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ARMENIA: DEMOGRAPHIC CHALLENGES

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Abstract

The report will touch upon the following three interrelated issues: the dynamics of population growth up to our times and forecasts for the future, disproportion of growth and changes in demographic structure graded by continents and countries, consequences of demographic changes on Europe, particularly on our region and Armenia.

1.

The views expressed in this Working Paper are those of the authors and do not necessarily represent those of the Armenia International Policy Research Group. Working Papers describe research in progress by the authors and are published to elicit comments and to further debate.

1. WORLD'S POPULATION GROWTH UP TO NOW

It has not been yet clarified how many years ago a human being appeared as a result of evolution. Up to now this figure was expected to increase gradually. Anyway, it is customary to consider that 1 million years ago about 100 thousand people lived in the world.

One more figure has to be noted: during the whole history of the mankind the total number of people ever living in the world accounts to about 100 billion. For the moment, the population of the world makes up 6,4 billion, which amounts to 6.5 percent of all people lived up to now. If we assume that the world resource consumption per capita was equal during all periods and that 100 billion people were evenly distributed within the period of 6000 years of mankind lifetime, it turns out that at present time humanity consumes annually the amount of resources which it consumed in the preceding period during 400 years.

Table 1 presents population growth rates up to now and future forecasts. According to different estimations, at the beginning of the Common Era the world population amounted to 100-400 million – in the table 300 million was taken. It took 1804 years to exceed the threshold of 1 billion, which means that the annual growth of population amounted to 6 persons per 10 thousand people.

Table 1. World population growth

Century	Year	World population (x 10 ⁹)	Number of years	Average annual growth (x 10 ⁶)	Annual growth / 1000 people
I-XIX	1	0,3	~ 1 000 000	0,0003	0,001
	1804	1	1804	0,4	0,6
XX	1927	2	123	8	5
	1960	3	33	30	12
	1974	4	14	71	20
	1987	5	13	77	17
	1999	6	12	83	15
XXI	2002	6,23	3	77	13
	2025	7,9	22	76	11
	2050	9,1	25	48	6
XXI - XXX	2001-3000	6144	1000	6138	2

From viewpoint of growth rate the XX century was unprecedented. For example, in 1804 with the total of 1 billion world population, China amounted to 300 million and now it increased by 1 billion; in India population was 200 million, and now it is more than 1 billion; in the USA population was 6 billion, today it is 300 million, that means that population rose 50 times (see Table 2).

Table 2. Population of three countries (x10⁹) and their percentage in the world's population

Country	1804	2004	2050
China	0,3 (30 percent)	1,30 (20 percent)	1,4 (15 percent)
India	0,2 (20 percent)	1,07 (17 percent)	1,6 (18 percent)
The USA	0,006 (0,6 percent)	0,29 (4,6 percent)	0,42(4,6 percent)

In XX century the world's population more than tripled exceeding the threshold of 6 billion. In XX century the population growth rate was registered to an unprecedented figure which can hardly be reached in future. In 60-70s this figure was 20 persons per 1000 people. The maximum rate of the average annual growth of population – about 80 million people - was also registered in XX century. It is worth noting that from existing 192 countries the population of 67 is 80 million (see Table 3).

Table 3. 67 Countries of total 192, where population in sum makes up 80 million

<p>Singapore (4,4 x 10⁶), Uruguay, Lebanon, Libya, Liberia, Albania, Armenia, Congo, Panama, Mauritania, Mongolia, Jamaica, Oman, United Arab Emirates, Latvia, Lesotho, Bhutan, Macedonia, Slovenia, Kuwait, Namibia, Botswana, Estonia, Zambia, Trinidad and Tobago, Gabon, Guinea-Bissau, Mauritius, Swaziland, Guyana, Fiji, Cyprus, Comoros, Djibouti, Bahrain, Qatar, Equatorial Guinea, Solomon Islands, Luxemburg, Cape Verde, Surinam, Malta, Brunei, Bagams, Maldives, Barbados, Belize, Vanuatu, Samoa, Santa Lucia, Island, Sao Tome and Principe, Micronesia, Santa Vincentia and Grenadines, Tonga, Grenada, Kiribati, Andorra, Seychelles, Dominica, Antigua and Barbuda, Marshall Islands, Monaco, Lichtenstein, San Marino, Palau, Nauru, Tuvalu (11 600).</p>
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2. POPULATION GROWTH FORECAST FOR THE FUTURE

According to the fundamental forecast the population growth figure shows a decline, which can be seen at the end of XX century and which is used by the experts for producing future forecasts (see Table 1).

According to data of the United Nations Organization in 2000-2025 population growth rate will be 11 persons per 1000 people, in 2025-2050 – 6 persons per 1000 people.

In order to estimate how long the decline in rate will persist, let us assume that during third millennium the world's population will double every 100 years. In this case, annual rate of population growth per 1000 people will make 2 persons, which is 10 times less than that of in the sixties of XX century. In these conditions, the world's population in 3000 will total 6 trillion. For conceiving this figure let us record that it equals to 5000 of today's China population. In this case every 1 person will get into possession of 20 m2 territory of world's area. For comparison, let us revise that today every 1 person has in possession 23000 m2.

Today the majority of experts is inclined to state that the world's population after reaching the figure of 12-15 billion will not grow anymore.

3. DISPARITIES BETWEEN THE POPULATION GROWTH RATE OF COUNTRIES AND CONTINENTS

Being a main trend, the decline in population growth rate does not even for different plots of the world area.

If in 1950 population in Europe comprised 21,4 percent of the world's population, and population in Africa – 8,9 percent, then in 2000 population in Europe was 12 percent and in Africa – 13 percent. 50 years ago Africa was inhabited by 227 million people, in 2000 – by 803 million, and in 2050 - by forecasted 1.845 million, meaning that within 100 years population of Africa will grow 8 times (see Table 4 and 5).

Striking example is Kenya, where in 1955 population was 6 million and today it is 34 million, meaning that within 50 years population increased more than 5 times. If within the same period Armenia experienced the same population growth rate, today Armenia would be inhabited by 10 million people.

Table 4 shows that in 2000-2050 world's population will grow 1,5 times. In the same period population in Africa will grow 2,3 times, whereas in Europe population will decline by 12 percent. Accordingly, in 2050, 59 percent of population will reside in Asia, 20 percent - in Africa and 7 percent - in Europe (see Table 5).

Table 4. Population growth by continents

Continent	1950 Population X 10 ⁶	2000		2050	
		Population X 10 ⁶	Growth (percent)	Population X 10 ⁶	Growth (percent)
Asia	1437	3688	157	5368	46
Africa	227	803	254	1845	130
Europe	546	730	34	642	- 12
South America	111	348	214	480	38
North America	221	487	120	722	48
Australia and Oceania	12	31	158	45	45
World	2555	6085	138	9104	50

Table 5. World population percentage by continents

Continent	1950	2000	2050
Asia	56,2	60,6	58,9
Africa	8,9	13,2	20,3
Europe	21,4	12,0	7,0
South America	4,3	5,7	5,3
North America	8,6	8,0	7,9
Australia and Oceania	4,7	0,5	0,5

Inconsistency of population growth is also characteristic for each individual country. Several examples:

- If in 2000 population of all EU countries within 1 year increased by 343 hundred people, then in India the same growth was registered within the period of 6 days.
- 50 years ago population of Spain was 3 times more than that of Morocco, but in 50 years it will be 1,5 times less.
- 50 years ago population of Japan was 4 times more than that of Philippines, but in 50 years it will be 1,5 times less.
- 50 years ago population of Russia (without other countries of the USSR) was 3 times more than that of Pakistan. Today both countries have the same population and in 50 years population in Russia will be 1,5 times less.

Table 6 presents several countries, where population growth is more than average growth of world's population. These countries represent different continents and different cultures. It is typical, that these countries with slight exceptions (Papua New Guinea) are not democratic.

It is important to mention, that despite two thirds of population suffering from AIDS live in Africa, rapid population growth in these countries does not slow down.

Table 6. Countries with rapid population growth

Continent	Country	Population (x10 ⁶)		Times increased
		2000	2050	
Africa	Uganda	23,3	132,7	5,7
	Madagascar	15,5	65,5	4,2
	Guinea	7,5	28,7	3,8
	Burundi	6,1	22,9	3,8
	Congo	52,0	183,2	3,5
	Nigeria	123,3	356,5	2,9
Asia	Yemen	17,5	71,1	4,1

	Oman	2,5	8,3	3,3
	Afghanistan	25,9	81,9	3,2
	Tajikistan	6,4	16,6	2,6
	Pakistan	141,6	295,0	2,1
	Nepal	24,7	53,3	2,2
	Laos	5,5	13,2	2,3
	Cambodia	12,2	25,1	2,1
	Malaysia	21,8	43,1	2,0
	Philippines	81,2	147,6	1,8
America	Paraguay	5,6	14,6	2,6
	Nicaragua	4,8	9,4	2,0
	Guatemala	12,6	22,8	1,8
Australia and Oceania	Papua New Guinea	4,9	10,7	2,2

Disproportion of population growth is characteristic also for democratic countries (see Table 7). The highest growth rates of population are registered for such democratic countries as the USA, Israel and Ireland. The lowest rate (negative growth) is registered in Japan, Italy and Spain (the possible reasons will be considered below).

Table 7. Population decline (growth) in democratic countries

Country	Population (x10 ⁶)		Growth* (percent)
	2005	2050	
Japan	127,4	99,9	- 22 (-20)
Italy	58,1	50,4	-13 (-34)
Spain	40,3	35,6	- 12 (-27)
Germany	82,4	73,6	- 11 (-31)
Portugal	10,6	9,9	- 7 (-28)
USA	295,7	420,1	+ 42
Israel	6,3	8,5	+ 35
Ireland	4,0	5,4	+ 35
Canada	32,8	41,4	+ 26
Australia	20,1	24,2	+ 20

* - forecast of 2006, in brackets - 2000.

4. DECLINE IN POPULATION GROWTH RATE AND POPULATION AGING

Decline in population growth rate, and what is more, negative growth of population may have its far-reaching consequences on demographic structures. Population growth is one of these consequences. For describing the men age, the notion of median age is used. This age is defined as a population age of the given area under and over which the number of population is equal.

Today median age of world's population is 26,4 , whereas in Europe it is 37,7 and in Africa – 18,3 (see table 8).

Table 8. Median age in 2003

Europe	37,7
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North America	35,4
Oceania	30,7
Asia	26,1
South America	24,2
Africa	18,3
World	26,4

From demographic viewpoint the aging of Europe is obvious. If in 1950 average age of a European was 29, in 2000 it was 38 and in 2050 it will be 50. For the first time in the history of humanity, in 2050 in Europe the following rates will be registered: the number of people aged under 15 will be less than the number of those aged over 60. The total number of the latter's will exceed 220 million, and they will make up 35 percent of total population in Europe.

From 1950 to 2000 the number of people aged over 60 in Europe increased 2,5 times, while population in general increased 1,3 times. Today people aged over 65 make up 7 percent of world's population, whereas in Europe they account for 16 percent.

Population aging has a grave influence on family institute (see Table 9): the percentage of married women gradually grows down; the average age of women getting married for the first time grows up; the average age of women bearing a first child is also growing up; the total fertility rates is decreasing; the rate of children born from extra-marital relations and the rate of divorces increase.

Virtually, traditional family institute is gradually put in danger of disappearance, which can affect the systems of children upbringing and education. All this is reflected in the fact that the percentage of children born from extra-marital relations is more than 50 percent in Sweden, Norway and Estonia and in Iceland it has even exceeded the threshold of 60 percent. In case of Armenia, while comparing the average European rates, the matter of concern is the lower percentage of married women and lower birthrates.

With all its numerous consequences, including social ones, the ratio of people aged 15-64 to people over 65 is of particular importance. This ratio indicates how many working-age people falls for a single pensioner. If in 1950 this ratio in Europe was 9, then today it is 5 and in 2050 it will be 2. This situation significantly affects state policy in such sectors as pension insurance, healthcare, and eldercare.

The lack of work force, which is also a consequence of aging, compels numerous aging countries, for example, Germany and France to promote immigration of the work force.

Table 9. Population aging and family

Indicator	Europe	Armenia
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	1990	2002	2002
First marriage rate for women below 50	77%	62%	50%
Mean age of woman at first marriage	24,2	26,5	23,2
Mean age of woman at birth of first child	24,4	25,9	22,4
Total fertility rates (children per a woman)	1,8	1,5	1,2
Extra-marital births	15%	28%	13%
Divorces	26%	32%	7%

5. AGING AND IMMIGRATION

The main reason of aging of a society is the fall in fertility rate. However, extended average lifetime also plays a role in this process. The latter aspect is more characteristic for developed countries where healthcare system is operating more effectively and social security of the elderly and standard of wellbeing in general are higher.

For fighting aging problem there are two main approaches: promotion of immigration and fertility rate expansionary actions.

Though immigration has a potential of settling the problem of population fall of a country, it is almost powerless to prevent aging of a country. Expert analysis of German immigration policy demonstrates that. According to UN data, population in Germany which is now 83 million, in 2050 will drop to 57 million. Taking this into account, the government of Germany projected and now is implementing annual immigration program of 200 000 people, which will facilitate reaching the goal of having the population of 71 million in Germany by 2050. In order for Germany to sustain the level of its today's population it will need to provide immigration of 344 000 people per annum. If the aim is to sustain the number of today's 16-64 aged population then the annual immigration should be extended to 457 000 people. In the case the aim is to sustain in Germany the ratio of 16-64 aged population to population aged 65 and over of the year 2000, then it would be necessary to have 3 600 000 immigrants annually, which means that within the period of 50 years Germany should have immigration of 180 million people.

Immigration raises the second problem, which has not yet found its solution in Europe. It is incomplete integration of immigrants and their generations, which endangers social welfare in a country and may cause social tension. Disorders taken place recently in France were the consequence of incomplete integration of immigrants.

The policy of promoting fertility rate expansion is more effective. Due to such policy Scandinavian countries succeed in choking down the population decline and even reach positive growth of population. However, taking into account the general decline in population growth, such policy can

solve the problem of positive growth in a country, but it cannot or can only partially relieve the problem of aging.

Tables 10 and 11 represent aging and immigration indicators in year 2002 in European countries. Except for Albania, Azerbaijan and Macedonia, post-soviet countries are characterized by lower rates of population growth and fertility rate in comparison with European averages.

Table 10. Lowest and highest population growth rates in member states of Council of Europe in 2002

Country	Natural growth	Immigration	Total growth
Ukraine	-7	-1	-8
Georgia	0	-6	-6
Bulgaria	-6	0	-6
Russia	-7	1	-6
Latvia	-5	-1	-6
Lithuania	-3	-1	-4
Estonia	-4	0	-4
Moldova	-2	-1	-3
Romania	-3	0	-3
Serbia	-3	0	-3
France	4	1	5
Norway	2	4	6
Switzerland	1	7	8
Portugal	1	7	8
Azerbaijan	8	0	8
Italy	0	6	6
Turkey	14	2	16
Spain	1	15	16
Albania	11	5	16
Ireland	8	9	17

Indicators are taken on the population basis of 1000 people

Table 11. Lowest and highest total fertility rates in member states of Council of Europe

Country	Fertility rate (children per 1 woman)
Turkey	2,46
Albania	2,20
Ireland	1,97
Iceland	1,93
France	1,88
Macedonia	1,77
Norway	1,75
Netherlands	1,73
Denmark	1,73
Finland	1,72
Europe	1,50
Bosnia and Herzegovina	1,23
Belarus	1,21
Slovenia	1,21
Moldova	1,21
Bulgaria	1,21
Armenia	1,21
Slovakia	1,19
San Marino	1,19
Czech Republic	1,17
Ukraine	1,13

6. DEMOGRAPHICS OF ARMENIA AND OTHER REGIONAL STATES

Up to year 1989 natural growth of population in Armenia was the same as the world average (see Table 12). However, after 1989 there was a sharp fall and the positive growth changed into a negative. Population in Armenia could have increased also on the account of hundred thousands of refugees (from Azerbaijan, Abkhazia, North Caucasus, and Georgia), however, the majority of them did not settled in Armenia.

Table 12. Population in Armenia

Year	Population (x10 ⁶)	Average annual growth	Annual growth / 1000 people
1913	1,0	-	-
1940	1,3	+11 000	+9,6
1970	2,5	+40 000	+16,7
1989	3,5	+53 000	+17,7
2001	3,0	-42 000	-13,0

Table 13 represent dynamics of changing main demographic indicators for Armenia. Abrupt deterioration of demographic indicators starting from 1990 is obvious.

Table 13. Dynamics of main demographic indicators for Armenia

<i>Indicators</i>	1960	1965	1970	1975	1980	1985	1990	1995	2000	2003
Population (X 1000)	1830	...	2492	2800	3074	3317	3515	3754 ?	3803 ?	3012
Population growth rate, %	4,1	3,2	2,2	1,8	1,5	1,4	1,7	0,34	-0,03	0,06
Rate of natural increase, % (excess of births over deaths)	3,3	2,3	1,7	1,7	1,7	1,8	1,6	0,64	0,27	0,30
Rate of net migration, % (immigration minus emigration)	0,73	0,87	0,52	0,16	-0,27	-0,47	0,05	-0,30	-0,30	-0,24
Crude marriage rate (marriages per 1000 population)	11,2	8,5	7,3	8,9	10,4	9,9	8,0	4,2	2,9	4,8
Crude divorce rate (divorces per 1000 population)	0,3	0,5	1,0	1,0	1,1	1,1	1,2	0,7	0,4	0,6
Crude birth rate (births per 1000 population)	40,1	28,6	22,1	22,2	22,7	24,0	22,5	13,0	9,0	11,2
Extra-marital births (per 100 births)	1,7	2,8	4,3	6,5	9,3	9,3	14,6	11,8
Total fertility rate (children per a woman)	...	3,9	3,2	2,8	2,3	2,6	2,6	1,6	1,1	1,3

According to expert estimations, population in Armenia will sustain till 2050; in Georgia and Russia population will drop by 20-23 percent; and in Azerbaijan, Iran and Turkey there will be a 24-35 percent growth (see Table 14).

Table 14. Population in Armenia and other regional countries

Country	Population in 1970 X 10 ⁶	Population in 1990 X 10 ⁶	Population in 2005 X 10 ⁶	2050	
				Population X 10 ⁶	Growth (percent)
Armenia	2,5	3,5	3,0	3,0	0
Georgia	4,7	5,4	4,7	3,8	-20
Azerbaijan	5,2	7,1	7,9	10,7	+35
Iran	29,0	49,8	68,0	89,7	+32
Turkey	35,0	55,5	69,7	86,5	+24
Russia	131,0	147,7	143,4	110,1	-23

It is important to note that disproportion of population growth exists not only between continents and countries but inside individual countries. In Russia higher birthrates are registered on the account of gradually increasing percentage of Muslim population. In Georgia simultaneously with general decline

of population there is a tendency of rapid growth of Azeri population residing their. Thus, it can be forecasted that in Georgia in 2050 every fifth inhabitant will be Azeri by nationality.

From the countries of the region the lowest fertility rate is in Armenia and the highest – in Turkey (see Table 15). In all countries of the region current figures of median age are lower than in Europe. In 2050 in comparison to European the median age will remain lower in all countries of the region with the exception of Armenia. Thus, Armenia is aging at a relatively highest rate.

Table 15. Demography of Council of Europe’s regional member states

Countries	Fertility rate	Natural growth	Migration	Population growth	Aged 15-64 / + 65	Median age 2000 / 2050
Armenia	1,2	0,2	-0,3	-0,1	5,6	30,4 / 53,4
Azerbaijan	1,6	0,8	-0,1	0,7	8,8	26,7 / 47,2
Georgia	1,4	0	-0,7	-0,7	4,1	34,8 / 49,2
Russia	1,3	-0,7	0,1	-0,6	4,3	36,8 / 50,0
Turkey	2,5	1,4	0,2	1,6	10,5	
Europe	1,5	-0,01	0,24	0,23	5	37,7 / 50,0

7. POSSIBLE FACTORS EFFECTING POPULATION GROWTH DECLINE IN SOME COUNTRIES

A viewpoint is spread that decline in population growth is determined by improper social conditions. However, the presented comparative data indicate the reverse situation: as a rule rapid growth is specific for poor countries, whereas in developed countries natural growth is generally negative, if not considering immigration factor.

Two following factors contribute to decline in population growth:

globalization, which matured in western democratic countries and now trends to spread all over the world, and

urbanization: 35 years ago 2/3 of world population lived outside cities, whereas in 35 years 2/3 of population will reside in cities (today population of Tokyo reached 26,5 million, with suburbs – 34,5 million).

Aging and decline in population growth in western democratic countries can be explained by processes of globalization and urbanization. For revealing other factors effecting population growth decline it is worth considering those developed countries, which are featured by the highest rate of population decline (see Table 7). Those are Italy, Germany, Portugal, Spain and Japan. It is noticeable that these

are those developed countries today which formerly had a strict transition from totalitarian or authoritarian to democratic systems. The same picture is specific today for post-soviet countries in transition, which are a step behind in terms of demographic indicators from the average of European countries (Tables 10, 11). As a result, transition processes contribute to more rapid decline in population growth. Possible reason may be that during these transitional processes the traditional systems of values are destroyed.

Among democratic countries with the highest rate of population growth are the USA, Israel, Ireland, Canada and Australia. All these countries are featured with governmental policy promoting immigration. However, as it was mentioned above, immigration itself does not contribute to the improvement of demographic indicators, if immigrants do not preserve high fertility rates specific to the countries they have left.

Thus, a contradiction may result from this: complete integration of immigrants is accompanied by fall in fertility rates, whereas relatively higher fertility rates are sustained in relatively isolated conditions.

For understanding how these countries succeed in avoiding this contradiction, it should be emphasized that these five countries are divided into two groups:

Group 1: Israel and Ireland, where immigrants are mainly the representatives of the same nation with the receiving country which facilitates the process of integration.

Group 2: the USA, Canada and Australia, which are not national countries. These countries are tolerant to traditions of immigrating groups whether religious, language, cultural or national. As a result, in these countries relative weight of immigrants is constantly increasing. However, this does not make any concern in these societies since these countries were found exactly by immigrants.

This contradiction remains unsolved for the majority of western countries. If any European country follow experience of the USA, then in the nearest future the nation of that country may become the minority group in its own country.

Israel and Ireland are characterized by high rates of immigration and fertility. However, the relation of these rates is not accidental and can become a consequence of state policy, which is directed at preservation of a system of traditional spiritual values. In Israel such policy is expressed in state approach to keeping the memory about Holocaust and preserving traditional lifestyle.

Apropos of Armenia, it can be mentioned that in the country rapid rates of destruction of a system of spiritual values are accompanied by abrupt deterioration of demographic indicators. In Armenia destruction of a system of spiritual values was facilitated by such factors as disparage attitude to the

public, social extreme polarization, corruption, disregard of problems in humanitarian sectors (culture, science, and education), lack of long-term state programs and uncertainty in the future of a country.

Conclusion

Thus, trends in world population demography are:

Decline in population growth

Disproportion of population growth graded by continents, countries and separate nations within countries

Population aging

International migration

Urbanization

Globalization

Threat of spread of AIDS and other infections (bird flue).

These trends and their consequences are described by UN expert Josef Chamie as “New International Population Order”. This New Order continuously puts more significant social, economic and political pressures on regions and countries. Effects of the New Order are more obvious in Europe and in our region: in Armenia and Georgia.

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