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The Persistent Legacy of the Fallen Empires. Assessing the Effects of Poland's Historical Partitions on Contemporary Social Norms Regarding Education

Abstract

This paper refers to the historical experience of Poland in order to demonstrate the importance of former institutions on present regional differences in the norms regarding education. Previous studies revealed significant discrepancies between the scholastic achievements of students in different regions in Poland, ones that correspond to the partition of the country by its three neighbours (Austria, Prussia, and Russia), lasting from the late 18th century to the close of WWI. In particular, students in the former Austrian partition perform better than their peers in the two other regions. In this study, a self-designed survey of parents is used to operationalize different kinds of norms regarding education. As it turns out, parents from the region formerly under Austrian rule show more trust in educational institutions, more belief in the formative role of schooling, and less conviction in the material returns from education. The results show that contemporary discussions on the geography of educational achievements need to take into account the broad cultural context of education.

Keywords

norms regarding education | persistence | 19th century

JEL Codes

I20, N63, N93

1. Introduction

Given the prominent role of education for both individual well-being and the socioeconomic development of regions and countries, there is a need for understanding what makes an education system successful and why educational achievements differ across territories. This fundamental issue has been repeatedly tackled from various academic perspectives — inter alia by economists, sociologists, educators, and anthropologists. One promising approach is to look at regional differences in educational performance from the perspective of cultural norms. Socioeconomic phenomena are path dependent — and not only due to cumulative causative mechanisms, as described by Myrdal (1957), but also as a consequence of institutional persistence. Much empirical research shows that institutional arrangements are very abiding and continue to affect the functioning of societies long

after the disappearance of the formal authorities that had imposed them.

The goal of this paper is to better understand the importance of the long-erased borders between the partitioning empires that passed through today's Poland on today's regional differences in educational achievements. As I will argue, there are reasons to believe that differing cultural norms established back in the 19th and early 20th centuries still affect the performance of students within those old borders.

The existence of educational discrepancies between the territories formerly under Austrian, Prussian, and Russian rule has been proven in earlier studies by Herbst and Rivkin (2013) and Bukowski (2018). I do not intend to question those analyses but rather to further investigate the institutional channels through which the bygone borders may still affect the quality of education. Although the effect of Poland's partitions on student achievement has already been measured,

the attempts to explain this phenomenon were rather indirect and sometimes speculative, inviting further research.

The remaining part of this paper is organised as follows: Section 2 reviews the literature on how former institutions may affect different aspects of socioeconomic development, education included. Section 3 introduces the historical background of the research, explaining the link between the history of Poland in the period 1795–1918 and the institutional diversity of today's Polish regions. This section also reviews some earlier studies on the effect of the partitions on educational quality in Poland. Section 4 describes our identification strategy, including the methodological approach and data used in the analysis. Section 5 presents the results of estimations, and Section 6 is devoted to conclusions.

2. Evidence of the persistent effect of institutions on educational and socioeconomic development

Cultural differences certainly exist between countries, but they are also observed within contemporary states. Even regions that have been functioning for many years under a uniform administrative and political system may still exhibit, due to their historical experience, distinct institutional and cultural features. This shows that socioeconomic development is path dependent. History matters, and we cannot understand present-day choices without reconstructing the evolution of institutions (North, 1995).

No doubt the most recognised empirical work on the impact of historical norms on contemporary social attitudes is that of Putnam, Leonardi, and Nanetti (1993), who demonstrate the link between the medieval civic tradition and the quality of social capital in modern Italian regions. Recently some of Putnam's findings were confirmed in a more formal study by Guiso, Sapienza, and Zingales (2016), which shows that Italian cities that experienced self-government in the Middle Ages indeed have a higher level of civic capital today than similar cities that did not.

In their seminal work, Acemoglu, Johnson, and Robinson (2005) reach back to the 15th century to discuss the rise of the European superpowers and to

understand the reasons for the divergent development of European countries in the subsequent centuries. The authors argue that the rise of Western Europe from that century is largely due to growth in countries with access to the Atlantic Ocean and to substantial trade with the New World, Africa, and Asia via the Atlantic. However the long-term economic performance of those empires turns out to depend on the strength of domestic institutions predating the era of Atlantic trade. Where early political institutions placed significant checks on the monarchy, the growth of Atlantic trade strengthened merchant groups by constraining the power of the monarchy and helped merchants obtain changes in institutions to protect property rights. These changes were central to subsequent economic growth.

Another important aspect in the literature on the persistence of socioeconomic differences between countries is devoted to the long-term effects of colonial institutions, such as legal systems, proprietary rights in land, or forced-labour systems, on the colonised countries (Banerjee & Iyer, 2005; Dell, 2010; La Porta et al., 1997, 1998; Nunn, 2009).

It seems obvious that institutional outcomes are transmitted between generations through both formal and informal norms. Norms may persist locally even if formal institutions in a territory have changed (due to shifted borders or political change). They may also move along with migrating peoples. Simpson (2013) compares individuals who share an institutional environment but whose ancestors may have originated in different countries. This analysis shows that a proxy measure of past overall attitudes towards corruption in the country of ancestry explains substantial variation in attitudes towards corruption across the individuals in the sample, furnishing strong evidence of intergenerational transmission. One may expect that a similar mechanism is relevant for understanding the educational attainment of immigrant children.

A few years earlier Fernández and Fogli (2009) had examined the work and fertility behaviour of second-generation American women. Cultural heritage was proxied with past female labour-force participation and total fertility rates from the woman's country of ancestry. The authors show that the cultural proxies have significant explanatory power even after controlling for education and spousal characteristics.

As with many other aspects of socioeconomic life, education has been studied in the context of

institutional differences emerging as a consequence of the colonial division of the world. Bertocchi and Canova (2002) demonstrate that, compared to other colonised nations, former British and French colonies tended to invest more in education after gaining independence. Huillery (2009) argues that the impact of the institutional approach in the early colonial era on subsequent socioeconomic development can be observed even within a single former colonial empire. As she shows, differences in early investments in human capital and infrastructure between the districts in former French West Africa are still reflected in the current performance of these districts with respect to education.

The projection of historical borders on the maps of educational quality is also observed in Europe and North America. In Italy, a country that was unified in the mid-19th century, academic achievement is much higher in the northern region, in line with the differences in per capita income (Lynn, 2010). The United States also exhibits significant inequality in achievement between the Northern and Southern states, again showing that students in richer regions tend to have higher educational achievements, controlling for family variables (Parcel & Dufur, 2009). The relationship between economic development and educational performance may be considered in the context of the 19th century's formation of public education systems, which happened earlier in the industrialised countries compared to lagging agricultural areas. According to some interpretations (Galor & Moav, 2006), physical capital accumulation in the process of industrialisation enhanced the importance of human capital in production and generated incentives for capitalists to support the provision of public education for the masses, triggering the demise of the existing class structure.

In light of the economic literature on the institutional determinants of various socioeconomic phenomena, the most likely channel through which culture affects academic performance is motivation to study, which can be related to student identity, social pressure, and the perceived importance of education in realising life projects. In other words, ingrained norms and social expectations affect student effort at school. The prevalence of certain norms and attitudes in a given territory may be very persistent, as they are continuously transmitted between parents and their offspring. As demonstrated by Bisin and Verdier (2001), parents are motivated to transmit their preferences to children because of a

form of paternalistic altruism ("imperfect empathy"). At the same time, the parents' involvement in their children's education depends on the characteristics of the neighbourhood. The complementarity of parental effort and the social norms prevailing in the neighbourhood, demonstrated by Patacchini and Zenou (2011) on the basis of British data, may explain why the geography of academic achievements and educational attitudes is so persistent.

Sociological research reveals that social divisions and students' identities can be a dominant influence on scholastic achievement (Akerlof & Kranton, 2002; Coleman, 1960). An education system will fail if its expectations of students are inconsistent with the value system and personal goals of students themselves.

Although it seems that identity and social norms play an important role in determining student motivation to perform at school, cultural factors may also affect motivation to study by shaping the pecuniary and nonpecuniary returns of schooling. Chauvel (1999) notes that there are three large models for the social structure in Europe: the German, the Romance, and that of the less developed Catholic countries. The German model is characterised by limited stratification and low value placed on formal education. In turn, the Catholic model involves a strong link between education and socioeconomic status.

3. Historical partitions, socioeconomic development, and educational performance in Poland

Poland is a valuable case for research on the impact of history on socioeconomic development. The first reason for this is its turbulent history. Between 1772 and 1795, following a series of military defeats, Poland was divided among its three neighbouring powers: Russia, Prussia, and Austria. This division took place in three stages and eventually involved the entirety of Polish territory. Up until the reunification of Poland in 1918, the three regions were exposed to very different political and administrative cultures and experienced very different rates of economic growth, with the territories under Russian rule being generally less advanced economically and lagging in terms of the development of modern social and political structures.

Indeed, research shows that territorial differences referring to many socioeconomic phenomena in today's Poland clearly reflect the historical partitions. Zarycki (1997, 2000) demonstrates that the historical borders are reflected in the political choices of Polish voters. Voters in the post-Prussian territory, and generally in the west of Poland, tend to be more pro-European and liberal compared with the post-Russian region, which in turn is more conservative. Grosfeld and Zuravskaya (2015) elaborate more on this subject, arguing that the political east-west split in Poland refers in reality to voters' attitudes towards the communist past (western regions are more anticommunist), while the liberal-conservative axis runs rather from the north to the south (from the Congress Kingdom to Galicia).¹

Becker et al. (2016) exploit the fact that in several Eastern European countries, communities on both sides of the long-gone Habsburg border have been sharing common formal institutions for a century now, ever since the demise of the Austro-Hungarian empire. Identifying individuals living within a restricted swath on either side of the former border, they find that historical Habsburg affiliation relates to increased current trust and reduced corruption in courts and police.

Some of the existing research on the persistent trace of the fallen empires on Poland's territory refers directly to education and student achievements. All of these studies followed the introduction of the countrywide standardised tests in Poland (2002) and used the test scores as the main endogenous variable. Nonetheless, these studies are quite differentiated in their approach and methods. Early works, ones that exploited the first editions of the school tests, rely mostly on descriptive and cartographic analyses (Herczyński & Herbst, 2002; Śleszyński, 2003). Later attempts employ cross-section regressions (Czapiewski & Śleszyński, 2007; Herbst, 2006), fixed effects models (Herbst & Rivkin, 2013), and Geographical Regression Discontinuity Design (Bukowski, 2018). All of the existing analyses were carried out on the data aggregated to the municipal or even higher level.

Summarising the existing research on the geography of educational quality in Poland, most authors observe that, even when controlling for different educational inputs and local characteristics, Galicia (the partition once under Austrian rule) outperforms other regions of Poland in terms

of academic achievements, as measured by the standardised school tests (Bukowski, 2018; Herbst, 2006; Herbst & Rivkin, 2013; Herczyński & Herbst, 2002). Some studies also acknowledge that the western territories of Poland, formerly under Prussian rule, perform surprisingly poorly, taking into account their dominant role in the domestic economy (Herbst & Rivkin, 2013).

The conclusions from the literature review are consistent with the pattern in Figure 1 showing the municipal averages of ninth-grade students' test scores in mathematics (2015). The achievements in southeastern Poland, which belonged to the Austro-Hungarian empire until 1918, are high compared to other regions of Poland. The average scores by the historical partitions are given in Table 1, again showing that students in the ex-Austrian territory outperform those living in other locations. The gap between the mean test scores in mathematics achieved in the Austrian and Prussian partitions accounts for a standard deviation of about 0.25, which is more than the post-Austrian territory's advantage over the Russian partition (0.13) and less than the gap between the Austrian partition and the territories acquired by Poland after World War II (0.34). The poor performance of students in the new (post-German) territories in the west and north of Poland is noted in most of the existing studies. In this context, a recent work by Becker et al. (2018) has yielded findings which at first glance may look surprising — namely, in showing that descendants of the forced migrants (who account for almost 30% of the population in the acquired areas) tend to have on average one extra year of schooling and are driven by a higher propensity to finish secondary and higher education. However, as shown by the authors, this advantage is likely to be offset by the very low educational attainment of the autochthonous population, and therefore the findings of Becker et al. are not in contradiction with the earlier studies on the geography of educational achievements in Poland.

Although the higher quality of education in the former Austrian partition is commonly recognised, things are worse in terms of understanding the mechanisms behind this phenomenon. The channels of the persistence of regional differences in educational achievement in Poland are a challenging and unsolved research puzzle. Herbst (2006) considered regional differences in returns to education as a promising subject for further research. Herbst and Rivkin (2013) elaborated on this channel, arguing that investment in education (and eventual migration) is generally more

¹ Congress Kingdom or the Kingdom of Poland is the name for Poland's territories under Russian rule used since the Vienna Congress (1815).

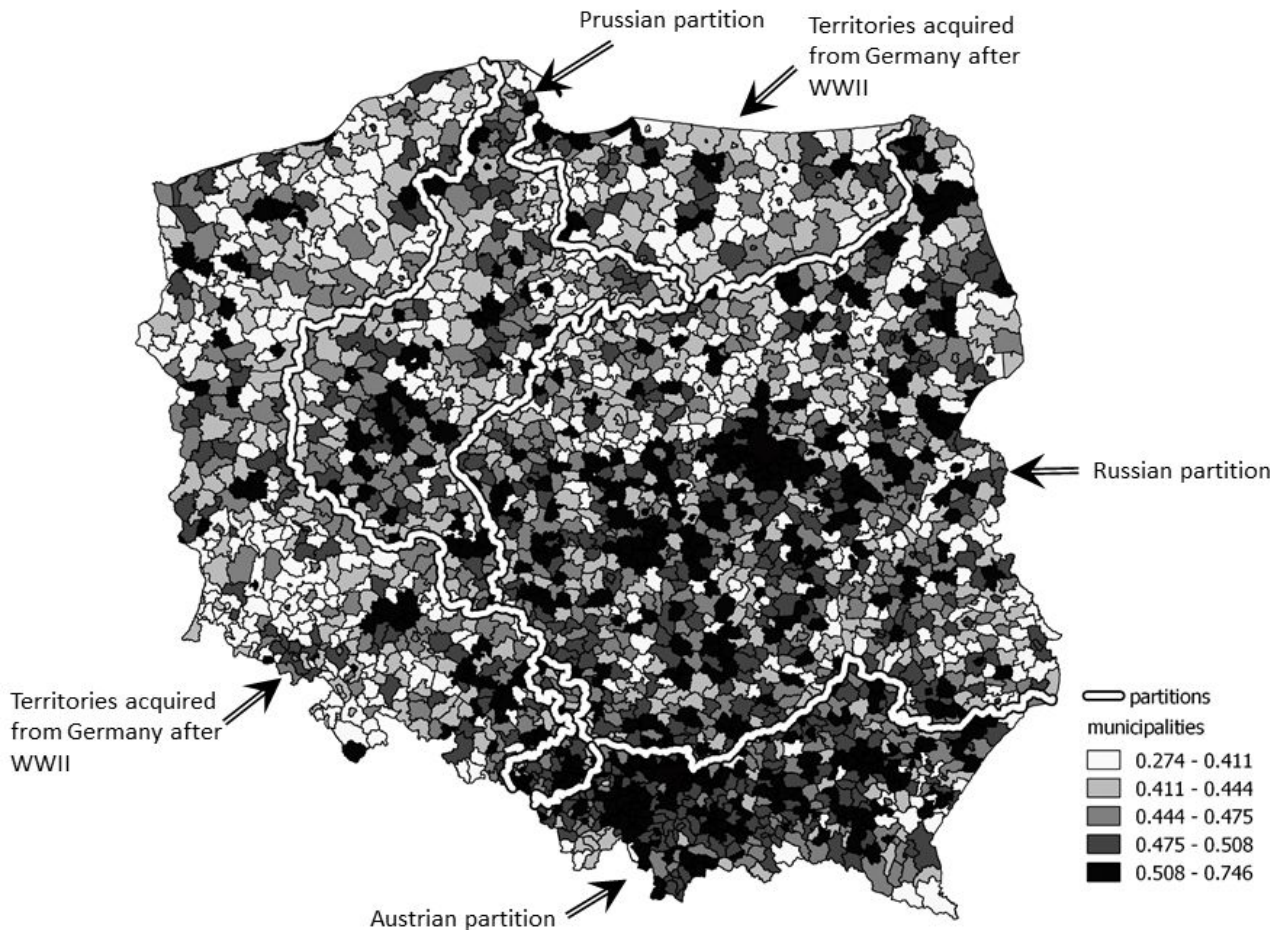


Figure 1. Municipal average scores on 9th-grade test in mathematics (2015) as a percent of maximum achievable score

Table 1. Mean values and standard deviations of the scores on 9th-grade test in mathematics (2015)*

	Mean	Sd
Austrian partition	0.180	0.904
Prussian partition	-0.072	0.980
Russian partition	0.053	1.021
Territories acquired after WWII	-0.163	1.020
All territories	0.000	1.000
N	6,304	

*Descriptive statistics refer to scores aggregated at the school level, weighted by number of students, and standardized at the country level

profitable in the eastern regions of Poland, which contributes to higher academic achievement, and this contrasts with the low economic performance of this area.

More recently, Bukowski (2018) has attempted to explain the long-lasting regional differences in educational quality in Poland via the concept of identity and student motivation. Bukowski argues that the interaction between institutional and individual identity might be crucial for the formation of human capital. In the Austrian educational system, the positive framing of Polish identity (including the use of Polish as the language of instruction) might have created a positive social norm regarding education among the Poles. Conversely, in the Prussian and Russian systems, Polish identity had a negative framing, and it thus might have led to either a neutral or negative social norm.

The degree of cultural autonomy, as a factor shaping a positive attitude towards education in 19th-century Galicia, is emphasised in the recent article by Herbst and Kaliszewska (2017). The authors also elaborate on other institutional arrangements distinguishing the former Austrian partition from the territories ruled

by the other imperial powers: the high social status of teachers, the important role of the school as a means of social advancement, and much higher scholarisation rates in rural areas (especially compared to territories under Russian rule).

Although the works quoted above generally support the view that the persistent discrepancy in educational achievements between the partitions is caused by different social norms about education, the attempts to verify this claim amount to either qualitative insights or indirect quantitative analyses based on circumstantial evidence (Bukowski, 2018; Herbst & Kaliszewska, 2017; Herbst & Rivkin, 2013).

The most recent piece of such “patchwork” analysis is provided by Bukowski (2018), who demonstrates that the achievement gap between the Austrian and Russian partitions is higher with respect to sixth-grade test scores (which is a low-stakes test) than in the case of ninth-grade test scores (which are high stakes because they are used as an admission criterion to high school). According to that author, this shows that the high performance of students in Galicia is driven by long-standing social norms regarding education rather than by expected returns from education. To investigate these norms, Bukowski eventually uses data from three different surveys (of which two are large, general socioeconomic surveys) turning selected education-related questionnaire items into dependent variables and then regressing them on partition “dummies” and control variables. The surveys are not specifically designed to study the norms regarding education, and they do not allow us to deepen the analysis (as they typically include only two to three relevant questions). They are also based on different methodological approaches and have different targeting and sampling. For example, only one of the surveys is addressed to the parents of school-aged children, while the two others were conducted among the adult population.

The results are somewhat puzzling. They suggest that, compared to the other partitions, people from the former Austrian empire are more likely to declare that education is important in their life and more likely to support higher government spending on education. On the other hand, they are less likely to desire higher education for their children and less trustful of education as a factor in lifetime success. Bukowski convincingly argues that overall the results can be interpreted as evidence for a positive social norm regarding local educational institutions in the former Austrian territory.

Differences between the early educational systems in the three partitions, which may have resulted in different social norms regarding education, are well described in the works of Polish historians (see Dybiec et al., 2015; Kucha, 1982; Możdżeń, 2006; Szymański, 1983; Truchim, 1967–1968; Wroczyński, 1980; Żniński, 1914). In the Prussian partition, where compulsory schooling had been formally introduced by 1819 following the ordinance of Friedrich Wilhelm III, both the network of schools and the curricula were centrally designed. Not only were schools meant to raise the level of useful qualifications in society, but they were also considered an important measure to integrate the annexed territories into Prussia. Prussian schools, teaching exclusively in German, very quickly outnumbered the already existing Polish institutions, and even the latter became obliged to offer full instruction in German in addition to classes held in Polish. In time, particularly after Otto Bismarck became German chancellor, Germanisation pressure grew stronger. Between 1873 and 1887 the Prussian authorities gradually limited instruction in Polish, and in 1887 they withdrew the Polish language as a separate subject even in elementary schools. From 1887 on, secondary schools became obliged to use German as the language of instruction in religion classes, as well. In the 1880s the government also monopolised teacher nominations, something hitherto having usually been the task of local authorities.

In contrast to the Prussian partition, the Russian authorities never introduced compulsory schooling in the seized territories; this was instituted only after Poland had regained its independence in 1918. Although the government of the Russia-dependent Kingdom of Poland made some attempts to develop a school network, the outcomes were rather limited. According to Kmieciak (1969), in 1904 in the rural parts of the kingdom, there were only 32 children attending elementary school per 1,000 inhabitants — much fewer compared to the European part of “proper” Russia (42.9). Among the men recruited to the Russian army from the kingdom’s territory in 1886, 83.1% were illiterate.

In the early 19th century, the schooling system in the Russian partition was underdeveloped compared to the other partitions, but it was largely autonomous. The situation changed dramatically after 1863, as a consequence of the failed national uprising (the January Uprising). Following the *Jugendheim* edicts signed by the Russian czar Alexander II, the Polish language was eliminated from schools, which henceforth were to

use only Russian textbooks. Reading and writing were now taught using “civil script” (a form of the Cyrillic alphabet), and school instruction included Orthodox religious singing. These reforms naturally met with strong opposition in Poland, as the population was overwhelmingly Catholic, and it had always relied on the Latin alphabet.

Another important measure of Russification via the school system involved replacing Polish teachers with Russians. As a result of this policy, in 1903 Poles accounted for only 22% of all teachers in secondary schools for boys.

The Russian government’s tightening of schooling policies contributed to the emergence of secret courses held in Polish. Among the territories of partitioned Poland, underground schooling was most developed in the Russian region, where it covered all levels of education, including seminars for teachers.

Compared to the Russian and Prussian territories, the political climate surrounding the school system in Galicia was very different. The law on compulsory schooling for children aged 6 to 14 was announced in 1869, 50 years after the corresponding regulation in Prussia and 50 years prior to the freshly independent Polish state’s introduction of compulsory schooling in the former Russian partition. From the very beginning the Austrian law stated that public education was free and that it was provided in the children’s mother tongue.

What distinguished teachers from Galicia from those in other partitions was not only the dominant share of Poles but also the large share of teachers of peasant origin and the minor participation of the gentry class. The teaching profession offered the opportunity for social advancement and guaranteed a path to prestige in the local community.

Cultural and administrative autonomy, Polish instruction at all tiers of schooling, and relatively close relationships with teachers together created important, positive incentives for Polish students. Another crucial factor was the existence of universities in the region (Lviv University and the Jagiellonian University in Kraków), which allowed the most talented students to continue education after graduation from secondary school. At this time Galician universities were the only ones operating within the territory of partitioned Poland and teaching in Polish, as the University of Warsaw (established 1816) was closed by the Russian government after just 15 years of operation and reopened except for a short period between 1862 and 1869.

Overall, given the differences in the political, cultural, and administrative conditions in which the public education systems were formed within the divided Polish territory, the hypothesis of the divergence of education-related social norms that may persist today seems justified.

The goal of this work is to start where the previous quantitative research left off, that is, to directly address the questions concerning the norms through which history may affect present-day educational performance. The main hypothesis is that residents of the former Austrian partition have more positive norm regarding education compared to those living in other regions of Poland. A secondary hypothesis is that, due to different historical experience, they may also perceive education more in terms of a formative process and have less utilitarian expectations about it.

I use the results of the self-designed survey of parents having 15–16-year-old children, which aimed to assess the attitudes towards education, institutions, and regional historical legacy in the three historical partitions of Poland. The conceptual framework of the analysis and the survey itself are described in the following section.

4. Conceptual framework and data

4.1. Measuring the effect of the former borders

As the first, preparatory phase of my work, I decided to measure the achievement discrepancies at the former empires’ borders of Poland’s territory. Although I propose some enhancements to the earlier work by Bukowski (2018), this part of the analysis is to some extent replicative, and therefore it is discussed in Appendix 1 to this article. Overall, the result confirms Bukowski’s main findings in showing that students in the former Austrian partition outperform those in the Russian partition by a standard deviation of 0.4 when school and municipal characteristics are controlled for and by a standard deviation of 0.13 in the value-added specification, controlling additionally for student performance at the earlier stage of education. In contrast, there is no significant difference in achievement between students in the former Russian and Prussian partitions.

These findings, which are not surprising in light of the existing studies, suggest that we focus on the differences between Galicia (the Austrian partition) and the remaining regions while investigating social norms regarding education in the further part of the analysis.

4.2. Exploring the norms about education

The empirical investigation on the norms regarding education in the former partitions is based on the self-designed survey of parents. The survey covered 2,500 parents of students attending the second or third grade of middle school (*gimnazjum*). It was representative within each of the three partitions, and it did not include parents living in the territories acquired by Poland after World War II. The history of the latter territories (which included the expulsion of the local population and forced resettlements) is very different from the regions within Poland's prewar borders, and it is not possible to investigate the local educational norms along with the 19th century's partition within the same research framework.

The sample was constructed in three steps. First, all middle schools in Poland were divided according to layers (partition, city size) to ensure that school locations in the sample reflected the structure observed in the population. Then I randomly drew 250 middle schools with the probability of this drawing being proportional to the school size. Finally, 10 parents in each of the chosen schools were interviewed.²

The collected data were used to operationalise the education-related norms (ERNs) that correspond to the mechanisms of the "historical" effect on educational achievements postulated by the literature of the subject (Becker et al., 2016; Bukowski, 2018; Herbst and Rivkin, 2013) and an interdisciplinary team was consulted.³

2 Schools were drawn randomly within the layers (town size and partition) and with probability proportional to the school size. This procedure ensured the representativeness of the sample within each partition. The parents within each school were picked using the 'snowball' method, and in most cases they were interviewed in their households, as the parents of 15–16-year-old students are difficult to meet at school.

3 The members of the team were Magdalena Smak (Educational Research Institute), Justyna Kościńska (University of Warsaw, Institute of Sociology), and Anna Kaliszewska (University of Warsaw, Institute of History).

More precisely, the parents' responses allowed us to distinguish three types of attitudes towards education:

- **Perceiving returns to education as high.** Parents in this category pointed to education as one of the three most important factors for success in life. They were convinced that school education is beneficial for students. When asked about their guess of the average wage of a university professor in relation to the average wage of a secondary school graduate, they estimated this ratio as higher than the median respondent in the sample. They also declared that if secondary education was not funded by the state, they would be willing to pay a tuition fee for it. Finally, they were determined to make their children apply to a tertiary school in the future.
- **Expressing trust in educational institutions.** Parents in this category declared their trust in the educational system as a whole. They also believed schools should have more autonomy. According to them, teachers belong to the elite of society, and they are either underpaid or adequately rewarded (but definitely not overpaid). Parents in this category agree with the statement that children learn at school things they could not learn at home.
- **Recognising the formative role of education.** Parents in this category believe that the role of school is more to shape the child's personality than to directly teach applicable skills. In particular, when asked to choose the three subjects they cared most about while monitoring their children's school achievements, these parents included both history and Polish literature. Similarly, when prioritising the goals of school education (again, by choosing three priorities from numerous possibilities), they pointed to formative values, such as tolerance, patriotism, critical thinking, and respect for the authorities, rather than "utilitarian" goals.

Clearly, the three norms defined above are not exclusive of one another. One may even expect a positive correlation between them, as all of them reflect an affirmative position with respect to schooling. However, each norm addresses a different aspect of parental attitude towards education. Based on the literature reviewed in earlier sections of this article, there are reasons to believe that the above norms may have different determinants and that

the cultural heritage rooted in the 19th century's partitions may be one of them.

I used the logit model to determine the effect of living in a given partition on the probability of sharing the particular norm about education. In particular, the estimated equation is:

$$\log \frac{p(ERN_{j,i}=1)}{1-p(ERN_{j,i}=1)} = \beta_0 + \beta_1(Partition) + \sum_{j=2}^p \beta_j X_{ji} + \varepsilon_i \quad (1)$$

The control variables X_{ji} describe the respondent's gender, their child's gender, city (town) size, whether the child lives with both parents, the number of children in the household, grade attended, whether somebody in the family is a teacher, the parents' educational attainment, and whether the respondent was born in the same neighbourhood where she or he lives now. Gender is universally found to be a strong determinant of educational achievement (Hadjar et al., 2014). In turn, city size and family-related variables are used to characterise the living conditions of respondents and their individual experiences that may affect their attitude towards education. Finally, I separately refer to the migration experience, as, according to the literature, it may strongly influence the propensity to invest in education (Becker et al., 2018).

In the next step the estimated β_1 values for each norm were transformed from the log odds into the predicted probabilities of sharing the norm conditional on living in a given partition.⁴

5. Results

5.2. Norms about education in the former partitions

The results in this section come from the logit estimations performed on data from the parental questionnaire and from the postestimation calculation of probabilities of expressing particular about towards education, conditional on living in one of the three former partitions.

Table 2 shows descriptive statistics for the three subsamples of parents living in different partitions. The samples differ with respect to certain

characteristics, reflecting the actual differences between the populations of the three partitions.⁵

The former Prussian partition is the most urbanised of the three regions (the lowest percentage of parents living in rural areas), but it also has the lowest percentage of respondents from large metropolitan cities, with a population exceeding 500,000. The Austrian partition has the largest share of rural population.

The sample is quite balanced with respect to the gender of the children. However, respondents (parents) themselves were predominantly women (in all partitions). One reason may be that compared to men, women in Poland are less professionally active, and therefore they were more available for the pollsters. However, this does not explain the gap between women's (87%) and men's (13%) share in the sample. It seems that mothers are also more engaged in children's educational issues, and frequently they were more natural interlocutors on the subject of school education than the fathers.

The average number of children per family ranged from 1.85 in the former Russian partition to 2.02 in the territory once belonging to Prussia. The Russian partition also has the largest share of families with just a single child (40.5%).

Table 2 also shows some important and distinct characteristics of the former Austrian partition, which need to be controlled in further analyses. Parents in Galicia are less mobile: 71% of them still live in the town where they were born (compared to 60%–62% in the other two regions). They are also more likely to have a teacher as a family member. The latter may be consistent with the hypothesis of the relatively high social status of the teaching profession in the former Austrian partition (Herbst & Kaliszewska, 2017), as more prestige prompts more people to become teachers. However, from the perspective of this research it is important to bear in mind the possibility of reverse causation: having a teacher as a family member makes respondents more likely to declare trust in schooling and teachers.

Finally, in the context of school achievements, a meaningful difference between the partitions refers to the mothers' educational attainment. Women in the former Austrian partition are significantly more likely to reach the master's education level than their counterparts in the remaining two regions.

⁴ This is made using the margins command in Stata software.

Table 2. Distributions of independent variables by partition.

	Austrian	Prussian	Russian	Total
Living in metropolis (% yes)***	11.11	5.97	14.73	11.6
Living in countryside (% yes)***	48.15	29.85	35.66	36.8
Parent's gender (%)				
Female	88.52	85.97	86.43	86.76
Male	11.48	14.03	13.57	13.24
Student's gender (%)*				
Female	49.26	56.57	51.32	52.28
Male	50.74	43.43	48.68	47.72
Living with both parents (% yes)***	91.67	83.58	86.28	86.72
No of children in the family (%)*				
1	36.11	33.13	40.47	37.56
2	44.07	47.16	41.01	43.32
3	14.44	14.48	14.65	14.56
4 or more	5.38	5.23	3.9	4.56
Middle school grade (%)				
8 th	52.22	50.9	48.37	49.88
9 th	47.78	49.1	51.63	50.12
Mother's education (%)***				
Primary	1.85	2.84	3.18	2.8
Basic vocational	20.19	31.49	21.24	23.76
General secondary	14.07	19.7	16.67	16.92
Secondary vocational	26.48	20.45	25.27	24.24
Bachelor	7.78	5.37	7.83	7.16
Master or higher	29.07	19.55	25.58	24.72
Unspecified	0.56	0.6	0.23	0.4
Father's education (%)**				
Primary	3.52	4.18	4.89	4.4
Basic vocational	34.26	43.58	35.66	37.48
General secondary	6.3	6.87	8.53	7.6
Secondary vocational	33.15	24.93	26.74	27.64
Bachelor	4.07	3.28	5.66	4.68
Master or higher	17.41	15.67	17.05	16.76
Unspecified	1.29	1.49	1.47	1.44
Teacher in the family (% yes)***	29.07	18.51	24.65	23.96
Still living in the birthplace (% yes)***	71.48	60.75	62.48	63.96
School satisfaction***	26.48	17.91	18.68	20.16
Attitude towards partitions***	42.78	43.13	25.81	34.12
General trusts variable***	33.33	29.70	23.80	27.44

* p < 0.05, ** p < 0.01, *** p < 0.001 refer to the Chi2 test of independence between the explanatory variable and the partition

This immediately brings to mind the question of whether school achievements in Galicia are driven by different social norms regarding education across all socioeconomic strata or, more directly, by the fact that more children have educated mothers. Similarly, one may wonder to what extent the norms regarding education are themselves the consequence of educational attainment, independent of the region of residence and cultural heritage. At this point it is worth recalling that all earlier research found that differences in educational attainment fail to explain the achievement gap between the former Austrian partition and the remaining parts of Poland (Bukowski, 2018; Herbst & Rivkin, 2013). This is also so in the case of my own measurement of the gap, shown in Appendix 1 to this article. Nonetheless, there is no doubt that parental education needs to be carefully controlled for while estimating the effect of partitions on the norms towards education.

Equation (1) was estimated three times, each time including a dummy variable associated with a different partition and considering parents in the remaining two partitions as a reference group. However, when discussing the results, I focused on the “Austrian vs. rest” model in the article, as I most wished to explain the high educational achievements in the former Austrian partition compared to the remaining two historical regions of Poland. As mentioned earlier, the territories acquired by Poland after World War II were not covered by the survey, so the reference group consisted of parents from the Russian and Prussian partitions.

Table 3 includes the results of logit model estimation in which residency in the Austrian partition is used to explain the propensity to follow different norms regarding education.

The control variables included student and family characteristics, as explained in detail in Section 4. Columns 1–3 represent the specifications with three different ERNs used as dependent variables. The model from column 1 seeks to explain what makes parents consider the material returns of education to be high. In column 2 the dependent variable identifies parents valuing the formative role of education above its practical usefulness. Column 3 in turn refers to trust in educational institutions.

As the coefficients in logit estimation are reported in the form of log odds ratios, they are difficult to interpret. However, a few observations can be made looking at Table 3. First, the attitudes towards

education differ significantly between the former Austrian partition and the remaining two territories. While parents in the former Austrian territory consider education less profitable (in terms of pecuniary benefits) as compared to their counterparts in the former Russian and Prussian partitions, they are more prone to emphasise the formative role of education, and they express higher trust in educational institutions.

Second, most of the student and family characteristics are not correlated with parental norms about education, but there are exceptions to this rule. Parents of girls are more likely to recognise the material returns on education, as compared to parents of boys. This seems rational, as much research shows that salary benefits from education in Poland are indeed higher for female than male students (OECD, 2010). The child’s gender is, however, irrelevant for the parents’ norm regarding formative education and for their general trust in educational institutions.

Interestingly, the perceived return on education is also the only norm that is influenced by parental education level — and in particular by the mother’s education. Families with more educated mothers consider monetary reward from studying higher, compared to mothers without a degree, but parental education is not correlated with either trust in schools or belief in the formative role of school education.

The attitude towards education is also clearly dependent on having a relative who works as a schoolteacher. In such families the perceived material benefits from education are significantly higher, and so is trust in educational institutions. In contrast, there is no clear effect of the affinity with a teacher on the attitude towards the formative role of school.

The first row in Table 3 shows the coefficients by the variable indicating the parents’ residence in the former Austrian partition. As one can see, the Austrian legacy has a significant effect on each of the three norms under consideration, even controlling for the family characteristics as discussed above. It positively affects the parental attitude towards the formative role of school and the level of trust in educational institutions. It is in turn negatively associated with beliefs in monetary returns on schooling.

As said before, the logarithms of odds are difficult to interpret in terms of the actual effect of explanatory variables on the probability of an event taking place. In order to assess the magnitude of these effects, let’s now consider Table 4, in which log odds from Table 3

Table 3. Attitudes towards education in Austrian vs. other partitions. Results of logit estimation

	(1) High perceived returns to education	(2) Priority to formative education	(3) Trust in educational institutions
Main explanatory variable			
Austrian partition	-0.336* (0.141)	0.576*** (0.142)	0.682*** (0.124)
Individual & family characteristics			
Living in metropolis	-0.200 (0.185)	-0.139 (0.217)	-0.0120 (0.183)
Living in countryside	-0.0845 (0.122)	0.0960 (0.139)	-0.199 (0.124)
Parent's gender (male)	-0.220 (0.172)	0.411* (0.173)	-0.0103 (0.166)
Student's gender (male)	-0.491*** (0.112)	-0.126 (0.127)	0.0886 (0.111)
Living with both parents	0.0690 (0.168)	-0.198 (0.181)	0.0628 (0.169)
No of children in the family	0.0613 (0.0405)	-0.0890 (0.0691)	0.0142 (0.0440)
Grade (9th vs 8th)	-0.0895 (0.109)	-0.177 (0.126)	-0.0315 (0.110)
Having teachers in the family	0.543*** (0.127)	-0.309 (0.168)	0.428** (0.133)
Living in the birthplace	-0.268* (0.115)	0.0138 (0.136)	-0.0871 (0.118)
Parental education (vs. primary or basic vocational)			
Mother: General secondary	0.535** (0.206)	-0.108 (0.233)	-0.284 (0.204)
Mother: Secondary vocational	0.467* (0.186)	0.207 (0.191)	-0.0587 (0.170)
Mother: Bachelor	1.154*** (0.234)	0.0411 (0.298)	0.0562 (0.248)
Mother: Master or higher	0.725*** (0.210)	0.328 (0.242)	0.0223 (0.207)
Father: General secondary	-0.109 (0.247)	-0.278 (0.299)	-0.104 (0.252)
Father: Secondary vocational	0.237 (0.151)	-0.133 (0.175)	-0.221 (0.156)
Father: Bachelor	0.234 (0.264)	-0.156 (0.336)	-0.673* (0.337)

Table 3. Attitudes towards education in Austrian vs. other partitions. Results of logit estimation

	(1)	(2)	(3)
	High perceived returns to education	Priority to formative education	Trust in educational institutions
Father: Master or higher	0.240	-0.151	0.0421
	(0.193)	(0.243)	(0.203)
_cons	-1.150**	-1.848***	-1.816***
	(0.361)	(0.404)	(0.358)
N	2500	2500	2500

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4. Effect of Austrian partition on norms towards education: predicted probability contrast

	(1)	(2)	(3)
	High perceived returns to education	Priority to formative education	Trust in educational institutions
Not Austrian partition	0.184***	0.103***	0.141***
	(0.00859)	(0.00687)	(0.00786)
Austrian Partition	0.141***	0.169***	0.244***
	(0.0146)	(0.0165)	(0.0188)
Austrian vs Not Austrian probability contrast	-0.0431*	0.0659***	0.103***
	(0.0171)	(0.0180)	(0.0205)

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

are transformed into predicted probability contrasts, conditional on living in the former Austrian partition, with other territories serving as a reference category. As we can see, the most pronounced difference refers to the level of trust in educational institutions. Residents of Galicia (the ex-Austrian region) are 10.3 percentage points more likely to express such trust, which is a notable gap (column 3 in Table 4).

Parents living in the former Austrian partition are also more likely to recognise the formative function of education. This norm, involving the preferential attitude towards educational activities focused on promoting the common cultural heritage, but also allowing the school to shape students' system of values, is 6.6% more likely to be observed in Galicia than in the remaining regions (column 2 in Table 4).

Finally, parents from the former Austrian partition are less prone to consider education as an

investment. Despite their high general trust in the education system, they are 4% less likely to expect high returns from education, whether in monetary terms or in terms of success in a "professional career" (column 1 in Table 4).

When interpreting these results one needs to consider the possible consequences of population mobility across the historical borders. The administrative divisions at issue here ceased to exist a century ago, and it is obvious that populations from different partitions have been mixing since then, and thus so did their social norms. However, it is worth emphasising that the spatial mobility of the Polish population is rather low. This is well reflected in the sample used in this research, as 62%–71% of responding parents (depending on the partition) still live in the same town in which they were born. Moreover, within the existing domestic mobility of Poles, about

75% of migration is intraregional (Kociszewski, 2006). Even the recent increase of participation in tertiary education has had little effect on general mobility, as the vast majority of students enrol in universities in their home regions (Herbst, 2010). Low mobility is one possible explanation why the norms established back in the 19th century in the three partitions are still observable on the map of contemporary Poland. Nonetheless, since some interregional mobility does take place, and the former partitions have been reintegrating since 1918, we may suspect that the historical regional differences in attitudes towards education are underestimated when assessed based on the contemporary survey of parents. In other words, these differences were probably larger back in 1918 compared to the ones we can observe today.

5. Conclusions

In this work I have investigated the institutional legacy of the Austrian empire as the possible explanation for the comparatively higher academic achievements of students in the southeast of Poland. The persistence of former institutions and their impact on present-day socioeconomic life is well documented in interdisciplinary research the world over. However, we do not fully understand the channels through which the historical experience determines within a country the regional diversity that we observe today, and in particular the diversity of educational achievements.

In the first stage the RDD was used to verify the existence of educational discrepancies between the neighbouring territories that belonged to different countries in the period 1795–1918. The results (discussed in Appendix 1) confirmed the findings of the earlier studies showing that students from Galicia perform significantly better than those in the former Russian partition, while there is no significant difference between the former Prussian and Russian territories. My major goal was to directly address the questions concerning the institutional channel through which history may affect present-day educational performance. Based on suggestions from the interdisciplinary literature on the subject, I decided to investigate the social norms regarding education in different partitions as a possible explanation for the observed gap in achievements. I conducted a self-designed survey of parents having 15–16-year-old children, aiming to assess their attitudes towards education, public institutions, and regional historical

legacy. Survey items were then used to classify parents according to their compliance with three different norms related to education. Next I performed logit estimations, and postestimation prediction of probabilities of compliance with particular norms towards education, as conditional on living in the former Austrian partition.

All three norms proved significantly different between the former Austrian partition and the remaining territories of Poland. The most pronounced difference was in trust in educational institutions. Parents in Galicia (the former Austrian territory) were about 10% more likely to express trust in schooling than did their counterparts on the other side of the former border. This result proved robust for the sensitivity tests. Adding variables depicting parents' opinions on their child's school, their attitude towards the partitions as historical events, and their general openness (general trust question) did not depress the estimated impact of the Austrian legacy on trust in educational institutions.

Besides having more trust in schooling, parents in Galicia are also 7% more likely to care about the formative role of school and 4% less likely to recognise the monetary returns on education.

The results are very much in line with findings by Becker et al. (2016), who demonstrated that living in regions formerly under Habsburg rule increases the level of trust and reduces the perceived corruption in courts and police. In this context schools may be considered another type of public institution. The findings also support the earlier suggestions of Bukowski (2018) and Herbst and Kaliszewska (2017), who point to social norms and the degree of identification with public institutions as possible sources of higher educational performance in the former Austrian partition. However, different from what is suggested by these studies, a positive attitude towards education in Galicia is not primarily driven by personal experience, and it is not limited to the familiar, local school system, but it applies to education in general. Similarly, a higher trust in education is not associated with the promise of material success or social advancement but rather stems from the conviction that the school is important for personal development.

The research shows that the intergenerational transfer of long-inculcated norms may have a significant impact on territorial patterns of socioeconomic development, even if the administrative and political

divisions that were at the foundation of these norms vanished a long time ago. This supports the findings of Bisin and Verdier (2001) and Patacchini and Zenou (2011) on how parental effort combined with local social norms contribute to the tenacity of regional differences in educational performance. With respect to educational policy, our results show that traditional measures of coping with inequalities, relying on redistribution of resources, providing extra teaching hours, or intensified evaluation of achievements may be ineffective if deeply rooted local norms regarding education are not taken into account and if policies fail to address multiple generations, and not just students at schools.

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Appendix 1. Measuring the effect of the former partitions of Poland on present achievements in education

A.2. Model specification and data

Although measuring the effect of the 19th-century borders on present-day achievements of students is replicative with respect to the work of Bukowski (2018), I decided to do so for two reasons: (1) this attempt offers some enhancements to the previous analysis. I was able to work on school-level data instead of municipal averages, and to control for the achievement of students at an earlier stage of education (a value added approach), which creates the opportunity to obtain a more robust results. (2) The gap in educational achievements observed between different historical partitions is a key context for the investigation on the social norms towards education, this being the main goal of the article. Although the measurement of the achievement gap and the research on the attitudes towards education rely on different datasets (the former uses data from Poland's national tests, while the latter is based on the survey of parents), it is still better to discuss the findings on the norms with reference to one's own assessment of the gap, rather than referring only to earlier studies.

Following Bukowski (2018) I use a geographical regression discontinuity design to assess the gap between the Austrian and Russian partitions, as well as between the Russian and Prussian territories. In this kind of quasi-experimental approach it is assumed that the location (living, attending school) on one or the other side of the border is random. The "treatment" relies on the exposure of individuals to certain cultural and institutional arrangements due to their location on one side of the geographical boundary, while the location on the other side of the border implies the lack of treatment. The driving factor may be either single-dimensional (Euclidean distance between the unit and the border) or two-dimensional (referring to the latitude and longitude). This approach is referred to in the literature as Geographic Regression Discontinuity, GRD (e.g., Keele and Titiunik, 2014, 2016) or spatial regression discontinuity (e.g., Egger and Lassmann 2015, Hidano et al. 2015).

My assumption, based on the studies cited in the previous section, is that local communities living

along the two sides of the border may have different norms and attitudes towards education, as back in the 19th century they were exposed to different cultural, administrative, and economic arrangements.

The equation estimated within the RDD is:

$$Y_i = \beta_0 + \beta_1 D_i + \beta_2 dist_i + \beta_3 D_i dist_i + \sum_{j=4}^p \beta_j X_{ji} + \varepsilon_i \quad (A1)$$

Where: Y_i is the average score in the 9th grade math test in 2015 for school i , D_i is a treatment variable (denoting former partition), $dist_i$ is a distance from historical border and X_{ji} are additional control variables. We estimate (1) for the schools located within 50 km bandwidth from the border between former Austrian and Russian partition, and then for those within similar bandwidth at the former border between Prussia and Russia.

As shown in the equation A1, the estimation of the RDD model is performed at school level, but it is weighted by school size (number of students), so that larger schools have a larger impact on the outcomes. Since this appendix is, to some extent, a replication of the earlier study, I skip testing different polynomials, alternative measures of the distance to the border, and modifications of the bandwidth. However, I perform a sensitivity check by gradually expanding the specification of equation A1, and observing the changes of the treatment effect in response to the inclusion of different sets of variables. The first specification is a basic RDD model with the treatment variable and the driving variable included, supplemented with the set of school community characteristics: gender balance, share of dyslectic students, and school size. The second specification also includes variables representing accumulated "resources": municipal population (reflecting the access to cultural resources and amenities), educational attainment in parents' generation, and municipal share of families receiving the social benefits.

The third and final model is a value-added specification, which means it includes the average achievement of students at the earlier stage of education (6th grade) as an additional explanatory variable. It is important to underline that including former achievements of students in the equation is useful in terms of controlling for unobserved explanatory factors, but it certainly makes measuring the effects of persistent institutions on education

more problematic. On the one hand a value-added approach helps to capture most of the unobserved school or student characteristics that may affect the estimates. On the other, it probably also captures most of the presumed impact of the cultural heritage on educational performance, as the causal mechanism would be similar for the 6th and 9th graders. Controlling for former achievements is equivalent to verifying what determines the observed variation of student skills within a group of individuals who had similar achievements at an earlier stage of education. If the effect of the former border remains significant even under the value-added approach, it would suggest that some factors affect the process of learning at school (motivation, effort, quality of instruction) separately at each tier of education. Intuitively, this would support the hypothesis about the cultural and institutional nature of the gap.

The analysis discussed in the appendix combines data from different sources. The dependent variable is the mean test score in mathematics achieved by students in 9th grade on the final, compulsory examination taken by all students graduating from middle schools in 2015. This data is administered by Poland's Central Examination Committee (CKE). The CKE is also our source of auxiliary data on schools, including: the proportion of students by gender, the share of dyslectic students, school size, and class size.

Some of the variables used in the specifications are available at the level of the municipality⁶. The percent of adults in the 35-50 age group holding a degree comes from the national census (2002). The municipal tax base (2015) – that is, local revenues excluding transfers – is provided by the Central Statistical Office (GUS). Finally, the percent of families receiving social benefits (2008) is derived from the POMOST system used by municipalities to administer their social assistance programs.

A.2 Results

Figure A1 is the graphical illustration of regression discontinuity at the two former borders. The graph includes schools within the 50 km swath from the border. The regression line illustrates the elasticity

⁶ There are 2,478 municipalities in Poland. They are self-governing administrative units, responsible for providing many public services, including primary and lower secondary schooling. The average municipal population is about 15,000.

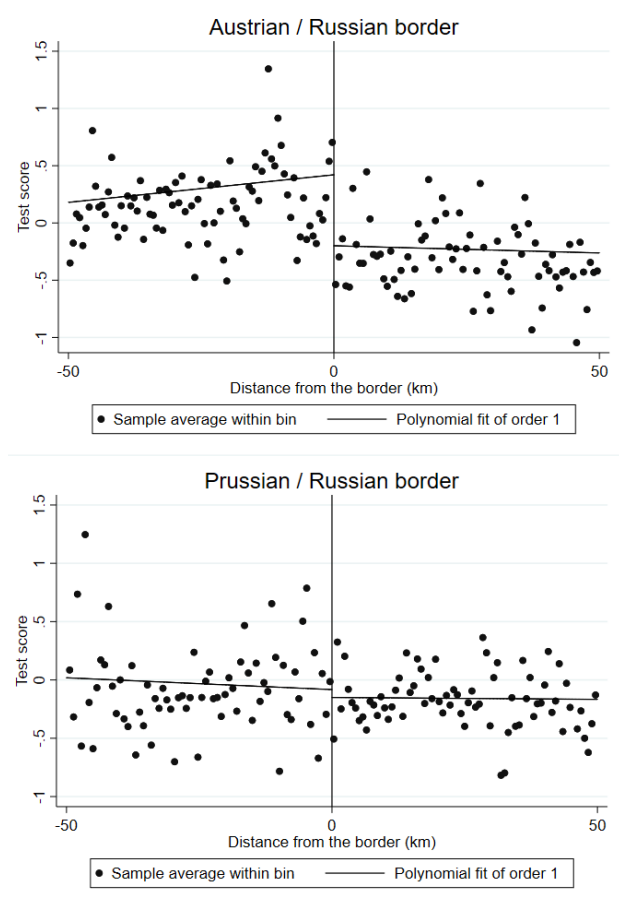


Figure A1. RDD plot with discontinuity at former borders between partitions

of test score to the Euclidean distance between the school and the border, and it is estimated through simple regression with no additional covariates.

As we can see on the graph referring to the former Austrian-Russian border, there is a visible shift associated with the treatment, that is, in this case, with living on the “Austrian” side of the border. Students in the former Austrian partition (left side at the graph) perform better in mathematics than those attending school in former Russian territory. The point estimate is close to 0.5 of standard deviation. In turn, graph referring to the 19th border between the Prussian and Russian partition suggest that there no significant shift in the test score at the border.

Table A1 shows the results of the estimation for the three different specifications mentioned in section A1. Columns 1-3 refer to the former border between Galicia (Austrian partition) and the Russian partition. Columns 4-6 in turn include the results for the 19th-century Prussian-Russian Border.

Table A1. Results of RDD estimations

	(1)	(2)	(3)	(4)	(5)	(6)
	Austrian vs Russian			Prussian vs Russian		
Treatment status						
Austrian/Prussian partition	0.413***	0.354***	0.135*	0.0383	0.0721	0.0194
0.298***						
0.128*						
	(0.0901)	(0.0866)	(0.0524)	(0.0912)	(0.0908)	(0.0468)
Running variable						
Distance from the border (1)	0.000190	0.00275	0.00105	-0.000896	0.00172	0.00303*
	(0.00265)	(0.00258)	(0.00156)	(0.00265)	(0.00264)	(0.00136)
Distance from the border (2)	0.000346	-0.00152	-0.00158	-0.00165	-0.00130	-0.00392***
	(0.00192)	(0.00185)	(0.00111)	(0.00213)	(0.00209)	(0.00108)
Characteristics of school community						
Percent of boys	-1.237***	-1.279***	-0.0183	-1.200***	-1.250***	0.0961
	(0.246)	(0.236)	(0.144)	(0.314)	(0.309)	(0.161)
School size	0.00483***	0.00304***	-0.00130***	0.00170**	0.00120*	-0.00142***
	(0.000473)	(0.000491)	(0.000310)	(0.000560)	(0.000590)	(0.000308)
Percent of dyslectic students	1.711***	0.637*	-0.332*	0.930**	0.634	0.0164
	(0.239)	(0.248)	(0.151)	(0.337)	(0.337)	(0.174)
Municipal level characteristics						
Municipal population (log)		0.0411	-0.0303		0.00476	-0.105***
		(0.0345)	(0.0208)		(0.0339)	(0.0176)
Percent of families receiving social aid		-1.897*	-0.403		-0.485	0.0362
		(0.790)	(0.477)		(0.602)	(0.310)
Municipal revenues (log)		0.0622	-0.0778		0.0137	-0.0160
		(0.73)	(-1.51)		(0.102)	(0.0527)
Percent of degree holders		2.654***	0.756		3.503***	1.168*
		(0.656)	(0.397)		(0.910)	(0.471)
Value-added						
Average score in 6 th grade			0.280***			0.289***
			(0.00601)			(0.00518)
_cons	-0.0412	-0.957	-5.629***	0.272	-0.296	-5.686***
	(0.146)	(0.545)	(0.343)	(0.177)	(0.657)	(0.352)
N	1245	1245	1245	1138	1138	1138
R-sq	0.210	0.283	0.740	0.032	0.070	0.753

Standard errors in parentheses. * p < 0.05, ** p < 0.01, *** p < 0.001

In columns 1-3 the running variable, which is the Euclidean distance between the school and the border, turns out to be insignificant on both sides of the cutoff point, and through all specifications of the model. This suggests that whatever drives the difference in educational performance between the Austrian and the Russian partition, it is associated with some distinct features of these historical regions as wholes, and not with any explanatory factor changing monotonically along with the geographical coordinates, one that could only be accidentally correlated with the historical divisions.

By contrast, the point estimate of the impact of the former Austrian partition on the school achievements of students is positive and significant in all three specifications. The magnitude of the effect in the basic model estimated through RDD is about 0.41 of standard deviation. (column 1 in table A1). The interpretation of this result (in this and further specifications) is that just by “crossing” the border between the former Russian and Austrian partitions we will expect an average student achievement to increase, *ceteris paribus*.

A glance at the results for the Prussian-Russian border raises the doubt as to whether there exists any effect of this border on the present educational achievements. First, the coefficient by the treatment variable is statistically insignificant in all three specifications. In turn, the running variable is significant in column 6, indicating that achievements in both partitions increase along with the distance from the border.

In specifications 1-2 and 4-5 the achievements turn out to be lower in schools with a higher proportion of male students. This is in line with much research showing that girls score better on school tests and tend to receive better grades, although this rule is not universal with respect to mathematics, in which boys sometimes outperform girls (Driessen and van Langen 2013). In the “final” specifications for both borders (columns 3 and 6) gender balance turns insignificant.

A positive sign by the coefficient representing the effect of dyslexia on school performance (columns 1, 2, and 4) may at first glance seem counterintuitive. One would generally expect dyslexia to depress individual student’s achievement. However, when using school-level data, the positive and significant effect of the dyslexic share in the school community on the average test score, as shown in column 2 of table 2, is not very surprising. More students being diagnosed as dyslectic

may be the reflection of better access to psychological care in the school’s neighborhood, which in turn should be correlated with a better general learning environment.

As we include the measures of accumulated resources that could affect the achievements of students (local revenues, poverty, parental education), the effect of the Austrian partition drops only slightly – to 0.35 of standard deviation (column 2 in table A1). The revenues of municipal government have no impact on school achievements, but, as expected, the achievements are negatively affected by the scale of local poverty, and positively – by the educational attainment of adults in the municipality. The size of the municipality has no effect on achievement when other municipal level variables are controlled.

Columns 3 and 6 in table A1 presents the estimates from the value-added specification. Naturally, when students’ achievement in the 6th grade is included in the specification, it explains a large part of the variation in the test scores obtained by the same students in the 9th grade. R-squared increases from 0.28 to 0.74 for the Austrian-Russian border, and from 0.07 to 0.75 for the Prussian-Russian border. Some variables characterizing the community turn insignificant. This refers in particular to gender balance in the school, and the scale of poverty in the municipality. In turn, the coefficient by the proportion of dyslectic students changes to negative or insignificant, in accordance with basic intuition.

However, most importantly for our considerations, school location in the former Austrian partition remains a positive determinant of educational achievement even in the value-added framework. The magnitude of the coefficient is now reduced to 0.135 of standard deviation, but it is still significant at the 5% level⁷. Meanwhile, the effect of Prussian partition (vs. Russian) remains insignificant, as in earlier specifications.

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⁷ However, it must be noted that the 6th-grade test includes items referring to different school subjects, and not just mathematics, so it is not fully equivalent to the test which we use as a dependent variable.

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Keele and Titiunik, 2014, 2016) or spatial regression discontinuity (e.g., Egger and Lassmann 2015, Hidano et al. 2015).