

*The effects of the 2004 Minority Education Reform on pupils' performance in  
Latvia*

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**Abstract**

One quarter of all school children in Latvia go to the publicly funded minority (predominantly Russian) schools. In 2004, the language of instruction in minority schools was changed from essentially minority language to a composite of 60 % Latvian and 40% minority. This paper studies the effects of this '60/40' reform on the academic performance of pupils in minority schools. Using 2002-2011 centralised exam results data for the universe of Latvia's secondary schools, we find that there has been a significant deterioration in the exam performance of minority schools relative to that of majority schools after the reform year 2004.

**Other keywords:** Bilingual education, Latvia, minorities, policy evaluation.

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## 1. Introduction

In many linguistically diverse societies, the choice of the language of instruction in schools has aroused much public debate and academic interest. Few people doubt that, for the intellectual development of a child, learning in the native language is preferable to the ‘sink or swim’ approach of immersing the child into a school environment with a language different from her native one. However, learning exclusively in one’s native language may come at the expense of acquiring the dominant language skills, hampering the chances for a successful career and upward social mobility in the mainstream society.<sup>3</sup>

In this context, bilingual education has often been proposed as an educational model that combines the virtues of learning in one’s native language with the acquisition of the dominant/majority language skills.<sup>4</sup> This approach, often aimed at improving academic outcomes of the linguistic minority students, has, for example, been adopted in several states of the US with significant Spanish-speaking populations (McCarthy, 2004) and Latin American countries hosting significant indigenous populations (Dutcher and Tucker, 1997; Partinos and Velez, 2009). Another motivation for bilingual education is the political willingness to preserve, strengthen or promote a particular language, identity and culture; this is the case of Wales in the UK, the Basque region in France and Spain, and Quebec in Canada (Baker, 2011). In most cases, the move to bilingual education entails a shift from instruction entirely in the dominant language to a significant proportion of instruction in the minority language, usually in the early years of schooling.

Implementation of bilingual education programmes spans a wide spectrum, ranging from community experiments with voluntary children/parent involvement and active stakeholders’ participation to a ‘top-down’ approach, where the new bilingual model is imposed on the

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<sup>3</sup> For example, there is a large earnings premium to the proficiency in the mainstream society language among the indigenous people of Bolivia and South Africa (Chiswick et al., 2000; Casale and Posel, 2011; Godoy et al., 2007) and the rural Chinese migrants (Gao and Smyth, 2011).

<sup>4</sup> The underlying idea is that developing literacy skills is easiest in the student’s mother tongue and, once developed, these skills can be transferred from one language to another (see e.g. Cummins, 2000).

target groups, without much consultation. While acceptance of the bilingual education model by children, parents and teachers is one important ingredient for its success, equally if not more important are good design and careful implementation of the bilingual programmes. This requires competent, enthusiastic, committed and supportive teachers trained specifically for bilingual education, strong leadership, appropriate teaching materials, sufficient financial resources and parental involvement (Baker, 2011; Varghese, 2004). Much is at stake: if the programmes are implemented successfully, the bilingually educated students will benefit from improved academic outcomes that, together with the dividends of bilingualism, will have positive long-term effects on their careers and earning prospects; if programmes are badly designed and implemented, students may suffer double damage: low proficiency in the dominant as well as native language and weak academic accomplishment. To give these conjectures some operational meaning, we turn to a concrete and relatively unexplored case: recent experience with introducing bilingual education in Latvia's public secondary schools. The Latvian education model deserves attention for reasons of informing the general debate, but in particular because of two rare features: first, the move to bilingual education has been from the initial condition of instruction in the minority language, and not, as typically observed, from the majority language; and second, the linguistic majority and minority classes, pupils and schools are kept separated.

The Latvian educational scene is indeed a parallel world. Two linguistically separated educational systems have co-existed side-by-side – one with Latvian as the language of instruction and one with Russian. The parallel education systems are largely a legacy of the time when Latvia was a province of the Soviet Union.<sup>5</sup> The Soviet policy of industrialisation, 'russification' and planned migration brought into Latvia massive numbers of Russian speaking workers (predominantly from Russia, Belarus and Ukraine), whose children were educated in Russian, while ethnic Latvian children went to Latvian schools.

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<sup>5</sup> In effect, parallel education systems pre-date the Soviet Union, as Russian and German schools have existed in what is now Latvia for many generations (Silova and Catlaks, 2001)

When Latvia re-gained<sup>6</sup> independence in 1991, the dual education system persisted. At the same time, state education reform was introduced and has continued to this date. One of its main goals was and is to secure the primacy of the Latvian language – the only state/official language of Latvia – in what is largely a bilingual society. A major step in this policy was the introduction of the ‘60/40’ minority education law in 2004, stipulating that minority secondary schools, from now on, had to deliver 60% of courses in Latvian language, leaving 40% to be taught in Russian.

The ‘60/40’ law has stirred up considerable controversy - finding expression in a spectrum ranging from large-scale street demonstrations to newspaper and journal articles. Much commentary has been delivered from the perspective of ethno-politics, as evidenced in the negative by sound bites such as ‘assimilation’ and ‘latvianization’ and in the positive by ‘acculturation’, ‘integration’ and ‘bilingualism’ (Bjorklund, 2004; Cara, 2010; Pavlenko, 2011). There are, however, other concerns that go beyond ethno-politics: it is believed that the reform, in spite of its good intentions to integrate the Russian speaking pupils into the mainstream Latvian society, has eroded the *quality of education* in Latvia’s minority schools owing to lack of funding and poor implementation.

Leaving aside concerns of ethno-politics, this paper looks at possible effects of the 2004 minority education reform on the minority pupils’ performance in Latvia. In particular, we study centralized exam performance in minority and majority schools before and after the pivotal year, 2004. The fact that the centralized exam questions are identical for the minority and majority schools is most opportune for the investigation of this paper, as it provides us with a ‘treatment group’ of Russian speaking schools (affected by the reform) and a ‘control group’ of Latvian speaking schools (not affected by the reform). Our main result is that, after the ‘60/40’ reform, the relative position of the Russian minority schools, as measured by the minority-majority difference in the centralised exam results, significantly deteriorated.

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<sup>6</sup> There was an independent Latvian state between the two World Wars.

The remainder of the paper is structured as follows. Section two reviews Latvia's model of linguistic minority education in the context of the country's diverse ethnic composition. Section three presents data, descriptive statistics, estimation methodology and empirical results. Section four concludes.

## **2. Overview of Latvia's ethnic divide and minority education**

The ethnic cleavage in Latvia's education system is best understood against the backdrop of the unique demographic developments experienced by Latvia in the second half of the 20<sup>th</sup> century, when the country was part of the Soviet Union. The high share of foreign born residents in Latvia (15% in 2010 – Eurostat) is the result of migrant inflows from the former Soviet Republics, predominantly Russia, Belarus, and Ukraine, after the 2<sup>nd</sup> world war (Karklins, 1994; Laitin, 1998; Munz and Ohliger, 2003). The Soviet-era migration flows led to a constant increase in the share of Russian speakers in the population of Latvia (see table 1): the number of ethnic Russians, Ukrainians and Belorussians increased dramatically from 230,000 (12% of the total population) in 1935 to 644,800 (31%) in 1959, and reached the peak of 1,112,000 (42%) in 1989. Then, the dissolution of the Soviet Union in 1991 triggered a massive wave of ethnic migration from the USSR successor states, including Latvia, predominantly to the Russian Federation (Muenz and Ohliger, 2003). Thus, between 1989 and 2002, 96 thousand or 11% of Latvia's ethnic Russian population chose to return "home" (Heleniak, 2004). However, around the year 2000, the flow of ethnic return migration from Latvia became minimal (Hughes, 2005).

**Table 1. Evolution of ethnic composition of Latvian population, 1935 – 2011, in thousands and %.**

	1935		1959		1979	
Ethnic Latvians	1438.6	75.5%	1298.0	62.0%	1344.0	53.7%
Ethnic Russians, Byelorussians, and Ukrainians	230.0	12.1%	644.8	30.8%	998.6	39.9%
Other (ethnic Poles, Germans, Roma, etc.)	236.8	12.4%	150.7	7.2%	160.2	6.4%
	1989		2000		2011	
Ethnic Latvians	1387.7	52.0%	1371.8	57.7%	1327.1	59.5%
Ethnic Russians, Belarusians, and Ukrainians	1112.0	41.7%	865.4	36.4%	743.3	33.3%
Other (ethnic Poles, Germans, Roma, etc.)	166.9	6.3%	140.3	5.9%	159.2	7.2%

*Source: Central Statistical Bureau of Latvia data.*

During the Soviet era, Latvian and Russian were the two official languages in Latvia. However, Russian was the language of inter-ethnic communication and dominated in certain economic sectors and in the public sphere. Learning the Russian language was encouraged, if not imposed, by the government, and it assured better jobs. As a result, ethnic Latvians became largely bilingual, while Russian speakers remained overwhelmingly monolingual (Schmid, 2008). To an extent, this linguistic cleavage was exacerbated by the linguistically segregated education system: the ethnic Latvian pupils went primarily to schools with Latvian language of instructions, while pupils of Russian, Belarusian, Ukrainian and other ethnic origins went primarily to school with Russian language of instruction (Pavlenko, 2011; Silova, 2006).

The two linguistically separated education tracks persisted after Latvia re-gained independence in 1991. Towards the mid-1990s, the foundations of the official minority education policy emerged, specifying that public minority education should follow the ‘(transitional) bilingualism’ route. This meant that an increasing share of instruction in minority schools was to be done in Latvian, aiming at the long-term convergence toward primacy of Latvian as the language of instruction in minority schools. The policy was motivated by a common-sense assumption that knowledge of the Latvian language was a

principal driver of integration of Russian and other ethnic minority students into the Latvian mainstream. At the same time, the policy specified that the prevailing structure of two parallel, linguistically distinct, subsystems in primary and secondary education was to be continued. Ethno-linguistically mixed schools and classes were ‘not recommended’ (Silova, 2002; Silova, 2006), motivated by the assumption that Latvian speaking students would suffer negative effects from ‘mixed’ teaching and learning environments.<sup>7</sup> In addition, the separated-from-the-mainstream minority education was thought to offer an opportunity for non-Latvians to study the Latvian language and culture without losing awareness of their ethnic origin.

The implementation of the minority education reform started in primary schools (grades 1-9) in 1998. The programme was relatively flexible – each minority primary school was offered a menu of four reform models that differed in the proportions of the respective languages of instruction as well as in the speed of implementation. Primary schools also were allowed to present their own model. Owing to its flexibility and the gradual nature of the introduction of Latvian, the reform faced little public criticism (Schmid, 2008).

At the secondary school level (grades 10-12), the reform was implemented in 2004. Its centrepiece was the directive that from now on 60% of secondary school content should be delivered in Latvian and 40% in the minority language. The schools could choose which subjects would be taught in Latvian and which in the minority language. The ‘60/40’ reform was introduced gradually: in the academic year 2004/05 only grade 10 pupils were subject to the new model, in 2005/06 – grade 10 and 11 pupils, and from 2006/07 onwards all three grades of the secondary school were studying according to the ‘60/40’ rule. The new legislation also stipulated that from the year 2006/07 (when the first cohort subject to the ‘60/40’ model was to graduate) the final end-of-school exam questions in all subjects,

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<sup>7</sup> This legislation also dealt with kindergarten issues, recommending that only if ‘a child understands conversational Latvian language’ should it be admitted into Latvian kindergartens. See also Jensen and Rasmussen (2011) on the effects of immigrant concentration on pupils’ reading and math skills in Denmark, and Friesen and Krauth (2011) for the effects of ethnic enclaves on pupil performance in primary education in Canada.

irrespective of whether they were taught in Latvian or the minority language, would be presented in Latvian, but pupils would be allowed to choose the language of their answer (Latvian or minority).

Unlike the generally accepted primary education bilingual reform, the '60/40' secondary school reform was met by unprecedented Russian minority mobilisation and mass protests, featuring active school children participation. The protesters denounced a lack of clarification, a 'top down' architecture and too rapid implementation of the reform (Schmid, 2008; *The Baltic Times*, 2004). Some Russian-speaking groups interpreted the legislation to signal an impending 'assimilation' of Russian-speaking pupils. The segregation of the mass media into Latvian and Russian language outlets also did not help to achieve convergence in understanding of the goals, objectives and procedures of the language reform (Hogan-Brun, 2006).

With regard to implementation of Latvia's minority education reform, serious problems are reported for both the primary and secondary level of education. To begin with, there is wide agreement that the bilingual reform on the primary level was severely hampered by a lack of funding, as well as lack of guidance, support structures, and motivation of educators (Silova, 2002; Silova and Catlaks, 2001; Baltic Institute of Social Sciences, 2010). Significant numbers of teachers without a good command of the Latvian language were called upon to deliver courses in Latvian – without sufficient methodological training that would prepare them for the reality of bilingual teaching. The flow of information from policymakers to schools was fragmented – even contradictory at times – with regard to very fundamental things like the goals of the reform and the rights and responsibilities of individual schools and educators. Silova (2002) also reports on various grass-roots level survival techniques being practised in minority schools, from silent obedience to hidden resistance and direct deceit of education inspectors, as teachers and school principals feared for their jobs.



Implementation problems in the primary schools naturally propagated into the secondary school level. The Baltic Institute of Social Sciences (BISS, 2010) conducted an extensive study of the attitudes towards and the effects of the 60/40 reform, interviewing schoolchildren,<sup>8</sup> teachers, headmasters, parents and educational experts in 2004 and 2010. According to this study, headmasters complained about unfamiliarity with the Latvian language making Russian speaking pupils read less, while teachers had less time for explaining, in order to accommodate translating between languages. In some schools, teachers were not proficient in explaining in Latvian, while students were stressed by coping with their own weakness of Latvian, as well as with the insecurity of teachers thrown into unfamiliar linguistic territory. An extraordinary challenge was presented by the examinations, which, with the exception of language courses, were delivered in Latvian. A disproportionate share of time was, reportedly, spent on drilling students for exam questions in Latvian rather than furthering their deeper understanding. Furthermore, some parents objected to the ‘forced’ Latvian delivery of course material. This attitude, if transmitted to their children, would impair their motivation. Educational experts expressed concerns about adverse effects on the quality of education, as well as concerns about unevenness of teachers’ and students’ language proficiencies across different schools, the lack of textbooks and a shortage of general financing.

Regarding the effect of the education reform on the integration of Russian speakers into the Latvian mainstream, the results of the interview study (BISS, 2010) paint a relatively bleak picture. For example, pupils’ sense of belonging to Latvia declined from 2004 to 2010.<sup>9</sup> There was a very modest ‘upgrade’ in language proficiency: the share of pupils reporting very good knowledge of the Latvian language increased from 7% in 2004 to 13% in 2010, and the share of pupils reporting ‘rather good’ knowledge declined 41% in 2004 to 39% in

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<sup>8</sup> The study covered representative samples of exclusively minority schools, in particular grades 10, 11 and 12. The number of pupil respondents in the 2004 interview round was 1189, and in the 2010 round it was 514.

<sup>9</sup> In 2004, 24% of pupils report a ‘very close’ sense of belonging to Latvia; this measure declines to 5% in 2010. The percentage of respondents reporting a ‘not very close’ sense of belonging to Latvia increases from 27% in 2004 to 47% in 2010, and the percentage reporting ‘no sense of belonging’ increases from 2% in 2004 to 23% in 2010.

2010. The motivation to learn Latvian in order to find a job reportedly declined from 74% of respondents saying so in 2004 to 58% in 2010. Motivation to learn Latvian to get (university) education declined from 73% in 2004 to 63% in 2010. The survey also showed relatively strong, albeit declining, opposition to the ‘60/40’ reform: 59% of interviewed pupils were opposed in 2004, with opposition declining to 27% in 2010.

Despite opposition to the reform and the possibility, in principle, of attending the mainstream Latvian schools, demand for education in Russian minority schools remains high in Latvia. Table 2 reports the shares of pupils in Latvian, Russian and other ethnic schools for 1998 – 2011. On the whole, between 1998 and 2011, the share of pupils in Russian schools declined from 34.7% to 26.2%. This decline can be explained by shifts in both demand and supply. First, the share of Russian speakers in the population of Latvia decreased (demand effect); second, some ethnic minority parents decided to start or continue education of their children in Latvian schools in localities offering both types of schools (demand effect); and third, many Russian schools were closed in areas with insufficient numbers of ethnic minority pupils – these pupils had to start or continue their education in Latvian schools (supply effect).

A closer look reveals that the year 2008 marks the beginning of a modest reversal of the trend in the Russian schools’ share. It is more visible if we focus only on the entry level grade, i.e. grade 1 (right panel of table 2), where the reversal from decrease to increase is discernible in 2002/03 and becomes persistent from 2005/206 onward.<sup>10</sup> This lends itself to alternative interpretations: parents may perceive increased value added in their children being formally proficient in a major (Russian) language relative to Latvian, which is native to a relatively small population group. It may also be that parents think more internationally – Latvia is a member of the EU, labour mobility is on the rise, and parents may no longer have the Latvian

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<sup>10</sup> It is important to note that the reversal toward increasing share of Russian schools is by no means a reflection of possibly higher birth rates among the Russian speaking population of Latvia relative to the Latvian speaking one. As a matter of fact, over the period 2000-2004 the birth rate was 20% lower among the ethnic Russians compared with the ethnic Latvians (Source: Central Statistical Bureau of Latvia).

labour market in mind. Alternatively, in a post ‘60/40’ Latvia, their children have an opportunity to learn Latvian, while still embedded in a Russian school environment.

**Table 2. Share of pupils learning in Latvian, Russian and other language schools, in %**

Academic year	Grades 1-12			Grade 1 only		
	Latvian	Russian	Other	Latvian	Russian	Other
1998/1999	64.95	34.71	0.34	71.96	27.61	0.43
1999/2000	66.34	33.27	0.39	73.81	25.76	0.43
2000/2001	67.53	32.08	0.39	75.42	24.08	0.50
2001/2002	68.93	30.67	0.40	75.68	23.83	0.49
2002/2003	69.91	29.66	0.43	74.19	25.23	0.58
2003/2004	70.39	29.19	0.42	74.05	25.52	0.43
2004/2005	71.46	28.12	0.42	75.29	24.29	0.41
2005/2006	72.26	27.28	0.45	73.20	26.20	0.60
2006/2007	72.99	26.56	0.45	73.55	25.87	0.58
2007/2008	73.37	26.06	0.57	72.39	26.98	0.64
2008/2009	73.54	25.83	0.63	71.80	27.30	0.90
2009/2010	73.47	25.86	0.67	71.17	27.82	1.01
2010/2011	73.11	26.18	0.71	70.54	28.56	0.90

*Source: The Ministry of Education and Science of Latvia.*

All things considered, a picture emerges that minority education remains a viable alternative in Latvia, despite the fact that the reforms in Latvia’s minority education have been implemented poorly and have put extraordinary stresses on pupils, teachers and school principals, possibly eroding the quality of education. In the next section, we turn to the quantitative analysis of the ‘60/40’ reform, by looking at centralised exam performance of minority and majority schools before and after the pivotal year 2004. The end-of-secondary-school centralised exams are identical in minority and majority schools, providing us with a comparable measure of pupils’ performance. The fact that the reform affected only minority schools provides us with a control group (majority schools) and a treatment group (minority schools). If the reform has had a negative impact on the quality of education in minority schools, we should expect to see a relative deterioration in the exam scores in the minority schools after the reform.

### 3. Data, methodology and empirical results

#### 3.1. Data

To determine whether the ‘60/40’ reform has affected the quality of education in Latvia’s minority schools, we use data on centralised exam performance from the National Centre for Education of the Republic of Latvia<sup>11</sup> covering all of Latvia’s secondary schools irrespective of language of instruction. The data series is available from academic year 2001/02 (the year the centralized exams were introduced) to the present (2010/11). The data offer a high degree of detail. For example, they provide, for each of Latvia’s secondary schools, the grade distribution (A, B, C, D, E or F, with A being the highest) of the centralised exams conducted at the end of the concluding year of secondary school. The information is available for the subjects: Mathematics, History, English, Biology, Chemistry and Physics. For notational simplicity we will, in the following, label an academic year by its first calendar year; for example, 2001/02 will be denoted by 2001, 2004/05 (the year in which the ‘60/40’ reform was first implemented) by 2004, etc.

The exam performance data were matched with information on the language of instruction and the geographical location of the individual school, obtained from the website of the Ministry of Education and Science of the Republic of Latvia<sup>12</sup>. For 2009, for example, with a total of 390 schools, the following school language profile emerges: 1) Latvian (247 out of 390 schools or 63%); 2) Russian (93 schools or 24%); 3) ‘Two stream’ schools – parallel Latvian and Russian classes in the same school (46 schools or 12%); 4) Polish (3 schools or 0.8%); and 5) Ukrainian (1 school or 0.3%). We exclude the ‘two stream’ schools from our analysis because it is not possible to get a separate exam performance distribution for the

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<sup>11</sup> ([www.visc.gov.lv](http://www.visc.gov.lv))

<sup>12</sup> ([www.izm.gov.lv](http://www.izm.gov.lv)).

majority and minority language streams. Also excluded are private and evening schools (1.8% and 7.4% respectively in 2009), as well as Polish and Ukrainian schools (owing to their low numbers). Thus, our final sample consists of public daytime secondary schools with either Latvian or Russian medium of instruction.

### **3.2. Descriptive statistics**

To compare the exit exam performance of minority and majority schools, we concentrate on three measures. First, we code grades A, B, C, D, E and F with values 6, 5, 4, 3, 2 and 1, respectively, and create a variable “average mark”, which, for each subject in each year in each school, is the arithmetic mean of the numerical grades over the number of pupils. Second, for each subject-year-school, we find the share of pupils who have obtained grades E or F. This measure will indicate the share of pupils with the lowest achievement. Third, for each subject-year-school, we find the share of pupils who have obtained grades A or B. This measure will indicate the share of pupils with the highest achievement.

Table 3 reports the difference in exam performance between the minority and majority schools; a two-sample mean comparison test is conducted to determine whether this difference is statistically significant. Focusing on the average grade (the upper panel of Table 3), we notice that for the science subjects – Mathematics, Chemistry and Physics – the Russian schools outperform the Latvian schools in the first half of the period of observation (2001 – 2004): the difference in average marks between minority and majority schools is positive and statistically significant. This gap in favour of minority schools, however, tends to become much weaker from 2005 onwards, as the difference in minority-majority average marks becomes statistically insignificant in 2006 and 2007 for Mathematics, in 2005-2007 and 2010 for Chemistry, and reduces in size (but remains positive and statistically significant)

in 2009-2010 for Physics. A different relative position, yet a similar trend, is observed for History, English and Biology. For History, the majority schools tend to outperform the minority schools for the whole period of observation, although the difference in favour of majority schools is not always statistically significant. The gap in favour of majority schools shows a marked increase in 2006 and 2007. For English, the difference in minority-majority average marks oscillates around zero, with the exception of the years 2007 and 2008, when majority schools significantly outperform minority schools. For Biology, the difference in minority-majority average marks is statistically insignificant for most years under observation except 2001, when the gap is in favour of minority schools, and 2006, when the gap is in favour of majority schools.

The deterioration in the relative performance of minority schools is also discernible in the middle and lower panels of Table 3, which report the minority-majority difference in the shares of low- and high-performance pupils. With respect to low-performance pupils, the relative performance of minority schools noticeably deteriorated in 2006, 2007 and 2010 for Mathematics, in 2004, 2006 and 2007 for History, in 2004, 2005, 2007 and 2008 for English, in 2006-08 for Biology, in 2009 for Chemistry, and in 2010 for Physics. At the other end of the grade spectrum, the share of high-performance pupils in minority schools relative to majority schools decreased in 2006, 2007 and 2009 for History, in 2005, 2007 and 2010 for Chemistry and in 2009 for Physics.

Overall, a picture emerges where the performance of minority schools deteriorates relative to majority schools after the academic year 2005. The point in time when the gap widens corresponds to the graduation of the first cohort subjected to the '60/40' education reform (academic year 2006/07). Thus, the descriptive statistics render support to the hypothesis that

the ‘60/40’ reform had a negative effect on pupil exam performance in minority schools. In the following section, we turn to the econometric analysis of the effects of the ‘60/40’ reform.

**Table 3. Exam performance of minority and majority schools, by subject and year**

*Minority-majority gap in average mark*

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Maths	0.300***	0.291***	0.248***	0.307***	0.208***	0.086	0.067	0.278***	0.251**	0.188*
History	-0.283***	-0.125	-0.066	-0.205**	-0.027	-0.388***	-0.306***	-0.025	-0.160	-0.039
English	0.007	-0.044	0.015	-0.076	-0.054	-0.005	-0.164**	-0.155*	-0.065	-0.090
Biology	0.314***	0.064	0.118	0.034	-0.076	-0.224**	0.005	-0.147	0.017	-0.022
Chemistry	0.328**	0.389**	0.363***	0.367***	0.129	0.118	0.061	0.212**	0.505***	0.191
Physics	0.629***	0.430*	0.530***	0.583***	0.475***	0.255**	0.300***	0.476***	0.225*	0.197*

*Minority-majority gap in the share of low-performance (marks E and F) pupils*

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Maths	-7.966**	-6.485*	-5.031*	-8.080***	-4.276*	1.891	3.289	-5.789**	-6.274*	-3.182
History	3.168	3.334	-0.539	4.128*	0.553	5.740***	7.000***	2.454	-0.920	1.515
English	2.870	4.805*	2.596	5.369**	4.656***	2.267	7.366***	7.993***	1.414	2.004
Biology	-4.353*	0.564	-2.789	0.483	3.964	10.40***	4.317*	4.884*	-2.295	-0.264
Chemistry	-3.117	-5.839	-0.426	-4.951	-1.713	-0.215	1.070	1.501	-12.11**	-5.116
Physics	-2.211	-6.479	-8.189**	-12.69***	-7.043**	-1.389	-0.822	-3.213	-3.060	1.100

*Minority-majority gap in the share of high-performance (marks A and B) pupils*

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Maths	5.905***	8.487***	8.074***	8.393***	6.584***	4.828*	5.839**	8.773***	6.011***	6.567***
History	-11.353**	-6.965	-5.209	-4.750	0.358	-13.77***	-8.207**	1.301	-11.76**	-3.005
English	2.448	1.921	2.708	0.725	1.771	2.419	-0.698	-1.947	-1.546	-2.544
Biology	13.54***	10.075*	3.354	2.299	0.227	-3.191	2.316	-0.737	2.272	-2.217
Chemistry	9.843	5.922	18.17***	9.261**	2.432	6.784*	2.569	7.166**	16.37***	6.199
Physics	23.184**	24.73***	14.531**	17.83***	17.45***	10.43***	13.81***	21.617***	6.943	7.354**

Notes:

1. Gap in average mark = average of individual minority schools' average marks minus average of individual majority schools' average marks
2. Gap in the share of low-performance pupils = average of individual minority schools' shares of E and F marks minus average of individual majority schools' shares of E and F marks
3. Gap in the share of high-performance pupils = average of individual minority schools' shares of A and B marks minus average of individual majority schools' shares of A and B marks
4. \*- the difference statistically significant at 90%, \*\* - 95%, \*\*\* - 99%.

### 3.3. Empirical methodology

We estimate a model based on the assumptions that the exam performance of a particular school in a particular subject in a particular year is affected by the difficulty of the centralized exam questions (the same for majority and minority schools; '*year or cohort effect*'), the unobserved characteristics of the school (e.g. better teachers, better funding; '*school effect*') and, for the minority schools, the change in the language of instruction (Russian before 2004, and 60% Latvian/ 40% Russian after 2004, '*60/40 effect*'). To detect any potential change in the minority school (treatment group) exam performance relative to the Latvian schools (control group) after the reform, we estimate fixed effects OLS regressions. The dependent variable is a school's performance in a particular subject in a particular year, captured by one of the three performance measures: 1) the average mark (as defined before); 2) the share of pupils receiving grades E and F; and 3) the share of pupils receiving grades A and B. The set of explanatory variables includes the subject-year fixed effects (capturing subject specificity and question difficulty in a particular year), the school fixed effects (capturing unobserved school effects), and minority school and year interaction terms, which allow for determining and comparing the difference in minority and majority exam performance for each year. Formally, the empirical model can be written as follows:

$$\begin{aligned} exam\_performance_{ijt} = & \alpha_0 + \sum \beta_{jt} * subject_j * year_t + \sum \gamma_i * school_i + \\ & + \sum \delta_t * minority\_school * year_t + \varepsilon_{ijt} \end{aligned} \quad (1)$$

where

$i$  denotes individual school;

$j$  denotes subject (Mathematics, History, English, Biology, Chemistry, Physics);

$t$  denotes academic year, ranging from 2001 to 2010;

and  $minority\_school$ ,  $subject_j$ ,  $school_i$  and  $year_t$  are dummy variables.



The parameters  $\delta_t$  are of primary interest in our study. They will indicate the evolution of the difference (or gap) in the minority-majority school performance relative to the reference year 2003 (or 2003/04) – the last academic year before the ‘60/40’ reform. As prior to 2004 minority and majority schools were not subject to differential policy we do not expect the gap in minority-majority school performance to be statistically different for the years 2001, 2002 and 2003, i.e. the estimated coefficients  $\delta_{2001}$  and  $\delta_{2002}$  should not be statistically different from zero. We have mixed expectations about the coefficients  $\delta_{2004}$  and  $\delta_{2005}$ . On the one hand, the cohorts which graduated in 2004 (2004/05) and 2005 (2005/06) were not subject to the ‘60/40’ reform and their exam performance should be similar to the performance of pupils who graduated prior to the reform. On the other hand, the two cohorts might have received lower quality instruction, on account of their teachers being too preoccupied with the demands of teaching the pioneering ‘60/40’ cohorts in Latvian language – at the expense of the last two cohorts taught in the minority language according to the old regime.

If the ‘60/40’ reform had a direct adverse effect on minority school academic performance, the deterioration of the relative position of the minority schools should start manifesting itself in 2006 – when the first cohort subject to the ‘60/40’ reform took their final exams. At least some of the estimated coefficients  $\delta_{2006} - \delta_{2010}$  should then be significantly different from zero (and, according to our expectations, negative if the dependent variable is the average mark or the share of high-performing students, and positive if the dependent variable is the share of low-performing students).

Note that even if we obtained significant coefficients  $\delta_{2006} - \delta_{2010}$ , indicating a deterioration of minority schools’ performance relative to majority schools, the minority schools might still

outperform the majority schools after the reform in absolute terms. For instance, if the gap in minority-majority school average marks goes down from +1 before the reform to +0.3 after the reform, the minority schools still outperform the majority schools in absolute terms but the performance of minority schools compared to majority schools deteriorates in relative terms (compared with the pre-reform situation). The coefficient  $\delta$  in this case would be equal to -0.7.

### 3.4. Econometric results

Table 4 reports the coefficients of the variables of interest – minority school and year interaction effects – for the regressions explaining the evolution of the minority-majority average mark gap (left panel), the gap in the shares of grades E and F (middle panel) and the gap in the shares of grades A and B (right panel). First, we notice that, regardless of the measure we use, the relative exam performance of minority schools did not alter significantly before the 2004 reform: the coefficients of the minority school and year 2001 and 2002 interaction terms are not statistically different from the reference value – the minority-majority exam performance gap in the year 2003. The absence of statistically significant coefficients  $\delta_{2001}$  and  $\delta_{2002}$  conforms with our expectations: in the absence of policy directed at minority schools prior to '60/40' reform, we should not expect the relative performance of minority schools to change. There is also no significant change in the relative minority school exam performance in the first two years following the implementation of the reform (2004 and 2005) – as the '60/40' model was introduced gradually, the cohorts which graduated in these two years were not subject to the increase in the share of Latvian language instruction.

However, the picture changes dramatically in 2006. The difference in minority-majority average marks moves against minority schools in 2006-10; compared with the reference year 2003, the difference in the minority-majority share of the low-performance pupils increases by 4-6 percentage points in 2006-08, and the difference in the minority-majority share of the high-performance pupils drops by 4-6 percentage points in 2006, 2007, 2009 and 2010 (all

relative to the reference year 2003). The most affected are the two pioneering ‘60/40’ cohorts (who graduated in 2006 and 2007) – they lost ground according to all three measures of exam performance. The cohorts that graduated in the following three years (2008-10) also saw their exam performance indicators worsen, although the adverse effects were not as marked as in 2006 and 2007. Interestingly, in the last two years of observation, the deterioration in the relative minority school performance came from the upper end of the grade spectrum, while the gap in the share of low-performance students returned to the pre-reform level.

Next, we want to see whether the effects of the reform were uniform across different subjects. The results of the model estimated for different subjects are shown in Table 5. Again, we notice very little change in the relative minority school performance prior to the reform. Only in the case of History and Physics was the minority-majority average mark gap significantly different in 2001 compared with the reference year 2003, and the gap in the shares of A and B was different in 2001 for Biology.

Looking at the post-reform coefficients, we see a deterioration in the relative minority-majority exam performance for all subjects, although the points in time when the negative effects are observed, the extent to which the gap return to the pre-reform levels and the measures affected differ across subjects. Thus, we see an initial significant decline in the relative minority school average mark for Mathematics in 2006 and 2007, but the gap returns to its pre-reform level afterwards. A similar tendency – where the initial decline in average mark is followed by a return to the pre-reform situation – is observed for Biology and, to some extent, History. On the contrary, there are no clear signs of recovery for Physics, Chemistry and, especially, English. For these subjects, the average grade performance starts to deteriorate in 2006 or 2007, and, by the end of the period of observation, the minority schools are still underperforming relative to the majority schools and the pre-reform benchmark.

The influence of the reform on either the low- or the high-performance pupils represents another incidence of variation at subject level. At one extreme there are Mathematics, Biology and Physics. The fall in the relative minority average mark for these subjects appears to be driven by the rise in the share of low-performing students in minority schools, while all interaction coefficients in the 'share A and B' regressions are statistically insignificant. At the other extreme is Chemistry, where the fall in the average mark is driven by the decreasing share of the high-performance students and not by the increasing share of the low-performance students. Finally, History and English represent the middle ground – the relative deterioration of the minority schools' average mark performance in these subjects seems to be driven by the negative developments at both ends of the grade spectrum.

**Table 4. The evolution of the relative minority-majority exam performance, 2001-2010.**

	OLS estimates					
	Dependent variable:					
	Average mark		Share of grades E and F		Share of grades A and B	
	Coefficient	Std. Err.	Coefficient	Std. Err.	Coefficient	Std. Err.
<i>minority_school*year<sub>2001</sub></i>	-0.006	(0.063)	0.220	(1.530)	-0.553	(2.409)
<i>minority_school*year<sub>2002</sub></i>	-0.051	(0.068)	1.625	(1.655)	-0.056	(2.773)
<i>minority_school*year<sub>2003</sub></i>	Ref.		Ref.		Ref.	
<i>minority_school*year<sub>2004</sub></i>	-0.007	(0.055)	-0.512	(1.600)	-0.354	(2.058)
<i>minority_school*year<sub>2005</sub></i>	-0.054	(0.059)	0.839	(1.608)	-1.197	(2.191)
<i>minority_school*year<sub>2006</sub></i>	-0.223***	(0.059)	5.503***	(1.511)	-5.588**	(2.232)
<i>minority_school*year<sub>2007</sub></i>	-0.203***	(0.060)	6.165***	(1.377)	-4.156*	(2.140)
<i>minority_school*year<sub>2008</sub></i>	-0.118*	(0.064)	4.431***	(1.537)	-1.296	(2.546)
<i>minority_school*year<sub>2009</sub></i>	-0.160**	(0.065)	1.970	(1.627)	-5.605**	(2.610)
<i>minority_school*year<sub>2010</sub></i>	-0.171**	(0.067)	2.262	(1.637)	-6.277**	(2.492)
Subject-year fixed effects	Yes		Yes		Yes	
School fixed effects	Yes		Yes		Yes	
Constant	3.873***	(0.042)	6.427***	(1.156)	21.945***	(1.941)
Observations	14,163		14,163		14,163	
Number of schools	308		308		308	
R <sup>2</sup>	0.114		0.127		0.079	
F	33.38		17.93		21.93	
Prob > F	0.000		0.000		0.000	

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 5. The evolution of the minority-majority relative exam performance, by subject.**

Dependent variable: average mark of a particular school in a particular subject in a particular year; OLS coefficients						
	Maths	History	English	Biology	Chemistry	Physics
Dependent variable : Average mark						
<i>minority_school*year<sub>2001</sub></i>	0.058	-0.236*	-0.034	0.180	-0.015	0.354*
<i>minority_school*year<sub>2002</sub></i>	0.032	-0.075	-0.045	-0.012	0.017	-0.147
<i>minority_school*year<sub>2003</sub></i>	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
<i>minority_school*year<sub>2004</sub></i>	0.074	-0.093	-0.057	-0.069	0.042	0.024
<i>minority_school*year<sub>2005</sub></i>	-0.025	0.058	-0.043	-0.199	-0.183	-0.023
<i>minority_school*year<sub>2006</sub></i>	-0.158**	-0.366***	-0.029	-0.372***	-0.266*	-0.249
<i>minority_school*year<sub>2007</sub></i>	-0.160*	-0.257**	-0.178***	-0.215	-0.324**	-0.235*
<i>minority_school*year<sub>2008</sub></i>	0.010	0.015	-0.188***	-0.393***	-0.261*	-0.100
<i>minority_school*year<sub>2009</sub></i>	-0.028	-0.348**	-0.205***	-0.188	0.005	-0.338**
<i>minority_school*year<sub>2010</sub></i>	-0.111	0.087	-0.327***	-0.206	-0.301*	-0.277*
Dependent variable : share of E and F						
<i>minority_school*year<sub>2001</sub></i>	-3.355	3.675	0.902	0.348	-3.689	1.298
<i>minority_school*year<sub>2002</sub></i>	-0.793	3.113	1.657	4.114	-5.245	4.652
<i>minority_school*year<sub>2003</sub></i>	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
<i>minority_school*year<sub>2004</sub></i>	-3.507	3.927	1.764	3.608	-4.760	-3.088
<i>minority_school*year<sub>2005</sub></i>	0.301	-0.208	0.943	7.158**	-1.598	0.175
<i>minority_school*year<sub>2006</sub></i>	6.454**	6.553***	0.060	14.336***	0.787	6.327*
<i>minority_school*year<sub>2007</sub></i>	7.205***	6.996***	4.591**	11.008***	1.951	8.516**
<i>minority_school*year<sub>2008</sub></i>	0.206	3.363	5.640**	10.980***	4.610	6.040*
<i>minority_school*year<sub>2009</sub></i>	0.945	5.450	3.820	2.555	-2.273	7.217**
<i>minority_school*year<sub>2010</sub></i>	3.588	-1.058	5.455**	3.634	-2.024	4.706
Dependent variable : share of A and B						
<i>minority_school*year<sub>2001</sub></i>	-2.374	-6.587	-0.967	11.933*	-8.648	16.106
<i>minority_school*year<sub>2002</sub></i>	0.593	-3.327	-0.533	9.065	-12.229	12.528
<i>minority_school*year<sub>2003</sub></i>	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
<i>minority_school*year<sub>2004</sub></i>	0.553	1.495	-1.465	-0.171	-7.269	2.426
<i>minority_school*year<sub>2005</sub></i>	-1.264	5.348	-0.790	-2.824	-15.294***	3.153
<i>minority_school*year<sub>2006</sub></i>	-3.341	-10.412**	-0.441	-7.019	-11.033*	-4.529
<i>minority_school*year<sub>2007</sub></i>	-2.183	-4.376	-3.642**	-1.921	-15.617***	-1.123
<i>minority_school*year<sub>2008</sub></i>	0.637	4.769	-5.321***	-6.247	-13.252**	5.766
<i>minority_school*year<sub>2009</sub></i>	-0.683	-13.846**	-7.153***	-3.152	-1.528	-6.954
<i>minority_school*year<sub>2010</sub></i>	-2.502	-0.433	-9.710***	-7.364	-14.127**	-8.192

Notes: Robust standard errors used to calculate coefficients' level of significance. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors and regression statistics are not reported to save space (they are available on request). All regressions include year and school fixed effects. For all regressions, Prob > F is equal to 0.000, with the exception of the Chemistry specifications where Prob > F is equal to 0.002 if the dependent variable is "average mark" and "share A and B" and Prob > F is equal to 0.086 if the dependent variable is "share E and F".

### 3.5. Robustness and sensitivity checks.

In this section, we check how robust our results are to alternative specifications of the dependent variable (school exam performance), as well as to different sub-samples. First, we use three additional measures of school performance: 1) the share of pupils receiving grades A, B and C; 2) the share of the worst-performing pupils (grade F); 3) the share of the best performing pupils (grade A). The results, reported in Table 6, confirm the overall tendency for the relative position of the minority schools to deteriorate after the reform if the cumulative share of grades A, B and C is chosen as a performance indicator. However, the share of pupils receiving the ‘extreme’ grades (A and F) does not seem to be affected by the reform. This, in conjunction with the results reported in Table 4, might suggest the share of minority pupils receiving grade B decreased and the share of minority pupils receiving grade E decreased. Indeed, separate regressions (not reported in table 6), where the shares of grades B, C, D and E are used as dependent variables, show that after the reform the minority school pupils were receiving fewer grades B and C and more grades D and E (statistically significant interaction terms in at least three post-reform years).

Second, we address the unbalanced nature of our panel. For several schools, there are no data on the exam results for particular subject(s) and/or years. This may be because 1) in a particular school nobody chose to take an exam in a particular subject, 2) a new school was created or an existing closed down at some point during the period of observation and 3) the school changed its language status (usually, from a Russian to a two-stream or from a two-stream to a Latvian) and exited or entered our sample at some point during the period of observation. Given that we are particularly interested in observing schools before and after the reform, we run our model on a more balanced sub-sample of subject-schools for which the exam data are observed for at least eight years - implying that the exam performance is observed for at least one year before *and* at least five years after the reform (recall that there are ten years of observation, out of which three are pre-reform years). The results, reported in the upper right panel of Table 6, are fully consistent with the overall picture of the minority

schools' underperformance after the '60/40' reform. Qualitatively similar results are obtained if the panel is strictly balanced, i.e. if only those subject-schools are taken into account where the data are available for all ten years of observation (the results are not reported in Table 6 but are available on request).

Finally, we estimate the model for the capital city Riga, where 60% of the Russian minority schools are located, and for the rest of the country. The results, shown in the lower panel of Table 6, suggest that the minority schools in the capital, especially the cohorts which graduated in 2006, 2007 and 2010, were the most affected by the reform. Regardless of the performance measure, several of the post-reform interaction coefficients are statistically significant in the capital subsample, while the post-reform interaction coefficients in the outside-Riga 'average mark' and 'share of A and B' specifications are statistically insignificant. One possible explanation for the greater influence of the reform on the minority schools located in the capital could be the fact that the 2004 mass protests against the reform, with active participation by school children, took place mainly in the capital. Time and energy spent protesting against the reform possibly was a substitute for learning. Another possible explanation could be related to a difference in teaching quality in the capital and the rest of the country. We might conjecture that, in general, teachers in Riga are much better than those elsewhere in Latvia, in terms of their ability to communicate with students. When they have to switch to Latvian, however, they become much worse teachers. On the other hand, for teachers outside the capital, who are not so good to begin with, switching languages has relatively little impact on their performance in the classroom. .



**Table 6. Robustness and sensitivity checks.**

OLS estimates						
Dependent variable:						
	Share of grades A, B and C	Share of grade E	Share of grade A	Balanced panel		
				Average mark	Share of grades E and F	Share of grades A and B
<i>minority_school*year</i> <sub>2001</sub>	-0.894	-1.726**	-0.634	-0.023	1.365	-0.677
<i>minority_school*year</i> <sub>2002</sub>	-2.345	-0.430	-1.474	-0.038	1.306	0.627
<i>minority_school*year</i> <sub>2003</sub>	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
<i>minority_school*year</i> <sub>2004</sub>	-0.545	-0.293	-0.627	-0.012	-0.005	-0.862
<i>minority_school*year</i> <sub>2005</sub>	-2.516	-0.389	-1.205	-0.085	2.445*	-1.270
<i>minority_school*year</i> <sub>2006</sub>	-8.962***	0.781	-1.476	-0.243***	6.030***	-6.960***
<i>minority_school*year</i> <sub>2007</sub>	-7.809***	1.049*	-1.149	-0.209***	5.936***	-4.722**
<i>minority_school*year</i> <sub>2008</sub>	-4.895**	0.727	-0.470	-0.175***	5.391***	-3.530
<i>minority_school*year</i> <sub>2009</sub>	-6.186**	0.395	-1.879	-0.217***	4.206***	-6.684**
<i>minority_school*year</i> <sub>2010</sub>	-5.995**	0.260	-2.352*	-0.216***	3.657**	-7.322***
Constant	70.124***	1.453***	3.076***	3.939***	4.593***	24.200***
Observations	14,163	14,163	14,163	11,763	11,763	11,763
Number of schools	308	308	308	277	277	277
R <sup>2</sup>	0.0925	0.129	0.0243	0.135	0.179	0.0814
F	32.24	7.469	7.283	33.24	16.70	23.47
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000
	Riga			Outside Riga		
	Average mark	Share of grades E and F	Share of grades A and B	Average mark	Share of grades E and F	Share of grades A and B
<i>minority_school*year</i> <sub>2001</sub>	-0.041	1.231	-0.172	0.037	0.601	0.039
<i>minority_school*year</i> <sub>2002</sub>	-0.043	0.711	0.778	-0.053	2.345	-0.789
<i>minority_school*year</i> <sub>2003</sub>	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
<i>minority_school*year</i> <sub>2004</sub>	0.017	-2.123	0.103	0.009	0.274	0.438
<i>minority_school*year</i> <sub>2005</sub>	-0.107	2.825	-1.239	0.058	-2.140	1.498
<i>minority_school*year</i> <sub>2006</sub>	-0.216***	3.957*	-5.120*	-0.155	4.527*	-4.655
<i>minority_school*year</i> <sub>2007</sub>	-0.283***	6.978***	-5.910*	-0.089	4.311**	-1.428
<i>minority_school*year</i> <sub>2008</sub>	-0.084	3.145	0.375	-0.098	4.159*	-0.812
<i>minority_school*year</i> <sub>2009</sub>	-0.136	0.180	-3.681	-0.075	-1.235	-5.923
<i>minority_school*year</i> <sub>2010</sub>	-0.205*	0.436	-8.586**	-0.045	-0.473	-3.029
Constant	4.049***	2.392	26.992***	3.788***	8.182***	19.284***
Observations	4,621	4,621	4,621	9,542	9,542	9,542
Number of schools	93	93	93	215	215	215
R <sup>2</sup>	0.126	0.138	0.0889	0.140	0.139	0.101
F	36.31	15.72	25.28	26.02	15.24	17.26
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000

Notes: Robust standard errors used to calculate coefficients' level of significance. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors not reported for space saving purposes (available on request). All regressions include subject-year and school fixed effects.

## 4. Conclusions

This paper has investigated the effects of the minority education reform on the quality of education received by pupils in Latvia's minority schools. The reform stipulated that, starting from the academic year 2004/2005, 60% of teaching in minority schools at the secondary school level must be delivered in Latvian and 40% in the minority language (mainly Russian) – a marked significant change from the status quo ante, where all teaching was delivered essentially in the minority language. As a proxy for 'quality of education', we use pupils' performance on centralised end-of-secondary-school exams. Since the educational reforms directly affected only minority schools, while the same centralised exam is taken in both minority and majority schools, this provides us with treatment group (minority schools) and a control group (majority schools). If the reform had a negative impact on the quality of education in minority schools, we should expect to see a relative deterioration in the exam scores in the minority schools after the reform.

Using data on the centralised end-of-secondary-school exam results for 2001-10 (with the embedded pivotal year 2004), we find that there has been a significant deterioration in the exam performance of the minority schools relative to majority schools. The adverse effects were particularly strong in 2006 and 2007 – when the first cohorts subject to the '60/40' rule graduated. However, there were preliminary indications that, for some subjects, the relative performance of the minority schools appeared to return to the pre-reform levels in 2009 and 2010, possibly signalling that the minority schools had successfully adjusted to the shock, and that the deterioration in the relative exam performance of pupils of Russian schools may have been a transitory phenomenon. However, a final judgement should be withheld until several more years of exam result data have become available. It should also be noted that, in spite of the documented post-reform *relative* deterioration of minority school exam scores, minority school pupils, for some science subjects, may still outperform pupils of majority

schools in *absolute* terms. Nonetheless, the degree to which minority school pupils outperform has diminished.

While there is some variation according to academic subjects, as well as geographic location of schools (capital city versus small towns and rural areas), the results obtained here suggest that certain cohorts – the first to be affected by the shock to the system – were the victims of the 2004 education reform. Centralised exam scores are used as admission criteria by universities, as qualification criteria by scholarship review committees, as well as by prospective employers. The impaired exam scores will put this victimized cohort at a disadvantage, and the consequences may last a lifetime.

By reporting on what went wrong with the 2004 minority education reform in Latvia, this paper implicitly points to the crucial importance of a good reform design followed by a solid and sufficiently resourced implementation plan – and that this plan and its supporting budget be reviewed and affirmed by stakeholders before it is imposed on those segments of the population least able to defend themselves: pupils.

The findings of this paper tie into broader themes. At the ethno-political level, language and language policy continue to be highly divisive issues in Latvia. At the time of writing, Latvia was preparing itself for a referendum on whether to grant Russian the status of a second State language. The referendum, initiated by the far-left Russian community activists, was a response to the initiative by right-wing politicians to abolish Russian-language education in public schools altogether (Associated Press, 2012). The referendum took place on 18 February, 2012. With 75% of votes against and 25% for Russian as the second State language, the citizens of Latvia decided that Latvian should remain the only State language. While hardly anyone was surprised at the outcome of this traditionally ethnic vote, the

minority groups considered the referendum as a means of protest, and as a way to keep the language issue in the public eye. Now many hope that it will trigger a much needed dialogue between the two ethnic communities (Reuters, 2012; *New York Times*, 2012). As this paper shows, such a dialogue is long overdue.

## References

- Associated Press (2012) “Latvia votes: Is Russian our language, too?” February 17, 2012.  
Available at:  
[http://hosted.ap.org/dynamic/stories/E/EU\\_LATVIA\\_LANGUAGE\\_SPLIT?SITE=MO STP&SECTION=HOME&TEMPLATE=DEFAULT](http://hosted.ap.org/dynamic/stories/E/EU_LATVIA_LANGUAGE_SPLIT?SITE=MO STP&SECTION=HOME&TEMPLATE=DEFAULT)
- Baker, C. (2011) *Foundations of Bilingual Education and Bilingualism*. Multilingual Matters, Bristol.
- Baltic Institute of Social Sciences (2010), “Vidusskolēnu pilsoniskās un lingvistiskās attieksmes, apgūstot mazākumtautību izglītības programmas [Civic and linguistic attitudes of secondary school pupils studying in minority education programmes]”, Riga, 29 June 2010.
- Bjorklund, F. (2004) “Ethnic politics and Soviet legacy in Latvian post-Communist education: The place of language”. *Nationalism and Ethnic Politics*, 10: 105–134.
- Cara, Olga. (2010) “The Acculturation of Russian-Speaking Adolescents in Latvia: Language Issues Three Years after the 2004 Education Reform.” *European Education* 42 (1): 8–36
- Casale, D. and Posel, D. (2011) English language proficiency and earnings in a developing country: The case of South Africa. *Journal of Socio-Economics*, 40 (4): 385-393.
- Chiswick, B., Patrinos, H. and Hurst. M. (2000) “Indigenous Language Skills and the Labor Market in a Developing Economy: Bolivia.” *Economic Development and Cultural Change* 48 (2): 349–67.
- Cummins, J. (2000) *Language, Power and Pedagogy: Bilingual Children in the Crossfire*. Clevedon: Multilingual Matters
- Dutcher, N. and Tucker, G. R. (1997) The use of first and second languages in education: A review of international experience. Pacific Islands Discussion Paper Series. The World Bank.
- Friesen, J. and Krauth, B. (2011) “Ethnic enclaves in the classroom”. *Labour Economics* 18(5): 656-663
- Gao, W. and Smyth, R. (2011). “Economic returns to speaking 'standard mandarin' among migrants in China's urban labour market”. *Economics of Education Review* 30(2), 342-352.

- Godoy, R., Reyes-Garcia, V., Seyfried, C., Huanca, T., McDade, T.W., Tanner, S. and Vadez V. (2007) "Language skills and earnings: Evidence from a pre-industrial economy in the Bolivian Amazon". *Economics of Education Review* 26(3), 349-360.
- Heleniak, T. (2004). "Migration of the Russian diaspora after the breakup of the Soviet Union". *Journal of International Affairs* 57(2), 99–117.
- Hughes, J. (2005). " 'Exit' in deeply divided societies: regimes of discrimination in Estonia and Latvia and the potential for Russophone migration". *Journal of Common Market Studies* 43(4), pp. 739-762.
- Hogan-Brun, G. (2006). "At the interface of language ideology and practice: The public discourse surrounding the 2004 education reform in Latvia". *Language Policy* 5: 313–333
- Jensen, P. and Rasmussen, A. (2011) "The Effect of Immigrant Concentration in Schools on Native and Immigrant Children's Reading and Math Skills". *Economics of Education Review* 30 (6), 1503-1515.
- Karklins, R. (1994). *Ethnic Politics and Transition to Democracy: The Collapse of the USSR and Latvia*. Woodrow Wilson Center Press and Johns Hopkins University Press.
- Laitin, D. (1998). *Identity in Formation: The Russian-Speaking Populations in the Near Abroad*. New York: Cornell University Press.
- McCarty, T.L. (2004). Dangerous difference: A critical-historical analysis of language education policies in the United States. In J.W. Tollefson and A.B.M. Tsui (Eds.), *Medium of instruction policies: Which agenda? Whose agenda?* Mahwah, NJ: Lawrence Erlbaum.
- Munz, R. and Ohliger, R, (eds.) (2003). *Diasporas and Ethnic Migrant: Germany, Israel and Post-Soviet Successor States in Comparative Perspective*, London: Frank Cass.
- New York Times (2012) "Latvians Reject Russian as Second Language". February 20, 2012.
- Patrinos, H.A. and Velez, E. (2009): "Costs and benefits of bilingual education in Guatemala". *International Journal of Educational Development* 29(6): 594-598.
- Pavlenko, A. (2011) "Language rights versus speakers' rights: on the applicability of Western language rights approaches in Eastern European contexts". *Language Policy*: 10(1): 37-58.
- Reuters (2012) "Latvians set to reject Russian in emotionally charged vote." February 18, 2012. Available at:

- Schmid, Carol (2008), " Ethnicity and language tensions in Latvia ", *Language Policy*, 7, pp. 3-19.
- Silova, Iveta (2002) " Bilingual Education Theater : behind the scenes of Latvian minority education reform" , *Intercultural Education*, 13(4): 463-476
- Silova, I. (2006). *From sites of occupation to symbols of multiculturalism: Reconceptualizing minority education in post-Soviet Latvia*. Greenwich, CT: Information Age Publishing.
- Silova, I. and Catlaks, G. (2001) "Minority Education in post-Soviet Latvia : balancing the legacies of the past and a vision for the future. In : Salili, F. And Hoosain,R. (eds.), *Multicultural Education : issues, policies and practices*, pp. 125-149. Greenwich, CT : Information Age Publishing.
- The Baltic Times (2004) "Officials growing more irritated by school protests". April 22, 2004. <http://www.baltictimes.com/news/articles/9891/> , date accessed March 9, 2011.
- Varghese, M. (2004). Professional development for bilingual teachers in the United States: A site for articulating and contesting professional roles. *Bilingual Education and Bilingualism* 7(2&3): 222-237