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What Determines The Long-Run Persistence of the Empires? The Effect of the Partition of Poland on Education

by

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Abstract

This paper estimates the long-lasting effects of institutions imposed by the three Empires: Austro-Hungary, Prussia and Russia during the Partition of Poland on the performance of Polish students. Using the two-dimensional geographical Regression Discontinuity Design I show that the Habsburg Empire had a long-lasting positive effect on the performance of students compared to the Russian Empire. The magnitude of the effect is similar to the performance gap between white and black students in the US. At the same time however, there is no difference between the Prussian and Russian Empires. I argue that the main channels of influence are the role of ethnic tolerance and the political purpose of education. The Austrian and Prussian educational systems were very similar as the former was practically copied from the latter. However, the attitudes toward the Polish population and the role of education in this respect widely differed. While in the Prussian Empire education was the main tool of Germanization, in the Habsburg Empire it was seen as a tool to spread modern national identities. The alternative explanations are also discussed. These include migration-based self-selection of people, urbanization patterns and other features of the Austrian and Prussian education systems.

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1 Introduction

It has been documented by many that institutions are of crucial importance for development, more so than geography or culture (Acemoglu and Robinson 2012, Rodrik et al. 2004). One of the most important channels through which institutions affect economic growth is human capital: religious practices can affect literacy and motivation to study (Weber 1993, Becker and Woessmann 2009, Becker and Woessmann 2010); technological progress facilitates access to education and increases skill premium (Goldin and Katz 2009, Galor and Moav 2006, Van Zanden 2009); family size and the labour market organization affect investments in education (Galor 2012, Galor 2005, Becker et al. 2010); and finally the design of education system shapes individuals' incentives, quality of teaching and amount of schooling (Cantoni and Yuchtman 2013, Cappelli 2013, Musacchio et al. 2012). Nevertheless, some institutions have large and long lasting impact on educational and economic outcomes, while the effect of others disappears quickly (Michalopoulos and Papaioannou 2013, Grosfeld and Zhuravskaya 2014). What determines the long run persistence of institutions is still generally unknown.

The purpose of this paper is twofold: to investigate the effect of the past institutions on current day educational outcomes and determinants of long run persistence of institutions. For these, I use the Partition of Poland by major powers, which created a unique natural experiment, to study the effects of institutions. At the end of the 18th century Poland ceased to exist as an independent state for more than 120 years when the Russian Empire, the Kingdom of Prussia and the Habsburg Austria divided the Polish territories and implemented their institutions (Figure 1). One advantage of focusing on the Partition of Poland is that it allows to compare long run persistence of two, different institutional environments and policies (Prussian and Austrian) to the third one (Russian). Thanks to these, it is possible to clearly define the institutional treatment and isolate factors responsible for the persistence. Another advantage originates from the fact that – contrary to most empirical institutional analyses – I am able to exploit within-country institutional variation. Therefore, the most important features of the current institutional environment are constant across all units of observation and this condition lowers the risk of omitted variable bias (Banerjee and Iyer 2005).

The potential effect of the Partition on education quality is clearly visible from Figure 2, which shows the geographical distribution of the 9th grade math and science high-stake exam scores in 2011. The green lines denote parts of the former border between the partitions, the one in the south between Russia and Austria and in the west between Prussia and Russia.[1] Regions in the former Austrian Empire are performing better than the rest of the country and this seems to hold also among the counties located on the border, at the same time the Prussian partition does not seem to matter. However, the observed pattern might not be necessarily caused by the Partition. In order to identify the causal impact of the Partition on the contemporary educational outcomes, I use the two-dimensional geographical regression discontinuity design with the former borders between the Empires as cutoff points. The main result is that students living

[1] Only regions on these parts of the border have had similar history before and after the Partition.

in the former Austrian partition are outperforming their colleagues from the Russian zone on the 6th grade low-stake exam (9th grade high-stake exam) by on average 0.8 (0.47) standard deviation and the estimates are statistically significant, robust and stable across specifications. The effect is economically important, as it is similar to the racial achievement gap in the US. Contrary to this, there is no evidence for any stable and significant effect of the Prussian Empire on the former Prussian-Russian border. My results are partially consistent with the results obtained by Herbst (2004) and Herbst and Rivkin (2012), who find a positive effect on the test scores of the Habsburg Empire but negative of the Prussian. However, their methodological approach does not allow to establish the causal links.

My leading hypothesis argues that the interaction between institutional quality and societal preferences is crucial for the institutional persistence. The three Empires differed in either their educational systems or the attitudes toward the Polish society. The Austrian and Prussian educational systems were very similar as the former was practically copied from the latter (Cohen 1996, Lamberti 1989). Both systems had compulsory elementary and optional secondary education and shared similar curricula and pedagogical methods. However, the attitudes toward the Polish population and the role of education widely differed. While in the Prussian Empire education was the main tool of Germanization, in the Habsburg Empire it was used to spread modern national identities. As a result, the language of instruction in the Prussian part was German, whereas in the Austrian part students learned in Polish. In addition, the curricula were also constructed in such a way to diminish (preserve) the presence of the Polish culture in the Prussian (Austrian) partition. Contrary to these two, the Russian educational system was much less developed. There was no compulsory elementary schooling, no coherent organization of a school network and no political will for expanding education. Russia also used education as a tool to Russify the population and so the language of instruction was Russian. As a consequence, the proportion of illiterate population in the parts of Poland annexed by Russia was as high as 65 percent, whereas in Prussia it was less than one percent (Figure 3) (Zieliński 1983). These institutional differences disappeared after World War II, when 8 years of education became obligatory throughout Poland. Differences in social norms toward education, however, can survive institutional changes and can exert their effect in the long-term.

I use the proxies for social norms to directly test this hypothesis. The empirical evidence shows that people from the former Austrian Empire are more likely to choose education as the priority subject of governmental spending and they are more willing to make unofficial payments to receive public education. However, migration could be another explanation, with self selection of inhabitants as a driving mechanism. In addition to this I cannot exclude the possibility that the observed pattern has been generated by distinct urbanization patterns or other characteristics of the Austrian Empire, namely: its inclusiveness and development of the institutions of higher education.

The papers which are closest to mine are Grosfeld and Zhuravskaya (2014),Wysokinska (2011) and Becker et al. (2014).[2] Grosfeld and Zhuravskaya (2014) find the persistent

[2]For the literature in polish see: Hryniewicz (2003), Chuminski (2008).

effect of the Partition on the level of religiosity, belief in democratic values and rail-road infrastructure, but not on income, industrial production, share of people with secondary education, corruption and trust in government institutions. The authors argue that most of the differences between the partitions haven been smoothed out by economic factors, however the inter-generational transmission can still affect social norms and further shape political preferences. Wysokinska (2011) provides a general impact of the Prussian Empire and finds a positive effect of the German administration on general trust, income and turnout for referenda. These two papers use the regression discontinuity design in their identification strategy. Finally, Becker et al. (2014) point out that, among the Central-Eastern European countries, the Habsburg Empire affects trust toward local state and an acceptance of corruption.

This paper argues that the interaction between institutional and an individual's identity might be another factor crucial for the formation of human capital. Importantly, Akerlof and Kranton (2002) provide evidence for the role of identity and social norms in an individual's schooling choices and school-student relationships. The importance of ethnic tolerance has been underlined many, especially it has been seen as a determinant of public good provision, civil conflict and general development (Horowitz 1985, Alesina and La Ferrara 2005). Also Chen (2013) points out the importance of language grammatical structure for the saving behavior of individuals. This suggests that forcing some people to use a foreign language can directly affect their economic situation.

Finally, the Partition of Poland can be considered as an example of the colonization of Eastern Europe (Thompson 2009). As such, it relates to the large literature on the effects of colonisation (for the review see Nunn (2009)). I would like to highlight two studies. Huillery (2009) analyses the French colonization and provides evidence for the positive effect of the early 20th century French investment in education on contemporaneous *quantity* of education (school attendance) in Western Africa. Similar pattern can be observed in the Polish case just after the unification of the country in 1918. However, the intensive efforts made by the communist regime after 1945 have smoothed out the differences in *quantity* of education, but the differences in *quality* are still visible. Michalopoulos and Papaioannou (2013) argue that in Africa, after controlling for the ethnicity fixed effects, modern institutions (with colonial origin) do not matter for the development - measured by light density. Instead, they provide evidence for the long-lasting effects of the pre-colonial institutional environment. This might be related to my hypothesis, which argues that institutions, which were not set in the opposition to societal preferences, are more likely to have a long-lasting and positive impact on societies.

The paper is organized as follows. In Section 2 I present the historical overview of the Partition of Poland and look in more detail at the educational system in each Empire. In Section 3 I show the research design and present the effect of Partition of Poland on performance of students. Section 4 discusses the possible channels of influence. Section 5 concludes.

2 Historical Overview

The Partitions of Poland took place in three parts, during the second half of the 18th century and put an end to a two-hundred year old Polish-Lithuanian Commonwealth.[3] Due to the Partitions, Poland was removed from the map of Europe for 123 years and came back into existence after World War I. The first annexation of the Polish lands by the Russian Empire, the Kingdom of Prussia and the Habsburg Austria took place in 1772 and as a result Poland lost almost one-third of its territory and 4.5 million inhabitants. In 1793 Russia and Prussia conducted the second partition, which further decreased the territory and finally in 1795 all three Empires absorbed the rest of the remaining country. Thanks to Napoleon I this situation did not last for long. In 1807 he conquered the Central and Eastern parts of Europe and established the Duchy of Warsaw - a Polish state controlled by one of Napoleon's allies. The defeat of Napoleon I in 1814 brought back the situation before the Napoleonic Wars: the Duchy was disbanded and the Polish territories were again taken over by the three Empires.

The new border between the Partitions was established during the Congress of Vienna in 1815 and it had been generally unchanged until the end of World War I. It was mostly set along rivers and it is believed that it wasn't drawn along the pre-existing socio-economic divisions (Grosfeld and Zhuravskaya 2014). During the first decades after the Congress, the Russian and Prussian administrations were generally not oppressive toward Poles, the Congress Kingdom and the Duchy of Poznań - newly created states controlled by the Empires - experienced some level of freedom and gave Poles hope that independence is within their reach. In the Congress Kingdom this had lasted until the unsuccessful uprising against Russia in 1830, after that Poles became subject of intense repressions and Rusification, almost until the end of World War I. In Prussia, Poles were also in a relatively good situation during the first part of the 19th century, but this was changed in the 1870s when Otto von Bismarck introduced *kulturkampf* - a policy direction, in which measures against the Catholic church and Poles played an important role. Differently from the other partitions, Poles under the Austrian occupation had relatively less freedom during the first part of the 19th century, but it changed after 1867 when the Austrian administration took a more tolerant (and based on a multicultural approach) direction in their policy. Language freedom was one of the most significant expression of this. Polish was considered as the official language of the Galician administration (Galicia is the part of Poland and Ukraine, which was under the Habsburg rule) and could be used as the language of instruction in schools. Contrary to this, in the Russian and Prussian parts, from the second part of the 19th century the usage of Polish was very limited both in the administration and education.

In terms of socio-political situation, the Prussian and Austrian partitions were more favorable to the self-organization of Poles. The Prussian state was above all a state of law and even though the administration was pushing the repression toward Poles, agricultural societies, credit institutions, reading rooms, newspapers and educational circles

[3]For the more detailed historical description of the Partition of Poland and debate about the sources of the failure of Commonwealth, see "God's Playground: A History of Poland" by Davies (2005a), Davies (2005b).

were created to support Polish economic activity and defend the national identity. Ethnic tolerance and freedom in the Austrian part resulted in numerous associations, newspapers and institutions spreading and preserving the Polish culture. Two universities in Galicia: the Jagiellonian University in Cracow and Lviv University played a very important role in the development of Polish intellectual life. They also attracted Poles from the other partitions and by this contributed to the preservation of the nation's intellectual heritage. All these were in contrast with the situation of Poles under the Russian rule, where most of the forms of self-organization were forbidden and fought by the Tsarist administration.

The best economic situation was in the Prussian zone. The authorities carried out many reforms there. The most important of these was the manumission, that is the peasants could become the owners of the land after repaying the nobility. Rising demand for agricultural products induced changes in agricultural technology (crop rotation), fertilizers were applied, and the wealthier farmers were buying machinery. In the Russian zone it was industry that developed the most. Warsaw has become a modern city with its sewers, streets, gas lighting, and power plant switchboard. The textile industry developed in Łódź. Economic progress, however, did not improve the well-being of workers who had to work long hours (14 hours) for low wages and in unsafe conditions. The worst economic situation was in the Austrian part. Before the end of the 19th century Galicia had not been industrialized, agriculture was under invested and people had experienced one of the worst poverty rates in all of the Habsburg Empire. In consequence, at the beginning of the 20th century over two million Galicians emigrated abroad to escape the bad economic conditions.

In the following subchapters I discuss the most important features of the 19th century educational systems, especially in the context of the Polish minority.

2.1 The Prussian Education System

In 1763 the Prussian state created the education system which became a model for numerous other countries, including: the US, Japan or Austria. Although it was changed many times during the 18th and 19th centuries, the core of the system was the obligatory elementary school (*Volksschule*) followed by the various types of secondary schools. The financing of the education came mostly from the local taxes. The modern approach to education was established by Wilhelm von Humboldt, who in 1809 was appointed as the Prussian minster of education. Education became perceived not only as a source of specialists who run administration, but also gained a more universal aim at the general intellectual development of society.

Beside its modernity and universal character, until 1870 the state elementary school was practically a domain of the church (both Protestant and Catholic). Most of the schools were confessional and religion was the main subject in the Prussian curricula. The reformative movements of 1848 and debates were trying to emancipate school from the church influence, but not much was changed. On the one hand, the state was

trying to promote a secular and nation-oriented[4] education. On the other, it was afraid that taking too much power from the church will motivate it to create a competitive network of private schools. After introduction of *kulturkampf* in the 1870s, the reforms were established by the minister of ecclesiastical affairs - Adalbert Falk. They included limitation of the church's influence, professionalization and secularization of the school inspectorate. Yet, generally the impact of the reforms was limited, as the clergy retained its strong position.

Nevertheless, the policy turned to be very important in the Polish context. The local Catholic church[5] helped more to cultivate the national identity than any other secular movement. The elementary education and religion classes were crucial elements in building of the Polish national identity. Consequently, *kulturkampf* was done more consistently on the Polish lands than anywhere else (Lamberti 1989). In addition to this, all sorts of measures aimed directly at Poles were established, and from 1870 the Prussian state executed repressions on a much larger scale than it had done before.

The most important was the language of instruction. In 1822 the Prussian state permitted the use of the Polish language of instruction in the regions with Polish minority. It had lasted until 1870, when *kulturkampf* redefined the role of elementary education, as Marjorie Lamberti writes: "Prussian state officials looked to the *Volkschule* to serve as an instrument of Germanization. The school's function was not to only teach Polish children to speak German but also acculturate them into the German nation" Lamberti (1989, p.109). As a result, in 1873 German was introduced in the Duchy of Poznań and Eastern and Western Prussia as the language of instruction starting with the first two years of schooling. At the same time Polish was permitted only during the religion classes and final exams.[6] When in 1906 Polish was banned completely, students and parents of Września started protest. Soon it turned into the massive strike which covered around 75 thousand school kids from 800 schools. Even though the Prussian government was surprised by the scale of these protests and some politicians were calling for the revision of the anti-Polish policy, Heinrich Konrad von Studt - the minister of education retained the policy. "This policy bred germanophobia and a repugnace for the school in Polish families" (Lamberti 1989, p.109). But the language of instruction was not the only reason why Polish parents opposed the educational system.

The educational inequalities and feeling of unfairness were another reasons. The introduction of German as the language of instruction implied that teachers had to teach in language in which often they did not have required proficiency. Moreover, students from the Polish speaking families had to first learn German, which meant less time for the other classes. Finally, the government officials did not finance Polish schools equally as German ones. The average student teacher ratio in Polish schools was 93:1 while in Germany 60:1 (Lamberti 1989, p.129). The situation was especially visible in Poznań, where most of the public money went to German schools, whereas Polish ones were permanently under financed. Because of these, the quality of education in the

[4]Understood as the German nation.

[5]The Protestant church was also affected by *kulturkampf*, but because of its special role in the Prussian state, to a much smaller extent than the Catholic.

[6]However local governors could order exclusive teaching in German.

Polish schools was lower compared to their German counterparts[7], which raised feelings of unfairness and "Polish parents complained that they were maintaining schools that taught their kids very little" (Lamberti 1989, p.115).

The situation of teachers was also ambiguous. As pointed out by Lamberti (1989), during the Schools Strikes, Polish teachers were generally not willing to support the parents' demands. They stood on the Prussian administration's side because they were afraid of losing their jobs. This in turn lead to acts of hostility toward the teachers: "The Polish press rebuked the teacher for currying favor with the school inspectors and promoting the use of German in order to obtain bonuses. In public places the teachers were insulted, threatened and assaulted" (Lamberti 1989, p.146). The parents not only distrusted and fell in conflict with the institution of elementary school but also with its personnel.

Finally, as a measure against the church influence, the government was trying to establish interconfessional schools[8] and introduce a secular inspectorate. However, the realization of this policy was different in different regions of the Empire. While in Poznań, the German administration encouraged creation of the interconfessional schools and the secularization of the inspectorate whenever it is possible, whereas in other provinces the reform was less bitter for the clergy. From the very beginning the Polish population viewed the innovation with distrust, as Lamberti writes: "The interconfessional school policy further alienated the Polish people from the school administration. [...] (they) had good reasons to believe that the interconfessional schools were being opened for the purpose of Germanizing the Polish youth" (Lamberti 1989, p.115).

The German language of instruction, inequalities, the role of teachers and the interconfessional education motivate the hostility toward the education system among Polish parents in the Prussian Empire. Yet, in comparison to the other parts of Poland, the system was very effective. The law enforcement was widespread and most of the kids who attended the elementary school were taught how to write and read. This was partially because treating education as a tool of Germanization additionally motivated the administration to execute the common law of schooling. Therefore, the Prussian educational system combined effective institutions with the set of anti-Polish regulations.

2.2 The Austrian Education System

In his comprehensive analysis of the 19th century education in Austria, Gary B. Cohen (1996) emphasizes that the institutional design of the Austrian Education system was to a large extent a copy of the Prussian model. Already in 1781 Joseph II established the principle of mandatory primary education, however until 1848 the education system had mainly served as a training field for administration officials (the Emperor Francis I used to say: "I need no learned men; I need only good officials"). The People's Spring movement brought the Humboldtian model of education and in 1850 Leo Thun initiated a period of intensive reforms, which greatly modernized the education system. The

[7]Still it was probably much better than in Russia or Austria, see for example illiteracy rates in Figure 3.

[8]Interconfessional schools (also called mixed) gather students from different religious groups.

strongest adherent and executor of the reforms was the fraction of German Liberals in the Austrian Parliament, who patterned their propositions on the Prussian solutions. Although few decades delayed, all these government's efforts were paralleling the developments in Germany. The idea of local-tax founded elementary school (equivalent of Prussian *Volksschule*), which is obligatory until the age of 14, was fully introduced following the 1867 reform and the General Primary School Law from 1869. Also the secondary and higher education were modelled on the Prussian system (including the curricula), as Cohen writes:

> The Austrian reformers of the late 1840s and 1850s adopted much of the early ninetheenth century German model of academic secondary and higher education. [...] During the late ninetheenth century, the discours of the Austrian government officials and educators on such matters was much the same as that of their counterparts in Germany. The Austrians identified many of the same problems regarding curricula and the rapid growth in secondary and higher education as did their German counterparts (Cohen 1996, p.259-260).

Nevertheless, both systems differed in one very important aspect. While in the Prussian Empire education was the main tool of Germanization, in the Habsburg Empire it was seen as a tool to spread modern national identities. However, it was not like this from the beginning. During the first part of the 19th century, the official language of instruction at all stages of education was German. Only in 1850 the reformative movement introduced Polish at the primary education level. Still, as reported by Cvrcek and Zajicek (2013), in 1865 the local elites favored public education only if it was taught in German. After 1870, the second wave of reforms done by the German Liberals expanded the Polish language of instruction also to the secondary and higher education. Since then, students could learn in Polish during all stages of their educational track, including academic studies. Thanks to this, three universities in Galicia played a very important role in the development of Polish intellectual life. They also attracted Poles from the other partitions, which greatly contributed to the preservation of the nation's intellectual heritage.

Another important aspect of the Austrian education was its inclusiveness. As pointed out by Cohen, "The geographical, ethnic, and religious recruitment of students clearly broadened as the networks of Austrian secondary and higher education expanded during the late nineteenth century"(Cohen 1996, p.170). This in turn was possible thanks to the proactive attitude of local governments and voluntary associations. Non-german speaking ethnic groups and Jewish people had greater aspirations toward education than Germans. Also new lower middle classes, for instance children of independent business owners, were considerably more attracted by the possibilities offered by education. This was especially visible in Galicia, where the economic situation was one of the hardest in all of the Empire. Even though the literacy levels and school's attainment was lower than in the Prussian Partition or other parts of the Austrian empire[9], the beginning of

[9]Cohen writes: "In the 1870s and 1880s the majority of of school aged children in Galicia [...]did not attend Volksschulen. In 1880 only 21% of the population 6 years or older could read in Galicia. In

the 20th century saw a rapid growth in elementary and secondary education.[10] "Galicia nearly tripled the number of its Gymnasien and Real-Gymnasien while more than doubling its Realschulen [...] Enrollment grew spectacularly [...] the rate of secondary school (increased) attendance by 2.5 between 1880 and 1910 [...] By 1910 the Polish speaking share of Austrian enrollments significantly exceed the Polish speaking share of the Austrian population" (Cohen 1996, p.257). There was also a strong popular and political pressure to open advanced education to children from a poorer strata.

The class instruction in Polish, broadening the access to education and poverty caused that Poles living in Galicia saw education as main means for preserving their national identity and improving their material conditions. Even though the law enforcement and quality of institutions were not as good as in the Prussian Empire, the positive relations between the citizens and the education system could be a key factor for the development of human capital.

2.3 The Russian Education System

The Tsarist administration almost until the end of the 19th century was following the path of educational development initiated by Peter I and Catherine II (in 1786 she ordered the creation of a regular system of elementary and secondary schools). Beside high investments in universities and growing numbers of enrolled students in elementary schools, education was seen mainly as a source of specialists needed to run the country. The Humboldtian approach was not accepted neither by the monarchs nor the ministers of education. Sergei Uvarov, the minister of education (1831-1849) during the rules of Nikolai I, may be the best example. He has laid the foundations for the modern and high quality higher education in Russia[11] but clearly opposed broadening and developing education for people from a lower strata. He "believed that excessive education would only create dissatisfaction among the peasantry" and "the lower classes had to be protected from too much knowledge." (Kassof 2004). This approach was also visible in other aspects of life in the Russian Empire and was partially responsible for the dissatisfaction of people, which led to the Bolsheviks Revolution in 1917.

The other problem was the chaotic organization of the school system. There was no obligatory schooling and the educational policy was inconsistent as the Ministry of Education did not control the network of schools. In consequence, the illiteracy levels were very high: in 1917, only 70% and 30% of urban and rural population respectively could read and write.[12] This system - "unorganized and controlled by various bodies" (Bowen 1962, p.25) - can be considered as a dual system with separate curricula for

1910 83.5% of over 11 years old population of Austria was literate while in Galicia this number was 58%." (Cohen 1996, p.64)

[10] This is clearly seen by looking at the secondary enrollments analyzed per thousand inhabitants in the Habsburg Empire. Polish speaking lands: 1880 - 2.74, 1890 - 2.78, 1900 - 3.77, 1910 - 6.05; German speaking lands: 1880 - 3.88, 1890 - 4.04, 1900 - 4.61, 1910 - 5.88 (Cohen 1996, p.141)

[11] On the other hand, he is responsible for the closure of the University of Vilnus after the November Uprising in 1830 (Whittaker 1984).

[12] As pointed out by Bowen (1962, p.23), during World War I, "literacy was so rare that most Russian troops were unable to write home, even if their families could read".

upper and lower classes. The lack of consistent and unified primary education led to a situation where "sixty-seven different types of primary schools [existed] in Russia in 1914"(Kassof 2004).

The situation was especially bad on the Polish lands (officially called the Kingdom of Poland or the Congress Kingdom). The lack of educational institutions was accompanied by very intensive Russification and the repression of Poles[13] (Riasanovsky 2000). The Polish society under the Tsarist rule not only was underdeveloped in terms of education but also had to fight for its national identity. As an example, due to the repression which took place after the November Uprising in 1830, the number of secondary school students was reduced by 50% until 1855 (Snyder 2006). While the Prussian system was trying to Germanize the Polish society mainly through the high quality German education, the Russian administration took different direction and imposed several very harsh measures to fight the Polish culture (including forced resettlement on Siberia).

Many studies underline the rapid development of education in the Tsarist Russia, especially at the end of the 19th century. This becomes undoubtedly true once we think about the general situation of the Russian society during for example the Napoleonic Wars. Nevertheless, the Congress Kingdom was one of the most advanced parts of the Russian Empire, and once we compare it with the other parts of Poland, one may argue that its educational potential was wasted to a large extent.

The three Empires established different educational environments on the Polish lands. The Austrian Empire created a relatively well designed, progressive and open education with national learning and the Polish language of instruction. Contrary to this, both the Prussian and Russian systems were characterized by attempts to erase the Polish identity. While the former was doing it through high quality and widespread elementary education, the latter used the underdevelopment of education as a measure against the Polish culture. The differences in the educational outcomes between the three partitions are clearly visible in Table 3. The school enrolment was as high as 93% in 1864 in the Prussian part, in the Austrian part it was significantly lower throughout the 19th century, but quickly converged by 1914. Notably, at the outset of WWI, in the Russian part less than 25% of the schooling age population attended a school. In consequence, after Poland gained independence in 1918, on the formerly Russian lands the illiterate population was as high as 65 percent, whereas in the former Prussia it was less than one percent. The illiteracy levels in the inter war Poland are depicted in Figure 3. Regions on the West had the lowest level of illiteracy, moderately higher on the South (except for the presently Ukrainian parts) and highest in the Central and Eastern parts of Poland. This figure suggests that, in terms of literacy level, people living in the former Prussian Empire had the best level of education[14], especially in comparison with the Russian zone. These differences were to a large extent smoothed after World War II when the 8-year education became obligatory in all of Poland (Meissner and Majorek 2000). Yet social norms toward the education could not be easily smoothed. The long-lasting attitudes

[13]Interstingly, the policy of the Empire toward other nations was not always that harsh. Alexander II - hated in Poland, has a monument in Helsinki.

[14]This is probably due to a better law enforcement.

toward the education system, created by the different roles of education in the partitions, could possibly influence contemporary educational outcomes.

3 The effect of the Partition of Poland on education.

3.1 Data

My analysis draws on a registry data about the *obligatory* examination scores from mathematics and science (this is one score) available for all municipalities in Poland (called *gmina*) for the period 2005 - 2011. The source of this data is the Central Examination Board of Poland - the institution which conducts all types of official examinations in Poland. The outcome of examinations is both a low stake (6th grade exam, taking place after finishing an elementary school) and a high stake (9th grade exam, taking place after finishing a secondary school). While the former serves mainly an informational purpose, the later matters in the high school admission process and thus motivates students (and their parents) to obtain the best score. Additionally, the set of socio-economic control variables are available from the Central Statistical Office of Poland and the System of Educational Information. Unfortunately, not all of these covariates are time variant. For the full description see Table 1.

The borders of interest were established during the Congress of Vienna in 1815 and were remained unchanged for almost 100 years. They were mostly set along rivers and it is believed that they were not drawn along the pre-existing socio-economic divisions (Grosfeld and Zhuravskaya 2014). Furthermore, I limit the sample to rural areas which had similar history before and after the Partition, were ethnically homogenous and are now within the territory of Poland (by these I exclude Silesia and Eastern Prussia). Importantly, the areas of interest were not subject of the massive post World War II migration. In other words, at the beginning of the Partition the areas around the borders were relatively homogeneous. The reasons I exclude urban areas are twofold. Firstly, the contemporary migration patterns from the rural to the urban areas (which usually ignore the Partition borders) make interpretation of the Partition effect problematic. Secondly, large cities (especially Cracow and Kielce) have generally high performing students and because of their small number, they might contaminate the treatment effect. Nevertheless, I also report results when the urban areas are included. The green lines in Figure 2 mark parts of the former border which are under my investigation. Rivers are the only natural obstacles which divide regions located at the edges of the Empires. The border between the Prussian and Russian Empires went along small rivers: the Drwęca and Prosna, between the Austrian and Russian Empires along the Vistula river. The distance between a centroid of municipality and the corresponding border was calculated by the author using the GIS data.[15]

Descriptive statistics for the rural municipalities located at most 50km from the borders are presented in Table 4. Please note that the variables are endogenous in the

[15]I'm very thankful to Kamil Sijko from the Educational Research Institute in Warsaw for helping me with obtaining this data

sense that they might reflect the effect of the Partition. The border areas of the former Russian Partition seem to have worse economic situation, as the rate of unemployment is the highest, the expenditures are the lowest and the migration balance negative. On the other hand, municipalities which were under the Prussian rule are characterized by the high share of agriculture in employment.[16] The Austrian zone has generally the best educational outcomes (except the number of additional classes, the class size and the level of scholarization). Importantly, the population number and density are much higher on the former Habsburg's lands, which might reflect some settlement patterns from the Partition period (this possibility is discussed further).

To summarize, this tentative analysis suggests that the socio-economic situation is the worst on the borderlands of the former Russian partition, nevertheless the differences are not large. Interestingly, the mean of 9th grade exam score is still higher there than in the former Prussian zone. At the same time, the lands which belonged to the Austrian Empire are outperforming the remaining parts in terms of the educational outcomes, but are not necessary better in the case of the other characteristics.

3.2 Empirical Strategy

Straightforward comparison of all schools in the former Prussian, Austrian and Russian partitions neglects general differences between these lands, which are largely unobserved, and may lead to biased estimates of the effect of the Partition. It is possible for example, that the further we go south-east, the exam scores are increasing and we mistakenly conclude that this is due to the Austrian rule. In order to solve this problem, I follow Dell (2010) and employ the geographical two-dimensional regression discontinuity design, which evaluates the treatment effect through a discontinuous jump at a border.[17] To control for potential confounding effects of a geographical location, I narrow the analysis only to areas located close to the Partition borders and include into a regression a polynomial of a municipality's latitude and longitude. In other words, the identification strategy allows to estimate the weighted average treatment effects, where more weights are given to areas close to the borders. Unfortunately, this is not enough to uncover the causal effect of the Partition. It has to be also assumed that other exogenous variables, which are influencing the educational performance, are smooth at the border (there is no "jump"). These could be geographical factors or characteristics determined before the Partition of Poland. Becker et al. (2014) show that there are no significant differences between these regions in terms of geography and characteristics form the medieval age. Similarly, Grosfeld and Zhuravskaya (2014) report only a small difference in altitude on the Austrian-Russian border. I find it very unlikely that these natural differences might explain the educational differences between the borderlands.

When the assumptions hold, the comparison of the treatment and control groups

[16] The agriculture on the former Prussian lands is considered as the most efficient in Poland. It is based on a large, business-oriented plantations, which are not very common in the rest of the country

[17] For more about the geographical regression discontinuity design see Keele and Titiunik (2011), for more general discussion about the regression discontinuity framework see Imbens and Lemieux (2008), Lee and Lemieux (2010), Angrist and Pischke (2008).

allows to identify the causal effect of the Partition of Poland on educational outcomes. The channel of influence might be either through culture norms, traditions or some other processes caused by the Partition (i.e. migration). I define municipalities which were under the Russian rule as the treatment group and these located in the former Prussian and Austrian zones as the control group. The model can be written as:

$$y_{it} = \alpha + f(location_i) + \beta D_i + \gamma X_{it} + u_i + \epsilon_{it} \quad (1)$$

where i indexes municipality and t indexes year. The dummy D takes value 1 for the former Russian areas and value 0 for either the Austrian or Prussian. $f(location_i)$ is a polynomial of latitude and longitude, X_{it} are the time variant and invariant control variables. u_i denotes individual random effects and finally ϵ_{it} denotes idiosyncratic shocks. There are two main outcome variables available from 2005 to 2011: the standardized 6th grade exam score and the standardized mathematics and science 9th grade exam scores.[18] The sample is limited to municipalities, which are located within a given distance to the borders (the bandwidth). I pool the data and estimate the model using the Random Effect estimator (as a robustness check I also estimate it year-by-year). Please note, that the covariates are endogenous in the sense that they might reflect the effect of the Partition, which might lead to the Bad Control bias (Angrist and Pischke 2008). I discuss this in the further part of the paper.

The two-dimensional polynomial is a natural way to model the relation between location and the outcome. However, Dell (2010) argues that the multidimensional regression discontinuity might lead to over-fitting the model at the discontinuity. Therefore I also run the one-dimensional model, where $f(location_i)$ is a polynomial of a distance to either the Russian-Prussian or Russian-Austrian borders. I allow this polynomial to have different coefficients for the treated and control municipalities.[19] I center the distance at the borders and assume that on the Prussian or Austrian sides it is negative and on the Russian side positive. Similarly as before, I pool the sample and use the Random Effects estimator.

The regression discontinuity framework requires proper specification of the polynomial $f(location_i)$ and the bandwidth. There are no theoretical arguments for any specific order, therefore I report results for linear, quadratic, cubic and quartile polynomials. Nevertheless, the Akaike information criteria (Lee and Lemieux 2010) favours the quadratic polynomial, so I consider it as a baseline model. The bandwidth selection is based on the trade-off between the sample size and internal validity. For my baseline specification I choose 50km bandwidth. However, in order to see whether the estimated effect is stable, I also report results for municipalities located at most 75km and 100km.

[18] The standardization means demeaning by the year's average and dividing by the year's standard deviation.

[19] This can be done by the inclusion of interaction terms between the partition dummy and the polynomial.

3.3 Results

Results for the baseline model (with the quadratic polynomial and 50km bandwidth) are presented in Table 5. Panel A shows the coefficients and standard errors of the estimates of the Partition effect (coefficient β) for 296 municipalities located around the former Russian-Austrian border, using the two-dimensional regression discontinuity. Columns (1) to (3) show regressions with the 6th grade low-stake exam score as a dependent variable, while columns (4) to (6) with the mathematics and science 9th grade high-stake exam score. The results are shown for the rural sample, except columns (3) and (6), which report estimates for the whole sample.

The results show that students living in the former Austrian partition are outperforming their colleagues from the other side of the border on the 6th grade exam by on average 0.8 of standard deviation (σ) and on the 9th grade by 0.48σ. The estimates drop to 0.54σ and 0.3σ respectively, once I add the set of endogenous control variables.[20] All the coefficients are strongly significant at the 0.1% level. The economic significance of the results are also large as they are comparable with the Black-White math achievement gap for 8th graders in the US, which is estimated to be around 0.88σ (Lee et al. 2007, Kertesi and Kezdi 2011). The smaller effect in the case of high-stake exam is consistent with the social norm hypothesis, which would predict that students from the Russian Partition are performing relatively worse when there are no direct incentives to get a good score on an exam (see chapter 4.1). Similarly, Panel C depicts the same set of regressions but for 204 municipalities from the former Russian-Prussian border. Now, the coefficients are much smaller in absolute terms and are all insignificant, which suggests that students from the former Prussian zone are not performing better than those from the former Russian territories.

This pattern is also visible once we look at Figures 5 and 6, which show a non-parametric estimation of the relation between distance to the borders and the exam scores for 2010 (to be more specific: mean of the raw exam score for a given bin of distance). The mean of the outcome is clearly discontinuous at the Russian-Austrian border, but the same cannot be said about the Prussian side. Especially, in the case of the high stake 9th grade exams, the relation between the distance and mean is almost completely continuous (smooth) at the Prussian border.

3.4 Robustness

Panel B and Panel D show estimates of the regression (1) when the one-dimensional Regression Discontinuity is used (distance). For the Austrian-Russian comparison, the magnitudes are now bit smaller in absolute terms and in case of 9th grade score they also loss significance. For the Prussian-Russian border, the magnitudes are somehow larger but still insignificant.

The results presented above might be sensitive to the specification choices. Table

[20] Since the covariates are endogenous, one should expect the coefficient to change in specifications with control variables. The reasons is that then the regression "switches off" some potential channels of influence of the Partition on the outcomes. The direction of the bias however is not clear.

6 reports estimates of the Partition effects for different polynomials in latitude and longitude and bandwidth choices, excluding the covariates. Table 7 reports the same specifications but controlling for the covariates. For the Austrian-Russian border, the results are consistently showing highly significant and positive effects of the Austrian empire on student performance. Table 6 (Table 7) shows that the effect varies from 0.67σ to 0.83σ (0.42σ to 0.55σ) in the case of the 6th grade exam and from 0.4σ to 0.536σ (0.25σ to 0.36σ) in the case of the 9th grade exam. Contrary to this pattern, the estimates of the Partition effect on the Prussian-Russian border vary a lot across specification. Importantly, it changes its sign once the bandwidth is increased to 75km and 100km - this suggests that actually students living in the Russian zone are performing better than those from the Prussian one. It contradicts the findings from Table 5. Nevertheless, in most of the cases the coefficient is not significant.

The same set of specification choices is examined when I use the whole sample (Table 8) and when I use the one-dimensional regression discontinuity (with the rural sample) (Table 9). Both tables consistently show highly significant and positive effects of the Austrian Empire. Results for the Prussian empire (Table 8) are similar as previously (Table 6 and Table 7). However, almost any effect of the Prussian empire disappears in the specifications with a polynomial of distance (Table 9).

The current border between the vovoidships (NUTS2 level) overlaps almost completely with the former Russian-Austrian border. If vovoidships are determining the outcome, their effect could be mistakenly confounded with the effect of the Austrian or Russian partition. There are two arguments against this possibility. First, the Polish education system is considered as very decentralized (Herbst et al. 2009). The network and management of almost all public elementary and secondary schools are governed by s local municipality's government and the role of the central government is limited to financing education and enacting general resolutions. The vovoidship administration is practically irrelevant for the educational governance. Secondly, since the former Russian-Prussian border does not overlap with the administrative borders, I can include the vovoidship dummies into the regression (1). It turns out that none of these dummies is significant, which suggests that the geographical distribution of exam scores is not determined by the vovoidship administration. This observation is also consistent with Herbst (2004).

Finally, I run a set of Placebo experiments in which I artificially move step-by-step the Austrian-Russian border by 5km to the North (at most 300 km) and to the South (at most 100km). I run the baseline specification of the regression (1), with the artificial borders and define the "Russian" dummy as an area North from the artificial borders. Figure 6 Panel B presents Z-tests[21] of the placebo Partition effects, for each artificial border. Notably, only the actual border (at point 0) is an outlier. I also move step-by-step the Prussian-Russian border by 5km to the West (at most 300km) or to the East (at most 100km) and define the "Russian" dummy as an area East from the artificial borders. Figure 6 Panel B shows Z-tests'. This time the actual border is not really different from the other, artificial borders.

[21] Z-test is defined as a ratio of an estimated coefficient and a corresponding robust standard error. This is an asymptotic analogue to the classic T-test. Z-test has an asymptotic Normal distribution.

Taken together, these results show that the former Austrian empire has a positive effect on the exam score once we compare it with the Russian empire. The effect is stable across specification, highly significant and large. Conversely, the effect of the former Prussian empire is usually insignificant, low and it changes sign across specifications.

4 Channels of Influence

There are several possible explanations of the empirical pattern presented in the previous section. In this chapter I focus on the hypothesis based on the role of education in the conflict between nationalities and shortly discuss the alternative ones.

4.1 The Role of Education in the Conflict Between Nationalities

My main hypothesis is that the differences in education quality between the former partitions of Poland can be explained by the different roles of education in the Empires, which ruled the Polish lands during the 19th century. The Austrian Empire created relatively well designed, progressive and open education with a national learning and the Polish language of instruction. Contrary to this, both the Prussian and Russian systems were characterized by the attempts to erase the Polish identity.The social norm toward the educational system differed in the three partitions and thus the effect of the Polish identity on educational decisions (Akerlof and Kranton 2002). The norms can be then transmitted through generations and still affects contemporaneous peoples' attitudes toward education. Importantly, this mechanism suggests that quality of institutions matters in the long run only if it is positively interacted with societal preferences. The existing literature on the long-lasting effects of the Central and Eastern Europe Empires also underlines the inter-generational transmission of norms and values. Especially, Grosfeld and Zhuravskaya (2014) provide evidence that the Partition of Poland has exerted a long lasting effect on religiosity and belief in democratic values through the inter-generational within-family transmission of social norms. More broadly, Becker et al. (2014) show that the modern bureaucracy introduced in the Habsburg Empire still affects trust toward local state and acceptance of corruption, Karaja (2013) presents the long lasting effect of the Ottoman tax policy on attitudes toward corruption.

In order to illustrate the mechanisms of this hypothesis I use modification of the Akerlof and Kranton (2002) model. In particular, I want to relate a level of student effort, which is exerted in a preparation for an exam, with a social norm towards effort and a social norm towards future earnings. In this setup, the social norm towards effort leads to a gap in the exam score between regions with different norms. At the same time however, the common social norm towards future earnings means that the gap is smaller for the exam which matters for the future education (high stake).

Suppose that the test score from grade g for student i is a function of a student's effort e_{ig} (which summarizes a student's input into education) and other characteristics X_i and an intrinsic shock ϵ_{ig}.

$$T_{ig} = \alpha + \beta e_{ig} + \gamma X_i + \epsilon_{ig} \tag{2}$$

Next, suppose there are two regions R : former Austria and Russia, and that they differ with respect to the social norm towards effort.

First, in the maximization problem for the 9th grade high-stake exam score, student chooses a level of effort, which maximizes the following utility:

$$U(R) = p(we_{i9} - \frac{1}{2}e_{i9}^2) - (1-p)(\frac{1}{2}(e_{i9} - E(R))^2 + \frac{1}{2}(we_{i9} - A)^2) \tag{3}$$

Parameter p is the weight given to pecuniary benefits and costs of effort, w is the wage rate per unit of effort, $E(R)$ is the social reference point with respect to the level of effort and A is the social reference point with respect to the future earnings. Please note that A is the same across regions and can be arbitrarily large. The first order condition is given by:

$$FOC : e_{i9} = \frac{pw + (1-p)(E(R) + wA)}{1 + (1-p)w^2} \tag{4}$$

Since the social norm toward effort $E(R)$ depends on the region and assuming that $E(Austria) > E(Russia)$, the average difference in a student's level of effort for the former Austria and Russia os:

$$GAP_9 = e_{AUS,9} - e_{RUS,9} = \frac{(1-p)(E(AUS) - E(RUS))}{1 + (1-p)w^2} > 0 \tag{5}$$

Second, in the case of the 6th grade low-stake exam score, the maximization problem is simpler. This exam score does not matter for the future educational career, therefore it will not have an impact on the future wages. The utility and the first order condition are thus:

$$U(R) = -p\frac{1}{2}e_{i6}^2 - (1-p)\frac{1}{2}(e_{i6} - E(R))^2 \tag{6}$$

$$FOC : e_{i6} = (1-p)E(R) \tag{7}$$

The gap between regions in the level of effort is then:

$$GAP_6 = e_{AUS,6} - e_{RUS,6} = (1-p)(E(AUS) - E(RUS)) > 0 \tag{8}$$

Since $1 + (1-p)w^2 > 1$ it follows that $GAP_{6th} > GAP_{9th}$ as long as $p < 1$. Under the assumption that the exogenous students' characteristics are similar around the border[22], we might conclude that:

$$\bar{T}_{Austria,6} - \bar{T}_{Russia,6} > \bar{T}_{Austria,9} - \bar{T}_{Russia,9} > 0 \tag{9}$$

[22]Which is a stronger assumption than in the case of the regression discontinuity design.

Which is consistent with the empirical results presented in the section 3. In the case of the Prussian-Russian border $E(Prussia) = E(Russia)$, so that there is no difference in the performance of students.

To provide empirical evidence for this hypothesis I use proxies of peoples' attitudes toward education. The data comes from the two waves (2006 and 2010) of the Life in Transition Survey (LiTS) - the international survey conducted among the post-transition countries and organized by the European Bank of Reconstruction and Development. The main proxy which I investigate is the question: "In your opinion, which of these fields should be the first priority for extra government spending?" with the possible answers including: education, healthcare, housing, pensions, assisting the poor, environment protection, public infrastructure, other (the respondent could choose only one answer). Based on this I construct a dummy which equals 1 if the respondent chose education and 0 otherwise. I assume it reflects peoples' attitudes toward the importance of an education system and peoples' perception of its quality. Importantly, it doesn't seem to be influenced by respondent's material situation. In addition to this, I examine the opinion about the frequency of unofficial payments/gifts to receive public education, educational spending and the respondent's opinion about the role of intelligence and skill to succeed in life. The first reflects the transparency of the local bureaucracy, together with people's willingness to receive education even at the cost of breaking the law. The second question is determined partially by the material status, while the third shows the importance of intelligence but outside the educational system context. The control variables include gender and age of the respondent, year of the wave, and a dummy indicating whether there are any children below age 14 in the household. The exact questions/answers and definitions of the variables are reported in Table 2.

The survey uses randomly drawn locations (Primary Sampling Units), but only some of them are located near the former Partition borders. Therefore I limit the LiTS sample to the rural PSUs located at most 50 km from the former Partition borders between the Empires. Each location consists of around 20-30 respondents. Table 11 presents the descriptive statistics for the two parts of the former border: Austrian-Russian and Prussian-Russian. The number and characteristics of rural PSUs in the former case seems to be satisfactory for the analysis. However this is not the case for the Prussian-Russian border. Only one rural PSU is within the former Prussian partition and, in addition to this, none of the respondents had at least one child. As a consequence I present estimations only for the Austrian-Russian case. Beyond this limitation, one also has to keep in mind that the LiTS sample is not representative for the region of interest (it's representative for the whole country).

I regress the proxies on the Partition dummy and the control variables:

$$y_{it} = \alpha + \beta D_i + \gamma X_{it} + \mu_t + \epsilon_{it} \tag{10}$$

where i indexes municipality and t indexes the survey wave. The dummy D takes value 1 for the former Russian areas and value 0 for the Austrian. X_{it} are the time invariant exogenous control variables. μ_t are the survey wave fixed effects and ϵ_{it} denotes idiosyncratic shocks. For the binary outcome variables I use Probit, for the ordered

categorical variables - ordered Logit and for the continuous - the OLS estimator. Because of small number of PSUs I do not use the regression discontinuity approach.

Table 12 shows the estimates of the coefficient which captures the effect of living in the former Russian Partition (coefficient β). Each row corresponds to a different outcome, specifications with and without control variables are presented in columns (1) and (2) correspondingly. In the case of the opinion about the role of education in government actions, β is significant and negative, which indicates a positive effect of the Austrian Empire. Table 13 shows the average marginal effects. The former Austrian Empire increases probability of choosing education by 11 percentage points. Similarly, for the frequency of unofficial payments, the coefficient of interest is negative and significant, which suggests positive associations between the Habsburg Empire. For example, relative to the Russian part, people from the Austrian part are less likely to answer "Never" by 25 percentage points. Contrary to these there is no significant effect of the Partition on respondents' opinion about the role of intelligence and in the amount of educational spending.

The positive association between the priority of education in a governmental spending and the Austrian partition can be a result of either a poor quality of a local public education or the positive social norm towards education inhabited from the past. However, if the former is true we would rather observe a negative impact of the Austrian Empire on the exam scores. As the previous section shows, this is not the case. Moreover, there is no systematic difference between the Austrian and Russian Partition in terms of a school infrastructure, as reported in Herczynski and Sobotka (2013). Similarly, the positive coefficient in the case of the frequency of unofficial payments can be a result of either a relatively poor quality public education sector and a corrupted local administration or higher willingness of respondents to pay for education (even if this is not legal). The results from Becker et al. (2014) show that, if anything, the Habsburg Empire had a positive impact on the quality of administration and bureaucratic culture. Again, the poor performance of the system would be rather reflected in the worse performance of students.

4.2 Migration

Contemporaneous migration might be an alternative explanation of the observed Partition effect. If for instance, only high achievers are migrating to the former Austrian partition and only low-achievers to the former Russian partition, we should expect to find a significant gap in the average student performance.[23] In order to evaluate this possibility, I follow the approach used in Dell (2010). Specifically, I exploit the student-level data on the exam scores (from the Central Examination Board) and the municipality-level data on the share of in-comers (from the Central Statistical Office of Poland). Next, I assume the "worst" migration scenario (outlined above), and on the former Austrian lands I trim the *top* of the distribution of student exam scores (at the municipality level)

[23] Please note, that the potential reasons for migration might be endogenous with respect to the Partition.

according to the share of in-comers. Analogously, on the former Russian lands I trim the *bottom* of the distribution of student exam score. Then I aggregate the trimmed data to the municipality level and repeat the estimations from the section 3.3 (the baseline specification of the regression (1)). Consistently with expectations, the effect of the Partition for the 6th (9th) grade score drops from 0.81σ (0.48σ) to 0.67σ (0.32σ), but it still remains highly significant and economically relevant. This suggests that the modern migration itself is unlikely explanation of the observed effect of the Partition (full results available upon request).

Nevertheless, the effect can be still attributed to the past migration, as long as selection of migrants was not random, with respect to characteristics influencing contemporary performance of students. My main result could be for instance explained by migration of high skilled people from the Russian to the Austrian part (or low skilled vice versa) and/or migration of low-skilled people from the Austrian part to third countries. There is qualitative evidence that the first possibility is not the case. Firstly, Labuda (1971) argues that most of the migration between the partitions at that time were mostly seasonal workers. There was also a small migration of students to Galicia but it was limited to Krakow and Lviv (Cohen 1996). Secondly, the economic situation in Galicia was the hardest, the level of industrialization the lowest, so motivations were rather low for skilled workers to immigrate. The migration to third-countries is harder to assess, as there are no clear insights in the literature about the 19th century emigrants' skills. Abramitzky et al. (2012) show a negative selection among migrants from Norway and few European countries, but also show that in the case of Finland selection was positive while in the other cases evidence is not clear. On the other hand, Blum and Krauss (2014) report no skill selection of the late 18th century migrants from Germany to Hungary.

There is a limited available aggregated data about migration and population characteristics from the 19th and early 20th century. Table 14 Panel A and B show the migration balance (both in levels and as shares of population growth) for the Prussian and Austrian partitions. The numbers show a large outflow of population from these regions. Importantly however, the Austrian partition does not seem to be unique and actually migration was more profound in the Prussian partition. Similar picture emerges once we look at the more complete data on general population characteristics (Panel C and D). The population trends and age structures are similar across the partitions and the Austrian part does not show any anomalies, which would be a result of some unique migration pattern (i.e. over or under representation of the middle-age population groups).

4.3 Other Channels

Table 10 presents the estimated discontinuities from the regressions specified as in (1), but with various covariates as dependent variables. In all the estimations I use the 50km bandwidth and the quadratic polynomial in longitude and latitude, the sample is limited to the rural areas and there are no other covariates included as independent variables. All the dependent variables are in the natural logarithms, therefore the coefficients are semi-elasticities. Column (1) reports estimates of the effect of the Russian Empire on the

Prussian-Russian border, while Column (2) on the Austrian-Russian border (therefore changing the sign provides us with the effect of either the Prussian or Austrian Empire). Please note that these variables are endogenous, in the sense that they might reflect the effect of the past education systems or some other channels.

The effect of the Partition on the Prussian-Russian border is usually insignificant, except for population, share of people with agriculture and class size. However, in this case, the seemingly unrelated regressions framework shows that the effect of the Partition is jointly insignificant across dependent variables (not reported). The picture looks different in the case of the Austrian-Russian border. First, when it comes to demography, the former Austrian territories have on average higher level of population and population density, and more positive migration balance. This is could be another channel if different urbanization patterns emerged during the Partition period and they have influenced the educational outcomes. The potential effect could operate through for example class size, but there is no difference in this variable between the former Austrian and Russian lands. Also, some of the regressions from the section 3 include the population characteristics as the control variables, but still I find large and positive effect of the Austrian partition. Nevertheless, the unobserved population effects might still drive the results. Secondly, the economic situation on both parts of the former border seems to be similar (if not worse on the Austrian side - significantly higher unemployment rate). Therefore, if anything, it would favor municipalities located in the former Russian zone, but we observe that the performance of students is actually worse there. Finally, there are significant effects in the case of kindergarten attendance, secondary school scholarization and share of people with higher education. These are consistent with the role of education hypothesis, as one would expect that the social norms toward education are influencing not only performance of students on the exams, but also demand for education on various levels of schooling. Nevertheless, other characteristics of the Austrian education system might be also important. Especially, the Austrian educational system was slightly more inclusive than the Prussian system. Also it had two universities and one technical college, while there was no higher educational institutions in the Polish part of Germany (Cohen 1996). These need more investigation.

5 Conclusions

The Partition of Poland provides a unique natural experiment for the comparison of different institutional environment and their long-term consequences. This paper identifies and explains the persistence of differences in educational quality between regions located on the former borders between the Central European Empires. The observed empirical pattern indicates that only the former Austrian Empire exerts a long-lasting and positive effect on education.

My main hypothesis is based on the role of education in the conflict between nationalities. I argue that the positive social norm towards the education is necessary and it has been created only in the Austrian part, where education was used to spread the Polish identity and language. The Prussian partition serves as the "counter factual situation"

where the efficient educational system is used as a toll for oppression. In this case there are no signs of long-term impact. Importantly, this hypothesis suggests that quality of institutions matters in the long run only if it is positively interacted with societal preferences. As many authors have argued, a proper institutional design is crucial for the formation of human capital. However, this paper suggests that it might be not enough.

This may also have important policy implication, i.e. allowing students to learn in their mother language can be crucial for the long-run development of human capital. The recent examples of policies which are hostile toward minorities (i.e. Poles in Belarus) show that the problem is still present and may have important effects for the future generations.

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Table 1: Variables Description: The Regression Discontinuity Design

Variable	**Description**	**Time**
Expenditures	Municipality's expenditures per capita	05-11
Educational Expenditures	Municipality's educational expenditures per capita	05-11
Unemployment Rate	Rate of unemployed among the active population (in work-age)	05-11.
Agriculture	Share of employed in the agriculture sector among all employed.	2010
People aged 0-18	Share of people aged 0-18.	05-11
Density	Population density	05-11
Population	Population number	05-11
Kindergarten attendance	Rate of student pre-elementary schools' attendance.	05-11
Sec. School Scholarization	Rate of student secondary schools' attendance.	05-11
Additional classes	Average number of additional classes per elementary school.	2009
Meals	Average number of reimbursed meals per elementary school.	2009
Higher Education	Share of people with higher education.	2002
Class size	Average class size in elementary schools.	2009
Migration	Migration balance per 1000 inhabitants.	05-11

Note: All the variables come from the Central Statistical Office of Poland, except the variables for 2009, which come from the System of Educational Information.

Table 2: Variables Description: The LiTS Sample

Variable	**Description**
Priority of Education	"In your opinion, which of these fields should be the first priority for extra government spending?" with possible answer including: education, healthcare, housing, pensions, assisting the poor, environment protection, public infrastructure, other (the respondent could choose only one answer). Dummy equals 1 if the respondent chose education and 0 otherwise.
Role of Intelligence	"In your opinion, which of the following factors is the most important to succeed in life in our country now?" with possible answer including: Effort and Hard Work; Intelligence and Skills; By Political Connections; By Breaking the Law; Other (the respondent could choose only one answer). Dummy equals 1 if the respondent chose Intelligence and Skills and 0 otherwise.
Unofficial Payments	"In your opinion, how often do people like you have to make unofficial payments or gifts in these situations?" woth the possible answers: never; seldom; sometimes; usually; always.
Spending on Education	"Approximately how much did your household spend on education during the past 12 months?"
Gender	Equals 1 if the respondent is a female and 0 otherwise
Age	Age of the respondent in years
Having a Child	Equals 1 if the respondent has at least one child younger than 14 years old and 0 otherwise

Table 3: Comparison of The 19th Century Educational Outcomes

Partition:	Russian	Austrian	Prussian
Panel A: Elementary School Enrolment			
1864	N/A	N/A	93.7%
1890	N/A	66.9%	N/A
1914	24.8%	85.5%	>94%
Panel B: Elementary School students as % of population.			
1840	1.3%	1.6%	12.1%
1890	1.9%	7.2%	17.4%
1900	2.9%	9.7%	18.3%
1914	3.7%	13.9%	19.3%

Note: Austrian is the whole Galicia; Prussian is the Duchy of Poznań; Russian is the Congress Kingdom. Source: *Historia Polski w Liczbach.*

Table 4: Descriptive Statistics

	Russian-Prussian		Russian-Austrian	
Partition	Prussian	Russia	Austrian	Russian
6th grade exam (2011)	24.05 (1.476)	24.00 (1.520)	25.37 (1.428)	24.23 (1.540)
9th grade exam (2011)	22.09 (1.888)	23.15 (2.168)	23.96 (1.774)	22.80 (2.141)
Higher Education (2002)	4.162 (1.296)	3.750 (0.909)	4.872 (1.845)	4.193 (1.373)
Unemployment(2011 in %)	9.115 (3.321)	10.19 (3.775)	9.191 (3.088)	9.251 (2.993)
Kindergarten attendance (2011 in %)	58.60 (14.54)	58.31 (13.42)	60.76 (12.67)	54.56 (13.46)
Agriculture (2010 in %)	10.60 (8.644)	4.154 (5.363)	3.492 (4.276)	4.095 (5.377)
Migration Balance (2011)	1.847 (7.628)	0.161 (6.042)	1.981 (5.334)	-1.926 (4.410)
People aged 0-18 (2011)	21.53 (1.278)	20.72 (1.413)	21.21 (1.994)	18.63 (1.591)
Population density (2011)	59.12 (22.40)	57.98 (18.28)	136.2 (81.19)	62.56 (29.51)
Population (2011)	7,313 (3,281)	6,289 (2,526)	11,621 (7,951)	6,453 (3,151)
Sec. School Scholarization (2011)	89.78 (15.32)	93.43 (17.57)	60.76 (12.67)	54.56 (13.46)
Expenditures per capita (2011)	3,164 (781.7)	3,110 (615.5)	3,220 (759.3)	3,066 (661.0)
Edu. Expenditures per capita (2011)	1,111 (175.1)	1,151 (190.8)	1,171 (193.0)	1,071 (219.2)
Additional classes (2009)	26.31 (10.93)	23.81 (11.30)	23.84 (10.69)	23.36 (11.45)
Class size (2009)	16.20 (2.584)	14.48 (2.608)	15.28 (2.353)	13.87 (2.587)
Number of observations	82	122	161	135

Note: Means and standard deviations for the sample of rural municipalities, located at most 50km either from the former Russian-Prussian or Russian-Austrian border. Municipalities located in Śląskie, Warmińsko-Mazurskie and Opolskie vovoidships are excluded. Definitions of the variables are given in Table 1.

Table 5: Results: Baseline Regressions

Dep. Variable	6th grade LS exam			9th grade HS exam		
	(1)	(2)	(3)	(4)	(5)	(6)
Russian - Austrian Border						
Panel A : Quadratic Polynomial in Latitude and Longitude						
Partition Effect	-.803	-.536	-.575	-.477	-.304	-.347
	(.104)***	(.100)***	(.092)***	(.105)***	(.110)**	(.096)***
R^2	.26	.35	.38	.18	.24	.27
Observations	2072	2043	2528	2071	2042	2527
Municipalities	296	293	363	296	293	363
Panel B: Quadratic Polynomial in Distance						
Partition Effect	-.605	-.474	-.500	-.358	-.292	-.376
	(.233)**	(.177)**	(.175)**	(.231)	(.204)	(.213)
R^2	.14	.32	.35	.08	.22	.25
Observations	2072	2043	2528	2071	2042	2527
Municipalities	296	293	363	296	293	363
Russian - Prussian Border						
Panel C : Quadratic Polynomial in Latitude and Longitude						
Partition Effect	-.059	-.146	-.174	-.045	-.168	.014
	(.145)	(.138)	(.115)	(.196)	(.165)	(.136)
R^2	.07	.13	.17	.11	.16	.12
Observations	1428	1428	2107	1428	1428	2107
Municipalities	204	204	301	204	204	301
Panel D : Quadratic Polynomial in Distance						
Partition Effect	-.284	-.403	-.262	-.098	-.236	-.048
	(.251)	(.238)	(.215)	(.254)	(.252)	(.208)
R^2	.04	.14	.16	.07	.14	.11
Observations	1428	1428	2107	1428	1428	2107
Municipalities	204	204	301	204	204	301
Controls	no	yes	yes	no	yes	yes
Sample	rural	rural	all	rural	rural	all

Note: Robust and clustered at the municipality level standard errors are reported in the parentheses. *** denotes significance at the 0,1% level, ** at the 1% level and * at the 5%. Columns (1) to (3) - the dependent variables are the 6th grade low-stake exam score; Columns (4) to (6)the mathematics and science 9th grade high-stake exam score. Table presents estimates of the coefficient β from the regression (1) of the dependent variable on the partition dummy D, which equals 1 for the former Russian areas and 0 for either the former Austrian (Panel A, C) or Prussian (Panel B, D) territories. In addition the regressions include a quadratic polynomial in latitude and longitude (Panel A, B) or a quadratic polynomial in distance (Panel C, D) and a set of endogenous covariates (column 3 and 6). The control variables are listed and explained in Table 1. All the regressions use 50 km bandwidth.

Table 6: Results: Polynomials in Latitude and Longitude, without covariates.

Dep. Variable	6th grade LS exam			9th grade HS exam		
Bandwidth	<50km	<75km	<100km	<50km	<75km	<100km
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A : Russian - Austrian Border						
Linear	-.671	-.787	-.765	-.400	-.499	-.500
	(.103)***	(.097)***	(.094)***	(.104)***	(.100)***	(.094)***
Quadratic	-.803	-.829	-.810	-.477	-.536	-.509
	(.106)***	(.100)***	(.099)***	(.105)***	(.102)***	(.099)***
Cubic	-.699	-.715	-.701	-.446	-.481	-.449
	(.114)***	(.104)***	(.104)***	(.120)***	(.109)***	(.105)***
Quartile	-.735	-.731	-.696	-.457	-.495	-.438
	(.116)***	(.106)***	(.103)***	(.124)***	(.110)***	(.104)***
Observations	2072	2974	3688	2071	2974	3684
Municipalities	296	425	527	296	425	527
Panel B : Russian - Prussian Border						
Linear	.158	.229	.219	.264	.363	.424
	(.105)	(.101)**	(.095)**	(.120)**	(.120)***	(.110)***
Quadratic	-.059	.199	.076	-.045	.434	.325
	(.145)	(.130)	(.112)	(.169)	(.145)***	(.126)***
Cubic	-.073	.139	.088	-.071	.379	.297
	(.145)	(.129)	(.117)	(.171)	(.146)***	(.132)**
Quartile	-.089	.129	.076	-.104	.352	.240
	(.144)	(.129)	(.120)	(.168)	(.145)**	(.133)*
Observations	1428	2156	2898	1428	2156	2894
Municipalities	204	308	414	204	308	414
Controls	no	no	no	no	no	no
Sample	rural	rural	rural	rural	rural	rural

Note: Robust and clustered at the municipality level standard errors are reported in the parentheses. *** denotes significance at the 0,1% level, ** at the 1% level and * at the 5%. Columns (1) to (3) - the dependent variables are the 6th grade low-stake exam score; Columns (4) to (6)the mathematics and science 9th grade high-stake exam score. Table presents estimates of the coefficient β from the regression (1) of the dependent variable on the partition dummy D, which equals 1 for the former Russian areas and 0 for either the former Austrian (Panel A) or Prussian (Panel B) territories. In addition the regressions include a quadratic polynomial in latitude and longitude. The regressions use 50 km (columns 1 and 4), 75km (columns 2 and 5) and 100km (columns 3 and 6) bandwidths.

Table 7: Results: Polynomials in Latitude and Longitude, including covariates.

Dep. Variable	6th grade LS exam			9th grade HS exam		
Bandwidth	<50km	<75km	<100km	<50km	<75km	<100km
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A : Russian - Austrian Border						
Linear	-.420	-.500	-.484	-.247	-.333	-.286
	(.098)***	(.095)***	(.093)***	(.108)**	(.102)***	(.097)***
Quadratic	-.536	-.536	-.552	-.304	-.364	-.312
	(.105)***	(.100)***	(.096)***	(.110)***	(.103)***	(.098)***
Cubic	-.479	-.468	-.468	-.306	-.339	-.266
	(.112)***	(.105)***	(.101)***	(.124)**	(.110)***	(.105)**
Quartile	-.497	-.477	-.470	-.311	-.353	-.261
	(.114)***	(.106)***	(.101)***	(.128)**	(.111)***	(.105)**
Observations	2043	2906	3613	2042	2906	3609
Municipalities	293	417	518	293	417	518
Panel B : Russian - Prussian Border						
Linear	.113	.161	.226	.210	.297	.397
	(.101)	(.095)*	(.088)**	(.128)	(.123)**	(.114)***
Quadratic	-.147	.057	.132	-.168	.317	.327
	(.138)	(.118)	(.105)	(.165)	(.143)**	(.127)**
Cubic	-.146	.038	.127	-.181	.278	.295
	(.137)	(.120)	(.110)	(.166)	(.145)*	(.132)**
Quartile	-.150	.041	.085	-.192	.273	.235
	(.137)	(.119)	(.113)	(.164)	(.144)*	(.131)*
Observations	1428	2156	2898	1428	2156	2894
Municipalities	204	308	414	204	308	414
Controls	yes	yes	yes	yes	yes	yes
Sample	rural	rural	rural	rural	rural	rural

Note: Robust and clustered at the municipality level standard errors are reported in the parentheses. *** denotes significance at the 0,1% level, ** at the 1% level and * at the 5%. Columns (1) to (3) - the dependent variables are the 6th grade low-stake exam score; Columns (4) to (6)the mathematics and science 9th grade high-stake exam score. Table presents estimates of the coefficient β from the regression (1) of the dependent variable on the partition dummy D, which equals 1 for the former Russian areas and 0 for either the former Austrian (Panel A) or Prussian (Panel B) territories. In addition the regressions include a quadratic polynomial in latitude and longitude and a set of endogenous covariates. The control variables are listed and explained in Table 1. The regressions use 50 km (columns 1 and 4), 75km (columns 2 and 5) and 100km (columns 3 and 6) bandwidths.

Table 8: Results: Polynomials in Latitude and Longitude, the whole sample.

Dep. Variable	6th grade LS exam			9th grade HS exam		
Bandwidth	<50km	<75km	<100km	<50km	<75km	<100km
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A : Russian - Austrian Border						
Linear	-.719	-.827	-.790	-.445	-.542	-.548
	(.103)***	(.098)***	(.093)***	(.099)***	(.096)***	(.090)***
Quadratic	-.803	-.854	-.819	-.506	-.574	-.565
	(.105)***	(.098)***	(.095)***	(.102)***	(.098)***	(.094)***
Cubic	-.689	-.730	-.705	-.484	-.523	-.512
	(.116)***	(.106)***	(.102)***	(.118)***	(.108)***	(.102)***
Quartile	-.723	-.749	-.696	-.489	-.540	-.496
	(.118)***	(.107)***	(.102)***	(.122)***	(.110)***	(.101)***
Observations	2557	3619	4501	2556	3620	4498
Municipalities	366	518	644	366	518	644
Panel B : Russian - Prussian Border						
Linear	.039	.105	.075	.205	.262	.283
	(.089)	(.087)	(.083)	(.096)**	(.095)***	(.088)***
Quadratic	-.154	.058	-.059	-.020	.318	.209
	(.124)	(.110)	(.095)	(.133)	(.115)***	(.099)**
Cubic	-.164	-.008	-.052	-.055	.261	.194
	(.124)	(.109)	(.098)	(.133)	(.116)**	(.104)*
Quartile	-.177	-.014	-.049	-.075	.242	.181
	(.122)	(.108)	(.102)	(.130)	(.114)**	(.105)*
Observations	2107	3115	4214	2107	3115	4210
Municipalities	301	445	602	301	445	602
Controls	no	no	no	no	no	no
Sample	all	all	all	all	all	all

Note: Robust and clustered at the municipality level standard errors are reported in the parentheses. *** denotes significance at the 0,1% level, ** at the 1% level and * at the 5%. Columns (1) to (3) - the dependent variables are the 6th grade low-stake exam score; Columns (4) to (6)the mathematics and science 9th grade high-stake exam score. Table presents estimates of the coefficient β from the regression (1) of the dependent variable on the partition dummy D, which equals 1 for the former Russian areas and 0 for either the former Austrian (Panel A) or Prussian (Panel B) territories. In addition the regressions include a quadratic polynomial in latitude and longitude. The regressions use 50 km (columns 1 and 4), 75km (columns 2 and 5) and 100km (columns 3 and 6) bandwidths. The regressions use the whole sample (urban and rural).

Table 9: Results: Polynomials in distance, without covariates.

Dep. Variable	6th grade LS exam			9th grade HS exam		
Bandwidth	<50km	<75km	<100km	<50km	<75km	<100km
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A : Russian - Austrian Border						
Linear	-.746	-.812	-.791	-.522	-.601	-.555
	(.148)***	(.121)***	(.110)***	(.147)***	(.122)***	(.110)***
Quadratic	-.606	-.678	-.793	-.358	-.487	-.579
	(.233)***	(.183)***	(.163)***	(.231)	(.183)***	(.161)***
Cubic	-.823	-.636	-.592	-.774	-.332	-.414
	(.346)**	(.258)**	(.222)***	(.335)**	(.256)	(.220)*
Quartile	-.817	-.636	-.636	-.768	-.334	-.423
	(.341)**	(.258)**	(.224)***	(.332)**	(.255)	(.220)*
Observations	2072	2974	3688	2071	2974	3684
Municipalities	296	425	527	296	425	527
Panel B : Russian - Prussian Border						
Linear	-.023	.189	.076	.039	.466	.335
	(.157)	(.136)	(.116)	(.167)	(.145)***	(.124)***
Quadratic	-.284	-.113	.141	-.098	-.071	.306
	(.251)	(.203)	(.175)	(.254)	(.207)	(.183)*
Cubic	-.209	-.395	-.247	-.213	-.438	-.279
	(.375)	(.285)	(.237)	(.365)	(.284)	(.243)
Quartile	-.387	-.217	-.455	-.340	.260	-.446
	(.597)	(.390)	(.317)	(.571)	(.394)	(.318)
Observations	1428	2156	2898	1428	2156	2894
Municipalities	204	308	414	204	308	414
Controls	no	no	no	no	no	no
ex Sample	rural	rural	rural	rural	rural	rural

Note: Robust and clustered at the municipality level standard errors are reported in the parentheses. *** denotes significance at the 0,1% level, ** at the 1% level and * at the 5%. Columns (1) to (3) - the dependent variables are the 6th grade low-stake exam score; Columns (4) to (6)the mathematics and science 9th grade high-stake exam score. Table presents estimates of the coefficient β from the regression (1) of the dependent variable on the partition dummy D, which equals 1 for the former Russian areas and 0 for either the former Austrian (Panel A) or Prussian (Panel B) territories. In addition the regressions include a quadratic polynomial in distance to the former Partition borders. The regressions use 50 km (columns 1 and 4), 75km (columns 2 and 5) and 100km (columns 3 and 6) bandwidths.

Table 10: Results: Discontinuities with log of covariates as dependent variables.

Dep. Variable / Border	Prussian-Russian (1)	Austrian-Russian (2)
Panel A : Time-Variant variables		
Expenditures	-.011	-.007
	(.036)	(.024)
Educational Expenditures	.023	-.023
	(.034)	(.024)
Unemployment Rate	.074	-.124
	(.075)	(.059)**
Kindergarten Attendance	-.012	-.173
	(.058)	(.048)***
Sec. School Scholarization	.056	.047
	(.038)	(.019)**
Population	-.211	-.449
	(.112)*	(.089)***
Population 0-18	.003	-.026
	(.015)	(.016)*
Population Density	.123	-.413
	(.094)	(.079)***
Observations	1428	2072
Municipalities	204	296
Panel B : Time-Invariant variables		
Agriculture	-.663	-.144
	(.292)**	(.238)
Higher Education	-.011	-.241
	(.069)	(.059)***
Additional Classes	.062	.082
	(.105)	(.096)
Class Size	-.102	-.033
	(.039)***	(.035)
Municipalities	204	296
Controls	no	no
Sample	rural	rural

Note: Robust and clustered at the municipality level standard errors are reported in the parentheses. *** denotes significance at the 0.1% level, ** at the 1% level and * at the 5%. Table presents estimates of the coefficient β from the regression (specified as (1)) of *logarithms* of various dependent variables on the partition dummy D, which equals 1 for the former Russian areas and 0 for either the former Austrian (column 2) or Prussian (column 1). Column (1) shows the effect of the Rusian Empire for the Prussian-Russian border, Column (2) for the Austrian-Russian. In addition the regressions include a quadratic polynomial in latitude and longitude. Dependent variables are explained in Table 1. All the regressions use 50 km bandwidth.

Table 11: Descriptive Statistics - LiTS sample

	Austrian-Russian			Prussian-Russian		
Partition	Austria	Russia	Total	Prussia	Russia	Total
Number of rural PSUs	6	5	11	1	5	6
Number of respondents	136	121	257	20	104	124
Avg. distance to the border in km	16.6	20	18.2	39.5	17.4	20.74
Share of female respondents	54%	57%	55%	20%	37%	35%
Avg. age of respondent	52	50	51	55	49	50
% having at least one child	27%	31%	29%	0%	31%	27%

Note: Table shows descriptive statistics for the rural primary sampling units (PSUs) located at most 50km either from the former Russian-Prussian or Russian-Austrian border. PSUs located in Śląskie, Warmińsko-Mazurskie and Opolskie vovoidships are excluded. Definitions of the variables are given in Table 2.

Table 12: Results: LiTS sample for the Austrian-Russian border

Dep. Variable	Partition Effect (1)	R^2	Partition Effect (2)	R^2
Panel A : Probit				
Priority of Education	**-.502* (.257)**	**7%**	**-.52* (.27)**	**9%**
Number of obs.	**257**		**257**	
Role of Intelligence	.201 (.221)	4%	.196 (.22)	5%
Number of obs.	257		257	
Panel B : Ordered Logit and OLS				
Unofficial Payments	-1.46 (.929)	7%	-1.63* (.966)	10%
Number of obs.	247		247	
Spending on Education	106.3 (155.5)	0.5%	62.7 (169.7)	16%
Number of obs.	221		221	
Control variables.	No		Yes	

Note: Robust and clustered at the primary sampling unit (PSU) level standard errors are reported in the parentheses. * denotes significance at the 10% level. Panel A reports estimates from the probit model, where Priority of Education (in governmental spending) and Role of intelligence and skills (in life) are used as outcome variables. Panel B presents results from the the ordered logit for the Unofficial Payments outcome, and from OLS for Spending on Education. Only the coefficient on parameter β is reported, which is the dummy indicating whether PSU is located in the former Russian Empire (the reference category is the Austrian Empire). In all the cases the year of observation is included as a control variable. In addition to this in column (2) gender, age and having a child variables are included. The outcome and control variables are listed and explained in more details in Table 2.

Table 13: Average Marginal Effects - LiTS sample for the Austrian-Russian Border

	Partition Effect	
	No-control	Control
Panel A : Probit		
Priority of Education	**-.11***	**-.112***
Role of intelligence	.07	.067
Panel B : Unofficial Payments - categories		
Never	.24	.25**
Seldom	-.14	-.15
Sometimes	-.05	-.05
Usually	-.02	-.022
Always	-.022	-.024

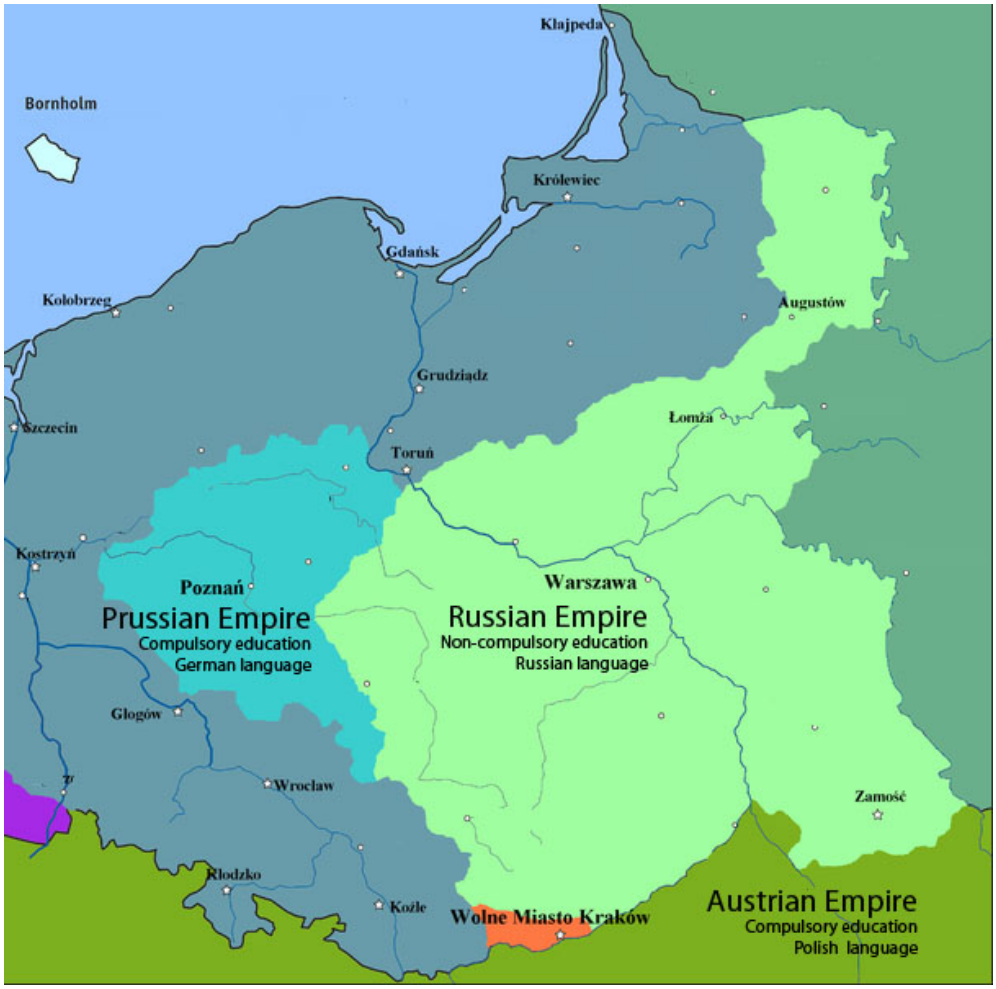
Note: All the Average Marginal Effects are calculated using coefficients β (the dummy indicating whether primary sampling unit is located in the former Russian Empire) from Table 12. * denotes significance at the 10% level, ** at the 5% level. Panel A shows the Average Marginal Effects for the Probit models. Panel B shows the Average Marginal Effects for each category (5 categories) of outcome variable denoting frequencies of unofficial payments to receive public education, using the Ordered Logit model. Definitions of the variables are given in Table 2.

Table 14: The Historical Data on Migration and Demographic Characteristics

Year / Partition	Russian	Austrian	Prussian
Panel A: Migration Balance (in thousands)			
1881-1890	N/A	-74	-233
1891-1900	N/A	-169	-219
1901-1910	N/A	-224	-180
1881-1910	N/A	-468	-632
Panel B: Migration Balance as % of population increase			
1871-1910	N/A	81.2%	146.1%
Panel C: Average of annual rate of population growth			
1846-1870	0.9%	0.5%	0.6%
1870-1897	1.6%	0.9%	0.6%
1897-1911	1.7%	1%	1%
Panel D: Share of age group in 1900			
<19	49.2%	48.7%	N/A
20-39	30.3%	28.7%	N/A
40-59	14.3%	16.7%	N/A
60<	6.2%	5.4%	N/A

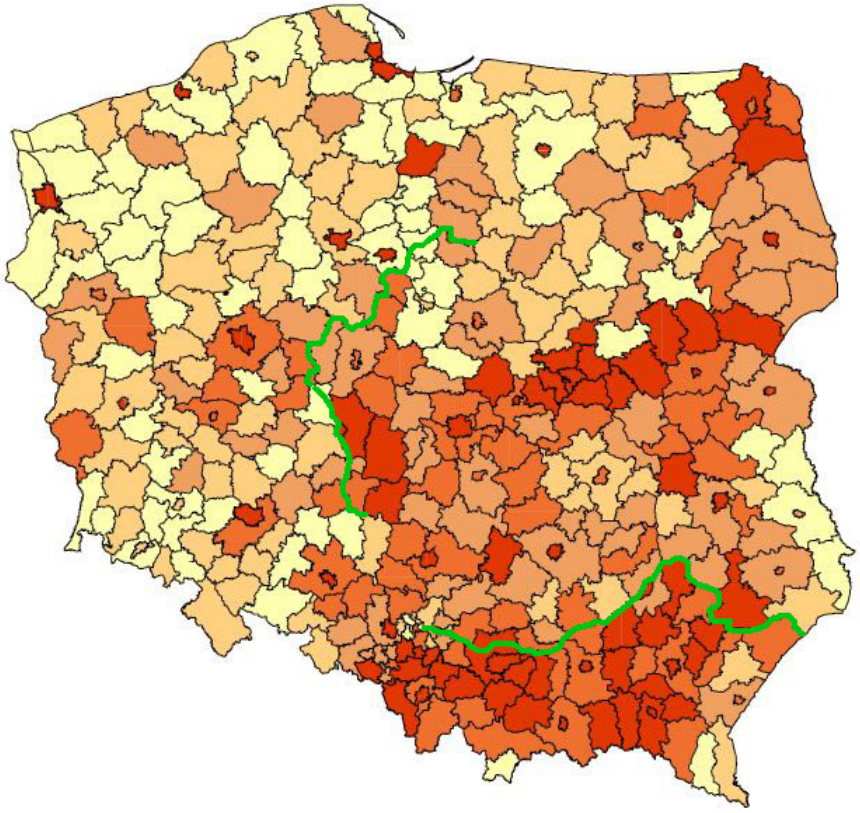
Panels A and B: Austrian is Western Galicia; Prussian is the Duchy of Poznań. Panels C and D: Austrian is the whole Galicia; Prussian is the Duchy of Poznań; Russian is the Congress Kingdom. Source: Statystyczny (2003).

Figure 1: The Partition of Poland 1815-1918



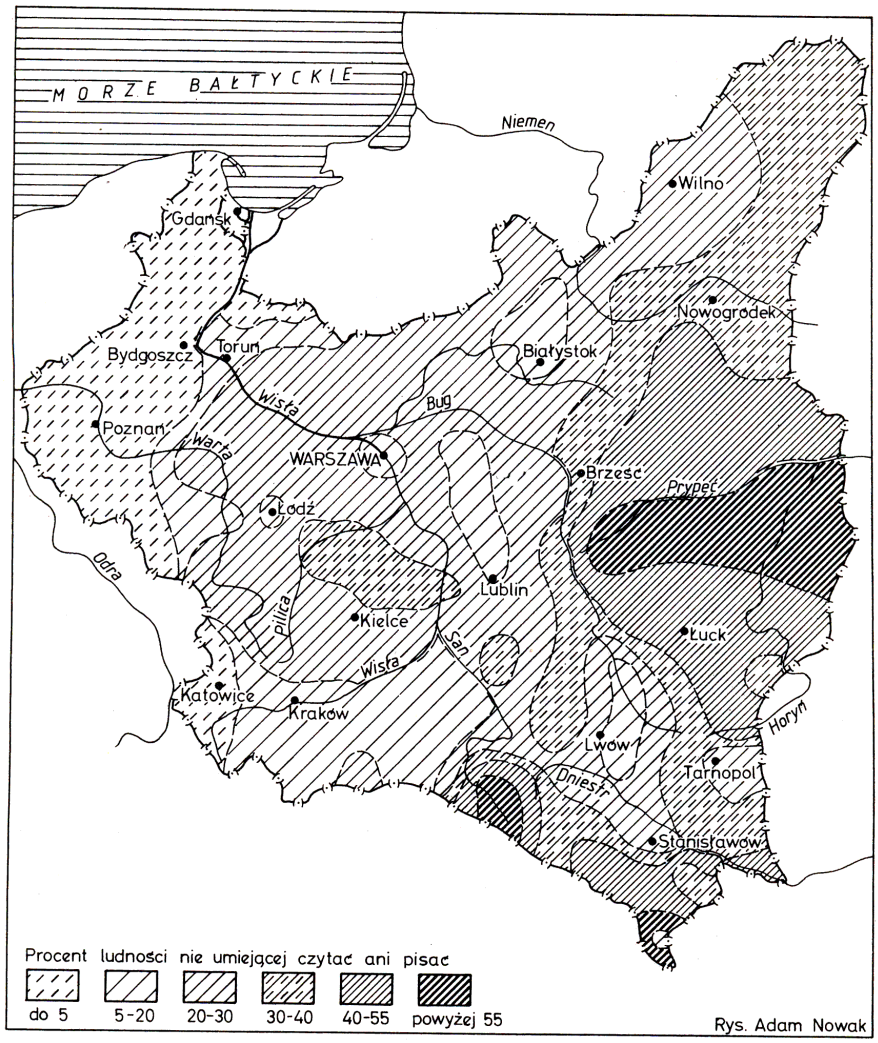
Source: wikimedia.org. Blue colour denotes the Prussian part (light blue is the Duchy of Poznan), green-blue denotes the Russian part and green denotes the Austrian part.

Figure 2: The distribution of 9-th grade exam scores (math and science) in 2011



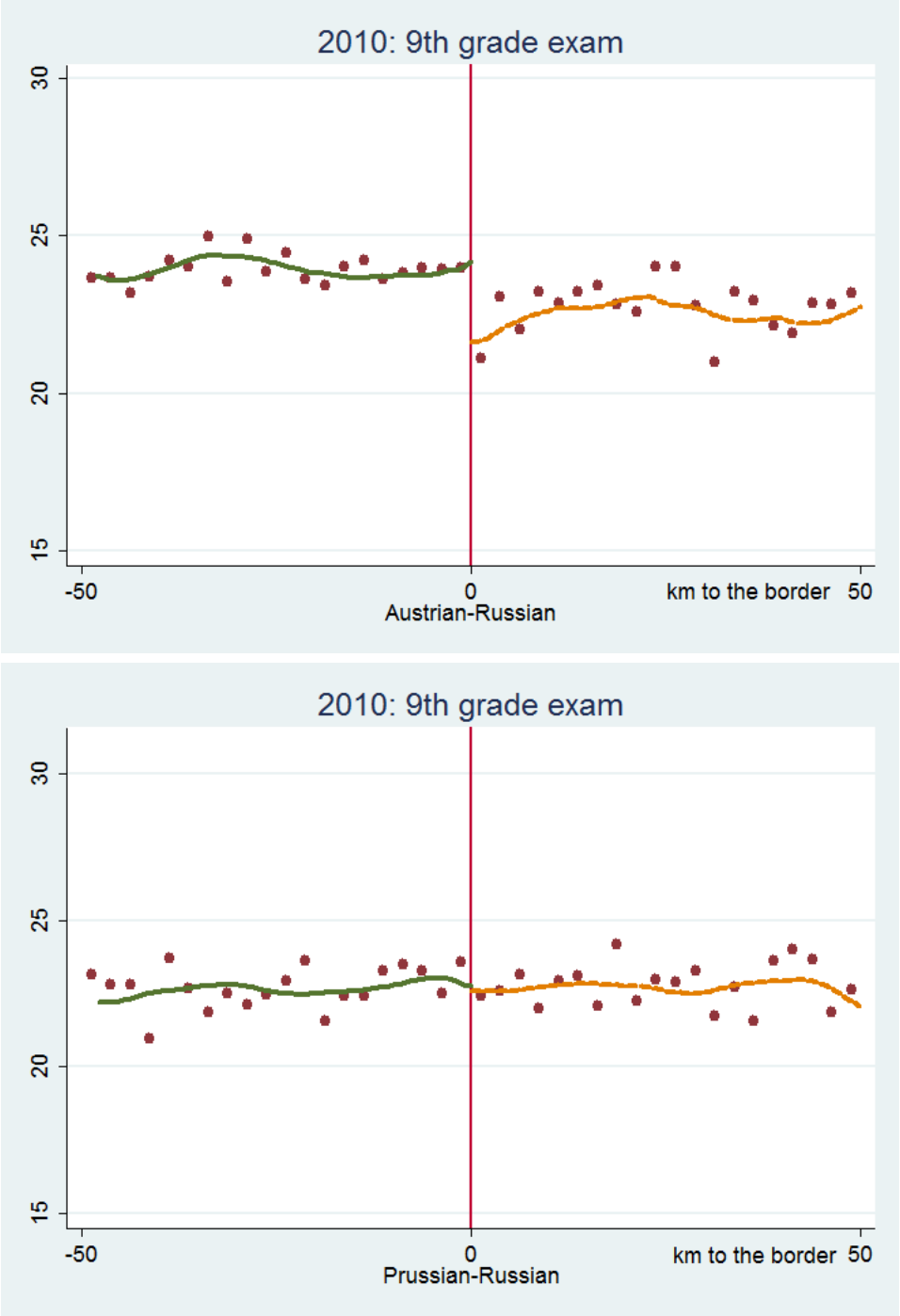
Source: own visualization based on the Central Board of Examination data. More intensive red denotes higher average score. The green lines mark the parts of the former Partition border which are under the investigation.

Figure 3: The illiteracy levels in the interwar Poland (1931)



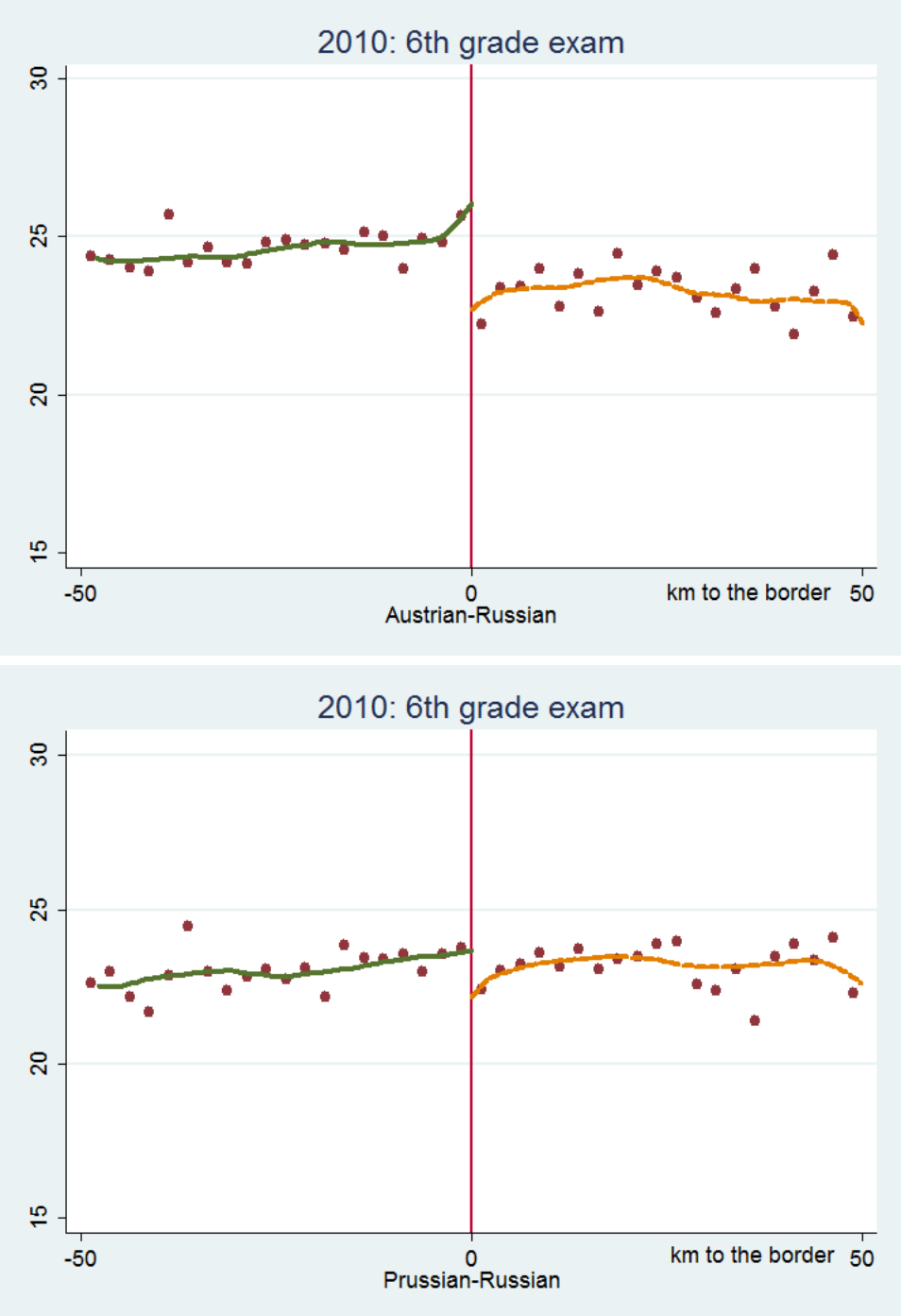
Source: an illustration from Henryk Zieliñski, "Historia Polski 1914-1939", Wydawnictwo Ossolineum, 1983 via http://pl.wikipedia.org/wiki/Analfabetyzm. The legend at the bottom describes the illiteracy levels.

Figure 4: The Regression Discontinuity for the 9th grade exam score



Graphs generated using Epanechnikov kernel function, without additional covariates.

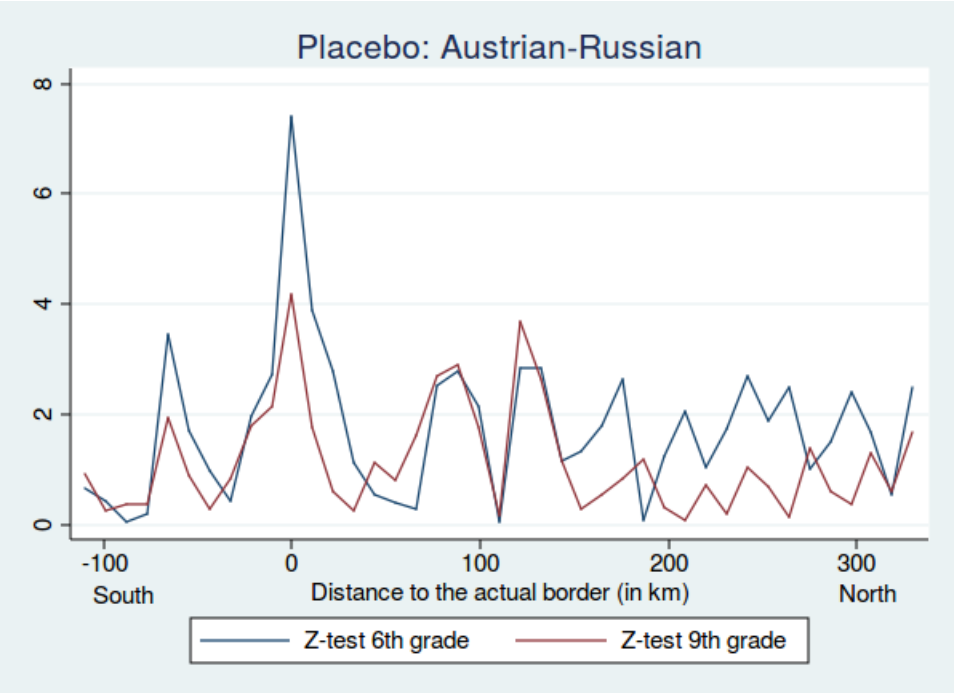
Figure 5: The Regression Discontinuity for the 6th grade exam score



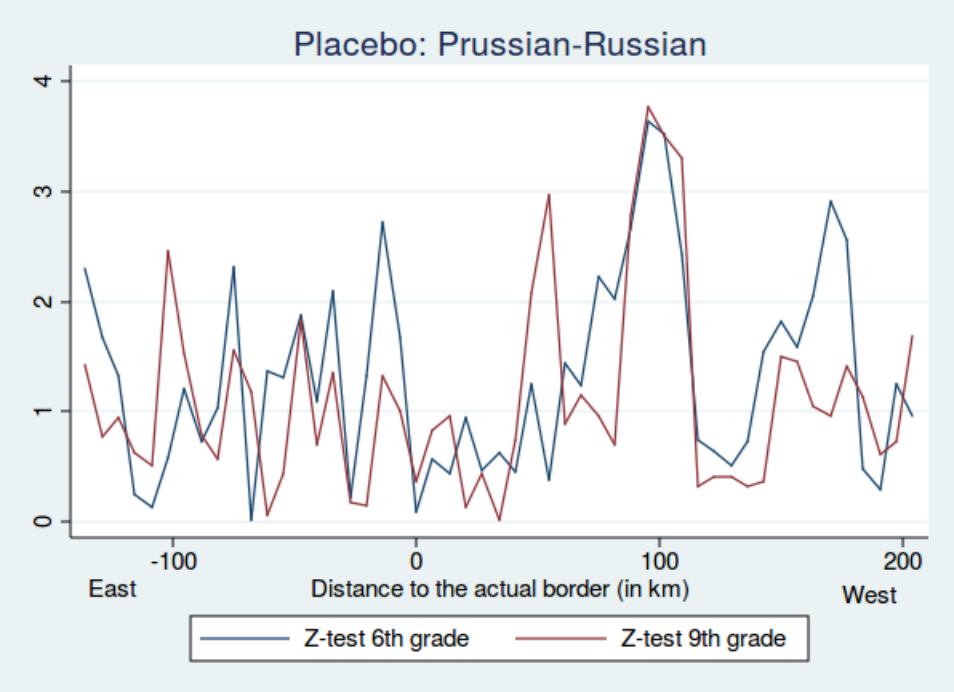
Graphs generated using Epanechnikov kernel function, without additional covariates.

Figure 6: The Placebo Experiments

Panel A



Panel B



In Panel A I artificially move step-by-step the Austrian-Russian border by 5km to the North (at most 300 km) and to the South (at most 100km). In Panel B I move step-by-step the Prussian-Russian border by 5km to the West (at most 300km) and to the East (at most 100km). For each placebo border I calculate the Z-test (ratio of a coefficient and a corresponding robust standard errors) for the placebo Partition dummy from the baseline specification of the regression (1).