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MEASURING ACTIVE AGING FOR CROSS-COUNTRY COMPARISONS AND POLICY PLANNING

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An aging population and the low involvement of elderlies in social activities makes the measurement of active aging an important research question, since it gives an insight into the potential of the elderly. Policy agendas in many countries stress the need for active aging in terms of improved health and a greater degree of autonomy. This paper aims to investigate the potential and limits of international comparison for setting policy goals concerning older adults. We use World Health Organization (WHO) micro data from the Study of Global Ageing and Adult Health (SAGE) to measure active aging in five countries demonstrating similar macroeconomic outcomes, namely Russia, India, China, South Africa and Mexico. Following the WHO concept of active aging, we select indicators for three components of active aging (health, participation in social activities, and security) and aggregate them into three sub-indices, which become the outcome index of active aging. Our findings show significant variation in the proportion of actively aging individuals in selected countries (from 89% in China to 44% in South Africa) and in the sub-indices of health, participation and security. We compare our results with macro-level data and conclude that the active aging index could be a useful tool for measuring the proportion of actively aging individuals and understanding the challenges for policy makers in each country. However, one should understand the limits of micro-level data analysis and interpret the results carefully. We also argue that for international comparisons, active aging indexes should be studied with respect to the activity of non-elderlies in each country.

Key words: active aging, public policy, the elderly, health, participation, security

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Introduction

The problem of global aging demonstrates the relevance of studying the lifestyles of the elderly and their social roles. Many countries face a growing life expectancy. Demographic trends influence the labor market, pension system, medical services, and lead to an increase of budget costs. This raises the need for special surveys of the elderly population as well as collecting and analyzing statistical data. The World Health Organization (WHO) concept of active aging changes the view of aging and the role of the elderly in society and in the economy. Older people should not be a dependent population suffering from social discrimination and stigmatization. This group should contribute to the economic growth of a country (Chansarn, 2012).

Recently, the measurement of active aging has become an important research question, since it gives an insight into the potential of the elderly. There is a growing number of cross-country comparative studies that analyze not so much the individual indicators (life expectancy, income of the elderly, access to health care, etc.), but the level of activity as a composite index. For example, the United Nations provides values for the Active Aging Index (AAI) for European Union countries on a regular basis. Countries are ranked by the final value of the AAI and by all of its components: employment, social participation, independent living, and capacity for active ageing (Active Ageing Index for 28 European Union Countries, 2014). AAI is recognized as an adequate tool and starting point for formulating aging policy in different countries (Karpinska, Dykstra, 2014). Some countries use AAI to formulate policy goals both at the national and regional level. Albeit still very novel, AAI might soon be officially recognized by policy-makers (the first example is the "National Strategic Policy for Active Ageing: Malta 2014-2020" developed by the government of Malta in 2014, that refers to the AAI index as a tool that guided the preparation of the National Strategic Plan).

Along with the United Nations, Help Age International publishes its AgeWatch Index, which includes several domains, namely income security, health status, capability and enabling societies and environment. Comparative studies help policy-makers to know where the elderly live better and how their potential is used in different countries. These findings enable decision-makers to adjust social policy directed to the elderly. However, indices calculated on macro data may not give insight into particular aspects of the life of older adults. Thus their use is limited.

We add to this growing body of literature by suggesting a methodology that is based on micro-level data analysis. The 2007-2010 SAGE survey allows us to assess the activity of elderlies at the micro-level and to compare special features of the ageing process in selected countries. Our paper aims to measure active aging in Russia, India, China, South Africa, and Mexico, following the WHO concept of active aging. We constructed our own Active Aging

Index for each country and conducted cross-country comparisons. An aging population and the low involvement of elderlies in useful activities highlight the relevance of this problem for the mentioned countries. Policy agendas in these countries now stress the need for active aging in terms of improved health and a greater degree of autonomy. The measurement of active aging on micro-data and cross-country comparisons could help improve social policy for the elderly. Our investigation is the first one to study the potential and limits of such a comparison for improving social policy directed to older adults.

Literature review

According to the definition of the World Health Organization (2002), "active aging is the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age". The first component of active aging is health, which refers to the physical and mental health of an older person, as well as self-rated health. For physical health, researchers usually consider chronic disease, disabilities, physical functions, and painful sensations. The list of diseases and disabilities vary in different studies. For instance, McLaughlin and coauthors (2010) include cancer, chronic lung disease, diabetes, heart disease, and stroke in their analysis of the major causes of death among the elderly. Pruchno and coauthors (2010) add arthritis, hypertension, and osteoporosis to this range. For disabilities, Chansarn (2012) uses the state of blindness and deafness. According to McLaughlin and coauthors (2010), an older person meets the criterion of no disability if he is able to walk across a room, get dressed, take a bath or shower, eat, get in or out of bed, and use the toilet. For physical functions, the authors consider the ability to eat, get dressed, take a bath, walk and go upstairs (Pruchno, 2010; Chansarn, 2012). Lee and coauthors (2011) take into account whether an older person has any pain, physical discomfort or injuries that would have an impact on daily activities. Pruchno and coauthors (2010) examine whether pain makes it difficult to perform usual daily activities.

Assessment of mental health is based on different indicators capturing changes in mood (Chaves et al., 2009), feelings of anxiety, sadness, depression (Ko, et al., 2007; McLaughlin, et al., 2010; Chansarn, 2012), ability to relax and self-confidence (Bowling, Iliffe, 2006; Lee, et al., 2011). Kahana and coauthors (2005) consider the future plans of an older person. They assume that plans promote interest in life and a good state of mind. Onedera and Stickle (2008) take into account short-term plans of older people, for example, cooking or cleaning, as well as plans for the next three months (writing a letter to a friend) or a year (reading a certain book).

Self-rated health is another important element of the health status of an older person (Ko, et al., 2007; Chansarn, 2012). Doyle and coauthors (2010) describe it as self-rated changes in

health status for a certain period of time. Lee and coauthors (2011) examine self-rated health status over the previous two weeks.

The second component of active aging is participation. Participation is usually estimated by labor activity and social activity. Generally, labor activity is regarded as the presence of paid work (Pruchno, et al., 2010) or volunteering (Duay, Bryan, 2006; Marina, Ionas, 2012). Social activity involves contacts with family and friends, as well as neighbors and the outside world (Duay, Bryan, 2006; Lee, et al., 2011). This might include indicators of marital status (Chansarn, 2012), having a close friend (Payne, et al., 2006), frequency of meetings with relatives and friends (Lee, et al., 2011), provision of support to family members (Vance, et al., 2005; Chansarn, 2012), leisure and hobbies (Doyle, et al., 2010). Moreover, it involves political participation (Zaidi, et al., 2013), participation in religious activities and attendance of religious meetings (Ng, et al., 2009; Pruchno, et al., 2010; Lee, et al., 2011; Marina, Ionas, 2012). Annear and coauthors (2014) investigate health and activity participation in older age. Authors systematize findings of various research papers and mention travel behavior, restorative activity, and spiritual activity as components of participation.

The third component of active aging is security, which consists of living safety and financial security. Living safety implies such things as non-slippery ground floor, stair handrail, handrail in bathroom, non-slippery toilet, etc. (Chansarn, 2012). Financial security is described by indicators of personal income (Strawbridge, et al., 2002; Jang, et al., 2009; Garcia, et al., 2011), household income (Chaves, et al., 2009; McLaughlin, 2010; Wang, Lin, 2012), sufficiency of income (Duay, Bryan, 2006; Chansarn, 2012), savings and indebtedness (Chansarn, 2012). In addition, Chansarn considers accommodation ownership as a component of security.

The most common way to estimate active aging is to construct an index. Zaidi and coauthors (2013) present an Active Aging Index, which consists of four components: employment; participation in society; independence, healthy and secure living; capacity and enabling environment for active aging. The first three components show the status of an older person, and the fourth component reflects their development potential later in life. For a measurement of all components, individual indicators are calculated. Aggregation of the selected individual indicators to components, and to the overall AAI, is similar to the methodology of Human Development Index of the United Nations Development Program (Zaidi, et al., 2013). The first step is to express all individual indicators as positive indicators, when the highest value means the best active aging outcome. The second step involves the expression of the indicators in percentage terms. The third step calculates the arithmetic weighted average of all indicators

for each component. Lastly, Zaidi and coauthors calculate the overall index as the arithmetic weighted average of the component indices. Weights are assigned by the expert group.

We note that Zaidi and coauthors (2013) developed the AAI for cross-country comparisons. With that, there is an example of constructing an AAI with micro data. Chansarn (2012) follows the definition of active aging by WHO (2002) and calculates an Active Aging Index for Thailand. This index consists of three dimensions: health, participation, and security. All selected indicators are aggregated into indices for dimensions with the help of linear scaling. Then, the Active Aging Index is an arithmetic average of indices for the three dimensions. Tareque and coauthors (2014) in their research on Bangladesh follow the determinants of active aging given by WHO and use six indicators for health (aggregated into HI – health index), three indicators for community participation (aggregated into CPI – community participation index), and six indicators for the security dimension (aggregated into SI – security index). All these dimensions form a composite Active Ageing Index.

Researchers usually split the sample of the elderly by age groups. For instance, Maier and Klumb (2005) stratify a sample of the West Berlin population for age and sex in order to investigate the social participation of the elderlies. Lee, Lan, and Yen (2011) distinguish the following age groups: 65-74, 75-84, and 85 and older. Basically, authors conclude that people in the oldest age group are less prosperous (Depp, Jeste, 2006; McLaughlin, et al., 2010; Garcia, et al., 2011).

Considering the individual characteristics that influence the aging process, many researchers take into account gender differences (Jorm, et al., 1998; Depp, Jeste, 2006; Garcia, et al., 2011; Marina, Ionas, 2012). For instance, Jorm and coauthors (1998) revealed that in Australia determinants of successful aging for men are education level and professional status. However, these factors are insignificant for women. Strawbridge, Wallhagen, and Cohen (2002) found that women are more likely to have successful aging. This conclusion is supported by McLaughlin and coauthors (2010). On the contrary, Jang (2009) argues that successful aging is more likely among men.

Data and method

Our empirical research is based on the Study of Global Ageing and Adult Health (SAGE) conducted by the World Health Organization (WHO). The US National Institute on Aging, Division of Behavioral and Social Research supports the SAGE Study. At present, data for six countries is available, including China, India, South Africa, the Russian Federation, Ghana[6] and Mexico. The advantages of SAGE for international comparisons are the unified methodology of

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[6] Our research does not include Ghana due to significant difference in social and economic development compared to other countries of interest.

data gathering (based on standard questionnaires) and the large samples of older adults in each country (Table 1). Also, the use of micro-data gives us the advantage of studying questions that are not covered by country-level statistics.

In each country SAGE covers adults of 50 years and older with a smaller control group of younger adults from 18 to 49 years old. SAGE was originally designed for the study of senior adults. Therefore, it does not reflect the demographic structure of the populations. However, regarding other social and economic indicators, all country samples are representative on the national levels.

Table 1 presents the sample structures of SAGE. Individuals older than 50 dominate the sample. However, control samples of younger adults are big enough to compare older adults with younger groups in each country and make country comparisons of aging, adjusted for economic and social well-being of the whole adult population.

Table 1. Gender and age of respondents in SAGE (number of persons)

	Russia		China		India		Mexico		South Africa	
Age group	male	female	male	female	male	female	male	female	male	female
under 50	154	263	719	923	1093	3955	139	297	160	225
50-59	586	882	2688	3119	1522	1657	178	255	757	938
60-69	395	676	1891	2077	1283	1173	365	566	535	697
70-79	311	707	1339	1463	626	522	242	376	248	414
80 +	82	230	281	344	105	99	110	171	83	125
total	1528	2758	6918	7926	4629	7406	1034	1665	1783	2399

Source: authors' calculation

Measurement

In this study, we used a similar research approach to that developed by Zasimova and Sheluntsova (2014) for the calculation of the proportion of actively aging Russians. Using the WHO approach as a conceptual framework, we calculated the proportion of actively aging older adults in each country. The micro-level character of the SAGE database allows us to define the type of aging for each individual in the sample (normal or active) and to make judgments on particular components (and even indicators) responsible for the high or low activity of older adults in each country.

We chose variables that helped us to calculate indicators describing individuals' health status, participation in social life, and security. Table 2 summarizes these indicators and variables. For each individual, we calculated aggregated variables describing three components of active aging, namely health, participation, security:

Health_index – binary variable, that is equal to 1 if all indicators describing individual health status do not reach their critical levels; and 0 if at least one indicator is recognized to be equal to or higher than its critical level.

Security_index – binary variable, that is equal to 1 if all indicators describing security do not reach their critical levels; and 0 if at least one indicator is recognized to be equal to or higher than its critical level.

Participation_index – binary variable, that is equal to 1 if at least one indicator describing participation in social life exceeds its critical level; and 0 if all indicators are equal to or below their critical levels.

Table 2. Indicators describing components of active aging

Indicator	Variables
Health	
Physical health	*Chronic* – concentration of chronic conditions (arthritis, stroke, angina, diabetes, chronic lung disease, asthma, high blood pressure, cataracts). The value ranges from 0 to 8.
	Physics – concentration of extreme difficulties with simple physical actions. The value ranges from 0 to 6.
	Pain – bodily pain and discomfort due to pain (1-no, 0- yes).
Mental health	*Emotion* – difficulties due to feeling sad, low or depressed (1 – non, 2- mild, 3- moderate, 4- severe, 5- extreme).
Self-assessed health	*Sah* – Self-assessed health (1- very good, 2- good, 3- moderate, 4-bad, 5- very bad).
Participation in social activities	
Working participation	*Job* – worked at least 2 days within the week before the interview (1-yes, 0- no).
Community participation	*Public_activity* – participation in different community activities (1 – if individual at least 1-2 times per year participated in any of the following activities: attended any public meeting in which there was discussion of local or school affairs / met personally with a community leader / attended any group, club, society, union or organizational meeting / worked with other people in the neighborhood to fix or improve something / attended religious services (not including weddings and funerals); 0 – if didn't participate in any of these activities).

Family and friends participation	*Married* – current marital status (1 – if married or cohabited, 0 – otherwise).
	Family_friends – intensity of contacts with friends and relatives / coworkers outside of work during last 12 months (1 – never; 2 – 1-2 times per year; 3 – 1-2 times per month; 4 – 1-2 times per week; 5 – every day).
Security	
Financial security	*Finance* – sufficiency of income to meet one's needs (1– completely; 2– mostly; 3– moderately; 4 – a little 5; – not at all).
Living conditions	*Home* – level of satisfaction of the conditions of living place (1 – very satisfied; 2 – satisfied; 3 – neither satisfied nor dissatisfied; 4 – dissatisfied; 5 – very dissatisfied).
	Safe_home – feeling safe from crime and violence alone at home (1 – completely safe; 2 – very safe; 3 – moderately safe; 4 – slightly safe; 5 – not safe at all).

Source: authors' calculation

The choice of a critical level for each variable was the key issue in our analysis as it directly affects the value of indicators calculated for each individual. Changing a critical level can change the status of an individual from actively aging to inactively aging. Researchers use different methods to define critical (extreme) levels, relying on expert opinion, cluster analysis, latent profile analyses, etc. depending on the research goals (Chansarn, 2012; Pruchno, et al., 2010). As one of our main goals was to calculate the percentage of actively aging individuals in each country, we decided to set clear criteria of splitting individuals into two groups – "actively aging" and "inactively aging". For binary variables (describing bodily pain, marital status and job participation), the critical levels were equal to 0. For categorical variables, the critical levels were set to reflect the most unfavorable values. For example, the critical level for "self-assessed health" was equal to 5, as it corresponded to the most unfavorable value ("very bad"). The only variable that needed another approach for defining the critical line was the variable "concentration of chronic conditions". To define a critical level for this variable, we have studied the distribution of answers and consulted healthcare experts. Thereafter we set the critical level to be equal to 4, as individuals reporting 4 and more chronic conditions could not be regarded as healthy.

After all indicators were calculated and aggregated into three specific sub-indexes for each individual, we calculated the outcome variable *Active_aging*, defining whether an individual meets all three criteria of active aging. *Active_aging* is a binary variable that is equal

to 1 if variables *Health_index*, *Security_index* and *Participation_index* are all equal to 1. If any of the sub-indexes equaled 0, the outcome index AAI was also 0.

Finally, we estimated the proportion of actively aging older adults in each country. We compared these proportions in different age groups (including the controlled subsample of younger adults) and separately for males and females.

Results

Health component

Of the considered countries, Russia has the highest proportion of elderly suffering from chronic diseases such as arthritis, stroke, angina, chronic lung disease, hypertension and cataracts. Only diabetes and asthma are common in Russia at the level of other countries (Table 3).

Table 3. The prevalence of chronic diseases among the population older than 49 years

Chronic disease	Russia		China		India		Mexico		South Africa	
	pers.	%	pers.	%	pers.	%	pers.	%	pers.	%
arthritis	1338	34,9	2811	21,2	1144	17,8	265	12,2	848	23,4
stroke	228	6	439	3,4	144	2,2	105	4,8	138	3,8
angina /coronary artery disease	1254	32,7	1109	8,7	314	4,9	47	2,2	218	6
diabetes	344	9	829	6,5	472	7,4	439	20,2	357	9,8
chronic lung disease	686	18	1096	8,6	261	4,1	129	5,9	87	2,4
asthma	132	3,4	311	2,4	441	6,9	70	3,2	164	4,5
hypertension	2151	56,1	3476	27,4	1122	17,5	813	37,5	1109	30,6
cataracts	605	15,8	1066	8,4	1162	18,1	283	13,0	165	4,6

Source: authors' calculation

Not surprisingly, the proportion of elderly with very high concentration of chronic conditions (four or more) is much higher in Russia than in other countries – 13,22% compared to about 2,5% (Table 4). The results may indicate either the poor state of health of elderly Russians (in comparison with other countries and with younger adults), or good diagnostic services in the country. In other words, Russian older adults either have poor health or are better informed about their chronic conditions. Furthermore, there may be variations in the practice when making a diagnosis regarding chronic conditions. Russian doctors may use broader diagnostic criteria for the same condition, compared to their foreign counterparts.

Table 4. Concentration of chronic conditions among individuals older than 49 years, %.

Number of chronic conditions	Russia	China	India	Mexico	South Africa
0	24,52	47,49	51,18	38,66	48,83
1	23,21	29,63	28,71	34,98	28,78
2	23,29	14,55	13,03	18,02	14,06
3	15,75	5,71	4,85	6,08	5,82
4	8,87	1,85	1,68	1,61	2,01
5	3,13	0,58	0,45	0,51	0,36
6	1,02	0,17	0,09	0,14	0,11
7	0,21	0,02	0	0	0,03

Source: authors' calculation

We believe that the first hypothesis is more plausible, because the proportion of younger adults with a high concentration of chronic disease is about the same (and is close to zero) in all countries. Moreover, if we compare the proportion of older individuals with a high concentration of chronic diseases, with the figures for the control group of young respondents, it turns out that in Russia this difference is extremely high compared to other countries (Table 5).

Thus, it would be strange if the awareness of a chronic condition applies only to the elderly and does not apply to younger adults in Russia.

Table 5. Proportion of respondents with a high concentration of chronic conditions, %

Age groups	Russia	China	India	Mexico	South Africa
Individuals 50 years and older	13,22	2,6	2,23	2,26	2,51
Individuals younger than 50 years	0,24	0	0,19	0	0,55

Source: authors' calculation

Physical limitations due to difficulties with performing simple physical actions are almost equal for the elderly in all five countries (Table 6). The exception is China, where the proportion of individuals who have physical limitations is significantly lower than in other countries.

Table 6. Percentage of respondents who experience extreme difficulties when performing simple actions, %

Action	Russia	China	India	Mexico	South Africa
bathing/washing the whole body	5,15	0,89	3,23	4,51	1,97
getting dressed	2,9	0,54	2,59	5,2	1,45
moving around inside the home	2,96	0,52	3,52	5,3	2,43
eating (incl. cutting up food)	1,58	0,52	3,74	2,67	1,03
getting up from lying down	7,15	0,64	4,84	4,92	5,07

getting to and using toilet	2,78	0,71	4,78	3,13	2,32
at least one of the six actions listed above	9,23	1,58	10,9	10,8	7,21

Source: authors' calculation

The proportion of individuals, who indicated that they felt severe/extreme pain and/or significant bodily discomfort due to physical pain, varies considerably. This figure is the highest in India (20,9%) and the lowest in China (3,5%).

Table 7. Percentage of respondents experiencing severe/extreme pain and/or significant bodily discomfort due to physical pain, %

Age groups	Russia	China	India	Mexico	South Africa
Individuals 50 years and older	14,87	3,51	20,89	11	12,5
Individuals younger than 50 years	2,64	0,98	10,9	7,28	5,88

Source: authors' calculation

However, it is noteworthy that the largest gap in the values of this index for the elderly and younger adults is observed in Russia. 14,9% of the elderly in Russia suffer from severe physical pain and discomfort compared to 2,6% of younger adults (Table 7).

The proportion of older individuals who indicated significant difficulties due to feeling sad, low, or depressed, does not exceed 1% in all countries, and nearly does not differ from the corresponding share among younger fellow citizens (Table 8).

Table 8. Percentage of respondents experiencing considerable difficulties due to feeling sad, low, or depressed, %

Age groups	Russia	China	India	Mexico	South Africa
Individuals 50 years and older	0,58	0,05	0,7	0,28	0,51
Individuals younger than 50 years	0	0,06	0,36	0,94	0

Source: authors' calculation

The proportion of older individuals who rate their health as very bad is quite low in all countries (about 2%). Thus, despite the presence of chronic diseases, problems with performing simple physical actions and severe physical pain, only a small percentage of elderly report their health as very bad. Apparently, older adults report their health status adjusting for their age. Therefore, we believe that self-reported health is not an adequate indicator for the health of elderly individuals.

Table 9. Percentage of respondents who rate their health as very bad, %

Age groups	Russia	China	India	Mexico	South Africa
Individuals 50 years and older	2,1	2,05	1,76	0,69	1,56
Individuals younger than 50 years	0,25	0,49	0,56	0,47	1,87

Source: authors' calculation

Table 10 shows the aggregate data for the component "Health". We assume that a person cannot be fully active if he has poor physical health (i.e. either a high concentration of chronic diseases, difficulties in performing simple physical actions, or severe pain that interferes with daily activities). In addition, if an individual is experiencing serious psychological problems or reports his health as very poor, he cannot be regarded as active.

Table 10 presents data on the health sub-index for the group of younger adults. It shows that the highest proportion of older people with poor health is observed in India and Russia. In these countries, more than a quarter of the elderly cannot be considered active due to health problems. The lowest rates are in China: only 7,7% of the elderly can be regarded as inactively aging due to unfavorable health conditions.

Of course, the proportion of the elderly with poor health increases with age in all countries. However, we draw attention to a significant gap in the health status of the elderly and younger adults seen in Russia. In Russia, the proportion of the elderly population with poor health is nearly 8 times higher than that of the younger adults.

Table 10. Proportion of individuals with poor health in different age groups, %

Age groups	Russia	China	India	Mexico	South Africa
under 50 years	3,28	1,4	12,87	8,94	7,18
50-59	13,11	3,89	20,72	13,85	14,28
60-69	23,76	8	26,96	14,46	17,24
70-79	39,23	12,65	37,66	22,18	22,56
80 and older	48,45	21,32	55,43	36,49	27,27
The average value for individuals 50 years and older	25,75	7,7	26,63	18,74	17,4
The proportion of individuals over 50 years with poor health to a similar proportion of individuals under 50 years	7,9	5,5	2,1	2,1	2,4

Source: authors' calculation

We compared our results with macro data on health expenditures in the considered countries and noted an apparent inconsistency. (Table 11).

Table 11. Health expenditures (2012 data)

	Health expenditure, total (% of GDP)	Health expenditure per capita (current US$)	Health expenditure per capita, PPP
Russia	6,26	886,88	1473,83
India	4,05	61,36	156,85
China	5,41	321,69	479,97
South Africa	8,79	644,62	982,29
Mexico	6,15	618,26	1061,87

Source: The World Bank

According to macro data, the Russian health care system is ahead of the other four countries in terms of expenditures for health. Based on this, we could expect a relatively high level of health of older Russians and relatively low rates of individuals with poor health in comparison with the other four countries studied. Moreover, demographic indicators corresponding to health outcomes (such as life expectancy at 60 and mortality) do not put Russia on the last place (Table 12).

Table 12. Life expectancy and mortality rates

	Life expectancy at 60, total (years)[*]	Mortality rate, adult, male (per 1,000 male adults, 2010 data)[**]	Mortality rate, adult, female (per 1,000 female adults, 2010 data)[**]
Russia	17	367,1	137,2
India	17	245,0	163,2
China	19	109,5	81,4
South Africa	16	494,8	457,3
Mexico	22	142,5	78,5

*Sources: * Global AgeWatch Index 2014; ** The World Bank*

According to SAGE micro-data, Russia occupies the position at the bottom of our list. We can suggest three possible explanations for this inconsistency. One is that the health status of the current cohort of older adults reflects health expenditures that had been done over their whole life, not just last few years. The other explanation comes from cultural differences between countries and attitudes towards health, doctors, diseases and disability. Finally, high expenditures on health do not necessary mean efficient health practices.

Participation component

To assess this component we constructed indicators characterizing work status (paid or volunteering), involvement in social life, and contacts with family and friends. We assumed that the type of social life involvement was not as important as the fact of such involvement. Therefore, we chose indicators describing various aspects of social activity of individuals. As can be seen from Table 13, the percentage of individuals having paid work declines with age. Also in each country, the proportion of working men is higher than the proportion of working women at older age. We see that South Africa has the lowest share of older adults in age groups 50-59, 60-60 and 70-79, which corresponds to macro-level data on unemployment (Table 18). However, Russia demonstrates the lowest share of employment in most senior age groups of 70-79 and 80+. This may be due to the lack of employment opportunities for the elderly, to poor health in the oldest age groups compared to other four countries, and to the Russian pension system design (mainly to early retirement age – 55 years for women and 60 for men).

Table 13. Proportion of individuals who have work in different age groups by gender, %

Age groups	Russia		China		India		Mexico		South Africa	
	m	f	m	f	m	f	m	f	m	f
under 50 years	86,8	81,1	90,1	81,2	93,5	69,3	89,1	67,8	55,7	58,2
50-59	71,6	61,7	74,6	51,6	83,3	57,1	81,3	59,5	57,8	40,2
60-69	28,4	19,9	45,9	33,7	55,6	39,3	62,3	42,1	27,7	12,9
70-79	8,4	5,9	22,5	18,2	35,4	21,1	40,8	22,1	14,9	11,5
80 +	1,2	0,9	10,4	11,9	14,3	5,6	17,8	13	14,7	7,4
The average value for individuals 50 +	59,0	29,0	51,7	37,9	63	44,8	56,5	38,3	39,4	24,2

Source: authors' calculation

Involvement in social life is high in South Africa, India and Mexico, primarily because of the religious activity of older individuals (Table 14). Interestingly, for all other kinds of social activities, Mexicans stay at significantly lower levels (20-28%) compared with the participation in religious activities (68,4%), while in South Africa senior citizens are generally actively involved in various activities and public events.

China has the lowest level of participation in social activities, including religious services – only 10% of respondents noted that they attended them, a surprising result for communist China. The low rate of religious service attendance was expected, but the lack of social cohesion is an obvious contradiction with the concept of collectivism.

Table 14. Proportion of individuals who have participated in various social activities at least 1-2 times per year, %

Activities	Russia	China	India	Mexico	South Africa
Attended any public meeting in which there was discussion of local or school affairs	29,8	15	27,4	21,7	46,3
Met personally with anyone considered to be a community leader	17,8	7,4	28,2	22,6	45,1
Attended any group, club or society, union or organizational meeting	24,1	18,3	28,5	22,1	47,8
Worked with other people in neighborhood to fix or improve something	40,9	42,9	43,5	27,7	44,1
Attended religious services (not including weddings and funerals)	32,7	10,6	83,1	68,4	86,44
Participated in something mentioned above	67,4	58,1	88,4	77,7	92,1

Source: authors' calculation

Significant differences between countries are observed in the proportion of individuals who are trying to keep in touch with friends and relatives (Table 15). Mexico has the highest percentage of older people who do not have personal contact with friends and family – 36%. In other countries, this figure varies between 6-13% of the elderly population. Probably this is due to isolated older Mexican families in rural areas, whereas younger adults went to live and work in the US or in large cities.

Table 15. Proportion of individuals who did not have contacts with friends and relatives in the last 12 month, %.

	Russia	China	India	Mexico	South Africa
Have not had friends over to their home	14,2	26,7	18,7	46,8	13,6
Have not been in the home of someone who lives in a different neighborhood or had them in home	31	35,7	16,1	52	18,1
Have not socialized with coworkers outside of work	38,5	24,2	22,2	29,1	51,5
Have not done anything mentioned above	8,9	12,9	6,1	36,2	7,8

Source: authors' calculation

In most of the countries (except China), there is a high proportion of unmarried older people (whether official or cohabiting). This can be explained by a high probability to become widowed in old age, and by the established norms in relation to the institution of marriage. The smallest share of such individuals is in China (16,8); followed by India (25%), Mexico (38,7%), Russia (43,5%) and South Africa (47%).

In South Africa, relations are limited to local communities: very few people interact with coworkers, while the interaction with friends and neighbors is quite common. In China, India and Mexico by contrast, socialization with coworkers is rather common. At the same time in Russia, where one would expect a high intensity of contacts with colleagues due to inherited Soviet traditions, almost 40% of respondents did not communicate with colleagues outside of work.

Table 16. Proportion of individuals who do not participate in social life, in different age groups, %

Age groups	Russia	China	India	Mexico	South Africa
under 50 years	0,51	0,21	0,07	1,13	0,00
50-59	0,55	0,48	0,1	2,21	0,43
60-69	2,01	0,95	0,5	2,57	1,11
70-79	6,46	3,14	2,1	6,23	1,9
80 +	13,92	12,75	8,7	10,92	3,05
The average value for individuals 50 +	3,59	1,69	0,82	4,25	1,04

Source: authors' calculation

Table 16 shows the aggregate data for the component "Participation" in the considered countries. Overall, the proportion of those who do not participate in a social life (whether within family, with close friends or colleagues) is quite low in all countries. This is largely due to the softness of the criteria that we have established for the critical values of the indicators. At the same time, large differences are evident between the countries, especially in the older age groups. Mexico and Russia are in the most unfavorable situation – the proportion of elderly unable to participate in society reaches 4,25% and 3,59%, respectively. If we consider the age group of 80+, the most unfavorable situation is in Russia (13,92%), China (12,75%) and Mexico (10,92%).

Security component

SAGE database contains only a few questions to evaluate the "security" component, and all of them are based on self-assessment. Table 17 presents the financial security indicator for older and younger adults in each country. Except South Africa, we do not observe significant differences between older and younger adults in each country. This may be the sign of equal

distribution of incomes between different generations in each country; however, we argue that at least to some extent self-assessed well-being may reflect the overall standards of living of older people similar to self-assessed health.

Table 17. The proportion of individuals who reported that they had a little or no money to meet their needs, %

Age groups	Russia	China	India	Mexico	South Africa
Individuals 50 years and older	15	2,4	9,9	10,6	29,5
Individuals younger than 50 years	15,9	2,41	8,83	10,12	37,54

Source: authors' calculation

From Table 17 we also see that the percentage of individuals who are not satisfied with their financial situation varies widely across the countries. At first sight our results contradict the macro-level data on per capita income (Table 18). However, we suggest a few explanations for this contradiction. The high level of per capita income in South Africa is compensated by high unemployment and inequality rates that may explain the high percentage of respondents reporting no money to meet their needs, especially among young (i.e. economically active) adults. At the same time, despite high levels of poverty in India and Mexico, we observe a relatively low proportion of individuals reporting no money to meet their needs. These countries are known for strong regional differentiation. Therefore, we believe the contradiction between reported answers and macro data can be explained by peer effects and standards of living in local communities. Finally, we did not compare prices and purchasing power in each country, which may add to the understanding of this gap.

Table 18. National income, unemployment, poverty and inequality in late 2000s.

	GNI per capita in 2012, Atlas method (current US$)	Unemployment in 2012, total (% of total labor force) (national estimate)	Poverty headcount ratio at national poverty line in 2012 (% of population)	Inequality in 2009 (Gini index)
Russia	12700	5,5	11	0,42
India	1550	3,4	21,9	0,38
China	5720	4,5	n/a	0,41
South Africa	7460	25,0	45,5[*]	0,7

Mexico	9640	4,9	52,3	0,48

data for 2011

Sources: The World Bank data for 2012; OECD Factbook 2013: Economic, Environmental and Social Statistics

The degree of satisfaction with conditions of living places is also based on self-assessment. In Russia and China, the proportion of unsatisfied with their living place is lower for elderly than for younger citizens (Table 19).

Table 19. The proportion of individuals who reported that they were very dissatisfied with the conditions of their living places, %

Age groups	Russia	China	India	Mexico	South Africa
Individuals 50 years and older	2,62	1,36	0,4	0,41	5,3
Individuals younger than 50 years	5,84	1,8	0,26	0,24	2,79

Source: authors' calculation

In our view, this is more due to a change in living standards than to the actual living conditions. The gap between the countries in access to basic facilities is not very large. For example, improved water source is available for 88-92% of the population in each country. At the same time, in India the proportion of individuals dissatisfied with the conditions of their living places is low, despite the apparently poor state of living conditions in the country (Table 20).

Table 20. Access to basic facilities (2012 data)

	Improved sanitation facilities, urban (% of urban population with access)	Improved sanitation facilities, rural (% of rural population with access)	Improved water source, urban (% of urban population with access)	Improved water source, rural (% of rural population with access)
Russia	74,37	59,33	98,74	92,19
India	60,22	24,74	96,67	90,71
China	74,08	55,85	98,35	84,87
South Africa	81,66	62,42	99,18	88,25
Mexico	87,00	79,04	96,07	90,77

Source: The World Bank

The indicator describing whether older adults feel safe from crime and violence when being alone at home does not differ significantly for older and younger adults living in the same

country. Apparently, it reflects the overall crime situation in a country. The elderly in Mexico and India feel slightly less confident compared to younger citizens.

Table 21. The proportion of individuals who reported that they felt not safe at all from crime and violence when alone at home, %

Age groups	Russia	China	India	Mexico	South Africa
Individuals 50 years and older	8,32	0,2	2,9	7,8	27
Individuals younger than 50 years	8,01	0,18	4,85	12,71	27,78

Source: authors' calculation

Table 2 shows substantial difference among the countries. The highest percentage of individuals who do not feel safe is in South Africa (27%), while in China only 0,2% of the population have similar feelings. Safety data correlate well with the estimates of the crime level, especially related to the burglary (Table 22).

Table 22. Crime statistics (2012 data)

	Intentional homicide rate per 100,000 population	Robbery rate per 100,000 population	Domestic burglary/housebreaking rate per 100,000 population	Theft rate per 100,000 population
Russia	9,2	89,1**	90,3**	724,1**
India	3,5	1,9*	n/a	27,4*
China	1,0*	n/a	n/a	n/a
South Africa	31,0	n/a	n/a	n/a
Mexico	21,5	618,0	94,6	76,7

*2010 data **2011 data
Source: United Nations Office on Drugs and Crime

South Africa has the highest murder rate. For this reason, apparently, social activity is concentrated around the local communities. Self-assessed safety status in Russia and Mexico looks similar, and it perfectly corresponds to macro-level data on burglaries and burglary in these two countries.

The proportion of the elderly who cannot be regarded as actively aging due to "security" criteria, varies considerably in the studied countries, from 3,7% in China to 48,5% in South Africa (Table 23). However, the security sub index does not vary that much within each country.

Table 23. Proportion of individuals who are not eligible for active aging in terms of "security", %

Age groups	Russia	China	India	Mexico	South Africa
under 50 years	24,9	3,86	13,36	20	53,52
50-59	21,27	3,8	11,72	17,61	49,61
60-69	20,33	3,57	11,87	17,83	45,87
70-79	20,6	3,48	14,91	16,33	49,76
80 +	20,92	4,65	20,65	13,66	51,79
The average value for individuals 50 +	21,33	3,7	12,55	16,94	48,53

Source: authors' calculation

Outcome Active aging index

After three sub-indexes describing each component were aggregated into the outcome indicator (*active_aging),* we calculated the proportion of older adults satisfying all criteria of actively aging. Table 24 presents this proportion for different age groups. We also added the proportion of younger adults to this table to compare the general level of activity in each country. We believe that for policy makers, absolute numbers of actively aging elderlies should be studied in relation to the activity of younger adults. If younger adults are much more active compared to older adults, then special measures targeting the older population should be developed in a country. On the contrary, if the difference in activity between younger and older adults is not significant, then policy measures should be targeted to the population as a whole.

As expected, Table 24 demonstrates that in each country the proportion of actively aging decreases with age. In each age group, the proportion of active males is higher than that of females. The gap between the proportion of active males and females is higher in India, creating a special challenge for policy makers.

China can boast the highest active aging rates in all age groups. On the contrary, South Africa has the lowest proportion of actively aging elderlies: more than half of its population are inactive according to our methodology.

When we compare the proportion of actively aging older adults with younger ones, we observe the minimal gaps in China and South Africa – countries that experience the highest and the lowest proportions of actively aging individuals. Therefore, we believe that in these countries, social and economic environments create roughly equal preconditions for being active in all ages.

Table 24. Proportion of respondents satisfying all criteria of actively aging, %

	Russia		China		India		Mexico		South Africa	
Age groups	m	f	m	f	m	f	m	f	m	f
Up to 50	78,5	69,2	93,4	96,0	83,4	71,5	78,1	72,3	50,9	43,5

50-59	70,1	68,7	93	92	79,6	63,7	77,3	69,4	49	41,9
60-69	69,4	58,1	90,8	87,7	73,3	59,4	76,3	70,2	49,9	44,5
70-79	57	46	86,9	80,2	62,6	48	74,1	54,1	41,2	39,2
80 +	48,7	36,4	77	60,7	41,9	25	64,8	42,2	42	33
Average for adults 50+	65,6	56,5	90,3	87,1	73,3	50	74,8	63,6	47,7	41,8

Source: authors' calculation

Figure 1 reports the proportions of older adults meeting all criteria of actively aging. The percentages on Figure 1 for certain components may slightly differ from percentages presented in Tables 10, 16 and 23 due to missings. For each indicator describing each component, there were some missings because of inability or reluctance of respondents to give the exact answer. As a result, the final number of individuals used to calculate the outcome Active aging index was smaller than for each component sub-index.
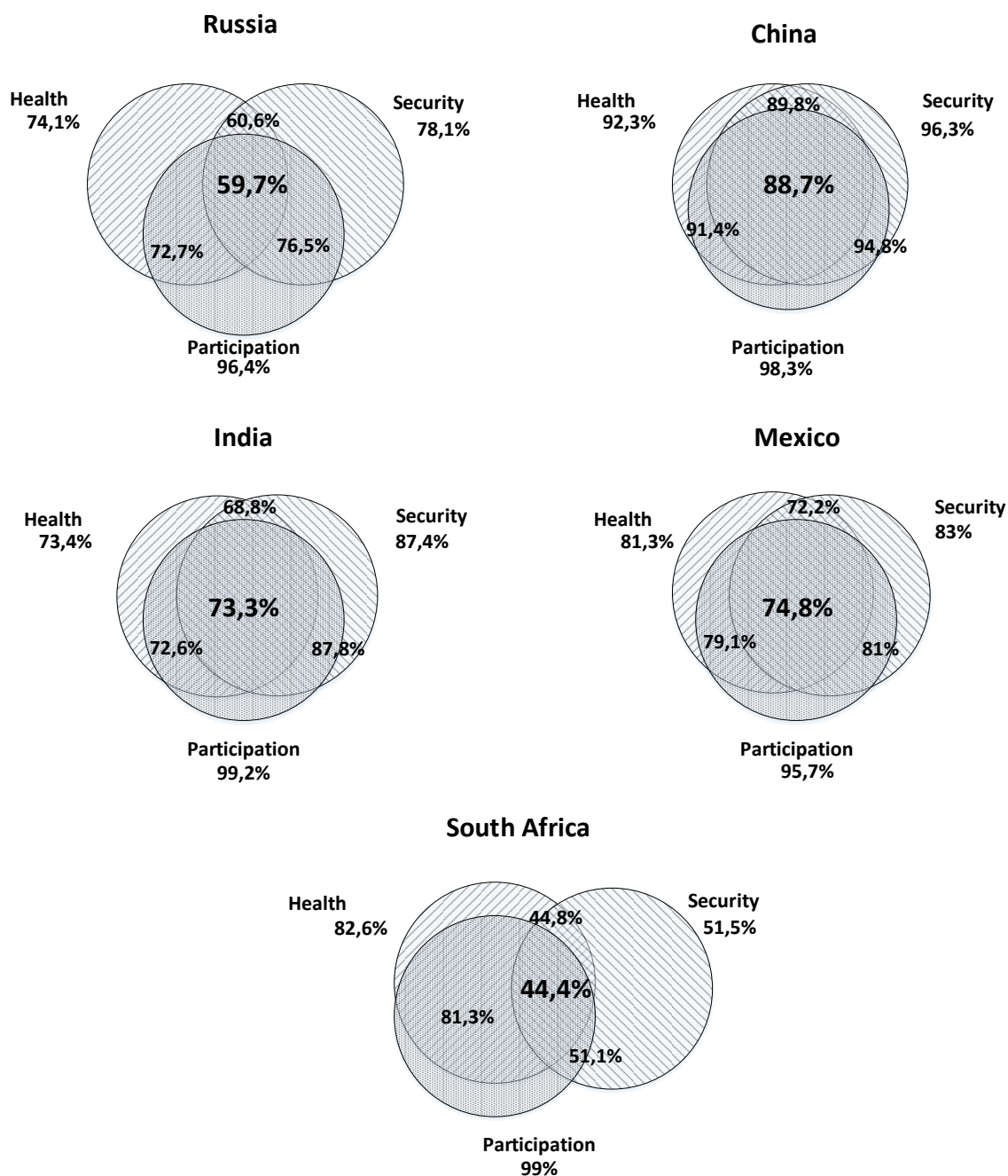
Figure 1. Share of elderly satisfying criteria of active aging

Source: authors' calculation

Our estimates show that China has the highest rate of actively aging older adults. When looking at Figure 1, South Africa draws attention due to a very low active aging index compared to other countries. However, South Africa's result is low due to only one component, namely security, while other components are comparable with other countries. Solving problems with security may dramatically change the position of older people in South Africa.

Another interesting observation comes from comparing the proportion of older adults at the intersection of two criteria. Unlike China, India and Mexico where older adults satisfying one criterion of active aging are likely to satisfy the other two, Russia demonstrates quite a large

distance between the three sets of individuals. While the proportions of older adults meeting each criterion is relatively high (75% and more), we find that a large number of elderly respondents, (41,3%) are inactive according to the overall Active Aging Index.

Conclusion

Many countries have recognized the need for more research and public policies devoted to improving the financial, health and social well-being of individuals into later life. Retirement is now seen as an increasingly active phase of life where older adults continue contributing to society. Aging policy therefore should not just focus on improving services for older people but also on suggesting opportunities for staying active after retirement. Albeit much research has been done in developed countries, there is little evidence about life of older adults in other countries of the world that could be used to improve public policy for seniors.

Aging policy and advocacy is impossible without measuring the activity of older adults. A few indices (namely, the Active Aging Index developed by UN and Global Agewatch Index) are already used to rank countries according to the opportunities they give older people. Constructing an index allows cross-country comparisons that may help reveal problem areas and the most vulnerable population groups. However, indexes calculated on macro data may not give insight into particular aspects of older adults.

Therefore we suggest that micro-level data could help understand the needs of the elderly and the challenges for aging policy. Estimating active ageing on SAGE data shows that Russia takes the next to last place among countries with similar levels of economic development. According to WHO criteria, only 60% of the Russian population older than 50 years are active. Russia shares the last place with India on the component "Health". On the component "Participation", Russia takes a penultimate place before Mexico. On the component "Security", Russia takes a penultimate place before South Africa. China is the leader among countries considered in our study, since 88,7% of the older population in this country age actively. South Africa shows the lowest level of "Security", but other indicators are at a satisfactory level.

Figure 1 shows that the components of active ageing, namely health, social activity, and financial security, are related to each other. However, the overlap of ensembles of active ageing indicators is smaller for Russia than for other countries. In Russia, a lot of older people meet the criteria of active ageing only with one of the components. Therefore, we conclude that elements of active ageing influence each other not as much as in other countries. Future research might try to estimate the mutual influence of active ageing components on each other. Also, it might be a challenge to investigate the relationship between components of active ageing and life satisfaction in older age.

We argue that the Active Ageing Index strongly depends on social and cultural differences among countries. Therefore, activity indicators should be concentrated around certain aspects that are health, participation, and security. Even full comparability of the methodology cannot take into account the influence of cross-cultural differences on the answers of respondents from different countries and on interpreting respondents' answers. In addition, estimates of the components of active ageing vary not only across countries, but also over time within the same country. This creates difficulties in choosing government policy measures.

Our findings show that it is important to take into account both micro and macro data in the process of decision-making. With that, results from SAGE micro data give evidence of a substantial gap with certain aggregated macroeconomic indicators. According to macro data, Russia looks good in comparison with India, China, South Africa, and Mexico. Global Age Watch Index indicates that Russia shows better results than India and South Africa, but worse than Mexico and China. Perhaps, social and cultural differences coming from income inequality and access to social benefits in these countries play a significant role. Also, macro indices, like Global Age Watch, include indicators that differ from those used in our study. For instance, SAGE data enables one to estimate social participation from different directions while the Global Age Watch Index includes only two indicators that are "proportion of people over 50 who have relatives or friends they can count on when in trouble" (social connections) and "proportion of people over 50 who are satisfied with the freedom of choice in their life" (civic freedom). Thus, micro data allow for a deeper look at the problem in all three components of active aging. Macro data facilitates cross-country comparisons, but it disadvantages research through undue aggregation and the loss of certain features that are important for older adults. From this point, SAGE data is a unique opportunity to make country comparisons based on the comparable methodology of a questionnaire survey.

Moreover, micro data enables one to analyze gender and age groups of people who are the most disadvantaged. For instance, women are substantially less active among other groups in India. This means that the government should pay particular attention to this group when choosing policy measures. With that, the analysis should include investigating younger adults to separate the problem of the elderly group from the problems of the whole society. We find that in Russia health of the elderly is unreasonably worse than the health of younger adults compared to other countries. This leads to the need for special measures developed for older people or adults in the pre-retirement age.

The important advantage of micro data arises from the fact that the population survey provides both objective information on individual characteristics and self-assessments of health, social participation, and security. Raw individual data on attitudes of older people to various

aspects of life allow us to ensure a more flexible and detailed approach to measuring active ageing. The main limitation of the methodology proposed in our study is the determination of boundaries between active and inactive individuals by each component. This adds subjectivity into the assessment. However, indices based on macro-level data suffer from the same problem when experts define weights for selected indicators. Overall, the analysis of micro data appears to be a good additional tool for understanding the activity of the elderly in comparison to younger population groups in different countries and in formulating aging policies.

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