THE IMPACT OF EDUCATIONAL AND SOCIAL CAPITAL ON THE DYNAMIC SUBJECTIVE WELL-BEING IN RUSSIAN REGIONS

Irina Semenova – Veronika Zemzyulina

Abstract

Subjective well-being (SWB) has emerged as a significant indicator for human capital (HC) reproduction policy, alongside objective financial metrics. This study aims to explore the influence of educational and social capital on the dynamic indicators of SWB, using a modified version of Cantril's ladder approach. The research employs cluster and logistic regression analysis, based on survey data collected in summer 2024 from 1 397 respondents across 8 regions of Russia. Respondents were categorized as "pessimists," "optimists," and "moderate optimists" based on their past, present satisfaction, and future life expectations. The results show that HC variables play a decisive role in mitigating pessimism: each additional year of education reduces the likelihood of pessimism by 9.2%, and active participation in lifelong learning by 33.2%. Increased work experience raises the probability of pessimism by 4.4%. Social capital also significantly impacts SWB, as frequent social interactions and participation in community gatherings related to well-being and psychological support reduce pessimism by 16.5% and 25.8%, respectively. Furthermore, a rise in national pride enhances optimism, lowering the pessimism by 22.3%. Results offer valuable insights for education management and lifelong learning strategies, highlighting the critical role of investments in HC to enhance long-term economic and social resilience.

Key words: human capital, subjective well-being, education, social capital, logistic regression.

JEL Code: J24, E24, O33

Introduction

The study of subjective well-being (SWB) originates from sociology and psychology and has become an important area of economic research because it provides valuable information on the quality of life of people that goes beyond traditional indicators of material wealth, such as gross domestic product or income level. The feeling of life satisfaction and psychological well-being are important indicators of the quality of life, which significantly affects economic stability and growth

(Vanoli, 2010). Happy and satisfied people are more productive at work, less likely to quit, and less likely to get sick, which also leads to lower health care costs (Diener & Seligman, 2004). The level of SWB influences consumer motivation and labor productivity, behavioral aspects such as the willingness to invest in human capital, to create trust in the form of social capital during periods of economic instability, ensuring a relatively quick recovery of the labor market (Kahneman & Deaton, 2010).

Meanwhile, understanding long-term trends in SWB changes is an understudied area of research, especially in relation to human capital reproduction strategies within emerging knowledge-based economies. Human capital accumulation is a critical factor that drives technological development and the use of social capital through investments in education, including lifelong learning, and individual health expenditures. Over the past decade, the Russian economy has faced a wave of sanction-related restrictions, and growing geopolitical polarization presents risks to national human capital. Therefore, the study of SWB is an important aspect of regional development policy, with strategic implications for the education system's development and strengthening trust within society (Chernenko, 2024). The aim of this article is to investigate the impact of education and participation indicators, as well as trust and social belonging, on the level of SWB in Russian regions, measured using a modified Cantril ladder approach. Based on the empirical study conducted by the authors, social groups characterized by different dynamics of SWB were identified, factors determining the attitude of the employed population to current and future assessments of the quality of life, depending on the accumulated human capital, were identified. Unlike previous studies, this research uses cluster analysis to classify the behavior of the employed population and identify sentiments about the future for analyzing SWB dynamics.

1 Literature Review

SWB, which includes aspects such as life satisfaction, emotional well-being, and happiness (Diener et al., 2018), has gained focus in research due to its impact on economic and social policies. The concept of SWB is rooted in psychological, sociological, and economic theories. Diener et al. (2018) and Frey & Stutzer (2002) showed that SWB is multidimensional, encompassing both emotional and cognitive life evaluations, guiding research to examine how factors such as education, income, health, and social capital influence well-being, while also considering the interactions between these variables in different regional and national contexts. *Educational*

capital, often evaluated through indicators of educational attainment, skills, and lifelong learning, plays a key role in achieving subjective well-being. Education provides greater employment opportunities, which affects income levels, but its impact on well-being goes beyond mere economic returns and also contributes to increased life satisfaction through non-monetary benefits such as improved health, better social connections, and civic engagement (Llena-Nozal et al., 2019; Oreopoulos & Salvanes, 2011).

Social capital, manifested in connections with family, friends and neighbors, at work and in other forms of social associations, relationships and norms that ensure collective action and mutual support, is another critical factor in SWB (Helliwell & Putnam, 2004). Empirical studies confirm a positive relationship between social capital and SWB (Bartolini et al., 2023). In Russian regions, this relationship may be significant, since social capital often replaces state institutions, access to which is limited or insufficient for some reason. High levels of trust and involvement in social networks are associated with higher life satisfaction, especially in rural or economically disadvantaged regions. However, the impact of social capital on well-being may vary depending on the region, economic conditions and cultural factors.

Educational and social capital are not isolated constructs; they interact in complex ways to influence SWB. Note the complementary nature of these forms of capital: education not only improves individual skills, but also facilitates access to broader social networks, which is particularly relevant for Russia, where regional heterogeneity may contribute to differences in SWB across the country (Chernenko, 2024). In regions with higher levels of education, people are more likely to engage in civic activities, belong to diverse social networks, and benefit from social trust, contributing to higher levels of subjective well-being.

2 Data and methods

The analysis was based on the survey responses of the employed population of Russia, which was conducted by the authors in the summer of 2024 and includes 1 397 responses. The robustness of the human capital data was checked by analyzing the Mincer equation with the gradual introduction of additional variables into it. Next, the degree of influence of the educational and social capital variables on SWB was assessed, for which a linear regression with control variables, as well as variables of interest, including educational and social capital indicators, was constructed as a

dependent variable for the indicator of life satisfaction in the present, measured using the Cantril ladder.

$$SWB = \alpha + \sum_{i=1}^{n} \beta_i X_i + \sum_{j=1}^{k} \beta_j Soc_j + \sum_{h=1}^{e} \beta_h Edu_h + \sum_{l=1}^{m} \beta_l \mathrm{Reg}_l + \varepsilon_t, \quad (1)$$

where *SWB* is satisfaction with life in the present on a Cantril ladder; $\sum_{i=1}^{n} \beta_i X_i$ – vector of control variables influencing the level of life satisfaction, including such indicators as job satisfaction (WorkSatf) and health satisfaction (HealSatf), as well as gender (Gen) and marital status (Mar); $\sum_{j=1}^{k} \beta_j Soc_j$ is a vector of social capital variables that includes indicators of national pride (NatPride), frequency of meetings with friends (PartFri), with family (PartFam), and with psychological support communities (PartPsy); $\sum_{h=1}^{e} \beta_h Edu_h$ is a vector of independent explanatory variables of educational capital, including accumulated years of education (EduY), participation in continuing education (LLL), work experience (Exp), and log wage (lnWage); $\sum_{l=1}^{m} \beta_l \mathrm{Reg}_l$ is a vector of regional dummy variables (the Central Federal District was chosen as the reference district); ε_t – the remainder term reflecting the influence of all other variables. All variables in the equations are explained below in the results and discussion section.

Next, the sample was divided into 3 clusters by the aggregate of life satisfaction in the past, present and projected in the future using the K-means clustering method, in each of the resulting clusters the averages were analyzed by the human capital indicators. After that, using logistic regression, the probability of individuals belonging to "pessimist" cluster in which individuals expect a decrease in life satisfaction in the future was analyzed, using control variables and educational and social capital data as predictors.

3 Results and discussion

The analysis showed that satisfaction with the present life significantly depends on income, which confirms the importance of the material component for SWB. The result is consistent with the findings of international studies (Sacks et al., 2010), according to which income and SWB are interrelated, especially in the context of income growth. Work satisfaction is one of the strongest predictors of life satisfaction, which indicates the importance of professional fulfillment for overall well-being. Satisfaction with health also has a significant impact on life satisfaction. Educational capital influences life satisfaction: the level of education has a moderate positive effect on life satisfaction, while participation in lifelong learning in the last 12 months does not show a significant relationship with life satisfaction, which may indicate that training alone without career

promotions does not increase the level of SWB. The influence of social capital is obvious, meetings with family and relatives are positively associated with life satisfaction, which confirms the importance of family ties for emotional support and well-being (Table 1). Meetings with friends, on the contrary, do not have a significant effect, which may indicate that qualitative rather than quantitative aspects of communication may be more important. The sense of national pride, as an indicator of belonging within the social capital dimension, has a positive effect on life satisfaction, which reflects cultural characteristics and the role of patriotism in the structure of SWB.

Among the control variables, gender differences were significant, with women in this study reporting lower life satisfaction than men, which supports some studies (Helliwell & Putnam, 2004) but contradicts others (Dluhosch, 2021). The difference is related to different social roles and responsibilities in Russia. Marital status also contributes to life satisfaction, confirming that marriage and stable partnerships are positively correlated with well-being.

Tab. 1. Results of linear regression analysis, dependent variable is life satisfaction, N = 1 397, * - significant at the 1% level, ** - significant at the 5% level

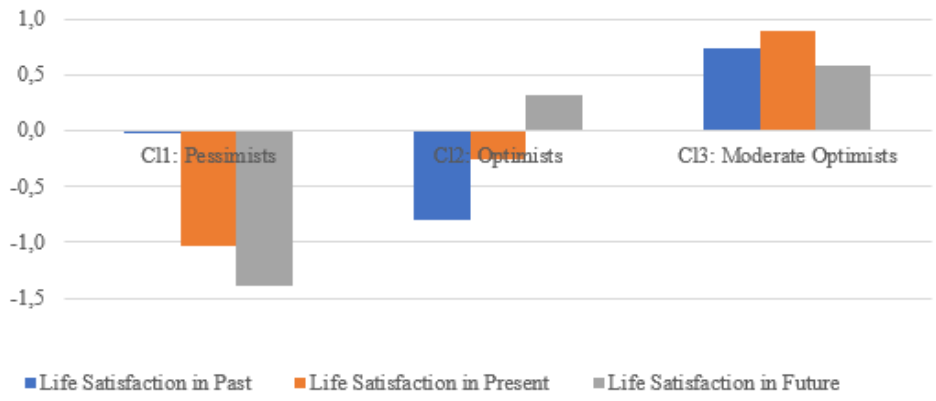
Groups of independent variables	Variable	β coefficient	t-statistics
	Constant	-3.289*	-4.0
Control variables	Health Satisfaction	0.143*	3.6
	Work Satisfaction	0.448*	10.3
	Gender	-0.232*	-2.6
	Marital status	0.118*	2.8
Human capital variables	Wage (logarithm)	0.402*	5.5
	Experience	0.006	1.4
	Years of education	0.064**	2.4
	Lifelong Learning	-0.066	-0.7
Social capital variables	National Pride	0.166*	4.3
	Meetings with friends frequency	0.011	0.3
	Meetings with family frequency	0.130*	2.8
	Meetings with psychological support communities frequency	0.234*	5.5
Regional fixed effects		yes	
R^2 adjusted		0.222	
F		22.011*	

Source: Authors' calculations based on empirical data

K-means clustering allowed us to identify three clusters based on dynamic SWB, i.e. based on a combination of life satisfaction assessments in the past (LifeSatfPast), present (LifeSatf), and projected future assessments (LifeSatfFut). The cluster configuration is shown in Figure 1. The study identified three main clusters: respondents with lower life satisfaction and a pessimistic assessment of prospects (cluster 1), respondents with lower life satisfaction and moderately

optimistic outlook on prospects (cluster 2), and respondents with higher life satisfaction and lower optimistic future outlook (cluster 3).

Fig. 1: Cluster's configuration, Z-standardized values of SWB indicators are shown



Source: Authors' calculations based on empirical data

Clusters 2 and 3 are characterized by higher income, greater job satisfaction and health, which is confirmed by the correlations and significance of these variables in the regression analysis. Respondents also participate more often in family and social activities, and their educational level is above average. Respondents who participated in lifelong learning are more often found in the cluster with higher life satisfaction, but this relationship in the clusters is not statistically significant (Table 2). Learning is beneficial only when achieving specific career or personal goals. Meetings with family and relatives are more frequent among respondents with high life satisfaction. At the same time, meetings with friends and participation in psychological support communities have a positive, but less significant effect on SWB. The result is in line with the findings of international studies indicating the importance of family support for psychological well-being (Rojas, 2016). The level of national pride also plays an important role in clusters with higher life satisfaction, highlighting the cultural significance of national identity in society (Kamalov & Ponarin, 2020).

Tab. 2. Descriptive statistics of clusters (M – mean, SD – standard deviation)

Groups of variables	Variables	All sample		CL1		CL2		CL3	
		M	SD	M	SD	M	SD	M	SD
N		1 397		345		498		554	
SWB	Life Satisfaction Present	6.00	1.74	4.19	1.16	5.54	1.04	7.54	1.11
	Life Satisfaction Past	5.09	2.02	5.03	1.87	3.47	1.34	6.58	1.40
	Life Satisfaction Future	7.11	2.32	3.89	1.67	7.86	1.29	8.45	1.28
	Health Satisfaction	3.18	1.09	2.80	1.11	3.27	1.04	3.35	1.05
	Work Satisfaction	3.53	1.02	3.06	1.08	3.55	1.00	3.79	0.88
Educational capital	Lifelong Learning	0.69	0.46	0.59	0.49	0.74	0.44	0.71	0.45
	Wage (logarithm)	10.99	0.63	10.79	0.59	10.98	0.61	11.12	0.65
	Years of education	15.68	1.66	15.43	1.73	15.60	1.65	15.92	1.58
	Experience	20.11	10.28	23.01	10.31	16.09	9.11	21.91	10.15
Social capital	Meetings with friends frequency	3.92	1.08	3.56	1.25	4.07	0.97	4.02	1.01
	Meetings with family frequency	4.36	0.96	4.21	1.12	4.40	0.85	4.42	0.93
	Meetings with psychological support communities frequency	1.38	1.01	1.12	0.69	1.42	1.02	1.52	1.13
	National Pride	4.12	1.12	3.78	1.32	4.16	1.03	4.28	1.00
Control	Age	42.32	10.40	45.47	9.97	38.40	9.56	43.88	10.34
	Gender	0.45	0.50	0.50	0.50	0.42	0.49	0.45	0.50

Source: Authors' calculations based on empirical data

The constructed model explains about 25.3 % of the variation of the dependent variable, which is a moderate result, while correctly classifying 77.3% of all observations, but better predicts belonging to the optimistic group (93.4% of correct predictions) than to the pessimists (58.1% of correct predictions), thus, there is an asymmetry in the predictive ability (Table 3). The control variables expectedly have a significant and strong impact on belonging to the pessimist group, because a decrease in wages reduces the probability by 44.4%; the higher the job satisfaction, the lower the probability of belonging to the group of pessimistic respondents (the chances decrease by 37.5%); an increase in health satisfaction reduces the probability by 19.8%.

With an increase in the number of years of education, the probability of belonging to the "pessimists" cluster decreases by 9.2%. At the same time, there is also an inverse relationship, since the higher a person's SWB, the more motivated they are to obtain an education and engage in lifelong learning (Leite et al., 2021). With increasing work experience, the likelihood of belonging to the cluster of those who evaluate prospects negatively increases (the chances increase by 4.4%). The more actively a person participates in lifelong learning, the lower the likelihood of belonging to the "pessimists" cluster (the chances decrease by 33.2%). Social capital variables show that the more often a person communicates with friends, the lower the likelihood of belonging

to the pessimistic cluster (the chances decrease by 16.5%), and attending community meetings on well-being and psychological support has a similar effect (a decrease of 25.8%). An increase in the level of national pride reduces the likelihood of belonging to the "pessimists" cluster (the chances decrease by 22.3%), which confirms previous studies (Kamalov & Ponarin, 2020). The results of both the cluster analysis and logistic regression confirm that SWB is the result of multiple interrelated factors, including income, health, occupational satisfaction, family and social networks, and cultural aspects such as national identity. The impact of lifelong learning requires further research, as its role in well-being may depend on external circumstances and the goals of the participants.

Tab. 3. Results of logistic binomial regression analysis, * - significant at the 1% level, ** - significant at the 5% level

	Variable	Exp(B)
Control	Wage (logarithm)	0.556*
	Work Satisfaction	0.625*
	Health Satisfaction	0.802*
Education	Years of education	0.908**
	Experience	1.043*
	Lifelong Learning	0.668*
Social	Meetings with friends frequency	0.835*
	Meetings with family frequency	0.94
	Meetings with psychological support communities frequency	0.742*
	National Pride	0.777*
	Nagelkerk R^2	0.25

Source: Authors' calculations based on empirical data

Conclusion

The reproduction of human capital is influenced by many factors, with SWB being one of the key determinants. Income level and job satisfaction remain key drivers of SWB, however the study also showed a significant impact of educational and social capital on dynamic SWB among the employed population of Russia. Educational capital positively influences life satisfaction, though the effect is moderate, especially linked to the number of years of education, while participation in lifelong learning did not show a significant relationship with current life satisfaction. Social capital, including the frequency of family interactions, national pride, and involvement in psychological support communities, also positively contributes to SWB. Cluster analysis further identified that respondents with higher levels of educational capital, greater satisfaction with health and work,

and higher incomes exhibit a more optimistic outlook on the future and higher levels of SWB. Conversely, pessimistic forecasts are more prevalent among respondents with lower incomes and less satisfaction with work and health, indicating an asymmetry in the model's predictive capabilities.

The results highlight the importance of integrating economic, social, and educational factors into policies aimed at enhancing the SWB of the population. Policy recommendations include supporting educational strategies, particularly by maintaining and strengthening social capital through institutional mechanisms. However, in the context of the geo-economic fragmentation of the national economy, social capital—especially trust and a sense of belonging—undergoes transformation, which increases uncertainty regarding the development of the Russian economy. Future research should focus on identifying and understanding the mechanisms through which institutional environment factors and external influences impact SWB, as well as examining more personal indicators of human and social capital to provide deeper insights into how these factors interaction to shape SWB.

Acknowledgment

The study was supported by the Russian Science Foundation grant No. 23-78-10165, https://rscf.ru/project/23-78-10165/

References

Bartolini, S., Piekalkiewicz, M., Sarracino, F., & Slater, G. (2023). The moderation effect of social capital in the relationship between own income, social comparisons and subjective well-being: Evidence from four international datasets. *PLoS ONE*, *18*(12 December), 1–25. https://doi.org/10.1371/journal.pone.0288455

Chernenko, I. M. (2024). Evaluating eco- and human capital efficiency in Russian regions: insights from subjective well-being indicators in the context of geo-economic fragmentation. *R-Economy*, *10*(2), 137–158. https://doi.org/10.15826/recon.2024.10.2.009

Diener, E., Oishi, S., & Tay, L. (2018). Handbook of well-being. In *Routledge Handbook of Wellbeing* (Issue October).

Diener, E., & Seligman, M. E. P. (2004). Beyond Money: Toward an Economy of Well-Being.

Psychological Science in the Public Interest, *5*(1), 1–31. https://doi.org/10.1111/j.0963-7214.2004.00501001.x

Dluhosch, B. (2021). The Gender Gap in Globalization and Well-Being. *Applied Research in Quality of Life*, *16*(1), 351–378. https://doi.org/10.1007/s11482-019-09769-2

Frey, B. S., & Stutzer, A. (2002). *Happiness and Economics: How the Economy and Institutions Affect Human Well-Being*. Princeton University Press.

Helliwell, J. F., & Putnam, R. D. (2004). The social context of well-being. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *359*(1449), 1435–1446. https://doi.org/10.1098/rstb.2004.1522

Kahneman, D., & Deaton, A. (2010). High income improves evaluation of life but not emotional well-being. *Proceedings of the National Academy of Sciences of the United States of America*, *107*(38), 16489–16493. https://doi.org/10.1073/pnas.1011492107

Kamalov, E. A., & Ponarin, E. D. (2020). National pride and subjective well-being of Russians. *Monitoring of Public Opinion : Economic and Social Changes*, *155*(1), 177–205. https://doi.org/10.14515/monitoring.2020.1.08

Leite, Â., Ramires, A., Vidal, D. G., Sousa, H. F. P. e., Dinis, M. A. P., & Fidalgo, A. (2021). Hierarchical cluster analysis of human value priorities and associations with subjective well-being, subjective general health, social life, and depression across Europe. *Social Sciences*, *10*(2), 1–26. https://doi.org/10.3390/socsci10020074

Llena-Nozal, A., Martin, N., & Murtin, F. (2019). *The economy of well-being: Creating opportunities for people's well-being and economic growth* (No. 102; OECD Statistics Working Papers). https://doi.org/10.1787/498e9bc7-en

Oreopoulos, P., & Salvanes, K. G. (2011). Priceless: The nonpecuniary benefits of schooling. *Journal of Economic Perspectives*, *25*(1), 159–184. https://doi.org/10.1257/jep.25.1.159

Rojas, M. (2016). Handbook of happiness research in latin America. *Handbook of Happiness Research in Latin America*, 1–637. https://doi.org/10.1007/978-94-017-7203-7

Sacks, D. W., Stevenson, B., & Wolfers, J. (2010). Subjective Well-Being, Income, Economic Development and Growth. *Federal Reserve Bank of San Francisco, Working Paper Series*, *16441*(1), 53. https://doi.org/10.24148/wp2010-28

Vanoli, A. (2010). On the Report by the Commission on the Measurement of Economic Performance and Social Progress. *SSRN Electronic Journal*, *1*(January 2009), 291. https://doi.org/10.2139/ssrn.1714428

Contact

Irina Semenova

Ural Federal University 19, Mira Str., Ekaterinburg, Russia

i.i.semenova@urfu.ru

Veronika Zemzyulina

Ural Federal University 19, Mira Str., Ekaterinburg, Russia

veronika.zemziulina@urfu.ru