

# Increasing employment of the elderly population for sustainable demographic development of the region

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**Abstract.** Russia, like a number of other countries, is experiencing a process of population aging, which is leading to an increased role in the employment of the older generation, while at the same time, employers have a negative perception of their labor potential. The article is devoted to substantiating the hypothesis that employment of older people is an important factor in demographic development. The object of the study is North Ossetia as a typical region of Russia with a worsening demographic situation and tension in the labor market. The work used methods of statistical and graphical analysis, the "resume test" method. The problem of discrimination in hiring workers of pre-retirement age. It has been shown that limited opportunities in the labor market for the older generation lead to a decrease in the level and quality of life, and degradation of human potential. Conclusions are drawn about a decrease in the efficiency of the regional labor market in terms of employment of the elderly. Recommendations are offered to regional bodies of state regulation of the economy on the institutional prevention of the practice of age discrimination among employees; development of flexible part-time employment models; organization of continuous professional training and advanced training.

## 1 Introduction

With economic growth and dynamic progress, life expectancy increases, the birth rate increases, and the population age structure changes towards an increase in the share of elderly in the total population. According to the UN, the world population aged 60 years and over numbered 600 million in 2000, almost tripled from 205 million in 1950; in 2019, the older population exceeded 1 billion, and by 2050 will be more than 2 billion people. This nation's population of people aged 80 and over will triple, from 157 million in 2022 to 459 million in 2050. The share of the working age population (from 15 to 64 years old) of the global population reached its peak in 2014, when it was 65.58%, after which it has been steadily declining, reaching 64.9% in 2022.

The aging of the world's population is changing society and the economy as a whole. Assessing the main negative economic consequences of aging, many authors, for example,

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D.E.Bloom and D.L. Luca, attribute an increase in the burden on the pension system, an increase in health care costs, a reduction in the workforce, a possible decrease in labor productivity and the pace of technological progress [1]. At the same time, many recent studies have noted an increase in the human capital of older people, an improvement in their health indicators [2]. And according to the estimates of the Organization for Economic Cooperation and Development (OECD), measures such as the formation of a multi-generational workforce and providing older workers with more work opportunities can ensure an increase in gross domestic product per capita by 19% in the next thirty years.

However, the question remains, under what conditions in developing economies the growth of the share of older workers will have a positive impact on the economy. Using the example of Russia, R. Kapelyushnikov shows that an increase in the employment of the elderly to compensate for the reduction in the labor force caused by aging is possible with the simultaneous expansion of the supply of labor for the elderly and the demand for their labor and the convergence of the sectoral and professional structure of supply and demand [3].

Due to the rather rapid transition to an aging society, the very idea of the social exclusion of the elderly from social and economic processes is controversial today not only in Russian, but also in foreign science [4], [5], [6], [7], [8], [9], [10]. At the same time, it is becoming increasingly obvious that with retirement, only a person's income is significantly reduced, the rest of his resources can, at least, remain unchanged.

I.V. Timakov assessed the influence of the health factor on the labor supply, the nature of employment and labor income in the pre-retirement and retirement age (from 50 to 72 years) in the Republic of Karelia by the method of a sociological survey. According to the results obtained, only one in six respondents explains their withdrawal from the labor market with health problems [11].

The aging of the Russian population brings a number of challenges related to the modernization of social institutions of pension provision, social insurance, social care, and above all, employment institutions, because as O.D.Vorobeva, G.V.Nioradze, R. Kapelyushnikov, V.D. Roik rightly write, demographic aging leads to an increased role of the older generation in the Russian economy [3], [5], and the rapidly aging Russian society cannot afford to exclude older people from the labor market [12]. In their study V.G. Dobrokhleb and V.N. Barsukov shows that the reasons for the employment of the elderly in Russia, on the one hand, is the low level of pensions, on the other hand, motivation for self-realization, including in the labor market [13]. One way or another, the study of employment of older age groups suggests a systematic approach aimed at improving the efficiency of the labor market [14].

In our opinion, effective employment is the employment of the population that provides a decent income, professional development and orientation to healthy longevity, therefore, the achievement of effective employment of the population reflects the essence of human development.

In modern Russian science, the terms "demographic development" and "human development" are widely used. However, no answers have yet been found to such issues as: a) what are the identities and differences in these concepts; b) what is the relationship between human and demographic development, in particular, does the demographic state of society characterize the overall level of human development, or vice versa; c) what should be understood by the criteria of human and demographic development in the context of approaches to the study of employment.

According to the concept of human development, society is considered not as a means of economic growth, but as a goal of development, that is, a person is placed at the center of the theory of social development. It is known that for the first time such an understanding of development was proposed by a group of UN experts and outlined in the 1990 Global Human

Development Report. In the "Human Development Report 2022" it is noted that human development is a global goal of any modern socially oriented society, in the most general form it is defined "as a process of growth of human capabilities in the interests of man and by man's own efforts, which is ensured by political freedom, human rights, public respect for the individual, a healthy environment" [15, p. 17]. The problem of human development is especially relevant in crisis conditions, therefore, in modern Russia, experiencing military-political and socio-economic crises, this problem is very acute, and its solution involves a systematic approach.

The purpose of this work is to study the peculiarities of employment of the elderly population and to develop measures to improve the efficiency of the labor market for the demographic development of the region on the example of the Republic of North Ossetia-Alania (NOR), as a typical subject of the Russian Federation with chronic tension in the labor market and a deteriorating demographic situation.

## **2 Materials and Methods**

To study the employment of the population of older age groups, the official data of Rosstat were used in the work. In particular, these are data from the collections "Labor force, employment and unemployment in Russia", "Results of a sample survey of the workforce", "Demographic Yearbook of Russia", "Demographics/Population", as well as data from sociological research.

The work also uses the well-known method of assessing age discrimination "resume test", which gives high accuracy results in such mass professions as salesman, secretary, accountant, manager and some others. The choice of this method is due to three reasons. Firstly, the sample size for obtaining reliable results and the possibility of regression analysis can be both large and relatively small, although mass professions are being studied. Secondly, this method does not imply requirements for good physical fitness of the candidate for the position; in jobs requiring physical endurance, the productivity of an older employee is likely to be lower than that of a younger employee, which means that the difference in responses can be explained by this, and not discrimination. Thirdly, the career ladder in the studied jobs is usually low.

We understand the possibilities of effective elderly employment as the embodiment of human development concept. At the same time, effective employment is understood as providing labor productivity and decent income based on the growth of the educational and professional level of employees and healthy working conditions.

From our point of view, labor is a system-forming factor of human development. It is the use of this methodological approach that gives a chance to develop practical characteristics of human development in the conditions of an aging world population. And that there is such a need is evidenced, in particular, by regular attempts by the UN to expand the range of indicators [15], the study of which can produce an integrated index that more fully reflects the state of human development.

## **3 Results**

The phenomenon of aging is global, but its speed and intensity vary in different States. According to the Beaujeu-Garnier-Rosset scale, Russia belongs to countries with an old population; as a result of the constant complication of the demographic situation, the ratio of the three main age groups of the population has been rapidly deteriorating in Russia for many years: younger than working age, working age and older than working age. For example, by the time of the All-Union Population Census of 1989 the ratio of the main age groups was:

younger than working age – 24.5%, working age – 60.1%, retirement age – 15.3% of the total population of the country. This was quite a progressive age structure, taking into account the fact that retirement for women was at 55 years old, and certain categories of workers had a preferential retirement regime at 50-55 years. However, in the future, the demographic structure of Russia was rapidly deformed in 2021. It looked much worse: the share of the population younger than the working age decreased to 18.9%, the working age – 55.7%, and the share of the population of retirement age increased to 25.3%. According to the average version of the demographic forecast of Rosstat, by 2036 the share of the population over the age of able-bodied will reach 30.1% of the total population.

Such a regressive deformation of the age structure of the population occurred in the absolute majority of the subjects of the Russian Federation. This negative process occurs especially quickly in regions with a difficult demographic situation, which includes the Republic of North Ossetia-Alania. As can be seen from Table 1, there is a decrease in the population in the region, and since 2016, the intensity of population decline has been steadily increasing. Population decline occurs both due to natural population decline and due to mechanical (migration) population loss.

**Table 1.** Change in the population of the Republic of North Ossetia-Alania due to natural and migration growth in 2010-2020.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Population growth per year; B %	0.1	-0.5	-0.4	-0.3	0.2	-0.2	-0.1	-0.2	-0.4	-0.3	-0.5	-0.7
Rate of natural increase of population per 1000 population	3.6	3.7	4.7	4.8	4.6	3.9	3.7	2.5	2.9	2.0	-0.5	-2.5
Migration growth rate per 10000 population	-25	-86	-87	-78	-28	-61	-43	-47	-64	-54	-49	-47

Source: official website of Rosstat. Demographics/Population, <https://rosstat.gov.ru/folder/13877>

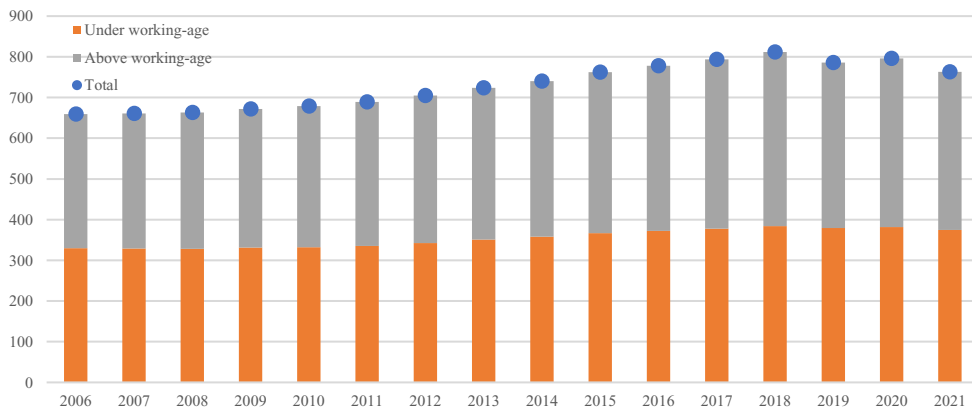
The decline of North Ossetia population is accompanied by a deterioration in its structure, the analysis of which shows that over the period 1989-2021 the share of under working-age population decreased by 12.8%, the number of working-age population increased by 10.1%, and the share of the older population increased by 41.6% (Table 2).

**Table 2.** Number and structure of the population of the Republic of North Ossetia-Alania by main age groups in 1989-2021.

	1989	2002	2010	2015	2021
Population, thousand people	632.4	709.0	713.0	705.3	693.1
including by age groups					
males and females 0-15	169.0	151.7	140.9	145.0	147.3
males 16-60, females 16-55	350.5	412.7	425.2	405.4	385.9
males 61 and over, females 56 and over	112.9	144.6	146.9	154.9	159.9
Share of age groups in total population size, percent					
males and females 0-15	26.7	21.4	19.8	20.5	21.2
males 16-60, females 16-55	55.4	58.2	59.6	57.5	55.7
males 61 and over, females 56 and over	17.9	20.4	20.6	22.0	23.1

Sources: Age composition and marital status of the population of the North Ossetian Autonomous Soviet Socialist Republic. (According to the All-Union Population Census). Ordzhonikidze 1990 Demographic Yearbook of Russia. Demographic Yearbook of Russia. [https://gks.ru/bgd/regl/B21\\_16/Main.htm](https://gks.ru/bgd/regl/B21_16/Main.htm)

As can be seen from Fig.1, by the beginning of 2022 in North Ossetia, the coefficient of the total demographic load was equal to 763, and it is better compared to national one. The problem is that this indicator has increased markedly over the period 2006-2021, and the working age population has become more loaded with the elderly population, rather than the younger generation: the growth of the total demographic load coefficient was 15.8%, for people younger than working age, the demographic load coefficient increased by 13.6%, and for people older than working age – by 17.9%.



**Fig. 1.** Dynamics of demographic load in Republic of North Ossetia-Alania in 2006-2021.  
 Source: official website of Rosstat. Demographics/Population/Older Generation.  
<https://rosstat.gov.ru/folder/13877>; Demographic Yearbook of Russia.  
[https://gks.ru/bgd/regl/B21\\_16/Main.htm](https://gks.ru/bgd/regl/B21_16/Main.htm)

From the point of view of demographic development and labor replacement in the future, a regressive population structure is developing in NOR, and by 2030 every fourth resident of the region will belong to the older generation. At the same time, the observed general aging of the population, an increase in the demographic burden of the population of older age groups and an increase in the life expectancy of the elderly population in NOR do not lead to the expected increase in employment. On the contrary, as can be seen from Table 3, the level of their employment for 5 years decreased by 10.3% (from 32% in 2018 to 21.7% in 2022), the level of registered unemployment, reflecting the share of people ready to start work, increased by 1.8 times (from 4.5% in 2018 to 8.3% in 2022), and the average job search time in 2022 was 12.1 months compared to 7.8 months in 2018.

The deterioration of the situation in the labor market for older age groups occurred in Russia as a whole, however, the drop in indicators in North Ossetia is much deeper, and despite a higher level of employment (21.7% in the region versus 18.2% on average in Russia), the unemployment rate was 3.8 times higher (8.3% in the region versus 2.2% on average in Russia), almost twice as long and the time of job search (Table 3).

**Table 3.** Indicators characterizing the employment of the population over working age in the Russian Federation and the Republic of North Ossetia-Alania in 2018-2022, in %

	2018			2019			2020			2021			2022		
	Employment level	Unemployment rate	Average time to find a job, months	Employment level	Unemployment rate	Average time to find a job, months	Employment level	Unemployment rate	Average time to find a job, months	Employment level	Unemployment rate	Average time to find a job, months	Employment level	Unemployment rate	Average time to find a job, months
Russia	20.8	2.8	8.4	21.3	2.4	7.9	20.0	2.7	7.1	18.5	2.5	7.8	18.2	2.2	6.7

NOR	32.	4.	7.	24.	4.	11.	18.	9.	8.	20.	13.	10.	21.	8.	12.
	0	5	8	6	3	8	5	1	3	4	9	4	7	3	1

Source: official website of Rosstat. Demographics/Population/Older Generation. <https://rosstat.gov.ru/folder/13877>; Results of a labor force sample survey. <https://rosstat.gov.ru/compendium/document/13265>

It should be noted that the length of work experience of employees older than working age is also changing. As can be seen from the Table 4, since 2011, the share of working pensioners has been decreasing, which is partly due to an increase in the retirement pension threshold, but to a greater extent to the situation on the labor market (Table 3). In addition, the average number of years of work duration after retirement has increased by 1.5 years, in 2022 it amounted to 7.5 years (Table 4).

**Table 4.** Length of work experience after the assignment of a pension by age of assignment and type of assigned pension in 2011-2022, in%

	2011	2016	2018	2020	2022
Pensioners – total	100	100	100	100	100
including:					
working pensioners	23	22,3	22,1	20	17,8
of them with work experience after receiving a pension					
from 1 year to 4 years	9,5	9	9,3	5,9	6,0
from 5 years to 9 years	6,6	6,2	6	5,7	6,1
from 10 years to 14 years	2,7	2,9	2,9	2,6	2,8
15 years or more	2	1,8	1,9	1,7	1,7
Average number of years of labor activity (work experience) after receiving a pension	6	6,3	6,51	7,02	7,47

Source: official website of Rosstat. Demographics/Population/Older Generation. <https://rosstat.gov.ru/folder/13877>; Results of a labor force sample survey. <https://rosstat.gov.ru/compendium/document/13265>

Obviously, the decline in employment of older workers is caused not so much by demographic problems as by a decrease in the efficiency of the functioning of the regional labor market, as evidenced by the deterioration of employment indicators (Table 3), a decrease in the level of participation in the workforce, high dynamics of the population outside the workforce (Table 5), as well as a high proportion of older people in it (Table 6 and Table 7).

As can be seen from Table 5, with a general decrease in the population of the region by 623.6 thousand people, or by 8.8%, the number of people who are not part of the labor force increased by 68.8 thousand people, or by 39.2%, and their share increased from 24.6% in 2008 to 35.5% in 2021., and it is expected that the level of labor force participation decreased by 11.1% from 67.3% in 2008 to 56.2% in 2021.

**Table 5.** Population dynamics and the number of persons not included in the labor force in the Republic of North Ossetia-Alania in 2008-2021, thousand people.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Population, total	711.7	711.	712.	709.	706.	704.	705.	703.	703.	701.	699.	696.	693.	688.
Number of persons not included	175.4	163.	152.	171.	171.	178.	177.	181.	185.	231.	209.	251.	274.	244.
		9	8	8	6	4	0	9	1	6	8	2	2	2

ed in the labor force														
Share of persons not included in the labor force, %	24.6	23.0	21.4	24.3	24.3	25.3	25.1	25.8	26.3	33.0	30.0	36.0	39.6	35.5
Labor force participation rate, %	67.3	69.3	71.2	67.6	67.2	65.9	65.8	64.4	63.6	59.1	62.8	55.3	51.0	56.2

Source: official website of Rosstat. Demographics/Population/Older Generation. <https://rosstat.gov.ru/folder/13877>; Results of a labor force sample survey. <https://rosstat.gov.ru/compendium/document/13265>

In general, the share of the older population in the structure of the labor force is quite significant, it is 18.7% for the age group of 50-59 years; 8.1% for the age group of 60-69 years and 1.5% for the population over 70 years. And these are higher indicators compared to the Russian average (Table 6).

**Table 6.** Labor force structure in the Russian Federation and the Republic of North Ossetia-Alania in 2021 by age group, in %

	Total	including age, years							Average age, years
		15-19	20-29	30-39	40-49	50-59	60-69	70 and older	
Russia	100	0.6	16.4	29.9	25.6	20.7	6.4	0.4	41.5
NOR	100	0.7	19.0	26.8	25.3	18.7	8.1	1.5	41.8

Source: official website of Rosstat. Labor force, employment and unemployment in Russia. <https://rosstat.gov.ru/folder/210/document/13211>; Results of a labor force sample survey. <https://rosstat.gov.ru/compendium/document/13265>

The share of the older population in the structure of persons who are not part of the labor force is quite significant on average in Russia, but in NOR it is lower, including: at the age of 50-69 years in Russia it is 38.1%, and in NOR – 32%; at the age over 70 years in Russia 30.9%, and in NOR only 26.2% (Table 7). Attention is drawn to the fact that the average age of the population outside the workforce in Russia is equal to 55.3 years, and in NOR almost 5 years lower – 50.6 years. This indirectly indicates that the problem of employment of older age groups in the region does not arise after retirement, but much earlier, even in the pre-retirement period.

**Table 7.** Structure of persons not included in the labor force in the Russian Federation and the Republic of North Ossetia-Alania in 2021, by age group, in %

	Total	including age, years
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		15-19	20-29	30-39	40-49	50-59	60-69	70 and older	Average age, years
Russia	100	14.7	8.7	4.6	3.0	8.2	29.9	30.9	55.3
NOR	100	15.5	13.5	8.2	4.6	12.6	19.4	26.2	50.6
Number of persons not included in the labor force, thousand people									
NOR	244.2	37.8	32.9	20.1	11.3	30.7	47.4	64.0	-

Source: official website of Rosstat. Labor force, employment and unemployment in Russia. <https://rosstat.gov.ru/folder/210/document/13211>; Results of a labor force sample survey. <https://rosstat.gov.ru/compendium/document/13265>

A direct confirmation of this conclusion is provided by the analysis of the unemployed structure by age groups presented in Table 8: the share of unemployed in the age group 50-59 years in the region was 18.4% versus 16.3% in Russia, and for the age group 60-69 years, the share of unemployed in the region is 2.4 times higher than the average in Russia. The overall unemployment rate of older age groups in the region as a whole is 2.8 times higher than the national level, and in the age group "70 years and older" the highest gap is recorded, it is 5.2 times. Despite the fact that the actual and expected life expectancy of the population in North Ossetia, as shown in Figure 2, is higher than the national average.

An analysis of the population development indicators of North Ossetia and the existing demographic burden of the population over working age, as well as a comparative analysis of the general indicators of employment and unemployment of the region's labor force by age groups showed that, given the current trend of accelerated aging of the population, the position of older workers in the regional labor market is behind period 2018-2021 has deteriorated significantly.

**Table 8.** Structure of the unemployed and the unemployment rate in the Russian Federation and the Republic of North Ossetia-Alania in 2021, by age group, in %

	Total	including age, years							Average age, years
		15-19	20-29	30-39	40-49	50-59	60-69	70 and older	
Structure of the unemployed									
Russia	100	3.6	30.1	27.7	18.4	16.3	3.6	0.3	36.9
NOR	100	1.7	30.3	27.2	12.8	18.4	8.5	1.2	38.9
Unemployment rate									
Russia	4,8	28.6	8.8	4.5	3.5	3.8	2.7	3.2	-
NOR	13,4	34.6	21.4	13.7	6.8	13.2	14.0	10.6	-

Source: official website of Rosstat. Labor force, employment and unemployment in Russia. <https://rosstat.gov.ru/folder/210/document/13211>; Results of a labor force sample survey. <https://rosstat.gov.ru/compendium/document/13265>

In search of the reasons for the sharp decline in employment of workers in older age groups, experts often put forward ideas of age discrimination in hiring. According to International Labor Organization Convention No. 111 (1958), the term "discrimination" includes any distinction, exclusion or preference having the effect of eliminating or impairing equality of opportunity or treatment in employment or occupation. Despite the long history of Convention No. 111, the problem of discrimination in labor and occupation has a global and chronic status [10], [11], [16], [17]. Analysis of works by V.E.Gimpelson confirms the fact of age discrimination in Russian enterprises, primarily in the field of remuneration [18,] [19]. In a sociological study by Zh.V. Petrova [20], the presence of discrimination against



older women was confirmed during in-depth interviews with employers and older workers. One of the main problems that hinders the employment of older women is the refusal "to continue professional cooperation or employment when the employee or job applicant reaches retirement age" [20, p. 26]. The main types of discrimination against the elderly, according to Zh.V. Petrova, there are two: discrimination in hiring and discrimination in dismissal.

The study of age discrimination in hiring is increasingly conducted as an assessment of the proportion of advertisements containing discriminatory requirements based on the employee's age. In the work conducted by E.A. Mosakova there was used data on 500 advertisements placed in the newspaper "Work.Education.Service" in 2005. It turned out that the designation of age limits is the most common discriminatory requirement, found in 60.8% of advertisements. The upper age limit is quite low: "the average age (without taking into account the gender factor) at which they begin to refuse admission is 41 years" [21, p. 71-72]. In 2014, I.M. Kozina, I.K. Zangiyeva conducted a similar study; they studied the age requirements for 2198 advertisements on the Internet located on specialized job search sites "Headhunter" (hh.ru), "FutureToday" (fut.ru), "Work for You" (rdw.ru). Indications about the age of candidates were found in 45-50% of advertisements. Age discrimination is less evident in traditional industries: manufacturing and construction; it is more common in dynamically developing sectors of the economy. At the same time, the share of vacancies for which workers over 45 years of age can apply is about 10% [21, p. 58]. It should be noted that, on the one hand, age discrimination still manifests itself much earlier than retirement; on the other hand, in the 10 years between studies, the maximum age for discrimination has increased by 5-7 years, and this dynamic is assessed as certainly positive.

To prove the hypothesis of discrimination in the sphere of work in the organizations of North Ossetia, we conducted a study using the "resume test" method. The methodology for assessing age discrimination of the "resume test" by E.A. Klepikova [22] was used, based on which we created accountant resumes - one of the most in-demand professions on the regional labor market - for candidates of older (55 years) and younger (25 years) ages. The differences in the resumes for the candidates consisted only in the time and place of receipt of higher professional education and professional experience (33 years for the oldest accountant and 3 years for the youngest); the other characteristics and personal data of the resumes did not differ. In order for employers to see only one resume for each candidate, they were created in a private manner. During the experiment, we were sent this resumes to 340 accountant vacancies opened during January-July 2023 on the Rabota.ru website in regional organizations. Viewing of the resume was recorded according to the data in the personal account on the Rabota.ru website. Statistically processed data on the responses received for conditional junior and senior accountant candidates are presented in Table 9.

**Table 9.** Differences in responses for candidates of different ages for the position of "accountant".

	<b>Junior candidate</b>	<b>Senior candidate</b>	<b>Deviation (Graph 2–Graph 3)</b>	<b>Attitude (Graph2/ Graph 3)</b>
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Number of vacancies	340	340	-	-
Any response	61.76%	46.12%	15.64%	1.339
Positive response from sent out resumes	47.01%	20.05%	26.6%	2.298
Positive feedback from reviews	92.49%	52.42%	40.07%	1.7643
Number of vacancies with at least one response	210	150	60	1.400
Positive response among vacancies	80.1%	33.16%	48.47%	2.4615

with at least one response				
Number of positive responses	160	70	90	2.286
Salary range proposed in the response, RUB	45-55	35-45	10	1.250

*Source:* compiled based on the results of the study using the "resume test" method.

Our research showed that there is interest in an employee entering the older age group, but 1.3 times fewer employers responded to the offer; 2.3 times less positive feedback was received from the resumes sent out, and 1.8 times less positive feedback on the application; At the same time, the wage range proposed in the response for an employee in the older age group is 25% lower (Table 9). A comparison of our results with the results of 2005 and 2014 shows that age discrimination in hiring and remuneration has not disappeared; its form and degree of expression are changing.

## 4 Discussion

According to our joint survey with the Employment Committee of North Ossetia-Alania, more than half of working people who have reached older ages want and can continue their work in the same place, and about 25% are ready and able to engage in feasible social work. On this basis, it can be stated that changes in people’s motivational attitudes regarding the organization of their life activities in older age groups have already occurred. However, unbiased attitudes towards older applicants do not change so quickly. At the same time, ensuring effective employment of the older population contributes to both economic growth and demographic development, by which we mean not only natural and mechanical population growth, but also a qualitative transformation of the education and healthcare systems, labor market institutions, people’s lifestyles and their value orientations influencing an increase in the birth rate, a decrease in mortality, and an increase in the duration of a socially useful healthy life of the population. We believe that a demographically developed region is a socially stable society with a progressive gender and age structure, the level and quality of life of which is based on effective employment of the population.

It is important to emphasize that our approach does not contradict to the Active Longevity Index, which reflects the multifaceted concept of "active longevity" in accordance with the goals of the Vienna Declaration of the UNECE Ministerial Conference (<http://www.unece.org/population/ageing.html>). Based on the Vienna Declaration, Russia has developed a national methodology for calculating the Active Longevity Index, which is formed based on a set of measurements that combines four areas: employment; participation in society; healthy and safe life; opportunities and favorable environment for active longevity [23].

Increasing the efficiency of the labor market for workers in older age groups requires that the entire business community recognize age discrimination as a problem and begin to systematically address it; this should become the responsibility of companies, not just government inspection bodies [24]. And since fines have low regulatory effects in the Russian economy, fiscal and tax incentive measures are needed to use incentives to stimulate businesses to hire, train and professionally develop people over working age.

We also propose to introduce a standard for the development of regional comprehensive plans ("road maps") for increasing the working capacity of older workers, which will allow the peculiarities of the socio-economic development of the constituent entities of the Russian Federation to be taken into account as fully as possible. These plans should include systematic measures not only to improve professional knowledge and develop digital competencies, which today are becoming a mandatory requirement for everyone, regardless of age [25], [26], [27], but also to preserve the health of workers and improve their working

conditions. Of course, "road maps" need to be developed taking into account strategic planning documents, and above all regional strategies for socio-economic development, national projects of the Russian Federation and existing government programs.

## 5 Conclusion

A study of employment characteristics of the older population using the example of the Republic of North Ossetia-Alania showed that from the point of view of demographic factors of labor force replacement in NOR, a regressive population structure is developing, and the aging of the population region is a long-term trend; in a few years, every fourth resident of the region will belong to the older generation. Therefore, the tasks of the demographic development of the region in the near future consist not so much in creating conditions for natural and migration population growth, but in creating conditions for active longevity of the rapidly aging population of the region. The severity of the problem is caused by the fact that the general aging of the population, the increase in the demographic burden of the population of older age groups and the increase in the life expectancy of the elderly population do not lead to the expected increase in employment. In contrast, the employment rate of older workers fell by 10.3% (from 32% in 2018 to 21.7% in 2022), and the registered unemployment rate, which reflects the share of people ready to start work, increased by 1.8 times (from 4.5% in 2018 to 8.3% in 2022), the average job search time in 2022 was 12.1 months versus 7.8 months in 2018.

The work shows that the decline in employment of older workers is caused not so much by demographic problems as by a decrease in the efficiency of the regional labor market, as evidenced by both deterioration in employment indicators and a decrease in the level of participation in the labor force, high dynamics of the population not included in composition of the labor force, as well as a high proportion of older people in it. The study using the "resume test" method revealed the problem of discrimination when hiring workers of pre-retirement age by employers of regional organizations.

The study indicates the need to strengthen regional policies to stimulate demand for labor among older workers, while all significant characteristics of labor should be analyzed taking into account the institutional role of the state. As a way to minimize all types of discrimination in the field of labor, it is proposed to form inclusive regulatory models based on taking into account the regional specifics of the socio-economic and demographic development of individual constituent entities of the Russian Federation. This will make it possible, while implementing the unity of approaches to solving this problem, defined at the federal level, to provide regions with independence to determine the measures that are most effective in the conditions of specific territories. The main attention, in our opinion, should be paid to the following points: preventing the "squeezing out" of workers of pre-retirement age into the informal sector of the economy or the gray wage zone; development of a flexible employment model for older workers in the labor market;

creating conditions for "flexible retirement"; maintaining the competitiveness of older workers in the labor market, including through well-organized vocational training and advanced training; the formation of financial mechanisms to stimulate employers who hire older workers (subsidies, tax breaks, other preferences).

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