LIFELONG LEARNING AND EMPOWERMENT IN THE CONTEXT OF GEO-ECONOMIC FRAGMENTATION: EMPIRICAL EVIDENCE FROM RUSSIA

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Abstract

Over the past decade, the lifelong learning (LLL) agenda has emerged as a key response to growing inequality, demographic, geopolitical, and technological uncertainties affecting human capital. Educational policy in developed countries views LLL as a process to enhance empowerment, enabling individuals to transform power relations within communities and make more informed, autonomous strategic choices. This study aims to assess the level of empowerment among the Russian population and evaluate the impact of LLL on this indicator. The empirical base of the research is a representative survey conducted in 2024, involving 1434 employed respondents from Russia. Factor and linear regression analyses were employed as methods. The results revealed that 62% of respondents participate in LLL in 2024. Online resources, formal retraining programs were identified as the primary drivers of this growth. Empowerment metrics, based on five variables proposed by the author, showed no statistically significant gender differences. However, participation in formal education after the age of 25 had a positive impact on women's self-assessed empowerment, while the same effect was not statistically significant for men. Self-education was found to positively influence empowerment of both genders. Based on the findings, the study offers brief recommendations for a differentiated LLL policy.

Key words: human capital, lifelong learning (LLL), empowerment, economic policies

JEL Codes: J24, I30, I25

Introduction

Lifelong learning (LLL) has become an important part of the economic reform agenda in developed countries, a key tool for supporting changes in the labor market in the context of technological transformation and demographic challenges (Coelli & Tabasso, 2019; Heller-Sahlgren, 2023). First, active LLL strategies are associated with the impact of *technological changes*, AI digitalization, which lead to the depreciation of skills in the labor market. However,

digitalization also helps address issues of inequality of access to quality education, as LLL is increasingly delivered through informal, non-institutionalized education and self-directed learning, facilitated by the digital environment. Second, the already traditional approaches to LLL are designed to increase the *productivity of human capital* of various cohorts of the population, particularly by easing young people's entry into the labor market and encouraging adults to invest more in their professional and personal development (Holford et al., 2023).

The current demographic context intensifies these challenges. For instance, in some Asian countries, an inversion of the age and gender pyramid is expected after the 2050s, which could significantly slow economic growth; to address this, some researchers advocate for the leading role of LLL in achieving demographic dividends by raising the retirement age (Amornkitvikai et al., 2023). Despite this, the experience of Russia shows that older cohorts of the population are engaged in LLL and demonstrate lower productivity compared to younger workers, despite gaining experience with age (Chernina & Gimpelson, 2023). The motivation to participate in LLL for all cohorts is decreasing due to the limited and isolated return on investment in LLL in the labor market, the latter having a much greater impact on job satisfaction than on earnings (Coelli & Tabasso, 2019). Therefore, when evaluating the effectiveness of LLL policies, it is important to consider not only their economic returns but also their broader impact on human capital productivity by expanding opportunities for strategic choice and transforming social norms within a wider social context.

The concept of empowerment has a long history, but it is increasingly applied not only in the context of poverty and gender inequality but also within education, particularly for young people entering the labor market and for older generations who are slow to adapt to technological changes in various industries. Empowerment seeks to expand the capabilities of specific groups to provide them with bargaining power, influence, and accountability over institutions responsible for delivering human capital (Holford et al., 2023, p. 45). It challenges the norms that sustain social inequality by altering existing behavior patterns and transforming institutional structures, thus broadening the strategic choices available to different groups within certain constraints (Maiorano et al., 2021). Empowerment is viewed within the framework of multiple social interactions, especially in developing communities where various dimensions of inequality are navigated. Education is a special area that expands opportunities within agency, that is, a set of structural factors that limit individuals' choices and opportunities to pursue the goals and values they consider important. Experience in European countries shows that limitations in the area of LLL are associated with school-to-work transitions, lack of technological skills, and poor opportunities for individualization of education (Holford et al.,

2023, p. 210). Educational strategies, therefore, focus on enabling individuals to gain greater control over their lives and circumstances within the contexts they engage in.

Empowerment is an ambiguous term, often viewed in the literature both as a process and as an outcome, reflecting actions that lead to social consequences (such as community participation, civic engagement, and activism) and cognitive consequences through education (Planas-Lladó & Úcar, 2024). In this study, the author focuses on empowerment as an outcome of educational processes within the framework of completed LLL actions. In measuring empowerment as an educational outcome, different approaches are used, in particular, identifying practices that challenge and transform the norms perpetuating inequality (Maiorano et al., 2021); measuring the achieved level of leadership, involvement and responsibility, the degree of control and "self-efficacy", autonomy, the ability to think critically and analyze situations (Planas-Lladó & Úcar, 2024). Diversified investments in education, involving both public and private capital, strengthen educational strategies that support the development of a market economy and foster a culture of privatization and individualism, empowering individuals to have greater control over their lives (Moeed & Afjal, 2024). However, participation in education contributes differently to well-being and empowerment across various population groups. For instance, Liu and Heshmati (2023) show that women experience a stronger impact from education on their earnings and ability to pursue personal life goals compared to men.

Zhang and Perkins (2023) propose a community education model that provides political, social and physical empowerment resulting in political awareness, self-efficacy, leadership and action. The authors conclude that differentiated LLL policies are advisable at the microeconomic level. Mara et al. (2022) show that continuing vocational education contributes to individuals' empowerment regarding future employment prospects and locus of control, but many LLL participants are forced to choose between work and study due to the lack of job flexibility. A review of the literature reveals that, despite significant attention to education and its impact on empowerment, the role of LLL in achieving socio-economic outcomes such as control, critical thinking, and the ability to pursue personal goals has only recently gained focus, driven by the shift toward empirically supported education policies (Holford et al., 2023). Additionally, the role of non-institutionalized self-education, which has grown in importance due to the digital transformation of the national labor market, remains uncertain. Based on the literature review, the following hypothesis was formulated: *participation in LLL through non-institutionalized self-education increases the level of empowerment among the employed population.*

1 Methods and data

The study is based on an empirical database based on a survey of the employed population in Russia, conducted in the summer of 2024. Only those respondents who participated in LLL during the last 12 months (992 individuals) were selected for the analysis; the total sample size for the analysis of the level of participation in LLL was 1434 adults aged 25 to 64 years. Using the questionnaire and stratification weights calculated by the author, indicators of population participation in LLL in 2024 were identified, and a comparative analysis of the 2020 indicators was conducted. To assess the level of empowerment, five explicit questions were proposed in the questionnaire, formulated on the basis of a literature review. The questions in the questionnaire (items) reflected various aspects, such as increased confidence, relevance of skills, personal growth, improved critical thinking and control over the situation. Each item was rated on a five-point Likert scale. To determine the integrity and consistency of the items, factor analysis and Cronbach's alpha were conducted, and then the mean value of each factor was calculated.

To test the hypothesis about the role of LLL in the empowerment of the employed population, an OLS regression analysis was conducted. The dependent variable was the average value of all five items for assessing empowerment, the independent variables were the subjective well-being variables (SWB), which provide an integral assessment of the individual's background. The regression equation also included human capital indicators expressed through education (EDU), work experience (EXP), social involvement (SP) and affiliation (NP). The target exploratory variables included indicators of participation in LLL, which is carried out through formal education, on-the-job training and self-education. Two of these three forms of LLL were treated as dummy variables: participation in formal education within an educational organization (LLL_ORG) and self-education outside of an organization (LLL_SELF). Thus, the reference group was the on-the-job training participants. The analysis considered the influence of respondents' attitudes towards the openness of the education system (EDU_OPEN) and the fact of self-payment for education (LLL_PAY_SELF), which together reflect the influence of individualistic values in shaping empowerment.

2 Results and discussion

Descriptive statistics for the variables used in the analysis are shown in Table 1. The highest empowerment scores were observed in the areas of improved critical thinking and the ability to make decisions relevant to individual experience. Comparison of the mean values of empowerment between male and female respondents did not reveal significant differences.

Only respondents who had participated in LLL in the last 12 months were included in the analysis. The mean values for all five indicators exceed 3.5 points, which demonstrates an above-average level of empowerment for most respondents. However, the indicators of subjective well-being remain below average, especially for the indicator of confidence in the future, which respondents assessed on a scale from 1 to 5.

Tab. 1: Descriptive statistics. Mean values and standard deviations are shown

Variables	All sample		Men		Women	
	Mean	Std.d.	Mean	Std.d.	Mean	Std.d.
EMP_1 The training has increased my confidence at work in solving professional issues, 5-point scale	3.78	1.06	3.75	0.98	3.79	1.11
EMP_2 The knowledge and skills acquired are relevant and necessary for the long-term development of my career, 5-point scale	3.79	1.07	3.79	1.01	3.79	1.10
EMP_3 Education has contributed to my personal growth, I have a better understanding of people, my role in society, 5-point scale	3.79	0.99	3.73	0.95	3.83	1.02
EMP_4 Education improved my critical thinking skills, gave me the freedom to choose and make good decisions in life, 5-point scale	3.92	0.94	3.86	0.94	3.96	0.94
EMP_5 After training, I feel that I have more control over the situation at work and in my family, 5-point scale	3.62	1.05	3.60	0.96	3.63	1.09
EMP_AVE Empowerment average value for five factors, 5-point scale	3.78	0.85	3.74	0.83	3.80	0.87
SWB_1 I usually feel that what I do in my life is valuable and useful, 5-point scale	3.59	0.90	3.59	0.90	3.59	0.90
SWB_2 Satisfaction with the degree of your confidence in future, 5-point scale	3.01	1.07	3.05	1.09	2.98	1.06
SWB_3 Satisfaction with the opportunities for professional growth, 5-point scale	3.08	1.15	3.05	1.13	3.10	1.16
EXP Experience in the industry in which the respondent currently works, years	12.71	9.63	13.10	9.19	12.47	9.89
SC_1 Meetings of communities of interest and hobbies (frequency), 5-point scale	2.35	1.41	2.31	1.37	2.37	1.44
SC_2 Meetings of communities on issues of well-being and psychological support (frequency), 5-point scale	1.50	1.08	1.45	1.08	1.53	1.09
NP How proud are you to be a Russian, 5-point scale	4.15	1.09	4.05	1.17	4.21	1.03
LLL_ORG Participation in LLL, formal education, institutionalized, dummy	0.69	0.46	0.69	0.46	0.68	0.46
LLL_SELF Participation in LLL, informal education through self-education, dummy	0.67	0.47	0.62	0.49	0.69	0.46
EDU_OPEN Do you share the principles of openness in the education system? 10-item 5-point scale	1.46	1.26	1.42	1.27	1.49	1.25
LLL_PAY_SELF Paid for the last training independently, dummy	0.59	0.49	0.52	0.50	0.64	0.48

Source: Author's calculations based on survey database

The level of participation in lifelong learning (LLL) was analyzed by types of training and compared with Rosstat data for 2020. Stratification weights, accounting for the industry of employment (covering 7 economic sectors), gender, and region of residence (8 federal districts), were used to calculate the indicators for each respondent. The indicators for formal training

showed no significant differences compared to the 2020 data (Table 2). However, the indicators for non-formal training within organizations and self-education increased significantly. This effect is partly due to the characteristics of the respondents, all of them are users of computers and other digital devices, which increases the likelihood of participation in these types of LLL. In addition, some of the changes can be attributed to an increase in the general level of digitalization in the Russian regions, as well as an increase in the availability and popularity of various educational platforms on the Internet.

Tab. 2: LLL participation rates based on weighted evaluations in 2024 compared to Rosstat data in 2020

LLL activities	2024	2020	Diff.
Formal education in specialized organizations	11.5	11.8	-0.3
Non-formal training, additional training	53.9	29.4	24.5
Self-education, informal education, non-institutionalized	44.1	32.5	11.6

Source: Author's calculations based on survey database, Rosstat data[1]

The analysis of detailed types of LLL activities for women and men revealed that, overall, women are more engaged in LLL. They are particularly active in short-term courses, visiting exhibitions, libraries, and museums, as well as studying specialized literature (Table 3). The most popular type of institutionalized education is participation in professional courses and retraining programs. However, self-education continues to be a widespread practice among both men and women.

Tab. 3: LLL participation rates by gender in 2024

LLL activities	Women	Men
General or secondary general education at a school or other similar organization	1.47	1.48
Secondary vocational education	2.21	1.35
Higher education – bachelor's or specialist's degree	2.49	2.38
Master's degree	1.31	0.90
Postgraduate study, assistantship-internship, residency, etc.	0.77	0.19
Advanced training and professional retraining	18.42	12.35
Driving training	2.90	1.89
Training in an organization with a mentor / tutor / coach / manager	3.50	1.88
Training in safety and labor protection in an organization	9.06	10.19
Short-term courses, seminars, trainings, master classes, internships	17.45	10.06
Foreign language courses	4.43	2.64
Computer and digital skills courses	2.45	1.85
Training in special schools (music, sport, etc.)	0.44	0.38
Physical education classes with a trainer	4.41	2.03
Learning new things and learning with the participation of colleagues, family members	5.51	3.30
Studying professional books, articles	12.77	8.71

[1] Rosstat. Results of a selective statistical survey of population participation in lifelong learning activities. URL: https://rosstat.gov.ru/free_doc/new_site/population/trud/inobr2020/index.html (Accessed 01.09.2024)

LLL activities	Women	Men
Studying educational materials in Internet, including video, audio, text	15.72	10.61
Financial literacy training in the field of receiving government services	5.35	2.76
Visiting museums, exhibitions, natural, historical or industrial sites	14.61	10.20
Visiting educational events in libraries, cultural centers	7.62	3.34
Applied education (art, creativity)	5.44	1.65

Source: Author's calculations based on survey database

The factor analysis of the five items designed to measure empowerment confirmed the integrity of the theoretical construct, as only one factor was identified using the principal component method (Table 4). The total explained variance was approximately 70%, and the Cronbach's alpha was above 0.85, indicating strong internal consistency among the items. Additionally, the factor loadings exceeded 0.8, further supporting the reliability of the construct.

Tab. 4: Factor analysis for empowerment items

Variable	Variance extracted	Factor loading	Alpha if item deleted
EMP_1	0.687	0.849	0.868
EMP_2	0.686	0.844	0.868
EMP_3	0.712	0.829	0.866
EMP_4	0.684	0.828	0.871
EMP_5	0.720	0.827	0.863
For all items together	**0.698**	**n.a.**	**0.892**

Source: Author's calculations based on survey database

The regression analysis was conducted in multiple stages, with variables gradually introduced into the model. The model containing only control variables explained about 16% of the variance in the dependent variable (Table 5). The subjective well-being indicators showed strong explanatory power, with the understanding of the value of everyday activities playing a statistically significant role in increasing empowerment for all individuals. However, for men, confidence in the future and satisfaction with future career opportunities were also significant factors, which is likely related to career ambitions and attitudes toward success among the majority of the surveyed men. Human capital indicators had a moderate impact on the empowerment gained through LLL participation. Among these, work experience had a notable negative effect: an increase in work experience correlated with a decline in the overall sense of control, critical thinking, and the relevance of skills for professional growth gained from LLL. Social capital indicators had a positive influence on empowerment for LLL participants overall, though this influence diminished for men, for whom national pride was more important. In contrast, for women, participation in communities focused on issues of interest and well-being

was more significant, which suggests differing priorities between genders regarding the factors contributing to empowerment.

Tab. 5: Regression analysis results. Dependent variable – the level of empowerment (EMP_AVE), only LLL participants included in analysis. * - significant at the 1% level, ** - significant at the 5% level

Independent variables	Controls only		Social capital effects		Full model - All		Full model - Women		Full model - Men	
	B	**t**	**B**	**t**	**B**	**t**	**B**	**t**	**B**	**t**
Constant	2.48*	9.61	2.22*	8.31	1.84*	12.84	1.99*	10.26	1.68*	7.75
SWB_1	0.24*	7.86	0.21*	7.10	0.20*	6.75	0.24*	6.10	0.14*	3.02
SWB_2	0.10*	3.58	0.06**	2.11	0.06**	2.30	0.04	1.20	0.10**	2.22
SWB_3	0.11*	4.36	0.10*	4.02	0.09*	3.67	0.08	2.53	0.11*	2.84
EXP	-0.01*	-4.21	-0.01*	-3.80	-0.01*	-3.38	-0.01*	-3.13	-0.01	-1.82
EDY	0.00	-0.12	0.00	-0.21	---	---	---	---	---	---
SC_1	---	---	0.06*	2.84	0.04**	2.26	0.04	1.73	0.04	1.40
SC_2	---	---	0.07*	2.65	0.06**	2.23	0.07**	2.07	0.04	1.09
NP	---	---	0.06**	2.50	0.07*	2.98	0.03	0.93	0.13*	3.57
LLL_ORG	---	---	---	---	0.13**	2.48	0.17**	2.37	0.09	1.00
LLL_SELF	---	---	---	---	0.22*	4.05	0.17**	2.46	0.27*	3.34
EDU_OPEN	---	---	---	---	0.05**	2.57	0.03	1.25	0.07**	2.30
LLL_PAY_SELF	---	---	---	---	0.10**	2.02	0.14**	2.12	0.04	0.56
R-square adj.	0.162		0.187		0.210		0.199		0.213	
R-square change	---		0.025		0.048		0.036		0.051	
F-statistics	39.35*		29.45*		24.98*		14.92*		11.05*	
Observations N	992		992		992		619		373	

Source: Author's calculations based on survey database

The target variables are significant at a level of less than 5% for the entire sample of respondents, but only self-education plays an important role for both women and men, while for women, formal training received in an institutionalized environment also plays a significant role in increasing empowerment. As a result, the hypothesis put forward was accepted: self-education does have a positive effect on empowerment. Additionally, for men, supporting the principles of openness in education was a significant factor, while for women, the act of self-payment for education had a notable effect on increasing empowerment.

Conclusion

LLL strategies, as key drivers for the reproduction of human capital among the employed adult population, are shaped and developed under the influence of technological changes that depreciate skills in the labor market, along with socio-demographic challenges. When developing educational policy, as a rule, social context indicators are considered, which are based on subjective well-being indicators, as well as empowerment. In the Russian labor market, the problems of subjective well-being have been sufficiently studied, while the

problems of empowerment, a sense of control and involvement among the population remain isolated. The study obtained several results: (1) subjective well-being has a positive effect on the empowerment of the population participating in LLL, (2) social capital indicators also have a positive effect on empowerment, but have gender differences, (3) self-education of adults has a positive effect on their empowerment.

The practical implications are as follows. In adult education policy, ensuring a differentiated approach for heterogeneous groups of the population should focus not only on the indicators of material return on investment in LLL, but also on broader indicators of the socio-economic context, such as empowerment and subjective well-being. Educational empowerment, measured through indicators like relevance, control, and the development of critical thinking, is significantly enhanced by participation in LLL. Self-study, which is independently planned and coordinated by individuals, has a particularly strong impact on empowerment. A limitation of the study is the linear approach to measuring empowerment, which relies on a limited number of indicators. Future research should aim to build an empirical framework for developing an empowerment mechanism that not only offers opportunities for the employed population but also promotes meaningful participation in civil society, a critical consideration in times of geopolitical uncertainty.

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