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Personal Income Tax Deductions and Demand for Education: Case of Russia

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ABSTRACT

Tax system creates various incentive effects that can influence an individual's educational choice. Many studies have been conducted on the effect of tax incentives on education, however, no study that reveals such an effect has been conducted in Russia. With this in mind, we aimed to analyse whether the tax incentives for education influence the household's decisions to receive an education in Russia. In this context, we analysed the correlation between the number of individuals who received tax deductions and the number of individuals who received education by regions of the Russian Federation. The data source was tax reporting data of Federal Tax Service and the 2020 census data. The research methodology includes methods of regression and correlation analysis. The results show that tax incentives for education have low impact on the of household's decisions to receive an education in the Russian Federation. Tax deduction has a stable but weak positive association with total numbers of students. The calculated parameters of the model explain the dependence between the deduction for expenses for own education and quantity of people who receive education by 9.2% and dependence between the deduction for expenses for full-time education of children and quantity of people who receive education by 5.5%. There is low probability that the announced rise of the limit of social deduction in 2024 will change the situation. But government should continue to provide federal funding through tax benefits to promote voluntary compliance by fostering favourable taxpayer views of the tax system.

KEYWORDS

tax deductions, tax incentives, education, educational choice, regions of Russia

JEL I22, I26, H22, H31

УДК 336.228

Вычеты по индивидуальному подоходному налогу и спрос на образование: опыт России

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АННОТАЦИЯ

Налоговая система создает различные стимулирующие эффекты, которые могут исказить образовательный выбор человека. Было проведено много исследований влияния налоговых льгот на образование, однако исследований, раскрывающих такой эффект в России, не проводилось. В этом контексте мы стремились проанализировать, влияют ли в России налоговые льготы по об-

разованию на решения домохозяйств получить образование. Была изучена взаимосвязь между данными о численности физических лиц, получивших налоговые вычеты, и сумме налоговых вычетов по регионам Российской Федерации и численности лиц, получающих образование, в разрезе регионов в 2020 г. Источником послужили данные налоговой отчетности Федеральной налоговой службы и данные переписи населения 2020 г. Методология исследования включает методы регрессионного и корреляционного анализа. Результаты показывают, что налоговые льготы по образованию мало влияют на решения домохозяйств о получении образования в Российской Федерации. Налоговый вычет имеет устойчивую положительную связь с общим количеством обучающихся. Рассчитанные параметры модели объясняют зависимость между вычетом на расходы на собственное обучение и количеством получающих образование на 9,2% и зависимость между вычетом расходов на очное обучение детей и количеством получающих образование на 5,5%. Маловероятно, что объявленное повышение лимита социальных вычетов в 2024 г. изменит ситуацию. Но государство должно продолжать предоставлять федеральное финансирование через налоговые льготы, чтобы способствовать добровольному соблюдению налогового законодательства путем формирования благоприятного отношения налогоплательщиков к налоговой системе.

КЛЮЧЕВЫЕ СЛОВА
налоговые вычеты, налоговые льготы, образование, образовательный выбор, регионы России.

1. Introduction

Tax system creates various incentive effects that can distort an individual's educational choices. Some of these tax effects discourage higher education, while others may encourage an individual's desire and choice to pursue higher education or improve skills. The structure of the tax system affects how long a person studies. Taxing capital income increases incentives to improve education, while a progressive payroll tax reduces those incentives.

Torres [1] summarized the information concerning the influence of taxes on the financial incentive to invest in post-compulsory education and lifelong learning in 31 OECD countries, India and South Africa.

She resumed that taxes have an immediate or direct impact on the incentive to invest in skills formation through following channels: (1) the tax treatment of the direct educational costs (e.g. tuition fees); (2) the tax treatment of savings (or equity), debt, income and fringe benefits (e.g. employer-paid training) used to finance the investment in education; (3) the (notional) tax treatment of foregone earnings or profits; (4) the (notional) tax treatment of foregone capital income; (5) the tax treatment of gross financial benefits (higher earnings for individuals and higher profits for employers); (6) tax features that provide insurance against the uncertainty of investment returns; (7) earmarked taxes on employers or tax-like mechanisms that ensure a minimum level of investment in training.

In our research we will concentrate on the first channel: the tax treatment of the direct educational costs.

Scientific publications offer two main points of view on the impact of this tax incentives on education.

The first argument, commonly referred to as "return on investment", is as follows. Tax incentives encourage people to invest more in their own education, which will lead to increased incomes and positive externalities from education. They are valuable not only to the individual receiving the benefit, but for society as a whole. Improvements should be such that tax incentives as government tax expenditures eventually pay off on their own for the government in particular or society as a whole.

This analysis of an educational policy within the context of an optimal taxation was started by Sheshinski (1972) [2], Atkinson (1973) [3] and Hamada (1974) [4] and continued in more recent works.

Blomquist [5] focuses on how large a fraction of educational expenses should be deductible.

Findeisen & Sachs [6] study tax policies and the optimal structure of education subsidies and find that the effect depends on how labor taxes are designed.

Da Costa & Severo [7] characterized optimal income taxes and human capital policies in a two period Merrilee's economy.

Dupor et al. [8] focus on the two distortions in the tax system that influence human capital most directly. The first distortion arises from the fact that not all inputs into human-capital production are tax-deductible The second distortion arises from the progressivity of the tax system, which discourages human-capital investment by reducing its return.

Another point of view is tax incentives are a tax cut. It is unevenly distributed, and the main beneficiary of the benefits is the middle class, since the poor cannot afford to pay for education, and for the rich this benefit is not significant.

For example, Boadway et al. [9] show that households differ in their ability to accumulate wealth and where the government has redistributional objectives, time inconsistency of tax policy arises.

Socias [10] shows that tax deductions and tax credits for educational expenditures tend to benefit not only higher-income individuals but higher-income districts.

Empirical justifications are provided to support each of these points of view. Most of the research is devoted to assessing the return on investment in education. To do this, it is necessary to prove that tax benefits and education decisions have a causal relationship. If this relationship is established, it is possible to predict the impact of education received on lifetime earnings. The absence of a causal relationship between benefits and education decisions and data on the distribution of benefits between households are proof of this point of view. As can be expected, most of empirical research devoted to this topic were conducted in developed countries especially in USA and Northern Europe countries.

For example, Koerselman & Uusitalo [11] find that university education in Finland is associated with about a half a million euro increase in discounted lifetime disposable income compared to vocational high school.

Gong & Pan [12] estimated the returns to an additional year of advanced undergraduate education The implied earnings return to the additional year of college is about 12 % six months after graduation.

Fischer [13] quantify the private and fiscal lifetime returns to higher education in Germany accounting for the redistribution through the tax-and-transfer system and find that private and fiscal returns are substantially higher than current market interest rates.

The purpose of this paper is to investigate the impact of tax incentives on education in the Russian Federation (RF). It's of current interest before the announced rise of the limit of social deduction in 2024.

The research hypothesis is following – tax incentives encourage people to invest more in their own education in Russia.

In this paper the authors set the following *research question*. Does the tax incentives for education in the Russian Federation influence the of household's decisions to receive an education and for what extend? To find the answer we used data from tax statistics and national census results.

The paper is structured as follows. In the next section of the paper, we explore the literature devoted to the topic, and describe the system of tax and nontax incentives for education in Russia, followed by explanation of the research method and data, next is the presentation of the results. The final part is devoted to discussion and conclusions.

2. Literature review

The empirical literature devoted to the topic can be divided into several groups.

The first group covers studies about the impact of fiscal policy on education. Studies in the US show that some public schools depend on property tax, and some – on federal support [14].

Researchers from RAND Corporation [15] examined how increases in educational attainment are associated with tax revenues, funds for social support and insurance programs, and spending on incarceration. The researchers found that an increase in a student's educational attainment – for example, completing high school rather than dropping out – is associated with substantial value for taxpayers over time.

Some political connection was discovered Poutvaara [16] between investments in education and voter's preferences in taxes. After investments in education have taken place, the median voter has an incentive to impose high taxes.

Another part of literature explores if tax incentives encourage training investments. Some authors declare positive effect of tax incentives, but others declare no effect.

2.1. Positive effect of tax incentives

Alstadsæter [17] discusses and provides evidence of the positive impact of a progressive income tax in the motivation to continue education. In her other work [18], she explores how the tax system influences an individual's choice of education type and hypothesizes that a progressive tax system might introduce distortions into an individual's choice of education and to encourage him to choose to a greater extent the type of education with a higher consumer value. She also claims [19] that educational choice is often not a constant choice of how many years of higher education to receive, but a discrete choice between different levels of education. In most cases, a person must get a degree (or complete a certain stage of education) in order to get a return on investment in education.

Viianto [20] studies the impact of a linear tax scale on educational decisions and welfare in a two-period model in which the educational decision is discrete and its returns are uncertain. He concludes that the linear tax rate has a positive effect on the number of agents who decide to pursue higher education. This effect becomes negative when income is returned in the form of a one-time transfer.

Leuven & Oosterbeek [21] investigate to what extent the resulting cost reduction encourages training investments with two different identification strategies. The first strategy uses the progressive structure of the income tax scheme and compares groups with taxable income just above or just below kinks. The second strategy takes advantage of the tax reform, which implied substantial changes in marginal tax rates. The results point in the same direction: tax incentives increase training participation.

Van den Berge et al [22] study what extent a tax deduction helps to stimulate post-initial training. Specifically, they employ a regression kink and regression discontinuity design as jumps in tax bracket rates generate exogenous variation in the effective costs of lifelong learning. Using high quality data on tax returns of the universe of Dutch taxpayers, authors find that the tax deduction has heterogeneous effects on lifelong learning. Low-income singles show no response. For high-income singles there is an effect of 10% on the probability to use the tax deduction. They also studied the effects of a tax deduction for lifelong learning [23], exploiting exogenous variation in the effective costs of lifelong learning due to jumps in tax bracket rates. The results: Low-income individuals show no response, but high-income individuals are more likely to report lifelong learning expenditures (though not a higher amount) when net costs are lower.

Elsayed [24] examines the effect of education tax benefits on college completion. His results suggest that tax benefits increase the likelihood of completing a college degree by 8 percentage points.

Bednar & Gicheva [25] examines how the tax code and government education policies affect graduate enrollment and find that graduate attendance is higher when the tax exemption is available.

2.2. No effect of tax incentives

Bulman & Hoxby [26] analyzed tax returns and other administrative documents to find the impact of tax credits and tuition deductions on learning outcomes, concluded that tax credits have no effect

on the choice of educational paths or motivation to study. In another study [27] they find no evidence that the deduction increases college enrollment.

Heim & Winecoff [28] results imply that offering a tax benefit per se does not significantly increase the percentage of educational accounts or the average balances in accounts.

Dynarski & Scott-Clayton [29] come to the conclusion that that the tax credits and tuition tax deduction have precisely zero effect on human capital accumulation. If their intent is to increase schooling, they are a failure.

2.3. Overview of tax and non-tax incentives for education in Russia

In the Russian Federation, the federal government supports higher professional education and advanced training for citizens in the following ways:

– budget funding (state-funded scholarship, grants and funding for advanced training and retraining programs);

– subsidized student loan rate;

– funding education through "maternity capital";

– tax deductions and exemptions.

Budget funds play a leading role in financing all types of education, except for vocational training programs and additional professional programs. The state as a whole provides about 60% of the costs for all types of education[1]. The funds of the population are maximum in the costs of secondary vocational education and programs of additional education. Considering the possible impact of tax incentives on additional education, it should be taken into account that, on the one hand, it is closely related to the situation on the labor market, and, on the other hand, it is necessary for some specialties.

A reduced rate on a loan is a relatively new way of stimulating education in Russia. Its activation began in 2020, when a fixed interest rate of 3% per annum was set for a state-supported educational loan. 14.58% per annum is reimbursed through state subsidies.

As a result of the admission campaign for the 2021/2022 academic year, 16,813 agreements on the provision of educational loans with state support were concluded. This is 2.5 times more than in 2020/2021. This share is negligible, given that, according to the Ministry of Education and Science, in total, more than 2 million students studied at Russian universities on a paid basis in 2020 and 2021[2].

The number of those who financed education at the expense of "maternity capital" grows. Approximately 62.86 billion rubles were spent on the education of children from 3 trillion rubles of "maternity capital" in 2009–2020. Approximately 70% payers sent "maternity capital" for paid educational services, and 30% – for the maintenance of children in educational organizations[3].

Tax incentives that promote lifelong learning in Russia can be divided into incentives for citizens and for employers (Table 1).

Table 1

Tax incentives for education according to the Tax Code of the Russian Federation in 2023

Incentives for citizens	Incentives for Employers
Social deduction for the cost of educating children 13% of the amount but no more than 50,000	Inclusion of employee training costs in expenses
Social deduction for expenses for their education, brother sister 13% but not more than 120,000, taking into account other social expenses	
Social deduction for expenses for charity no more than 25% of income	
Exemption of scholarships from personal income tax	

[1] Bondarenko N.V., Gokhberg L.M., Zorin O.A. at al. Indicators of Education 2022: Statistical Collection. Moscow: NRU VSHE, 2022. 532 p. Available at: https://issek.hse.ru/mirror/pubs/share/557472415.pdf

[2] Official site of the Federal State Statistics Service. Russian Statistical Yearbook 2021. Education. Available at: https://gks.ru/bgd/regl/b21_13/Main.htm

[3] Bulletin of the Accounts Chamber of the Russian Federation, 2021, No 9. Maternity capital. Available at: https://img-cdn.tinkoffjournal.ru/-/mat-kapital.pdf

Costs of training and advanced training of employees are included in employers' expenses and thereby reduce income tax. This tax incentive has not yet led to a significant increase in employers' spending on education.

Employers' spending on education and advanced training of their employees look quite modest. So, according to one of the surveys conducted in 2022 in those companies where there is a corporate training system, it affects an average of 57% of employees. At the same time, large companies that employ more than 2,000 people involve 83% of their employees in training. While for small businesses this figure is almost two times less – only 46%. For ordinary employees, the amount spent on their training is 14,900 rubles per year, and for top managers – 38,100 rubles. The average budget for one employee training in 2021 was 26,500 rubles. Savings in income tax per employee will be 5,300 rubles in this case.

Data from a sample survey of organizations by Rosstat show even more modest data. Thus, the cost of vocational training is only 0.3% of labor costs, or 2156 rubles per year per employee. The share of expenses varies from 0.1% in trade, credit and real estate operations to 0.5% in transport, where training is a production necessity for ensuring security.

Incentives for citizens include two types of social tax deduction for education, a deduction for charity, which can also be used to fund educational organizations, as well as tax exemption for scholarships and grants.

The first deduction is a deduction for the cost of educating children (or patronized). The deduction is limited to the amount of expenses of 50,000 rubles per year for both parents.

The second deduction is a deduction for the cost of paying for your own education, the education of a brother or sister.

You can get a deduction for tuition costs:

1) in universities and secondary vocational schools;

2) in kindergartens;

3) in schools;

4) in institutions of additional education for both adults and children (for example, advanced training courses, employment service training centers, youth sports schools, music schools, children's art schools, etc.);

5) in other educational institutions.

A social tax deduction for expenses for charity is provided in the amount directed by an individual during the year for charitable purposes in the form of monetary assistance to non-profit organizations operating in the field of education in the amount of not more than 25% of the income received by an individual for the year.

3. Research method and data

As was mentioned above we want to figure out which one of two main points of view on the impact of tax incentives on education fits circumstances of modern Russia. To prove or to deny the first argument, that tax incentives encourage people to invest more in their own education we analyzed the correlation between tax deductions and the share of population receiving education.

We proceeded from the assumption that tax deductions could influence the household decision towards education. The result of this influence will be reflected in a large proportion of people receiving the education.

We decided to study the data about tax deductions and education in different regions of Russia. The year 2020 was chosen for the study, since this year the population census was conducted and data on the number of people receiving different forms of education by regions are available.

The data source is official open access data: tax reporting data on the number of individuals who received tax deductions and the amount of tax deductions by regions of the Russian Federation for 2020.

Data were analyzed for two deduction types: a deduction for expenses for own education or full-time education of a sister (brother) under the age of 24 (code 320) and a deduction for expenses for full-time education of children (including foster or

guardians) under the age of 24; (deduction code 321).

The source of data on the number of individuals receiving education by region was the 2020 population census data of the Russian Federation. Tax reporting in the context of each subject was collected from the website of the Federal Tax Service[4]. The tax reporting initially lacked data on deductions for the following subjects: Kamchatka Krai, Ingushetia, Kursk Oblast, Zabaikalsky Krai.

The data sample was checked for outliers (observations that lie anomalously far from other values in the data set). To adjust, we applied the approach of determining the value of the statistical outlier from the median (via conditional formatting in Excel).

To make a decision on outliers, the statistical center of the range of values was determined. Then, through the application of the interquartile range (IQR) – this is the difference between the 75th percentile and the 25th percentile (Q1) in the data set – the spread of the average 50% of the values was measured and statistical outliers were identified. It was decided to exclude the following entities from the analysis: the Republic of Dagestan, Kabardino-Balkaria, North Ossetia (Alania), the Chechen Republic, the Republic of Tyva, the Samara Region, the Sakhalin Region, Moscow, St. Petersburg, the Jewish Autonomous Region, the Chukotka Autonomous Territory. In total, 68 observations remained in the final sample by region.

The influencing variables are deductions for code 320 (X^1) and code 321 (X^2). The resulting variable (Y) is the total number of the population receiving higher professional education, studying in basic and additional educational programs, studying only in additional educational programs.

Regression-correlation analysis was applied using the Excel analysis package. Another point of view is that tax incentives for education only provide some benefits to the part of taxpayers and the main beneficiary of the benefits is the middle class. To prove or to deny this argument, we analyzed data about the dynamics of tax deductions provided to citizens in 2015–2021.

The data source is official open access data: tax reporting data on the number of individuals who received tax deductions and the amount of tax deductions in the Russian Federation for 2015–2021.

Data were analyzed using two deduction codes: a deduction for expenses for own education or full-time education of a sister (brother) under the age of 24 (code 320) and a deduction for expenses for full-time education of children (including foster or guardians) under the age of 24 years; (deduction code 321).

4. Research Results

4.1 Tax incentives as a motive to invest in education

Education should be considered as a phenomenon with dual nature – investment and consumption. Higher wages later in life and the opportunity to work at an older age could be the return on investment in education. This affects the relative attractiveness of education compared to other investment alternatives.

In most cases, a person must earn a degree (or complete a certain stage of education) in order to get a return on investment in education. Assuming that there are no non-monetary returns to education, and that all people have the same level of innate ability, then the answer must be to choose the educational level that offers the greatest return.

Data on average monthly wages depending on the level of education, according to a sample statistical survey, show that higher professional education allows you to receive higher wages (Figure 1). At the same time, higher wages are received by workers with higher education, even if they do not belong to managers and highly qualified specialists.

The data in Figure 1 confirm the thesis that an increase in the level of education leads to an increase in income throughout

[4] Compiled according to the Federal Tax Service of Russia. Available at: https://www.nalog.gov.ru

life. But it does not allow us to judge the payback of people's investments in education, since, as already mentioned above, a significant part of the cost of education in Russia is carried by the state, not households.

4.2. Results of regression-correlation analysis

Conclusion of totals for the variable X^1 are presented in Tables 2–4.

First, we should pay attention to the R-square and coefficients.

R-square is the coefficient of determination. In our case, it is 0.092, or 9.2%. This means that the calculated parameters of the model explain the dependence between the studied parameters by 9.2%. We see that the model we have built cannot fully explain the relationship between deductions for code 320 and the number of students. This is quite logical.

The coefficient –16 741.5 shows what Y will be if all the variables in the model under consideration are equal to 0. That is, the value of the analyzed parameter is

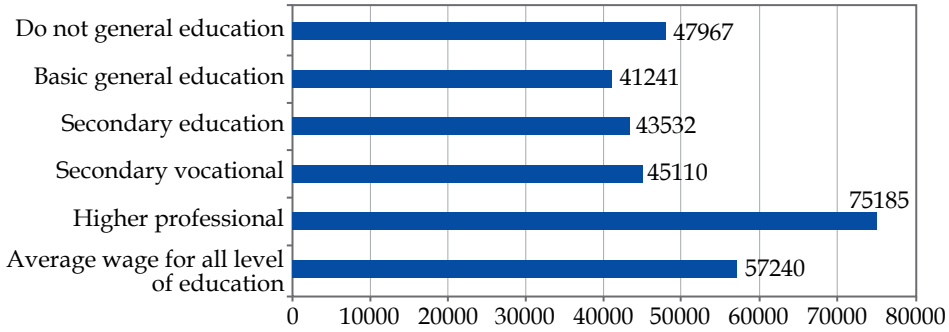

Figure 1. **The average wages of employees in the Russian Federation per month in rubles by level of education for October 2021 according to Rosstat**

Table 2

Regression statistics for variable X^1

Multiple R	0.303
R-square	0.092
Adjusted R-squared	0.078
Standard error	74575.4
Observations (N)	68

Source: Prepared by authors.

Table 3

Analysis of variance

	Df	*SS*	*MS*	*F*	*Sig.*
Model	1	37143794498	37143794498	6,678749712	0,011976143
Error	66	367058288256	5561489216		
Total	**67**	**404202082754**			

Source: Prepared by authors.

Table 4

Analysis of variance (cont.)

		Error	t-stat	P-value	Lower 95%	Upper 95%
Y-intersection	–16741,5	39253,11601	–0,4265014621	0,671130414	–95112,88613	61629,86339
Variable X^1	2,84	1,099116921	2,58432771	0,011976143	0,6460205785	5,034936052

Source: Prepared by authors.

Table 5

Regression statistics for variable X^2

Multiple R	0.23
R-square	0.055
Adjusted R-squared	0.04
Standard error	76092.8
Observations (N)	68

Source: Prepared by authors.

Table 6

Analysis of variance

	Df	*SS*	*MS*	*F*	Sig.
Model	1	22054446416	22054446416	3,808981988	0,0552240377
Error	66	382147636338	5790115702		
Total	67	404202082754			

Source: Prepared by authors.

Table 7

Analysis of variance (cont.)

		Error	t-stat	P-value	Lower 95%	Upper 95%
Y-intersection	–84528,31986	85809,88248	–0,985065093	0,3281895904	–255853,278	86796,63829
Variable X^2	4,071072952	2,085952551	1,95166134	0,0552240377	–0,09366569121	8,235811596

Source: Prepared by authors.

clearly more influenced by other factors that not described in the model.

The coefficient 2.84 shows the weight of the variable X on Y. That is, the deductions have an impact on the number of students. The "+" sign indicates a positive impact: the higher quantity of students leads to the greater number of deductions. According to the correlation data in Table 4, tax deduction has a substantial positive connection with total numbers of students.

Conclusion of totals for the variable X^2 are presented in Tables 5–7.

We pay attention to the R-square and coefficients.

R-square is the coefficient of determination. In our case – 0.055, or 5.5%. This means that the calculated parameters of the models are explained by the dependence between the studied parameters by 5.5%. We see that the model we have built cannot be explained fully between "code 321" deductions and numbers of students, and that is quite expectable.

The coefficient -84 528.3 shows how Y will be if all the variables in the proposed model are equal to 0. That is, the value of the analyzed parameter reveals to a greater extent the characteristics and other factors that are not described in the models.

The coefficient 4.071072 shows the significant significance of X over Y. That is, the deductions matter for the number of students. The "+" sign is in response to a positive impact: tax deduction (code 321) has a substantial positive association with total numbers of students.

Table 8 shows the variables X^1 and X^2 are not multicollinear.

The graphical version of the presented correlation analysis is shown in Figure 2.

Table 8

The correlation matrix

	X^1	X^2	Y
X^1	1	0,085772	0,30314
X^2	0,085772	1	0,233587
Y	0,30314	0,233587	1

4.3. The tax cut and its beneficiaries

Let's consider the data on the dynamics of tax deductions provided to citizens in 2015–2021.

Figure 3 shows data on the growth (decrease) in the number of social tax deductions, deductions for the cost of educating children and deductions for spending on their own education (education of a brother/sister). Unfortunately, tax statistics do not allow for a deeper analysis of tuition deductions. It is impossible to pick out the level of education or its type from tax returns.

The data in the figure show that the total number of taxpayers receiving social tax credits and deductions for their education costs is growing at a faster rate than the number of taxpayers receiving deductions for children's education. This happens, among other things, because the amount that a taxpayer can potentially use as a tax deduction for his education (education of a brother or sister) does not increase over time but decreases.

The reason is that Article 219 of the Tax Code of the Russian Federation includes new types of taxpayer expenses which can be deducted: sports and recreation services, expenses for paying for an independent assessment of one's qualifications, expenses under a contract for non-

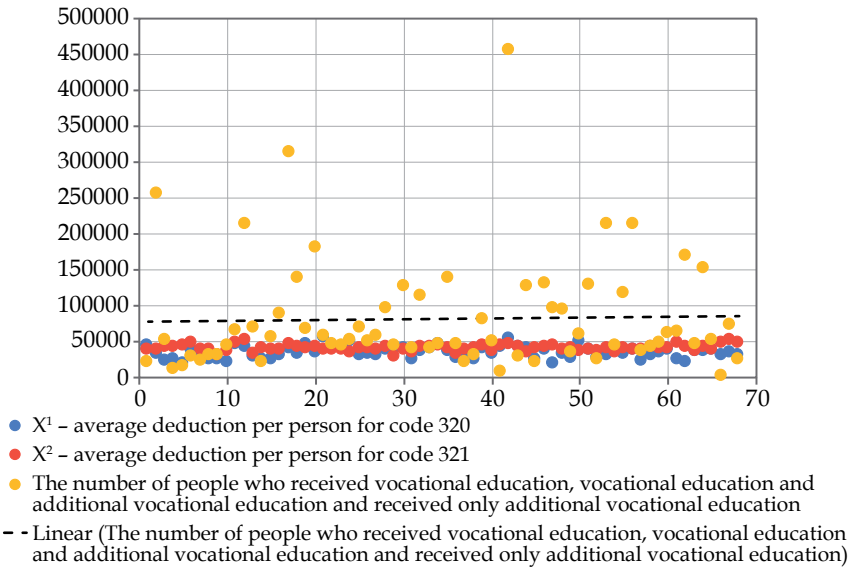

Figure 2. **Correlation graph**

Source: Prepared by the authors (Excel)

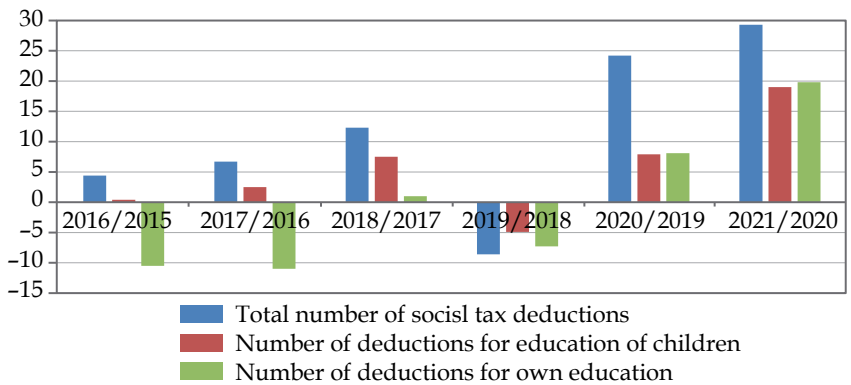

Figure 3. **Dynamics of growth (decrease) in the number of recipients of various tax deductions (in % of the previous year) in the Russian Federation for 2016–2021**

state pension provision, voluntary pension insurance, voluntary insurance and for paying additional insurance premiums for a funded pension. At the same time, the maximum amount of expenses does not change and amounts in total to no more than 120,000 rubles for the tax period.

The dynamics of government tax expenditures for the social tax deductions is shown in Figure 4.

The total amount of social deductions increases, but not at the expense of deductions for education. So, the total amount of social tax deductions increased three times (from 77 to 206 billion rubles) from 2015 to 2021. At the same time, the number of deductions for children's education increased by 42% and for deductions for their own education by 33%.

On Figure 5 shows the dynamics of deductions per one submitted declaration.

The data in Figure 5 show that the average tuition deduction has increased slightly over the past seven years. This is especially true for deductions for the education of children, the amount of which is significantly lower than the cost of education.

The issue of increasing the maximum amount of the tax deduction for the costs of a child's education is currently being discussed – to double it to 110,000 rubles. The Russian government plans to increase the tax deduction for expenses for their own education, treatment, including for family members, as well as for the purchase of medicines from 120,000 to 150,000 rubles.

5. Discussion

Our research shows that the tax deductions have low impact on the decision to invest in education in Russia and other's countries demonstrate the same results.

Particular criticism has been directed toward the education tax incentives in developed countries, enacted mostly in the late 1990s, which shifted government funding for higher education from direct

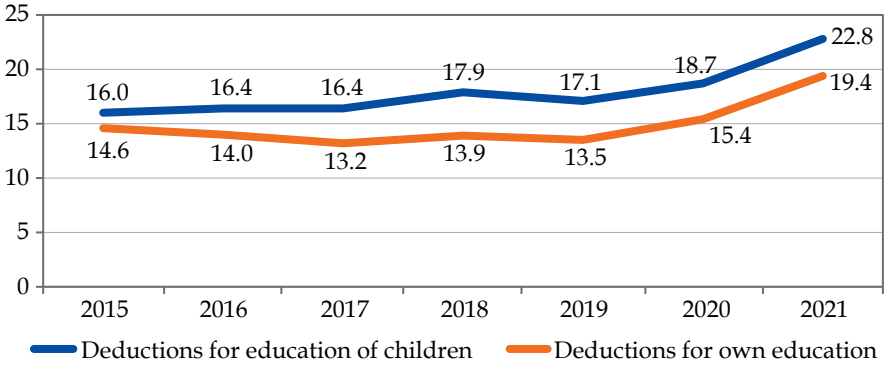

Figure 4. **Tax expenditures for the educational deductions in the Russian Federation in 2015–2021 (billion rubles)**

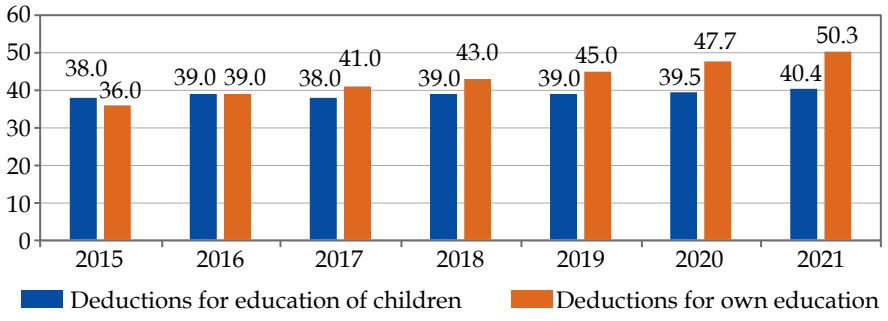

Figure 5. **Dynamics of deductions per one submitted declaration (thousand rubles)**

benefits to students in the form of grants and loans to indirect benefits through the tax system. The crux of this criticism is that the tax incentives, in addition to being costly and highly complex, have had virtually no effect on college enrollment and retention, see Bulman & Hoxby [26].

Watson [30] claims that the education tax incentives are not likely to achieve the desired result of increasing college enrollment and retention, particularly among lower-income individuals.

This general view on the education tax incentives has been summed up by Graetz [31] "The education tax incentives represent the greatest increase in federal funding for higher education… But no one can tell you what they are, how they work, or how they interact. Planning to pay for college around these tax breaks is essentially impossible for middle-income families".

To understand whether a tax deduction can affect the decision to invest in education, we can make a simple calculation of the benefit of receiving a tax deduction when paying for a child's higher education on their own compared to other types of financing for higher education.

For comparison, let's take several price and funding options for the of undergraduate education – a state-funded place and payment by "maternity capital", which amounted to 453026 rubles in 2015–2019 and the amount of tax deduction (Table 9).

It should also be noted that, unlike budget expenditures, Maternity capital and educational loans, savings from tax refunds are deferred. It means that expenses have already been incurred, which also reduces the investment value of the tax deduction.

The benefit to the household of free state-funded education stimulates the fund's flow from formal to informal sector. Parents prefer to pay tutors for training their children for Unified State Examination in hope to get state-funding place than to save money for college fee. Data of a sociological survey in which 3,000 parents of students in grades 7–11 from all districts of Russia took part demonstrate the amount of funds redistributed from the sphere of formal to non-formal education (Table 10)[5]. Parents were asked questions "Does your child have tutors?" and "How much do you spend on tutoring for your child in average per week?"

[5] https://www.superjob.ru/research/articles/112782/roditeli-uchenikov-10-i-11-klassov-tratyat-na-repetitorov-po-3500-rublej-v-nedelyu/

Table 9

Comparison of the tax deduction for the education of a child with other forms of state support for education in the Russian Federation (rubles)

Forms of financing the education of a child	Options for tuition fee per year		
	100000	150000	200000
Economic benefit for the household			
State-funding	100000	150000	200000
Maternity capital	100000	113256	113256
Tax deduction	26000	26000	26000

Table 10

Share of pupils, who have tutors and average per week tutors fee for different school grades in the Russian Federation in 2021

Characteristics	Grades		
	7–8 grades	9 grades	10–11 grades
Have a tutor	27%	34%	43%
Weekly expenses	2800 rub.	3000 rub.	3500 rub.

Also, the tax incentives can increase schooling only for those whose college attendance is sensitive to price.

Dynarski & Scott-Clayton [32] explain this situation with following example. A student admitted to Yale, whose family earns $100,000, is going to college, tax incentive or none. This student is not sensitive to price. This is not a value judgment: the family may appreciate a tax credit and make good use of it. But, for this student, the tax incentives do not open the door to college. For the tax incentives to get more people into college, they need to reach people who are sensitive to price, who would not go to college in the absence of the incentive. This is who we should keep in mind as we design tax incentives for college: a low-income person attending an inexpensive public college.

But it must be said that there are some advantages to providing federal funding through tax benefits. First, it is politically more expedient to provide funds indirectly through the tax system than to appropriate funds to students or educational institutions directly through the budget. Second, tax incentives for education promote voluntary compliance by fostering favorable taxpayer views of the tax system. If a taxpayer does not benefit directly, he or she may benefit indirectly from the positive external benefits of an educated populace, such as a stronger economy, a lower rate of crime, and even better health [33].

There are several limitations that affect assessing tax incidence.

First, any individual tax deduction may interact with other provisions in the tax code in complex ways. In Russian case, there are other social deductions (for medical expenses, sport, pension insurance). Claiming one tax deduction also may affect eligibility for claiming another.

Second, who benefits from a tax deduction depends not just on the parameters of the deduction itself, but also on marginal tax rates.

Third, take-up is never perfect: not all who qualify for a tax benefit will claim it. In some cases, the decision not to claim may be a reasoned one. In other cases, confusion and bureaucratic hurdles may serve as barriers to take-up.

For example, Bobek et al. [34] investigate how the *number* of different incentives, affects individuals' use of tax incentives. Their results do show that individuals faced with high choice complexity are more likely to make errors and less likely to choose the optimal incentive.

We absolutely agree with Dynarski & Scott-Clayton [29] that a full assessment of incidence thus requires far more than a description of eligibility criteria and benefit calculations. At a minimum it requires detailed data on actual tax records for taxpayers of varying characteristics. But unfortunately, such detailed data currently are not available in Russia.

6. Conclusion

The purpose of this paper was to investigate the impact of tax incentives on education in the Russian Federation.

We confirmed our hypothesis, that tax incentives encourage people to invest more in their own education in Russia. But we found that tax incentives for education have low impact on the of household's decisions to receive an education in the Russian Federation.

Tax deduction has a substantial positive association with total numbers of students. The calculated parameters of the model explain the dependence between the deduction for expenses for own education or full-time education of a sister (brother) under the age of 24 (code 320) and quantity of people who receive education by 9.2% and dependence between the deduction for expenses for full-time education of children (including foster or guardians) under the age of 24 studied parameters and quantity of people who receive education by 5.5%. But the model cannot fully explain the relationship between deductions and the number of students. That is, the quantity of people who receive education is clearly more influenced by other factors than tax deductions.

There is low probability that the announced rise of the limit of social

deduction in 2024 will change the situation. But government should continue to provide federal funding through tax benefits to promote voluntary compliance by fostering favorable taxpayer views of the tax system.

In short, we add to the literature in a number of ways. First, we estimate the effect of tax deductions on education in Russia where previous papers have typically touched developed countries experience. Second, in addition to tax deductions, we also account for the other ways to finance the education. Our method could be useful than tax deductions will be raised and new census data will be available.

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