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UDC 316.4, 314.174

**DEMOGRAPHIC ASPECTS OF SOCIAL MODERNIZATION
OF THE REGIONS OF THE SIBERIAN FEDERAL DISTRICT***

SUMMARY. This article investigates the problems of low life expectancy and high death rates in the regions of the Siberian Federal District, as the barriers for the modern social modernization, basing on a comparative analysis of national averages, as well as in dynamics. By analyzing the data of the Russian Center of Statistics and representative public opinion polls for the program "Socio-cultural evolution of Russia" of the Center for the Study of Socio-cultural Changes of the Institute for Philosophy of Russian Academy of Science the authors consider specific factors that explain the gap in life expectancy between the regions of the Siberian Federal District and Russia as a whole. It is revealed that the main reasons for the lag of Siberia in life expectancy from Russian average are the factors of mortality from avoidable causes, like tuberculosis, and external causes (especially in men), for instance, coronary heart disease at a relatively young age. Currently, low life expectancy of the population in the regions of the Siberian Federal District and especially high mortality of the population of active working age prevent the accumulation of the demographic potential, being a major barrier for social modernization of Siberia. In this case, not only low life expectancy is the barrier, but mostly socio-economic conditions, preserving it at this level and affecting both the low birth rate and migration unattractiveness of the region.

KEY WORD. Life expectancy, death rate, demographic potential, social modernization, Siberian Federal District.

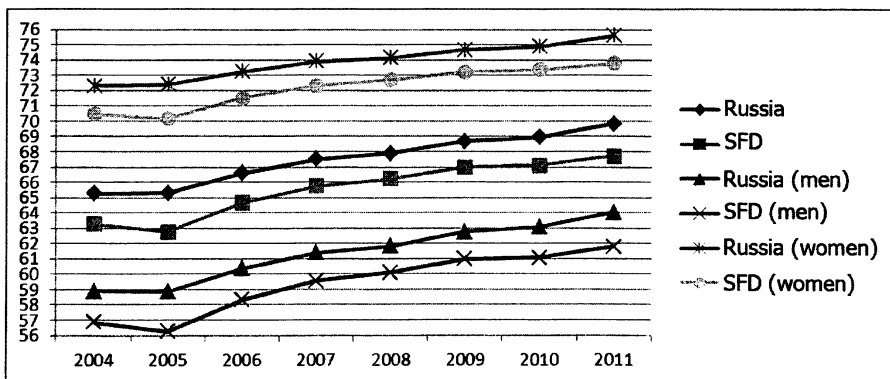
Social modernization of Siberia nowadays is marked by its regions' underrun in many socio-economic indicators of development (as compared to the national average level) and a significant differentiation within the Siberian Federal District. Compared to other federal districts and Russia as a whole, some peculiar problems of Siberia are seen clearly: disparity of social and economic development levels; outflow of trained and educated personnel to the European part of the country and intensive migration of unskilled workers; low incomes and significant income inequality considering low standard of living in general; limited social mobility; low level of trust to current social and political institutions [1, 2]. The problem of maintaining and developing the demographic potential of the Siberian Federal District which is now exposed to the risk of depopulation, high death rate, change

* The survey is conducted with the support of the President of Russian Federation grant for national support of young Russian scientists – Candidates of Science (the project "Sociocultural and institutional aspects of social modernization of Siberian regions", № YS-3359.2013-6.).

in sex-age pattern, deterioration of public health and unequal migration exchange is also very acute [3; 98].

Life duration is a very important indicator of living standards of the population and of the level of social modernization in the region (for example, this factor is an invariable part of the Human Development Index [4]), because it shows the level of development of demographical potential in the region. Thus, life duration shows a strong positive correlation with the socio-economic situation in the region. As O.V. Chudaeva correctly notes, life duration “integrally reflects plenty of various factors from effectiveness of health care and ecological conditions etc. to stereotypes of behavior and psychological well-being of the population” [5; 59].

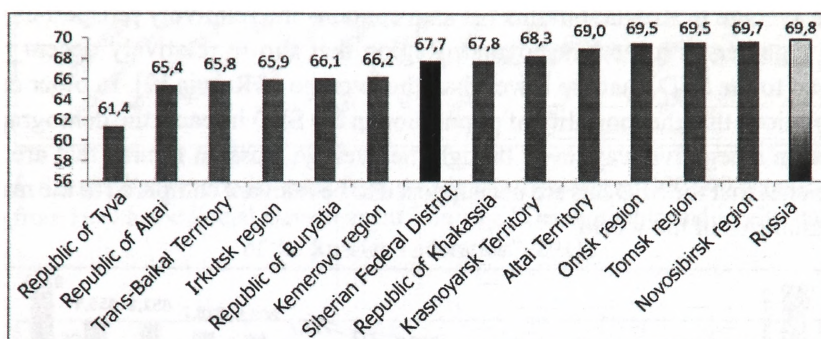
Despite the overall positive trend of the past few years (Pic. 1), it is still difficult to assess life expectancy indicators as positive both in the regions of Siberian Federal District and in Russia as a whole. Looking back, from the end of 1980-es to the beginning of 2000-s the situation in Siberia was close to Russian, but the negative trends appeared there to a larger extent [6]. Currently, according to this indicator Russia is behind not only the more developed countries or the countries with similar levels of socio-economic development, but even behind the countries that are significantly less developed. Overall life expectancy in Russia approached the global figures only in 2011 (about 70 years), although the figures of income and GDP per capita are higher than the world average. At the same time, Russia lags behind developing countries in terms of average life expectancy for men (according to the surveys of 2010: in Russia it is 63 years against 66 years in developing countries), particularly behind all the countries of Eastern Europe, Western Asia and Latin America [7]. Moreover, during the period of active regenerative economic growth in the beginning of 2000-s life duration had shortened. It is also important that the differences between Russian regions both in socio-economic and health and demographic indicators are quite big and they have no stable reduction trend [8; 139].



Pic. 1. Dynamics of life duration in Russia and SFD

(taken from: Russian Federal Statistics Service database, “The Demographic Yearbook”, 2006, 2008, 2010, 2012. Russian Federal Statistics Service, “The Regions of Russia”, 2012)

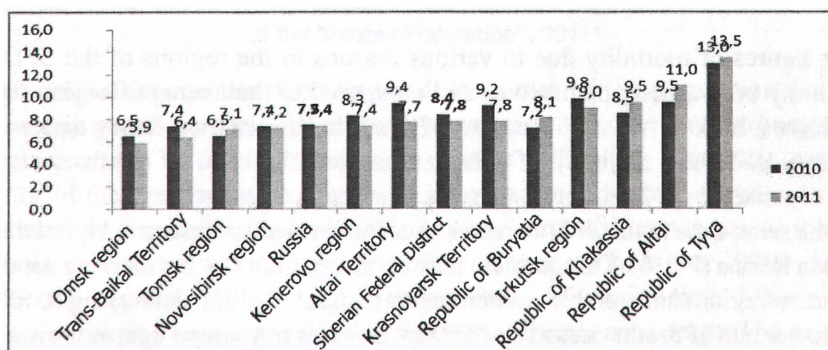
Life expectancy indexes in different regions of the SFD vary significantly, and being lower than average in Russia, this is probably their only common factor (Pic. 2). In particular, life duration in the regions of the SFD is about 2 years shorter than in Russia as a whole, and according to the graph in Pic. 1, this gap has not been reducing actually (the observed trend of approximation finished in the beginning of the 2010-s, as confirmed by the figures of 2011). The minimal gap between regions with life duration higher than the average in Russia and less successful regions is 1.5 years (Pic. 2). A complete outsider, not only in Siberia, but in Russia during the last years, is the Republic of Tyva.



Pic. 2. Life duration in Siberian regions, 2011

(taken from Russian Federal Statistics Service database, "The Regions of Russia", 2012)

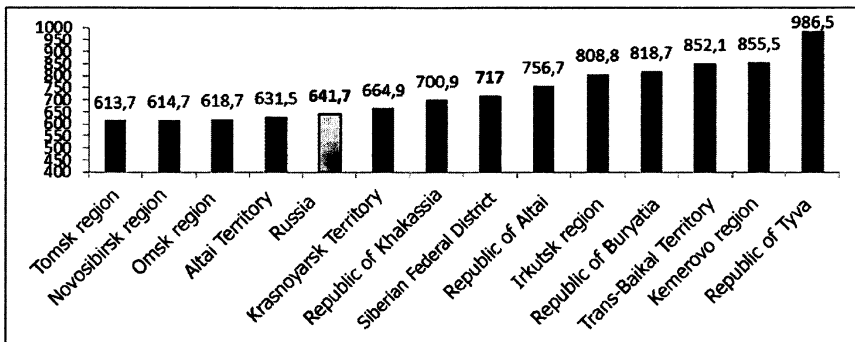
Siberia's lag from Russia as a whole in the sphere of life duration can be explained by high death rate of the population. It is a common practice to use the index of infant mortality as a factor that explains the gaps of life duration between the regions. Nevertheless, in modern Russia, despite a still significant gap from the majority of European countries in relative terms, infant mortality not only does not have any real impact on life duration index, but it has even lost its role as an indicator of social disadvantage of the region except extreme cases like the Republic of Tyva (Pic. 3).



Pic. 3. Infant mortality, per 1000 of newborns

(taken from Russian Federal Statistics Service, the bulletin "Natural Population Changes of the Russian Federation", 2011)

Mortality among the population of the active working-age is of great interest for assessment of demographic potential of the region from the point of view of economic feedback from the population. Let us suppose that the mortality among the working-age population will be lower in Siberian regions than on the average in Russia; consequently the economic potential of the region would be higher than in Russia as a whole despite lower life duration. But if we take only top regions, according to life duration, we see that their figures of mortality among working-age population are lower than in Russia as a whole (Pic. 4). The Tomsk Region is among the top regions, its HDI is on the 7th place in Russia (according to the figures of 2009) and it is larger than the average in Russia; but this list also contains the relatively prosperous Omsk Region together with the Krasnoyarsk Region that shows relatively decent results compared to the SFD, that are lower than the average in Russia [9]. In other cases it seems obvious that the mortality of population in the SFD impacts the demographical potential in a negative way, even though the average Russian figures that are better than the ones that the SFD has are not supposed to be relevant compared to the majority of the countries in the world.

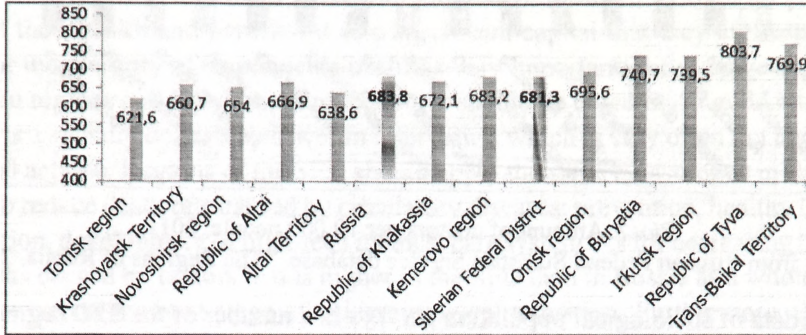


Pic. 4. Mortality among working-age population in SFD regions, per 100 000 people, 2009 (taken from Russian Federal Statistics Service database, "The Demographic Yearbook", 2010)

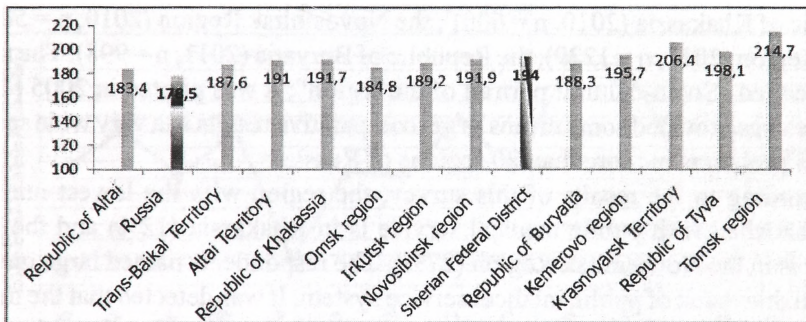
The figures of mortality due to various reasons in the regions of the SFD vary significantly both among themselves and compared to the average Russian figures. Let us have a look at two major causes of death in Russia: circulatory diseases and malignancies. In the majority of Siberian regions the ratio of deaths caused by circulatory diseases is even lower than the average in Russia (Pic. 5).

At the same time in the SFD the ratio of deaths caused by tumors is higher than the average in Russia (Pic. 6). This problem may be caused either by harsh living conditions of the macro-region (unfavorable environmental conditions, difficult working conditions) or by a lower rate of deaths caused by different diseases in younger age, as the mortality from cancer in Russia is rather marked by older age, compared to the mortality caused by other diseases. Yet, this hypothesis is not confirmed by the statistics, as in the SFD the rate of death among working-age population caused by tumors is higher than the

average in Russia: 90.2 to 83.8 per 10000 people. Therefore, a high death ratio caused by circulatory diseases is one of the major reasons of the gap between life durations in Russia on average and in the SFD.

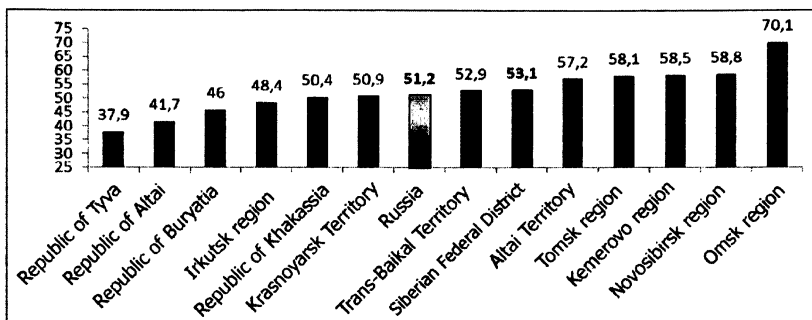


Pic. 5. Standardized mortality rates from circulatory diseases per 100 000 people, 2010 (taken from Health and Social Development Ministry, “Demographic and Health Indicators of the Russian Federation”, 2011)



Pic. 6. Standardized mortality rates caused by tumors, per 100 000 people, 2010 (taken from Health and Social Development Ministry, “Demographic and Health Indicators of the Russian Federation”, 2011)

One might assume that the increased death rate of the population (including working-age population) may be caused by unsupportive activity of the hospitals and the doctors in the SFD. Nevertheless, it is quite difficult to accurately assess the indicator of their performance. There are quantitative indicators showing that as to the number of hospital beds per 10000 people, a large difference across the whole Siberia is observed; also the biggest number of hospital beds per 10000 people is found in the regions with the lowest life duration. At the same time, Siberia has the indicator of hospital beds availability higher than in Russia on average. The proportion of life duration and the number of doctors in the region seems to be more significant, yet the medical service density in Siberia is higher than in Russia on average assuming that life duration is lower.



Pic. 7. Amount of doctors per 10 000 people, 2011

(taken from Russian Federal Statistics Service database, "The Regions of Russia, 2012)

The data of sociological population surveys in a number of the SFD regions was used to assess the quality level of public medical services. The surveys in these regions were conducted by social scientists by means of the patterned interview, according to the unified method, within the research topic "Socio-cultural evolution of Russian regions" under the guidance of the corresponding member of RAS N.I. Lapin; the regions of the conducted survey are the Krasnoyarsk Region (2010, n = 1000), the Republic of Khakassia (2010, n = 600)*, the Novosibirsk Region (2010, n = 500), the Omsk Region (2011, n = 1229), the Republic of Buryatia (2011, n = 998). The method used is called "Socio-cultural portrait of the region"; it was piloted in 2005 [10] and since then has provided some means to get comparative results in a very wide spectrum of social problems in more than 20 regions of Russia.

According to the results of this survey, the region with the lowest number of people satisfied with public medical service is in Khakassia (12%) and the largest number is in the Novosibirsk Region (27%). The respondents named large queues as the main drawback of public medical service system. It was detected that the majority of the respondents live within not longer than half an hour drive from the nearest first-aid post and within an hour from the nearest hospital. Therefore, low life duration is caused not by inaccessibility of medical services.

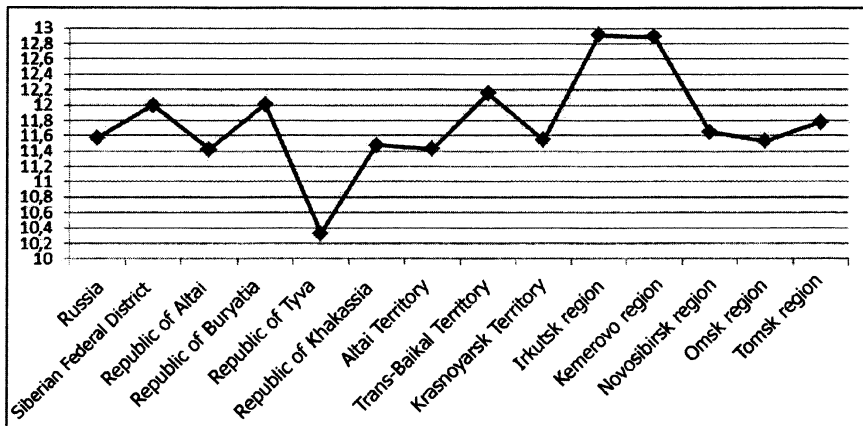
In fact, on later stages of epidemiological transition [9] which is characterized by reduction in mortality of mainly aged people and people of working age a simple increase in the number of hospital beds will not help. For example, reduction of adults' death rate (first, of people of working age, then of retired people) in western countries was gained due to the following reasons: a significant improvement of environmental protection, of accident-prevention protection, of individual disease prevention instead of the collective one, and by healthy lifestyle promotion [11, 12]. The USSR and Russia did not experience these changes, and it led us to this backlog, that only grows in course of time. Reduction of adult mortality from circulatory diseases is one of the indicators of a successful overcome of the second

* The data has been collected with support of the Russian Fund for Humanities within the scientific research project "Specifics of Socio-Cultural Portrait of the Krasnoyarsk Krai" (No. 10-03-00001a).

phase of epidemiological transition. In Russia this indicator is still quite high, and as it was already mentioned above Siberia does not significantly differ from Russia in this issue.

In these conditions in order to reduce death rate it is very important for people to protect their health and perceive it as a significant capital that they are responsible for. For the majority of respondents health is very important: the average support in Siberian regions is 8.5 points out of 11. But it should be noted that a good attitude to health is a socially desirable answer in interviews, which is very often not backed by any real actions. Regions of the SFD should apply the same measures as in Russia in order to reduce death rate caused by circulatory diseases: prevention, healthy lifestyle promotion, development of high-tech medical care system. As for decreasing the ratio of deaths caused by tumors that is higher in the SFD than in Russia as a whole, it can be achieved on the next stage of epidemiological transition. Furthermore, the SFD needs improvement in the diagnostic system, ecological environment and working conditions.

According to the statistics, the indicator of gender life duration gap in Siberian regions varies from 10.3 to 12.9 years (on average in Russia it is 11.6, in SFD - 12) in 2011 (Pic. 8).



Pic. 8. Gender life duration gap, 2011

(taken from Russian Federal Statistics Service database, "The Regions of Russia", 2012)

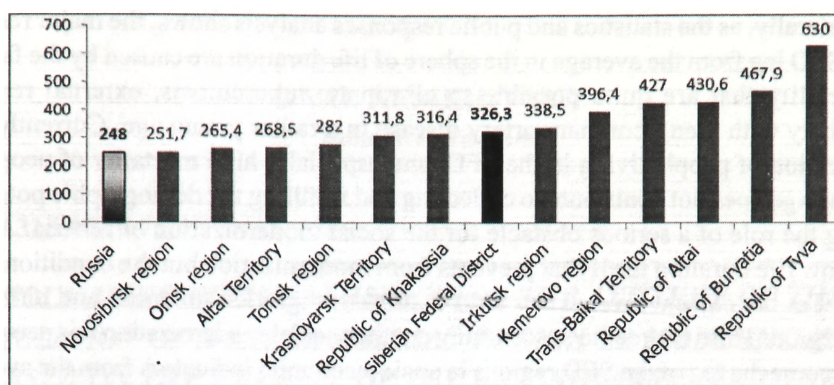
As for the indirect assessment of the factors having an impact on life duration we may look at the responses concerning the causes of men's excess mortality (Table 1). In all the regions where the survey was conducted the respondents especially marked high alcohol consumption. Men's neglect of their health and rare visits to doctors, even when it is absolutely necessary, follow, and also men and women were most unanimous in their answers here. The greatest divergence of opinions between men and women appeared in assessments of the factors of engagement in hard and harmful work and death cases caused by military service.

Table 1

Responses supporting statements about causes of men's life duration being shorter than women's in their region (counted in points)

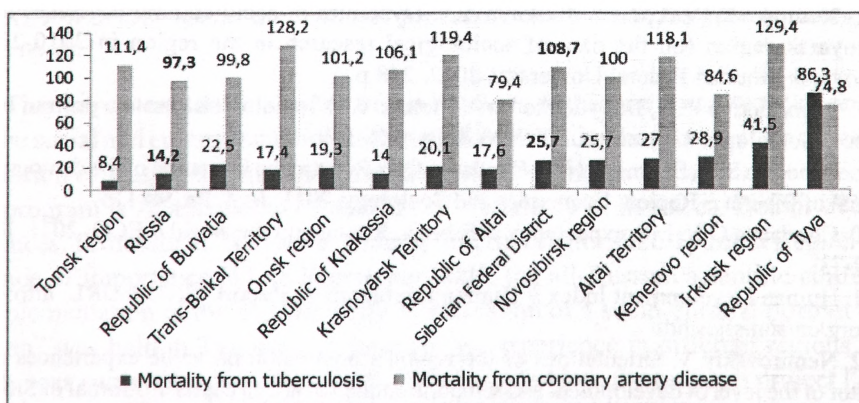
| Region | All respondents | Men | Women | Significance of differences |
|---|-----------------|------|-------|-----------------------------|
| A lot of men are engaged in hard and harmful work | | | | |
| The Krasnoyarsk Territory | 7.09 | 7.27 | 6.93 | 10% |
| The Republic of Khakassia | 7 | 6.96 | 7.03 | 0% |
| The Republic of Buryatia | 6.43 | 6.2 | 6.6 | 10% |
| The Omsk region | 6.31 | 6.56 | 6.1 | 5% |
| The Novosibirsk region | 7.25 | 7.74 | 6.87 | 1% |
| Disorderly and insulting behavior is frequent, a lot of fights cause deaths or severe injuries | | | | |
| The Krasnoyarsk Territory | 5.43 | 5 | 5.78 | 1% |
| The Republic of Khakassia | 5.61 | 5.61 | 5.25 | 0% |
| The Republic of Buryatia | 6.33 | 6 | 6.57 | 5% |
| The Omsk region | 5.3 | 5.21 | 5.36 | 0% |
| The Novosibirsk region | 5.6 | 6.01 | 5.39 | 5% |
| A lot of young men die during military service | | | | |
| The Krasnoyarsk Territory | 5.29 | 4.55 | 5.9 | 1% |
| The Republic of Khakassia | 5.57 | 5.23 | 5.88 | 1% |
| The Republic of Buryatia | 5.41 | 5.18 | 5.59 | 10% |
| The Omsk region | 4.8 | 4.46 | 5.04 | 1% |
| The Novosibirsk region | 5.44 | 5.85 | 5.09 | 5% |
| Men tend to misuse alcohol, especially vodka, including unlicensed or home-made vodka | | | | |
| The Krasnoyarsk Territory | 8.13 | 7.59 | 8.57 | 1% |
| The Republic of Khakassia | 8 | 7.85 | 8.13 | 5% |
| The Republic of Buryatia | 8.56 | 8.1 | 8.9 | 1% |
| The Omsk region | 7.74 | 8.38 | 8.1 | 1% |
| The Novosibirsk region | 7.63 | 7.22 | 8.15 | 1% |
| Men tend not to pay enough attention to their health or not to see a doctor often enough | | | | |
| The Krasnoyarsk Territory | 7.83 | 7.71 | 7.93 | 0% |
| The Republic of Khakassia | 7.64 | 7.5 | 7.76 | 0% |
| The Omsk region | 7.81 | 7.81 | 7.81 | 0% |
| The Republic of Buryatia | 7.83 | 7.4 | 8.16 | 1% |
| The Novosibirsk region | 7.5 | 7.19 | 7.67 | 10% |

It can be said that the opinion of the respondents concerning most common causes of death among men is confirmed by official statistics (Pic. 9, 10). Death caused by external factors is very often associated with alcohol abuse; in all the regions of the SFD the standardized mortality caused by external reasons among men is higher than on average in Russia (Pic. 9).



Pic. 9. Standardized mortality caused by external reasons among men, per 100000 people, 2009 (taken from Russian Federal Statistics Service database, "The Demographic Yearbook", 2010)

The data presented in Pic. 10 indicate high mortality from tuberculosis among people of working age living in Siberian regions (the ratio of Siberia concerning this indicator is higher than the average in Russia except the Tomsk Region and the Republic of Khakassia), indicating general social ill-being of the region; this indicator is much more significant than infant mortality. Coronary artery disease is a rather complicated indicator. On the one hand, it demonstrates the state of primary health care, prevention and diagnosis as well as people's attention to their health, because usually the symptoms manifest themselves before exacerbation. On the other hand, this disease also indicates a dangerous level of alcohol consumption. The lowest level of death rate caused by coronary artery disease is in the Altai Republic, but it should be taken into consideration that this region has the shortest life duration in the whole country, and the population probably decreases due to different reasons and in younger age.



Pic. 10. Standardized mortality caused by tuberculosis and coronary artery disease among working age population per 100000 people, 2010 (taken from Health and Social Development Ministry, "Demographic and Health Indicators of the Russian Federation", 2011)

Generally, as the statistics and public responses analysis shows, the major reasons of the SFD lag from the average in the sphere of life duration are caused by the factors of mortality that are quite possible to eliminate: tuberculosis, external reasons (especially with men), coronary artery disease in a rather young age. Currently low life duration of people living in the SFD, and especially high mortality of people of working age does not contribute to collecting and fulfilling the demographic potential playing the role of a serious obstacle for the social modernization of Siberia. And it is not low life duration itself that prevents from modernization but the conditions that freeze it at the current level. They tend to impact migration potential and birth rate of the region. Thus, in order to successfully conduct social modernization it is necessary to overcome the lag of the SFD regions in socio-economic indicators from the average Russian ones and to provide a sustainable increase in living standards.

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