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## EMPIRICAL MODELING OF RELATIONSHIP BETWEEN INEQUALITY AND SUBJECTIVE WELL-BEING

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### *Abstract*

The paper considers the use of the economic-psychological model as a tool to identify the effect of inequality on the subjective well-being of older people is justified. The empirical basis for the study was the accumulated database of sociological data formed on the basis of previously conducted sociological surveys in 2015, 2017 and 2019. The survey involved men and women over 50 years old, living in cities and rural areas of the Tomsk Region of the Russian Federation. The sample population of each sociological survey was 400 people. The calculation of the sample was made taking into account the gender, age and settlement distribution of the population of the city of Tomsk and the Tomsk region. In the course of sociological studies, the dynamics of processes, trends and changes in current expectations regarding the own well-being of older people were revealed, which was realized through the use of a comparable and prolonged methodology for collecting information and the volume of a sample set of surveys. Results of the study: the effect of inequality on subjective well-being is verified. The effect of income on health assessment is confirmed (the higher the income, the higher the health assessment); the impact of health assessment on life satisfaction and happiness (the higher the health assessment, the higher the standard of living and the more frequent the experience of happiness); the impact of life satisfaction on the feeling of happiness.

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**Keywords:** Elderly people, equality, happiness, inequality, life satisfaction, subjective well-being.



## 1. Introduction

The increasing interest on the issue of inequality of elderly people manifests the current trend in research into population ageing. Research conducted by the All-Russian Public Opinion Research Center in 2013 confirms earlier survey findings in Russia in relation to factors affecting the people's opinion. These factors are justice and equality, which are interconnected through the expectation that each person will receive what he/she deserves against the background of admissible inequality.

The norms of equality and justice relate to the basic values constituting the development mechanism of the social system. These basic values are implemented through the personal choice of actions as a function regulating the social processes. Equality is understood as "an equal access of people to social freedoms, rights and goods" (New Philosophical Encyclopedia, 2010, p. 394). A path to the improvement of the life quality is associated with the modernization processes of creating conditions that provide equal opportunities to all members of the society. Lack of such an opportunity is therefore a manifestation of inequality. For this reason, the existing inequality stereotypes are a mirror reversal of how it should not be, what should be taken into account, and what and how should be regulated to minimize inequality. The social policy addresses these challenges and aims at maintaining the social balance and optimizing social strain.

Intensive research into the problem of correlation between inequality and subjective well-being of elderly people has started relatively recently. A variety of approaches to understanding the nature of inequality is studied as well as the integrated application of these approaches to the problem of inequality based on both the quantitative and qualitative analysis to investigate the parameters of objective and subjective realities.

The aim of this work is to substantiate the model of correlation between well-being of elderly people by the inequality factor through the identification of how some parameters affect the others

## 2. Problem Statement

In comparison with other age groups, inequality in old age is specific due to objectively-limited possibilities of its weakening. The attention focuses on a possibility of affecting the quality and parameters of subjective well-being, personal characteristics and lifestyle of elderly people.

The content of the study of the inequality impact on subjective well-being is the process of social design of identity at a given stage of human life, when, on the one hand, a person possesses human capital for continuing active life and, on the other, falls out of the different spheres of life.

Inequality is considered as a phenomenon that occurs in different areas of the everyday life of elderly people as a result of needs that are not satisfied in the expected amount and quality, that is an indicator of the social life satisfaction.

The subjective well-being and inequality of a person coincide in the internal structure of the psychological construct. Both subjective well-being and inequality have a common basis, viz. satisfaction with what a person really and potentially possesses. The difference is that the inequality analysis focuses on the distribution and access to resources, while the analysis of subjective well-being focuses on evaluative judgements and emotional experience.

The conventional approach to estimation of the social inequality is based on the income statistics. Investigations carried out in European countries in the field of the correlation between subjective feeling of happiness and economic inequality (Tapilina, 2004) serve as the basis for the formation of a modern approach that considers the subjective perception of the life quality not only depending on the economic growth, but also in relation with inequality.

Diener et al. (1999) found that, in the case of inequality, people feel less happy. According to the theory of social comparison (Easterlin, 1974), a person evaluated subjective well-being by comparing it with other social groups, among which the ideal social groups were of higher priority for comparison, because inequality had an effect on well-being.

The model of relationship between inequality and subjective well-being considers the economic dependence identified in many studies. It shows the impact of income on the life quality. Studies in the field of emotional experience show the importance of emotional comfort for a person at different stages of ontogenesis (Carretie et al., 2001; Carstensen et al., 2011; Cheng, 2004; Gerstorf et al., 2013; Vogel et al., 2013; Wink & Dillon, 2008). A relationship is established between the level of aspirations, opportunities for their realization, and the level of subjective well-being. According to these studies, the higher the level of aspiration and lesser capability of their implementation, the lower subjective well-being, and conversely, the higher capability of their implementation, the higher subjective well-being (Shaminov, 2013).

Income inequality determines inequality in capabilities of using effective measures and ways to preserve the health. These correlations mechanisms between the socio-economic inequality and health allow us to trace the dependence between the health indicators and the socio-economic status, such that the higher the economic status, the better the health.

The feeling of happiness determines the social sphere of life satisfaction. Ekman (2010) proposes to use the understanding of the comparative versatility of people's emotions as a basis for the variable of the feeling of happiness. This allows considering the feeling of happiness regardless of other contributing factors.

In order to select the inequality and subjective well-being indicators, the model and its underlying system of operational approaches are justified for carrying out measurements.

### **3. Research Questions**

To select the inequality and subjective well-being indicators, the model and its underlying system of operational approaches are justified for carrying out measurements.

### **4. Purpose of the Study**

This work aims to verify the hypothesis of the income inequality effect on life satisfaction, health and happiness of elderly people.

## 5. Research Methods

Comprehensive and operational approaches are applied to study the problem. The first approach sets the parameters of phenomena, while the second allows us to clarify the comparison procedure for the inequality influence on the subjective well-being using the specified set of parameters.

Statistical methods, namely correlation and regression analyses are used to identify this influence. Statistical methods allow us to identify the directions and forms of the correlation between the examined parameters, measure the levels of frequency and significance of the obtained correlation coefficients.

## 6. Findings

The following indicators are identified for the hypothesis verification. First is the life satisfaction as an integral indicator that reflects a personal feeling and attitude to events in economic, social, political and cultural spheres of life.

Two other indicators are connected with the life satisfaction, namely the health status and the feeling of happiness. The emotional comfort directly relates to health, which “is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (as cited in Constitution of the World Health Organization, 2020).

A regression model with a variable structure allowing to record changes in coefficients within one econometric model is taken as a basis. The income level is taken as an independent variable, the choice of which is determined by the direct impact of income on the financial capacities of an elderly person and availability of the quality consumption and the quality of life.

The empirical basis for the hypothesis verification of the correlation between the independent (income) and dependent (life satisfaction, health status, feeling of happiness) variables is the statistical database formed during the years of 2015–2019, that includes the results of sociological surveys of elderly people in Tomsk and the Tomsk region (Anikina et al., 2018). The results of this correlation analysis are given Table 01 for the sociological survey conducted in 2015. This analysis confirms the correlation between the income level (high and low) and the health status, and between the income level and life satisfaction.

**Table 01.** Correlation between income level V1, health status V2, life satisfaction for the past 2–3 years V3 according to sociological survey in 2015

	V1	V2	V3
Pearson Correlation	1	.160 <sup>a</sup>	.141 <sup>a</sup>
Sig. (2-Tailed) value		.002	.007
Respondent number	376	372	371

Note: <sup>a</sup>Correlation is significant at the 0.01 income level (2-tailed)

Tables 02 and 03 summarize data of the sociological survey conducted in 2017 and 2019 that prove correlations detected in 2015.

**Table 02.** Correlation between income level V1, life satisfaction for the past 2–3 years V2, feeling of happiness V3, health status V4, health status in comparison with other people of the same age group V5 according to sociological survey in 2017

	V1	V2	V3
Pearson Correlation	1	.172 <sup>a</sup>	.143 <sup>a</sup>
Sig. (2-Tailed) value		.001	.004
Respondent number	400	400	400

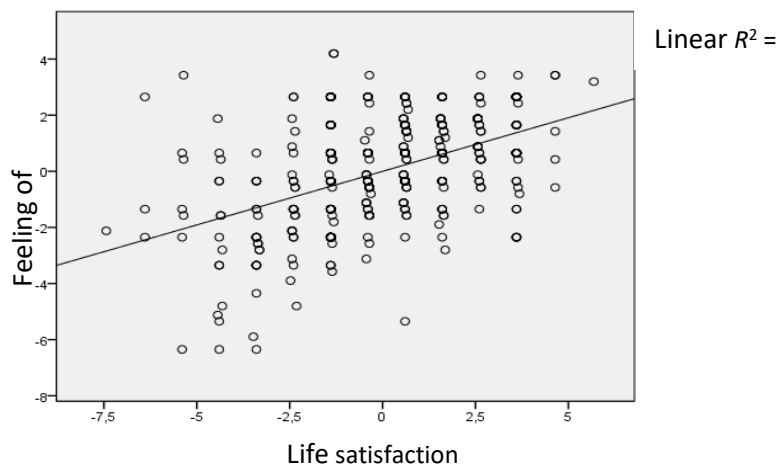
Note: <sup>a</sup>Correlation is significant at the 0.01 income level (2-tailed).

**Table 03.** Correlation between income level V1, life satisfaction for the past 2–3 years V2, health status V3, health status in comparison with other people of the same age group V4 according to sociological survey in 2019

	V1	V2	V3
Pearson Correlation	1	.125 <sup>a</sup>	.145 <sup>b</sup>
Sig. (2-Tailed) value		.010	.003
Respondent number	423	418	416

Note: <sup>a</sup>Correlation is significant at the 0.05 income level (2-tailed);  
<sup>b</sup>Correlation is significant at the 0.01 income level (2-tailed)

The results show a direct correlation frequency between the life satisfaction and the feeling of happiness. Figure 01 presents the bubble chart for this correlation. The correlation coefficient R measures the strength and direction of a linear relationship between two variables on a scatterplot. The value of R is always between +1 and -1.



**Figure 01.** Bubble chart of individual regression. Variables: life satisfaction and feeling of happiness

As can be seen from Figure 01, the higher the level of life satisfaction the higher the level of frequency of experiencing happiness. Our results are in agreement with the experimental data obtained by Suslova and Zhuchkova (2014).

## 7. Conclusion

Empirical modeling of the correlation between inequality and subjective well-being included the selection of variables with regard to the criterion of complexity of the parameters measured. The proposed model utilized indicators of objective and subjective well-being as the economic and psychological

construct. This allowed identifying dialectical correlations between such meanings as economic well-being (money income) and life satisfaction, including the health status and the feeling of happiness. The obtained results confirmed the dependences between the following parameters: the income and health status (the higher the income, the higher the health status); the health status, life satisfaction and feeling of happiness (the higher the health status, the higher the life quality and the higher the level of frequency of experiencing happiness); the life satisfaction and the feeling of happiness.

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