

Analyzing the Impact of Educational Reforms on Russian-Medium Students in the Baltic Countries and Russia: A "Natural Experiment"

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Background

- ❑ Former Soviet Republics and former Soviet dependent Eastern Europe used to have quite similar educational systems.
- ❑ After Soviet Union collapse in 1989-1991 a lot of these countries have produced major changes in education.
- ❑ There is a tendency to look over these reforms through policy borrowing conception. However policy borrowing theory has limited explanation at least for Russian-medium schools reforms in Baltic countries.

Research goal

- To analyze the unintended and intended academic effects of the post-Soviet educational reforms in Estonia and Latvia

Analytical framework

- ❑ The borrowing literature argues that there were two main features of post-Soviet transition in Baltics:
 - ❑ Language policy
 - ❑ Political imperative of incorporation into the European Union.
- ❑ “Education as compensatory legitimation” model. Educational reforms are a mechanism of legitimization the state’s authority in a conflicted civil society. (Offe, 1974; Weiler, 1983)
- ❑ Language policy – national identity – the most important step of educational reforms.
- ❑ Educational policies that primarily serve to legitimate the state do not necessarily result in educational improvement.
- ❑ Once international testing began it also became part of state’s legitimation.

Russian-medium schools reform

Latvia

- Bilingual education since primary school is the main step
- Started much earlier than in Estonia – in 2000
- Rather pressing on schools

Estonia

- Intervention in the curriculum, not language
- 2006 - start of the reform
- Started in middle school



Methodology

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Natural experiment

- ❑ Much in common in education until late 1980-s.
- ❑ Even till late 1990-s for Russian-medium schools in Baltic countries. Russian-medium schools characterized by considerable inertia.
- ❑ Most teachers got their education during the Soviet period.
- ❑ Up to 25% of schools are Russian-medium schools.
- ❑ PISA test is administered on two languages in both Baltic countries. Possibility of comparison minority groups.
- ❑ Rather clear dates and actions of educational policies.
- ❑ Similar starting points in terms of PISA and TIMSS before the major interventions.

Quantitative part data

- ❑ PISA 2006, 2009 & 2012
- ❑ 44221 cases in total; five subgroups:
 - ❑ Estonia
 - ❑ Estonian-medium (444 schools, 11287 students)
 - ❑ Russian-medium (117 schools, 3069 students)
 - ❑ Latvia
 - ❑ Latvian-medium (452 schools, 9914 students)
 - ❑ Russian-medium (149 schools, 3613 students)
 - ❑ Russia (649 schools, 16338 students)

Regression model

$$A_{iS} = \alpha_0 + \sum \beta_j X_{ij} + \delta_i Y_i + \sum \gamma_k (C^*L)_{ik} + \mu_j + e_i \quad (1)$$

A_{iS} – PISA scores (mathematics, reading, or science)

X_{ij} – student socio-cultural background characteristics

Y_i – the average books in the home reported by peers sampled in student i 's school;

$(C^*L)_{ik}$ – group based on country*language of instruction (reference group – Russia).

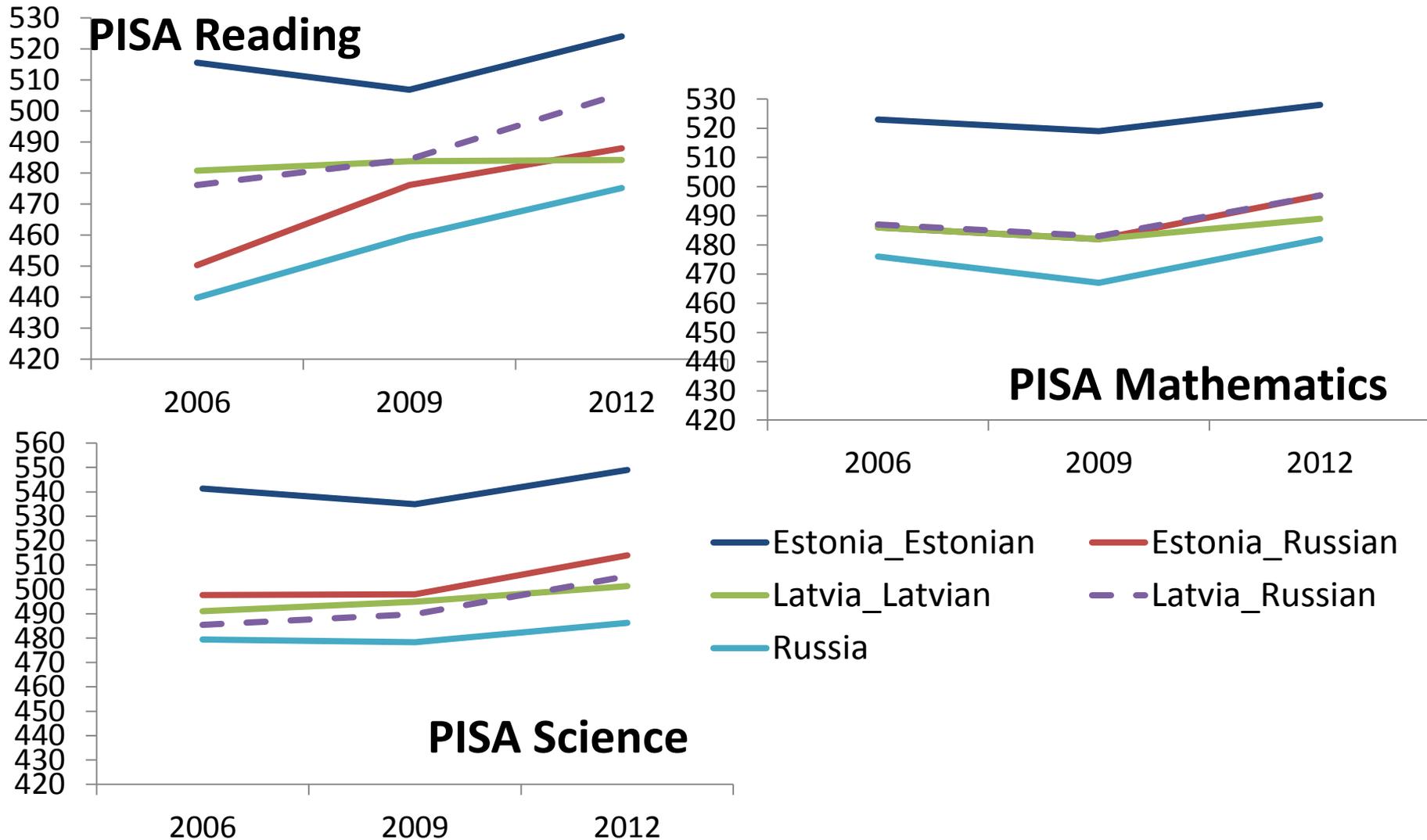
- Socio-cultural background – mother's education and number of books in the home.
- Heterogeneity check - Model (1) for three separate groups: low, middle, and high SCS.

Qualitative part data

- ❑ In-depth interview (semi-structured).
- ❑ Estonia - seven schools in different regions, November 2013; Latvia - six schools, all in Riga, June 2013.
- ❑ School principal and at least one vice-principal. In Estonia at least one class in every school.
- ❑ Officials from the Ministry of Education, people who participated in developing the reforms, and officials in charge of international testing.
- ❑ Interview topics:
 - ❑ Information about school
 - ❑ Curriculum
 - ❑ Teachers and teaching
 - ❑ Knowledge control (exams, tests)
 - ❑ International studies

Results

PISA scores trends



Regression models

	MATHEMATICS			READING			SCIENCE		
	2006	2009	2012	2006	2009	2012	2006	2009	2012
26-200 BH	0.30***	0.26***	0.39***	0.37***	0.34***	0.33***	0.33***	0.29***	0.42***
>200 BH	0.60***	0.54***	0.64***	0.58***	0.60***	0.59***	0.55***	0.58***	0.66***
M's Ed < Secondary	-0.28**	-0.14	-0.28**	-0.26**	-0.25**	-0.19*	-0.25**	-0.18*	-0.21**
M's Ed University	0.17***	0.25***	0.22***	0.14***	0.22***	0.31***	0.16***	0.24***	0.29***
Avg. BH/School	0.17***	0.21***	0.16***	0.22***	0.23***	0.25***	0.19***	0.19***	0.19***
Estonia-Estonian	0.38***	0.52***	0.47***	0.63***	0.41***	0.47***	0.52***	0.58***	0.67***
Estonia-Russian	-0.08	0.12	0.20***	-0.13	0.14**	0.19***	-0.01	0.20***	0.37***
Latvia-Latvian	0.04	0.24***	0.17***	0.35***	0.33***	0.21***	0.04	0.26***	0.28***
Latvia-Russian	-0.02	0.16**	0.21***	0.22***	0.24***	0.39***	-0.09*	0.12	0.27***
R ²	0.12	0.15	0.13	0.15	0.17	0.18	0.13	0.13	0.17
Observations	15157	14187	13884	15157	14187	13884	15157	14187	13884

Conclusions

- ❑ All SES variables are highly correlated with the test scores.
- ❑ Country*language groups' coefficients are significant as well.
- ❑ Students from Estonian-medium schools constantly do better
- ❑ Latvia launched the reforms earlier than Estonia. Therefore in 2009 students from Latvian Russian-medium schools had bigger effect. However Estonia, starting between 2006 and 2009, did it in a more intensive way. So to 2012 both countries' Russian-medium groups outperformed students in Russia.
- ❑ Heterogeneity check showed that there are some differences in SES groups: in reading low SES group in Estonian minority students and in Latvian majority students in 2012 performed the same as Russians do, and in Latvia Russian-medium schools students scored only a little bit higher.

school's point of view

- Bilingual education
- Textbooks
- Professional development courses
- The PISA factor
- Implementation

Discussion

- ❑ Educational reforms in Latvia and Estonia was authentically Latvian and Estonian, couched in new local forms of developing state political legitimacy.
- ❑ Language legitimation policy in Latvia brings unintended effect on performance in Russian medium schools.
- ❑ In Estonia increasing performance was a results of concrete educational steps. Though those steps were also a part of legitimization policy.



Thanks

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Regression models

	MATHEMATICS			READING			SCIENCE		
	2006	2009	2012	2006	2009	2012	2006	2009	2012
26-200 BH	0.30*** (0.04)	0.26*** (0.03)	0.39*** (0.04)	0.37*** (0.05)	0.34*** (0.04)	0.33*** (0.04)	0.33*** (0.04)	0.29*** (0.04)	0.42*** (0.04)
>200 BH	0.60*** (0.05)	0.54*** (0.04)	0.64*** (0.05)	0.58*** (0.05)	0.60*** (0.04)	0.59*** (0.05)	0.55*** (0.05)	0.58*** (0.04)	0.66*** (0.04)
M's Ed < Secondary Complete	-0.28** (0.13)	-0.14 (0.09)	-0.28** (0.11)	-0.26** (0.11)	-0.25** (0.11)	-0.19* (0.11)	-0.25** (0.10)	-0.18* (0.11)	-0.21** (0.10)
M's Ed University Complete	0.17*** (0.04)	0.25*** (0.05)	0.22*** (0.05)	0.14*** (0.04)	0.22*** (0.04)	0.31*** (0.05)	0.16*** (0.03)	0.24*** (0.05)	0.29*** (0.05)
Avg. BH/School	0.17*** (0.03)	0.21*** (0.04)	0.16*** (0.03)	0.22*** (0.03)	0.23*** (0.03)	0.25*** (0.03)	0.19*** (0.03)	0.19*** (0.04)	0.19*** (0.03)
Estonia-Estonian	0.38*** (0.05)	0.52*** (0.06)	0.47*** (0.06)	0.63*** (0.05)	0.41*** (0.05)	0.47*** (0.06)	0.52*** (0.04)	0.58*** (0.06)	0.67*** (0.05)
Estonia-Russian	-0.08 (0.07)	0.12 (0.08)	0.20*** (0.07)	-0.13 (0.08)	0.14** (0.07)	0.19*** (0.06)	-0.01 (0.07)	0.20*** (0.07)	0.37*** (0.07)
Latvia-Russian	-0.02 (0.07)	0.16** (0.08)	0.21*** (0.07)	0.22*** (0.07)	0.24*** (0.06)	0.39*** (0.07)	-0.09* (0.06)	0.12 (0.07)	0.27*** (0.06)
Latvia-Latvian	0.04 (0.05)	0.24*** (0.05)	0.17*** (0.05)	0.35*** (0.05)	0.33*** (0.04)	0.21*** (0.05)	0.04 (0.05)	0.26*** (0.05)	0.28*** (0.05)
R ²	0.12	0.15	0.13	0.15	0.17	0.18	0.13	0.13	0.17
Observations	15157	14187	13884	15157	14187	13884	15157	14187	13884

Heterogeneity. Mathematics

MATHEMATICS	Low SCS			Middle SCS			High SCS		
	2006	2009	2012	2006	2009	2012	2006	2009	2012
SCS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estonia-Estonian	0.29***	0.59***	0.42***	0.37***	0.53***	0.46***	0.45***	0.52***	0.65***
Estonia-Russian	-0.21**	0.13	0.14	-0.03	0.18**	0.23***	-0.07	0.11	0.39***
Latvia-Latvian	-0.03	0.15**	0.11	0.04	0.28***	0.18***	0.12*	0.33***	0.30***
Latvia-Russian	-0.22	0.02	0.16*	0.00	0.19**	0.24***	0.04	0.24**	0.39***
Constant	-0.58***	-0.75***	-0.50***	-0.24***	-0.43***	-0.24***	0.04	-0.28***	-0.16
R ²	0.03	0.03	0.03	0.04	0.08	0.06	0.08	0.15	0.09
N	2798	3044	3604	8091	7681	7175	4268	3462	3105

Heterogeneity. Reading

READING	Low SCS			Middle SCS			High SCS		
	2006	2009	2012	2006	2009	2012	2006	2009	2012
SCS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estonia-Estonian	0.59***	0.55***	0.48***	0.61***	0.40***	0.45***	0.70***	0.43***	0.57***
Estonia-Russian	-0.24*	0.15	0.20**	-0.09	0.18**	0.24***	-0.12	0.14	0.19*
Latvia-Latvian	0.27***	0.32***	0.18**	0.34***	0.36***	0.25***	0.43***	0.36***	0.22**
Latvia-Russian	0.11	0.19*	0.39***	0.23***	0.23***	0.46***	0.28***	0.34***	0.35***
Constant	-0.86***	-0.71***	-0.48***	-0.45***	-0.32***	-0.21***	-0.27***	-0.25***	-0.11
R ²	0.06	0.05	0.06	0.07	0.08	0.12	0.1	0.17	0.13
N	2798	3044	3604	8091	7681	7175	4268	3462	3105

Heterogeneity. Science

SCIENCE	Low SCS			Middle SCS			High SCS		
	2006	2009	2012	2006	2009	2012	2006	2009	2012
SCS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estonia-Estonian	0.39***	0.66***	0.73***	0.48***	0.58***	0.61***	0.66***	0.59***	0.79***
Estonia-Russian	-0.20*	0.17	0.40***	-0.01	0.25***	0.36***	0.07	0.24**	0.47***
Latvia-Latvian	-0.03	0.23***	0.35***	0.04	0.29***	0.24***	0.13**	0.30***	0.33***
Latvia-Russian	-0.26**	0.06	0.33***	-0.08	0.12	0.27***	-0.02	0.18*	0.30***
Constant	-0.64***	-0.78***	-0.68***	-0.28***	-0.40***	-0.29***	-0.08	-0.26**	-0.22
R ²	0.04	0.03	0.06	0.05	0.05	0.08	0.09	0.14	0.09
N	2798	3044	3604	8091	7681	7175	4268	3462	3105