

**The Making of a Liberal Education:
Political Economy of the Austrian School Reform, 1865 – 1880**

Tomas Cvrcek^a and Miroslav Zajicek^b

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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. 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 large landowners were mildly in favor of school modernization, albeit less 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.

^aLecturer, School of Slavonic and East European Studies, University College London, 16 Taviton Street, London, WC1H 0BW, United Kindgom, and Národohospodářská fakulta, Vysoká škola ekonomická v Praze, náměstí Winstona Churchilla 4, Prague 3, 130 67, Czech Republic

^bAffiliate researcher, UCL Center for Comparative Studies of Emerging Economies, 16 Taviton Street, London, WC1H 0BW, United Kindgom
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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 such diffusion. Landowning elites are often cast as the most likely candidates for such opposition (Cinnirella and Hornung, 2016; Galor et al., 2009; Vollrath, 2013; Goni, 2017). 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 schooling by investigating first the actual parliamentary voting on a liberal school reform proposed in Austria in May 1869 and next the implementation of the reform in the decade that followed. Our unit of analysis is each elected representative in the first part and each school district (of which there were 273) in the second part. 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. Large landowners leaned slightly in favor but were generally quite lukewarm. The strongest opposition came from the representatives of the general rural population. We argue that the opposition from the rural districts came because of the gap between their expected costs and the expected benefits. Poorer districts had worse and fewer schools to begin with, so the financial requirements to comply with the new law (e.g. 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. At the same time, the modernized curriculum was unlikely to generate human capital that would be useful in agriculture. Therefore, in the countryside, the costs of proposed reforms outweighed the benefits, while in the cities, it was the other way round. By changing the nature, extent and content of primary education at a time when internal migration from village to town was in full swing, 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 towards explaining why the implementation of the reform encountered broad resistance many years after the passage, leading in some areas to a regress in school provision, as we show in our final section. The impact on literacy was very gradual, too: while the generation born in the 1840s reported an overall literacy of 63% in the 1890 census, the birth cohorts of 1860s, the first to be fully subject to the reform's impact, tallied 68% in the same census (Oesterreichische Statistik, 1890).

2. Existing theories of 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 decentralized, more closely responsive to local conditions and more reliant on private provision although no less “political” for it (Mitch, 1992; Troen, 1975). Theories of 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 did the Austrian and Prussian rulers think they were getting out of implementing the system? Why might have rising industry been interested in a literate labor force? How did the curriculum respond to the changing conditions on the labor 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) or, perhaps, a nation-building effort (Cinnirella and Schueler, 2018). The social control explanation 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, where it was the monarchs who in late 18th century spearheaded the school reform, or early 20th century Portugal (Van Horn Melton, 1988; Palma and Reis, 2018: 26). In an alternative specification, the social control function of mass schooling was 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) and Rajan (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 became the more acrimonious the more unequal the land ownership, as the most land-rich (and usually also most powerful) individuals stood to lose the most. Studies finding empirical support for this theory exist for Prussia (Cinnirella and Hornung, 2016), 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 in the Indian context, where 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 (Musacchio 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).

In this context, telling the story of the Austrian school reform is important because on 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, the Habsburg Empire – particularly its Western half – had next to no lasting experience with 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 faultline ran not between masses and elites but between masses in the city and masses in 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 favor). The primary reason for the opposition to the extended education was that the countryside did not find the investment worthwhile – perhaps even felt exploited by the set-up.

Our results differ from previous research because we are able to make explicit what other studies have to either assume or proxy for in two important respects. One 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 German Schools, a law that minutely regulated every aspect of the schooling system (K.k. Schulbücher-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, but there were few of them. By late 1840s, the law was generally regarded as obsolete but a thorough school reform in a liberal vein, attempted in the wake of the 1848 revolution, never moved beyond the proposal stage, as it was quickly quashed by a conservative pushback (Ficker, 1873; Engelbrecht, 1986).

The 1868-69 reform of primary schools came in two parts. First, in May 1868, the Law on Relations between School and Church (*Schule-Kirche-Gesetz*) secularized the school oversight.¹ It established local school boards, opened all public schools to pupils of all confessions and all teaching positions to all certified teachers, regardless of their religion.² In contrast to previous legislation, the new law limited the church's control exclusively to religious instruction and explicitly put all other subjects out of its purview.³

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

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).

² Previous legislation barred Protestant teachers from teaching Catholic children and Catholic children from attending Protestant schools.

³ The law passed against great opposition from church authorities, even earning a stern condemnation from the Pope, but as for the parliamentary representation, the official record unfortunately does not show which representative voted which way.

upon all aspects. Article 3 broadened the curriculum, mandating the introduction of biology, geography, history/civics, geometry, music and physical education. 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.⁴ 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.

An important goal of the reform was the definitive resolution of school financing issues after two decades of unsatisfactory temporary fixes. Under the pre-1848 feudal system of administration, teachers were paid either through levying a tuition fee or directly by the local village, while the construction and maintenance of each school drew on three sources: the village or town it served, the local feudal lord and the school patron.⁵ If the feudal lord also served as the school patron, his financial responsibility increased accordingly. Towns, monasteries and central government could also serve as school patrons. The abolition of the feudal administration in 1848 released the landowning aristocracy from their administrative responsibilities, including the obligation to support schools. The institute of school patron lingered on but was also abolished in the early 1860s. In both instances, the resulting financial burdens were to be passed onto the local communities. To soften the blow to local budgets, government in Vienna

⁴ Previous legislation mandated a new school for every 80 such school-age children.

⁵ One contemporary observer estimated that the construction and maintenance costs usually split such that 40% fell to the feudal lord, 40% to the school patron and 20% to the local community (Posel z Prahy 2 (20), 11th Feb 1865).

responded throughout the 1850s and 1860s with a series of temporary measures, designed to keep former feudal lords at least somewhat financially involved, but the bulk of financial responsibility was nonetheless clearly shifting towards the towns and villages. The 1869 reform recognized this reality and formalized the prevailing practice on the ground: Article 62 placed the burden of school financing primarily on the shoulders of the towns and villages or civil districts (the next higher administrative level), although it let the provincial assemblies work out the specifics. Most provinces took the route of financing schools by retaining the tuition fee and by allowing local communities to impose surcharges on existing proportional direct taxes on real estate and on business income. The reform thus kept school financing on the local level, where it had always been, but it confirmed and certified the definitive termination of any feudal paternalistic support, turning the landed magnate into just another taxpayer.

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.⁶ 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 highest legislative body, the one to deliberate over the school reform, was Reichsrat, which consisted of 203 representatives.⁷

⁶ 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. The provinces were Dalmatia, Galicia, Carniola, Bukowina and Austrian Littoral.

⁷ Of those 203, only 185 were active, sworn-in members in 1869, when the reform was on the agenda. Some 14 Bohemian and 1 Moravian representatives of Czech nationality boycotted the

[Figure 1 here]

As Figure 1 illustrates, the electoral system combined an indirect election of Reichsrat members (through provincial assemblies) with an unequal representation and a suffrage limited by a tax census. The last two features were a consequence of the *Kurialsystem*, which guaranteed representation to specific social strata by means of so-called electoral curias, or constituencies. There were four such curias: landowners, chambers of commerce, urban districts and rural districts. The electoral law set the number of seats for each curia in each province (see Table 1) as well as the minimum amount of tax a voter was supposed to have paid to qualify to vote.⁸

[Table 1 here]

The curial distinctions extended all the way down to voters. Table 2 shows the extent of suffrage as of the elections in Spring 1867. There were in total about 1.25 million voters or about 23% of the adult male population. The unequal representation lay in the fact that different curias elected a different number of representatives: on average, there was 1 Reichsrat representative

Viennese legislature on constitutional grounds. 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. 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.

⁸ For example, in the Bohemian landowners' curia, the threshold was set at 250 fl of land tax per year. An estate of about 1 km² or more would yield such tax bill (average landholder owned about 0.07 km²) (K.K Finanzministerium, 1860: 48). There were 471 individuals clearing that threshold in the whole province. 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). For comparison, in 1867, the day wage of an unskilled laborer 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)

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.⁹

[Table 2 here]

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 landowning elite had relative to their less land-endowed fellow citizens: we know exactly that the 4943 voting 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.

5. The political economy of the vote on school reform

The plenary debate on the school reform bill began on 21st April 1869. 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 in areas that the constitution reserved for provincial assemblies. Representative Pascotini (urban curia, Trieste)

⁹ 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.

criticized the extension of compulsory schooling as impracticable, costly and therefore unimplementable 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." Two Catholic members from rural Tyrol and two Protestant ones from Silesia and Carinthia criticized the bill's secularizing thrust. 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 issues 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 this demand failed to win majority, the opposition left the chamber *en masse*. It is thanks to this walkout that we know the names of all the supporters and the opponents of the law: for the vast majority of votes, the parliamentary protocol did not even record the numbers for and against, let alone names. But since the walkout suddenly 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". Table 3 shows how the 185 representatives split by province and curia.

[Table 3 here]

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 (K.k. Statistische Zentral-Commission, 1870). 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.¹⁰ For all other demographic and economic variables, we rely on the 1869 population census, which provided data both on the age structure, on the religious composition and on the employment structure of individual administrative units (K.k. Statistische Zentral-Commission, 1871).

We construct two variables to gauge the costs and benefits of the school reform for each district. 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

¹⁰ 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.

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).¹¹ 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 put an end to half-year schools and implied salary outlays for such schools will have to double as teachers switch to full-year employment. Given that the 1865 school census reports on 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:

$$\text{Eq. 1} \quad ECI = \left(\frac{\frac{4}{3} P_{6-12}}{T_{1865}} \right) \left[1 + 0.4 \max \left(0, s - \frac{1}{3} \right) \right] (1 + h)$$

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

¹¹ 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.

the compulsory school age.¹² 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 teacher 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. Where h was close to 1 and most district's teachers currently drew salary for only half-year of work, the conversion would have clearly almost doubled 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. Ideally, the preferred measure would be some form of education premium on the local labor market. Unfortunately, such detailed wage data for skilled and unskilled worker are not available at the level of district. Therefore, we rely on census employment data to gauge the human capital intensity of local district labor markets. 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. Therefore, districts with high literacy content will benefit more from the extension of the curriculum, specified in Article 3; will more likely offer

¹² 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 what the decision makers – politicians of late 1860s – could reasonably estimate to be the costs associated with the reform.

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, 0.3 and 0.¹³ 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 the urban and rural representatives.¹⁴ It is a mismeasurement that we unfortunately cannot completely avoid.

We also include a measure of religious diversity – a Herfindahl index of religious homogeneity for each district – as a control on two grounds. One is that communities that are highly fragmented along a particular salient characteristic may have a harder time forging a consensus about financing higher public expenditure (Alesina et al., 1999). On this assumption, the more homogenous the district (the closer the index value is to 1), the more willing a representative may have been to countenance the higher public expenditure the reform would have entailed. The other is that several representatives objected in the parliamentary debate to the secular nature of the new curriculum and so it is reasonable to argue that they regarded the

¹³ We have employed the same measure in our previous work on the Austrian schooling, see Cvrcek and Zajicek (2013) for details.

¹⁴ 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.

broadening of the curriculum as a cost of sorts: the school would no longer serve as an enforcer of cultural and religious (mostly Catholic) hegemony. This assumption would imply that representatives from more homogenous districts would be more likely to oppose the reform. There is therefore no obvious *a priori* hypothesis as to the sign and size of this control's impact.

5.2. Analysis by electoral curias

Table 4 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 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 (higher 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 taught for only half a day or even closed for half a year. Pro-reform districts also had better maintained school buildings by a significant margin. They charged higher tuition fees. But the still bigger difference between the two groups in the per-pupil spending on teacher salaries (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, was small.

[Table 4 here]

The bottom half of Table 4 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 opponents – 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 using a probit model. Our dependent variable is 1 when a representative voted for the school reform in the third reading and 0 otherwise. Our full specification is:

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

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, IRH_i the index of religious homogeneity and \mathbf{P}_i is a vector of province fixed effects. The results and average marginal effects are presented in Tables 5 and 6.

[Table 5 here]

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 5, 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 coefficients 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 are the omitted category. These are sizeable differences between the various constituencies.

In columns (iii) and (iv), we estimate the probit with only cost-benefit variables, as defined in section 5.1. The coefficients have all the expected signs. In terms of size of the average marginal effects, the expected cost mattered most: increasing *ECI* by one standard deviation (1.41) would reduce one’s probability of voting for the law by 14.4%. On the other hand, increasing *LC* by one standard deviation (0.067) raised the probability by 5.7%. Religious homogeneity had a positive effect on likelihood of support: increasing *IRH* by one standard deviation of 0.17 increased the likelihood of support by 11.6%.

In columns (v) and (vi), the electoral and cost-benefit variables appear side by side. The coefficients and marginal effects of *ECI* and *IRH* are mostly unaffected while the impact of literacy content is now even smaller than previously. Most importantly, the curial fixed effects converged, compared to columns (i) and (ii). The χ^2 -test no longer rejects equality between any of the coefficients, although the urban curia 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 22.3% 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. The expected cost of reform remains statistically significant with a somewhat higher average marginal effect while the

impact of religious fragmentation is reduced and only statistically significant at 10%. The coefficient on *LC* has the “wrong” sign but is practically 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 16.9%.

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, but also how sensitive each curia was to the costs. In Table 6, we report the average marginal effects of *ECL*, *LC* and *IRH* for each curia separately, using the last two specifications from Table 5. In either case, the urban representatives seemed to be the least responsive to the costs and benefits, while rural were more responsive not only relative to cities but also to landowners. This is noteworthy because the rural districts not only faced higher costs on average, as reported in Table 4, but their costs were also more varied, with standard deviation of 1.96 compared to 0.87 for the urban districts.

[Table 6 here]

The results so far reveal that the biggest political rift emerged not between the landed elites, represented by the landowner curia, and the masses in the urban and rural curias but between rural masses on one side and urban masses on the other, with landowners and captains of industry (in the Chambers of Commerce) caught in the middle. The narrowing gap between the curia fixed effects as costs and benefits are added in columns (v) and (vii) of Table 5 indicates that the political difference arose from divergent economic interests of the various constituencies.

5.3. Analysis by representatives' occupation

Where did these divergent economic interests come from? To identify the economic background of the main opponents and supporters, we next augment the analysis by including also the representatives' reported professions, obtained from parliamentary record and from the regularly published official Reichraths-Almanach (Hahn, 1867), a who-is-who of elected representatives. Table 7 shows the breakdown of the Reichsrat by curia and occupation.

[Table 7 here]

The representatives frequently reported multiple occupations and we coded all of them into eight categories shown in Table 7.¹⁵ Helpfully, when reporting on landowners, the Almanach distinguished between *Gutsbesitzer*, owner of an estate (*Gut*), and *Grundbesitzer*, owner of a farm (*Grund*), on the basis of which we separate large landowners from small ones. At first sight, the table presents certain surprises such as the presence of 15 large landowners in the rural curia or one smallholder in the urban curia: this is a reflection of the fact that the passive voting rights were not restricted by census: even someone of relatively modest wealth, such as the secondary school teacher and Greek-Catholic priest Tomas Barewicz, could be elected in the landowner curia. Similarly, some of the large landowners in the urban curia are successful factory owners who used their wealth to buy an estate and an aristocratic title with it.

Table 8 reports the probit estimates with occupation fixed effects. As the occupation categories are not mutually exclusive, we do not run into multicollinearity when including all of them in the model. Consequently, since there is no default category among the occupational variables, their coefficients and marginal effects need to be evaluated within each column against each other, not relative to 0. The table shows that across all three specifications, small landowners and clergy were the least likely to support the law by an appreciable margin. The

¹⁵ For example, the Styrian representative Matthias Lohninger was described as owner of ironworks as well as an estate. He was one of the four large landowners elected in the urban curia. Large landowner and small landowner are the only categories that are mutually exclusive.

most avid supporters were lawyers and public servants.¹⁶ Considering the marginal effects in column (ii), public servants were 60.6 percentage points more likely to support the law compared to small landowners, other things held equal. In contrast to these highly polarized groups, the large landowners, entrepreneurs and representatives with a background in local government were more evenly split in all specifications. The χ^2 tests at the bottom of the table provide some pairwise comparisons highlighting how large and small landowners differed from each other. They uncover no systematic, significant difference between the coefficients for the two groups, unless the curial fixed effects are also brought in. In other words, it is the combination of personal economic interest and the political pressure of representing particular constituencies that add up to the stark differences in political position: large landowners representing other large landowners in the landowner curia were statistically different from small landowners representing rural population in the rural curia – the p-values in this second set of tests never cross 0.035 across the three specifications.

[Table 8 here]

The gap between the fiercest opponents and staunchest supporters narrows from 0.606 in column (ii) to 0.424 in column (iv), as we add in the cost-benefit variables, and remains at 0.446 in column (vi), when province fixed effects are also included. The cost-benefit variables and the index of religious homogeneity are able to account for at least some of the stark differences in political position, even though only the expected cost increase remains reasonably significant across the specifications (at 6% in column (v) and at 5.3% in column (vi)). It is plausible (though impossible to prove with available data) that the difference between large and small landholders, persisting even after the introduction of the cost-benefit variables, could be due to the intricacies of the distribution of the tax burden. As mentioned in section 3, the law laid

¹⁶ Many of the public servants were cabinet members who could naturally be expected to support their government's own bill.

the fiscal responsibility for schooling primarily on municipalities and civil districts whose main source of revenue were surcharges on direct taxes: the land tax in the countryside and the house tax in towns. The land tax was levied not on the actual net income from one's land but on an administratively estimated net income, based on a formula that took into account the kinds of crops planted, their market prices, the extent of wooded areas on a farm or estate, the likely yield of timber etc. The land tax rate was a uniform 21.3% but even contemporaries recognized that on a per-acre basis, large estates paid less tax than small farms.¹⁷ Moreover, part of the land tax revenue was earmarked to pay former feudal lords compensation for the *robot* (corveé labor) abolished in 1848 – effectively a tax rebate to the large landowners. Finally, assuming that unfolding mechanization also introduced economies of scale to agriculture, large landowners were potentially able to achieve lower actual per-unit costs of production and thus lower effective tax rate. All these considerations suggest that, in spite of the uniform rate on paper, the land tax was effectively regressive, making the stronger opposition by small landowners to higher fiscal demands of increased school provision understandable. Unfortunately, without detailed data on agricultural productivity and land tax incidence, this explanation remains in the realm of plausible speculation.

The results from Tables 5 – 8 leave us nevertheless with the conclusion that the strongest opposition came not from the closed clique of powerful large landowners but from the most populous voting group, the rural districts, and within these districts especially from those who were most likely to pay for the reform, whether financially (farmers) or in terms of lost cultural influence (clergy). In all specifications these were the most likely opponents of the law. This casts some doubt on the notion that the increased provision of schooling is historically closely tied

¹⁷ Jechl (1868: XXVIII) calculates that, on average, estates (*Gutsbesitz*) paid 1.39 fl per Joch (1 Joch \approx 1.42 acre) while farms (*Grundbesitz*) about 1.70 fl per Joch but blames it entirely on the estates' large proportion of wooded areas, to which the administrative formula accorded a lower yield than to agricultural land.

with the extension of suffrage and political voice of the masses. In fact, 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 its enfranchised voters (see Table 1), then, using the predicted probabilities based on model (vii) in Table 5, the reform would have failed in the Reichsrat, with only 89 out of 185 voting for it.

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 had shut out, it provided for a higher professional standard for the teachers. On the other hand, it made binding numerous provisions, which 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.

One can view the implementation of the law as a continuation of the political battle in the legislature. In some areas, passive resistance to the law lingered on. Engelbrecht (1986: 117) documents that in Tyrol it lasted into the 1890s. Local church dignitaries actively discouraged school attendance and the provincial assembly refused to pass legislation necessary for implementation of the reform until 1892. School inspectors sometimes required police protection to do their work. Amid all this, small farmers were in a peculiar position: the reform law and its provincial follow-ups effectively saddled them with the bulk of the fiscal burden of schooling expansion in the countryside. But since they were also a political constituency – voters

and elected representatives in the local and district councils that allocated public funds – they had leverage in shaping how that fiscal responsibility would be shouldered.

The cross-sectional variation in the pace of expansion in the decade after the reform offers 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, consequently, the fiscal costs of full-scale implementation were harder to justify in the villages. We therefore evaluate the post-reform schooling on a range of characteristics against the background of broader economic development, reflected in Austria's population censuses for 1869 and 1880. From 1870 onwards, the newly established school authorities adopted the practice of regular five-year survey of all schools. The reported data were arranged by civil districts, created by the administration reform of 1868.¹⁸

[Table 9 here]

Table 9 relies on three of these surveys (1871, 1875 and 1880, in addition to the pre-reform one of 1865) and splits the data by degree of urbanization. It shows that in most respects, the 1870s were indeed a period of vigorous expansion. Public schools grew bigger, were better staffed and the teaching profession was quickly opening up to women. The physical infrastructure of schooling also increased and improved. The number of pupils obviously increased, given the legal extension of compulsory school age. This set back some of the per-pupil measures in 1871, but by 1880 the human and physical resources more than caught up with the increase in student body, so that teacher-pupil and classroom-pupil ratios were better than they had been before the reform. The primary schooling sector also became considerably

¹⁸ 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.

more expensive. Teacher salaries about tripled in the fifteen years, while the per-pupil cost of paying such salaries more than tripled.¹⁹

The table also reveals a consistent gradient in urbanization across the schooling measures. With the exception of enrollment, the most urbanized districts reported higher values and a faster expansion than the least urbanized ones. The most urbanized districts also saw the most consistent expansion of the curriculum, with the average number of grades per school almost doubling between 1865 and 1880, while in the less urbanized districts, the average school ended up in 1880 about where it started in 1865. Urban teachers were paid significantly more than their rural counterparts and had fewer pupils on average to look after, which produced the widening gap in salary costs per pupil between the largest cities and everybody else. Yet on top of that, urban residents were willing to spend further resources on private schools, judging by the gap between public school enrollment and total enrollment in the urbanized districts. Overall, by 1880, the rural areas had slightly higher or substantially the same per-pupil provisions as they had in 1865 – but at three times the pre-reform cost, while urban public schooling expanded relentlessly and even the 3.5-fold increase in outlays was not enough to cover the demand.

To what extent could the post-reform urban-rural difference be explained in the context of the same political economy as we observed in Reichsrat? Merging the 1865 school data with the 1869 population census and the 1880 school survey with the 1880 census, we create a (wide but short) panel with two observations for each of the 273 districts that allows us to model the change in schooling provision as a response to the increasing human capital intensity of the local labor markets and to the varying importance of small farmers in the local economy. Our fixed-effects specification is:

¹⁹ Unfortunately, we are unable to separate male and female teacher salaries in the available data.

Eq. 3
$$Y_{it} = \alpha + \beta_1 LC_{it} + \beta_2 F_{it} + \beta_3 U_{it} + d_i + \epsilon_{it}$$

We use the same concept of literacy content, LC_{it} as used in section 5 to measure the human capital intensity of the local labor market. To capture the clout of farmers, F_{it} we calculate from census employment data the proportion of farm owners and farm tenants in the overall economically active population in each district. Note that this measure is not the same as the share of agricultural labor force because hired farm labor is not included in our measure. In fact, between the 1869 and 1880 census, the share of agricultural labor force declined by about ten percentage points while the share of farmers increased from about 11.8% to 15.0%. Our interest is in capturing the very people who would be filing for the land tax, who were a subset of those working in agriculture. At the same time, while our measure does include the large landowners (*Gutsbesitzer*) in its number, it is obviously driven primarily by the presence of small landowners who were more numerous by several orders of magnitude.²⁰ Our measure therefore focuses on farm owners/tenants who would have been the rural voters. Referring back to Table 2, note how the reported number of farm owners in the 1869 census closely corresponds to the number of voters in the rural curia in 1867: while not all farmers were able to meet the tax threshold to qualify to vote, anywhere between 40% and 80% of them did, the overall percentage being 58%. In other words, we constructed F_{it} to capture as closely as possible the size of the very group that elected the most ardent opponents of the reform, the rural curia representatives. One could push the argument even farther: considering that the rural curia voters made up 86.5% of all voters across all curias, the share of farmers strongly correlates with the extent of suffrage in a given district, once the urban vs rural character of the district is controlled for. In this sense, our estimation sheds light on the correlation between schooling

²⁰ For example, Jechl (1868: XII) counts 681 large landowners in Bohemia in 1867 (of which 471 paid enough direct tax to vote in the landowner curia – see Table 2) while the 1869 census put the total number of Bohemian landowners, large and small, at 261.000 and of tenants at 13.500.

expansion and mass (albeit not universal) suffrage. We expect that level of material provisions per pupil will negatively correlate with the proportion of farmers, as they could use their political clout to slow down the expansion, *ceteris paribus*. The impact of F_{it} on the expenditures per pupil or per teacher is ambiguous as farmers were both the tax base (implying more tax revenue) as well as a political constituency (implying more leverage to oppose tax increases and thus reduce tax revenue). The variable U_{it} is the urbanization rate, i.e. the proportion of district population living in towns of 3,000 or more, a control variable motivated by the differences between town and country visible in Table 9. Finally, d_i are district fixed effects.

[Table 10 here]

In Table 10, the dependent variables pertain exclusively to public schools, i.e. those schools which were subject to political decision-making and which also comprised the bulk of all schooling in all districts. The results display several consistent patterns. Across all aspects, schooling provision was positively correlated with literacy content, LC_{it} . Increasing this explanatory variable by one standard deviation has a positive impact on the dependent variable ranging anywhere from a quarter to a half of its standard deviation, except in columns (vi) and (vii) where the impact of literacy content reaches three or four times the standard deviation. If we think of LC_{it} as a proxy for the market return on human capital, then large coefficients on these financial aspects of public schooling – average teacher salary and salary cost per pupil – indicate high responsiveness of investments into schooling to this variable. The estimated coefficients here are also quite precisely estimated across the board and comfortably statistically significant, even in the presence of 273 district fixed effects.

Farmer share, F_{it} , on the other hand, is negatively correlated with some measures, namely those capturing the per-pupil aspects of schooling provision: greater clout of farmers meant fewer teachers per 1000 pupils, fewer classrooms and a more limited curriculum. But note that

along the extensive dimension, higher F_{it} implied greater provision. The intensive-vs-extensive contrast is especially clear in comparing columns (ii), (iv) and (v): more farmers meant higher rate of enrollment and more teachers per 1000 inhabitants but the increase in teachers was less than proportional to the number of students and so the teacher-pupil ratio actually declined. The positive relationship with F_{it} obtains for those aspects of public schooling that were least “negotiable” and where the farmers had the least room for political maneuvering: the legally mandated extension of school age and the ensuing increase in enrolment and the rising market wage of teachers. Thus, in columns (vi) and (vii) both average teacher salary and salary cost per pupil responded positively to F_{it} : an extra standard deviation in F_{it} was associated with more than 2 s.d. increase in teacher salary and 1.5 s.d. increase in salary cost per pupil. Clearly, even as strong presence of farmers reduced the teacher-pupil ratio in column (ii), *ceteris paribus*, the increase in teacher salaries meant that the teacher-related expenditure per pupil increased. In short, higher F_{it} meant more farmers to tax as a source of finance for the higher salaries but also greater political clout of local farmers who had the power to put brakes on the expansion.

Interestingly, once the impact of LC_{it} and F_{it} are introduced into the estimation, the importance of urbanization, so prominent in Table 9, largely disappears. With the exception of column (ii), U_{it} is statistically indistinguishable from zero and its practical impact is either negligible or weakest among the three explanatory variables explicitly modeled. This is true even for teacher salary where one standard deviation change in U_{it} would increase teacher salary by 1 s.d., i.e. appreciably less than similar shifts in LC_{it} and F_{it} . Apparently, the sophistication of the local labor market and the absence of the strong political opposition from small farmers accounted for the bulk of the rural-urban divide in schooling provision.

Next, we specify our model in terms of change in schooling provision. After all, the fixed effects model in Table 10 is specified in levels while our hypothesis is about the economic and

political determinants of change across time. The inference we drew from that table was that farmers' presence was associated with an expansion of schooling but that they were able to slow it down, so that on the intensive margin their impact was negative. If such slowdown were a consequence of the farmers' political clout, then in the first difference estimation, the change in schooling provision and change in financial variables should be negatively correlated with change in farmers' clout: when farmers become weaker ($\Delta F_i = F_{i,1880} - F_{i,1865} < 0$), then the expansion of schooling should be greater and faster. First-differencing Eq. 3 obviously reduces the number of our observations to one per district and cancels out the district fixed effects. Still, we do include province-level fixed effects in our first-difference specification because we know from historical context that the change in schooling provision between 1865 and 1880 had at least one major province-specific component, namely the variation in the details of provincial legislation, introduced in consequence of the 1869 law.

[Table 11 here]

The results, presented in Table 11, are structurally similar to those in Table 10. A positive change in the literacy content, ΔLC_i , is associated with an increase across all educational variables with the exception of enrollment where the impact is a statistical zero (and practically negligible also). The impact of rising labor market demand for human capital was strongest on the extent of curriculum (column (i)), classroom construction (column (iii)) and per-pupil costs (column (vii)). Also with the exception of enrollment, the impact of change in the local share of farmers, ΔF_i , is negative. For the dependent variables capturing the intensive margin in columns (i) – (iii), this is not surprising and in line with our estimates in Table 10: the coefficients on ΔF_i are statistically significant (in column (ii) at 5.1%) and empirically meaningful. In fact, given the coefficient on ΔF_i in column (i), the change in share of farmers between 1865 and 1880 observed in the dataset (+0.0325) can more than fully account for the decline in the average number of

grades during those fifteen years ($-4.08 \times 0.0325 = -0.133$ vs $X_{1880} - X_{1865} = 2.17 - 2.23 = -0.06$). In short, a strengthening of the farmer constituency implied a stronger push against curriculum expansion, teacher hiring and classroom construction. Further, and in contrast to Table 10, ΔF_i has negative coefficients in the salary and cost regressions in columns (vi) and (vii). Both are significant and large, making ΔF_i the strongest of the three change variables on the right-hand side of these regressions. How do we interpret the positive coefficients on ΔF_i in columns (vi) and (vii) of Table 10 and the negative coefficients in corresponding regressions in Table 11 together? Apparently, the levels of teacher salary and per-pupil costs were increasing in share of farmers but at a decreasing rate: when farmers gained in prominence ($\Delta F_i > 0$), this was associated with smaller increase in salary expenditures. So, not only did strong farmer presence correlate with less than proportional growth in teaching staff relative to student body, more farmers generally meant slower growth in teacher-related expenses. Alternatively, when farmers became relatively less prominent in the district economy across time ($\Delta F_i < 0$), teacher salaries increased more. All of these results are consistent with the rural representatives' political stance with respect to the reform in 1869: this is what one would expect to observe given the results of our analysis of the vote in Section 5.

As for the change in urbanization, ΔU_i , we observe in Table 11, again, a similar pattern to that in Table 10: the coefficients on ΔU_i are small and mostly a statistical zero. The exceptions here are the salary-related regressions in columns (vi) and (vii) and in both cases the coefficients are negative: apparently, when teacher saw their salaries rise, it was due to fast-growing literacy content of their district's labor market, not because the district was getting more urbanized. As with the fixed-effects model, here, too, we can argue that the change in literacy content and in share of farmers do a good job of accounting for rural-urban rural differences.

7. Conclusions

When drawing the general contours of the political economy of schooling in industrializing economies, Galor et al. (2009: 144) outline them thus:

“Unlike the agrarian economy, which was characterized by a conflict of interest between the landed aristocracy and the masses, the process of industrialization has brought about an additional conflict between the entrenched landed elite and the emerging capitalist elite. The capitalists who were striving for an educated labor force supported policies that promoted the education of the masses, whereas landowners, whose interest lay in the reduction of the mobility of the rural labor force, favored policies that deprived the masses from education. “

That is not the situation we find in Imperial Austria of the 1860s and 1870s. The elite landed magnates in the landowner curia and the captains of industry in the Chambers of Commerce curia were both somewhat in favor of expanding mass education, with 59.3% and 66.6% of them voting for the reform, respectively. Both of these elite constituencies, far from locked in a sharp conflict over the reform, were much closer to the political center on this question than the two more popular constituencies: rural curia and urban curia. Some 77.5% of urban representatives voted for the reform while only 47.1% of rural ones did.

While we agree with Galor et al. (2009) on the point of education’s impact on labor mobility (and there is no question that Imperial Austria witnessed the same city-bound internal migration as other industrializing countries), it turns out that the political economy of this particular reform turned on a cost-benefit consideration that hit even closer to home than the indirect impact of education on migration: the demand of extra human capital in the local labor market versus the fiscal impact of primary school expansion. As we tried to show in section 5,

this cost-benefit consideration was one of the major reasons, why the path to mass schooling encountered opposition from the very masses it was intended to educate, and accounted for over a quarter of the gap in support (30.4%) between rural and urban representatives.²¹ The post-reform developments showed that the educational needs of the city and country continued to diverge. Even though the new provisions had the force of the law, the implementation stayed well below the law's mandates in the countryside as the rural voters apparently concluded that the benefits were not worth the costs.

Moreover, the case of the Austrian primary school reform of 1869 vividly illustrates that for some constellations of costs and benefits broadening of the suffrage and the consequent political voice of the masses was not an unambiguous political boost for schooling expansion and modernization. The anti-reform rural voters, who were by far the most numerous voting block, only won the vote less than a decade before the reform. They were mostly farmers and consequently landowners but they were not the landowning elites. Even the non-landowning part of the rural population – the roughly 60% of the country's population who lived in places with less than 3.000 inhabitants and were not stand-alone farmers – mostly worked in occupations that had little use for literacy and even less for modern sciences that the reform put in the curriculum. For while extra schooling made the prospect of moving to city more appealing and many rural workers took that route, the majority of rural population nonetheless stayed put and so evaluated the costs and benefits in terms of their local, rural labor market. In short, whatever the reformed schooling had to offer, the countryside was not all that interested.

²¹ 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.

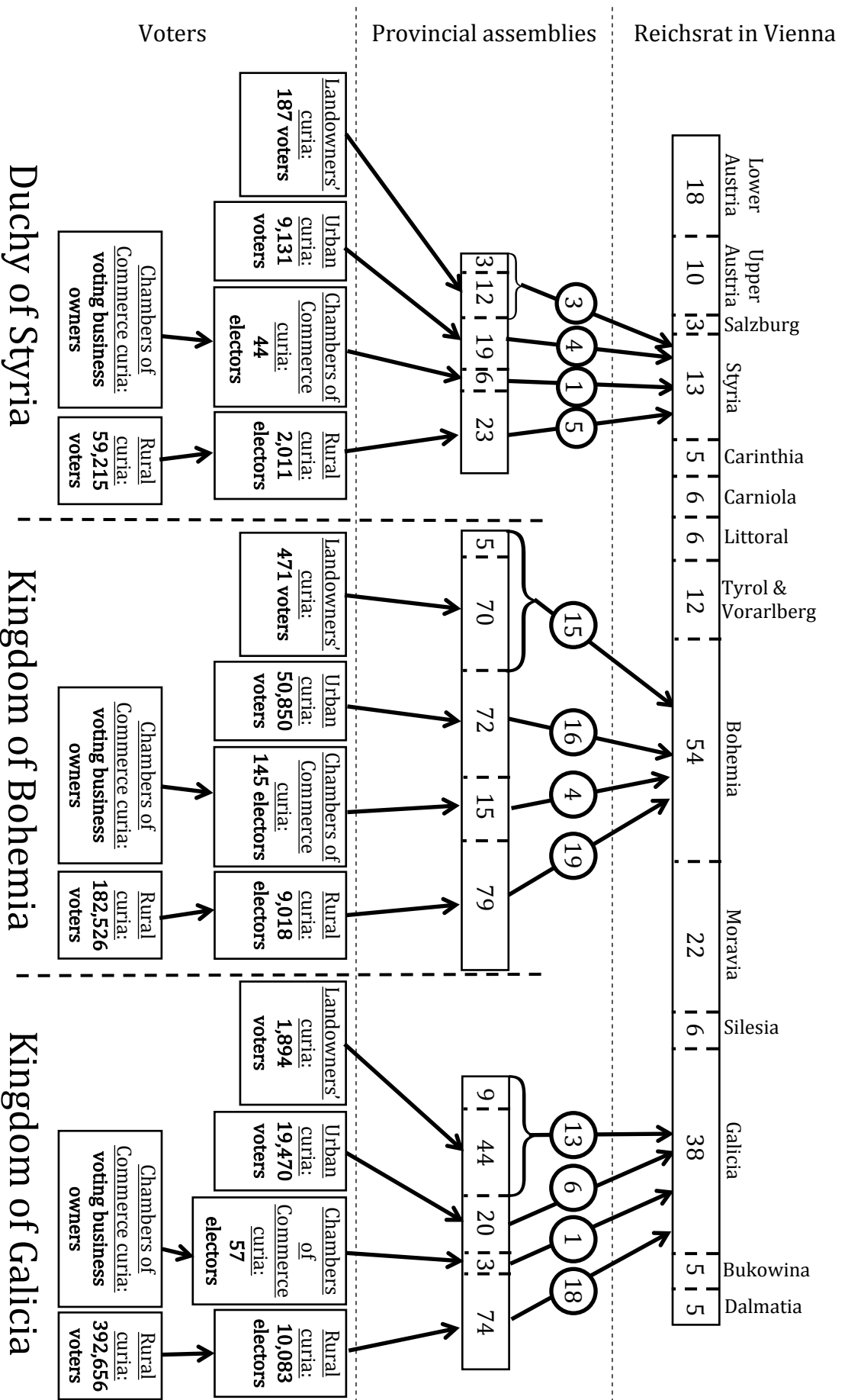
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Figure 1 – Numbers of representatives at various stages of the electoral system of Imperial Austria cca 1867



Source: K.k. Statistische Zentral-Kommission (1867). Styria, Bohemia and Galicia are cited as examples; other provinces' electoral systems were organized along similar lines. The leftmost segment of each provincial assembly denotes the number of so-called virilists (3 in Styria, 5 in Bohemia, 9 in Galicia): unelected members of the provincial assembly who served by virtue of holding another public office (e.g. Archbishop of Prague).

Table 1 - Number of representatives by curia and province in the Reichsrat and provincial assemblies

Province		Virilists	Landowners	Urban districts	Chambers of Commerce	Rural districts	Total
Lower Austria	Provincial assembly	3	15	25	4	21	68
	Reichsrat delegation		5	7	1	5	18
Upper Austria	Provincial assembly	1	10	17	3	19	50
	Reichsrat delegation		2	3	1	4	10
Salzburg	Provincial assembly	1	5	10	2	8	26
	Reichsrat delegation				1	2	3
Styria	Provincial assembly	3	12	19	6	23	63
	Reichsrat delegation		3	4	1	5	13
Carinthia	Provincial assembly	1	10	9	3	14	37
	Reichsrat delegation		1		2	2	5
Carniola	Provincial assembly	1	10	8	2	16	37
	Reichsrat delegation		1		2	3	6
Triest city	Reichsrat delegation			2			2
Görz & Gradisca	Provincial assembly	1	6	5	2	8	22
	Reichsrat delegation			1		1	2
Istria	Provincial assembly	3	5	8	2	12	30
	Reichsrat delegation			1		1	2
Tirol	Provincial assembly	8	10	13	3	34	68
	Reichsrat delegation		3		2	5	10
Vorarlberg	Provincial assembly	1	0	4	1	14	20
	Reichsrat delegation			1		1	2
Bohemia	Provincial assembly	5	70	72	15	79	241
	Reichsrat delegation		15	16	4	19	54
Moravia	Provincial assembly	2	30	31	6	31	100
	Reichsrat delegation		6	8	1	7	22
Silesia	Provincial assembly	1	9	10	2	9	31
	Reichsrat delegation		2	1	1	2	6
Galicia	Provincial assembly	9	44	20	3	74	150
	Reichsrat delegation		13	6	1	18	38
Bukowina	Provincial assembly	1	10	5	2	12	30
	Reichsrat delegation		2		1	2	5
Dalmatia	Provincial assembly	2	10	8	3	20	43
	Reichsrat delegation		1		1	3	5

Note: The two representatives for Triest were elected by the Triest City Council. We count them as members of the urban curia. Virilists were unelected members of provincial assemblies, serving by virtue of holding another office. When also elected to the Reichsrat, the virilists counted as part of the landowners' quota.

Source: K.k. Statistische Zentral-Commission (1867)

Table 2 – Number of people with the right to vote by curia and province

Province	Rural districts	Landowners	Chambers of Commerce	Urban districts	Sum of voters	Number of males aged 21+ (1869 census)	Number of farm owners in 1869 census	Provincial population in 1869 census	% males aged 21+ entitled to vote
Lower Austria	105,107	201	45	26,540	131,893	593,910	135,192	1,990,708	22.2
Upper Austria	31,238	105	30	7,601	38,974	225,896	84,853	736,557	17.3
Salzburg	8,607	135	16	2,264	11,022	47,682	11,156	153,159	23.1
Styria	59,215	187	44	9,131	68,577	335,885	146,289	1,137,990	20.4
Carinthia	14,318	100	23	2,487	16,928	96,235	25,889	337,694	17.6
Carniola	33,009	116	22	2,738	35,885	124,009	50,711	466,334	28.9
Austrian Littoral	N/A	519	30	5,336	5,885	175,462	49,626	600,525	N/A
Tyrol & Vorarlberg	55,584	219	46	7,211	63,060	260,599	95,281	885,789	24.2
Bohemia	182,526	471	145	50,850	233,992	1,326,613	260,985	5,140,544	17.6
Moravia	70,354	168	54	16,474	87,050	516,981	121,522	2,017,274	16.8
Silesia	16,743	61	15	4,777	21,596	125,325	33,597	513,352	17.2
Galicja	392,656	1,894	57	19,470	414,077	1,346,699	658,426	5,444,689	30.7
Bukovina	48,220	141	15	3,586	51,962	127,331	60,123	513,404	40.8
Dalmatia	30,137	626	45	3,603	34,411	128,407	51,015	456,961	26.8
Sum	1,047,714	4,943	587	162,068	1,215,312	5,431,034	1,784,665	20,394,980	23.0^a

Note: The number of rural voters in Littoral is estimated to have been about 35,000, using data from later elections. The numbers of voters in Chambers of Commerce was equal to the number of Chamber councilors who were also electors of provincial representatives (see Figure 1). Source: Beiträge zur Statistik der Landtags-Wahlen im Jahre 1867, Mittheilungen aus dem Gebiet der Statistik 14, 1867, p. 52 – 55; Bevölkerung der im Reichsrathe vertretene Königreiche und Länder im Jahre 1869, p. 302

^aIncluding an estimated 35,000 rural voters from Austrian Littoral.

Table 3 - Number of representatives by province and curia - total (and pro-reform)					
Province	Rural communities	Landowners	Chambers of Commerce	Urban curia	Sum
Lower Austria	5 (4)	5 (3)		7 (7)	17 (14)
Upper Austria	4 (3)	2 (1)	1 (1)	3 (3)	10 (8)
Salzburg	1 (0)	1 (1)	1 (1)		3 (2)
Styria	5 (2)	3 (3)	1 (1)	4 (4)	13 (10)
Carinthia	2 (2)	1 (1)	1 (0)	1 (1)	5 (4)
Carniola	3 (0)	1 (0)	2 (1)		6 (1)
Austrian Littoral	1 (0)	1 (0)		4 (3)	6 (3)
Tyrol & Vorarlberg	6 (3)	2 (0)		2 (1)	10 (4)
Bohemia	11 (8)	14 (12)	4 (3)	11 (9)	40 (32)
Moravia	7 (4)	6 (6)	1 (1)	7 (7)	21 (18)
Silesia	2 (2)	2 (2)		2 (2)	6 (6)
Galicia	18 (1)	13 (0)	1 (0)	6 (0)	38 (1)
Bukovina	2 (2)	2 (2)		1 (1)	5 (5)
Dalmatia	3 (2)	1 (1)		1 (0)	5 (3)
Sum	70 (33)	54 (32)	12 (8)	49 (38)	185 (111)

Note: Each cell contains the number of representatives in our dataset for a given province and curia and the number of representatives voting in favor of the reform (in brackets). Note that out of the 203 representatives stipulated by the electoral law, some 18 were either not sworn in or were boycotting Reichsrat altogether.

Table 4 – 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 teacher salaries per pupil	2.51	3.20	-2.35	0.020
Pupils per teacher	65.70	75.10	-2.41	0.017
Expected 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
Index of religious homogeneity	0.78	0.90	-5.32	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
Expected 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
Index of religious homogeneity	0.86	0.85	0.13	0.894

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.

Source: **K.K. Statistische Zentral-Kommission. Detail-Conscription der Volksschulen der im Reichsrathe vertretenen Königreichen und Ländern nach dem Stande vom Ende des Schuljahres 1865.** Vienna, 1870

Table 5 - 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		Coefficients		Coefficients		Coefficients	
	Avg marginal FX		Avg marginal FX		Avg marginal FX		Avg marginal FX	
Electoral fixed effects								
1(landowners' curia)	0.306 [0.228]	0.121 [0.090]			0.394 [0.249]	0.129 [0.080]	0.295 [0.306]	0.071 [0.074]
1(chambers of commerce)	0.502 [0.403]	0.195 [0.149]			0.275 [0.421]	0.091 [0.137]	0.404 [0.504]	0.095 [0.112]
1(urban curia)	0.829 [0.249]	0.304 [0.084]			0.720 [0.307]	0.223 [0.091]	0.781 [0.385]	0.169 [0.080]
Cost-benefit variables								
Literacy content			2.674 [1.806]	0.845 [0.559]	0.722 [2.040]	0.221 [0.623]	-0.711 [2.847]	-0.153 [0.614]
Expected costs of reform			-0.325 [0.139]	-0.103 [0.042]	-0.342 [0.145]	-0.105 [0.043]	-0.642 [0.280]	-0.138 [0.057]
Index of religious homogeneity			2.151 [0.654]	0.680 [0.188]	2.352 [0.670]	0.719 [0.185]	2.872 [1.667]	0.620 [0.352]
Constant	-0.072 [0.150]		-1.431 [0.842]		-1.539 [0.862]		-0.891 [1.574]	
N	185		185		185		174	
Log-likelihood	-118.6		-102.8		-99.7		-68.0	
Tests								
χ^2 : $\beta_{\text{landowner curia}} = \beta_{\text{urban curia}}$	3.950				1.130		1.570	
p-value	0.047				0.288		0.211	
χ^2 : $\beta_{\text{chambers of commerce}} = \beta_{\text{urban curia}}$	0.590				0.910		0.440	
p-value	0.441				0.341		0.505	

Note: Standard errors in square brackets.

Table 6 - Average marginal effects and their standard errors by electoral curia						
	Rural communities	Landowners	Chambers of Commerce	Cities		
Full specification	Expected cost of reform	-0.112 [0.046]	-0.110 [0.045]	-0.118 [0.052]	-0.085 [0.037]	
	Literacy content	0.237 [0.669]	0.231 [0.653]	0.248 [0.703]	0.179 [0.504]	
	Index of religious homogeneity	0.772 [0.195]	0.754 [0.190]	0.808 [0.268]	0.582 [0.175]	
	Expected cost of reform	-0.153 [0.063]	-0.143 [0.064]	-0.154 [0.078]	-0.109 [0.046]	
Full specification with provincial fixed effects	Literacy content	-0.169 [0.678]	-0.159 [0.637]	-0.170 [0.682]	-0.120 [0.479]	
	Index of religious homogeneity	0.684 [0.383]	0.641 [0.381]	0.687 [0.453]	0.486 [0.282]	

Note: The average marginal effects are calculated using coefficients from specifications (v) and (vii) in Table 5. Standard errors in square brackets.

Table 7 - Reported profession/occupations of Reichsrat representatives in 1867 - 1869									
Curia	Total members	Large landowners	Small landowners	Clergy	Lawyers	Intelligentsia	Entrepreneurs	Local government	Public servant
Rural curia	70	15	10	5	14	8	5	9	11
Landowner curia	54	36	0	7	6	4	3	0	12
Chambers of Commerce	12	0	0	0	2	0	7	0	3
Urban curia	49	4	1	1	23	3	9	8	14
Total	185	55	11	13	45	15	24	17	40

Note: *Gutsbesitzer* were coded as large landowners while *Grundbesitzer* as small landowners. *Intelligentsia* includes schoolteachers, university professors, writers, doctors, engineers etc. Local government includes mayors, district officials. *Entrepreneurs* include factory owners, traders, bankers etc. Public servant category includes current cabinet ministers, diplomats, provincial governors, army officers.

Table 8 - Probit models of vote on school reform (dep. var: representative voted for=1, otherwise=0)

	Electoral and occupation variables		Full specification		Full specification with province fixed effects	
	(i)	(ii)	(iii)	(iv)	(v)	(vi)
	Coefficients	Avg MFX	Coefficients	Avg MFX	Coefficients	Avg MFX
Cost-benefit variables						
Literacy content			0.622 [2.117]	0.180 [0.610]	-0.260 [3.385]	-0.047 [0.611]
Expected costs of reform			-0.292 [0.147]	-0.084 [0.041]	-0.594 [0.320]	-0.107 [0.055]
Index of religious homogeneity			2.147 [0.708]	0.620 [0.190]	1.980 [1.942]	0.358 [0.346]
Occupation fixed effects						
Large landowner (<i>Gutsbesitzer</i>)	0.121 [0.375]	0.039 [0.122]	0.190 [0.385]	0.055 [0.111]	-0.785 [0.589]	-0.142 [0.105]
Small landowner (<i>Grundbesitzer</i>)	-0.817 [0.573]	-0.267 [0.184]	-0.776 [0.630]	-0.224 [0.180]	-1.825 [0.904]	-0.330 [0.157]
Clergy	-0.295 [0.517]	-0.096 [0.168]	-0.109 [0.542]	-0.032 [0.157]	-1.601 [0.915]	-0.289 [0.160]
Lawyer	0.776 [0.410]	0.253 [0.130]	0.556 [0.431]	0.161 [0.123]	0.525 [0.590]	0.095 [0.106]
Intelligentsia	0.116 [0.447]	0.038 [0.146]	0.098 [0.471]	0.028 [0.136]	0.640 [0.674]	0.116 [0.121]
Entrepreneur	0.579 [0.432]	0.189 [0.139]	0.211 [0.453]	0.061 [0.131]	-0.823 [0.593]	-0.149 [0.105]
Local government	0.355 [0.413]	0.116 [0.134]	0.361 [0.430]	0.104 [0.124]	-0.474 [0.582]	-0.086 [0.104]
Public servant	1.039 [0.349]	0.339 [0.106]	0.692 [0.363]	0.200 [0.102]	0.432 [0.475]	0.078 [0.086]
Electoral fixed effects						
1(landowners' curia)	0.272 [0.278]	0.093 [0.094]	0.330 [0.299]	0.100 [0.089]	0.840 [0.496]	0.157 [0.086]
1(chambers of commerce)	0.126 [0.460]	0.043 [0.158]	0.188 [0.473]	0.058 [0.144]	0.688 [0.624]	0.132 [0.109]
1(urban curia)	0.424 [0.278]	0.141 [0.093]	0.507 [0.325]	0.149 [0.095]	0.856 [0.444]	0.160 [0.078]
Constant	-0.405 [0.364]		-1.711 [0.969]		-0.173 [1.895]	
N	185		185		174	
Log-likelihood	-106.5		-94.3		-56.6	
Tests						
$\chi^2: \beta_{\text{large landowner}} = \beta_{\text{small landowner}}$	2.890		2.440		1.440	
p-value	0.089		0.118		0.230	
$\chi^2: \beta_{\text{large landowner}} + \beta_{\text{landowner curia}} = \beta_{\text{small landowner}}$	5.040		4.540		5.190	

p-value	0.025	0.033	0.023
Note: Standard errors in square brackets.			

Table 9 - Consequences of reform for public schools

	Districts with a municipality...	1865	1871	1875	1880
Average grades per school	...of less than 5.000 inhabitants	1.97	1.41	1.62	1.73
	...of 5.000-20.000 inhabitants	2.06	1.62	1.88	2.06
	...with over 20.000 inhabitants	2.70	3.48	4.05	4.38
Teachers per 1000 pupils	...of less than 5.000 inhabitants	12.62	11.46	12.84	12.87
	...of 5.000-20.000 inhabitants	11.77	11.13	12.39	13.04
	...with over 20.000 inhabitants	15.04	17.54	19.06	18.65
Teachers per school	...of less than 5.000 inhabitants	1.48	1.39	1.75	1.75
	...of 5.000-20.000 inhabitants	1.69	1.66	2.05	2.16
	...with over 20.000 inhabitants	4.50	5.06	6.66	6.19
% teaching staff female	...of less than 5.000 inhabitants	8.0%	8.7%	16.1%	12.5%
	...of 5.000-20.000 inhabitants	8.8%	9.2%	14.7%	12.4%
	...with over 20.000 inhabitants	20.8%	18.8%	32.5%	30.7%
Average teachers salary (fl per year)	...of less than 5.000 inhabitants	171.20	352.77	437.23	540.90
	...of 5.000-20.000 inhabitants	213.61	359.61	486.11	575.21
	...with over 20.000 inhabitants	309.79	412.75	770.67	899.68
Salary cost per pupil (fl per year)	...of less than 5.000 inhabitants	2.16	4.04	5.61	6.96
	...of 5.000-20.000 inhabitants	2.51	4.00	6.02	7.50
	...with over 20.000 inhabitants	4.66	7.24	14.69	16.78
% school buildings "in good shape"	...of less than 5.000 inhabitants	69.0%	65.6%	77.8%	80.0%
	...of 5.000-20.000 inhabitants	68.9%	63.6%	79.4%	82.8%
	...with over 20.000 inhabitants	79.7%	77.6%	86.3%	91.0%
Classrooms per 1000 pupils	...of less than 5.000 inhabitants	11.69	NA	12.24	13.24
	...of 5.000-20.000 inhabitants	10.47	NA	11.93	13.23
	...with over 20.000 inhabitants	10.82	NA	15.25	17.63
% enrolled in public schools	...of less than 5.000 inhabitants	66.1%	69.1%	79.5%	84.6%
	...of 5.000-20.000 inhabitants	65.5%	67.1%	76.4%	81.2%
	...with over 20.000 inhabitants	55.2%	53.2%	68.0%	73.8%
% enrolled in all schools (public and private)	...of less than 5.000 inhabitants	66.1%	70.3%	81.2%	86.2%
	...of 5.000-20.000 inhabitants	65.5%	69.6%	79.1%	83.5%
	...with over 20.000 inhabitants	55.2%	63.0%	78.2%	81.4%

Note: To ensure consistency of comparison, enrollment is measured in all years as the percentage of 6-14 year-olds enrolled in schools, even though prior to 1869 13- and 14-year-olds were not obligated to enroll. The degree of urbanization is based on town population data from the 1869 census.

Table 10 - Determinants of public schools provision, 1865 - 1880: Fixed-effects regression in levels							
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Variable	Average grades per school	Teachers per 1000 pupils	Classrooms per 1000 pupils	Teachers per 1000 inhabitants	Enrollment rate among 6-14YO	Average teacher salary	Salary cost per pupil
1865 descriptives	$\bar{X}=2.23$, s.d.=0.65	$\bar{X}=15.00$, s.d.=9.89	$\bar{X}=12.24$, s.d.=4.86	$\bar{X}=1.37$, s.d.=0.70	$\bar{X}=0.66$, s.d.=0.23	$\bar{X}=213.4$, s.d.=75.6	$\bar{X}=2.58$, s.d.=1.00
1880 descriptives	$\bar{X}=2.17$, s.d.=1.08	$\bar{X}=14.94$, s.d.=5.42	$\bar{X}=15.18$, s.d.=5.41	$\bar{X}=1.74$, s.d.=0.64	$\bar{X}=0.81$, s.d.=0.23	$\bar{X}=567.4$, s.d.=156.3	$\bar{X}=8.22$, s.d.=3.56
Literacy content $\bar{X}=0.196$, s.d.=0.075	3.31 [0.89]	24.41 [7.04]	35.95 [3.19]	4.26 [0.49]	1.07 [0.17]	3072.38 [308.29]	54.66 [4.99]
Farmer share $\bar{X}=0.134$, s.d.=0.080	-4.16 [1.04]	-22.77 [8.09]	-3.95 [3.76]	1.33 [0.56]	1.12 [0.19]	2024.65 [363.06]	18.38 [5.88]
Urbanization rate $\bar{X}=0.266$, s.d.=0.294	-0.95 [0.80]	-12.56 [6.20]	-0.97 [2.90]	0.00 [0.43]	0.18 [0.15]	248.60 [279.87]	4.00 [4.53]
Constant	2.34 [0.22]	16.58 [1.75]	7.41 [0.81]	0.54 [0.12]	0.33 [0.04]	-543.79 [78.11]	-8.80 [1.27]
N	526	546	526	546	546	526	526
within-R ²	0.081	0.058	0.383	0.328	0.362	0.491	0.468
between-R ²	0.225	0.148	0.001	0.113	0.012	0.062	0.396
overall-R ²	0.179	0.096	0.030	0.146	0.001	0.176	0.388

Note: Standard errors are in square brackets. The number of observation varies between regressions because 10 districts did not report certain variables in the 1865 school survey. Also, 273 district fixed effects were included in all specifications.

Table 11 - First-difference regressions for public school variables							
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Variable	Δ Average grades per school	Δ Teachers per 1000 pupils	Δ Classrooms per 1000 pupils	Δ Teachers per 1000 inhabitants	Δ Enrollment rate	Δ Average teacher salary	Δ Salary cost per pupil
Δ Literacy content	2.43 [1.13]	6.46 [6.89]	18.52 [3.68]	0.56 [0.48]	-0.19 [0.16]	129.69 [106.54]	9.18 [3.47]
Δ Farmer share	-4.08 [1.18]	-14.00 [7.14]	-16.29 [3.84]	-0.37 [0.49]	0.35 [0.16]	-412.23 [111.26]	-20.05 [3.62]
Δ Urbanization rate	-0.25 [0.83]	-8.24 [5.12]	-1.42 [2.71]	-0.21 [0.35]	0.01 [0.12]	-182.11 [78.55]	-6.09 [2.56]
Constant	0.23 [0.11]	2.63 [0.71]	2.51 [0.37]	0.59 [0.05]	0.18 [0.02]	321.9 [10.77]	4.97 [0.35]
N	253	273	253	273	273	253	253
Adjusted R ²	0.149	0.463	0.278	0.321	0.128	0.718	0.332

Note: Province fixed effects were included in all specifications. Standard errors are in square brackets.