Trends in ageing of the population and the life expectancy after retirement: A comparative country-based analysis

Assel K. Izekenova, Ainur B. Kumar[1], Akmaral K. Abikulova[1], Aigulsum K. Izekenova[1]

Department of Economics, Suleyman Demirel University, [1]Department of International Healthcare, Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan

Background: During the 20th century, the share of elderly in the total population of the Earth has increased steadily. It is expected that this trend will continue in the 21st century. In 1950, the elderly (persons aged 60 years and older) were 8% of the world population; in 2000, is already 10%; and in 2050, according to United Nations projections, the proportion will reach 21%. This research on Kazakhstan provides demographic analysis from 1989 to 2012 and presents the main features of population' ageing through comparative analysis. **Materials and Methods:** We used information-analytical, content-analysis, mathematical treatment and comparative analysis of statistical data on demographic status in Kazakhstan and some other countries of the world (UK, USA, Turkey, Russia) over the 1989-2012. **Results:** Age dependency ratio of the Russian federation - >1.7 times, in the USA-up to 1.9 times and the UK has dependency ratio higher than 2.5 times of similar indicators in Kazakhstan in 2010. **Conclusion:** Life expectancy of the elderly population KZ after 65 years in 2010 was only 13.8 years, which is 6-9 years inferior to European and U.S. indices. Thus, increasing the retirement age is inappropriate for the current period.

Key words: Comparative study, demographic status, public health, retirement age

INTRODUCTION

A marked increase in the world population, observed in the last century is associated with the progress of humanity in medicine and preserved high birth rate from past centuries. In addition, there is another important factor that contributed to the increase in numbers. This factor is related to the age and sex structure of the population representing the distribution of population by age. In most countries at the beginning of the last century, structure of the population is shaped like a triangle ignoring the demographic wave. The number of births exceeded people in other age groups. However, the process of population growth cannot occur infinitely. Since the 60 s of last century, there were a lot of restrictions associated with changes in family patterns, active contraceptive use and other factors led to a sharp decline in fertility rates and consequently, to a reduction in child population. Age pyramid noticeably began to transform.[1] Due to the lack of statistical data on earlier periods in the Kazakhstan, we cannot look into the depths of the past. Nevertheless, the change in the domestic demographic structure differs little from the global trends.[2]

MATERIALS AND METHODS

We have made an analysis of statistical data (Organization for Economic Co-operation and Development Health Data, 2012; Ministry of Health Statistic Database, 1989-2012) on health system and demographic status in Kazakhstan and some other countries of the world - UK, USA, Turkey, Russia, for >13 years (1989-2012), a content-analysis of regulatory acts relating to the activities of public health. The following methods were used: Information and analytical, content-analysis, mathematical treatment, and comparative analysis.

RESULTS

Two decades ago, it seemed that the demographic ageing of the population that is, the increase in the proportion of elderly in the total population is peculiar to developed countries, it has now become clear that this process has captured almost the entire world. In Kazakhstan, the total population in 2012 remained at the level of performance in 1989. But considering that over the period 1989-1996, the emigrated from Kazakhstan >1.5 million people, the population growth during the period 2000-2012 more than impressive trend, established largely due

to the policies pursued by the return of repatriates to their homeland. Thus, the analysis of Table 1 shows that the number of elderly in 1989 is 1,507,035 people, which is 9.1% of the total population in 16,464,464 people. Although the total population decreased in 1999 at 9.2% compared with 1989, noteworthy fact is that the retirement age population increased by 86,321 people. The percentage of elderly of 1,593,356 people in the total population of 14,955,106 people is 10.6%. In 2005, an increase in the population of 119,661 people, compared with 1999. Population older than 60 years decreased by 29,103 people, which leads to a change in the ratio of the elderly population in the country with 10.6% in 1999-10.3% in 2005. In 2012, the population growth occurred in 1,600,625 people, compared to 2005, the increase in the number of older persons is 112,197. So based on the analysis of the table, it can be stated that for the period 1989-2012 the ratio of elderly to the total population increased from 9.1% in 1989 to 10.05% in 2012.

DISCUSSION

United Nations (UN) demographers adhere to the following classification in the degree of ageing: Population is called as young if the number of persons aged 65 years and more <4%, mature-a society where number of such people from 4% to 7%, if the proportion of elderly >7%, the population is considered as old. In the Kazakhstan, in accordance with the law on pensions, men aged 15-62 and women 15-57 years are considered as people of working age. People over the limit of working age are classified as elderly. However, for the correct comparison, according to international classification people aged 65 years and older will be considered as elderly in the current research.[3]

One of the consequences of population ageing-growth in pension costs. Now in most developed countries, the retirement age is 65 years. Predictive calculations of UN reveal that dependency ratio will only increase with time for Kazakhstan. Figure 1 shows that this trend is observed in other countries. For instance in the USA dependency ratio in 1950 is 14.3%, in 1980 is 19.8%, in 2000 is 21%, and in 2010 is 21.8%, predictive value of the dependency ratio calculated on the basis of the UN medium variant projection in 2020 is 28.3%, in 2040 is 38.7%. In the Russian federation, coefficient value in 1950 is 11.2%, in 1980 is 17.1%, in 2000 is 20.3%, in 2010 is 19.3%, in 2020 and in 2040 dependency ratios are equal to 24.3% and 34, 1% respectively.[4] In the UK, the demographic burden indicators are high in comparison with the above-mentioned countries. For comparison, the values of dependency ratio in 1950 is 17.9%, in 1980 is 26.58%, and in 2000 is 26.8%, in 2010 is 27.8%. A similar trend is expected in the forecast data for 2020 is 32.2% and for 2040 is 48.3%. In Turkey, the dependency ratio value in 1950 is 6.5%, in 1980 is 9.2%, in 2000 is 9.6%, and in 2010 is

Table 1: Percentage of the elderly population over 60 years in the population of the republic of Kazakhstan

Population	1989	1999	2005	2012
Total (in mln)	16.5	14.9	15.1	16.7
Older population 60+(in mln)	1.5	1.6	1.6	1.7
The ratio of 60+population to the total population (%)	9.1	10.6	10.3	10.05

Calculated by the author based on data gathered from the Statistics Agency of the Republic of Kazakhstan
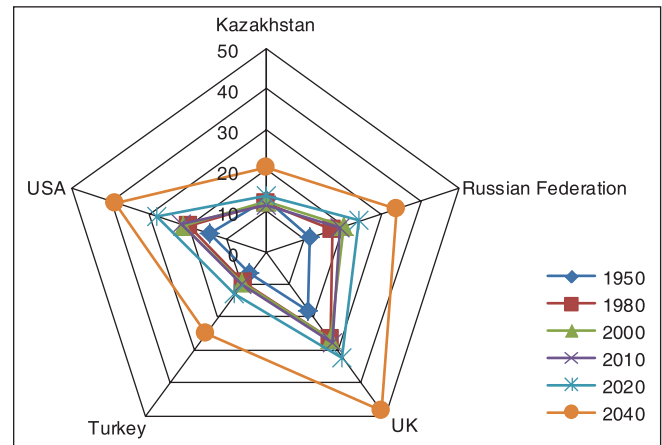

Figure 1: Dynamics of changes in dependency ratio due to the proportion of the elderly population. Values for 2020, 2040 are calculated based on UN medium variant projections (World Population Prospects)

10.2%. As we see throughout the years, the quantities are increasing, but not as much as in other countries. Calculated dependency ratio in 2020 is 13.1% and in 2040 is 24.8% can also be considered relatively low. Dependency ratio indicators in Kazakhstan increase in line with global trends and constitute the following values, in 1950 is 12.9%, in 1980 is 12%, in 2000 is 12.2%, in 2010 is 11.3%, in 2020 is 13.7%, and in 2040 is 20.8%.

Thus, we can assume that the trend of population ageing is relevant to all countries even in those countries in which the dependency ratio does not exceed 10%, as in Turkey. And based on the values of 2010, the problem is most pronounced in UK, USA, and Russia among the analyzed countries. For comparison, dependency ratio of the Russia is >1.7 times, the dependency ratio of USA is >1.9 times and the dependency ratio of UK is >2.5 times the similar indicators of Kazakhstan in 2010.[5,6] The values of the structural characteristics of population ageing in Kazakhstan approach to developed countries, which allow the western experience borrowing excluding Kazakhstan's realities. However, the situation changes radically when we turn to indicators related to life expectancy after retirement age. Thus, increasing the retirement age is inappropriate for the current period. As shown in the Figure 2, observed situation in Kazakhstan is completely different. Life expectancy of the elderly population over 65 years in 2010 was only 13.8 years, which is 6-9 years less European and USA indices.[7]
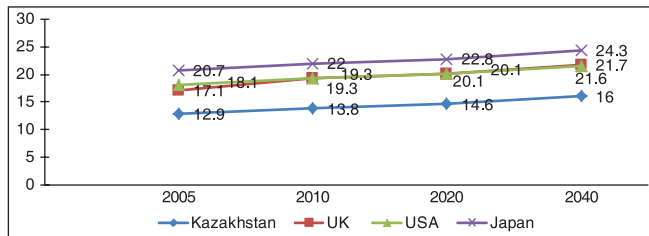
Figure 2: Life expectancy of the population aged 65+. Values for 2020, 2040 are calculated based on UN medium variant projections (World Population Prospects)

Figure 3: Life expectancy in birth by gender. Values for 2020, 2040 are calculated based on UN medium variant projections (World Population Prospects)

There is no doubt that the development process of social and economic priorities should take into account the numerous consequences of population ageing. Calculations of population ageing for specific groups in Kazakhstan can detect important features of the demographic development of the country.[8,9] However, in this case, it is not sufficient to focus on common values because the ageing process is very heterogeneous in various aspects. In particular, it is necessary to take into account the gender imbalance. Kazakhstan is much stronger imbalanced in gender than Western Europe. Such a difference in the number of men and women leads to significant differences in the values of indicators of ageing for male and female population. Note that in calculating of ageing indicators, such as ageing index or dependency ratio denominator comprises the population of both sexes. Difference between the values of ageing indicators for male and female population in Kazakhstan is shown in Figure 3.

Demographic factors have always played an important role in the economy. Population ageing affects the size and structure of the workforce and influences on economics, in particular, it has an impact on the level and structure of consumption. Trends and changes in the age structure affected not only the increase in the proportion of pensioners, but also economically active population has become older. Population ageing poses particular problems for health care, if only because the need for medical care as they age naturally increases. However, ageing of persons of retirement is a natural reorganization of the society. And tools such as rising the retirement age is not so necessary for a given period. The issue is relevant for Kazakhstan but not as vexed as in the countries described in the analysis. Kazakhstan presents demographic features of inhomogeneous ageing.
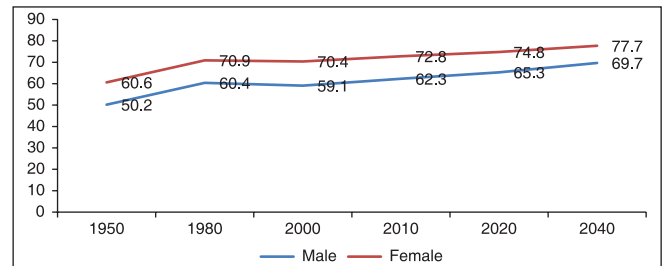
AUTHOR'S CONTRIBUTION

AKI wrote the initial draft of the manuscript. All co-authors substantially contributed to the revising and approved final version of the manuscript for publication.

REFERENCES

1. UNPD (2011a). World Population Prospects, 2010 Revision. United Nations Population Divisions. http://esa.un.org/unpd/wpp/unpp/panel_population.htm [Last accessed on 2011 May 10].
2. Arhtur WB. The Ergodic Theorems of Demography: A Simple Proof.//Working Paper No. 52. Laxenburg, Austria: IIASA; 1981.
3. Arthur WB, Vaupel JW. Some general relationships in population dynamics. Popul Index 1984;50:214-26.
4. Katsaga A, Kulzhanov M, Karanikolos M, Rechel B. Kazakhkstan health system review. Health Syst Transit 2012;14:1-154.
5. World Population Policies 2003. Population Division, DESA, United Nations. Available on http://www.un.org/en/development/desa/population/publications/pdf/policy/WPP2003/Publication_highlights.pdf.
6. Caldwell JC, Caldwell BK, Caldwell P, McDonald PF, Schindlmayr T. Demographic Transition Theory. Dordrecht, The Netherlands: Springer; 2006. p. 239.
7. George J. Demko, William B. Wood, Zhanna Zaionchkovskaya, Gregory Loffe, *et al.* Population Under Duress: The Geodemography of Post-Soviet Russia. Questia. Westview Press; 1999.
8. Cockerham WC, Hinote BP, Abbott P, Haerpfer C. Health lifestyles in central Asia: The case of Kazakhstan and Kyrgyzstan. Soc Sci Med 2004;59:1409-21.
9. Becker CM, Urzhumova DS. Mortality recovery and stabilization in Kazakhstan, 1995-2001. Econ Hum Biol 2005;3:97-122.