

UCL CENTRE FOR COMPARATIVE STUDIES OF EMERGING ECONOMIES (CCSEE)

Working Paper Series
2017/3



UCL

The Making of a Liberal Education: Political Economy of the Austrian School Reform, 1865 – 1875

Tomas Cvrcek and Miroslav Zajicek



UCL School of Slavonic and East European Studies
16 Taverton Street, London WC1H 0BW
www.ucl.ac.uk/ssees/comparative-studies-emerging-economies

**The Making of a Liberal Education:
Political Economy of the Austrian School Reform, 1865 – 1875**

Tomas Cvrcek^{a, b} and Miroslav Zajicek^c

March 2017

Abstract: The rise of mass schooling is an important contributor to modern economic growth. But its form, content, scale and manner of provision are all matters of public policy that are subject to politics. The rise of modern schooling is frequently cast as a product of broadened suffrage and stronger political voice of the masses, which overcame the political opposition from old ruling elites. We investigate this hypothesis, using the case of a school reform undertaken in Imperial Austria in 1869. We show that while landowners were less likely to vote for school modernization than urban and business interests, the strongest opposition came from the rural areas where the suffrage was in fact most numerous. The reform passed in spite of their opposition but, interestingly, post-reform developments suggest that passive resistance to it continued in the countryside in spite of the alleged benefits that education was billed to bring the masses.

^aSchool of Slavonic and East-European Studies, University College London, London, WC1E 6BT, t.cvrcek@ucl.ac.uk

^bVysoká škola ekonomická, náměstí W. Churchilla 4, Praha 130 01

^cCenter for Comparative Studies of Emerging Economies at UCL-SSEES, , zajicek100@gmail.com

Note: This paper was written with the aid of the GACR grant No 15-16481S and the Neuron Impuls grant no. 14/2015 of the Neuron Fund for Support of Science (<http://www.nfneuron.cz/en/>). We thank Jeremy Atack, Mara Squicciarini, Rowena Gray, the participants of the 2016 Economic History Association meetings, the Social Science History Association meetings and of the Wirtschaftuniversitat Wien economic history seminar for their helpful comments and suggestions. We also thank Lukas Jenicek, Tomas Hanacek, Jakub Machacek, Veronika Viltova, Michal Kuchta and Jan Wikturna for their excellent research assistance. All errors are our own.

1. Introduction

Universal literacy, commonplace today in all developed industrialized countries, was achieved during the 19th and 20th centuries thanks to the emergence of mass schooling (Baten and Crayen, 2010). However, the provision of widely available and easily accessible education that would generate such human capital did not emerge overnight. Schooling systems are expensive to build and maintain, and since they are frequently financed out of the public purse, they are also subject to intense political battles. In this vein, recent economic literature has investigated the link between the diffusion of education and the power of various constituencies to oppose that diffusion. Historically, landowning elites are often cast as the most likely candidates for such opposition (Cinnirella and Hornung, 2013; Galor et al., 2009; Vollrath, 2013). In most of these studies, the power of such landed elites is proxied by a measure of inequality of land distribution or of the extent of suffrage, the argument being that if landowners indeed opposed the spread of schooling, then more unequal land distribution and more limited suffrage will correlate with lower provision and slower diffusion of schooling.

In our paper, we propose to evaluate this hypothesis about who was for and who against the extension of schooling by investigating the actual parliamentary voting of the various political forces on a liberal school reform proposed in Austria in May 1869. The reforms aimed to replace an outdated schooling system of limited curriculum, poor financial basis and stringent oversight by the Catholic Church with a modern, liberal, civil education. It also extended compulsory school age to 13 and 14-year olds. At the time of its passage, it was a controversial piece of legislation that only narrowly passed in Reichsrat, Austria's highest representative body.

The support for the law came overwhelmingly from the representatives of the large cities and of business while the landed interests leaned slightly in favour but were generally quite lukewarm. The strongest opposition came from the representatives of the general rural

population. We argue that the opposition from the agricultural districts came because of the gap between their expected costs and the expected benefits: the proposed changes in the curriculum and the extension of compulsory school years were more geared towards industrial employment and so their implementation in the rural district only encouraged emigration of rural labor force to industrializing cities, thereby undercutting the potential benefits to the local communities. At the same time, the poorer districts had worse and fewer schools to begin with, so the financial requirements to make good on the new law (e.g. the hiring the extra teachers for the extra years of schooling and building new schools to increase the density of the educational infrastructure) represented a greater marginal cost for the rural, agricultural districts compared to the urban, industrial ones. Therefore, in the countryside, the costs of proposed reforms outweighed the benefits, while in the cities, it was the other way round. In a sense, by changing the nature, extent and content of the primary education, the industrial districts voted themselves an implicit subsidy: the countryside would pay for educating future industrial workers. The crucial observation that the opposition did not come from the landed magnates but from the rural masses goes some way to explain why the implementation of the reform encountered broad resistance many years after the passage, leading in some areas to regress in school provision, as we show in our final section.

2. Existing theories on the political economy of schooling

The historical record of the emergence of mass primary schooling varies across countries. Central European empires like Austria and Prussia are examples of countries where the decisive impulse came from above, where imperial legislation made schooling compulsory already in the 18th century and where law specified the curriculum and provided for instruction and certification of teachers. In other countries, such as the USA and UK, the rise of schooling was

more organic, spontaneous and decentralized, although no less “political” for it (Mitch, 1992; Troen, 1975). Theories of the political economy of mass education inevitably touch upon almost every aspect of schooling because they explicitly or implicitly involve statements about the motivations and expectations of individual players: e.g. what were the Austrian and Prussian rulers thinking that they were getting out of implementing the system? Why might have rising industry been interested in a literate labour force? How did the curriculum respond to the changing conditions on the labour market?

Lindert (2004: Chapter 5) offers an overview of the most prominent explanations behind the modern rise of schooling. The cultural explanation sees it either as a consequence of the prevailing religious motivation for (Protestants) or against (Catholics) literacy (Landes, 1998: 178; Becker and Woessman, 2009) or a competition between political forces supporting religious versus secular instruction (West and Woessmann, 2010). The social control theory fits well those instances, where schooling was imposed from above with the hope that the cathedra would supplement the pulpit in inculcating the masses with docility. Such were the cases of Habsburg Austria and Prussia, or early 20th century Portugal (Van Horn Melton, 1988; Palma and Reis, 2012: 5). In an alternative specification, the social control function of mass schooling is demanded not by traditionalist rulers but by rising capitalists who desire a disciplined workforce.

In the economic history literature, the most prominent framework for analyzing the political economy of schooling pits the masses and industrial entrepreneurs against the (landed) elites. In this view, which Lindert (2004: 100) fittingly calls the “Tory opposition theory” and for which Galor et al (2009) provide the most coherent theoretical formulation, the landed elites had numerous reasons to oppose the extension of schooling. Since human capital was more complementary to industrial capital than land, the spread of literacy led to a reallocation of labor

from agriculture to industry, thereby reducing returns to land. The public financing of the mass schooling introduced a new tax burden, which likely fell at least partly on land, making landowners even worse off. The politics of mass schooling becomes the more acrimonious the more unequal the land ownership, as the most land-rich (and usually also most powerful) individuals stand to lose the most. Studies finding empirical support this theory exist for Prussia (Cinnirella and Hornung, 2013), Spain (Beltran-Tapia and Martinez-Galarraga, 2015), USA (Vollrath, 2013), Britain (Mitch, 2012) and the BRIC countries (Chaudhary et al, 2012). Chaudhary (2009) offers a variation of this theme, where in the Indian context, the role of the landed elites was played by the upper castes who preferred to direct public resources towards schooling for their own children.

One empirical prediction emerging from this explanation is that public investment in schooling should increase once political institutions become more democratic and the clout of the landowners is thereby diluted. Indeed, research into the link between the extension of suffrage and public investment in education finds such positive link in the case of Russia (Nafziger, 2011), Brazil (Mussachio et al., 2014), former colonies (Gallego, 2010; Mariscal and Sokoloff, 2000), the US South (Naidu, 2012) and the USA as a whole (Ramcharan, 2010; Go and Lindert, 2010).

Telling the story of the Austrian school reform is important because, on the surface, it could easily give the impression of being consistent with the Tory opposition/democratization theory. Up until the 1860-1 introduction of constitutional government with elements of elected representation, the Habsburg Empire – particularly its Western half – had next to no lasting experience with effective representative (let alone democratic) politics. Then, within a decade of the 1861 February Constitution, the ascendant bourgeois political class implemented a broad liberal agenda, in which the school reform was an important plank. Ignoring the details of the

school reform politics, one could easily see this as another example of the extension of suffrage leading in short order to greater investment in the public good of education. Yet, as we show below, the main fault line ran not between masses and elites but between the city and the countryside. The “most mass” constituencies were the most avid supporters and opponents, while the elites, both industrial and landowning, stood more in the middle (though leaning in favour) – and the primary reason for the opposition to the extended education was that the countryside did not find the investment worthwhile – nay, perhaps even felt exploited by the set-up (given the implicit subsidy).

Our results differ from previous research because in two important aspects we are able to make explicit what other studies have to either assume or proxy for. One aspect is that we are able to use the stipulations of the law and available data on pre-reform extent of schooling to explicitly calculate the expected costs and benefits the reform implied for various political constituencies. We do not have to rely on theoretical models in the vein of Galor et al. (2009) in order to make assumptions regarding the costs and benefits and by extension the political economy of schooling expansion. The other aspect is that instead of using measures of land inequality as a proxy for relative political influence of landowners versus other constituencies, we directly observe the political process where, by fortunate historical coincidence, these constituencies were explicitly built into the constitutional and electoral framework.

3. The Austrian school reform of 1869

Between 1805 and the reform year 1869, the Austrian primary schooling was governed by the so-called Political Constitution of the German Schools, a law that minutely regulated every aspect of the schooling system (K.k. Schulbucher-Verschleiß-Administration, 1847). Schooling was compulsory for children aged 6 to 12, who passed through the school’s two grades receiving

mostly religious instruction and learning basic literacy skills under the watchful eye of the Catholic Church. Town schools had a somewhat more extensive curriculum than country schools, allowing for some geometry, geography and biology in the third and sometimes even a fourth grade but they were few and far between. The schools were financed partly by the towns and villages they catered to, partly by the local feudal authorities. Already by late 1840s, the obsolescence of the law became obvious (Frank, 1898). The law had not been updated to keep abreast of new developments in pedagogy, teacher training was deliberately kept short and superficial and once the revolutions of 1848 removed the last vestiges of the old feudal order, even the financial underpinning of the schools gradually disintegrated. A thorough school reform in a liberal vein, attempted in the wake of 1848, never moved beyond the proposal stage and was soon quashed by a conservative pushback. Instead, throughout the 1850s and early 1860s, whatever changes were introduced into the schooling system came by way of ad hoc fixes and piecemeal amendments which, however, left the limited curriculum, the meager financial base and the church oversight intact (Ficker, 1873, Engelbrecht, 1986).

A new opportunity for fundamental reform only came once the Habsburg Empire's basic constitutional questions – most crucially the Austro-Hungarian Compromise of 1867 – were resolved. A new, modern, liberal constitution, passed in December 1867, stipulated, among the basic civil rights and liberties, the right of access to education and an equality of all faiths and religions. The reform of primary schools then came in two parts. First, in May 1868, the Law on Relations between School and Church (*Schule-Kirche-Gesetz*) secularized the school oversight, transferring the powers of school inspection and teacher appointment from church to civil authorities.¹ It established local school boards, opened all public schools to pupils of all

¹ The full texts of all the post-1848 laws cited in this paper are drawn from the ALEX database of the Austrian National Library (ALEX, 2011).

confessions and all teaching positions to all certified teachers, regardless of their religion.² In contrast to previous legislation, which gave the Church powers to guard against heresy in every subject taught in schools, the new law limited the church's control exclusively to religious instruction and explicitly put all other subjects out of its purview. The law was passed against great opposition from the church authorities, even earning a stern condemnation from the Pope within a month of passage, but as for the parliamentary representation, the official record unfortunately does not show which representative voted which way.

The second part of the reform was the Law on Primary Schools (*Reichsvolksschulgesetz*) passed in May 1869. It laid down the basic guidelines for the newly secularized schools, touching upon all aspects, from school curriculum to teacher training. Article 3 mandated that in addition to religious instruction and basic literacy, every school also introduce the teaching of biology, geography, history/civics, geometry, music and physical education. For girls, it also required home economics and some training in domestic work. In Articles 4 and 7, the law fixed the length of each school grade at exactly one year and empowered the education minister to devise teaching plans for each grade, including the allocation of teaching hours for each subject. Article 21 extended the compulsory schooling by two years, from 6 to 14. Articles 26 – 58 dealt with the training, appointment and oversight of teachers, seeking to turn them into modern professional staff with the prestige and income of tenured public servants. Article 59 required that a primary school be established wherever 40 school-age children live more than a half-mile from the nearest school. This provision called for a denser school network than was the case under previous legislation, which mandated a new school for every 80 such school-age children. Formalizing the prevailing practice on the ground, Article 62 placed the burden of school

² The old Political Constitution of German Schools barred Protestant teachers from teaching Catholic children and Catholic children from attending Protestant schools.

financing primarily on the shoulders of the towns and villages the schools served, although it left it to provincial authorities to work out the specifics and perhaps bring in other sources of funds. Articles 68 – 73 made good on the constitutional guarantee of the freedom of instruction by setting the rules for the establishment of private schools and their integration into the educational system.

All in all, the new law envisioned a school that would be bigger in pupil numbers, broader in its curriculum, better staffed and consequently significantly more expensive than its predecessor. Perhaps this boldness of design was why the legislators, who aimed to lay down the common, unifying rules for all the non-Hungarian parts of the Empire, suddenly blinked in Article 75 and granted certain rural, less developed provinces exemptions from the extension of the compulsory schooling age.³ Still, the expected extra costs, together with the shift in emphasis to new content in the curriculum, were to be the main points of contention in the political battle for the law's passage.

4. The contours of the Austrian electoral system

The 1860s brought Austria her first extended experience with representative government. The representation was granted only reluctantly by the Emperor in 1860 – 1861, in the wake of a lost war and chronic fiscal problems (Taylor, 1965). The Habsburgs' traditional distrust of popular politics found its expression not so much in the limited suffrage as in the outsized representation granted to groups that the emperor considered "politically reliable": aristocrats and landowners, richer burghers, church representatives and ethnic Germans. At the same time, the 1860s were also a time of constitution-making and so the resulting political architecture had to somehow incorporate and absorb the conflicting interests of the empire's

³ The provinces were Dalmatia, Galicia, Carniola, Bukowina and Austrian Littoral.

numerous nationalities, the various regional and factional jealousies and the diverging opinions among the public on the powers and competences of the imperial capital vis-à-vis the individual provinces. For example, the division of powers between the provincial representative assemblies and the supra-provincial legislature in Vienna was an issue of ongoing political controversy. The constitution, as it eventually settled down, rested on the broadest possible consensus but certainly not a universal one (Macartney, 1971).

Table 1 shows the extent of suffrage as of the elections in Spring 1867. There were in total about 1.25 million voters (if we add in an estimated 35.000 rural voters in place for the missing data from Littoral), which represented about 23% of the adult male population. Their votes were not equal, however, as the voters were divided into four separate electoral curias. Who belonged in which curia depended on one's location and income. For example, in the Bohemian landowners' curia only those landowners qualified for a vote whose land tax bill exceeded 250 fl annually. There were 471 such individuals in the whole province. In Lower Austria, the threshold was 200 fl, yielding 201 voters.⁴ Suffrage in cities was tied to a permanent residency or place of business and either a tax census (e.g. 2-8 fl. per year in the Bohemian city of Reichenberg, depending on type of business) or a particular profession (suffrage was granted to priests, public servants, military officers and academics). These two curias elected their representatives directly. In rural communities and Chambers of Commerce, the vote was indirect. All factory operators and business owners, large and small, had the right to elect Chamber of Commerce councilors, who then, by virtue of being councilors, voted for their Chamber's representatives in the legislature. Rural communities in each given rural district elected one elector per 500 voters,

⁴ For comparison, in 1867, the day wage of an unskilled labourer in Bohemia was 0.68 fl (K.k. Statistische Zentral-Commision, 1869). A teacher's median annual salary was 240 fl (K.k. Statistische Zentral-Commision, 1870)

determined, as in cities, on the basis of residency and tax census; the electors then chose the district's representative.

The inequality in the suffrage lay in the fact that different curias elected a different number of representatives. For example, the Bohemian provincial assembly had 241 members coming from the four different curias: 70 members were elected by the 471 landowning voters, 72 came from the urban districts, 15 represented the five Bohemian Chambers of Commerce and 79 members the 182,526 voters in the rural curia.⁵ While the rights to vote in various curias were mutually exclusive, territorially, some of the electoral districts overlapped. For example, the rural district around the towns of Eger, Asch and Wildstein in western Bohemia elected one representative while the towns of Asch and Rossbach in that same area elected another one and the Chamber of Commerce in Eger – which encompassed both the aforementioned towns and their countryside, as well as another fifth of the province – another three. At the same time, any large landowners living in that area voted for their representative in the landowners' curia, for which the whole province constituted the electoral district. The constitution set the specific quotas, territorial divisions and suffrage conditions for each province separately but the underlying structure was the same everywhere.

The pinnacle of all representative bodies was the Viennese legislature, the Reichsrat, which consisted of 203 representatives from the 13 different provinces. Until 1873, voters never voted for Reichsrat in Vienna directly. The 203 members were delegated by the provincial assemblies from among the provincial representatives according, again, to a minutely specified

⁵ Another five members were ex offio: the archbishop of Prague, bishops of Budweis, Koniggratz and Leitmeritz and the Rector of the Prague University.

key, which ensured that each curia would have its representatives. Table 2 reports their distribution as of the end of legislative session in May 1869.⁶

Comparing the numbers in Tables 1 and 2 reveals the scale of the electoral inequality: on average, there was 1 representative for every 91.5 voting landowners compared to 1 representative per 14,967 voters in the rural communities and per 3307.5 voters in cities. Corresponding ratio for the Chambers of Commerce (48.9) is not quite comparable here because we only have the number of councilors who cast their ballot, not the number of voters who elected them. While from the point of view of modern democratic politics, the electoral system was deplorably unfair, it presents some definite advantages for our analytical purposes. It makes explicit the choices of the very political constituencies, which appear as *dramatis personae* in the usual accounts of political economy of schooling. In contrast to, say, Vollrath (2013), we can observe the vote by landowning members of the legislature who represent nothing but the landowning interest. The electoral system separates for us the cities from the countryside and the businessmen and industrialists from the landowners. We do not need to speculate, or proxy for, how much political clout the large landowners had relative to their less land-endowed fellow citizens: we know exactly that the 4943 magnates (surely the absolute summit of landed wealth in the country of 20.4 million) had 54 representatives out of 185, when it came to this particular piece of legislation.

⁶ The first obvious point to note is that their number only adds up to 185 and not 203. Some 14 Bohemian and 1 Moravian representatives of Czech nationality boycotted the Viennese legislature, having objections to the whole constitutional arrangement. They were never sworn in, never showed up in the chamber and never participated in any legislative process. Another representative died in January 1869 and further two had been promoted to *Herrenhaus*, the Austrian equivalent of the House of Lords, at about the same time. As of May 1869, their respective provincial assemblies have still not got around to send their replacements. Thus, there were 185 Reichsrat members whose voting record on the school reform we can analyze.

5. The political economy of the vote on school reform

The bill on the reform of primary schools was first introduced into Reichsrat on 4th March 1869 and was sent to the confessional committee, as schools were considered a religious matter. The plenary debate began on 21st April 1869, when it emerged from the committee with a stamp of approval and only minor amendments. Over the next four days, eleven speakers argued in favor of the bill, nine against (K.k Hof- und Staatsdruckerei, 1869: 5719 – 5821).

Representatives Sawczynski (urban curia, Galicia), a former teacher and school administrator, and Grocholski (landowner, Galicia) attacked the bill on constitutional grounds, arguing that it micromanaged the educational system in ways and areas that the constitution reserved for provincial assemblies. Representative Pascotini (urban curia, Littoral) criticized the extension of compulsory schooling as impracticable, costly and therefore un-implementable in many southern provinces while Albert Jäger (rural curia, Tyrol), a university professor from Innsbruck, added that the extra content mandated by Article 3 would be superfluous and useless in the countryside. He also estimated that implementing all the provisions of the bill would increase Tyrol's education expenditures fourfold, a burden that would make the rural communities "sweat blood." Another two rural Tyrolean members, Ignaz Giovanelli and Josef Greuter, considered the bill in breach of the "natural rights of the church and of parents over their children". Such reservations over the bill's secularizing thrust were expressed not only by several other Catholic members but also by Protestants, such as Karl Schneider (rural curia, Silesia) who in civil life worked as a dignitary of the Silesian Lutheran church, and the Protestant pastor Karl Bauer (urban curia, Carinthia). Slovenian representative Toman (Chambers of Commerce, Carniola) objected to the bill's weak guarantees against Germanization through schooling and implied that in each school the language of instruction should be decided locally and not by provincial authorities, as the bill proposed.

Supporters of the bill pushed back by pointing out that, imperfect though the bill was, it still represented a vast improvement over the existing outdated law. Moreover, they argued, many of the objections raised could be worked into the bill as part of the second reading. But Sawczynski's constitutional objections ultimately became the rallying point for the opposition, who refused to even discuss individual provisions of the bill, article by article, and instead demanded its outright rejection. When the proceedings came to a vote and their proposal to reject the bill before the second reading was defeated, the opposition left the chamber *en masse*. It is only thanks to this walkout that we know the names of all the supporters and the opponents of the law: for vast majority of votes, the parliamentary protocol did not even record the numbers for and against, let alone names. But since the walkout suddenly reduced the number of members present and put the chamber's quorum in question, the presiding officer ordered a roll-call vote, which was then recorded in the official protocol. On 24th April 1869, the proposed Law on Primary School passed the third reading with 111 votes in favor, 4 votes against and 70 "absent".

5.1. Measuring the costs and benefits of the school reform

In our analysis of this vote, we make use of two sets of variables. One set contains the political/electoral variables, namely the electoral curia and province of each representative. These are readily available from the official records of the Reichsrat and of the provincial assemblies. The other set contains relevant educational variables from the districts that the politicians represented. The assumption behind using these statistics is the notion that a representative's stance towards the reform bill would be affected by the relative costs and benefits the proposal entailed for his constituents. We use the *Detail-Conscription den Volksschulen*, a comprehensive school census conducted in the Spring of 1865, which contains

data on the 12054 primary schools then operating in Imperial Austria. Because of the precise data on location of each school, we can easily place each school in the relevant electoral district of each of the 185 representatives and evaluate what kind of educational situation prevailed in his district before the reform and how the proposed reform affected his voters.⁷ For all other demographic and economic variables, we rely on the 1869 population census, which provided data both on the age structure and on the employment structure of individual administrative units (K.k. Statistische Zentral-Commission, 1871).

We then construct two variables to gauge the costs and benefits, for each district, of the school reform. One is a measure of the expected costs of compliance with the new regulations. The bill left a lot of the specifics to provincial assemblies but nonetheless laid down the rules for several basic parameters pertaining to school provision. In Article 11, it determined that a new teacher has to be hired for every 80 pupils in school and, in order to prevent backsliding in the quality of teaching staff, imposed a constraint that untenured substitute teachers may make up no more than a third of the staff. Article 21 mandated that the number of pupils would go up by about a third due to the extension of the compulsory schooling age (unless provinces, exempted in Art. 75, decided otherwise).⁸ At the same time, Article 7 identified each school grade with a particular full-year curriculum (whose precise content were to be determined by the ministry), whose mastery was required for a pupil's progression through school. This provision effectively

⁷ The exceptions here were the schools in Galicia, Bukowina and Dalmatia, which were not reported individually but were aggregated into school districts. For the representatives from the landowning curia, the district aggregation has no effect. For the rural and urban representatives, the worry is that school district boundaries did not exactly match the electoral districts' boundaries. For each such electoral districts, we matched it with a school district that most closely matches its geographical location.

⁸ Our search of the provincial legislation shows that Bukowina, Galicia and Carniola (but not Dalmatia and the Austrian Littoral) did indeed avail themselves of the exemption and kept the compulsory school age at 6 to 12 or 7 to 13 years of age. We incorporate these local provincial specifics into the calculations that follow.

put an end to half-year schools, which for districts that relied heavily on them (as some did in Tyrol, Vorarlberg, Carinthia and Carniola) implied having to pay their teachers full-year, not just for half a year. Given that we know, from the 1865 school census, the local school structure as well as the composition of the teaching staff in each district, we can calculate, what kind of cost hike (in terms of salary expenses) the new provisions implied, if one took – as, for example, representative Jäger did in the debate – the current state of things as the basis for estimation. In short, we estimate the expected cost hike as the ratio of the expected salary costs and current (as of 1865) salary costs:

$$\text{Eq. 1} \quad ECI = \left(\frac{\frac{4}{3}P_{6-12}}{80} \right) \left[1 + 0.4 \max\left(0, s - \frac{1}{3}\right) \right] (1 + h)$$

In this expression, *ECI* is the expected cost increase. P_{6-12} is the number of pupils aged 6 to 12 years who were either enrolled or were supposed to be enrolled, according to the schools' records in the 1865 school census. Their number is multiplied by 4/3 to reflect the extension of the compulsory school age.⁹ The division by 80 yields the number of teachers necessary to comply with Article 11 of the new law. A further division by T_{1865} – the number of teachers available in 1865 – provides the factor by which the teaching staff will have to be increased. The expression in the square brackets reflects the fact that substitute teachers needed to be replaced with fully certified teachers, if their share, s , were greater than one third of the teaching staff, and the fact, evident from the 1865 data, that established teachers earn salary about 40% higher than substitute teachers (hence the factor 0.4). Finally, h is the proportion of half-year schools that would need to be converted to full-year schools. If h is close to 1 and most district's teachers

⁹ We assume that the neighboring birth cohorts are comparable in size. It would not make much of a contribution to use more accurate demographic data because our purpose in constructing this variable is not to get a precise figure on the cost change but rather to capture the variation in what the decision makers – politicians of late 1860s – could reasonably estimate to be the costs associated with the reform.

currently draw salary for only half-year of work, the conversion would clearly almost double such district's salary budget. In constructing this ratio, we take existing salaries as given, which is perhaps the least problematic of all plausible assumptions considering that the reform bill left all salary specification to provincial assemblies and local school boards.

The second variable we construct aims at the potential benefits of the school reform. Our measure of the literacy content of the local labor market is a number between 0 and 1 and is constructed as a weighted average of the local occupations where the weights reflect how likely a person in a given occupation will need to be literate to successfully do his or her job. Our underlying assumption is that this measure of literacy content positively correlates with the human-capital intensity of local labor markets generally. Therefore, districts with high literacy content will benefit more from the extension of the curriculum, specified in Article 3; will more likely offer better jobs to the graduates of the new and improved primary schools and will therefore be more likely to support the reform. In the classification of the occupations, we rely on Mitch (1992) who divides them into four groups: those requiring literacy, those where literacy is useful but not indispensable, those where impact of literacy is ambiguous and finally those occupations that do not require literacy. The weights we assign the four groups are 1, 0.7, 0.4 and 0.¹⁰ The occupational structure comes from the 1869 population census, which recorded the numbers employed in 50 different occupations across all sectors. One worrisome issue regarding this variable is that the 1869 census districts do not line up exactly with the 1867 electoral districts due to an administrative reform passed by the same Reichsrat in 1868. Because the administrative reform consolidated the roughly 900 smaller pre-reform districts into about 400 bigger ones, the literacy content measure covers bigger areas than were the electoral districts of

¹⁰ We have employed the same measure in our previous work on the Austrian schooling, see Cvrcek and Zajicek (2013) for details.

the urban and rural representatives.¹¹ It is a mismeasurement that we unfortunately cannot completely avoid.

5.2. Analysis

Table 3 presents a comparison of several educational measures in districts whose members supported the law with districts of the reform's opponents. The table shows that the supporters of the reform overwhelmingly hailed from places that had higher-quality educational infrastructure already in 1865, four years before the reform. Their schools had on average more extensive curriculum, as measured by the average number of grades offered in a school. They had a higher proportion of schools teaching all day all year, in contrast to the opponents' districts where, on average, 37% of schools either only taught for only half a day or they even closed for half a year. Pro-reform districts also had better maintained school buildings by a significant margin. They charged higher tuition fee of the pupils. But the even bigger difference between the two groups in the per-pupil spending on teaching staff (2.51 fl vs 3.20 fl) indicates that the reform supporters came from districts that were also more willing to supplant the tuition revenues with other public sources to pay the teachers. Yet, the reform districts also had more pupils per teacher. The cost and benefit comparisons yield intuitive results. Pro-reform districts could expect, on average, a 54% increase in their salary outlays while the opponents represented areas where costs would more than double, post-reform. The labor markets in opposing districts also exhibited lower literacy content, although the difference, while statistically significant, is small.

¹¹ Representatives of the landowning and commercial curias had electoral districts covering much bigger areas – such as whole provinces – which are not difficult to aggregate from the administrative units reported in the 1869 census.

The bottom half of table 3 repeats the same comparisons for urban and rural districts. In all cases, except pupils per teacher, the differences work in the same direction as in the first set of comparisons but are generally bigger. The urban-rural gap is particularly stark in the average number of grades, the extent of full-time teaching, the per-pupil salary expense and the literacy content. On the other hand, the difference between city and country in expected cost increase is smaller than it was between supporters and opponent – an indication that, lofty constitutional concerns notwithstanding, the vote indeed lined up on the basis of “dollars and cents.” However, these simple pair-wise comparisons do not address the main question raised at the outset, regarding the role of the landed elites versus the masses in pushing for more, and modern, education. To answer that, we want to analyze the support for reform in connection with the electoral curias.

We estimate the impact of political constituency and of costs and benefits on a representative’s vote in the context of a probit model. Our dependent variable is 1 when the representative voted for the law in the third reading and 0 otherwise. Our full specification is:

Eq. 2
$$P(Y_i = 1) = F(\alpha + \mathbf{C}_i\boldsymbol{\beta} + \gamma LC_i + \delta ECI_i + \mathbf{P}_i\boldsymbol{\eta})$$

where, for each representative i , \mathbf{C}_i is a vector of three dummy variables, one of each electoral curia (excepting the rural districts), LC_i is the literacy content in his electoral district, ECI_i the expected cost increase due to reform and \mathbf{P}_i is a vector of province fixed effects. The results and average marginal effects are presented in Tables 4 and 5.

We first estimate several partial specifications to show how the inclusion of new explanatory variables changes the results. In columns (i) and (ii) of Table 4, the specification includes nothing but the electoral fixed effects. Urban representatives were on average 30.4% more likely to vote for the law than their rural counterparts and 18.3% more likely than the landowners. A χ^2 -test rejects equality of the coefficient on urban curia and landowning curia with

a p-value of 0.047 and, of course, the urban coefficient is statistically different from zero, i.e. from the “rural coefficient” because the rural districts fixed effect is the omitted category. These are sizeable differences between the various constituencies.

In columns (iii) and (iv), we estimate the probit with nothing but cost-benefit variables, as defined in section 5.1. The coefficients have expected signs but the size of the average marginal effects suggests that it was only the expected cost that practically mattered: increasing *ECI* by one standard deviation (1.41) would reduce one’s probability of voting for the law by 24%. On the other hand, increasing *LC* by one standard deviation (0.067) increases the probability by 4.4%.

In columns (v) and (vi), the electoral and cost-benefit variables appear side by side. The coefficient and marginal effect of *ECI* is mostly unaffected while the impact of literacy content is now even smaller than previously. Most importantly, the curial fixed effects decreased, compared to columns (i) and (ii). The χ^2 -test no longer rejects equality between any of the coefficients, although the urban coefficient and average marginal effect is still statistically different from zero, i.e. the urban-rural divide does not completely go away when accounting for costs and benefits. At any rate, the residual gap between the most ardent supporters and opponents of the law, once costs and benefits are explicitly controlled for, falls from 30.4% in column (ii) to 19.4 in column (vi).

Finally, in columns (vii) and (viii), we also include province fixed effects. This leads to the loss of 11 observations because the Bukovina and Silesian delegations voted unanimously for the law and so the respective provincial fixed effects perfectly predict success. Still, the expected cost of reform is statistically significant at 6%, although the average marginal effect is reduced somewhat. The coefficient on *LC* has the wrong sign but is economically unimportant: throughout the four specifications, the practical impact of literacy content is as good as zero. The

differences between individual electoral curias have now shrunk further, with the largest gap – between urban and rural districts – amounting to 15.3%.

Since probit is a non-linear model, we can use these specifications to compare not only the marginal impact of belonging to a particular curia, we can also compare how sensitive each curia was on average to the costs. In Table 5, we report the average marginal effects of *ECI* and *LC* for each curia separately, using the last two specifications from Table 4. In either case, the urban representatives seemed to be the least responsive to the costs and benefits, while rural ones the most. This is noteworthy because the rural districts not only faced higher costs on average, as reported in Table 3, but their costs were also more varied, with standard deviation of 1.96 compared 0.87 for the urban districts.

In Table 6, we rerun the same specifications as in Table 4 with a slightly different dataset. We know from the official record that some representatives were “absent” not because they walked out of the chamber on the day of the vote but because they were ill, on leave or not yet sworn in. One can certainly consider taking a leave or calling in sick during such important deliberations as an expression of opposition to the proposed law (or at least insufficiently strong support to brave the illness or postponing the vacation) which is what we implicitly assumed in the estimation in Table 4. Perhaps a safer assumption is that pre-planned or health-related absence carries no information about one’s political position, which is why we run the same models as in Table 4 but now excluding those who were absent for the reasons specified above. We found 11 such cases, which brings the dataset to 174 observations.

The results remain structurally the same as we saw in Table 4. Initial differences between curias are relatively large but once other variables are brought in, the differences become markedly smaller. The marginal effects of expected costs and the literacy content in columns (iv) and (vi) are of comparable size to those reported earlier. The last column, however, is different.

This is again because the inclusion of provincial fixed effects leads to significant loss of observations that can be perfectly predicted by them. The combination of 9 more variables with 29 fewer observations also impacts statistical significance.

To summarize, there are three main conclusions that emerge from the estimates presented so far. One is that the proposed school reform revealed a clear political fault line between agriculture and industry, broadly conceived. The industrial and business interests (Chambers of commerce and cities) were more eager to vote for it than landowners and rural districts across all specifications. The second conclusion is that the costs (though not so much the benefits) associated with the specific provisions in the law are an important determinant of a representative's eventual position and go some way towards "explaining away" the observed curial differences.

The last and perhaps the most interesting conclusion is that the strongest opposition came not from the closed clique of powerful large landowners but from most numerous voting group, the rural districts. In all specifications, except one, these were the least likely to see their representative vote for the law. This casts some doubt on the notion that the increased provision of public goods is closely tied with the extension of suffrage and political voice of the masses. In fact, a simple equal suffrage would have buried the law: if, instead of the disproportionate representation of the landowners, each curia had as many representatives as were proportionate to the number of enfranchised voters (see Table 1), then, using the predicted probabilities based on model (vii) in Table 4, the reform would have failed in the Reichsrat, with only 89 out of 185 voting for it. It is tempting to blame the rural opposition and the landowners' support on the financing provisions of the school reform: perhaps if the law had proposed to pay for the modernized schools by way of an eye-watering estates tax instead of burdening the local communities, the magnates would have been up in arms and the countryside on board. But the

local financing stipulations applied to cities as well as villages, yet urban districts elected by far the most avid supporters of the reform and that gap between the city and the countryside, diminished though it was by explicitly controlling for costs of reform, remained non-negligible.

6. Consequences of the reform

The passage of the law confronted the local authorities in the newly created school districts with the task of implementing its provisions. On the one hand, the law opened up new opportunities for improvements that could make schooling more responsive to the needs of the local economy: it made room for the development of private schools, it introduced new subjects that the old legislation shut out entirely, it provided for a higher professional standard for the teachers. On the other hand, it made binding numerous provisions that to many, e.g. the rural representatives in Reichsrat, seemed excessive and entirely superfluous in the economic and social context of their districts – but now had the force of the law. The determination and the speed (or lack thereof) of the implementation is a test of our earlier claim that perhaps the returns to the new and improved primary schooling varied between the city and the countryside and that therefore the fiscal costs of full-scale implementation were harder to justify in the villages.

From 1870 onwards, the newly established school authorities adopted the practice of regular five-year survey of all schools. The first such survey, conducted during the 1870/71 school year, came almost right on the heels of the reform, when still relatively little impact could be expected. The second survey of Spring 1875, however, can provide an indication of how far things have changed, compared to the 1865 school census (K.k. Statistische Zentral-Kommission, 1876). The source data are arranged by civil districts, created by the administration reform of

1868, which gives us with 273 observations.¹² We combine these schooling data with the 1869 census information on employment composition and level of urbanization in each district.

Figures 1 and 2 offer a glimpse of the changes over the decade. In view of the urban-rural contrast in political stance towards the 1869 school reform, we split the districts into three categories by degree of urbanization. In order to facilitate the comparison between the 1865 data on the horizontal axis and the 1875 data on the vertical axis, we also draw a 45° line into the scatterplot. Figure 1 shows the change in the extent of the curriculum. The highly urbanized districts, with more than 50% of population living in cities of 3000 inhabitants and more, overwhelmingly availed themselves of the provisions of the law and introduced new grades and new subjects. On the other hand, the low-urbanization districts, where less than 20% of the population was urbanized, mostly fell below the 45° line – in other words, the curriculum was reduced in many places from two to one grade or from three to two grades. The same is true for the “medium-urbanized” districts.

The urban-rural divide is perhaps not as stark in Figure 2, since even a good number of low-urbanized districts saw a small increase in the relative number of teachers, but it is still there. In some urban districts, the supply of teachers more than doubled and there were only a few highly-urbanized districts that fell back relative to 1865. If we also drew a horizontal line at 12.5 teachers per 1000 school-age children, roughly corresponding to the regulation of having no more than 80 pupils per teacher, then most of the highly urbanized districts would be easily in compliance with the law, while a non-negligible proportion of the low-urbanization districts would be short of teachers.

¹² Since the 1865 school census provided location for every individual school, we can retrospectively recreate the administrative units in the 1865 data to make them comparable across time. The only province, where, even by 1875, the new school authorities still have not sufficiently settled down to submit appropriate data, was Galicia, which we therefore have to leave out of the analysis.

How did the implementation respond to local costs and benefits of primary schooling? It is difficult to say much anything specific about the local variation in social return to education in the context of a centrally mandated level of provision (even if some districts were dragging their feet in implementing it) because the local provision may be motivated not just by the returns but also by some (hard to observe) level of enforcement or encouragement from the central authorities. Private returns, however, are a somewhat different matter because the school reform did not compel the formation of private primary schools; it only made room for them. This was a big change compared to the pre-1869 legislation, where private schools were only permitted in special circumstances such as when catering to very particular niche markets or as temporary substitutes for lacking local public schools. To the extent that primary education is a public good, its social returns will be higher than private returns. Therefore, where private schools arose and expanded, one can assume that the extent of public provision and its post-reform expansion was sufficiently below the social optimum to leave a profitable market opening for the private providers. On the other hand, where private schools failed to materialize even with public provision below the centrally mandated level, one may infer that the law's mandate demanded schooling supply beyond the optimum. Clearly, the marginal social returns of this "oversupplied" public education were even below the private ones.

We use a simple regression and tobit analysis to more precisely gauge the relative importance of the costs and returns in the local labor market. The three main characteristics of local schooling that we analyze are the change in teacher supply (measured by the number of teachers per 1000 school-age children), the classroom provision (number of classrooms per 1000 school-age children) and the change in the extent of the curriculum between 1865 and 1875. We construct three variables measuring this change:

Eq. 3a
$$\Delta t_i = t_{i,1875} - t_{i,1865}$$

$$\text{Eq. 3b} \quad \Delta r_i = r_{i,1875} - r_{i,1865}$$

$$\text{Eq. 3c} \quad \Delta g_i = g_{i,1875} - g_{i,1865}$$

where $t_{i,1875}$ and $t_{i,1865}$ are the teacher indicators, $r_{i,1875}$ and $r_{i,1865}$ are classroom indicators and $g_{i,1875}$ and $g_{i,1865}$ the average number of grades in a district's schools in the respective years. We use these three measures of change as our dependent variables. Note that in case of the private schools, the 1865 entries were zero and so the change over the decade was equal to the extent of private school provision in 1875.

In light of our reasoning, we conduct separate analysis for private schools and for public schools.¹³ The two types of schools require somewhat different econometric models. While all districts had public schools both in 1865 and in 1875 and the change in the three school characteristics can be calculated for all of them as a continuous variable that can theoretically take on both positive and negative values, private schools did not exist in 1865 anywhere and even by 1875, there were some 81 districts (out of 273) that reported no private schools at all. As a result, the change in private provision over 1865 – 1875 was either positive or zero. Given this censoring, a simple OLS would not be appropriate for the analysis of private schools and we therefore rely on tobit instead. As before, we use the literacy content of the district labor market (LC_i), based on the 1869 census data on employment composition, and the expected cost increase (ECl_i) that we defined in Eq. 1. Our OLS regression specification for public schools is

$$\text{Eq. 4a} \quad \Delta t_i = \alpha + \beta LC_i + \gamma ECl_i + \delta U_i + \theta N_i + \mathbf{P}_i \boldsymbol{\eta} + \varepsilon_i$$

whereas for tobit

$$\text{Eq. 4b} \quad \Delta t_i^* = \alpha + \beta LC_i + \gamma ECl_i + \delta U_i + \theta N_i + \mathbf{P}_i \boldsymbol{\eta} + \varepsilon_i$$

¹³ In case of the change in average grades per school, the private-school variable is not defined for 1865 since there were none, so the analysis pertains to change in public school provision and then in all-school provision.

$$\Delta t_i = 0 \text{ if } \Delta t_i^* \leq 0; \Delta t_i = \Delta t_i^* \text{ if } \Delta t_i^* > 0$$

We include as controls the proportion of the district population living in a city of more than 3000 inhabitants, U_i , as a measure of urbanization and the proportion of the population that is German, N_i . We also include, as before, a vector of provincial fixed effects, P_i . We use the same specification for all three dependent variables. If the local labour market demand for human capital drove the changes in school provision, then we expect β to be large, positive and significant. The expected cost of implementation, ECL_i , calculated for each district according to Eq. 1, is a control that basically captures how far from the new mandated provision the various districts were in 1865. We expect that, other things (such as benefits of schooling captured by LC_i) held equal, a high ECL_i would mean less of a room for private school provision, making γ negative in specifications with private schools. For public school, we expect γ to be positive as schools farther away from the centrally mandated level of primary school provision would be subjected to stronger enforcement from central authorities to comply with the new reform; on the other hand, districts that were close to the level or were even compliant with the law ahead of its passage by virtue of their preexistent school supply can be reasonably expected to expand less, *ceteris paribus*. In terms of comparison of effects and coefficients across specifications, the tobit marginal effects and coefficients require careful interpretation. A tobit model can yield information on the marginal impact of an explanatory variable on the observed value of the dependent variable, as well as on the probability of it being positive. For our purposes, the most logical interpretation is to focus on the plain coefficients yielded by the tobit estimation. These capture the marginal effect of explanatory variables on the latent variable, Δt_i^* , and therefore convey information about the returns and costs (on the margin) to private primary school investment. We are not, after all, trying to model the emergence of private schooling per se but only to use its existence and extent as a gauge of the variation in overall marginal social returns.

Table 7 shows the estimation results. Our aim is to see to what extent our explanatory variables LC_i and ECL_i can account for the rural-urban divide in post-reform school supply and therefore corroborate our earlier claim that the rural representatives' opposition to the reform was motivated by these cost-benefit considerations. For all dependent variables, we run one regression without LC_i and ECL_i and one with them properly included. In all cases, when these two variables are included, the coefficient on proportion urbanized, U_i , declines. Clearly, these two variables go some way towards explaining the rural-urban variation.

There are several other observations that emerge from the results. Columns (ii) and (iv) show that the expansion of curriculum positively correlated with the literacy content of the local labor market. The same was true for the physical infrastructure. An extra standard deviation of LC_i ($=0.066$) led to an extra 0.2 grade, extra 0.2 teacher and 0.5 classroom per 1000 school-age children in the public schools in a district. The response was even greater for private schools where the same change in LC_i was associated with an extra 1.58 teacher and 0.87 classroom per 1000 school-age children. Given how strongly private provision responded to LC_i , it is no surprise that the rural districts, with considerably less sophisticated labor markets, saw little in terms of private school expansion. Of the 81 districts with no private school teachers or classrooms, 52 were in the least urbanized category and only 12 in the most urbanized.¹⁴ The most urbanized districts had about 4.5 more private teachers per 1000 school-age children than the least urbanized districts. Of that, about a half can be explained by the difference in average LC_i , which was about 0.1, using the coefficient β from column (viii) ($23.871 \times 0.1 = 2.3871$). In short, the rural labor markets indeed offered no encouragement to private schooling and the private returns cannot but be considered to have been close to zero.

¹⁴ Please refer to Figures 1 and 2 for the definitions of the low- and high-urbanized groups.

There is also a clear difference between private and public schools in their response to the expected cost of implementation, ECl_i . The positive γ in columns (vi) and (x) imply that there was some force towards convergence whereby those districts that were farther away from the mandated provision (higher ECl_i) saw a somewhat greater expansion than districts closer to the mandated levels, *ceteris paribus*. This force was relatively weak, however. An increase in ECl_i by one standard deviation ($=1.987$) led to an extra 0.4 public teacher and 1.0 public classroom per 1000 school age children. In contrast, the negative γ in columns (viii) and (xii) shows that in districts with high ECl_i and therefore subpar provision of public schools, the private schools were less likely to flourish also. Even a considerably lower provision of public schooling in the countryside (relative to city) seems to have been enough to meet what must have been a low demand, leading again to the conclusion that returns to investment in primary schooling must have been low.

These simple regression results do now allow us to say anything more specific about the processes, which on the local level led to the results that we observe here. But the record is consistent with the hypothesis that when the rural districts lost the formal vote in Austria's main legislature, they reverted to a sort of passive resistance. They simply ignored the most costly stipulations of the law because they were not worth the investment. In the rural areas, economic conditions were not particularly conducive to the primary schools' rapid development. As a result, one could say, both the city and the country ultimately got the education they wanted: cheap in cost, limited in curriculum and uniform in shape in the country; well-financed, broad in curriculum and diverse and market-oriented in the city.

7. Conclusions

Formal education, as a form of human capital investment, has its costs and benefits, which determine, on the margin, its optimal level and extent. The costs and benefits, as we tried to show in section 5, varied significantly from place to place in Imperial Austria, making it very difficult to legislate the optimal level of schooling for the whole country. In fact, such stifling one-size-fits-all arrangement under the old law was the reason why the school reform was taken up in the first place. The 1869 law, though leaving numerous aspects to the provincial assemblies to decide, nonetheless contained enough blanket mandates to engender a stiff opposition from the countryside. Even though these mandates had the force of the law, the enforcement was too weak to make them a reality in many areas, while passive resistance lingered on. Engelbrecht (1986: 117) documents that in some provinces such as Tyrol it lasted into the 1890s. Local church dignitaries actively discouraged school attendance, the provincial assembly refused to pass legislation necessary for implementation of the reform until 1892. School inspectors sometimes required police protection in order to do their work. As a result, the most successfully implemented portions of the law were those that merely enabled change, instead of demanding it.

The case of the Austrian primary school reform of 1869 thus vividly illustrates that the political economy of public school provision is complex. All industrial nations, sooner or later, introduced a system of publicly financed mass schooling so as to build up the human capital necessary for modern economic development. In some countries, however, the path to mass schooling encountered opposition from the very masses it was intended to educate.¹⁵ To generalize, there is no reason to assume that broader suffrage and popular political voice is an

¹⁵ A similar conclusion, namely that the demand for schooling was much more lukewarm among the rural masses compared to the knowledge elites was also reached by Squicciarini and Voigtländer (2016) for pre-revolutionary France.

automatic ally of higher provision of public goods, such as primary education. The devil, as always, is in the details.

References:

- ALEX. Historische Rechts- und Gesetzestexte Online.** Österreichische Nationalbibliothek, 2011, <http://alex.onb.ac.at/>
- Becker, Sascha O. and Ludger Woessman.** “Was Weber Wrong? A Human Capital Theory of Protestant Economic History.” *The Quarterly Journal of Economics* 124 (2), May 2009, pp. 531 – 596
- Batten, Jorg and Crayen, Dorothee.** “Global trends in numeracy 1820 – 1949 and its implications for long-term growth.” *Explorations in Economic History* 47, 2010, pp. 82 – 99
- Beltrán-Tapia, Francisco and Martinez-Galarraga, Julio.** “Land Access Inequality and Education in Pre-Industrial Spain.” *Economic Series Working Papers # 137*, University of Oxford, 2015
- Chaudhary, Latika.** “Determinants of Primary Schooling in British India.” *Journal of Economic History* 69 (1), 2009, pp. 269 – 302
- Chaudhary, Latika, Mussacchio, Aldo, Nafziger, Steven and Yan, Se.** “Big BRICs, weak foundations: The beginnings of public elementary education in Brazil, Russia, India and China.” *Explorations in Economic History* 49 (2), 2012, pp. 221 – 240
- Cinnirella, F. and Hornung E.** “Landownership Concentration and the Expansion of Education”, *CEPR working paper #9730*, November 2013
- Cvrcek, Tomas and Zajicek, Miroslav** “Building schools from above: the rise of public schooling in Imperial Austria, 1774 – 1869”, working paper, 2015
- Cvrcek Tomas and Zajicek, Miroslav.** “School, what is it good for? Useful Human Capital and the History of Public Education in Central Europe.” *NBER working paper # 19690*, December 2013
- Easterlin, Richard.** “Why Isn’t the Whole World Developed?” *Journal of Economic History* 41 (1), 1981, pp. 1 – 19.
- Engelbrecht, Helmut.** *Geschichte des österreichischen Bildungswesens : Erziehung und Unterricht auf dem Boden Österreichs, Vol. 4. Von 1848 bis zum Ende der Monarchie*, Wien, Österreichische Bundesverlag, 1986
- Ficker, Adolf.** *Bericht über österreichisches Unterrichtswesen. Aus Anlass der Weltausstellung 1873.* Alfred Holder, Wien, 1873
- Gallego, Francisco A.** “Historical Origins of Schooling: The Role of democracy and Political Decentralization.” *Review of Economics and Statistics* 92 (2), 2010, pp. 228 – 243
- Galor, Oded, Moav, Oded and Vollrath, Dietrich.** “Inequality in Landownership, the Emergence of Human-Capital Promoting Institutions, and the Great Divergence”, *Review of Economic Studies* 76 (1), pp. 143 – 179, 2009
- Go, Sun and Lindert, Peter.** “The Uneven Rise of American Public Schools to 1850,” *Journal of Economic History* 70 (1), March 2010, pp. 1 – 26
- Goldin, Claudia and Katz, Lawrence F.** *The Race between Education and Technology.* Harvard University Press, Cambridge, 2009.

- K.k. Hof- und Staatsdruckerei.** *Stenographische Protokolle über die Sitzungen des Hauses der Abgeordneten des österreichischen Hausrathes. IV. Session, Sechster Band.* Wien, 1869
- K.k. Schulbucher-Verschleiß-Administration.** *Politische Verfassung der deutschen Volksschulen für die k.k. österreichischen Provinzen mit Ausnahme von Ungarn, Lombardie, Venedig und Dalmatien. Neunte Auflage.* Verlag der K.k. Schulbucher-Verschleiß-Administration, 1847
- K.k. Statistische Zentral-Commission.** "Beiträge zur Statistik der Landtags-Wahlen im Jahre 1867", *Mittheilungen aus dem Gebiet der Statistik* 14, 1867, p. 52 – 55
- K.K. Statistische Zentral-Commission.** *Detail-Description der Volksschulen der im Reichsrathe vertretenen Königreichen und Ländern nach dem Stande vom Ende des Schuljahres 1865.* Vienna, 1870
- K.K. Statistische Zentral-Commission.** *Statistisches Jahrbuch der Oesterreichischen Monarchie für das Jahr 1867.* Kaiserlich-Königliche Hof- und Staatsdruckerei, Vienna, 1869
- K.K. Statistische Zentral-Commission.** *Bevölkerung und Viehstand der im Reichsrathe vertretenen Königreiche und Länder, dann der Militärgrenze nach der Zählung vom 31. Dezember 1869.* Kaiser-königliche Hof- und Staatsdruckerei, Vienna, 1871
- K.K. Statistische Zentral-Commission.** *Statistik der öffentlichen und Privat-Volksschulen in den im Reichsrathe vertretenen Königreichen und Ländern.* Kaiser-königliche Hof- und Staatsdruckerei, Vienna, 1876
- Landes, David S.** *The Wealth and Poverty of Nations.* W.W. Norton & Co. 1998
- Lindert, Peter.** *Growing Public: Social Spending and Economic Growth since the Eighteenth Century.* Cambridge University Press, 2004
- Macartney, Carlile Aylmer.** *The Habsburg Empire, 1790 – 1918.* London: Weidenfels and Nicholson, 1971
- Mariscal, Elisa and Sokoloff, Kenneth.** "Schooling, Suffrage and the Persistence of Inequality in the Americas", in Haber, Stephen. *Political Institutions and Economic Growth in Latin America: Essays in Policy, History and Political Economy.* Hoover Institution Press, 2000, pp. 159 – 218
- Mitch, David.** "Landed Society, Farm Size, and Support for Public Schooling in Nineteenth Century England", working paper 2012
- Mitch, David.** *The Rise of Popular Literacy in Victorian England: the Influence of Private Choice and Public Policy.* University of Pennsylvania Press, Philadelphia, 1992
- Musacchio, Aldo, Martínez Fritscher, André and Viarengo, Martina.** "Colonial Institutions, Trade Shocks, and the Diffusion of Elementary Education in Brazil, 1889 – 1930." *Journal of Economic History* 74 (3), 2014, pp. 730 – 766
- Nafziger, Steven.** "Did Ivan's vote matter? The political economy of local democracy in Tsarist Russia." *European Review of Economic History* 15 (3), 2011, pp. 393 – 441
- Naidu, Suresh.** "Suffrage, schooling and sorting in the Post-Bellum U.S. South" NBER wp #18129, June 2012
- Palma, Nuno & Reis, Jaime.** "A Tale of Two Regimes: Educational Achievement and Institutions in Portugal, 1910 – 1950", working paper 2012

- Ramcharan, Rodney.** "Inequality and Redistribution: Evidence from U.S. counties and states, 1890 – 1930", *Review of Economics and Statistics* 92 (4), 2010, pp. 729 – 744
- Squicciarini, Mara P. and Nico Voigtländer.** "Knowledge Elites and Modernization: Evidence from Revolutionary France." *NBER working paper #22779*, October 2016
- Taylor, Alan J. P.** *The Habsburg monarchy, 1809-1918: a history of the Austrian Empire and Austria-Hungary*, New York: Harper Torchbooks, 1965
- Troen, Selwyn K.** *The Public and the schools: Shaping the St Louis System, 1838 – 1920*. University of Missouri Press, 1975
- Van Horn Melton, James.** *Absolutism and the eighteenth century origins of compulsory schooling in Prussia and Austria*. Cambridge University Press, Cambridge, England, 198
- Vollrath, Deitrich.** "Inequality and school funding in the rural United States, 1890", *Explorations in Economic History* 50, 2013, pp. 267 – 284
- West Martin and Woessman Ludger.** "Every Catholic child in a Catholic school": Historical Resistance to State Schooling, Contemporary Private Competition and Student Achievement Across Countries", *The Economic Journal* 120, August 2010, F229 – F255

Table 1 – Number of people with the right to vote by curia and province

Province	Rural districts	Landowners	Chambers of Commerce	Urban districts	Sum	Provincial population in 1869 census	Number of males aged 21+ (1869 census)
Lower Austria	105,107	201	45	26,540	131,893	1,990,708	593,910
Upper Austria	31,238	105	30	7,601	38,974	736,557	225,896
Salzburg	8,607	135	16	2,264	11,022	153,159	47,682
Styria	59,215	187	44	9,131	68,577	1,137,990	335,885
Carinthia	14,318	100	23	2,487	16,928	337,694	96,235
Carniola	33,009	116	22	2,738	35,885	466,334	124,009
Austrian Littoral	N/A	519	30	5,336	5,885	600,525	175,462
Tyrol & Vorarlberg	55,584	219	46	7,211	63,060	885,789	260,599
Bohemia	182,526	471	145	50,850	233,992	5,140,544	1,326,613
Moravia	70,354	168	54	16,474	87,050	2,017,274	516,981
Silesia	16,743	61	15	4,777	21,596	513,352	125,325
Galicia	392,656	1,894	57	19,470	414,077	5,444,689	1,346,699
Bukovina	48,220	141	15	3,586	51,962	513,404	127,331
Dalmatia	30,137	626	45	3,603	34,411	456,961	128,407
Sum	1,047,714	4,943	587	162,068	1,215,312	20,394,980	5,431,034

Note: The numbers of voters in Chambers of Commerce denotes the number of councilors. Source: Beitrage zur Statistik der Landtags-Wahlen im Jahre 1867, Mittheilungen aus dem gebiet der Statistik 14, 1867, p. 52 - 55; Bevolkerung der im Reichsrathe vertretene Konigreiche und Lander im Jahre 1869, p. 302

Table 2 – Number of representatives by curias and provinces in the Austrian Reichsrath					
	Rural districts	Landowners	Chambers of Commerce	Urban districts	Sum
Lower Austria	5	5		7	17
Upper Austria	4	2	1	3	10
Salzburg	1	1	1		3
Styria	5	3	1	4	13
Carinthia	2	1	1	1	5
Carniola	3	1	2		6
Austrian Littoral	1	1		4	6
Tyrol & Vorarlberg	6	2		2	10
Bohemia	11	14	4	11	40
Moravia	7	6	1	7	21
Silesia	2	2		2	6
Galicia	18	13	1	6	38
Bukovina	2	2		1	5
Dalmatia	3	1		1	5
Sum	70	54	12	49	185
Note:					

Table 3 – School and other characteristics in representatives' districts as of 1865				
	1(voted for) = 0	1(voted for) = 1	t-test	p-value
Number of observations	74	111		
Average number of grades	2.18	2.58	-3.02	0.003
Proportion of schools teaching full-time	0.63	0.82	-4.57	0.000
Proportion of school buildings in good order	0.65	0.74	-3.66	0.000
Tuition fee (fl per year)	1.62	1.99	-2.32	0.022
Expenditure on teaching staff per pupil	2.51	3.20	-2.35	0.020
Pupils per teacher	65.70	75.10	-2.41	0.017
Estimated cost increase due to reform	2.51	1.54	4.81	0.000
Literacy content of the representative's district's labor market	0.16	0.19	-3.60	0.000
	Rural districts	Urban districts		
Number of observations	70	49		
Average number of grades	2.05	3.40	-14.45	0.000
Proportion of schools teaching full-time	0.58	0.95	-7.43	0.000
Proportion of school buildings in good order	0.65	0.84	-5.80	0.000
Tuition fee (fl per year)	1.56	2.34	-3.98	0.000
Expenditure on teaching staff per pupil	2.13	4.64	-8.75	0.000
Pupils per teacher	72.80	64.36	1.61	0.110
Estimated cost increase due to reform	2.27	1.45	2.73	0.007
Literacy content of the representative's district's labor market	0.15	0.23	-6.27	0.000
<p>Note: Since, Galicia, Bukovina and Dalmatia submitted an incomplete set of data for the 1865 school census, we do not have grade and tuition data from 48 of the 185 districts, and so the t-tests are based only on 137 observations. Estimated cost increase due to reform is a ratio of teaching expenditures to be expected given a district's current number of school-age children if the reform law passes divided by the actual current expenditure on teachers in 1865.</p> <p>Source: K.K. Statistische Zentral-Commission. <i>Detail-Conscription der Volksschulen der im Reichsrathe vertretenen Königreichen und Landern nach dem Stande vom Ende des Schuljahres 1865.</i> Vienna, 1870</p>				

Table 4 - Probit models of vote on school reform (dep. var: representative voted for the law = 1, otherwise = 0)								
	Electoral fixed effects only		Cost-benefit variables only		Full specification		Full specification with province fixed effects	
	(i) Coefficients	(ii) Avg marginal FX	(iii) Coefficients	(iv) Avg marginal FX	(v) Coefficients	(vi) Avg marginal FX	(vii) Coefficients	(viii) Avg marginal FX
Electoral fixed effects								
1(landowners' curia)	0.306 [0.228]	0.121 [0.090]			0.305 [0.241]	0.107 [0.083]	0.258 [0.304]	0.063 [0.075]
1(chambers of commerce)	0.502 [0.403]	0.195 [0.149]			0.364 [0.420]	0.126 [0.140]	0.389 [0.507]	0.093 [0.114]
1(urban curia)	0.829 [0.249]	0.304 [0.084]			0.580 [0.290]	0.194 [0.095]	0.691 [0.369]	0.153 [0.080]
Cost-benefit variables								
Literacy content			1.941 [1.742]	0.652 [0.580]	0.411 [1.952]	0.135 [0.639]	-0.876 [2.730]	-0.194 [0.605]
Expected cost increase			-0.507 [0.130]	-0.170 [0.038]	-0.529 [0.134]	-0.173 [0.038]	-0.480 [0.256]	-0.106 [0.055]
Constant	-0.072 [0.150]		0.863 [0.469]		0.913 [0.491]		1.489 [0.759]	
N	185		185		185		174	
Log-likelihood	-118.6		-108.6		-106.3		-69.5	
Tests of linear hypotheses:								
$\chi^2: \beta_{\text{landowners' curia}} = \beta_{\text{urban curia}}$	3.950				0.880		1.330	
p-value	0.047				0.348		0.249	
$\chi^2: \beta_{\text{Chambers of commerce}} = \beta_{\text{urban curia}}$	0.590				0.230		0.290	
p-value	0.441				0.635		0.590	
Note: Standard errors in square brackets.								

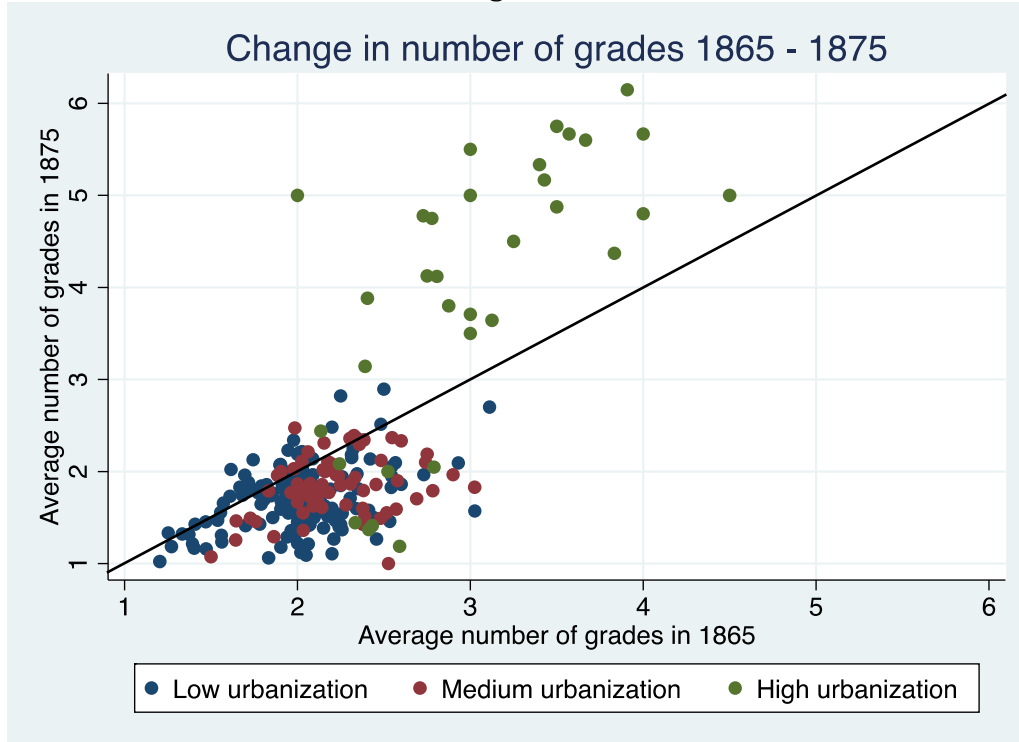
Table 5 - Average marginal effects and their standard errors by electoral curia					
		Rural communities	Landowners	Chambers of Commerce	Cities
Full specification	Expected cost of reform	-0.186 [0.041]	-0.186 [0.041]	-0.180 [0.052]	-0.138 [0.036]
	Literacy content	0.145 [0.689]	0.144 [0.686]	0.140 [0.667]	0.108 [0.509]
Full specification with provincial fixed effects	Expected cost of reform	-0.117 [0.061]	-0.108 [0.058]	-0.113 [0.068]	-0.087 [0.046]
	Literacy content	-0.214 [0.666]	-0.197 [0.617]	-0.207 [0.646]	-0.160 [0.495]

Note: Standard errors in square brackets.

Table 6 - Probit models of vote on school reform (dep. var: representative voted for = 1, otherwise = 0)

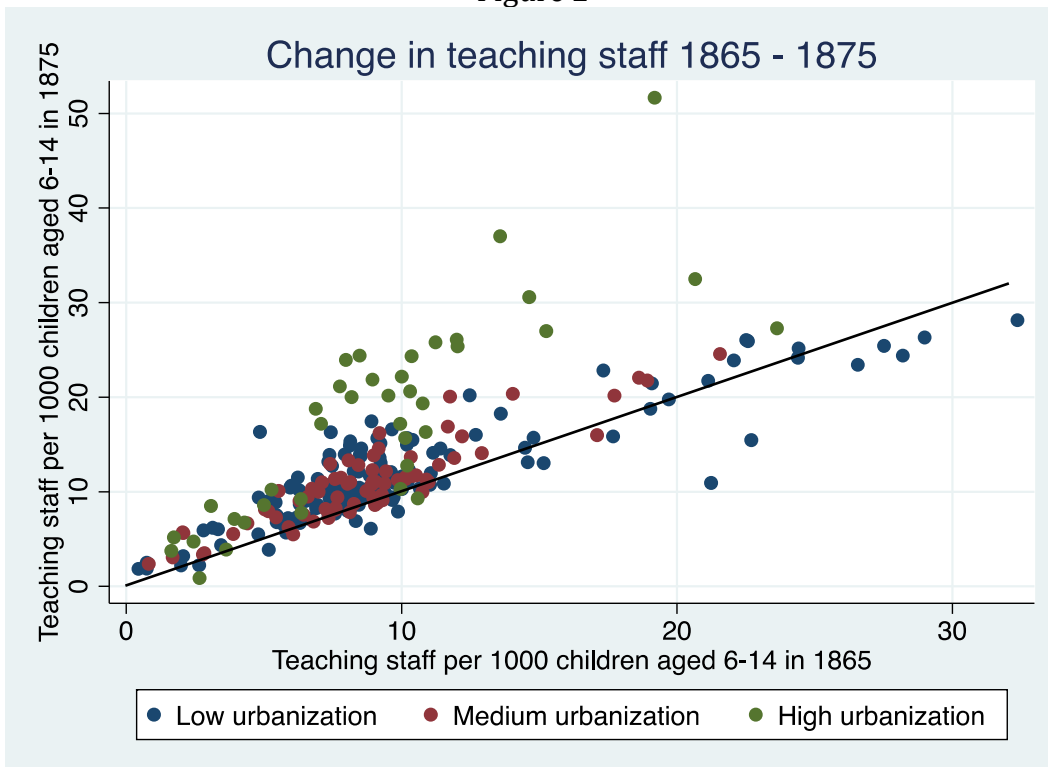
	Electoral fixed effects only		Cost-benefit variables only		Full specification		Full specification with province fixed effects	
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
	Coefficients	Avg marginal FX	Coefficients	Avg marginal FX	Coefficients	Avg marginal FX	Coefficients	Avg marginal FX
Electoral fixed effects								
1(landowners' curia)	0.234 [0.237]	0.092 [0.092]			0.227 [0.252]	0.076 [0.084]	-0.201 [0.360]	-0.043 [0.077]
1(chambers of commerce)	0.545 [0.434]	0.203 [0.148]			0.407 [0.456]	0.132 [0.139]	0.473 [0.630]	0.088 [0.110]
1(urban curia)	0.753 [0.258]	0.268 [0.086]			0.465 [0.301]	0.149 [0.095]	0.399 [0.411]	0.076 [0.078]
Cost-benefit variables								
Literacy content			1.872 [1.810]	0.600 [0.577]	0.725 [2.013]	0.229 [0.634]	0.615 [3.200]	0.121 [0.633]
Expected costs of reform			-0.514 [0.131]	-0.165 [0.037]	-0.527 [0.134]	-0.166 [0.037]	-0.186 [0.279]	-0.037 [0.055]
Constant	0.060 [0.158]		1.000 [0.484]		1.012 [0.504]		1.270 [0.854]	
N	174		174		174		145	
Log-likelihood	-109.3		-97.8		-96.4		-52.0	
Tests of linear hypotheses:								
χ^2 : $\beta_{\text{landowners' curia}} = \beta_{\text{urban curia}}$	3.690				0.630		2.060	
p-value	0.055				0.429		0.151	
χ^2 : $\beta_{\text{Chambers of commerce}} = \beta_{\text{urban curia}}$	0.210				0.010		0.010	
p-value	0.647				0.906		0.915	
Note: Standard errors are in square brackets.								

Figure 1



Note: "Low urbanization" districts are districts where less than 20% of the inhabitants live in cities of 3,000 or more. "High urbanization" districts are those where more than 50% of the district's inhabitants live in cities of 3,000 or more. "Medium urbanization" districts are those in between. Average number of grades (per school) measures the extent of curriculum offered on average by the schools in a given district.

Figure 2



Note: "Low urbanization" districts are districts where less than 20% of the inhabitants live in cities of 3,000 or more. "High urbanization" districts are those where more than 50% of the district's inhabitants live in cities of 3,000 or more. "Medium urbanization" districts are those in between.

Table 7 - Analysis of primary school expansion, 1865 - 1875

Dep var:	Change in average grades				Change in # teachers per 1000 school-age children				Change in # classrooms per 1000 school-age children			
	all schools - OLS		public schools - OLS		public schools - OLS		private schools - tobit		public schools - OLS		private schools - tobit	
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)	(xi)	(xii)
Exp. cost of implementation		-0.066 [0.082]		-0.031 [0.075]		0.218 [0.089]		-0.788 [0.251]		0.508 [0.253]		-0.546 [0.147]
Literacy content of lab market		3.124 [0.947]		3.622 [0.867]		3.076 [3.597]		23.871 [3.371]		7.762 [2.910]		13.13 [1.967]
Proportion urbanized	1.539 [0.138]	1.011 [0.196]	1.713 0.128	1.115 [0.180]	2.879 [0.582]	2.57 [0.795]	6.973 [0.596]	2.847 [0.729]	2.776 [0.414]	1.659 [0.603]	3.929 [0.349]	1.632 [0.425]
Proportion German	-0.011 [0.104]	-0.051 [0.105]	0.024 0.097	-0.005 [0.096]	1.906 [0.460]	1.96 [0.458]	-0.071 [0.469]	-0.511 [0.411]	1.32 [0.314]	1.484 [0.324]	-0.197 [0.275]	-0.482 [0.240]
Constant	-0.36 [0.079]	-0.641 [0.257]	-0.389 0.073	-0.803 [0.235]	0.412 [0.350]	-0.429 [0.632]	-0.812 [0.348]	-2.395 [0.813]	0.781 [0.238]	-1.218 [0.789]	-0.153 [0.204]	-0.805 [0.475]
N	253	253	253	253	273	273	273	273	253	253	273	273
Adjusted R ²	0.372	0.413	0.459	0.508	0.258	0.270			0.348	0.363		
Log-likelihood							-511.368	-473.343			-413.942	-375.759

Note: Province fixed effects were included in all specifications. Number of observations in columns (i)-(iv) and (ix)-(x) is lower due to the fact that 20 districts in provinces of Bukovina and Dalmatia did not report on their schools' grades and classrooms in 1865 (for private schools, those values can be assumed to have been 0). Standard errors are reported in square brackets.