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Wellbeing Assessment Yardstick: Evidence from the Elderly Wellbeing across Russian Subnational Macro-Regions

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Abstract

Although Russia manifests some dynamics in its national policy on ageing, it still lacks comprehensive tools for the older generation wellbeing assessment both on national and regional levels. This research work is an ongoing project aimed at the development of the composite index (composite indicator) to assess the elderly population wellbeing in Russia for cross-regional comparison to equip Russian policy-makers with an essential tool and relevant reliable data to facilitate the decision-making and policy design at national, regional and local levels. The paper discusses the possibility of selecting relevant data from the pool of the official state statistics indicators to assess the elderly generation's wellbeing in 85 regions of the Russian Federation by four index domains (economic, social, health and regional environment dimensions). Due to a high geographical and territorial heterogeneity, this index can be advised to be adopted as a potential tool to monitor wellbeing across Russian regions with the focus on policy development for macro-regions. This grouping of regions can minimize transaction costs of bargaining on behalf of the 85 regions while developing national policies and strategies. The paper employs the Russian Elderly Wellbeing Index (REWI) to compare calculation results for 2014 and 2016 as well as addresses the issue of elderly population wellbeing analysis on the meso level in the context of federal districts. The authors run cluster analysis for the REWI indicators to compare clusters of Russian regions and federal districts.

1 Introduction

The current interest to develop holistic wellbeing assessment scales has led to numerous evaluation approaches and measurement toolkits, specifically, for the elderly population. Although Russia manifests some dynamics in national policy on ageing, it still lacks comprehensive tools for the older generation's wellbeing assessment both on national and

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regional levels. This research work is an ongoing project aimed at the development of the composite index (composite indicator) to assess the elderly population's well-being in Russia for cross-regional comparison to equip Russian policy-makers with an essential tool and relevant reliable data to facilitate the decision-making and policy design at national, regional and local levels.

The paper employs the Russian Elderly Wellbeing Index (REWI) to compare calculation results for 2014 and 2016. The paper addresses the issue of elderly population wellbeing analysis on the meso level in the context of federal districts. The rationale for the study is that federal districts, as well as Russian subnational macro-regions, are commonly used as a reference for uniform socio-economic policy impact reports and targets for development initiatives and programs.

2 Literature Review

Despite the impressive number of papers on the topic, the problem of a clear definition of the term "wellbeing" is still very complicated due to the vagueness of the phenomenon and its different meanings for different people and cultures. Many models are describing the concept of happiness which is closely related to wellbeing (Costa and McCrae, 1980; Ryff and Keyes, 1995; Lyubomirsky et al., 2005; Veenhoven, 2009). The influence of some factors varies widely across countries. The level of happiness in the country on $^3/_4$ is determined by macro-social conditions (Veenhoven, 2015). Veenhoven also introduces an idea of happiness concept decomposition into three research levels (micro, meso and macro) and subsequent separate analysis of each level.

Research works offer a variety of models to assess the level of personal wellbeing. Evaluation of needs satisfaction was discussed in the works of Camfield and Guillen-Royo (2010), Diener et al. (2009). A list of needs basing on the ranking in the questionnaire is widely used as a method to determine the priority of needs (Bowling, 1995; Murrell et al., 1999; Bowling, 2001). The quality of life as another term closely related to the wellbeing concept should be measured through satisfaction levels of human needs (McKenna et al., 1999; Hyde et al., 2003). This model has been criticized by many researchers, who claim that the individual assessment of the quality of life is changing over time (Carr et al., 2001). This fact greatly complicates the longitudinal analysis of the phenomenon. However, if you build a quality of life assessment scale based on universal, unchanging needs (Maslow, 1954), such analysis can be carried out more efficiently. Ways to meet the needs may change, but the level of satisfaction is still possible to compare (Hyde et al., 2003). Costanza et al. (2007) address quality of life as a much-generalized concept that describes either the degree of needs satisfaction or the perception of individuals or groups of satisfaction/dissatisfaction with certain aspects of their lives. Such a fairly general interpretation is rather close or even overlaps the definition of wellbeing. Wellbeing could be understood as the satisfaction of needs (Church et al., 2013), the sum of positive and negative emotions (Kööts-Ausmees et al., 2013), the result of comparing ourselves with others (Diener et al., 2010), a character trait to perceive events more positively or negatively (Park et al, 2015), genetic predisposition (Okbay et al., 2016), the level of achievement of goals (Messersmith and Schulenberg, 2010) and so on.

Wellbeing is also assessed on the basis of objective statistical indicators and subjec-

tive evaluations of respondents (Alexandrova, 2005; Cummins, 2005; Easterlin, 2006; Kahneman and Krueger, 2006; Costanza et al., 2007). The first approach is characterized by quantitative socio-economic metrics that reflect the degree of satisfaction of the individual's needs. The second approach takes into account subjective assessments of happiness, pleasure, self-realization, etc. - subjective wellbeing (SWB) (Diener and Lucas, 2000; Easterlin, 2003). According to Costanza et al. (2007: 268), these so-called objective indicators only illustrate and reproduce those indicators of experiences that are revealed through the subjective associations of those individuals who undergo such experience and make decisions; therefore, the distinction between objective and subjective indicators is illusory enough. Hence, comprehensive assessments of wellbeing raise a question of objective indicators and subjective estimates combination. In this case, the concepts of happiness, life satisfaction, subjective wellbeing, quality of life, objective wellbeing could be located on one scale of assessments from more subjective to more objective ones. MacLeod (2015) brings to discussion the phenomenon of sobjectivity.

Depending on the approach to determine the wellbeing, different groups of factors are considered such as health, income level, religious beliefs, communication with family and friends, age, gender, education, etc. (Diener, 1994; Diener et al., 1999). Wellbeing must be considered at different levels - from national to personal (Veenhoven, 2015) since there are significant differences in terms of objectives, needs and resources both for the government and the individuals. Boarini et al. (2014) note that wellbeing is a multidimensional and interdisciplinary term, so the phenomenon should be evaluated in different dimensions.

The development of wellbeing studies of the old people went in parallel with the development and refinement of the very notion of the wellbeing of a person, which may include several components. Interest in comprehensive approaches to assess the quality of life and wellbeing is not accidental to the idea that this phenomenon cannot be described by one single indicator (Stiglitz et al. 2010; Tomlinson and Kelly 2013). Here, composite indices come to represent a set of indicators which are just and relevant for an adequate description of the phenomenon or the underlying construct.

Composite indices of wellbeing and methods for their calculation have arisen against the backdrop of a change in the methodological approaches to assessing social and economic progress in general. International composite indices assessing the elderly population's wellbeing are designed to tackle specific problems, highlighting the issues of mismatch and incompatibility of indicators in different countries at the macro level. Such indices often combine both objective indicators and subjective assessments as in two composite indices - the Active Ageing Index (AAI) and the Global Age Watch Index (GAWI). Despite the active development of world statistics and the availability of multiple international databases, it is crucial to draw attention to assessing the wellbeing of the old people at the national level. If calculations of the Active Ageing Index are based on the data from international databases in order to use the same sources for the index calculations across countries of the European Union, then the Global Age Watch Index is characterized by some fragmentation in the indicators presented in the index - in the absence of data in international statistics, the missing indicators are inputted from national statistics estimates to bridge the existing gaps in the data available.

Nowadays, Russia lacks comprehensive tools to assess the wellbeing of old people. Despite some progress on statistical monitoring, there is a gap in comprehensive longi-

tudinal studies covering simultaneously all Russian regions. Composite indices are often used to assess multidimensional constructs to monitor economical and innovative activity, quality of governance, university system performance, but it is not the case of the well-being of old people across diverse Russian regions. Potential comparability of the Active Ageing Index indicators to the official Russian statistics is discussed by Pavlova et al. (2016a) stressing that there is only a part of identical indicators in the Russian statistical databases which correspond to the original AAI methodology. The Global Age Watch Index is calculated for Russia as a whole entity with a very strong attribution to the pension system and providing a very approximate picture of the wellbeing of the old people. The Active Ageing Index was originally not calculated for Russia but has been computed on the basis of available data sourses (Varlamova et al., 2017).

3 Research Methods

3.1 Identifying Wellbeing of Older Persons as a Multifaceted Construct

We use systemic and institutional approaches to describe the concept of wellbeing as a comprehensive functional system of relations, which integrates specific values, attitudes and intentions both in economic and social systems. The authors of this study understand wellbeing as a degree of needs' satisfaction in four interrelated institutional spheres of two levels that include processes and institutions bound to satisfy the needs of the older generation: (1) individual wellbeing including economic, social and psychological (health) dimensions: (2) community wellbeing (regional environment). The economic sphere of wellbeing is understood as an opportunity and ability to satisfy basic needs for material and non-material goods. It is characterized by indicators of income, employment, the availability of subsidiary farming and property, the structure of consumption, the amount of savings, etc. For example, one of the main predictors of life satisfaction is the financial situation. Hsieh (2004) found that income per-capita is one of the strongest predictors of financial satisfaction of people aged 65 and above in the U.S. Ng and Diener (2014) claim that financial satisfaction is the strongest predictor of life evaluation.

The social sphere presupposes the satisfaction of the needs for social ties and interaction, social inclusion, etc. Social status has a major influence on ICT use for people of sixty years old and above (Ihm and Hsieh, 2015). The use of information and communications technologies may protect older adults against depressive symptoms thereby contributing to better wellbeing (Elliot et al., 2014). Support received from family and friends improves the wellbeing of adults aged 50 and above (Golubeva, 2012; Chen and Feeley, 2014). Thus, the wellbeing of the older generation depends to a large extent on the social component.

The physiological sphere is described by indicators of the state of health, physical activity and exercise, conditions for a healthy lifestyle, quality of nutrition, occupational diseases, etc. Satisfaction with life is largely determined by the state of health and vice versa. People in old age with serious illnesses report both increased levels of depression and decline of hedonic and eudemonic wellbeing (Steptoe et al., 2015). On the contrary, old people who experienced more positive than negative emotions in everyday life had

higher chances to live a longer life (Carstensen et al. 2011).

Finally, community wellbeing embraces the linkage between a good life and a good society and underlines the contribution to individual wellbeing (Wiseman and Brasher, 2008). Community wellbeing is represented how the government of different levels, usually regional and local ones, strengthen support and procure social services on the regional level. Community wellbeing is often responsible for the subjective experiences of the individual, perception of life and reality as well as the expectation of the future, etc. Openness and agreeableness are linked with positive emotions (in social and cognitive fields) and agreeableness leads to greater subjective wellbeing, greater positive affect whereas neuroticism is connected to lower levels of subjective wellbeing (Kahlbaugh and Huffman, 2017). Local community wellbeing assumes citizen engagement, community planning and evidence-based policy making (Cox et al., 2010). Community quality of life studies integrates objective and subjective indicators on standards of living, business services, participation, governance, social and physical environment, services and facilities provided (Forjaz et al., 2011). Overall, wellbeing can be researched both within the framework of one institutional sphere and at the intersection of different spheres as a multifaceted phenomenon.

Since, in our opinion, the systems concept serves the best for the analysis of this multidimensional phenomenon and rests on the following prerequisites:

- Wellbeing is a combination of objective and subjective economic and social criteria determined by a specific quality of life and characteristics socio-cultural environment deeply rooted within economic, social and cultural subsystems of a country or a territory.
- There are significant and important, often informal, support institutions for older adults such as social connections, networks, family, friends, neighborhood environment, etc.
- Any socio-economic system requires formal procurement institutions acting through institutionalized structures that are responsible for resource allocation (governmental and public organizations, the social welfare system, etc.).

3.2 Data Sources and Selection of Indicators

For the purpose of this study, authors employ the data of the Federal State Statistics Service of the Russian Federation (FSSS/Rosstat) available for the senior citizens (males 60+ and females 55+ as the official retirement age) for all 85 Russian regions, or political subjects acting as separate territorial entities (Table 1). The data retrieved for the study had to meet the criteria of being available open-source with the breakdown across all regions, ages and gender groups: available data from "The Older Generation" (official Rosstat's website), the Rosstat's official survey "Comprehensive monitoring of living conditions" (2014, 2016) and the Selective federal statistical observation on the use of information technologies and telecommunications networks.

Federal districts are chosen as the object of analysis since they are often used to refer to policies and development trends which could be common for the regions within the district, but at the same time, they are not officially considered as subjects for policy

development. Policies and programs are developed both on national (federal) and regional levels of governance within official administrative entities. Federal districts are groupings of federal subjects (oblasts, krais, republics, federal cities, etc.) with obviously similar characteristics and are used for the convenience of national governance and operation to manage resources, risks and addressing challenges.

Table 1: Federal districts of the Russian Federation

District	Number and list of regions	Population	Mean share of retired
Central	18 (Belgorod Oblast, Bryansk Oblast, Vladimir Oblast, Voronezh Oblast, Ivanovo Oblast, Kaluga Oblast, Kostroma Oblast, Kursk Oblast, Lipetsk Oblast, Moscow, Moscow Oblast, Oryol Oblast, Ryazan Oblast, Smolensk Oblast, Tambov Oblast, Tver Oblast, Tula Oblast)	39 209.6	27.2 (24.7–30.2)
Northwest	11 (Vologda Oblast, Kaliningrad Oblast, Republic of Karelia, Komi Republic, Leningrad Oblast, Murmansk Oblast, Nenets Autonomous Okrug, Novgorod Oblast, Pskov Oblast, Saint Petersburg)	13 899.3	26.2 (17.8–29.3)
Southern	8 (Republic of Adygea, Astrakhan Oblast, Volgograd Oblast, Republic of Kalmykia, Krasnodar Krai, Republic of Crimea, Rostov Oblast, Sevastopol)	16 428.5	26.2 (21.2–27.7)
N. Caucasian	7 (the Republic of Dagestan, Republic of Ingushetia, Kabardino-Balkar Republic, Karachay-Cherkess Republic, Republic of North Ossetia-Alania, Stavropol Krai, Chechen Republic)	9775.8	17.5 (10.0–24.0)

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District	Number and list of regions	Population	Mean share of retired
Volga	14 (Republic of Bashkortostan, Kirov Oblast, Mari El Republic, Republic of Mordovia, Nizhny Novgorod Oblast, Orenburg Oblast, Penza Oblast, Perm Krai, Samara Oblast, Saratov Oblast, Republic of Tatarstan, Udmurt Republic, Ulyanovsk Oblast, Chuvash Republic)	29 636.5	25.7 (23.4–29.1)
Ural	6 (Kurgan Oblast, Sverdlovsk Oblast, Tyumen Oblast, Khanty-Mansi Autonomous Okrug (Yugra), Chelyabinsk Oblast, Yamalo-Nenets Autonomous Okrug)	12 345.8	23.1 (10.8–28.5)
Siberian	12 (Altai Republic, Altai Krai, Republic of Buryatia, Zabaykalsky Krai, Irkutsk Oblast, Kemerovo Oblast, Krasnoyarsk Krai, Novosibirsk Oblast, Omsk Oblast, Tomsk Oblast, Tuva Republic, Republic of Khakassia)	19 326.2	23.4 (11.1–26.6)
Far Eastern	9 (Amur Oblast, Jewish Autonomous Oblast, Kamchatka Krai, Magadan Oblast, Primorsky Krai, Sakha Republic, Sakhalin Oblast, Khabarovsk Krai, Chukotka Autonomous Okrug)	6182.7	22.0 (13.9–24.3)
Russia, Total	85	146 804.4	25.0 (10.0-30.2)

Note: In the brackets we provide the range of the highest and lowest shares of pensioners/retired (60+ for men, 55+ for women) in the regions within the given federal district.
Source: Compiled by authors. Population statistics are taken from the FSSS.

3.3 Calculation of the Russian Elderly Wellbeing Index (REWI) for 2014 and 2016

Calculations of the REWI (see also Pavlova et al., 2018) were performed for 2014 and 2016 for all 85 Russian regions with the aggregation of the results in macro-regions – federal districts. Originally, the selected data sources provided good quality variables with almost no missing values. The panel data contained a few outliers for Moscow and some northern regions in economic and regional environment domains. See Table 2 with the indicators and domains of the composite index. A full description of all indicators is presented in the Appendix A. The outliers were corrected as for the second highest value for the variable in the sample. The correlation analysis shows that indicators within dimensions show moderate correlations to avoid statistical redundancy (Stern et al., 2018). For the normalization method we used the simplest method of rescaling the range of features to scale the range in the interval [0, 1] with x' as normalized value and x as the original value, the max (x) value is taken as the highest variable value within samplings as

$$x' = \frac{x - \min(x)}{\max(x) - \min(x)}$$

The aggregation procedure is based on the principle of no weight allocations to variables, indicators and domains. The aggregation is done as the mean value for each dimension. The calculation of the final index is done as the mean of all four domains. The main objective of this step is to calculate the composite index across several domains (index dimensions) to monitor dynamics in wellbeing indicators over time across all regions of the Russian Federation. Correlation analysis was performed with IBM SPSS Statistics (PASW Statistics 18.0.0), normalization and aggregation procedures were conducted in Microsoft Excel.

3.4 Cluster Analysis of the Russian Elderly Wellbeing Index

Cluster analysis aims at checking the underlying structure of the data to identify groups of regions of the Russian Federation that are statistically similar. Cluster analysis is a tool to classify large amounts of information into manageable sets, i.e. to determine subgroups in a multidimensional construct (Joint Research Centre-European Commission, 2008). Cluster analysis (hierarchical cluster analysis, between-groups linkages, squared Euclidean distance) was performed with IBM SPSS Statistics software for 2016 in two steps: (1) for all indicators of each domain of four domains separately of the REWI; (2) for four domains of the REWI together. The main objective of this step is to compare the results of cluster analysis with Russian federal districts.

4 Results and Discussion

4.1 REWI Calculations Analysis

For Russia, there is a problem in terms of systemic monitoring and evaluation of the elderly population wellbeing. Our previous study shows that the country lacks the scope

Table 2: Dimensions of the Russian Elderly Wellbeing Index

Economic	Social	Health
1.1 The real size of pensions	2.1 The educational level of pensioners	3.1 Life expectancy in old age
1.2 The ratio of the average size of pensions to the subsistence minimum	2.2 Help from children living separately	3.2 Opportunity to be engaged in sports activities or physical exercises
1.3 The employment rate above the working age	2.3 Use of the Internet	3.3 Self-assessed health
1.4 Any paid work (natural or money form) or any employment over the past week	2.4 Membership in voluntary organizations	3.4 Self-reported absence of chronic diseases
1.5 Satisfaction with the job	2.5 Engagement in recreational, entertaining and leisure activities	3.5 Self-reported absence of bad habits (smoking and drinking abuse)
Regional environment		
4.1 Self-assessed household's living conditions 4.2 Accessibility of social support institutions 4.3 Availability of social benefits (government support transfers for senior citizens categories) 4.4 Satisfaction with the place of residence 4.5 Self-reported absence of problems in the residential area 4.6 Self-reported absence of problems in medical services availability		

Source: Compiled by authors.

of data collection on many indicators, comparable with those of foreign countries (Pavlova et al., 2016b). The longitudinal studies are rather limited and do not cover the entire Russian territory. The monitoring of the elderly population's quality of life and wellbeing is relatively recent for Russia, sometimes, it is still impossible to trace the dynamics for most of the indicators for significantly lengthy periods. Originally, authors have selected 15 domains to cover with the indicators from the literature, later diminishing the domains sample to 4 sub-indices. The index includes four dimensions (domains): (1) economic, (2) social, (3) health and (4) community wellbeing (regional environment and government procurement domain) with a total of 21 indicators. The holistic approach employed by the authors suggests that the first three groups of indicators assess the wellbeing of an older person on the individual level. Indicators falling within the fourth dimension assess the community wellbeing and quality of life in the region and public support system in a broad sense for senior citizens on the regional level, governmental support included.

Many valuable indicators, which are important and relevant for understanding wellbeing of the old persons, were eliminated from the study due to non-existent data with

Table 3: Summary statistics for each normalised indicator by dimension

Indicator	M	SD
1.1 The real size of pensions	0.6119	0.1941
1.2 The ratio of the average size of pensions to the subsistence minimum	0.6086	0.2141
1.3 The employment rate above the working age	0.3912	0.1341
1.4 Any paid work (natural or money form) or any employment over the past week	0.3095	0.1454
1.5 Satisfaction with the job	0.6725	0.1753
REWI-2016 Economic	0.5187	0.0584
2.1 The educational level of pensioners	0.4196	0.1498
2.2 Help from children living separately	0.4926	0.1636
2.3 Use of the Internet	0.5985	0.1854
2.4 Membership in voluntary organizations	0.2960	0.1775
2.5 Engagement in recreational, entertaining and other leisure activities	0.4421	0.1928
REWI-2016 Social	0.4498	0.0905
3.1 Life expectancy in old age	0.3442	0.1260
3.2 Opportunity to be engaged in sports activities or physical exercises	0.4034	0.2200
3.3 Self-assessed health	0.4026	0.1976
3.4 Self-reported absence of chronic diseases	0.3007	0.1565
3.5 Self-reported absence of bad habits (smoking and drinking abuse)	0.4283	0.1354
REWI-2016 Health	0.3759	0.0735
4.1 Self-assessed household's living conditions	0.7376	0.1645
4.2 Accessibility of social support institutions	0.2809	0.1580
4.3 Availability of social benefits (government support transfers for senior citizens categories)	0.0722	0.1412
4.4 Satisfaction with the place of residence	0.8306	0.1522
4.5 Self-reported absence of problems in the residential area	0.4986	0.1888
4.6 Self-reported absence of problems in medical services availability	0.6221	0.1683
REWI-2016 Regional environment	0.5070	0.0703
REWI-2016 Total	0.4628	0.0423

Source: Compiled by authors.

the breakdown across all Russian regions or low response rates in some regions for some initially selected variables. The REWI employs the available empirical data with regional distribution for the senior age group, including (1) objective indicators ("Older Generation" Section of the FSSS website as well as some statistical monitoring forms on the ICT use), (2) subjective indicators from the Rosstat's survey "Comprehensive monitoring of living condition". The latter one was conducted in 2011, 2014, 2016 with the REWI calculated for 2014 and 2016. The results for these two periods basically do not show changes in the ranking positions of Russian regions and federal districts overall. The result's report leading and lagging regions for the calculations performed for 2014 and 2016 with minor changes in ranking positions of the territorial entities. At the same time, in 2016, there is a slight positive dynamics in economic and social domains with a significant decrease in values across the health and regional environment domains (Table 4). These opposite tendencies could be partially explained by the structure of domains - those with more subjective indicators tend to be more sensitive to changes over time (health and regional environment dimensions). Those with more objective indicators (economic and social domains) tend to be more robust over time. Despite the fact that there is a positive trend in the evolution of policy in the field of social services for older citizens of Russia (Grigoryeva and Sidorenko, 2019), still, it cannot counteract a negative trend in subjective assessments that intuitively capture the trend of decreasing standards of living and quality of life of the elderly population in Russia due to worsening economic conditions. For full table with the calculation scores across all the regions and domains see Appendix B.

Given the spatial differentiation of Russian regions, it is impossible to conclude the wellbeing of the older generation only based on the average data for Russia presented by two composite indices - Active Ageing Index and Global AgeWatch Index. To date, there is no other than REWI composite indicator assessing the wellbeing of the older generation across Russian regions. The closest tool applied to measure the quality of life in Russian regions is the RIA Rating Quality-of-Life Index (RIA Rating, 2017), but it is not calculated with the breakdown for the age groups and does not have an open methodology for calculation. A similar situation is with the UN Human Development Index, which is calculated for Russian regions, but not for specific age groups (Bobylev and Grigor'ev, 2016). Quite common for Russia are studies of the dynamics of the quality of life for the entire country with the composite index such as in Kislitsyna (2017) for the period from 2000 to 2014 aggregating ten main aspects of life quality without regional breakdown. Sadly, the author also reports insufficient available data. Even for the REWI, it is impossible to decompose gender groups across all the regions due to limited data or to split the senior group into smaller age groups, e.g. 55-60, 60-65, 65-72, 72+. This decomposition can be done only for a limited selected set of variables.

According to Moldan and Dahl (2007), ideal composite indicators are more an exception than a rule, therefore, the development of such indices implies a methodological compromise between technical feasibility, availability of public information and system coherence. Obviously, a set of indicators cannot describe all the processes, therefore, it is important to enhance characteristics based on a systematic approach to the selection of indicators (Ciegis et al., 2009). Rosen (1991) indicates that composite indices are very similar to mathematical or computational models; their development is more associated with the mastery of the fashion designer than with the generally accepted scientific development rules - when developing models, the rationale for a composite indicator is deter-

Table 4: REWI scores for federal districts in 2016 and absolute change in scores in comparison with 2014

Federal district	Economic	Social	Health	Regional environment	REWI total
Northwest	50.6	58.5	39.3	54.1	202.4
Volga	56.5	43.3	41.8	52.7	194.2
Central	51.6	49.1	34.4	56.7	191.8
Ural	50.8	47.2	38.5	52.5	189.0
Russian Federation, average	51.0	45.9	38.0	53.0	188.0
Southern	52.6	44.2	39.0	49.5	185.3
North Caucasian	49.9	36.9	43.0	47.6	177.4
Siberian	50.9	39.8	36.5	47.6	174.7
Far Eastern	46.2	45.4	34.6	47.0	173.2
Absolute change in 2016 compared to 2014					
Northwest	−1.6	5.0	−5.5	−0.6	−2.7
Volga	3.6	−1.1	1.5	2.0	5.9
Central	0.6	3.1	−7.0	−10.6	−13.8
Ural	−2.7	2.4	−6.2	−6.7	−13.2
Russian Federation, average	1.1	2.4	−5.4	−4.2	−6.1
Southern	7.3	2.3	−5.5	0.5	4.7
North Caucasian	−0.5	−3.3	−3.4	−5.4	−12.6
Siberian	1.3	−1.6	−3.3	−2.2	−5.7
Far Eastern	−3.1	12.2	−13.6	1.4	−3.0

Note: For the purpose of the better results visualization, the values represent the scale of the calculated value multiplied by 100. Also, the total score of the index is calculated as the sum of values across all the domains to assess the absolute cumulated change in the final values for 2016 in comparison with 2014.
Source: Compiled by authors.

mined by its purpose and by the recognition of its colleagues. To capture the complexity of the phenomenon being analyzed, it is important that the sub-indexes (or measurements) transmit different (and possibly unrelated) information - each sub-index should be (statistically) independent of each other. Such a complex hierarchical structure contributes to the user's understanding of the driving forces behind the composite indicator (Santeramo, 2015: 65).

In our opinion, the methodological basis for the REWI has to be a needs-driven approach considering the specifics of the socio-economic development of the country. Here, it is of high importance not only because of the ability to aggregate heterogeneous but relevant indicators into a comprehensive assessment scale based on a single methodology, but also considering non-exclusion of a country's territories from the comparison due to lack of data.

The REWI is partially capable to assess active ageing, since among 22 indicators across 4 Active Ageing Index domains, 10 indicators rather correspond to the REWI indi-

cators, 4 indicators correspond partially and only 8 indicators do not match those included in the REWI structure. The REWI can serve as a proxy and enhance the approach to the evaluation of active ageing based on the possibilities of official Russian statistics. This composite index could be considered as a national indicator to measure elderly population wellbeing and to assess qualitative changes within the country in terms of dynamics. The REWI calculation results manifest the index to be a positive model describing the situation across the regions, but it can help to develop recommendations in terms of (1) expanding the approach to the old age population wellbeing evaluation, (2) developing social policy in the field of active ageing serving ad hoc as a normative model for further policy improvement.

4.2 Cluster Analysis

As a result of the regions clustering it became quite obvious that clusters basically do not correspond to the federal districts, which in their turn are commonly used as reference macro-regions for socio-economic support and development initiatives. For dendrograms of clustering the regions on four index dimensions separately see Appendix C. Clusters with indicators of economic and social domain manifest no correspondence with federal districts' boundaries, being widely scattered across the entire national territory landscape. Clusters of health domain are being more territory-prone showing more similarities in neighboring regions in territorial and spatial aspects, but still, do not coincide with federal districts as macro-regions boundaries. Some regions tend to form very little unique clusters, namely 1-4 regions, but they are far from being conventional for Russia "one-standing region" cluster such as Moscow or St. Petersburg. Such a typical understanding of Moscow and St. Petersburg as unique territories is due to a significant concentration of financial resources and urbanization trends and, therefore, considerable opportunities for socio-economic initiatives and programs implementation. In our case, these little clusters are Caucasus regions (Chechen Republic, Republic of Ingushetia) or northern quite remote regions (Chukotka Autonomous Okrug, Khanty-Mansi Autonomous Okrug (Yugra), Magadan Oblast), which do not join other clusters in case of setting a smaller number of clusters in clustering iteration procedure. This result of quite a significant heterogeneity of Russian regions is confirmed by Zubarevich (2017).

The economic dimension, when analysed separately, is the most diverse among other domains. It forms 22 clusters with 5 clusters including 10-15 regions with the rest forming clusters of 1-3 regions. This diverse breakdown could be attributed to a very diverse economic structure of the regions with significantly differing economic, manufacturing, climate conditions. Traditionally, Russia is characterized by a very pronounced inequality with richer "regions-donor", which are basic contributors to the national budget, and poorer "regions-recipients", which usually strive for federal allocations. This economically diverse structure is also due to the location of mining and processing industries.

The social dimension is clustered in totally 7 clusters with 3 large (include the majority of the regions) and 4 small (1-4 regions, including Caucasus regions, Saint Petersburg and some poor "regions-recipients"). The homogeneity of the first three clusters including most of the Russian regions could be attributed to basically similar social conditions across Russian regions: traditionally high educational level, informal family support, similar recreational opportunities. Differences between clusters can be explained by place of

living (urban or rural area), population density, culture, beliefs and traditions of different ethnicities, which are extremely rich and diverse across Russian regions.

The health dimension forms 6 clusters with most of the regions falling just within one single cluster. The rest five clusters (1-3 regions) reiterate the same pattern of "standing-alone" Moscow, St. Petersburg, Caucasus regions. Caucasus regions have always been known for better health status and living habits. Moscow and St. Petersburg possess more resources in healthcare and social support. One of the key characteristics of the health dimension is the excess male mortality which shapes the sex structure of older populations - Russia exhibits the widest gap among post-Soviet countries in the sex ratios in the two older population groups with the lowest ratio figures in Russia being 55:100 at age 60+ and 33:100 at age 80+ (Sidorenko, 2016). A universal homogeneity of the first cluster could be explained by exhibiting some differences in self-assessed health than it could be in reality. Indicators of self-rated health focus on the individual's perception of health and despite being often used as a proxy for independent "objective" measurements of health outcomes, it is vulnerable to bias from a socially desirable/prescribed response set (Kravchenko et al., 2015).

The fourth dimension, namely, regional environment, forms 5 clusters with 2 large (most of the regions) and 3 small (2-4 regions). Three small clusters include Moscow, St. Petersburg and northern regions. This could be explained by significantly varying financial resources allocated to regions and municipalities. The available operational budget for regional governments is limited, therefore, programs and initiatives for sustaining and improving standards of living and quality of life in the regions are also very scarce. For example, some social support variables in Moscow show the values which are 30 times higher than on average across other regions.

At the same time, aggregate numbers (clusters for the REWI final scores) become quite approximate with smoothing the difference between all the four dimensions of the composite indicator. The four sub-indices ranking tables and clusters of regions across four domains have their leaders and laggards which do not follow the same pattern with mostly fuzzy cluster borders. For the list and the dendrogram of REWI's clusters see Appendix D. The overall REWI clusters follow the same patterns as it was described above with 2 large clusters (12 and 14 regions) and small clusters (1-4 regions). Large stable and consistent clusters include regions of the central part of Russia (to the south and east from Moscow) as well as southern regions all along the southern country's borders. Here, one cluster can contain regions from central Russia and Siberian and Far Eastern federal districts, their southern regions. We assume that these clusters are more prone to climate zones and spatial planning as they are rather splitting into "north-south" and "central-periphery/national borderline" territories.

Russian macro-regions as federal districts do not correspond to the clusters generated during the study. One federal district can contain regions from different clusters and even neighboring regions can belong to different clusters due to quite significant economic and social heterogeneity. Being formed in 2000 as enlarged operational entities, federal districts almost from the most beginning raised an arguable question of reducing the flexibility of operational control and controversy over better operational governance (Petrov, 2002). Hence, the uniform social policy will not turn to be effective and efficient since even neighboring regions require different approaches to tackle economic, social, health challenges. Issues of standards of living, social support and quality of life should be

targeted specifically in each region separately.

5 Conclusion and Policy Implications

The structure of the REWI, on one hand, is well-balanced due to the adoption of the systems approach in the course of the index design. On the other hand, the selection of the indicators was limited due to (1) non-existing data on some crucial wellbeing indicators which are included in the monitoring in other countries, (2) lack of available data of national scope with the breakdown of all Russian regions, (3) low response rate in some regions for some initially selected variables.

The four domains can serve as independent sub-indices for monitoring and evaluating relevant processes in the regions. The results are calculated for the age group females 55+ and males 60+ across all 85 subjects of the Russian Federation. A certain mismatch of dynamics of objective and subjective assessments could serve as an explanatory factor for a significant decrease in the results calculated for 2016 across the regional environment and government procurement domain. A certain limitation of the study is its reproducibility. First, the pension reform introduced in 2018 in Russia assumes a gradual increase in retirement age up to 60 years for females and 65 years for males by 2024. The statistical adjustment of the forms and publication of open-source data lags behind legislative changes. Therefore, the calculation of the REWI will also need retrospective reconsiderations to adjust the assessment tool to the new legislation retirement age. Also, the index calculation was initially aimed at the national statistical data available. Hence, the reproducibility of the study for other countries would be limited to the framework of indicators and dimensions, because it will be required to reconsider sources in terms of identical, similar and alternative indicators.

Due to a high geographical and territorial heterogeneity, the REWI can be advised to be adopted as a potential tool for elderly population monitoring across Russian regions with the focus on policy development regions at the meso level (federal districts or groups of regions sharing common traits). This grouping can minimize transaction costs of bargaining on behalf of the 85 regions while developing national policies and strategies. Here, this approach would join together Russian political subdivisions basing on similarity criteria for climate, demographic and socio-economic characteristics. Being territorially delineated as subjects of the Russian Federation (political division), macroregions, as a rule, are accidentally considered to be homogeneous inside by an essential set of characteristics. At the same time, clustering across various sub-indices data shows that official federal districts are extremely heterogeneous inside according to numerous criteria.

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