Active Ageing Index in Russia - Identifying Determinants for Inequality

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Abstract

This paper is aimed at the development of a tool analysing the AAI results for the Russian older citizens from different population groups, as well as at identifying factors underlying the inequalities in active ageing outcomes by calculation the AAI on the national and individual levels. The adaptation of the methodology of the AAI to the individual-level data and the limitations of the approach are explicitly explained. The older generations of Russia show relatively high levels of education, financial security and engagement in family care, especially in the care to children. The most significant potential for development have employment, volunteering, political engagement, physical activity, lifelong learning and use of the Internet. The calculation of the AAI at the individual level has revealed significant inequalities in the degree of realisation of potential in different areas of active ageing. The results of the project provide scientific evidence for the implementation of policy measures in the target groups. The high correlation of the index values with human capital indicators (health and education) underlines the importance of the early interventions aimed at promoting and supporting human capital at the earlier stages of the life course till the old age. The substantial positive connection of employment with other forms of activity stresses the necessity of developing a package of activation policy measures aimed at the retention of older adults in the labour market. At the same time, the statistical analysis showed the absence of a “dilemma of choice” between certain types of activity of the older generation, for example, between caring for grandchildren and employment, or employment and volunteering - the potential in different areas may be increased simultaneously.

Keywords Active ageing index · Active ageing · Ageing · Public policy · Russia

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Introduction

The realisation of the potential of the older population is currently most often considered within the framework of the concept of active ageing (Zaidi et al. 2013), which is a dominant strategy in the development and implementation of social policies for the older generation. In accordance with it, many international (United Nations 2002; World Health Organization (WHO) 2002) and national documents have been adopted that legally establish the principles and policies of active ageing. Russia is no exception: in February 2016, the Action Strategy in the interests of older citizens until 2025 and the Action Plan on the implementation of the first stage of the Strategy for 2016–2020 were adopted (though, currently there is no official definition of the concept of “active ageing” or “active longevity”). In 2019, a draft Concept of Active Ageing Policy in the Russian Federation was developed. After the broad discussion with ministries at the federal and regional level, its final version is going to be adopted by the government in 2020.

Indices of active ageing and well-being serve as a tool for assessing progress in realising the potential of the older population. One of the most actively used indices is the Active Ageing Index (from now on referred to as the AAI) - a multidimensional index developed in the framework of a joint project of the European Commission on Employment, Social Affairs and Integration and the Population Division of the United Nations Economic Commission for Europe (UNECE). The AAI estimates both the achieved level of the current realisation of the potential of older people to monitor the “overall progress with respect to active ageing” (World Health Organization (WHO) 2002) and the extent to which the existing environment provides the opportunity to maximise their potential (UNECE / European Commission 2015). The AAI helps to identify strengths and weaknesses of active ageing in the areas of employment, social interaction, political participation, physical activity, education, etc. Thus, the AAI provides information to political institutions on areas requiring additional measures, as well as on the effectiveness of the existing policies (UNECE / European Commission 2016; UNECE / European Commission 2017).

Since 2014, the Institute for Social Policy of the HSE has been calculating the AAI for Russia (Varlamova et al. 2017). In 2018, data were available for the AAI 2010, 2012, 2014, 2016 and 2017. Firstly, the AAI was estimated based on the multiple databases, including Federal state statistic surveys and some international surveys conducted in Russia (ESS, GGS).¹ It allowed researchers to combine the most appropriate wording from different surveys, to compare the values of the indicators obtained from different databases and to find the indicators comparable on the international level (Zaidi and Stanton 2015). However, this approach often leads to problems with temporal comparability since waves of different surveys do not coincide by years. Although the analysis shows good comparability of the results obtained for Russia with the EU data, full-time comparability has not yet been achieved. The estimation of the robustness of the indicators to the data source and question-wording reveals that both can be a vital source of the variation of the results of the individual indicators but have no significant influence on the total value of the AAI (Varlamova et al. 2017).

¹ From 2020, the Russian Federation Federal State Statistics Service (Rosstat) will annually estimate the AAI based on several of Rosstat’s surveys.

In 2018, a fundamentally new approach was applied to calculating the AAI for Russia - the index was calculated based on a single database (RLMS-HSE),² which allows analysing the individual values of the final index by multidimensional statistical methods. To achieve maximum comparability with the original AAI methodology, we have included the AAI original wording of the questions to the RLMS-HSE surveys in 2016 and 2017. Into the 2016 wave, the questions on voluntary activity and care to children and older adults were integrated. In 2017, two more questions (political activity and material deprivation) were added into the questionnaire. In 2017 the analytical sample covered 3817 respondents aged 55 years old and over.

Compared with the index, based on the multiple datasets, the AAI at the individual level has several limitations – it is impossible to compare it with the EU results (calculations based on the SHARE are using explicit weights and question-wording that is different from the original (Barslund et al. 2017)). Currently, the AAI for Russia on the individual data cannot be calculated in dynamics (for several periods) as the necessary questions were introduced into RLMS-HSE only recently.

Nonetheless, the individual-level AAI allows more accurate identification of the target groups that require social support in each of the domains of active ageing and provide a better understanding of inequalities in active ageing experiences, which is crucial for designing effective social policies. Understanding of individual differences in employment, social activity, material well-being, etc. in general and in separate domains allows better adaptation of social policy to the needs of older people and makes it more targeted. The index based on a single dataset also examines more deeply the features of potential realisation in the context of socio-demographic and socio-economic characteristics.

This paper is aimed at estimating the AAI individual results for the Russian older citizens from different population groups, examining the degree of the existing inequality in active ageing potential as well as at enabling factors behind it. Our research questions are the following: 1) To what extent the individual values of the AAI vary with the socio-demographic characteristics of older adults (age, sex, place of residence, subjective health status, marital status and education)? 2) What are the characteristics of different groups of older people with high and low values of the AAI? 3) What is the relationship between participating in employment and other indicators of the active ageing potential?

Methodical Approach

The calculation of the individual index implies the need for specific changes in the original methodology (UNECE / European Commission 2018; Zaidi et al. 2013). First,

² The RLMS-HSE (“Russia Longitudinal Monitoring Survey, RLMS-HSE”, conducted by National Research University “Higher School of Economics” and OOO “Demoscope” together with Carolina Population Center, University of North Carolina at Chapel Hill and the Institute of Sociology of the Federal Center of Theoretical and Applied Sociology of the Russian Academy of Sciences. (RLMS-HSE web sites: <http://www.cpc.unc.edu/projects/rlms-hse>, <http://www.hse.ru/org/hse/rlms>)) is a series of nation-wide representative surveys (23 waves from 1992 until now) designed to monitor the effects of Russian reforms on the health and economic well-being of households and individuals. The survey is representative on the federal level (for regions, due to the small sample size in each region, the sample is not representative), the fieldwork procedures and data quality is highly reliable. Sample size: 17,000 respondents in the representative sample of the last waves.

some AAI indicators have different age limits. In essence, the employment rates are calculated for four 5-years groups, the independent living indicator includes people aged 75 years old and over, financial indicators are dedicated to the 65+ age group, and the use of the Internet and the educational attainment indicators have an upper boundary of 74 years old. When calculating the individual values on the same methodology as the national level index, it would be necessary to recalculate the weights of the indicators, depending on the list of variables applied to the selected age group. In order to avoid calculating individual indices based on different weighting mechanisms, which would limit comparability between different age groups, and to maintain the concept of the value of active ageing principles regardless of the age of the individuals, we have decided to calculate all the indicators for all individuals over 55 years. Unlike previous research on the individual-level data (Barslund et al. 2017), employment level is not calculated by the age group, as a person can not belong to several age groups, which means, that on domain level his participation in the labour market will be accounted as 1 in his age group and as 0 in the three other age groups. Thus, the final contribution of employment to the total value of the index is four times reduced. In case of implicit weights (see below), the employment in the younger age groups will have more impact on the total active ageing value, as the implicit weights decrease with age, which does not necessarily reveal the individual value of employment.

The second change concerns weighing mechanisms. The AAI methodology assumes two types of weights - explicit and implicit (UNECE / European Commission 2018; Zaidi et al. 2013). Implicit weights represent the expert assessment of the significance of the spheres in the overall index. Explicit weights are the final values that are tailored to the magnitude of the values of the indicators and domains, providing their occurrence with weights closest to those proposed by the experts. In case of the individual AAI values, most indicators are binary variables – a person can be employed (1) or not (0), participate in an organised voluntary activity (1) or not (0) and so on. Thus, the average value of the EU indicator, taken into account by the explicit weights, is irrelevant here. Hence, unlike (Sidorenko and Zaidi 2013), we calculate the individual values of the AAI for Russia based on implicit weight (see 6 for figures), although it limits the direct comparability of the individual values with the results at the national level, but corresponds to the internal logic of the index methodology.

The mechanism for dealing with missing values when calculating the index at the national level in the multi-base approach assumes that if there are less than 5% of missing values and answer options such as “Difficult to answer”, “Don’t know”, “No answer”, these options could be dropped. In case of the single-base approach that would significantly limit the number of cases, thus the missing values are set to zero if this does not contradict the logic of the question, for example, if individuals do not know whether they care for grandchildren, they most probably do not. The question about social connectedness was not asked in the 2017 questionnaire, and for this indicator, 2016 data were used. The data are attached through the unique identifiers of the respondents. The number of missing is 268 respondents, for them, the weights for the 4th domain, which includes the question on social connectedness, are recalculated so that the relationship between the other five indicators did not change. This strategy is an example of indirect internal imputation of data in cases where the level of the excluded indicator is significantly different from the level of other

indicators of the domain. However, a small number of respondents with data gaps (7%) do not have a significant effect on the distribution, even in the most critical cases. The number of domains (4), as well as the interpretation of the results, did not change.

The analyses of statistical relationships and group differentiation are made based on regression modelling, correlation analysis, the construction of contingency tables and SEM modelling. Further on, we analyse Russia's indicators for four the AAI domains, how they relate to each other and socio-demographic characteristics of the population. The analyses follow the division of the domains used in the index. First, the overall index scores are presented, following by the employment domain, the participation in the society domain, the independent and secure living domain, and the capacity and enabling environment for active ageing domain. The analysis of individual results is preceded by a summary of the relevant national-level multi-base results to supply the relevant context.

Results

The Overall Index

The overall Russian AAI values gradually decline from 2010, except for 2016, although this uptick could be considered statistically non-significant (Table 1). In 2017 the AAI value was 29.8 points which equal to the 27th ranking place (30.6 for men and 29.2 for women). There is significant unrealised potential in the first and the second domains in Russia. However there is also much room for improvement in creating opportunities for independent and secure living and generating higher capacity and a stronger enabling environment for active ageing. Russia is well-below the EU averages in care to older adults, political participation, use of the Internet, voluntary activities, lifelong learning, physical exercise and employment of people aged 60–64 and 70–74 years old, and what is fundamental – in life expectancy, as no active ageing is possible without the opportunity to age.

The comparison between 2017 to 2010 is limited by the use of different databases for several questions. In general, the most significant changes have been caused by the employment domain (minus 15% since 2010) and social participation (minus 18%, but mainly due to a change in the methodology). The independent and secure living

Table 1 The multi-base AAI for Russia, 2010–2017

	Emp	Soc	Liv	Cap	Total	EU average
2010	29.6 (12)	15.6 (18)	61.2 (26)	50.1 (19)	32.0 (18)	33.4
2012	28.4 (14)	15.6 (18)	60.9 (28)	51.2 (19)	31.7(18)	33.9
2014	27.6 (16)	14.1 (22)	57.6 (29)	49.9(22)	30.4 (25)	34.8
2016	27.5 (17)	13.6 (23)	60.7(28)	51.2(23)	30.7 (26)	35.7
2017	25.2 (23)	12.8 (24)	60.5 (28)	51.4(23)	29.6 (27)	35.7

Source: Project “Development of proposals for measures of demographic and family policy, promoting active ageing”, carried out within the framework of the Basic Research Program at the National Research University Higher School of Economics (HSE) in 2018

domain showed relative stability, and capacity and enabling environment for active ageing domain even increased, despite the fall in 2014. During the specified period, the life expectancy at birth and the age of 55 was raising gradually both for men and women, having added 3.41 years for the life expectancy at birth for men and 0.76 years for the life expectancy at birth for women. The results for the life expectancy at 55 accounted for 1.77 for men and 0.44 for women. (Federal State Statistics Service 2010; Federal State Statistics Service 2017). That could have a double-sided effect, as the higher proportion of older ages in the structure of the population of 55+ could be associated with higher social disengagement, but at the same time life expectancy is included as one of the indicators and its rise contributes to the total index value.

The AAI at the individual level shows a double-humped distribution, with two main groups of older people: the average realised potential for the first group is 34 points, for the second - 66 points. The division is made by k-means clusters to provide a clear division into two groups. The minimum value is 13 points; the maximum is 87 points, the standard deviation is 15 points with an average of 42 points, the interquartile range is 19 points with a median of 37 points (Fig. 1).

The groups are selected mostly by the difference in the employment status of the individuals (Fig. 2) with only 2.7% of the unemployed fell into the AAI group with high rates of realised potential, and only 0.4% of employed were in the group with low indicators of realised potential (Chi-squared test is statistically significant, Cramer's V is 0.941). People with employment have higher active ageing scores, and employment participation decreases with age. Therefore the calculation of the AAI without employment was conducted.

The calculation of the AAI at the individual level excluding employment status gives a distribution close to normal with a median and average – 49 points, an interquartile range of 15 points and a standard deviation of 10 points (Fig. 3). On average, people over 55 realise their potential by 49% ($\pm 10\%$), if paid employment is not considered. The AAI results decrease with age (Fig. 4, Appendix Table 4) of respondents and depend on gender (indicators for women are higher than for men

Fig. 1 Distribution of values of the AAI on the individual level

Fig. 2 Distribution of the AAI individual values depending on age and employment

except for older age groups). The ratio of the value for the 80th percentile to the 20th percentile accounts for 1.45.

To evaluate the factors making for inequality in active ageing outcomes, we estimate the effects of the respondent's age, sex, employment status, educational level, place of living, marital status and health on the AAI without employment using regression modelling.³ The type of settlement appeared to be not statistically significant. The level of education is included in the AAI as one of the components, that is why its inclusion into the list of explanatory variables can be questioned. However, since the scale used in the explanatory variable is different, we believe it is possible to include it in the model. At all accounts, it does not change the estimates for employment. The results presented in Table 2 show a weak positive effect of employment on the total AAI score (calculated without employment) while controlling for the age of the respondent, gender, marital status, health status and educational level. The same results are obtained when we additionally limit the regression estimation of the AAI without employment to the 55–69 age group, except for the age, that loses the level of its significance and the difference between higher education and secondary general education that becomes weaker.

To reveal further the differences between groups of older people with high and low levels of the AAI, we compare the characteristics of respondents falling in the first (lowest values of the AAI, less than 36%) and tenth (highest values, more than 63%) deciles of the AAI distribution without employment (Table 3). A group with higher active ageing potential is younger, better educated and more often employed. Hence,

³ Interactions between age and gender and age and health did not lead to any improvements in the model and therefore are not presented, intersections of age with male gender and age with satisfactory health status were significant

Fig. 3 Distribution of the AAI individual values without employment

they also have higher incomes. The most crucial differences are in mental health status. However, seniors with higher active ageing potential also estimate their health state much better, and they have higher subjective well-being (measured by life satisfaction).

In most cases, indicators of the individual AAI have a weak positive correlation, up to 0.5 (Fig. 5), which suggests the possibility of combining various types of social and economic activities and statuses for the older generation, many indicators have a positive relationship with employment. A weak negative correlation is observed between indicators of engagement in family care and voluntary activity and independent living (independently living people report providing care and being involved in volunteering less frequently).

Fig. 4 Distribution of the AAI individual values excluding employment by the sex and age

Table 2 Model specification of regression dependence of the AAI on the individual level without employment from socio-demographic characteristics

	55+ year old			55–69 full year old		
	Estimate	Std. Error	Sig.	Estimate	Std. Error	Sig.
(Intercept)	0.26	0.09	**	−0.64	0.444019	
Age	0.01	0.00	***	0.04	0.014408	**
Age ²	0.00	0.00	***	0.00	0.000116	**
Unemployed	−0.03	0.00	***	−0.03	0.00444	***
Gender-male	−0.04	0.00	***	−0.04	0.004309	***
Health – Bad (Ref. – Good)	−0.08	0.01	***	−0.08	0.006721	***
Health – NA	−0.05	0.02	**	−0.05	0.019351	**
Health – Satisfactory	−0.03	0.00	***	−0.03	0.005621	***
Education – No secondary	−0.06	0.00	***	−0.06	0.007182	***
Education – Secondary general	−0.02	0.00	***	−0.02	0.005204	**
Education – Secondary special (Ref. – Higher)	−0.01	0.00	**	−0.01	0.005386	.
Place of living – Village (Ref. – regional centres)	0.01	0.00	.	0.01	0.004865	
Place of living – Urban-type settlement	0.01	0.01		0.01	0.007629	
Place of living – Village	0.01	0.00		0.01	0.00476	.
Marriage – Never married (Partnership and Marriage)	−0.05	0.01	***	−0.05596	0.011307	***
Marriage – Widowhood (Partnership and Marriage)	−0.03	0.00	***	−0.03591	0.005148	***
Marriage – Divorced (Partnership and Marriage)	−0.02772	0.005076	***	−0.02802	0.006172	***
Residual standard error:			Residual standard error:			
0.09046 on 3950 df			0.09485 on 2566 df			
Multiple R-squared: 0.2315,			Multiple R-squared: 0.1613,			
Adjusted R-squared: 0.2283			Adjusted R-squared: 0.1561			
F-statistic: 74.35 on 16 and 3950			F-statistic: 30.84 on 16 and 2566			
DF, p value: <			DF, p value: <			
0.00000000000000022			0.00000000000000022			

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

In the next sections, the AAI results for Russia by domains and individual indicators, both on national and individual levels are considered.

The Employment Domain

The domain of employment of the national-level AAI in Russia amounts to 25.2 points for both men and women aged 55–74 (28.8 points for men and 22.9 for women), which corresponds to the 23rd place among EU countries and is below the EU average (31.1 points). This value is close to Malta and Spain (Appendix Table 5).

All the age groups show results below the EU average, except for the 70–74 years old. The primary reasons include low pension age (55 years old for women and 60 years old for men for the survey years), which is the lowest among 29 countries, numerous options for early retirement as well as poor health of the Russian older people. Since 2010 the negative dynamic of the values of the employment indicators is observed, which is even more intensified in 2017 due to restrictions on indexation of pension benefits for working pensioners introduced in 2016. For the period 2010–2017, the value of the domain estimated for both sexes decreased by 4.4 percentage points (2.3

Table 3 Differences between the 1st and the 10th decile groups of the AAI without employment

	1 decile	10 decile
Median age	73 years	61 years
Gender	65% women	73.3% women
Employment	6.8% are employed	42.8% are employed
Median disposable income	16,000 rub (210 euro)	25,800 rub. (340 euro)
The level of education	28.7% have special secondary education and higher	60.7% have special secondary education and higher.
Using the Internet in the last 12 months	6.8%	55.7%
Mental health	96.7% have depressive symptoms	90.2% meet the criterion of mental health
Life satisfaction	20.7% are satisfied	63.7% satisfied
Subjective health status	57.2% rate as bad	8.3% rate as bad

Source: authors' calculations based on the RLMS-HSE 2017data

Fig. 5 Correlation of the indicators of the AAI

Fig. 6 The distribution of employment depending on the respondents' socio-demographic characteristics (individual-level data)

percentage points during the last year). Compared to 2016, the decline in employment covered almost all age groups, except for women aged 65–69. Although federal statistical surveys give higher employment levels of the older generation and its dynamics, it is important to stress that observed negative trends are the consequences of both economic crises from 2014 and changes in the pension legislation regarding working pensioners (abolition of pension indexation from 2016). It is highly probable that the employment rates of older people will decline further in Russia.

At the individual level, 22.7% of respondents aged 55 years and above are employed, the employment rate strongly depends on the respondent's age and sex (Fig. 6). However, even in the younger age groups, there is a significant potential for improvement. For instance, only 60.4% of men and 46.6% of women aged 55–59 are employed. In the 60–64 age group, the employment rates decline to 32.8% for men and 29% for women. In all age groups, older women are less employed than men. Employment also varies by the level of health and education. Significant differences in the employment rates by the type of settlement can be observed only between cities and villages, in the latter the level of employment is lower for all age and sex groups. The marital status reveals no significant difference and is not shown on the graph.

The Participation in the Society Domain

The second domain of the AAI assesses the engagement of the older people in social activity, both within the family and outside it, and consists of 4 individual indicators:

- Formal social activity:
 - Voluntary activities;
 - Political participation.
- Informal social activity:

- Care to children and grandchildren;
- Care to older adults

In 2017 there was a modification of the respective EQLS questions in the original methodology: the caring for children indicator changed the filter of respondents, also two new categories were added to the question of caring for adults: neighbours and friends. The wording of the questions used for the Russian AAI corresponds to the previous version of the methodology (used for the AAI-2012 and the AAI-2014), which allows tracing the changes in time for the multi-base AAI but limits the comparability with the latest EU results.

The results for the participation in the society domain for Russia equals 12.81 points for both sexes (11.27 points for men and 13.60 points for women), which places Russia to the 24th place of the total ranking among Austria, Poland and Greece. Thus, the potential to participate in public life is fulfilled by 48% compared to the “best EU practice” - Belgium. The significant decrease of the second domain value (Table 1) is foremost connected with the change of the database for the political activity indicator from ESS with the design weight to RLMS-HSE, which led to a three-times decrease of the indicator.

At the individual level, the average value of the second domain of the AAI is 18.5 points, which is mostly the results of the different weight system applied to the domain estimation.⁴ However, the distribution is highly skewed to the left - 59% of respondents do not have relevant social activities, 34.5% realise their social potential at half of the maximum possible or lower, and only 6.5% demonstrate high social involvement.

Overall, Russian older people are much more often engaged in family care activities than in formal social activities outside the family (Fig. 7). In caring activities, involvement in childcare is three times higher than in caring for elderly or disabled relatives, which most probably reflects the lower prevalence of very old relatives due to the earlier mortality of the Russian population. The number of respondents engaged in voluntary activity is too small to analyse it by socio-demographic characteristics. All indicators have a significant, but very weak positive correlation among themselves.

Women are more engaged in all the activities of the domain in Russia, which is quite unusual for the EU, where men tend to be more active outside of the family. Engagement in any social activity decreases with age and deteriorating subjective health status (Fig. 8, only significant factors are presented). The sample does not show significant differences in social participation by the place of residence, apart from slightly higher results for residents of the urban-type settlements (significance at the level of 0.1), which can be an artefact created by some sample peculiarities. Although some indicators of engagement in social activity vary with education and employment (e.g. involvement in political activity varies from 6.8% for people with higher education to 1.4% for people without secondary education and from 8.5% for working respondents to 2.5% for non-working), engagement in any (of four) social activity significantly does not depend on respondent's employment, income or education when controlling for the other variables. This result may indicate that respondents do not have the “work-help-grandchildren/children” choice dilemma.

⁴ Substitution of explicit weights to implicit applied at the individual level increases the importance of childcare and decreases the impact of other indicators on the cumulative domain value.

Fig. 7 The value of the indicators of the second domain of the AAI (individual-level data)

The Independent and Secure Living Domain

The third domain of the AAI “Independent, healthy and secure living” is aimed at assessing the material security and independence of the older generation, their safety and comfort of living. The domain consists of eight indicators, three of which measure the financial independence of the respondent.

The value of the independent, healthy and secure life domain for Russia in 2017 is 60.5, which brings Russia to the 28th ranking place with only Latvia being below. Men show results considerably higher than women – 66.0 and 58.0 correspondingly, which is a common situation in the EU, but the gender gap in Russia is one of the largest. From 2010 Russia’s values of the domain almost did not change, despite a slight reduction in the relative median income and a small improvement in the indicators of access to medical and dental care, physical safety and independent living.

At the individual level, the best results are demonstrated by the indicators of the absence of the risk of poverty and material deprivation, as well as access to medical

Fig. 8 Distribution of values of the second domain of the AAI depending on the respondents’ socio-demographic characteristics (individual-level data)

care (Fig. 9). Areas requiring significant development are physical activity (including walking) at the “every day or almost everyday” level and lifelong learning. Lifelong learning in Russia shows meagre rates, given only 1% of the population aged 55+ has attended any courses in the last 12 months (mostly employed women aged 55–64 living in regional centres or cities), which reflects the narrowness of the modern understanding of the concept of lifelong learning exclusively as professional retraining. The low level of older people participation in formal lifelong learning programs is a consequence of many factors. Among them, participation in lifelong learning can hardly help older adults to keep their job or to find a new one. Employers are not interested in retraining people near the pension age since they can easily replace them with younger workers or migrants. Also, the fact that many older adults have tertiary education can help them to fill the gap in the required knowledge or skills by self-education, which explains higher involvement in self-education. Identically to life long learning, a relatively higher indicator of physical activity is also demonstrated by women living in the regional centres. However, the age of maximum physical activity falls on the 64–74 age group, after which the rate decreases again. The indicator varies from 13.3% for respondents with good health to 7.9% for respondents with poor health, from 21.5% for persons with higher education to 6.7% for those without secondary education, from 17% for residents of regional the centres, up to 7.1% for residents of villages, which may indicate a lack of sport facilities for this age group, especially outside the cities.

The independent living indicator in Russia for the individual level and 55+ age group is only 56.5% (the national-level indicator is lower than the EU minimum value, only 61.2% of the older people aged 75 years old and over live independently). This indicator aims to capture decisional autonomy regarding one’s own life in older age, which means being self-sustaining, running the finances independently, being a household head. This indicator is strongly conditioned by dominating cultural patterns, and the low value for Russia could be explained by the widespread occurrence of multigenerational families. Such cohabitation can be a source of regular social contacts, inclusion into the social life and the feeling of being needed. However, very often it reveals difficulties of buying a separate housing and the forced living with the grown-up children. This is partly confirmed by the results of the correlation analysis - the lowest values for the independent living are observed in regional

Fig. 9 The value of indicators of the third domain of the AAI (individual-level data)

centres and urban settlements. Women have a significantly lower probability of living alone or with a partner while having higher education, on the contrary increases the indicator.

At the individual level, the values of the third domain are quite high, that is partly a consequence of the changed weights; the average value is 74.7 points, the median is 73 points, and the standard deviation is 17.4 points. The domain values are lower for older people with poor health status (based on subjective estimation), lower levels of education and lack of employment. The value of the domain is higher for urban residents than for those living in regional centres due to the indices of independent residence and the availability of medical services. Higher values of these indicators are also shown in the villages (possibly due to lower requirements for access to medicine), along with self-assessments of safety and the absence of risk of deprivation (Fig. 10). The effect of living in an urban-type settlement is not statistically significant on the value of the third domain when controlling for the other socio-demographic variables. Living with a partner have a positive influence, while widowhood is associated with a decrease in independent, healthy living when compared to those who were never married (not on the graph). The indicators of the third domain have a multi-directional correlation, but the strength of the connection is deficient, except for the “poverty risk – relative median income” pair, which corresponds to the logic of the AAI.

The Capacity and Enabling Environment for Active Ageing Domain

The indicators of the fourth domain, which measures substantive opportunities and empowerments to enhance active and healthy ageing, form the basis for realising the current potential of the older population, measured in the first three domains. The indicators can be divided into three main groups by their relation to active ageing:

- available assets (life expectancy);
- health capital (healthy life expectancy, mental health);
- human capital and opportunities favourable for active ageing (education, social connections, use of the Internet).

The value of the fourth domain at the national level is 51.4 points for Russia (23rd place in the ranking for both sexes), which is 72% of the best EU practice - Sweden. The closest neighbours in the ranking list are Slovakia and Poland. According to the capacity for active ageing, the potential of Russian men (49.6 points) is slightly lower than that of women (53.0 points), which is due to the lower male life expectancy, less frequent social contacts and lower use of the Internet, but men show a higher level of mental well-being. Since 2010 there is a gradual increase in the life expectancy at 55 years, use of the Internet, mental well-being and educational attainment (as later cohorts pass the index' lower boundary). The share of healthy life expectancy trend is unstable with men having the maximum value in 2012 with a gradual decline afterwards and women with an increase in 2012 and 2016 (the max achieved value), partly that could be explained by the subjectivity of the question used.⁵ The

⁵ For the Russian AAI, it is calculated on the basis of life tables and information from the RLMS-HSE on self-assessment of health status using the Sullivan method; thus, the indicator is quite subjective. Another approach includes calculations of the burden of chronic illness, but the sustainability of the results is also not achieved.

Fig. 10 The distribution of the values of the third domain, depending on the respondents' socio-demographic characteristics (individual-level data)

peculiarity of Russia is a pronounced gender discrepancy of life expectancy and the excessive mortality of men before the age of 55, which leads to one of the highest values of the share of healthy life indicators, since many Russians, unfortunately, die before the onset of diseases that limit the capacity and significantly worsen the subjective health assessments. The current gap between the life expectancy of men and women equals to 10.6 years for the life expectancy at birth and 6.6 at 55 years. While the first indicator is slowly decreasing, life expectancy at 55 years remain stable, meaning that the reduction of mortality of man is happening mostly in the working-age (Federal State Statistics Service 2010; Federal State Statistics Service 2017).

Since the mortality tables cannot be estimated at the individual level, to calculate the fourth domain of the AAI at the individual level, life expectancy and the proportion of healthy life expectancy are taken as fixed values in order to preserve the original structure of the index. This methodological decision reduces the socio-demographic change of the individual values of the fourth domain, given that there are differences in life expectancy and health, related to the type of residence, education and income. In the previous work on the AAI on the individual level, the share of healthy life expectancy was substituted by the health self-esteem (Barslund et al. 2017), but this reduces the possibilities of using this indicator in socio-demographic variables. Thus the fixed macro-level gender values are preserved for these two indicators, which lead to certain underestimation of the inequality of the active ageing capital.

Two indicators that have the most significant effect on the fourth domain value are the level of education (above the secondary general) and the proportion of healthy life expectancy (fixed to the national level), which is associated with the peculiarities of the Russian mortality pattern (Fig. 11). The area that requires the most attention is the use of the Internet since only 29% of respondents reported using the network at least once a week. The latter indicator varies considerably depending on the age of the respondent (49.6%

Fig. 11 The value of the indicators of the fourth domain (individual-level data)

of people aged 55–59 years old and only 0.6% of the other), job availability (56.1% of working respondents and only 20.9% of non-working), education level (54.2% of people with higher education and 5.8% of those without secondary education), place of living (34.9% of older people in regional centres and 19.1% in villages).

At the individual level, the average value of the fourth domain equals to 51.9 points. The standard deviation is 12.5 points; the median is equal to the mean. Because of the peculiarity of the methodological approach (two fixed indicators), the minimum value of the fourth domain does not fall below 30 points, while the maximum is 75 points. The value of the domain varies depending on the subjective health status, employment, level of education, and age (Fig. 12). Place of living and marital status are not statistically significant. All indicators of the domain (except for fixed ones) have a weak

Fig. 12 The distribution of the values of the fourth domain of the AAI, depending on the respondents' socio-demographic characteristics (individual-level data)

positive correlation. The strongest correlations (at the level of 0.26) is observed between the education level and the Internet use.

Discussion and Conclusions

The research presented in this paper aimed to analyse the degree of the existing inequality in active ageing potential and to reveal defining factors behind it by estimating the Active Ageing Index (AAI) at the individual level supplied by the national-level context. The results show the significant variation of the AAI and its domains by the older peoples' age, sex and subjective health status. Health status has a statistically significant impact on the total score of active ageing while controlling such socio-demographic characteristics as age, employment status, gender, education level, marital status and place of living. In many cases, the education level correlates positively with engagement in different activities, and consequently, the index and its domains' values. Besides, we demonstrate the positive correlation between employment and engagement in other activities at the individual level. Surprisingly, the place of living correlates significantly with the values of only the first and third AAI domains. However, it can be a result of the contradictory relations between different indicators within domains with the place of living.

The most important factor differentiating the AAI at the individual level into two groups is employment. That is why we decided to analyse the data without information on the employment variable. The group with higher values of the AAI without employment includes more women, people with better health and better education, living in cities. To the contrary, the group with lower values of the AAI without employment includes more people with poor health, secondary general education or lower. The latter group should be a focus of policy attention.

The results of the project provide evidence for the implementation of policy measures in the target groups. The high correlation of the index values with human capital indicators (health and education) underlines the importance of the early interventions aimed at promoting and supporting human capital at the earlier stages of the life course till the old age. The substantial positive correlation of employment with other forms of activity as well as positive correlations of the latter with human capital variables stresses the importance of developing a package of activation policy measures aimed at the 50–55 age group to increase the likelihood of their active participation in all areas of active ageing while they become older. Furthermore, the weak positive correlation of the indicators of the AAI indicates the absence of a “dilemma of choice” between certain types of activity, for example, between caring for grandchildren and employment, or employment and volunteering. It proves the right balance for the index as a tool for monitoring the complex activity of the older generation. High dependence of the indicator values on age demonstrates the need to diversify policy measures depending on the age characteristics of older adults. Older people (70+ or 75+) have a higher probability of having lower values of the AAI and hence should be a target group of active ageing policies.

Besides, calculation of the individual values of the AAI could also be used for promotion of the active ageing principles for the general public. Being by the essence a questionnaire with yes/no answer options, it could be used as a personal checklist assessing the contribution of an individual to the realisation of his or her potential for the benefit of the society.

The comparison of the AAI values estimated for Russia with the EU countries allows revealing the strengths and weaknesses of the current situation with active ageing in Russia. The strengths of Russia in the context of realising the potential of the older citizens include the level of education of older adults, financial indicators and the engagement in family care, especially in childcare. To the contrary, the maximum potential for the development of active ageing today shows indicators of employment, volunteering, political engagement, physical activity, lifelong learning and the use of the Internet.

Both the individual and the national levels analyses indicate the importance of health improvement and increasing the life expectancy of older citizens in order to move Russia further in active ageing. Reducing health-related restrictions will create a solid basis for increasing the AAI in the first three domains, and vice versa, maintaining the current level of mortality and morbidity will reduce the effects of social policy.

An important factor that is not directly taken into account by the AAI, but significantly influences the activity of the older people in the social sphere, is the accessible and age-friendly environment, and in particular, the accessibility of transport, which allows maintaining social contacts, participating in public life and using infrastructure facilities without help. More active involvement of the older people in work, retraining and providing alternative job positions based on the needs and potential of this age group will not only have a positive effect on financial security but will also increase the level of realised potential in other areas (the third and fourth domains show a statistically significant relationship with employment).

We should also underline that the results of the calculation of the AAI for Russia are immensely relevant for monitoring the effectiveness of new and existing social policy measures aimed at improving the quality of life and increasing the activity of the older generation. The AAI indicators coincide with the objectives and directions set in the Strategy of Action for Older Citizens until 2025 and a new National Project on Demography (and its component – federal project Old Generation), and, hence, can be used to assess progress and identify areas requiring the attention of politicians and the society.

Given high interregional diversity of Russia, further research should be devoted to the regional studies. Although the analyses showed a weak or no significance of place of living, the hypothesis of the dependence of the index value on the region of residence should be checked in the following works. It would also highlight the most successful regions for the dissemination of their experience. Calculations of indicators for individual social groups may be of interest to both the academic community and politicians.

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Appendix

Table 4 The distribution of values of the AAI and the AAI without employment, depending on the age group and gender of respondents

		Gender	AAI without employment Mean	AAI Mean	Number of respondents
Age group	55–59	man	,50	,53	396
		woman	,54	,52	559
	60–64	man	,50	,45	332
		woman	,53	,46	555
	65–69	man	,49	,39	246
		woman	,51	,40	499
	70–74	man	,48	,38	127
		woman	,49	,37	265
	75–79	man	,45	,34	159
		woman	,46	,35	434
	80–84	man	,47	,34	57
		woman	,44	,32	176
	85+	man	,41	,30	39
		woman	,41	,29	130
	Total	man	,48	,43	1356
		woman	,50	,42	2618

Source: authors' calculations based on the RLMS-HSE 2017 data

Table 5 The results of the AAI on the national level for the EU 28 (2016) and Russia (2017)

Employment	Participation in Society	Independent, healthy and secure living	Capacity and enabling environment	Overall
Sweden (45,38)	Belgium (26,72)	Finland (80,19)	Sweden (71,09)	Sweden (47,19)
Estonia (44,50)	Netherlands (26,58)	Sweden (79,15)	Denmark (66,67)	Denmark (43,16)
Denmark (40,60)	France (26,43)	Netherlands (78,93)	Netherlands (64,31)	Netherlands (42,74)
Germany (39,38)	Sweden (26,21)	Denmark (78,69)	United Kingdom (63,64)	United Kingdom (41,26)
United Kingdom (39,25)	Luxembourg (23,83)	France (76,30)	Finland (63,27)	Finland (41,15)
Latvia (37,93)	Finland (22,77)	Austria (76,22)	Germany (63,04)	Germany (39,47)
Lithuania (37,90)	Denmark (22,13)	United Kingdom (75,53)	Ireland (62,82)	Ireland (39,13)
Netherlands (36,25)	Malta (21,14)	Luxembourg (75,27)	Belgium (62,03)	France (38,57)
Finland (35,73)	United Kingdom (20,68)	Slovenia (74,91)	Luxembourg (61,75)	Estonia (37,66)
Ireland (35,68)	Cyprus (19,49)	Germany (74,64)	France (61,48)	Belgium (37,48)
Czech Republic (34,23)	Ireland (18,98)	Ireland (74,44)	Austria (59,51)	Czech Republic (36,13)
Portugal (33,35)	Austria (18,87)	Belgium (73,92)	Spain (59,02)	Austria (35,63)
Cyprus (30,78)	Latvia (17,82)	Spain (71,78)	Malta (58,88)	Cyprus (35,54)
Bulgaria (30,50)	Italy (17,45)	Czech Republic (71,64)	Czech Republic (56,78)	Luxembourg (35,34)
Romania (28,88)	Croatia (16,18)	Malta (71,25)	Italy (56,39)	Latvia (35,02)
Italy (27,98)	Slovakia (16,18)	Hungary (70,77)	Bulgaria (54,86)	Malta (34,85)
Hungary (27,53)	Spain (16,16)	Cyprus (70,52)	Slovenia (54,74)	Italy (34,11)
Austria (27,15)	Czech Republic (16,10)	Italy (69,38)	Cyprus (54,49)	Spain (33,61)
France (26,85)	Germany (16,05)	Romania (68,78)	Portugal (53,33)	Lithuania (33,35)
Poland (26,48)	Slovenia (15,65)	Bulgaria (68,20)	Slovakia (52,33)	Portugal (33,33)
Slovakia (26,30)	Estonia (14,43)	Portugal (67,86)	Poland (51,72)	Slovakia (32,05)
Spain (25,65)	Romania (13,78)	Poland (67,18)	Estonia (51,68)	Bulgaria (31,88)
Russia (25,18)	Poland (13,09)	Slovakia (67,16)	Russia (51,42)	Slovenia (31,36)
Malta (24,43)	Russia (12,81)	Croatia (67,12)	Hungary (50,46)	Poland (30,91)
Belgium (23,80)	Portugal (12,03)	Estonia (66,96)	Greece (49,18)	Hungary (30,88)
Slovenia (21,28)	Greece (11,86)	Lithuania (65,48)	Latvia (49,14)	Romania (30,36)
Croatia (21,20)	Hungary (11,65)	Greece (64,58)	Croatia (48,39)	Russia (29,62)
Greece (20,58)	Lithuania (11,09)	Russia (60,46)	Lithuania (48,30)	Croatia (29,47)
Luxembourg (20,35)	Bulgaria (9,76)	Latvia (56,79)	Romania (42,79)	Greece (27,65)

Source: authors' calculations based on the UNECE data, available at <https://statswiki.unecce.org/display/AAI/IV.+Charts+and+tables>

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