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Returns to Education in the Russian Federation: Towards Evidence Based Decision Making with Social and Private Returns to Education

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Data and Code
Thanks are due to the Ministry of Education and the Ministry of Finance for making the data available regarding graduate earnings and college and university income and expenditures. The code used for this paper is made freely available for all researchers at `https://bitbucket.org/zagamog/edreru/src/master/`

This paper presents a preliminary analysis of a dataset distributed by the Ministry of Education of the Russian Federation that provides information on graduate salaries. The data is merged with information on income and fee revenue of colleges and universities to provide estimates of costs and benefits at an institutional level and private and social returns to education at a regional level. As the length of the data series on graduate earnings will grow over time, the estimates presented in this paper can be updated to provide sharper estimates of the costs and benefits of attending a particular institution.

KEYWORDS
Returns to Education, Higher Education, Cost-Benefit Analysis
JEL Codes: I23, I26

1 | DESCRIPTION OF DATA

The Ministry of Education provides information regarding the salaries obtained by graduates and other related information at the website "http://graduate.edu.ru". A key purpose of this website is to provide accurate information to prospective university students and their families about the prospects of graduates from each of the universities or colleges. The Ministry of Finance collects information from all education establishments and others providing public

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service as a means to foster citizen engagement and accountability.This information includes details about revenue and income streams. This paper presents analysis from the merger of these two databases. The content of the data is presented in this section. Subsequent sections provide analysis and interpretation.

1.1 | Graduate.edu portal

One or two paragraphs explaining the process of data collection for graduate.edu

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Another sentence telling size of data - how many univs, colleges etc.

TABLE HERE OF DESCRIPTIVE STATISTICS OF THE VARIABLES

Column: Mean, Standard deviation and three quartiles - 25% 50% (or median) and 75% and N 6 Rows - College Natl.Average Graduate Earnings 2014; Earnings 2015;Earnings 2016; Univ for 3 years

AV: Please color the two parts of the boxplots and introduce 3 or 4 vertical reference lines in the graph for easier reading; use the same scale please.

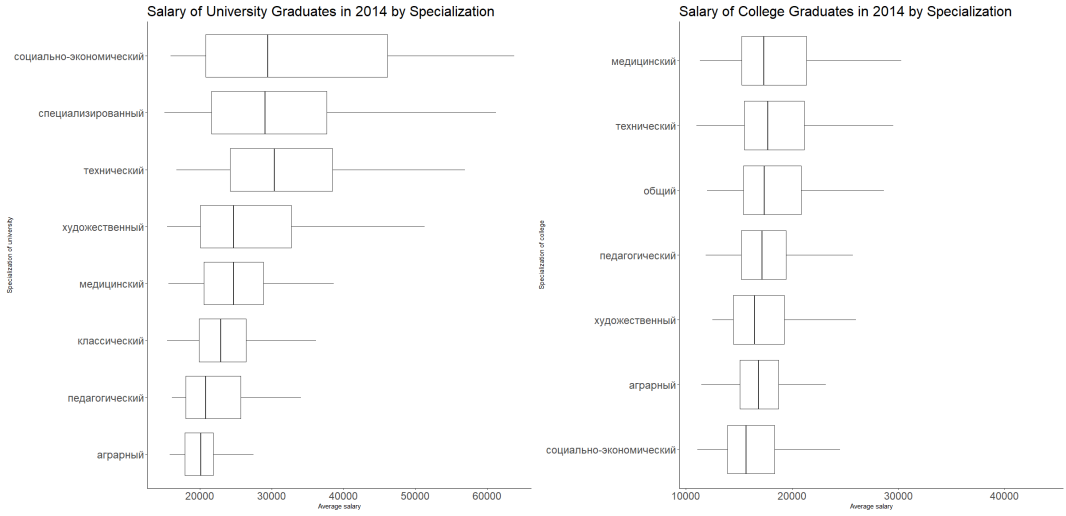

FIGURE 1.1 Earnings in 2014 by Specialization

Couple of sentence about growth in earnings in real terms over the period to introduce next figure

Please change with line to connect the two dots and arrange in order of descending gap as we discussed on the Skype call.

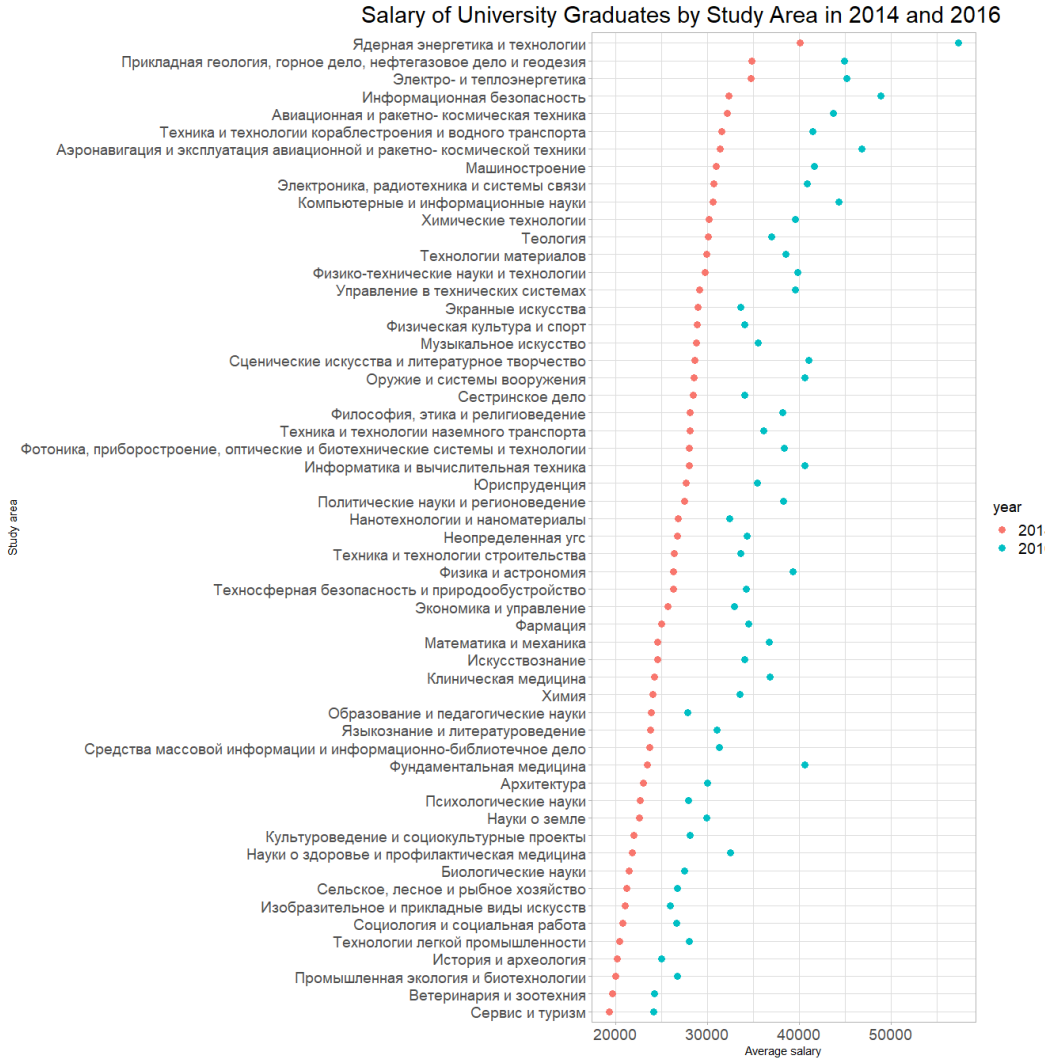

FIGURE 1.2 Earnings Growth 2014-16 by Specialization

1.2 | Bus.gov portal

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Paragraph about contents of our bus.gov portal database

TABLE Columns as before, Mean SD, 3 quartiles and Number of est Rows - 8 each for college and 8 for university: 8 = 5 + 1 +2 5 cash receipt concepts including total (average across 6 years - if possible use constant 2016 rubles but we can use nominal for now); 1 row number of graduate 2 rows our unit cost figures private and social

2 | INSTITUTIONAL RETURNS FOR COLLEGES AND UNIVERSITIES

Explain the method we are using with a couple of equations. We will cite Psacharopoulos 1995.

How many years to break even

Top/Bottom 10 as you have before also with column of break-even years

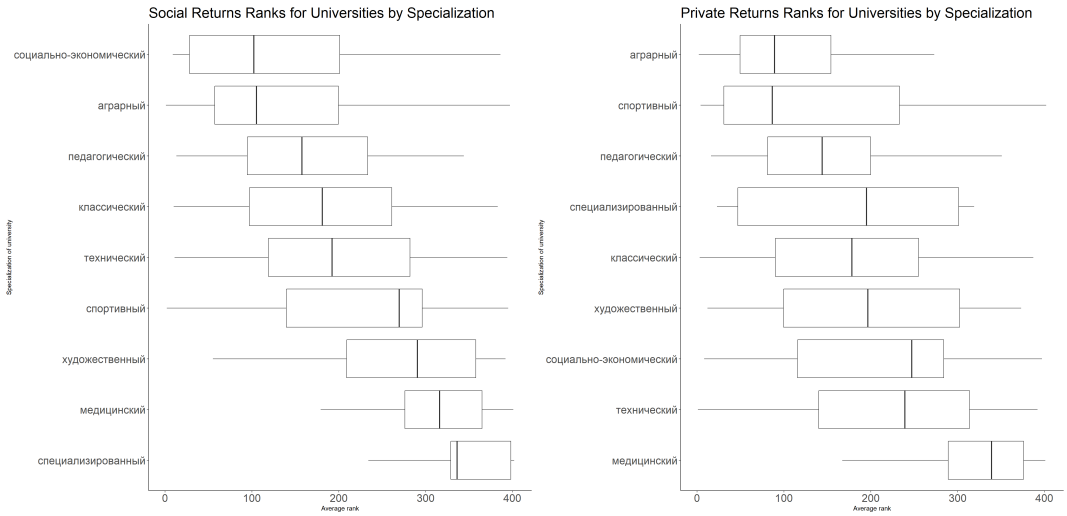

FIGURE 2.1 Soc Return Uni

And same for college

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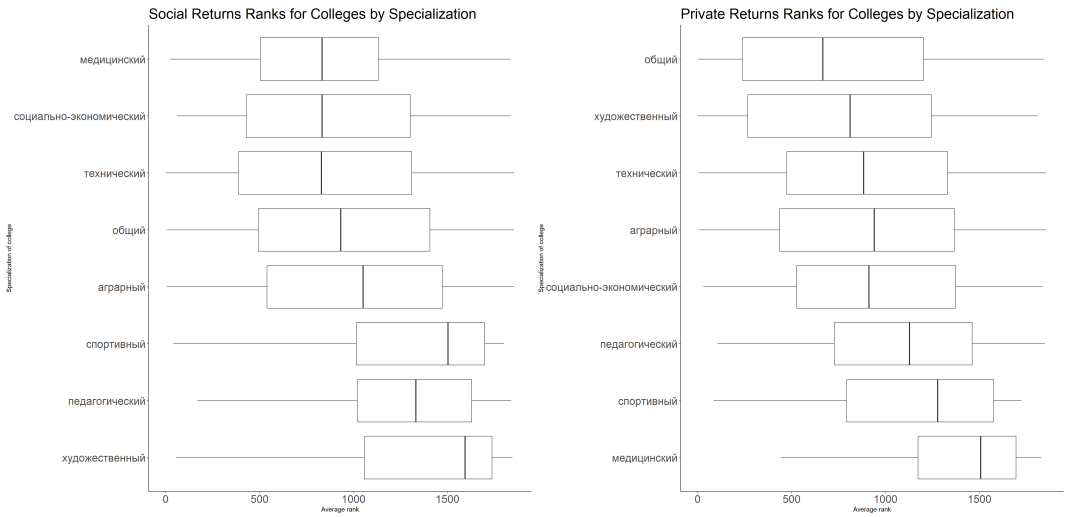

FIGURE 2.2 Priv Return Uni

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Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

3 | REGIONAL ESTIMATES OF SOCIAL AND PRIVATE RETURNS

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Here we calculate age earnings profiles at regional level from Rosstat = Let's use 2013 to 2018 average in real 2018 rubles for each age to calculate the profile.

Then we total the cost figures at institution level for that region to get our first 3 or 4 negative numbers for average private and social cost of education Then full method gives us returns. We could provide simulated errors but I don't see much point, we will just present the points in a snake diagram or whatever you call it regions arranged by descending returns; one for college and one for universities.

If time allows, we will add about migration and something about quality from EGE score data.

References

Psacharopoulos, George. 1995. *The Profitability of Investment in Education: Concepts and Methods*. World Bank Washington, DC.

Appendix

TABLE A1 Results of Estimating Human Capital Depreciation for the Female sample, RLMS

	1994	**1998**	**2003**	**2006**	**2012**	**2018**
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	9.725***	3.786***	5.464***	6.946***	8.133***	8.767***
	(0.381)	(0.322)	(0.301)	(0.247)	(0.186)	(0.242)
Educ, years (S)	0.122***	0.153***	0.158***	0.118***	0.087***	0.066***
	(0.025)	(0.022)	(0.020)	(0.016)	(0.012)	(0.015)
Educ X Exper (TS)	−0.002*	−0.002***	−0.002**	−0.0002	−0.0001	0.0004
	(0.001)	(0.001)	(0.001)	(0.001)	(0.0005)	(0.001)
Exper (T)	0.074***	0.080***	0.055***	0.013	0.020**	0.020*
	(0.019)	(0.016)	(0.015)	(0.013)	(0.010)	(0.011)
Exper squared (T^2)	−0.001***	−0.001***	−0.001***	−0.0003**	−0.0005***	−0.001***
	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
Observations	1,645	1,667	2,093	2,630	4,057	3,312
R^2	0.051	0.089	0.110	0.139	0.104	0.092
Adjusted R^2	0.049	0.087	0.108	0.138	0.103	0.091
Residual Std. Error	0.853	0.728	0.731	0.664	0.641	0.597
F Statistic	22.179***	40.520***	64.342***	106.385***	117.366***	83.993***

Note: *p<0.1; **p<0.05; ***p<0.01

TABLE A2 Results of Estimating Human Capital Depreciation for the Male sample, RLMS

	1994	**1998**	**2003**	**2006**	**2012**	**2018**
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	10.357***	5.029***	7.334***	8.067***	8.771***	9.094***
	(0.433)	(0.360)	(0.282)	(0.243)	(0.157)	(0.185)
Educ, years (S)	0.136***	0.123***	0.080***	0.077***	0.077***	0.077***
	(0.028)	(0.024)	(0.019)	(0.016)	(0.010)	(0.012)
Educ X Exper (TS)	−0.002*	−0.001	0.0004	−0.0003	−0.0004	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.0005)	(0.001)
Exper (T)	0.054**	0.032*	0.002	0.007	0.035***	0.037***
	(0.023)	(0.017)	(0.014)	(0.013)	(0.009)	(0.010)
Exper squared (T^2)	−0.001***	−0.0004**	−0.0003*	−0.0003*	−0.001***	−0.001***
	(0.0003)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
Observations	1,392	1,433	1,763	2,170	3,360	2,800
R^2	0.057	0.070	0.078	0.074	0.153	0.110
Adjusted R^2	0.054	0.067	0.076	0.072	0.152	0.108
Residual Std. Error	0.951	0.803	0.754	0.688	0.598	0.570
F Statistic	20.989***	26.879***	37.362***	43.281***	151.868***	86.125***

Note: *p<0.1; **p<0.05; ***p<0.01

References

Psacharopoulos, George. 1995. *The Profitability of Investment in Education: Concepts and Methods*. World Bank Washington, DC.