THE POLICY AND THE REALITY OF PUBLIC SCHOOLING IN 19TH CENTURY IMPERIAL AUSTRIA

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Abstract: Modern schooling systems arose not only in response to the grassroots demand for marketable human capital but also as tools of political control and cultural influence. Such was arguably the case of the multiethnic Habsburg monarchy in the 19th century. I discuss the extent of the provision of schooling, considering a range of metrics including teachers, classrooms and the number of grades offered. Using the issue of the language of instruction as an example, I show that in spite of having the force of the law, the success of the public education policy depended on the active adoption of the policy by the citizenry and that this was often hampered by the cultural politics of the same policy-makers who designed the schooling system.

Keywords: economic development, political economy of education, Habsburg monarchy

JEL codes: N34, I25

1. *Introduction*

The rise of mass schooling, and especially of public schooling, constitutes one of the most prominent aspects of economic and social modernization of all developed countries over the last two centuries (Glaeser *et al.*, 2004; Becker and Woessman, 2009). Those countries of Central and Eastern Europe, which until 1918 formed various parts of the Habsburg monarchy, were no exception to this pattern. In fact, thanks to the Habsburgs' early and extensive policy focus on schooling, which dates back to the second half of the 18th century, these countries can boast some of the longest-standing histories of public schooling policy in Europe and in the world.

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In this article, I intend to harness that extensive track record to make several observations about the interconnection between the shape of public primary schooling and the success (or failure) of its expansion. Assessing the success of such policy requires careful attention to the metrics used. In case of public schooling, this is not a trivial matter. Krueger and Lindahl (2001) and Barro (2013) point out, for example, that educational attainment, measured by average years of schooling, is a flawed measure of human capital and not just due to varying reliability of educational data across countries. Because of quality differences, even countries with broadly comparable educational track records may see very different outcomes. To use historical examples, while Becker *et al.* (2009) claim that Prussia caught up with UK only thanks to her schools, Sandberg (1979) cites Sweden as a case of «impoverished sophisticate» where human capital reportedly stood entirely out of proportion to the country's level of income.

All this suggests that the specifics of the education offered – its quality, the usefulness of its content, the methods of instruction – matter greatly. My aim is to investigate the link between the curriculum, the language of instruction and other aspects of the quality of education on one side and the diffusion and expansion of the school network in the aftermath of its original inception on the other. In this investigation, I focus on the primary schooling in the western half of the Habsburg monarchy – what I call Imperial Austria. This area is a convenient laboratory for the exploration of such relationships. It was a slowly industrializing, mostly agricultural multi-ethnic empire whose schooling was tightly controlled by policy makers in terms of its content but also subject to intense political fight between various nationalities (Judson, 2016; Schulze and Wolf, 2012). I make use of the rich detail of schooling information – on school equipment and size, language of instruction, on age, gender and ethnic composition of pupils, staff availability and tuition costs – from several different historical sources that the state administration left behind.

The nature of the argument requires that the article progress from the empire-wide to the local, which is why each section will offer a more «zoomed-in» look than the last. The reason behind this strategy is that, as will become apparent, aggregation inevitably ends up hiding much of the variation in local educational experience, with important implications for the interpretation of the education data. Looking «under the hood» of aggregate, nation-wide statistics allows me to

qualify some of the conclusions that those aggregate number might *prima facie* suggest. I start with a general overview of the empire-wide policy. I then proceed to the presentation of several province-level statistics on various aspects of the schooling system, including a consideration of the nature and quality of the statistical sources. The article ends with a case study of one particular bishopric for which a dataset can be constructed containing all its villages and all the schools in them, together with detailed geographic, ethno-linguistic and educational information on the area. While some of the ideas presented here have been also considered extensively in my other publications on the topic (Cvrček, 2020; Cvrček and Zajíček, 2018a), this article allows me to treat some of the aspects in greater detail. As will emerge from the analysis, the expansion of schooling was very uneven across the Habsburg provinces. One conclusion is that a detailed, local look reveals gaps in school coverage even in areas, which according to official aggregate statistics were fully satisfying the government mandates regarding density of the school network and enrolment. One of the reasons behind these gaps was the ethno-linguistic fragmentation in certain areas, which prevented the inflexible schooling system from offering all communities instruction in their mother tongue.

2. *A short primer on Austrian education, 1774-1869*

In the Habsburg monarchy, the cultural and linguistic aspects of the primary schooling system were features of obvious importance, given the empire's multi-ethnic character. This was keenly recognized already by contemporaries (Weiss, 1904; Frank, 1898; Ficker, 1873; Prausek, 1868). Modern-day authors, such as Kořalka (1996), Urban (1982) and Engelbrecht (1984), note that the ethnic strife encouraged intense competition in the field of schooling, leading at times to a feverish expansion of schools, particularly in the 1880s and 1890s. In the early decades of the schooling system's existence, however, the preponderance of German in primary education was part and parcel of a broader pattern of Germanizing practices and the lack, or under-provision, of schooling in other languages was one of the accompanying features of its slow diffusion. The emancipation from the Germanizing influence was one of the main political goals of Austria's Slavic nationalities in the century's second half (Macartney, 1971).

The beginnings of public schooling in the Habsburg monarchy date from the *Allgemeine Schulordnung* of 1774, a law which introduced a mandatory six years of schooling for boys and girls aged 6 to 12.[1] With only 24 articles, it was brief for a major reform law and it omitted to specify much any details in many crucial areas, such as school financing or means of enforcement of compulsory attendance. Its main aim was to convert existing schools of the realm to a new, binding curriculum and to incorporate them into a nation-wide supervisory structure, which would grant the rulers firm control of the whole system. Most of the law's content was therefore devoted to regulating the school timetable, approved textbooks, and channels of reporting. Once the existing schools were successfully refashioned in line with the new blueprint and the school reform moved into its expansion phase in the 1780s, many of those details, missing in the 1774 law, had to be filled in «on the hoof» by a series of imperial decrees. This is, for example, how the system of school financing gradually fell in place: the teachers came to be paid usually via tuition fees whereas the school buildings were constructed and maintained through a tripartite arrangement, known as *Schulpatronat*, where the feudal lord supplied the building materials, the village provided all the transportation and unskilled labour and the school patron (which often was the feudal lord again but which could also be another outside party) furnished the skilled labour and the teaching aids (Cvrček, 2020, p. 90). This system of financing stayed in place until the 1860s.

In 1805, the *Allgemeine Schulordnung* was replaced with a comprehensive *Politische Verfassung der deutschen Schulen* (Political Constitution of German Schools), which compiled all the regulations that had accumulated over the previous thirty years into an imposing «school-codex». This new law went into minute detail specifying the teaching methods, curriculum, teacher appointments, remuneration, administration of the system, financing and much more. It put the whole schooling system under the ideological supervision of the Catholic Church, which was also expected to train and certify teachers. The reporting duties of teachers and school

[1] In fact, the 1774 was somewhat ambiguous about the age range and even about the total duration of schooling («at least 6 or 7 years» according to the law). For a detailed discussion of the duration and age range of compulsory schooling in Austria, see Cvrček (2020, p. 30, pp. 63-65).

supervisors were more clearly defined and more thoroughly enforced: this is why most of the available historical statistical evidence falls into the period after 1805. Overall, the schooling system had a conservative outlook, with half or more of the curriculum devoted to religious instruction and a preference for (though not insistence on) teaching in German. Writing and reading came only second in importance after religion, with arithmetic placing third, and their place in the curriculum derived from their usefulness for serving the religious instruction. Thus, reading lessons were, in reality, Bible-reading lessons and arithmetic, being least relevant to religious instruction, received the least lesson time among the «three Rs» (Cvrček, 2020, Tables 6.1 and 6.2).

By law, the schools were expected to produce obedient subjects, who knew their place, and the preferred method was memorization of religious lessons. Teachers, too, were advised to avoid any deviations from the approved curriculum. School staff was to be recruited exclusively from the ranks of certified teachers who had completed a 3-month preparation course. The central authorities never quite trusted teachers and refused to «overeducate» them because it might alienate them from their village environment and could also lead to demands for higher salary (Engelbrecht, 1984, p. 232). It was only after the 1848 revolution that the teachers' preparation was upgraded to a full year of training.

From these features of the system, one might justifiably conclude that the Austrian schooling was geared towards social control rather than increasing productivity through literacy. One of the contemporary policy terms embodying this inclination was *Standesmässigkeit*, which could be best translated as «appropriateness for one's station (*Stand*)». This concept conveyed the fundamental policy guideline that primary education should reinforce existing social stratification by inculcating in pupils its acceptance, including their particular role and position within it. Primary schools, especially those in the countryside, were not supposed to serve as a stepping-stone for any further social advance and the same policy makers who designed the primary school curriculum made sure that it would be insufficient to provide adequate preparation for admission to any kind of secondary school (Cvrček, 2020, p. 44, pp. 200-201). This certainly was true in the countryside. Country schools were supposed to be two-grade schools, that is to say, a child attending for the whole compulsory six years would attend the first grade for the first two years and

a second grade for the remaining four years, so there was plenty of opportunity for repetition and memorization.[2] The situation was somewhat different in the towns, which were allowed by law to introduce the 3rd and 4th grade, with subjects like Nature, Geography and Drawing and from which one could progress onto a secondary school, such as the classical gymnasium or a more business-oriented *Realschule*.

Schooling was compulsory for children aged 6 to 12, although the law was somewhat ambiguous in its formulation and the interpretation of this particular provision varied across time and space. The schooling was supposed to last «at least 6 or 7 years», to start when a child commenced his or her sixth year and to finish upon completing one's 12th year of life. Most provinces of the empire settled on the interpretation that this meant 6 years of schooling, from age 6 to age 12, but there were some notable exceptions. Most prominent among them was Tyrol, where children attended school for 7 years. The reason behind this anomaly lay in the traditional practice of sending children to earn money in pastoral jobs from March to October. Some Tyrolean youths traveled as far as Bavaria and Swabia for their employment. Consequently, most schools in the German part of Tyrol functioned only for half a year. To make up for the lost half-years of schooling, the age range of school attendance was one year longer in Tyrol than elsewhere.

The law also regulated the density of the school network: in principle, wherever 100 school-age children lived within half-hour of walking distance, a school was to be built with ideally 80 but certainly no more than 100 pupils per classroom and per teacher. When classrooms became overcrowded, an extra classroom was supposed to be built. Where this was not immediately possible, the law allowed schools to split their pupils into a «morning group» and an «afternoon group» and resort of half-day teaching. In practice, this meant that pupils in crowded schools received only about half of the education that they were supposed to receive.

This brief description of the Austrian schooling system shows that the assessment of the relative importance of pol-

[2] Please note that, throughout this article, I use «grade» to denote a particular progression stage (as we use it when we speak, for instance, of children «passing the first grade and progressing to the second grade»), not as an expression denoting examination result (i.e. getting good or bad grades).

itics and economics is not a trivial exercise. Already in its time, the system was considered deficient and out of date by many, yet it was apparently able to convey at least some literacy to at least some social strata. At the same time, its social-control functions were still valued by the more conservative constituency among the political elites, which suggests that they considered the system a reasonably successful implementation of their agenda. In the analysis below, I therefore move beyond simple averages and scatter plots to uncover underlying forces shaping the system.

3. *Sources of data*

Thanks to the institutionalization of centralized reporting in the 1805 law, the schooling administration produced a good amount of standardized statistical material on a number of aspects of the schooling system. First reports arrived to the Education Commission (a forerunner of modern Ministry of Education) from the realm's many dioceses in 1808. From 1828, education became an established rubric in the empire's statistical yearbook, the *Tafeln zur Statistik der Oesterreichischen Monarchie*. This is the source of most annual data on the total number of schools, teachers, pupils and staff expenditures.

In addition, teacher directories began to be published from the 1840s onwards by individual bishoprics. These not only listed by name and date of birth all the teaching staff in the diocese but often also included other information about the schools where the teachers were posted such as the number of pupils, the number of classrooms and sometimes the teacher's annual salary. One such directory is employed in section 5 below and pertains to the south-Bohemian diocese of České Budějovice (Budweis in German). It dates to 1862 and it surveyed all parishes in this bishopric, making note of all schools, together with the names and ethnic allegiance of all villages that were assigned to each school. The dataset that I was able to construct from this detailed information allows me to analyze the ethno-linguistic aspect of schooling in local settings, controlling for the pupils' mother tongue, distance to school and the school's language of instruction. Specifically, knowing the ethnic allegiance of each individual village (since ethnic boundaries rarely ran through villages but rather around them) and the

language of instruction in each school that the villages were assigned to, I can observe which children were enrolled in schools teaching in their mother tongue and which had to attend schools teaching in a language that was foreign to them. I can thus see how their enrollment status responded to the issue of language of instruction, while controlling for other characteristics of the local school.

The most detailed of all the statistics published by the Austrian government was the 1865 *Detail-Conscription der Volksschulen*, which was the first school census of all primary schools in the western part of the monarchy. This 1,000-page tome included data on every single primary school in every province, concerning the extent of teaching (half-year *vs.* full-year, half-day *vs.* full-day), the language of instruction, number of grades offered (1 or 2 grades in the countryside, 3 or 4 grades in some towns), the number of teachers and their salary, the number of school-age children in the covered area and the number of those enrolled by gender, age and mother tongue (but no cross-tabulations) and also on the legal status of the school building (owned vs rented) and its physical state. The data were collected in the spring of 1865 and, as far as I could check, are consistent with other data on similar or related demographic characteristics, for example population census.[3] I therefore consider the school census a reasonably reliable indicator of the school supply in Imperial Austria at the time.

4. *Austrian schooling: An evaluation*

The 1865 school census provides sufficiently detailed information to check whether or not the schooling system conformed to some of the more specific regulations embodied in the law. Table 1 reports some measures of the existing schooling infrastructure as well as two statistics characterizing the take-up of schooling by school-age children and, finally, an (admittedly crude) measure of the system's impact in the form of the population's self-reported literacy. The

[3] For example, I was able to cross-check the data on the age structure of pupils in the 1865 school census against the age structure reported for each province in the 1869 population census. Where the school data fell short of the number of boys or girls of a particular age reported in the 1869 census, this usually correlated well with the reported shortfall in school enrollment recorded in the school census.

statistics are reported by province to provide a sense of the overall variation across the empire.

Column (i) shows the number of (enrolled) pupils per classroom by province. The regulation stated that this measure should not exceed 100 but the table is clear that in 7 out of the 11 provinces for which this statistic can be constructed, the average pupil was enrolled in a school that was in breach of this regulation. This does not mean that the classrooms were always as overcrowded as these numbers indicate because not all enrolled pupils were actually in attendance on any given day. But even if in Bohemia, for example, a third of all enrolled pupils were absent, the average number of children in classroom would have exceeded 80. The situation was not much better in terms of the pupil-staff ration (column (ii)) although the reported values were at least a little bit lower than in column (i): it was more likely that a school would have a teacher and an assistant teaching in one classroom than that a single teacher would have two classrooms at his disposal. Column (iii) reports the percentage of pupils who were enrolled in a school that was fully compliant with existing regulations: full-day, year-round teaching with no more than 100 pupils per teacher and per classroom. The readings here show that attending a compliant school was, by and large, a minority experience. It is perhaps not all that surprising that the highest rates of compliance appeared in provinces with the lowest rate of enrollment among school-age children (column (iv)): when few children enroll, the numerators of the pupil-classroom and pupil-staff ratios are lower and it is easier to achieve compliance. The exception here was Tyrol and Vorarlberg, a province of both high enrolment and high compliance. This was a mountainous region where the school network consisted of a high number of usually quite small schools (in terms of pupil number) – one in every Alpine valley.

Yet, even Tyrol and Vorarlberg would be found widely non-compliant in terms of the overall teaching time provided on account of its practice of half-year schooling mentioned above. This peculiar local feature explains Tyrol and Vorarlberg's low reading in column (v), the expected years of schooling. This statistic reflects the varying time that children would actually spend in the classroom on account of their school's deviation from the ideal of full-day yearlong instruction. In the vast majority of Tyrolean schools

that were in session only in the winter semester and made up for it partially by requiring seven years of school attendance instead of six, the pupils stacked up no more than 3.5 years of effective school time. The minority of Tyrolean schools which taught both in winter and spring semester brought the whole province's average to 4.08 but this was still far short of the six years of schooling envisioned by the legislation. In other province, too, many of the schools that wrestled with too many pupils per classroom and per teacher resorted to either half-day teaching or even half-year/half-day teaching, thereby also falling short of the six-year benchmark. Upper Austria, for example, proved able to enroll almost all of its school-age children but since a large portion of the Upper-Austrian schools only taught for half a day, the expected years of schooling of the average child did not cross five years. Moreover, in provinces with low overall enrolment rate, the average expected years of schooling were further brought down by the many unenrolled school-age children whose expected schooling years were zero. Only Bohemia and Moravia can be said to have lived up to the schooling mandate but at the cost of significantly overcrowding and understaffing their schools.

The final two columns in the table show the literacy rates of men and women over the age of 11 from the 1880 population census. The values are most likely somewhat upwardly biased because literacy was self-reported in the census and was not tested for in any way. Nonetheless, they very strongly correlate with the enrollment rates in column (iv). The vast majority of the people in the 1880 census had been educated under the 1805 law so one could view the literacy rates as a measure of the schooling policy success to some extent. However, the bias introduced by the self-reported nature of the data means that the literacy rates cannot carry a very high evidentiary burden: data from subsequent censuses (1890-1910), which offered a breakdown by decade of birth, indicated a considerable degree of education creep where the same birth cohorts reported themselves increasingly more literate as time went by. This could have been caused by misreporting or by higher mortality among the illiterates but it could also be a sign that many adults acquired literacy at a later age rather than in school, in which case the literacy may say much less about the effectiveness of the Austrian primary school than meets the eye (Cvrček, 2020, pp. 209-221).

TABLE 1. *Indicators of Austrian schooling as of 1865 by province*

	Pupils/ classroom	Pupils/ staff	Compliance (%)	Percent enrolled	Expected years of schooling	Reported literacy rates in 1880 (%)	
				Among school-age children		Men	Women
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Lower Austria	105.9	94.5	38.2	82.2	4.80	91.9	87.6
Upper Austria	104.5	103.8	30.7	92.6	4.99	89.8	87.1
Salzburg	80.2	69.3	74.9	85.4	5.50	81.3	79.4
Styria	115.9	105.8	38.5	69.8	4.09	67.5	56.7
Carinthia	77.0	73.5	74.6	61.3	3.83	57.5	43.7
Carniola	118.0	110.3	41.5	44.3	2.75	35.2	24.0
Austrian Littoral	78.6	70.2	66.2	40.9	2.65	40.1	28.7
Tyrol & Vorarlberg	54.1	51.2	92.3	95.6	4.08	87.5	81.3
Bohemia	122.6	114.4	29.0	90.5	5.72	90.7	82.5
Moravia	125.7	112.0	31.7	91.8	5.73	85.2	73.7
Silesia	116.3	106.5	32.5	84.7	5.30	79.8	66.6
Galicia		50.3		23.4		15.3	7.9
Bukovina		45.4		11.2		12.4	6.0
Dalmatia		19.4		13.7		15.7	5.3

Source: Cvrček (2020, Table 3.2, Table 5.1); K.K. Statistische Zentral-Commission (1870; 1882a).

Table 2 offers a different angle, splitting the statistics by vicariate – an administrative unit, which encompassed, on average, an area of about 363 km^2 and was home to an average of 3,036 children aged 6-12.[4] When a school was built, the area around it, usually corresponding to the parish, was considered «covered» (*eingeschult*) and the school-age children living there were obliged by law to enroll and attend the particular local school (this is what the «school coverage» statistic means in Table 2). If a town or a parish failed to provide schooling, the district authorities had at their disposal some carrots in the form of (rather limited) subsidies and some sticks in the form of power to sequester a portion of the local budget and assign it to schooling. The upper echelon of both public and church administration expressed, however, a strong preference against conflict between school district supervisors and individual communities (Helfert, 1860, p. 19). Communities were expected to enforce attendance.

[4] Considering that these age cohorts usually represent about 13-14% of the total population, we can infer that the average vicariate had about 22-24,000 inhabitants.

As regards the ethnic/language question, the post-1848 official policy no longer endorsed education in German explicitly but issues of language of instruction and of public support for non-German schools remained a sore spot practically to the end of the monarchy. Non-German nationalities continuously complained about the residual Germanizing tendencies of the educational system, which was, after all, run by an overwhelmingly German civil and church administrations and designed by German policy makers. The 1865 school census includes 22 vicariates with zero German students, which nonetheless had at least one German or bilingual school. The broad outlines of the situation are summarized in Table 2, which also reports simple *t*-tests for mean differences. The German-majority vicariates did have almost everything better and by a significant margin: more classrooms and teachers per 1,000 school-age children, more public spending per child and better coverage by school infrastructure. Only the curriculum extent, measured by the average number of grades per school, was comparable between German and non-German vicariates. The German vicariates fell behind, however, in provision of education in minority languages, i.e. in building schools for the local Slav minorities, while German minorities in non-German vicariates had access to instruction in their mother tongue in 95.3% of all relevant cases.[5]

The bottom four lines of the table offer a few basic economic indicators that provide some basic economic context to the educational statistics. The better school provision in German vicariates could be a result of their higher level of economic development but the economic variables at the bottom of Table 2 cast some doubt on that: some are better in German vicariates, some in non-German ones, some show no significant difference.

The Germans were certainly the most vocal and most politically organized among all the nationalities, and they asserted their clout not through elections but through more informal (and therefore harder-to-measure) channels.[6] The preponderance of German speakers in public administration alone

[5] Note that these particular measures are calculated from a subsample of vicariates with more than 100 minority students, i.e. those where a minority school may be reasonably justified.

[6] Before 1865, the Empire had organized mere two nation-wide elections (1848 and 1861). The suffrage was limited and unequal. Only about 20% of adult males had the vote in the 1860s. See Cvrček and Zajíček (2018a, Table 2).

TABLE 2. *Comparison of education variables in vicariates with German vs. non-German majorities, 1865*

	Means		*t*-test	*p*-value
	German (N = 274)	Non-German (N = 272)		
Average grades per school	2.17	2.17	–0.04	0.96
Classrooms per 1000 school-age children	13.97	10.09	–7.69	0.00
Teachers per 1000 school-age children	15.06	10.34	–8.73	0.00
Spending on staff per child (in fl per year)	2.28	2.05	–3.09	0.00
School coverage (%)	96.98	94.38	–3.16	0.00
*1(school with minority language of instruction is present in vicariate)	0.704	0.871	2.46	0.02
*1(parallel class with minority language of instruction is present in vicariate)	0.852	0.953	2.09	0.04
Percentage of 6.0-12.0YO children enrolled	90.10	78.04	–8.68	0.00
Number of steam engines	4.82	5.26	0.38	0.70
Share of industrial employment (%)	24.9	20.4	–3.78	0.00
1(railroad access)	37.50	30.30	1.78	0.08
Distance to railroad	22.12	19.69	–1.28	0.20

Note: * based on 139 vicariates with at least 100 German students and 100 non-German students. This table does not include data from the provinces of Galicia, Bukovina and Dalmatia which did not submit data on many of the variables collected as part of the 1865 school census.

Source: K.K. Statistische Zentral-Commission (1870); for railroad access see Kohn (1881); for steam engine data see K.K. Statistische Zentral-Commission (1864).

was enough to make a difference. For example, in Styria and Carinthia, two provinces with sizeable Slovenian minorities, the German-staffed public administration did not operate any schools teaching in Slovenian until the mid-1840s on the grounds that the Slovenian language was simply neither viable nor desirable as a language of instruction (Domej, 1988). Another example of such pro-German influence was the pressure that church authorities, who acted as the «ideological supervision» of the whole schooling system, put on non-German schools to introduce German as the language of instruction in classes beyond the second grade (Kneidl, 1898, p. 187; Cvrček, 2020, pp. 74-79). Table 2 suggests that the German political voice, however informal and unobservable directly, may have had measureable impact on the disbursement of public funds in matters of schooling and especially minority German schooling. The vicariate authorities usually did not stand in the way of a new school being built by a determined community, but they could make it easier and cheaper by providing a subsidy to a within-vicariate minority who may not have been big enough to support a school on its own.

5. *How much did language of instruction matter?*

Getting at the influence of the ethnic question not just from the point of view of the authorities but also from the point of view of the «customers» – the parents and pupils – requires a more detailed look at the costs and benefits involved. By the second half of the 19th century, the surge of nationalism and cultural rebirth was well under way among several of the nations under the Habsburg scepter. As a result, the overt or implicit Germanizing pressure of the authorities was, in some areas, encountering a pushback from local Slav communities, who saw the school as a potential tool for raising the national awareness and cement in the children a sense of belonging to a their own ethnic group.[7] In short, the question of the language of instruction was not just an issue of whether the pupils understood what was going on in the classroom but also an issue of their initiation into this or that national community. Many parents felt strongly about the potential national alienation of their children, should they be exposed to the «wrong» language in school, and so this matter was highly political (Škola a život, 1863, pp. 133-137). Just in 1864, for example, the local provincial assembly in Bohemia discussed and ultimately rejected on nationalistic grounds a law that would have required both Germans and Czechs to learn both languages current in the province (*Sprachenzwangsgesetz*) (Urban, 1982).

The analysis of this problem demands a look at enrollment as it depended on language of instruction not at the vicariate level but at the level of individual schools: in an ethnically mixed territory, some schools taught in German and some in the local Slav language. When the assignment of villages to schools failed to produce ethnically homogenous student body, some German pupils faced the prospect of attending a Slav-teaching school and some Slav children the prospect of enrolling in a German school. Here is where I take one particular area, the bishopric of Budweis (České Budějovice) in southern Bohemia, for which I was able to find a published directory of all parishes, including all local schools and the villages that were assigned to each school (Trajer, 1862). The

[7] For example, within months of the political liberalization accompanying the beginnings of constitutional rule in Austria in 1860, the Czech educational periodical *Škola a život* expressed the hope that political reforms would also sweep away the existing schooling system which, it stated, was geared «towards Germanization and thus to intellectual subjugation» of Czech pupils (Škola a život, 1861, p. 3).

source includes information on the ethnicity of each village, which I also cross-checked against other sources, specifically the 1900 population census – the only Habsburg census that notes ethnic composition on the village level (K.K. Statistische Zentral-Commission, 1904). The Budweis diocese included 732 schools (for 726 of which the data were reliable enough to include them in our analysis) and 3,716 villages and towns that were assigned to them. Most of the villages were ethnically homogenous – either Czech or German – but there were 64 schools in the diocese, which had one language of instruction but pupils of both ethnic backgrounds. This allows us to analyze and compare enrollment of ethnic Czechs in Czech schools (of which there were 501) and ethnic Germans in German schools (231) with both Czech and Germans in schools that taught in other than their mother tongue. Moreover, I was able to use the historical maps from the 2nd military survey of the Austrian army (available at www.mapy.cz), which took place in 1836-1852, to establish the shortest routes and walking times to school from each of the 3,716 villages. This allows me to control for distance to school as a determinant of enrollment.

Tables 3 and 4 show the descriptive statistics of the Budweis dataset. As in Table 1, it shows that the German schools of this particular diocese were in several respects better equipped, having more teachers and classrooms for a given number of students. Students going to German schools had a somewhat shorter trip to make on average but the difference was not too large practically. What cannot be showed in the context of Table 4, however, is that a much bigger difference existed between Czech and German pupils when they attended the same school: usually, the group whose mother tongue was different from the school's language of instruction also lived farther away from the school (1.67 km *vs.* 1.21 km; $t = -2.97$, p-value = 0.00). Apparently, the mixing of nationalities in one school was done out of lack of a better solution: the Czechs assigned to a German school as well as the Germans assigned to a Czech school had no closer school to go to. It also highlights why it is important to control for the distance to school, otherwise the farther-living ethnicities could seem like staying away from school due to the «wrong» language of instruction when in fact their absence may have been caused by the greater distance.

Given the local supply of schooling, the enrollment rate is presumably the result of the weighing of costs and ben-

TABLE 3. *Descriptive statistics for the Budweis diocese*

Variable	Mean	Std. Dev.	Min	Max
Proportion enrolled in school among 6-12 year olds	0.898	0.159	0.312	1.483
Number of grades per school	1.864	0.810	1	7
Number of teachers per school	1.729	1.483	1	17
Number of pupils enrolled per school	165.3	126.23	14	1,074
Annual tuition fee (in gulden)	1.972	0.419	0.000	5.030
Average distance to school (km)	1.377	0.759	0.250	4.720

Note: N = 726; the unit of observation is a school.

Source: Trajer (1862), www.mapy.cz; K.K. Statistische Zentral-Commission (1870).

TABLE 4. *Comparison of Czech-language and German-language schools in the Budweis diocese*

Schools:	Czech	German	*t*-statistic	*p*-value
Number of grades	1.87	1.88	0.21	0.82
Teacher salary	249.7	220.7	–3.65	0.00
Tuition fee	1.98	1.97	–0.27	0.79
Number of pupils enrolled	194.9	144.9	–4.62	0.00
Pupils per classroom	110.0	92.9	–4.66	0.00
Pupils per teacher	112.1	87.1	–7.68	0.00
Distance to school (km)	1.41	1.27	–2.17	0.03
Walk time to school (minutes)	25.3	23.4	–1.82	0.07
Enrollment rate (%)	89.4	90.5	0.87	0.38

Source: See note under Table 3.

efits by pupils and parents. The costs consisted first of the tuition fee (about 2 gulden per year – equivalent to about three or four days of unskilled labourer's wages), levied by each school, and of the distance to school which each pupil needed to travel every day: in both cases, the higher the cost, the lower the enrollment, *ceteris paribus*.[8] These factors are not of much interest in themselves, but they are important controls. What is of primary interest is where the benefits of schooling came from, because this issue goes directly to the question of what kind of human capital the schools were generating: whether it was the useful, productivity-enhancing human capital that could increase the pupils' future wages, or whether it was the cultural human capital that served ethnic socialization, or both. Thus interpreted,

[8] Strictly speaking, one could also include the local child wage, given that employment was potentially the next best alternative available to the children. I do not have data on local child wage; moreover, I include vicariate fixed effects, which arguably absorb the influence of the local labour markets.

the benefits of schooling were determined by two aspects: the extent of the curriculum (number of grades taught) and the interaction between language of instruction and the students' mother tongue; the rest of the content was determined by law, which allowed no variation from school to school.

In the following regression analysis, the dependent variable is the proportion of 6-to-12-year olds enrolled in school, a number falling between 0 and 1 by definition. This is calculated for each of the 726 schools that make up the dataset. The specification can therefore be written as:

$$(1) \qquad Y_i = \alpha + \beta_1 1(German_i) + \beta_2 1(L2_i) + S_i\gamma + D_i\delta + \epsilon_i$$

where S_i is a vector of school characteristics such as the number of grades offered («dummified» into several separate indicator variables), the tuition fee and the number of teachers available.[9] Next, D_i is a set of variables capturing the distance to school of pupils from various villages assigned to a given school. The dummy variable $1(German_i)$ is equal to 1 when a school had German as language of instruction, zero otherwise. The coefficient β_1 reflects the potential difference in market returns to knowing German *vs.* knowing Czech. After all, the German language was the predominant language of business and administration throughout Central Europe, which may have provided stronger incentives to parents to send their children to a German school, when they were assigned to it. In this context, the Czech parents in particular would have had to weigh conflicting incentives: sending their son to a German school may help him get ahead in the world but at the same time it might denationalize him. I expect the coefficient β_1 to be positive. The dummy variable $1(L2_i)$ equals 1 when the school's language of instruction is not one's mother's tongue. Here, L2 refers to the standard linguistic notation for a person's second language (L1 being reserved for one's mother tongue). The coefficient β_2 is identified off those schools that had an ethnically mixed student body, where therefore one of the groups faced instruction not in its mother tongue (I call such pupils «L2-learners» for short). Equation (1) is estimated using simple weighted OLS,

[9] Note that, since a few of the elementary schools were attached to a lower-secondary school, the set of grade dummy variables includes six-grade and seven-grade schools.

because one can reasonably argue that all the explanatory variables are exogenous to enrollment rate (more on this below). The weighting is based on the size of each school, in order to avoid a situation where the regression results are dominated by outlying observations from small rural schools with only a handful of pupils.

Any language is both a practical tool of communication, which one uses to function in a particular language community (e.g. to make a living), as well as a building block of one's identity, signifying a deeply-felt belonging to a language community or ethnicity. My aim is to use the difference in the practical and the cultural importance of German and Czech languages to Germans and to Czechs to discern whether the primary schools were teaching practical skills or just pushing a cultural or language agenda. In order to make that distinction, I run, as a backdrop, another similar specification along the lines of Eq. (1) where I replace $1(German_i)$ and $1(L2_i)$ with $1(Girls_i)$. As dependent variable, I use boys' and girls' enrollment rates, instead of Czech and German enrollment rates. The reasoning is as follows: the difference between boys and girls lay in the human capital returns they would receive in the labor market, whereas the difference between Czechs and Germans was in the ethnic identity they wanted to inculcate in their children. If the school curriculum conveyed primarily useful marketable human capital without any particular cultural or linguistic agenda, we should see big difference in enrollment between boys and girls, *ceteris paribus*, but not between L1-learners and L2-learners. This observation is motivated by the fact that men and women faced different prospects on the Austrian labour market of the time. While about 97% of men and 71% of women above the age of 14 reported some kind of occupation in the 1869 census, the employment options open to men were much more varied and their wages were also higher (Cvrček, 2020, Table 5.1). Women were more predominantly employed in a limited number of sectors such as textiles and processing of organic products such as tobacco, food and leather, as well as paper making and printing. Moreover, the skill content of the jobs performed by men was generally higher than that performed by women (Cvrček and Zajíček, 2013, Figure 4).

If, on the other hand, the curriculum did not teach much anything useful but rather worked as a conduit for ethnic and cultural socialization, then the difference between the

L1-instructed and L2-instructed will be large while that between boys and girls will be small. After all, there is little difference between boys and girls in their receptivity to cultural socialization through schooling. A German girl who becomes literate may not reap much benefit from it in the labor market but she can read Goethe and Schiller just as well as a German boy. If both the gender gap and the L1-L2 gap turn out large, then perhaps the schools taught marketable skills and cultural identity in comparable measure.

One potential complication is that a large L1-L2 gap might be a result not of resistance to denationalization through school but simply of the fact that learning new skills (even very practical ones) in a non-native language may be relatively harder. Modern-day research provides some empirical evidence to back up this view. For example, the 2011 investigation into worldwide trends in education in mathematics showed that L2-learners attained generally lower scores in math by fourth grade. But while the difference was statistically significant, it was not very large practically: 501 *vs.* 477 on a 0-1000 scale (Mullis, Martin, Foy and Arora, 2012, pp. 181-188). Some much smaller but more detailed studies, such as Vukovic and Lesaux (2013, Table 1), found almost no statistical difference between L1-learners and L2-learners (aged 6-9) across a whole range of specific measures of either literacy or numeracy, except for a richer vocabulary in local majority language among L1-learners. Bonifacci *et al*. (2016) obtained similarly nuanced result for pre-schoolers. Nicolay and Poncelet (2013) even suggest that L2-learners may reap cognitive benefits from instruction in a non-native language. On the other hand, Kleemans *et al.* (2011, Table 2) found that among kindergarten children, L1-learners had a statistically significant edge over L2-learners in several measures of numeracy. But again, statistically significant difference does not imply a large difference, only a systematic one. For our purposes, any learning difficulties of L2-instructed pupils that are «merely» systematic but practically not too large are unlikely to pose too much of a problem: the Austrian curriculum was very limited and rather repetitive, spreading two years' (two grades') worth of content across six years of attendance. Hearing the same basic literacy and numeracy content, say, four times over in four consecutive years would have given L2-learners several opportunities to close the gap arising from the language barrier, should they find the content worth their while. This

consideration together with the nationalistic tenor of most publicly voiced complaints about language mismatch in schools leads us to the conclusion that the language question was primarily a cultural/ethnic one rather than a practical one. I interpret the L1-L2 gap in our estimations accordingly.

The results of the statistical analysis are presented in Table 5. Let us first briefly consider the impact of school characteristics, i.e. the control variables S_i. Models (i) to (v) show that enrollment was higher when a school taught higher-grade curriculum but that it was flat across one- to four-grade schools (one-grade school is the omitted category among the grade dummies). These were the majority of schools, as only 5 out of the 726 schools in the sample had more than four grades, while all the rural, country schools had one or two grades (630 schools). Enrollment rate also declined with distance to school, which has also been split into seven intervals, each with its own indicator variable (the omitted category being pupils living more than 5.5 km from the school). Generally, students living more than 1.5 km away from the school had 2-8% lower enrollment. Beyond 3.5 km from school, distance has an even starker impact on enrollment but, in our sample, only about 10% of all students lived farther than 3.5 km from school. Still, what these results suggest is that even though the Budweis diocese was nominally in line with the government regulation in terms of per-teacher and per-classroom pupil numbers (as can be inferred from Table 3), in reality the density of school network was deficient to a degree that it affected enrollment of pupils.

Next, there is very weak response to the tuition fee and also to the supply of teaching staff. This last variable is perhaps the only one where one may suspect endogeneity: it is plausible that if enrollment increases in a given school, an extra teacher may be hired to help with the teaching. However, with 427 schools in the sample being staffed by one and 208 schools by two teachers, the variation of the number of teachers with respect to enrollment is likely very low. Still, in one previous analysis of the Austrian schooling data, the likelihood of hiring a new staff turned out to increase in rural schools when a school reached about 130 pupils per teacher (Cvrček and Zajíček, 2018b). In order to make sure that the present results are not affected even by the (unlikely) endogeneity, I limit the sample, in models (ii) and (v), to only those schools that had fewer than 130 pupils per

TABLE 5. *Weighted OLS regression results – dependent variable: proportion enrolled among 6-12 year old*

	Boys *vs.* girls		L1-instructed *vs.* L2-instructed					
	All schools	ppt < 130a	All schools		ppt < 130a	Mixed schools only		
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
1(Girls)	–0.0423	–0.0414						
	[0.0093]	[0.0106]						
1(German language of instruction)			0.0129	0.0339	0.0122	0.0508	0.0845	0.0611
			[0.0145]	[0.0269]	[0.0298]	[0.0391]	[0.0431]	[0.1266]
1(L2-instructed)			–0.0963	–0.0770	–0.0777	–0.1046	–0.1399	–0.1954
			[0.0580]	[0.0555]	[0.0691]	[0.0670]	[0.0724]	[0.0921]
1(two-grade school)	0.0134	–0.0057	0.0105	0.0134	–0.0071			
	[0.0119]	[0.0136]	[0.0152]	[0.0148]	[0.0168			
1(three-grade school)	–0.0127	–0.0424	–0.0167	–0.0118	–0.0467			
	[0.0187]	[0.0214]	[0.0251]	[0.0219]	[0.0246]			
1(four-grade school)	0.0021	–0.01	0.0263	0.0137	–0.002			
	[0.0332]	[0.0435]	[0.0394]	[0.0347]	[0.0463]			
1(six-grade school)	0.0978	0.0479	0.0468	0.0996	0.0366			
	[0.0696]	[0.1171]	[0.0761]	[0.0671]	[0.1001]			
1(seven-grade school)	0.1249	0.0974	0.1044	0.1233	0.0858			
	[0.0579]	[0.0667]	[0.0514]	[0.0613]	[0.0698]			
Number of teachers in school	0.0039	0.0074	0.0033	0.0037	0.0079			
	[0.0050]	[0.0065]	[0.0049]	[0.0041]	[0.0050]			
Annual tuition fee	0.0069	0.0145	0.0094	0.0082	0.0152			
	[0.0134]	[0.0168]	[0.0135]	[0.0137]	[0.0169]			

TABLE 5. *(follows)*

	Boys vs girls		L1-instructed vs L2-instructed					
	All schools	ppt < 130a	All schools		ppt < 130a	Mixed schools only		
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
Fraction of school-age children living...								
... within 0.5 km from school	0.2849	0.4423	0.2213	0.2961	0.448			
	[0.0765]	[0.1102]	[0.1021]	[0.1004]	[0.1422]			
... between 0.5 and 1.5 km from school	0.2726	0.4083	0.2542	0.2915	0.4311			
	[0.0801]	[0.1128]	[0.1089]	[0.1069]	[0.1488]			
... between 1.5 and 2.5 km from school	0.2578	0.442	0.1661	0.2524	0.4187			
	[0.0780]	[0.1122]	[0.1068]	[0.1044]	[0.1471]			
... between 2.5 and 3.5 km from school	0.2132	0.3549	0.1625	0.2269	0.3633			
	[0.0804]	[0.1138]	[0.1057]	[0.1045]	[0.1469]			
... between 3.5 and 4.5 km from school	0.004	0.1026	0.0119	0.0477	0.1685			
	[0.0953]	[0.1206]	[0.1328]	[0.1261]	[0.1595]			
... between 4.5 and 5.5 km from school	0.0421	0.1243	0.0206	0.0243	0.0589			
	[0.0802]	[0.0969]	[0.1147]	[0.1042]	[0.1311]			
Average distance to school						–0.0544	–0.0601	–0.0028
						[0.0268]	[0.0338]	[0.0569]
Constant	0.6546	0.5031	0.6650	0.6193	0.4771	0.9553	0.8521	0.9154
	[0.083]	[0.1171]	[0.1055]	[0.1079]	[0.1503]	[0.0391]	[0.0518]	[0.0913]
N	1,438	1,115	790	790	617	2×64	2×64	2×64
R-squared	0.217	0.260	0.069	0.227	0.267	0.107	0.381	0.535
Adjusted R-squared	0.190	0.226	0.051	0.176	0.204	0.085	0.222	0.131
Fixed effects	34 vicariates		None	34 vicariates		None	23 vicariates	63 schools

Note: A «ppt < 130» stands for «schools with less than 130 pupils per teacher». The dependent variable is the proportion of pupils of a given type (i.e. boys, girls, Czechs, Germans) enrolled in school. Standard errors are reported in square brackets. «L1-instructed» refers to pupils instructed in their first (native language). «L2-instructed» were pupils taught in a non-native language.

teacher and where, therefore, there was little likelihood that a new teacher would be hired. In such schools, any potential student may reasonably consider the supply of teachers as given and fixed. Models (ii) and (v) yields structurally the same results are (i) and (iv), respectively.

Having discussed the school characteristics, let us consider the gender comparison. Columns (i) and (ii) investigate the determinants of enrollment for boys and girls.[10] Girls report a somewhat lower enrollment but the effect is not very large practically: about –4 percentage points where average enrollment is 89%. In models (iii)-(v), I introduce the language-related variables. All three models show that German schools had on average marginally higher enrollment rate than Czech schools ($\beta_1 \in (0.012, 0.034)$ in columns (iii)-(v)) and that both Czechs and Germans were significantly put off enrollment when a school did not offer instruction in their mother tongues ($\beta_2 \in (-0.096, -0.077)$). This negative effect of not being instructed in one's mother tongue is about twice as large as the negative effect of being female, depending on specification. Put together, the results indicate that in these Austrian primary schools, the cultural agenda was stronger than labor market considerations.

Yet, there is an important difference between the two sets of estimations in that almost every school had both boys and girls while only 64 schools had both Czech and German pupils. Thus, while the coefficients on $1(Girls_i)$ in models (i) and (ii) are based on the considerable variation in boys' and girls' enrollment across the sample, the vast majority of schools were ethnically homogenous and teaching in their pupils' mother tongue and so for some 90% of the sample $1(L2_i) = 0$. One of the consequences is that β_2 is statistically insignificant in columns (iii)-(v) while the coefficients on $1(Girls_i)$ are relatively precisely estimated, with low standard errors.

In order to really zero in on the L2-instructed pupils, in columns (vi)-(viii) I limit the sample to just the 64 mixed schools. Since all of those include both Czech and German pupils and therefore generate two enrollment rates, I can re-estimate the regressions not only with district fixed

[10] The high number of observations (1,438 and 1,115 in the two models) reflects the fact that the vast majority of schools were coeducational and therefore enter the regression twice. Seven towns had separate schools for boys and girls, which is why the number of observations in column (iv) is not exact double of the observations in column (ii).

effects but with school fixed effects.[11] The result in column (viii) – the «most ceteris paribus» of our specifications – shows that the impact of the «wrong» language of instruction was quite high: –0.192. This is not only higher than the estimates in columns (iii) to (v), it is also considerably higher than the gender gap in columns (i) and (ii). At the same time, the coefficient becomes statistically significant at 5% (note that β_2 is also significant at 6% in column (vii)). At the same time, the impact of average distance to school gradually becomes practically unimportant as we move from column (vi) to column (vii): the difference in enrollment between L1-learners and L2-learners was not related to the (significant) difference in distance to school. I therefore conclude, in line with our previous reasoning, that the primary school curriculum had much stronger impact in terms of acculturation rather than skill endowment and so, not surprisingly, parents responded by being considerably more reluctant to send their children to those schools that did not supply the appropriate product: instruction in their own mother tongue.

6. *Conclusions*

Accounts of Austrian political history show unequivocally that education, its extent, availability and language of instruction were highly politicized matters. The comprehensiveness of the 1805 law, which specified almost all aspects of the schooling in minute details, betrays the belief (or hope?) held by the top-level policy-makers that much of the shape and form of the overall educational system could be brought about by the force of law. The data from the school census and the analysis of local schooling situation in one of the empire's dioceses suggests otherwise.

Even several decades after the law's promulgation, the law was far from comprehensively enforced and in many areas – even whole provinces (such as the peripheral «new» provinces) – the provision of schooling stayed substantially behind the legally mandated levels. Moreover, part of the reason why the proper enforcement of the law's parameters

[11] The school fixed effects of course wash out all the school-level controls S_i in column (viii). For comparison's sake, I also leave them out of specifications (vi) and (vii).

lagged behind the target values lay in the law itself. With its focus on religious instruction and its emphasis on the social-control role of schooling, the schooling system had relatively little to offer to those who sought in education a way to acquire some productive, return-bearing human capital. Since the schooling system was geared towards cultural aims, rather than economic ones, cultural aspects – such as language of instruction – loomed large in parent's decisions whether to send their child to school or not, so much so that in ethnically mixed areas, instruction in the «wrong» language was enough to discourage a non-negligible proportion of the children from enrolling.

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