0.65	0.55	0.42	0.26	0.07	-0.06	-0.16	-0.20	-0.19	Cyprus (10)
-0.27	-0.36	-0.43	-0.48	-0.55	-0.63	-0.61	-0.57	-0.53	-0.54	Georgia (11)
2.78	2.57	2.43	2.19	1.93	1.66	1.45	1.23	1.02	0.83	Iraq
1.55	1.41	1.31	1.19	1.04	0.85	0.70	0.59	0.46	0.31	Israel
2.17	0.77	0.94	1.37	1.04	0.73	0.52	0.34	0.16	0.01	Jordan
1.78	1.35	1.14	0.82	0.50	0.28	0.24	0.22	0.12	0.05	Kuwait
0.57	-1.42	-0.87	0.21	0.00	-0.12	-0.39	-0.64	-0.64	-0.51	Lebanon
4.08	1.58	1.14	0.69	0.62	0.33	0.03	-0.17	-0.32	-0.38	Oman
2.36	1.63	1.30	0.77	0.61	0.40	0.21	0.03	-0.13	-0.18	Qatar
1.90	1.43	1.14	0.70	0.46	0.17	-0.05	-0.11	-0.16	-0.25	Saudi Arabia
2.65	2.47	2.25	1.89	1.60	1.31	1.03	0.80	0.59	0.41	State of Palestine (12)
0.20	4.25	2.56	1.28	0.90	0.61	0.38	0.16	-0.05	-0.20	Syrian Arab Republic
1.37	0.54	0.53	0.45	0.22	0.01	-0.17	-0.29	-0.37	-0.42	Turkey
1.39	1.23	1.15	0.95	0.68	0.46	0.32	0.19	0.06	-0.03	United Arab Emirates
2.33	2.08	1.85	1.46	1.07	0.67	0.33	0.08	-0.11	-0.26	Yemen

Turkey

	1950	1970	1990	2000	2005	2010	2015	2020	2030	2050	2075	2100
Total Population												
Total population (thousands)	21 408	34 876	53 922	63 240	67 903	72 327	78 271	83 836	88 417	95 627	93 848	85 776
Population density (persons per square km)	28	45	70	82	88	94	102	109	115	124	122	111
Median age (years)	19.7	19.0	22.1	24.9	26.6	28.3	29.9	31.6	35.0	41.8	47.6	50.2
Dependency ratios (per 100)												
Total dependency ratio (a)	73.7	83.5	67.8	58.0	54.5	51.8	50.1	48.4	48.8	59.6	75.4	86.6
Child dependency ratio (b)	68.5	76.2	60.1	48.3	44.2	40.8	38.4	35.4	30.8	26.8	25.4	25.7
Old-age dependency ratio (c)	5.2	7.3	7.7	9.6	10.3	11.0	11.7	13.1	18.0	32.8	49.9	60.9

	1950-1955	1965-1970	1985-1990	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2025-2030	2045-2050	2070-2075	2095-2100
Rates of population change												
Annual rate of population change (percentage)	2.5	2.4	1.9	1.6	1.4	1.3	1.6	1.4	0.5	0.2	-0.2	-0.4
Rate of natural increase (per 1,000 population)	25.2	24.8	19.0	16.0	14.3	12.8	11.5	10.0	7.4	2.9	-1.9	-3.8
Population doubling time (years) (d)	28	30	38	45	49	55	44	51	132	—	—	—
Mortality												
Crude death rate per 1,000 population	24.1	16.0	8.8	6.9	6.2	5.9	5.8	5.8	6.2	8.2	11.3	12.7
Infant mortality rate (1q0) per 1,000 live births	217	160	73	37	25	16	13	10	7	4	3	2
Under-five mortality (5q0) per 1,000 live births	292	212	93	50	34	23	19	15	10	6	4	2
Adult mortality (45q15) per 1,000 (e)	381	267	190	160	136	122	111	102	84	53	33	21
Life expectancy at birth (years)	41.0	50.8	63.0	68.5	71.4	73.4	74.8	76.1	78.5	82.5	86.2	89.1
Male life expectancy at birth (years)	38.1	48.2	59.6	64.7	68.0	69.9	71.5	72.9	75.4	80.2	84.2	87.2
Female life expectancy at birth (years)	44.2	53.5	66.7	72.5	74.9	76.9	78.1	79.3	81.4	84.7	88.1	91.1
Life expectancy at age 15 (years)	46.7	52.5	56.6	58.4	59.6	60.7	61.8	62.7	64.6	68.2	71.6	74.4
Life expectancy at age 65 (years)	10.4	12.7	14.3	15.1	15.5	16.0	16.7	17.3	18.6	20.9	23.3	25.6
Fertility												
Crude birth rate per 1,000 population	49.3	40.8	27.8	22.8	20.5	18.7	17.3	15.8	13.7	11.0	9.4	8.9
Total fertility (live births per woman)	6.69	5.80	3.39	2.65	2.37	2.20	2.12	2.02	1.88	1.75	1.75	1.78
Sex ratio at birth (males per 100 females)	105	105	105	105	105	105	105	105	105	105	105	105
Net reproduction rate (f)	2.08	2.08	1.44	1.20	1.10	1.03	1.00	0.96	0.90	0.84	0.85	0.87
Mean age childbearing (years)	28.6	28.1	27.3	27.2	27.3	27.6	28.2	28.6	29.4	30.4	30.7	30.7
Births and deaths												
Number of births (thousands)	5 634	6 717	7 157	6 945	6 724	6 546	6 512	6 405	5 956	5 245	4 451	3 862
Number of deaths (thousands)	2 753	2 634	2 269	2 091	2 020	2 073	2 195	2 365	2 714	3 880	5 348	5 511
Births minus deaths (thousands)	2 881	4 083	4 888	4 854	4 703	4 474	4 317	4 039	3 242	1 365	- 897	- 1 649
International migration												
Net number of migrants (thousands)	- 19	- 180	- 100	- 100	- 40	- 50	1 627	1 525	- 950	- 300	- 225	- 150
Net migration rate (per 1,000)	-0.2	-1.1	-0.4	-0.3	-0.1	-0.1	4.3	3.8	-2.2	-0.6	-0.5	-0.4

Kaynak: https://esa.un.org/unpd/wpp/Publications/Files/WPP2017_Volume-II-Demographic-Profiles.pdf

Final Words

- The rapid pace of world population growth reflects relatively lower levels of mortality, high fertility rates in much of the least and least developed world, and the impact of a young population of childbearing age.
- As a result, the world population will continue to increase in the foreseeable future.

References

- Deevey, E.S. (1960). The Human Population. *Scientific American*, 203, 194-204.
- Koç, İ.; Eryurt, M.A.; Adalı, T.; Seçkiner, P. (2010). Türkiye'nin Demografik Dönüşümü. Ankara: Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü.
- Newbold, K.B. (2014). *Population Geography: Tools and Issues*. (2nd edition). Lanham, Maryland- USA : Rowman and Littlefield Publishers.
- http://www.prb.org/pdf16/prb-wpds2016-web-2016.pdf
- Peters, G. L., Larkin, R.P., (2005). *Population Geography, Problems, Concepts, And Prospect*, Eighth Edition, , Dubuque: Kendal/Hunt Publishing Company.
- The World Bank (2018). Data: Death rate, crude. https://data.worldbank.org/indicator/SP.DYN.CDRT.IN?end=2015&start=1960&view=map
- The World Bank (2018). Birth rate, crude. https://data.worldbank.org/indicator/SP.DYN.CBRT.IN?end=2015&start=1960&view=map
- Türkiye İstatistik Kurumu-TÜİK (21 Şubat 2018). Nüfus Projeksiyonları, 2013-2075. TÜİK Haber Bülteni Sayı: 30567. http://www.tuik.gov.tr/PreHaberBultenleri.do;jsessionid=WTQHhRHBhXnvQn0QvpnfP21rwx8cK1x9lqyrJRZqfW3Q92QF1cZC!2053540488?id=30567
- United Nations (2004). *World Population to 2300*. New York: The Department of Economic and Social Affairs of the United Nations
- United Nations (2011). World Population Prospects The 2010 Revision *Volume II: Demographic Profiles*. New York: The Department of Economic and Social Affairs of the United Nations.
- United Nations (2017). World Population Prospects: The 2017 Revision: Key Findings and Advance Tables. United Nations Department of Economic and Social Affairs/Population Division.
- United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019: Highlights* (ST/ESA/SER.A/423). https://population.un.org/wpp/Publications/Files/WPP2019_Highlights.pdf
- United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population 2019: Wall Chart*. https://population.un.org/wpp/Publications/Files/WPP2019-Wallchart.pdf
- United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Volume I: Comprehensive Tables (ST/ESA/SER.A/426).
- United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Volume II: Demographic Profiles (ST/ESA/SER.A/427).