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Determinants of economic literacy among Russian university students: A Hierarchical Linear Modeling approach

Ekaterina Pavlova, Elena Kardanova*, Elena Tarovik
National Research University Higher School of Economics, Russia
*Corresponding Author: ekardanova@hse.ru

ABSTRACT

This study investigates factors influencing economic literacy among university students in Russia, addressing a significant gap in the existing literature. Economic literacy is widely recognized as a universal competency essential for navigating rapidly changing economic environments. Using a psychometrically robust Test of Economic Literacy (TEL) and a supplementary survey, the research employed Hierarchical Linear Modeling (HLM) to analyze data from 1,115 students nested within 56 academic groups across five Russian universities, accounting for both individual- and group-level influences. Key results identified academic specialization (both at high school and university levels) and individual interest in economics as the strongest positive predictors of economic literacy. Notably, receiving pocket money irregularly (vs. regularly) significantly enhanced economic literacy, suggesting adaptability benefits. Conversely, students enrolled in non-economic fields (e.g., humanities, social sciences, technical sciences, pedagogy, service/tourism) demonstrated lower levels of economic literacy compared to economics majors. Socio-demographic factors such as gender and age showed no significant effects. These findings highlight the importance of both formal academic pathways and informal experiential learning, offering insights for educators and policymakers seeking to enhance economic literacy in Russia's evolving economic landscape.

Keywords: economic literacy, HLM, determinants of economic literacy, university students

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INTRODUCTION

Economic literacy research spans decades. Global economic challenges including inequality and fiscal shifts (Baskara et al., 2024), as well as labor internationalization (Reichert-Schlax et al., 2022), heighten the need for informed economic decision-making. A significant contribution to the conceptualization of economic literacy comes from Walstad and colleagues, who advanced a formal definition rooted in both foundational knowledge and the capacity for application (Walstad et al., 2007). According to Walstad, economic literacy encompasses not only an understanding of essential economic concepts and principles, but also the ability to apply this knowledge in analyzing and making decisions about economic issues encountered in everyday life and in society more broadly.

A high level of economic literacy enables individuals to understand the long-term implications of their decisions, critically assess and discuss economic information, and foster economic autonomy and civic engagement (Federiakin et al., 2022). It ensures financial security, reduces vulnerability to fraud, and fosters professional success through entrepreneurship, boosting income and well-being. Individuals equipped with economic knowledge comprehend the mechanisms by which the economy functions, the rationale behind government decisions, and their likely consequences. Thus, economic literacy helps people adapt to complex, rapidly changing economic conditions, make informed decisions, and protect their interests.

In many countries, governments officially recognize the need for extensive knowledge and skills in economics. For instance, within the current Russian Federal State Educational Standards, financial literacy courses have been introduced in schools, and economic literacy courses in higher education programs. Moreover, economic literacy is considered an essential cross-disciplinary skill for all university students, particularly non-economics majors.

Studies on economic literacy have traditionally focused on developed countries, such as the United States and Germany, primarily due to the emphasis on maintaining high levels of economic literacy to support effective economic policies and socio-economic stability (Brückner et al., 2015; Förster et al., 2015; Reichert-Schlax et al., 2022). However, in recent years, there has been a notable shift in attention toward other countries, for example Indonesia (Hasan et al., 2022) and Malaysia (Nizam et al., 2020), as economic literacy is increasingly recognized as crucial for socio-economic development and financial inclusion.

The need to find ways to improve the economic literacy of individuals has stimulated research in many countries aimed at identifying key factors contributing to the formation of strong economic competencies. The determinants of economic literacy encompass seven key dimensions (Baskara et al., 2024; DİLEK et al., 2018). Socio-demographic factors (e.g., education level, income, age, gender) show strong correlations, with higher education and income generally predicting greater literacy (DİLEK et al., 2018; Martins & Veiga, 2020; Nizam et al., 2020; Reinhardt et al., 2021). Individual characteristics, such as cognitive abilities, interest in economics, and financial behaviors (e.g., budgeting), consistently enhance understanding (DİLEK et al., 2018; Hasan et al., 2022; Reichert-Schlax et al., 2022). Additionally, family influences, including parental financial habits and economic socialization, directly transmit practical skills. Institutional and cultural/national dimensions, such as curriculum design, educational systems, and societal norms, help explain cross-country variations (Brückner et al., 2015; Federiakin et al., 2022; Reichert-Schlax et al., 2022). Political factors (e.g., policy changes during economic crises) and technological factors (e.g., fintech adoption) also shape literacy, although these are less studied (Baskara et al., 2024).

Despite the expanding global research on economic literacy, studies focusing on Russian remain limited. While foundational comparisons exist (Federiakin et al., 2022), no prior work has holistically examined economic literacy determinants among Russian students. Recognizing that established tests like TUCE-4 (Walstad et al., 2007) and its Russian adaptation, U-TUCE (Kardanova et al., 2024), are predominantly tailored for economics majors, this study employs the Test of Economic Literacy (TEL), a novel instrument conceptualized for universal competency assessment. The TEL was developed by Higher School of Economics (HSE) experts, including the authors of this paper. This study addresses the identified gap by analyzing how socio-demographic, individual, educational, and familial factors shape economic literacy. The sample comprises students from five universities, nested within academic groups. This clustered structure necessitates HLM to model individual- and group-level effects.

The study addresses the following research questions: 1) Which student-level factors (e.g., socio-demographic characteristics, academic background) significantly predict economic literacy? 2) How do group-level factors (e.g., professional specialization) influence students' economic literacy?

METHOD

The Test of Economic Literacy (TEL), developed by Higher School of Economics (HSE) experts contains 60 multiple-choice items (30 microeconomic, 30 macroeconomic) addressing core economic concepts and real-world applications. The study also utilized a 13-item structured survey to assess factors influencing economic literacy across multiple domains: socio-demographics, educational background, employment experience, familial financial practices, and the Interest in Economics Scale (adapted from DİLEK et al., 2018).

Data were collected in September–October 2024 via the HSE's platform. TEL had a 90-minute time limit with randomized items. Participants completed the TEL followed by a supplementary survey. After excluding participants who completed the TEL in less than 15

minutes (N = 154) and academic groups with fewer than nine students (to ensure robust group-level estimates), the final sample comprised 1,115 students nested within 56 academic groups.

To confirm the psychometric quality of the TEL, Classical Test Theory (CTT) (Crocker & Algina, 2008) and Item Response Theory (IRT) (Van der Linden, 2018) were used. Classical analysis involved calculating item characteristics and computing Cronbach's alpha. IRT analysis used the Rasch dichotomous model (Wright & Stone, 1979) to assess model fit, dimensionality, reliability and measurement error. Interest in Economic Scale was analyzed under the Rating Scale Model (RSM) (Linacre, 2002). All analyses were performed using R (version 4.4.2), RStudio (version 2024.12.1.563) and Winsteps (version 5.2.3.0).

HLM was employed to account for the nested data structure (students within academic groups), as a significant intraclass correlation (ICC > .05) justified its use over traditional regression. The analysis proceeded in several stages. First, a null model (intercept-only model) was estimated to partition the variance in economic literacy scores into within-group and between-group components, and to calculate the ICC.

Following the null model, individual-level predictors were introduced to examine whether student characteristics and educational experiences explained within-group variance in economic literacy. The full model allowed for the simultaneous estimation of the effects of these predictors on economic literacy, while accounting for the hierarchical data structure. The specification for the full model is as follows (see Level 1 & Level 2).

Level 1:

$$Economic\ Literacy_{ij} = \beta_{0j} + \beta_{1j} * (female_{ij}) + \beta_{2j} * (age_{ij}) + \beta_{3j} * (interest\ score_{ij}) + \beta_{4j} * (work\ experience_{ij}) + \beta_{5j} * (pocket\ money_{ij}) + \beta_{6j} * (11th\ grade\ major_{ij}) + \beta_{7j} * (additional\ education_{ij}) + \beta_{8j} * (economic\ course_{ij}) + e_{ij} \quad \text{..... (1)}$$

Level 2:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} * (average\ state\ exam\ score_j) + \gamma_{02} * (year\ of\ study_j) + \gamma_{03} * (field\ of\ study_j) + u_{0j} \quad \text{..... (2)}$$

An additional analysis was conducted using ordinary least squares (OLS) regression on a subsample of HSE university students. The model retained seven student-level predictors from the original HLM specification but collapsed group-level variables into fixed effects at the individual level.

FINDINGS AND DISCUSSION

Findings

Instruments' reliability

TEL demonstrates strong psychometric properties. CTT analysis revealed high internal consistency (Cronbach's α = .92) after removing three poorly discriminating items. Subscale reliability was also high: α = .85 for microeconomics and α = .84 for macroeconomics. Item difficulty showed a wide range (.12–.84), while most items exhibited strong discrimination (>.40). Rasch modeling confirmed excellent person reliability (.90) and good separation (index = 3.08), with mean infit/outfit statistics (.99/1.02) indicating satisfactory model-data fit for most items. The separation index compares the distribution of student measures (the estimates of ability) with their measurement errors and indicates the spread of student measures in standard error units. The index can be used to calculate the number of distinct levels, or strata separated by at least three errors of measurement, in the distributions (Smith, 2001). In our case the number of strata is more than four, which implies that the test is able to distinguish between students of different ability levels. Principal Component Analysis of residuals supported the essential unidimensionality of the test. Thus, the combined CTT and Rasch evidence supports TEL as a robust, reliable measure of economic literacy for university students.

A similar analysis for the Interest in Economics Scale confirms its strong measurement properties. Under CTT, the scale exhibits good reliability, evidenced by Cronbach's alpha of .86, and all items show strong item-total correlations (.71-.76), confirming that each contributes meaningfully to the composite score. IRT analysis further supports robust reliability, with EAP person reliability estimates of .85 and a person separation index of 2.16 (strata = 3.21), indicating that the scale effectively distinguishes approximately three distinct levels of student interest. The scale is unidimensional and demonstrates excellent model-data fit. Analysis of the 5-point response categories confirmed ordered and functioning thresholds. Overall, the scale demonstrates high reliability, unidimensionality, and fit, supporting its validity for assessing economic interest.

Determinants of economic literacy: HLM results

The dependent variable, economic literacy, was represented as a raw score (the sum of correct answers to the TEL), later standardized as z-scores. Individual- and group-level characteristics are summarized in Table 1, while institutional distributions and academic preparedness metrics are detailed in Table 2.

The sample comprised predominantly female students (59.4%, N = 662), with ages ranging from 16 to 37 years (M = 18.82, SD = 1.73). Educational backgrounds were diverse: 28.7% (N = 320) reported no specialization in 11th grade, while others had focused on economics (19.0%), mathematics (24.2%), or other fields (28.1%). A minority had engaged in supplementary economics education (26.4%, N = 294) or completed a university economics course (27.3%, N = 304). Over half (53.7%, N = 599) reported having prior work experience, and most received pocket money regularly (61.3%, N = 683), reflecting varied financial socialization practices.

Groups were primarily economics-focused (69.2%, N = 772 students), with smaller proportions specializing in social sciences (8.4%), humanities (6.8%), or technical fields (≤2.1%). Most students were in their first year (60.9%, N = 679), followed by third-year (19.6%, N = 219), second-year (12.6%, N = 141), and fourth-year cohorts (6.8%, N = 74).

Participants were drawn from five Russian universities, with one leading research institution (HSE) contributing disproportionately to the sample (~59% of students). The remaining four partner universities represent different institutional profiles and regions, collectively accounting for 41% of participants. Academic preparedness varied substantially across institutions, as reflected in average Unified State Exam scores (USE, the state entrance exam to university in Russia) of applicants, ranging from 58 to 88.

The null model. The null model results are presented in Table 3. The ICC = .33 indicated that 33% of the variance in students' economic literacy scores was explained by clustering of students by academic groups, while 67% resided at the individual level. This result suggests significant within-group homogeneity, justifying the use of multilevel modeling.

The partially conditional model. As presented in Table 4, the partially conditional model identified several significant predictors of economic literacy. Dummy variables were coded with the following reference categories: specialization in economics for both 11th-grade and university-level academic tracks, regular pocket money, and male gender, with no responses as defaults for binary indicators. The strongest positive association was observed for additional economic education during the school period ($\beta = .26$, $p < .001$), followed by irregular receipt of pocket money ($\beta = .17$, $p = .001$) and interest in economics ($\beta = .11$, $p < .001$). Conversely, negative effects emerged for non-economics and mathematics school majors ($\beta = -.26$, $p = .001$), mathematics majors ($\beta = -.25$, $p = .001$), and no school major ($\beta = -.20$, $p = .009$). All other predictors showed no statistically significant associations with economic literacy ($p > .05$).

The full model. The full model results, with the reference group for university field of study defined as economics, are presented in Table 5. Among student-level predictors, additional economic education ($\beta = .27$, $p < .001$), irregular receipt of pocket money ($\beta = .18$, $p = .001$), interest in economics ($\beta = .09$, $p = .001$), and work experience ($\beta = .11$, $p = .031$) exhibited positive associations with economic literacy. Conversely, non-economics and mathematics school majors ($\beta = -.25$, $p = .001$), and absence of a school major ($\beta = -.18$, $p = .014$) showed significant negative effects. Remaining variables showed no significant associations ($p > .05$).

Table 1. Descriptive statistics of the variables

Variable		N	%
Student-level (1,115 students)			
Demographic			
Gender			
	Male	453	40.6 %
	Female	662	59.4 %
Age		From 16 to 37. Mean = 18.82 (SD = 1.73)	
Education			
Specialization in 11th grade			
	Economics	212	19%
	Mathematics	270	24.2 %
	Another specialization	313	28.1 %
	No major	320	28.7 %
Additional classes/courses related to economics			
	Yes	294	26.4 %
	No	821	73.6 %
Course in economics at university			
	Yes	304	27.3 %
	No	811	72.7 %
Individual			
Interest		From 3 to 15. Mean = 9.2 (SD = 3.44)	
Work experience			
	Yes	599	53.7 %
	No	516	46.3 %
Family			
Pocket money			
	Yes, regularly (e.g. once a week, once a month)	683	61.3 %
	Yes, irregularly	340	30.5 %
	No	92	8.3 %
Group-level (56 groups)			
Specialization			
	Economics	772	69.2 %
	Social sciences, except economics and pedagogy	94	8.4 %
	Pedagogy	55	4.9 %
	Humanities	76	6.8 %
	Mathematics, informatics and computer science	23	2.1 %
	Technical sciences and technologies	19	1.7 %
	Service, tourism	76	6.8 %
Year of study at university			
	1	679	60.9 %
	2	141	12.6 %
	3	219	19.6 %
	4	74	6.8 %

Table 2. Distribution of students, academic groups and average unified state exam scores by university

University	Students	% of Students	Groups	% of Groups	Average Unified State Exam Score
HSE	657	58.9 %	27	48.2 %	88
University 2	23	2.1 %	2	3.6 %	61
University 3	204	18.3 %	12	21.4 %	62
University 4	144	12.9 %	12	21.4 %	58
University 5	87	7.8 %	3	5.4 %	62
Total	1115		56		

Table 3. Null model

Predictors	Economic Literacy (z-scores)		
	Estimates	CI	p
(Intercept)	.05	-.10 – .21	.489
Random Effects			
σ^2	.63		
$\tau_{00\ group}$	.31		
ICC	.33		
$N_{\ groups}$			56
Observations			1115
Marginal R^2 / Conditional R^2	.000 / .329		

Table 4. The partially conditional model

Predictors	Economic Literacy (z-scores)		
	Estimates	CI	p
Fixed Effects			
(Intercept)	.16	-.05 – .36	.134
Gender	-.04	-.14 – .07	.486
Age	-.01	-.08 – .05	.696
Interest (z-scores)	.11	.06 – .17	<.001
Work Experience	.08	-.02 – .18	.107
Pocket Money: Yes, irregularly	.17	.07 – .28	.001
Pocket Money: No	.12	-.06 – .30	.186
Didn't have a major in 11th grade	-.20	-.34 – -.05	.009
I had another major	-.26	-.40 – -.11	.001
I majored in mathematics	-.25	-.40 – -.11	.001
Additional economic education	.26	.15 – .38	<.001
Economic Course	-.19	-.39 – .01	.058
Random Effects			
σ^2	.60		
$\tau_{00\ group}$	.22		
ICC	.27		
$N_{\ groups}$			56
Observations			1115
Marginal R^2 / Conditional R^2	.075 / .326		

At the group-level, average state exam score (β = .30, p = .001) emerged as a strong positive institutional predictor, while enrollment in humanities (β = -.90, p = .038), other technical sciences (β = -.83, p = .006), pedagogy (β = -.78, p = .027), service and tourism (β = -.68, p = .002), and social sciences (β = -.61, p < .001) significantly reduced economic literacy, while mathematics/computer science programs and year of education showed no significant effect.

Regression analysis with HSE subsample

An additional analysis was conducted using ordinary least squares (OLS) regression on a subsample of HSE university students (N = 685, Table 6). Compared to the full sample (N = 1,115), the HSE sample had a more balanced gender distribution (53.4% female vs. 59.4% in the full sample) and stronger economics-oriented backgrounds: a higher proportion specialized in economics at the university level (87.4% vs. 69.2% in the full sample), and more students had taken additional economics courses (30.9% vs. 26.4%). In addition, 86.1% of the HSE sample were first-year undergraduates, compared to 60.9% in the full sample. Work experience was less common among HSE students (47.9% vs. 53.7%), while regular pocket money allocation was slightly more prevalent (64.2% vs. 61.3%).

The results of the regression model of the subsample (N = 685, R^2 = .208) are shown in Table 7. The analysis used reference groups for dummy variables consistent with the prior HLM specification. The strongest positive predictor of economic literacy was additional economic education (β = .46, p < .001), followed by irregular receipt of pocket money (β = .23, p = .001)

and interest in economics (β = .10, p = .008). Conversely, the most substantial negative associations were observed for enrollment in humanities university programs (β = -1.19, p = .012), non-economics and non-mathematics school majors (β = -.47, p < .001), and absence of a school major (β = -.34, p = .001). A weaker negative effect emerged for mathematics majors (β = -.21, p = .020). The remaining variables did not have significant effects on economic literacy.

Table 5. The full model

Predictors	Economic Literacy (z-scores)		
	Estimates	CI	p
Fixed Effects			
Student-level variables			
(Intercept)	.27	.05 – .48	.014
Gender	-.04	-.14 – .07	.483
Age	.01	-.06 – .07	.826
Interest (z-scores)	.09	.04 – .15	.001
Work Experience	.11	.01 – .21	.031
Pocket Money: Yes, irregularly	.18	.07 – .28	.001
Pocket Money: No	.12	-.06 – .29	.199
Didn't have a major in 11th grade	-.18	-.33 – -.04	.014
I had another major	-.25	-.40 – -.11	.001
I majored in mathematics	-.25	-.40 – -.11	.001
Additional economic education	.27	.15 – .38	<.001
Economic Course	-.01	-.25 – .23	.948
Group-level variables			
Average State Exam Score	.30	.12 – .48	.001
Course	.14	-.09 – .37	.231
Humanities	-.90	-1.75 – -.05	.038
Other Technical Sciences	-.83	-1.42 – -.23	.006
Mathematics, Computer Science	.06	-.53 – .65	.836
Social Sciences (Law, Management, Sociology)	-.61	-.94 – -.27	<.001
Pedagogy	-.78	-1.48 – -.09	.027
Service, Tourism	-.68	-1.10 – -.25	.002
Random Effects			
σ^2	.60		
$\tau_{00\ group}$	.09		
ICC	.13		
$N_{\ groups}$			56
Observations			1115
Marginal R^2 / Conditional R^2	.291 / .381		

Discussion

This study demonstrates that university students' economic literacy is shaped by a multifaceted interplay of individual, educational, familial, and socio-demographic factors. Specifically, individual factors associated with personal interest in economics, alongside educational factors related to taking economics-oriented courses, exert a significant positive influence. The familial factor revealed a notable nuance: irregular disbursement of pocket money during adolescence positively correlates with economic literacy, whereas regular disbursement showed no significant correlation. Notably, socio-demographic factors, including gender and age, did not demonstrate statistically significant effects. Furthermore, regression analysis conducted on a subset of HSE students yielded results largely consistent with these multi-level findings, enhancing the validity and robustness of the conclusions. The overall pattern aligns well with the Resourceful, Evaluative, Maximizing Model (REMM), which conceptualizes individuals as inherently curious, evaluative, and resourceful actors with unlimited wants seeking to maximize utility (Jensen & Meckling, 1994).

Table 6. Descriptive statistics of variables for HSE subsample

Variable		N	%
Demographic			
Gender			
Male		319	46.6 %
Female		366	53.4 %
Age		From 16 to 37. Mean = 18.37 (SD = 1.65)	
School Education			
Specialization in 11th grade			
Economics		144	21%
Mathematics		206	30.1 %
Another specialization		190	27.7 %
No major		145	21.2 %
Additional classes/courses related to economics			
Yes		212	30.9 %
No		473	69.1 %
University Education			
Specialization			
Economics		599	87.4 %
Humanities		86	12.6 %
Year			
	1	590	86.1 %
	2	8	1.2 %
	3	10	1.5 %
	4	77	11.2 %
Employment			
Work experience			
Yes		328	47.9 %
No		357	52. 1 %
Family			
Pocket money			
Yes, regularly (e.g. once a week, once a month)		440	64.2 %
Yes, irregularly		196	28.6 %
No		49	7.2 %

Note: N = 685

Table 7. Regression analysis

Predictors	Economic Literacy (z-scores)		
	Estimates	CI	p
(Intercept)	.73	.42 – 1.03	<.001
Gender	-.12	-.24 – .01	.077
Age	.01	-.08 – .09	.837
Interest (z-scores)	.10	.03 – .17	.008
Work Experience	.12	-.01 – .24	.073
Pocket Money: Yes, irregularly	.23	.10 – .37	.001
Pocket Money: No	.10	-.14 – .35	.402
Didn't have a major in 11th grade	-.34	-.54 – -.15	.001
I had another major	-.47	-.66 – -.29	<.001
I majored in mathematics	-.21	-.38 – -.03	.020
Additional economic education	.46	.32 – .60	<.001
Year of study at university	.30	-.01 – .60	.061
Humanities	-1.19	-2.11 – -.26	.012
Observations	685		
R^2	.208		

Socio-demographic factors

In the present study, both gender and age were found to have no statistically significant influence on economic literacy. Consistent with the majority of research involving student populations, age typically shows no significant effect on economic literacy outcomes (Nizam et al., 2020; Reichert-Schlax et al., 2022). The absence of an age effect, and potentially also the lack of a gender effect, could be explained by the selective nature of university admission. This process likely creates a student cohort with relatively homogeneous baseline knowledge and capabilities, minimizing variation attributable to these demographic factors. The finding of an insignificant gender effect aligns with studies conducted in Malaysia and Japan, where gender was not a significant predictor of economic literacy (Nizam et al., 2020; Reichert-Schlax et al., 2022). In contrast, research on students from Germany, the United States, and Portugal has reported notable gender disparities, with males outperforming females in economic literacy measures (Brückner et al., 2015; Martins & Veiga, 2020; Reichert-Schlax et al., 2022). These divergences may be explained by contextual factors such as differences in educational approaches and cultural norms regarding gender roles. Additionally, variations in confidence, socialization experiences, and access to economic information may contribute to the presence or absence of gender differences in economic literacy across different countries. Crucially, within the specific context of our university sample, the shared information environment, where students access economic materials through university courses, the internet, and life experiences, may further diminish gender-based disparities in information acquisition and literacy development.

Individual factors

The analysis revealed that interest in economics emerged as a robust predictor of economic literacy, aligning with findings from previous research conducted among students in Turkey, Germany, and Japan (DİLEK et al., 2018; Reichert-Schlax et al., 2022). These studies similarly highlight that greater interest in economic topics enhances students' engagement and comprehension, thereby improving their economic literacy. In contrast, work experience exhibited inconsistent significance across models. While it showed a positive association in partial conditional models, its effect diminished in full models and HSE subsample regressions. This variability contrasts with findings in Portugal, where work experience negatively predicted economic literacy (Martins & Veiga, 2020). The divergence suggests that the impact of work experience may depend on qualitative factors such as job type, duration, and alignment with economic reasoning.

Familial factors

This study identifies irregular pocket money allocation as a significant positive predictor of economic literacy compared to regular allocations, whereas no pocket money showed no statistically meaningful difference from regular provision. To our knowledge, this is the first study to incorporate the dimension of regularity in pocket money provision as a parameter influencing economic literacy outcomes. The positive effect of irregular allocations may be caused by the necessity to manage resources under conditions of variability. For adolescents, pocket money often serves as the primary resource for non-essential spending on goods associated with immediate gratification or social value. Managing these finite funds necessitates optimization and utility maximization behaviors central to the Resourceful, Evaluative, Maximizing Model (REMM) (Jensen & Meckling, 1994). Irregular allocation introduces a degree of uncertainty regarding timing and amount, mirroring real-world income fluctuations. This environment potentially cultivates essential economic competencies: wise budgeting, strategic planning for expected financial demands, adaptive decision-making in response to changing circumstances, and enhanced impulse control. Furthermore, navigating this uncertainty may stimulate more frequent economic discussions with parents, thereby enriching financial learning. This suggests that beyond the quantity of financial resources provided, the nature of familial economic education practices including the reasons behind irregularity and the context in which pocket money is given may be critical in shaping economic literacy. This research represents an initial exploration into the impact of allocation regularity. Future studies should further explore the

underlying mechanisms by examining contextual factors such as the periodicity and magnitude of irregular allocations; their proportion relative to household income; and parental educational strategies and philosophies, particularly concerning the balance between providing financial support and fostering autonomy, accountability, and responsibility. Understanding these nuances is crucial for comprehending how familial practices effectively develop economic literacy.

Educational factors

Educational factors play a pivotal role in shaping economic literacy, fundamentally influencing the acquisition of economic knowledge and the development of essential decision-making skills. This significance is underscored by the Resourceful, Evaluative, Maximizing Model (REMM) (Jensen & Meckling, 1994), which conceptualizes individuals as rational actors with unlimited wants, constantly seeking to maximize utility through resource allocation. Economic literacy serves as a critical enabler within this framework, equipping individuals with the tools to optimize budgeting, assess opportunity costs, evaluate income-generating strategies, and understand the personal implications of economic events. Based on life experience and economic knowledge, skills might be formed automatically, regardless of the individual's desires. However, a high level of economic literacy depends not only on practical experience, but also on acquired knowledge. Our study examined multiple educational dimensions. At the individual level, participation in additional (extracurricular) economic education demonstrated a significant positive effect on economic literacy. This finding aligns with research by Happ et al. (2018) in Germany, confirming that extracurricular economic activities enhance students' knowledge and competencies. Similarly, students who majored in economics at the secondary school level exhibited significantly higher economic literacy compared to peers in other fields, consistent with evidence from Portugal where Martins & Veiga (2020) reported a positive impact of an economics major on financial literacy outcomes.

At the group level, university field of study emerged as a significant predictor of economic literacy. Students enrolled in non-economic fields generally scored lower, except for those in mathematics and information technology, whose performance did not significantly differ from economics students. This finding resonates with studies from Turkey, Portugal, Malaysia, and Germany (DİLEK et al., 2018; Martins & Veiga, 2020; Nizam et al., 2020; Reinhardt et al., 2021), all of which highlight the positive influence of studying economics or related quantitative disciplines on economic literacy. Moreover, the average state exam score of university students was positively and significantly associated with economic literacy, supporting the notion that overall academic achievement contributes to economic knowledge. This result is consistent with institutional research, including studies involving selective universities (Kardanova et al., 2015), which show that students attending more academically rigorous or selective institutions tend to achieve higher levels of subject-specific literacy.

These findings underscore the importance of both specialized and general academic preparation in shaping economic literacy necessary for REMM-aligned utility maximization. Future research should investigate the optimal characteristics of economic education programs, including the balance of theoretical and practical application, pedagogical methodologies, and instructor qualifications. Such insights are crucial for designing curricula that effectively equip students with robust economic understanding for real-world decision-making.

Supplementary regression analysis of the HSE subsample generally confirms the main conclusions of the primary multilevel model analysis. Key student-level determinants demonstrating stable positive associations with economic literacy in both analyses include supplementary economic education, irregular receipt of pocket money during childhood, and interest in economics. A similar negative effect associated with the absence of a specialized economics track in school persists in the HSE subsample. Enrollment in humanities programs retained its significant negative association, but the statistical significance of work experience was lost in the HSE model. Overall, the results of the supplementary regression analysis confirm the robustness of the key student-level determinants identified in the full-sample analysis.

This study has several limitations. Differences in participant selection procedures among the partner universities may affect the sample's representativeness for the broader Russian student

population. It is also important to note the variability in testing conditions (classroom vs. home-based), which could have impacted the reliability of the results. Furthermore, the sample does not encompass all types of higher education institutions, necessitating caution in interpretation.

CONCLUSION

This study represents the first investigation of factors influencing the economic literacy of students at Russian universities, addressing a significant gap in the academic literature. Using HLM, it has demonstrated that economic literacy is shaped by both formal academic trajectories and informal experiential factors. Key robust predictors consistently identified across the analyses include academic specialization (at both school and university levels), extracurricular economic education, individual interest in economics, and the irregular receipt of pocket money from parents during childhood, an intriguing aspect suggesting that the importance of the nature of family financial socialization practices extends beyond the mere fact of financial support. Based on the findings, educators may consider activities to foster students' interest in economics. Educational policymakers should focus efforts on supporting family financial socialization and on equalizing the levels of economic literacy among students across universities in different regions of Russia. Future research could deepen and extend these findings by conducting a more detailed analysis of institutional factors at the university level; investigating new aspects of family financial socialization practices (including parental modeling); and implementing a longitudinal design to assess the dynamics of economic literacy development. Thus, the systemic enhancement of economic literacy in Russia depends on the harmonious integration of formal educational institutions and targeted informal practices.

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