HSE Master's Program: Economics and Economic Policy

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Plan for today

- About the program "Economics and Economic Policy"
- About the track "Applied Economics"
- How to write your own research paper?
- Some general reading suggestions

"Economics and Economic Policy" Master's Program

- The program offers advanced education in economics for those contemplating:
  - academic careers (usually involving a PhD program as a next step)
  - working as economists in private sector,
  - government or non-profit organizations,
  - think tanks, research institutions, etc.
- Program offers four tracks:
  1. "Applied Economics"
  2. "Economic Research"
  3. "Economic and Financial Behavior"
  4. "Quantitative Methods in Economics and Finance"

What do we teach?

- In a word, we teach how to conduct *modern applied economic research*
- *modern* means using latest cutting-edge tools (both theoretical and empirical)
- *applied* means aiming at answering practical questions (for example, what is the effect of policy X on agents Y)
- *economic research* means studying human behaviour and choices involving trade-offs

Courses

- Every student of the program is required to take core courses of Microeconomics, Macroeconomics, Econometrics, and (this is the 21^{th} century!) Python
- In addition, students have an opportunity to construct their course portfolios depending on their interests, plans, and proclivity from a vast course menu offered by the program
- Elective courses range from the technical ones like Machine Learning or Finance to more practically oriented like Macroeconomic Policy or Evaluation of Social Programs
- Academic mentors (*nastavnik*) are supposed to provide advice on individual educational trajectories, course choice, etc.

Networking and communication

- HSE offers excellent opportunities for professional collaboration, exchanges and networking, both with students' peers (e.g. in research project teams) and with faculty and senior scholars
- There are dozens of research seminars and numerous conferences that we strongly encourage you to attend
- In addition, there will be regular meetings of students of each educational track with their mentors
- Mentors are ready to guide you in the ocean of professional literature to help you embark on your research project

Applied Economics track

- Applied empirical analysis is the centerpiece of modern economics
- In the last 20-30 years economics become more empirical and evidence-based science than ever, thanks to information technologies and digitization of vast amounts of data
- But "empirical" does not imply negligence of economic theory!
- Theory is key cornerstone of applied economic research. It provides an analytical framework for the problem at hand, and generates testable hypotheses which are brought to data
- A good applied study starts with a theoretical part (usually, but not necessarily, with an appropriate mathematical model), and proceeds to testing theory's predictions with data using modern econometric tools

Topics in applied economics

- What are the limits of applied economic research?
- The only limits are your imagination and your mastery of tools of modern economics
- Applied Economics studies every aspect of human behavior which involves choices between alternative uses of scarce resources. By *scarce resources* we mean not just money and physical resources, but also time, information, attention, effort, abilities, etc.
- In addition, Applied Economics aims to evaluate the effects of various economic policies and reforms on the behavior of households and firms

Some examples of applied economic research

- Individual and household choices
  - how students choose occupations depending on their abilities, inclinations and the quality of economics institutions in their regions
  - what factors affect firms' productivity and how firms choose an optimal location
- Policy evaluation
  - the effect of Renovation program in Moscow on small business growth
  - the effect of Unified Examination (EGE) on student's mobility in Russia

Example 1: Renovation of Moscow streets

- How investment in public infrastructure affect private businesses?
- Use the case of Moscow streets' renovation program to estimate the effect of public spending on small business growth
- Collect data on the number of small business openings on renovated streets before and after the renovation took place
- Compare the number of openings on renovated street with those on non-renovated streets, that is employ difference-in-difference (DiD) estimation

Example 1: Before and after renovation

Example 1: Summary statistics

Table 1. The streets distribution depending on the year of improvement.

Treatment group	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**Control**
Number of streets	10	4	22	42	54	10	510

Table 3. The distribution of streets in the sample by districts of Moscow

Area name	Number of streets	Number of treated streets
Tverskoy	115	39
Khamovniki	83	14
Yakimanka	42	18
Krasnoselsky	51	9
Presnensky	92	17
Zamoskvorechye	53	16
Arbat	47	13
Taganskiy	81	14
Basmanny	94	13
Meshchansky	48	13

Example 1: Regression results

Table 8. Two-way fixed effects regression results

Opened minus closed (per km)	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Post-treatment	**1.684**	**.181**	**9.30**	**0**	**1.329**	**2.039**	***
2012b	0	.	.	.	.	.	
2013	-.096	.123	-0.78	.435	-.338	.145	
2014	.586	.126	4.65	0	.339	.833	***
2015	.665	.127	5.23	0	.416	.914	***
2016	.818	.128	6.37	0	.566	1.07	***
2017	.805	.129	6.25	0	.552	1.057	***
2018	.858	.13	6.61	0	.603	1.112	***
2019	.674	.126	5.34	0	.426	.921	***
Constant	.974	.087	11.22	0	.804	1.145	***

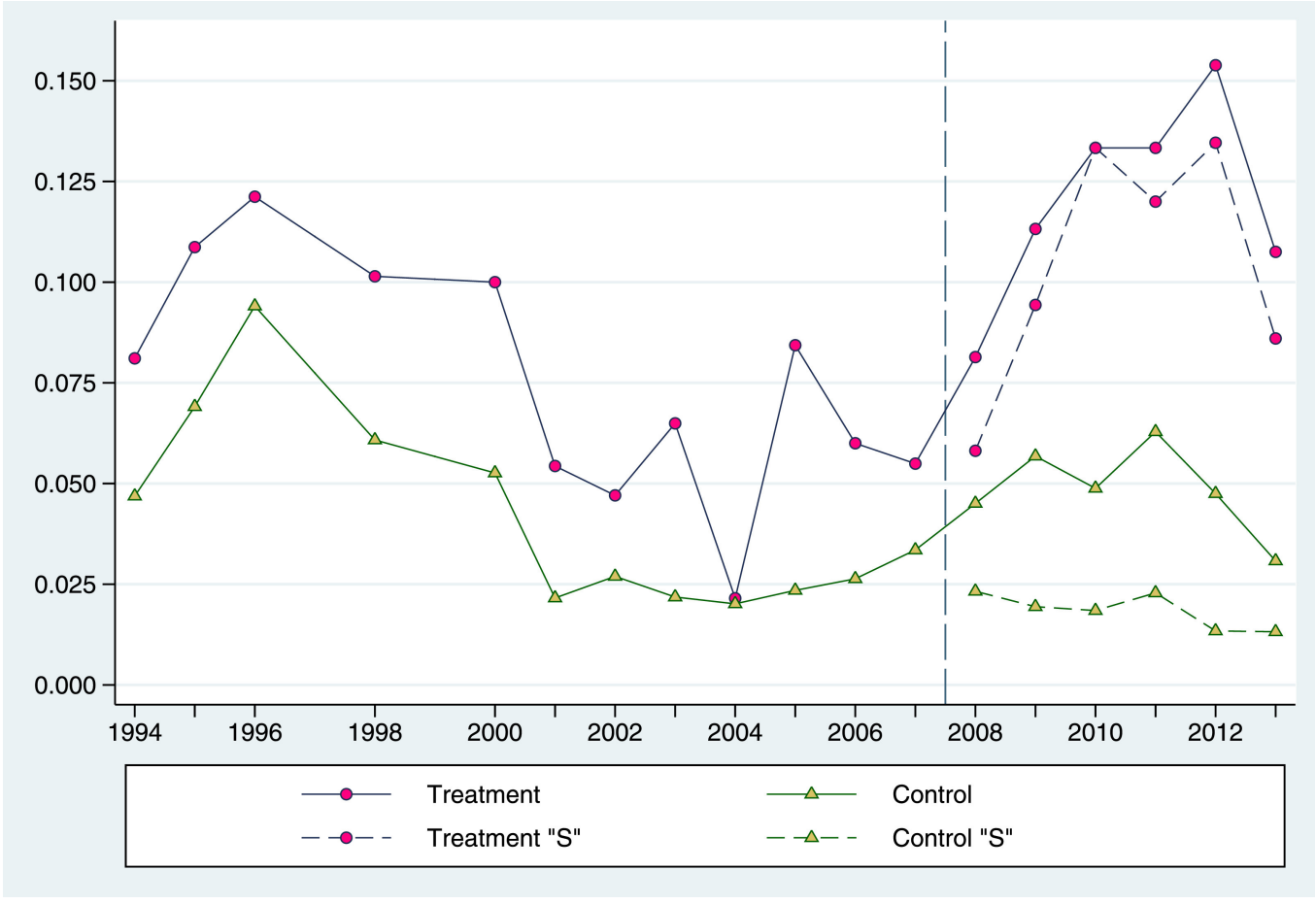
Mean dependent var	1.590	SD dependent var	2.528
R-squared	0.062	Number of obs	4695
F-test	33.373	Prob > F	0.000
Akaike crit. (AIC)	19942.153	Bayesian crit. (BIC)	20000.242

*** *p*<.01, ** *p*<.05, * *p*<.1

Example 2: Unified Examination and students' mobility

- Evaluate the effects of a reform requiring Russian universities to make admission decisions based on the results of a national high-school exam
- Use micro-level data from the Russian Longitudinal Monitoring Survey (RLMS). The RLMS is a nationally representative annual household survey based on the first national probability sample
- Compare cohorts who just graduated from high-school with those who did not before and after the introduction of Unified Examination
- Results: The reform led to a threefold increase in geographic mobility rates among high-school graduates from small cities and towns to start college (Francesconi et al., 2019)

Example 2: Unified Examination and students' mobility



Example 2: Unified Examination and students' mobility

Our first approach, in which we assess the effect of the USE reform on the probability that high school graduates leave their parental home soon after graduation, is to estimate the following difference-in-difference (DD) model:

$$\ell_{ijt} = \psi(t) + \alpha d_{ijt} + \beta d_{ijt} \times I(t \geq s) + \mathbf{X}'_{ijt}\gamma + \theta_j + \varepsilon_{ijt}, \quad (1)$$

where $I(z)$ is a function indicating that the event z occurs,[26] $\mathbf{X}_{ijt}$ is a vector of individual and household characteristics, θ_j denotes household (sibling) fixed effects which we can credibly identify as the sample contains a sufficiently large number of households with at least two siblings in both the treatment and control groups, and ε_{iit} is a random error term.

Table 1
Effect of the USE reform on student mobility.

	Flexible common trend			Group-specific linear trend			PSM
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Full sample							
β	0.041**	0.037**	0.042**	0.038	0.035	0.022	0.040**
	(0.018)	(0.017)	(0.018)	(0.028)	(0.027)	(0.033)	(0.018)
N	13,710	13,710	13,710	13,710	13,710	13,710	13,709
Moscow and St. Petersburg							
β	−0.014	−0.020	−0.009	0.071	0.069	0.059	−0.005
	(0.023)	(0.022)	(0.030)	(0.068)	(0.065)	(0.065)	(0.022)
N	1373	1373	1373	1373	1373	1373	1369
Other major cities							
β	0.057**	0.049**	0.039	0.018	0.013	0.015	0.049**
	(0.022)	(0.022)	(0.027)	(0.031)	(0.031)	(0.045)	(0.023)
N	4015	4015	4015	4015	4015	4015	4013
Small cities and towns							
β	0.119***	0.115***	0.128***	0.163***	0.157***	0.159**	0.132***
	(0.041)	(0.040)	(0.041)	(0.053)	(0.056)	(0.065)	(0.041)
N	3801	3801	3801	3801	3801	3801	3776
Rural areas							
β	−0.002	−0.008	0.012	−0.042	−0.040	−0.070	−0.032
	(0.027)	(0.026)	(0.027)	(0.052)	(0.051)	(0.054)	(0.037)
N	4521	4521	4521	4521	4521	4521	4504
Controls	No	Yes	Yes	No	Yes	Yes	
Sibling FE	No	No	Yes	No	No	Yes	

Some reading suggestions

- On the theoretical foundations of modern applied economics see Gary Becker's Nobel lecture (Becker, 1993)
- On the credibility revolution in modern econometrics see paper by Angrist and Pischke (2010)
- On policy evaluation using modern statistical techniques, including Machine Learning, see paper by Athey and Imbens (2017)
- Tips on how to write an applied economics paper see in:
  - Jesse Shapiro "Four Steps to an Applied Micro Paper"
  - Marc Bellemare "How to Write Applied Papers in Economics"
  - John Cochrane "Writing Tips for Ph.D. Students"

References I

Angrist, Joshua D. and Jörn-Steffen Pischke, "The Credibility Revolution in Empirical Economics: How Better Research Design is Taking the Con Out of Econometrics," *Journal of Economic Perspectives*, 2010, *24* (2), 3–30.

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Francesconi, Marco, Fabián Slonimczyk, and Anna Yurko, "Democratizing Access to Higher Education in Russia: The Consequences of the Unified State Exam Reform," *European Economic Review*, 2019, *117*, 56–82.