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Population Ageing alongside Health Care Spending Growth

Старење становништва и раст издвајања за здравствену заштиту

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Старење становништва и раст издвајања за здравствену заштиту

SUMMARY

The Silver Tsunami or population ageing has become a globally widespread phenomenon.

Purpose of this review is to observe its dynamics and consequences from a local Balkan perspective.

Main drivers of this unique demographic evolution are extended longevity, improved early childhood survival, absorption of women into the labor markets and consequences of sexual revolution leading to falling female fertility. This process lasting well over a century is taking its toll on contemporary societies. Major side effects are shrinking young labor force and growing pool of elderly and retired citizens in many countries. This equation tends to worsen further in future threatening long term financial sustainability of public social and health insurance funds. Notable health expenditure growth, accelerating worldwide since the 1960s, is to a large degree attributable to the ageing itself. Growing share of senior citizens increases demand for medical services and costs of health care provision. Home based care provided by the family caregivers presents another important reality putting the huge burden to the modern day communities. The Serbs are no exception in this landscape. Historical demographic evolution of this nation gives a clear evidence of advanced and accelerated ageing which is well documented in post-WWII era. This synthesis of rich published evidence shows clear upward parallel trend between the pace of population aging and growth of health expenditure. National authorities shall be forced to consider reform of current health care financing pattern inherited from demographic growth era. This might be the only way to smooth impact of population ageing to the financial sustainability of health system and long term medical care in Serbia.

Keywords: Population; Ageing; Health Expenditure; Trend; Serbia; Aged

САЖЕТАК

Сребрни Цунами или старење становништва ја постало раширена светска појава.

Циљ овог рада је да пружи увид у динамику процеса и његове последице у Балканским условима.

Неки од водећих чинилаца ове јединствене демографске еволуције су већа дуговечност, побољшано преживљавање у раном детињству, веће запошљавање жена и последице сексуалне револуције у смислу опадајуће женске плодности. Овај процес је отпочео пре више од једног века и сада је видљив његов траг на већини савремених друштава. Међу водећим нежељеним последицама су опадање младе радно способне популације и растући удео старијих и пензионисаних особа у многим земљама. Ова једначина тежи да дубље поремети финансијску одрживост јавних здравствених и социјалних фондова. Раст издвајања за здравствену заштиту, који се убрзава на светском нивоу од 60'тих година, се у великој мери може приписати самом старењу становништва. Растући проценат грађана у сенијуму увећава тражњу за медицинским услугама и трошкове здравствене заштите. Кућна нега коју пружају превасходно чланови породице, представља другу важну реалност са огромним теретом по данашње заједнице. Српски народ није изузетак у овим питањима. Историјска демографска еволуција овог народа даје јасне доказе одмаклог и убрзаног старења становништва посебно у периоду након Другог Светског Рата. Прилог пред нама синтезом богатог корпуса објављених доказа показује јасан паралелни тренд између брзине процеса старења популације и пораста потрошње за здравствену заштиту Национална политика Републике Србије ће бити приморана да преиспита садашњи систем финансирања здравства историјски сазидан на моделу демографског раста. Тиме ће се моћи ублажити утицај старења становништва на одрживост пружања здравствене заштите и дугорочне неге у овој земљи.

Кључне речи: старење становништва, потрошња за здравствену заштиту, дугорочни тренд, Србија, старије особе

INTRODUCTION

Population ageing or so called ”The Silver Tsunami” presents a unique phenomenon in written demographic history of mankind over past eight millennia [1]. Traditional societies, regardless of dominant ethno-religious pattern or way of life, were young societies [2]. These were dominated by at least 15% of children younger than five and with portion of elderly aged over 65 significantly less than five percentage. In contemporary momentum as we approach 2020 growing portion of senior

citizens and decreasing portion of children are meeting a melting point were these two trend lines are about to cross each other first time ever [3]. How did it all happen?

The social circumstances changed essentially since the dawn of European industrial revolution [4]. Although some of these nations such as the French one, entered the aging process almost two centuries ago [5] it did not became visible social and public health issue almost until the 1980s. Fall of female fertility was caused by the sexual revolution [6], female education [7] and absorption of women into the labor markets worldwide [8]. These changes created effective financial incentives to women to give birth to less children. Second side of the equation were successes of modern medicine. Early childhood survival became far more successful and human longevity gains were bold [9]. Combined effect of extended life expectancy at birth of an average citizen, coupled with lower fertility effectively created conditions for increase of median age within the society [10].

Once upon a time poor agricultural nations on European soil had a median population age far below the age of twenty. This landscape resembles of a very few remaining contemporary countries such as Afghanistan or states of Sudanese Africa. These countries are marked by the United Nations Population and Social Affairs Division as eighteen „demographic outliers". Unlike these, vast majority of nations around the world, led by the earliest historical shift across industrialized Northern Hemisphere [11], belong to the dominant ageing pattern. Nowadays their median population age is either approaching forty or even slightly crossing this threshold.

Reshaping the Population Pyramid of Modern Day Nations

Important part of the aforementioned far reaching changes is not only moving upward the median population age bur rather reshaping of entire population pyramid. Once dominated by the youth and children, today we face gradual but unidirectional spreading of community share of senior citizens. Although it affects both sexes, due to natural higher longevity of women in most cultures, there is an effect called „feminization" of senior population. It refers to the domination of women among the elderly. Besides this, it is possible to observe not only growing percentage of persons aged 60/65 or more but as well growing portion of persons in deep senium – older than 80. Actually while observing the landscape of changes we see crystal clear evidence supporting accelerated population ageing across the Globe [12]. This means that percentage point share of elderly has grown far more quickly during the past three decades as compared to the previous three decades.

Some of the world regions entered this demographic transition earlier than others and today find themselves in a more advanced stage of ageing. Europe and Asia are typical examples each one at its own peculiar conditions. So far Europe remains the oldest continent [13] but as we approach 2050, regardless of recent one child policy shifts, it is obvious that China will become the fastest ageing large nation [14]. Recent research on top ranked emerging markets led by the BRICS [15] and Next Eleven nations gives a hint how this phenomenon spreading from the traditional high income countries towards so called newly-industrialized economies. In geographic terms it usually means

migration of decreasing fertility pattern from the rich North towards the rising nations of the Global South. Notable exception in this group of countries is Russian Federation with its early historical roots of ageing in late Imperial Romanov Era and its exceptional industrial legacy of former Soviet Union [16]. Since the end of Cold War back in 1989 and accelerated globalization in many world regions such as the Eastern Europe, there are straight forward evidence of accelerated population ageing in these new social circumstances [17].

Impact of Ageing on Medical Spending

How the population ageing affects demand for medical services and work load for the national health systems worldwide? There are several sides of this equation [18].

At the first place is simple labor market shrinking and the serious issue of long term financial sustainability of the national health systems [19]. Since the late XIX century Bismarck style initiatives European tradition has introduced modern risk sharing arrangements and the very concept of health insurance [20]. Target group during these early decades were industrial workers and their families. The concept gradually became applied to most layers of societies through the long course of history [21]. Surprisingly for many scholars, the first nation to deliver universal health coverage for the entire nation inclusive of the poor was Soviet Union as early as back in early 1930s with its renowned Semashko system [22]. Classical way of funding massive and hierarchical modern day health systems was imposing broad revenue base for the health insurance funds burdened on the shoulders of employees and employers alike [23]. Either this or general taxation model, a variety of different patterns of health care funding in most contemporary societies rely on a massive body of employed citizens. These people at their best working life age are effectively supporting the needs of elderly and retired citizens [24]. Most of these financial strategies were historically derived many decades ago, from the so called population growth mode. They have one important assumption: that lower younger floors of demographic building supporting the heavy upper floors consisting of senior citizens will always prevail in numbers and strength. Unfortunately, our time witnesses putting this axiom to the limit. Lower floors are becoming ever thinner and weaker and upper floors are becoming more massive. Work force is shrinking while the pool of retired citizens receiving and consuming all kinds of social benefits is expanding [25].

Second fact refers to testified medical needs of the elderly. Searching through the scholarly literature we find an abundance of evidence that senior patients tend to suffer from expensive chronic non-communicable diseases. They do more frequent laboratory tests and imaging examinations [26], have more outpatient physician visits, frequent and lengthier hospital admissions and consume more prescription and OTC (over the counter) medicines. Besides, their need for occasional medical implants, physiotherapy treatments and psychotherapy is far more exposed compared to younger counterparts. Probably the crown on top of medical spending attributable to the age group of 60 and above is the last year of life. It is well documented that last year palliative and/or terminal care,

particularly the one referring to cancer, usually costs as much as that individual's entire lifetime medical consumption [27].

The third contributing cost driver lies outside entire hospital sector and is frequently heavily underestimated. It refers to the home based care for the elderly, exhausted and sick persons [28]. Only minor part of this care is provided for by professional facilities and nursing staff. To a large extent this burden relies on family caregivers. Social costs of such engagement are hidden and visible ones present only the peak of an iceberg [29]. Examples from Israel [30] and Japan witness the massive pool of people in the community working hard, full time job of this kind with all further ramifications for their families and their workplace [31]. Among many related ongoing developments exploding pandemic of dementia worldwide will probably make this burden far heavier in a foreseeable future with Asia and Europe on the lead.

An essential part of global transformation of health expenditures among the regions with entirely different economic models is the fact that low and middle income countries are overtaking an increasingly growing share of World's total health spending [32]. This fact becomes most obvious when we compare the leading among the traditional, free market, high income economies such as G7 and the leading emerging markets such as the BRICS [33]. In a three decades time horizon it is clear that participation of the latter led by China is getting bigger at the expense of the former group of countries led by the US [34].

Ageing among the Serbs

The Serbs as one of the traditional nations of Europe since Antiquity, began to age almost a century ago [35]. Prior to WWI there was 1870–1910 time window testifying of exceptionally high birth rates and top ranked fertility in most of Europe. Since those days fertility was falling either faster or slower depending on historical circumstances and overall social welfare [36]. Most authors recognize constant negative migration rates as a contributing factor to the ageing process [37]. Nevertheless major drivers remain decreasing fertility rates and extended longevity [38]. Life expectancy at birth was growing in Serbia as in most other similar Eastern European countries significantly since the early post-WWII decades. These success were partly attributable to the established methods of preventive and clinical medicine but probably far more to the improved welfare and living standards. Upward trend characteristic of socialist era of peaceful prosperity in former Yugoslavia ended with civil wars of 1990s [39]. Consecutively in these years there was a peak of total population size in Serbia which continued to shrink further in the upcoming years marked with poverty. Partial economic recovery since the early 2000s shaken by the global recession reaching Serbia only in 2010/2011 had some visible impact on fertility rates. In the meantime government population policies proposed some measures of support to the child bearing families. Heavy emphasis was on third child policy whose implementation was poor and heavily dependent on frequent

government mainstream priority changes in the country. Regardless of some temporary successes downward trend remains persistent in the long run in all major demographic trends [40].

Official UN Population and Social Affairs registries provide data on ageing indicators for most countries from the 1950–2015 and medium scenario forecasts up two 2100. It is tempting to observe some of these data in comparison with data on health spending in Serbia. Unlike demography, it was only since establishment of National Health Accounts system 1995 that financial flows within the national health systems became measurable in an internationally comparable manner. Therefore we could take a look at some of these data in Table 1 listed below. Both sets of population and economics variables refer to The Republic of Serbia within the 1995-2015 time window or closest years available. Among the most remarkable changes is increase of median age from 34.1 to 20.6 years in only two decades (Table 1). At the same time total per capita health spending in purchasing power parity terms grew from $246 in 1995 to $1312 in 2015 (Table 1). The latter changes are far more dynamic and dependent on affordability issues and overall welfare in the country. Nevertheless there remains one important indicator of growing priority of health spending for the national policy makers. Share of gross domestic product available devoted to health care jumped from approximately 7–10 %

Table 1. Demographic indicators of ageing in Serbia and health care expenditure indicators 1995-2015 according to UN and WHO estimates.

Demographic indicators of ageing in Serbia*	**1995** (or closest year available)	**2015** (or closest year available)	**Difference**
Population aged under 15 (%)	17.05	14.36	-5.8
Population aged over 60 (%)	17	24.4	+7.4
Median age (years)	34.1	40.6	+6.5
Total fertility rate (per woman)	1.92 (1995-2000)	1.56 (2010-2015)	-0.36
Number of live births (thousands)	650.41 (1995-2000)	458.76 (2010-2015)	-191.65
Number of deaths (thousands)	524.34 (1995-2000)	566.83 (2010-2015)	+42.49
Ratio between number of live births and deaths	1.24 (1995-2000)	0.81 (2010-2015)	-0.43
Life expectancy at birth male/female (years)	69/75 (1995-2000)	72/77.5(2010-2015)	+3.0 / + 2.5
Old-age dependency ratio (ratio of population 65+ per 100 population 15–64)	17.2	25.6	+8.4
Potential support (ratio of population 15–64 per population 65+)	5.8	3.9	-1.91
Life expectancy at birth (both sexes combined) (years)	71.91(1995-2000)	74.65(2010-2015)	+2.74
Life expectancy at age 60 (both sexes combined) (years)	17.71(1995-2000)	19.12(2010-2015)	+1.41
Health care expenditure indicators**			
Total health expenditure % Gross Domestic Product	7%	10% (2014)	+3%
Total expenditure on health per capita at Purchasing Power Parity (PPP) [NCU‡ per US$]	$246	$1,312 (2014)	+$1,266
General government expenditure on health per capita PPP (NCU per US$)	$162	$812 (2014)	+$650
Private expenditure on health in current PPP, per capita (NCU per US$)	$85	$500 (2014)	+$315
Out of pocket expenditure in current PPP, per capita (NCU per US$)	$73	$480 (2014)	+$407
Total expenditure on health in million current PPP $	$2,441	$9,358 (2014)	+$6,917
Total expenditure on health in million current US$	$814	$4,514 (2014)	+$3,700

Sources: * United Nations Department of Population Economic and Social Affairs Division: The World Bank: http://data.worldbank.org/indicator/SP.POP.TOTL?display=default&locations=RS
**World Health Organization- Global Health Expenditure Database: http://apps.who.int/nha/database/Select/Indicators/en
‡– NCU – National currency units.

points. Unlike in some mature economies as in the case of Japan, Serbian official statistics have no insight into the part of medical consumption attributable to the elderly [41]. This is by far the most comparable indicator of medical spending in international terms. Thus it is clear that medical and long term home care is gradually becoming area of great national interest. Further on, as we might see from the published literature similar patterns of population ageing are becoming familiar to all of the South-East European nations inclusive of some of the traditionally youngest ethnic communities [42]. The myriad of these diverse health care legacies are now forced to adapt to the new circumstances. Rapid and extensive development of legislative framework [43] devoted to the gender, retirement [44] elderly health insurance issues in Serbia is a good example of what is going on in the entire region.

Health Expenditure in the country over the past twenty years

Health spending patterns in Serbia since the early 1990s were marked by notable health reforms [45]. Impetus for such efforts came externally by supranational authorities such as the WHO, European Commission, World Bank and UN agencies and was adopted by series of local governments [46]. changes from socialist health care establishments of former Yugoslavia towards pre-WWII free market traditions began since 1990s. We should bear in mind that most former Yugoslav republics with the exception of Slovenia, entered this process with a one decade delay due to civil wars of Yugoslavia [47]. Yugoslavia health care financing model was not a typical Semashko system unlike in most of Central and Eastern European societies (CEE) but rather mixed Bismarck with a municipally funded health care [48]. Regardless of many cycles of capacity building in health care and institutional changes, in most CEE and Serbia alike central, state owned health insurance funds survived till now days. These funds remain the pillars of public health care funding in a setting with rather underdeveloped private health sector. Although governmental financial responsibilities increased during past two decades in Serbia, these were effectively overwhelmed by out-of-pocket spending [49]. Growth of private expenditure on health is probably single most concerning fact in the Balkans and even the top emerging BRICS markets as well [50]. Such trend depicts actually the inability of local authorities to increase investment in health to compensate vulnerability of at least poorest citizens against the catastrophic health spending. mpoverishment due to illness remains pretty common throughout the South-East European region. Part of these medical care costs incurred to the patient's family are legal mandatory so-payments while others present informal payments and corruption of a scale. Regardless of the nature of excessive medical spending by the ordinary citizens, most is attributable to the leading non-communicable prosperity diseases. Cancer, diabetes, depression, fertility assistance, hepatitis, AIDS [51], disorders are among some of the top morbidity causes with the huge budget impact and work load for the Serbian hospital and outpatient sector [52].

An indirect indicator of transforming costs matrix within the national health care system is actually the local pharmaceutical market. Although it doubled in size in terms of value based turn-over of prescription medicines some ATC code groups have gained momentum well over 2,000 % in

only a decade while others have virtually disappeared. Prominent budget impact belongs to the expensive monoclonal antibodies and targeted biologicals used in oncology and autoimmune diseases [53]. This simple fact points out to the slowly reshaping morbidity structure of the local population and changed demand for certain pharmaceuticals [54]. Balance between brand name drugs and generic medicines plays a great role which is most obvious in the case of large markets [55]. Here we may see that reimbursement rules for drugs prescribed by the attending physician were evolving towards more strict control, cost containment and greater participation by the patients in the costs of treatment. Unlike in the socialist era, the inability of the public funding to cover needs for medicines outside essential ones, led to the vulnerability of poor citizens [56] and households [57]. As many studies indicate level of poverty among the retired elderly citizens in Serbia is by far higher compared to the national average [58]. These gaps and insufficiencies are frequently covered by their employed children and out of revenues other than pension.

CONCLUSION

Population ageing is a phenomenon so widespread and far reaching that it will mark the spirit of XXI century and all domains of life of diverse communities across the Globe. Besides promising gains in longevity it leads to substantial growth of medical care needs in all societies. Contemporary health systems historically were built on a demographic growth model. Such systems will not be capable to cope with the sky rocketing costs of medical and long term care associated with ever larger share of the elderly. Serbia is no exception to these rules. Adopting national policies of support to the healthy ageing might release part of financial pressure. Other strategies could involve personalized medical care and higher involvement of cost-effectiveness criteria in priority allocation of medical resources [59]. Without a bottom-up rethinking of national health coverage and social support traditions, burden of ageing itself will remain virtually unbearable even for the richest of nations [60].

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