

CHANGES IN THE RURAL ELEMENTARY SCHOOLS NETWORK IN CZECHIA DURING THE SECOND HALF OF THE 20TH CENTURY AND ITS POSSIBLE IMPACT ON RURAL AREAS

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Abstract: Equality in access to education is a basic right of every citizen of the Czech Republic. However, this principle exhibits not only a social aspect but also a spatial, geographical dimension. The absence or closure of elementary school can be a spatial expression of unequal access to elementary education and a part of the process of peripherization of certain area. The consequences of such development are often most intensive in less densely populated rural areas. Thus in the article the changes in spatial distribution of elementary schools in Czechia between 1961 and 2004 are analyzed with special focus on rural areas. These changes are not only characterized but their possible outcomes and impacts on the functioning on local communities in rural space are being discussed as well.

Key words: elementary school network, rural space, spatial polarization, municipalities, Czechia

Souhrn: Rovnost přístupu ke vzdělávání je základním právem každého občana České republiky. Nicméně tento princip má nejen společenský, ale také prostorový, geografický rozměr. Absence základní školy nebo její uzavření může být prostorovým vyjádřením nerovnoměrného přístupu k základnímu vzdělávání a součástí procesu periferizace určitého území. Dopad takového vývoje je zpravidla nejvíce pocíťován v méně zalidněných venkovských oblastech. V článku se proto analyzují změny v rozmístění základních škol v Česku v období 1961 až 2004 s důrazem na venkovské oblasti. Tyto změny jsou nejen charakterizovány, ale je diskutován i jejich možný dopad na fungování lokálních komunit na venkově.

Klíčová slova: síť základních škol, venkovský prostor, prostorová polarizace, obce, Česko

1. Introduction

According to Law No. 561/2004 Coll. on Education in the Czech Republic, school attendance is compulsory for nine school years (however, he/she may study at this school only before he/she reaches age of seventeen years). This phase of education is known as “elementary” and conducted in elementary schools, established either by the state or by the administrative region

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or municipality or an association of municipalities (these comprise most of the elementary schools in Czechia), this education is free of charge for all citizens of the Czech Republic or those from other European Union member states. Considering the fact that the elementary education is compulsory and that Law No. 561/2004 Coll. mandates, among other items, “the principle of equal access to education”, without any discrimination, we presume, that each pupil in Czechia should have the possibility to attend elementary school, without significant difficulty.

However, the above-mentioned principle of equal access to education exhibits not only a social aspect, but also a spatial, geographical dimension (HAMPL 1998; Musil, Müller 2008). We suppose that in areas, where elementary schools are absent or a large amount of such schools were closed over the years, pupils are at a disadvantage in comparison with pupils who have an elementary school not far from their home. The absence of elementary schools or their closure can be a spatial expression of unequal access to elementary education and has been a part of the peripherization process of certain areas of the country. The importance of the process is increased, due to the fact that a school has significance beyond its ostensibly educational role, especially in small villages (Neate 1981; quoted in Pacione 1984).

Thus, the aim of this article is to determine whether disadvantaged territories exist or could possibly exist in Czechia, in terms of poor accessibility of elementary education, represented by more intensive school closures in these areas, during the last fifty years. We suppose that such regions will be representative of rural areas, nevertheless we shall not confine ourselves to merely monitoring the network of rural elementary schools. To understand the situation, it is first necessary to examine processes that effect the entire network of elementary educational institutions and, only afterwards, to look for differences in the development of urban and rural schools and discuss impacts on the rural population.

Our article is a part of larger project dealing with elementary schools network changes in Czechia during the second half of the 20th century and the resulting impact on the functioning and existence of local and regional communities, so the findings from this article are inevitably partial. We will confine our attention only to investigating regions, which could be considered “problematic”, on the basis of a high intensity of elementary school closures, during the second half of the 20th century. Thus, the analysis presented should be understood more as a partial way to comprehend reality and a tool for subsequent field research. As such, it is more the means than the final result of our research.

2. Research on education and rural schools

Research on education in most West-European countries and in the USA has primarily been connected to the urban environment (DeYoung 1987). The mutual relationship between a school institution, its surroundings and the community was, for example, studied by scholars at the University of Chicago during the 1920s, with a specific focus on large American cities. This interest in the urban environment has dominated research on inequalities (especially concerning race, ethnicity and gender) in education (e.g. Halsey, Lauder, Brown, Wells, eds. 1997) up to the present day. Only later did attention, directed at rural regions and their schools, emerge, initially as a part of broader research interests focusing on the problems of rural areas (e.g. Pacione 1984). During the final decades of the 20th century, it has appeared in a number of studies with themes such as education for economic development, the role of the school in community, problems with school consolidation, issues concerning the professional staff in rural schools, etc. (e.g. Bell, Sigsworth 1987; Bryant, Grady 1990; Kvalsund 2004; Lyson 2002; Miller 1995). These initiatives have been developed especially in the field of sociology of education, though there have been several timid attempts to define a geography of education (see Johnston 2000; Marsden 1977).

Czech science pays attention to themes of the community – school relationship and rural schooling, to an even lesser extent than in the so-called western countries. Certain attention was directed at this phenomenon, in the field of pedagogy, during the 1960s (Hintnaus 1969), and recently several papers have emerged about the smallest schools in rural areas (Emmerová 2000; Trnková 2006, 2008b). Rural school institutions are mentioned occasionally in geographical or sociological papers, in relation to other topics, such as quality of life in rural areas or facilities in rural municipalities (see e.g. Andrlé 1995; Blažek 2004; Majerová 2003,

2005) and with research into developmental issues of rural and peripheral areas (Musil 2002, 2008; Novotná ed. 2005; Perlín 1999 etc.). The functioning of school institutions in relation to demographic developments in Czechia has recently been a very often-discussed issue in applied research (e.g. Tesárková 2007).

To this point, there have not been many papers, in Czechia, stressing the relationship between school and the local region, school and community or the perception of school as an institution ensuring a variety of other functions for local communities, in addition to education. With the exception of Hampl (2004), changes in the spatial pattern of school networks and their impact on communities have not been sufficiently discussed. A school, not only a rural one, has many functions: for example, it is an important place for socialization, network building (Coleman 1997), local community meetings for events organized by the school for the larger public. In her paper, Trnková (2008a) identifies some additional services, which either school buildings, or their staff, provide to the municipality and the community. These include, for example, public meal (lunch) preparation, operating a library, keeping a municipality chronicle. Other examples are mentioned in Sell, Leistriz, Thompson (1996) or Miller (1995) and include the services, which the pupils themselves provide (small mending, handicrafts). A school can also help young people to develop a relationship to the region they live in, to establish a consciousness of belonging to the community living in the region (Chromý, Janů 2003) and to become interested in events in the region and to actively participate in resolving local/regional problems.

With a school closure, many of these functions, which are clearly important for the local community, can be lost. Of course, some of these functions can be provided by other institutions (whether these are formal institutions, such as a voluntary association, or merely informal groups of neighbours). The presence of such institutions is certainly valuable, even in the case that an elementary school exists in a municipality. Nevertheless, the elementary school is the only institution with compulsory and unavoidable attendance. Therefore the school may effectively transmit knowledge to pupils that is beyond the standard curriculum, dealing with everyday life in the given municipality as well as surrounding environment.

Finally the question remains as to whether similar relations will also develop around a school serving a larger, commuting region. With the changing geographical organization of society and such processes as the concentration of phenomena and functions, the growing heterogeneity of space as well as a greater organicity of the complex – i.e. the mutually bilateral cohesion of particular parts (for more details see Hampl 1998) – there are certainly accurate statements that can be made in favor of such closings: the operation of (small) elementary schools in rural areas is too expensive and is wasteful, the lower number of teachers with specializations is not able to ensure specialized education covering all study subjects, etc. (see e.g. Pacione, 1984). On the other hand, proponents of small rural schools contradict an overall dependence between the size of a school and the quality the education it provides. They also reject the proclaimed economic benefits connected with school consolidation. Some of them say that the expenditures saved due to school consolidation represent a future loss in subsidiary intervention in peripheral, rural areas, because areas with a high intensity of closures of school and other services, institutions or businesses are threatened with a lower standard of living, leading to degradation of the environment, depopulation of the region or simply unattractiveness for migration (Lyson, 2002). Regions with a low number of elementary schools would probably not be very attractive for young families with children and this reality will weaken their potential for development.

Therefore we assume that the presence of an elementary school in a municipality (assuming it is possible to operate a school) plays an important role, especially in rural areas. If the elementary school is closed, the municipality's inhabitants are disadvantaged, especially if the municipality is part of a region that is home to a high intensity of school closures.

3. Rural and urban schools – dilemmas of definition

Because school (a school system) is qualified as a social service, we presume that the development of the educational institutions network in the second half of the 20th century will manifest general processes of changes in the geographical organization of social activities, i.e. primarily concentration and hierarchization (Hampl 2004, 2005). Processes such as the

concentration of elementary schools into higher units in the settlement hierarchy and, on the contrary, decreases in their quantity, i.e. the closing of educational institutions in less important settlement units, with lower populations, undoubtedly exist (see for example Mňuk 1985; Mokříšová 1989), although such processes have not yet been sufficiently analyzed over a longer period of time or on a nationwide level.

However, taking into account the above-mentioned process of concentration of functions and social activities, we presume that differences exist in the development of the elementary school network in rural and urban areas. Thus it becomes necessary to define what we mean by these terms.

In Czechia, compulsory school attendance is ensured through either large, "full" elementary schools, which have all nine grade levels, or by smaller "short" schools, where fewer primary school classes are taught (1st to 5th grades, or even less) and whose pupils must subsequently commute to a larger nine-year school. Many schools from this second group are in addition little-class ones, where pupils of one or more forms are taught in the same classroom (for more details see Trnková 2006). In general, it could be said that short schools are typical more in rural areas than in towns and large settlement units (see Graph 1), nevertheless we cannot describe this type of schools as solely a rural phenomenon.

A rural school is, according to *Pedagogický slovník* (Pedagogical Dictionary: Průcha, Walterová, Mareš 2003, p. 217), "a school situated in a rural environment (village, small town), with different operational conditions than an urban one. The differences lie, for instance, in the size of schools (rural schools generally have a lower number of pupils and teachers), in the life experiences of the pupils, in the different relations existing among the school, the families and the local community, etc." The definition mainly stresses differences between the functioning of urban and rural schools. It mentions the size of the school and of the settlement, in which the institution is situated, but it does not give any other normative limit concerning the number of pupils and teachers in the school or the inhabitants in the settlement to define whether it is a rural or an urban school. Such a figure, however, would only be valid for the specific conditions of Czechia, in another country it would be quite different (see e.g. Bell, Sigsworth 1987; Dostál, Markuse 1989; Kvalsund 2004; for the size of settlements and administrative units see e.g. Hampl, Müller 1998; Perlín 2003). A qualitative definition of rural schools, based on the interaction between pupils and teachers and between schools and parents or community (in rural areas more direct and more frequent), seems to be more appropriate, but hardly determinable and applicable to a larger territorial unit.

Therefore, in our research we decided to define a rural elementary school as an institution situated in a rural municipality, a municipality with less than 3 000 inhabitants. We have chosen this limit on the basis of Law No. 128/2000 Coll. on Municipalities, as amended, according to which only a municipality with more than 3 000 inhabitants can become a town. It must be stressed that a wide variety of views exist on definitions for rural areas and that there is no universal definition (for more details see e.g. Bašovský, Mládek 1989; Kučera, Kuldová 2006; Maříková 2006; Perlín 1999). In this conception, we shall speak about schools in the countryside, in rural areas, rather than about rural schools, because we cannot avoid the possibility that some of the so-called rural schools that we have defined will more closely approximate, due to the nature of the interaction between the school and the community, the urban schools.

Another reason for our selection of municipality population of up to 3 000 inhabitants as the criterion is due to the fact that such municipalities generally contain two or more nine-year elementary schools, which is a phenomenon typical more for towns, unless it is a case of merging one or more larger municipality parts into one administrative unit. We stress that we have defined rural areas on the basis of municipalities, i.e. administrative units including multiple villages, settlement units. In this way, a higher number of school institutions can be present in one rural municipality, although there is only one school in each, individual village. However, for the most part these are only short elementary schools, in combination with only one full nine-year school. The designation of rural areas on the basis of municipalities, and not settlements units, was done because the necessary statistical data on education for the entire observed period are only available for municipalities. In addition, at present in Czechia,

municipalities are, in most cases, the founders of elementary schools and municipalities, as groups of people with common interests (Kučera 2007a), are also, in a simplified way, identified with local communities.

Now it is necessary to describe the methods used for monitoring spatial pattern changes in the elementary school network before we proceed to an evaluation of the results of the analysis.

4. Methodology of research of spatial pattern changes of schools network

The development of space organization from the point of view of education accessibility in the years 1961–2004 were evaluated transversally by historical comparison of the character of the elementary schools network in four time horizons: 1961, 1976, 1990 and 2004. Selection of these time horizons was primarily subordinated to the availability of relevant data, i.e. to the number of the relevant types of elementary schools (full nine-year school or a school with a lower number of classes) in the parts of municipalities (so-called basic settlement units) or in the municipalities at least. With regard to the quantity of territorial-administrative changes going on during the monitored period (administrative consolidation of settlement units into municipalities and their separation) we used the Statistical lexicon of municipalities of the Czech Republic 2003 to allocate individual settlement units retrospectively to municipalities defined according to the territorial zoning of the state recorded in this source (as to January 1, 2003).

The years we have selected enable us, in approximately 15 years intervals, to look into the development of school network and, with the help of these time horizons, to characterize the then prevailing geographical processes and general social changes. The year 1961 records the state of the elementary schools network at the beginning of the observed period, in the socialist Czechoslovakia. The space distribution of elementary schools in 1976 reflects already the changes of the fundamental settlement and administrative reform (the centrally controlled settlement conception) as well as of the reform of elementary education. The year 1990 is an important milestone for evaluation of the elementary schools network shortly after the fall of the totalitarian regime on the territory of Czechia and it enables to evaluate the changes which occurred in the period of socialism and in that of renewal of democratic society and market economy, i.e. in the so-called transformation period (for more details to this term see e.g. Hampel et al. 2001). This time limit serves therefore also for analysing the initial state of the school network in the period of social transformation, including also the renewal of the self-governing function of municipalities as the most important founders of schools in Czechia (Statistical yearbook on Education 2003). The year 2004 represents the “present” state after fifteen years of transformation of the Czech society.

It must be added that the development of the number and distribution of schools was considerably influenced also by changes of laws and regulations concerning organization of education, limits of pupils in one class, limits for opening the 1st form. The conceptual and pedagogical changes of forms and ways of teaching, the possibility of parental choice (e.g. Bradford 1991) lead to spatial pattern changes of schools network as well. To simplify the studied problems and to limit the extent of this paper, we shall not deal with these questions.

The sources we used to find the data on the number of elementary schools must be submitted to a critical assessment and the inaccuracies therein, often considerable, must be taken in account when evaluating results and formulating conclusions. In the first place, this article does not bring a full and exhausting list of all elementary schools open in the respective year. The exact number cannot be determined from the existing data sources and statistics manifest considerable errors.

Highly inaccurate is, for instance, the territorial list of elementary schools as to 1961 compiled on the basis of the Statistical lexicon of municipalities of Czechoslovakia 1965. The methodical apparatus of the lexicon indicates (p. 6): “Besides the data from Population, houses and flats census as to March 1, 1961 adjusted according the administrative organization of municipalities in force on January 1, 1965, this publication includes the information on (...) and location of the school (separately for the 1st to the 5th form and for the 6th to the 9th form) which is given for the individual parts of municipalities. The data were provided by local authorities and verified (with the exception of schools) according to the lists published by individual central bodies.” Not only that it does not guarantee the same point in time, for which the local authorities

communicated the school statistics (the number of school is thus given for the period 1961–1965, which may, when schools are closed, cause significant numerical differences), but, in addition, the provided data very often do not correspond to the affirmations of mayors on the development of the number of schools in their municipalities (e.g. the author's correspondence with mayors of selected municipalities of the Kroměříž district, January 2008).

Another problem is that the lexicon does not give the number of elementary schools, but only mentions their presence in the given part of the municipality. With regard to the number of schools in 1976, it was evident that many municipalities had in 1961 more than one school, but the precise number could not be ascertained from the given source. As result, it was necessary to compare the sum of all schools we have examined in individual districts with another source giving numbers of both types of elementary schools on the level of districts in the period 1961–1965. We use for this purpose the Statistics of Education and Culture 1963 giving the number of elementary schools as to September 15, 1963 (approximately in the middle of the respective time interval). Naturally this source does not enable us to convert retrospectively the data to the territorial zoning as to January 1, 2003, which does not allow to compare sums of elementary schools in districts in such units as e.g. Prague-West and Prague-East, where large territorial changes occurred in connection with the enlargement of administrative limits of the capital of Prague. For various reasons, for instance the difference in the number of schools with the 1st to the 5th form in the district of Havlíčkův Brod ascertained by us and given by the district statistics was 88 to 100.

In the case of nine-year schools, their numbers in individual municipalities were corrected by expert estimation according to the Statistical lexicon 1965 with taking into account the values as to 1976, so that the final sum for the district is conform with the school statistics as to September 15, 1963. Here we could proceed from the assumption that the nine-year elementary schools we have not examined are most probably situated in the biggest settlements of the district, so that we could properly correct the numbers for these settlements. The described necessary corrections can lead at the local level to significant errors in calculation, but the mesoregional space pattern (distribution of school institutions at the level of administrative units higher than municipalities) does not fundamentally change.

Numbers of elementary schools as to 1976 and 1990 were taken from Municipalities in statistics 1990 published for individual districts of Czechia. Its methodological notes (p. 10) indicate: "Data on facilities in towns and municipalities are based on lists of civic amenities of settlement in 1976 and 1987. In cases when changes in facilities in municipalities occurred, the data were updated in cooperation with the relevant municipal authorities and the tables give the state as to December 31, 1990." These data are thus more precise, but errors in lists confirmed by affirmations of mayors (see above) cannot be excluded. In addition, the statistical outputs were not processed in the same manner by individual district offices of the Czech Statistical Office.

The data as to 2004 were taken from the internet database of the Czech Statistical Office (Towns and Municipalities in Statistics, so-called MOS) which is updated each year, so that the reliability of this source should be the highest.

A specific problem was to ascertain the number of elementary schools (a) in big cities (Prague, Brno, Ostrava, Plzeň) which are at the same time independent districts, (b) in municipalities of those districts for which school statistics for 1976 were not given in Municipalities in statistics 1990 (i.e. Chomutov, Louny, Teplice) and (c) in the area of opencast mines in the lignite basin on the foot of Krušné hory Mountains. (a) In the case of districts of big cities, for which the publications Municipalities in statistics 1990 does not exist, we were not able to find the numbers of school institutions for the years 1976 and 1990. Reliable data were thus taken only from the statistics MOS 2004; data for 1961 were completed by numbers of schools in municipalities administratively united to big cities after 1961. (b) Data for the districts of Chomutov, Louny and Teplice were taken from materials provided by regional branches of the National Regional Archive in Litoměřice. They were lists of elementary schools registered by former district committees that were closed during the period 1961–1976. So we ascertained the number of schools closed from 1961 to 1976 and we subtracted this number from the initial state in 1961 and obtained the state in 1976. (c) In case of determination of the number of schools in the area of lignite mines, we found, when transferring the territorial division of

municipalities in 1961 to that as to January 1, 2003, municipalities which does not physically exist anymore: they disappeared due to enlargement of opencast mines and to building of industrial structures (e.g. thermal power plants). For their identification and correct territorial classification we used the database of disappeared settlements (for more details see e.g. Kučera 2007b).

This extensively described method helped us to obtain the maximally precise number of elementary schools in individual time horizons. It must be nevertheless stressed once again that it is not in any case a comprehensive list of all schools, but only of those we have determined with regard to the limited possibilities of available sources.

5. Development of geographical organization of elementary education in the context of societal development in the era 1961–2004

Territorial distribution of short (1st to 5th form) and full nine-year (1st to 9th form) elementary schools in the observed time horizons at the level of municipalities of Czechia is shown by Figs 1 to 4. The schemes do not take into account the number of these institutions in individual municipalities and prefer always a hierarchically higher school institution: if there are in the municipality both a full and a short school, only the full nine-year one is depicted in the map.

The elementary schools network in 1961 (Fig. 1) is relatively dense with prevailing municipalities with schools with a lower number of classes. In a simplified way, we could say that nearly each municipality had its own school, although only a small one with less than 5 classes. Interesting would be also to analyse how important was the reduction of schools already in the previous period when compared to the elementary schools network in the interwar period, mainly in territories affected by the transfer of German population which resulted into disappearance of several dozens of settlement units (Kučera 2007b). Also Fig. 1 shows clearly a lower density of points in the resettled border areas which can be nevertheless conditioned by other factors, too, e.g. by specific settlement pattern of mountain areas. Trnková (2006, p. 143) mentions: “Till the middle 1960s closing of schools was delayed in a long-term perspective due to granted exceptions motivated, among others, by insufficient transport infrastructure in rural areas which did not allow to ensure transport connections to greater schools.”

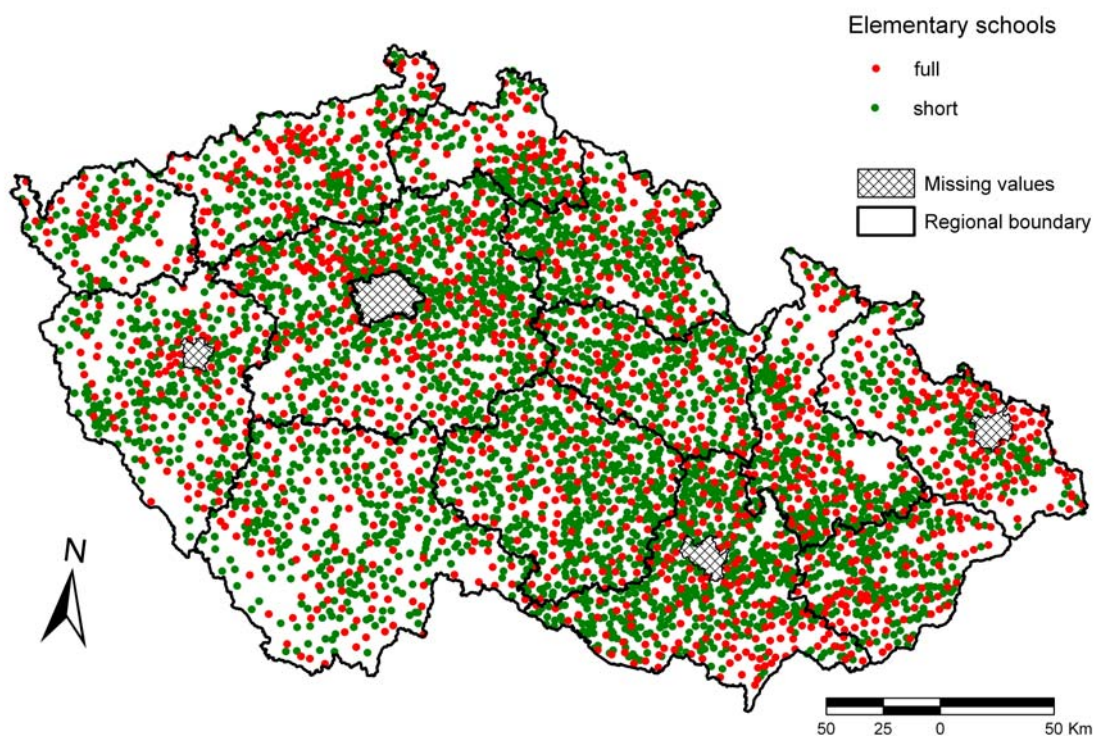


Fig 1. Elementary school network in 1961, Czechia
Based on: *Statistical lexicon of municipalities of Czechoslovakia 1965*

The state in 1976 (Fig. 2) displays the first results of application of the principles of differentiation of civil amenities within the so-called nodal system of settlement as well as the impacts of the school reform from the 1970s recommending closing of short little class schools (Trnková 2006). The nodal system of settlement was one of the instruments of the centrally controlled settlement conception trying to reduce territorial differences in accessibility of basic services. Paradoxically enough, in many cases this accessibility got worse due to closing of a service facility in the locality without an adequate replacement. For the purpose of the above-mentioned settlement planning, all settlement units in Czechia were divided into several categories of “nodes”, which served as a basis for allocation of investments, jobs, service facilities (and therefore also elementary schools), administrative functions, housing construction, etc., with a view to practically condemn the lowest categories of non-nodal settlements to a progressive disappearance (Musil 2002). As mentioned by Perlín (1999, p. 96): “The nodal system was applied as a regressive instrument to make impossible the development of the smallest settlements and not as a stimulation instrument for a possible support of larger or more important settlements. Exactly for these reasons it was very strictly rejected after 1990...”.

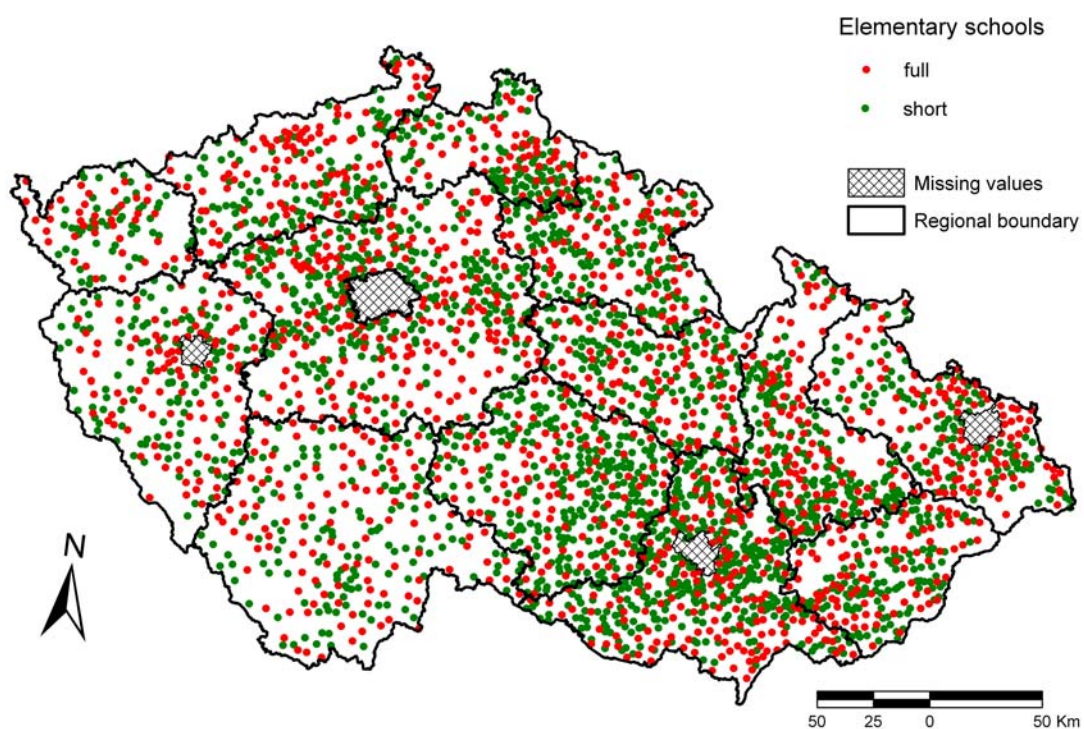


Fig 2. Elementary school network in 1976, Czechia
Based on: *Municipalities in numbers 1990*

This policy thus resulted into closing of schools in non-nodal settlements and into backing of those in settlements of a higher population size. Although mainly short schools were being closed this way, their absolute decrease is very high. This accelerated territorial concentration controlled from above had significant local impacts on all functions that an educational institution has for the whole community. The consequences of closing of schools manifested naturally also in localities, to which the pupils from the closed schools began to commute and where it was necessary to find capacities for education of more persons (places in classrooms, or a higher number of classrooms and consequently an enlargement of school facilities, moving to a new building, building of a new school to cope with the population growth of the settlement with preferential treatment in the nodal system, etc.).

The most significant territorial changes in organization of education occurred surprisingly already in the initial stage of implementation of centrally controlled concentration processes. In 1990 (Fig. 3) the network of elementary schools got a slightly reduced, but this change, expressed in relative figures, was not yet as high as in the period 1961–1976. However, Fig. 3 does not show the change of the absolute number of schools in individual municipalities.

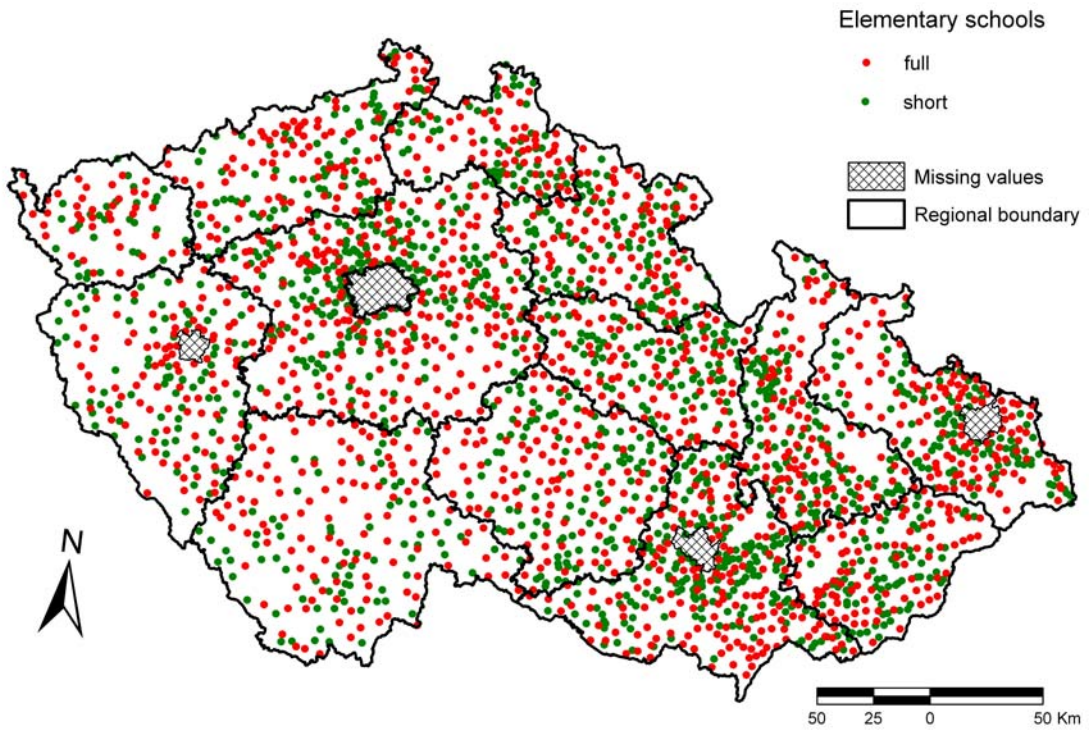


Fig 3. Elementary school network in 1990, Czechia
Based on: *Municipalities in numbers 1990*

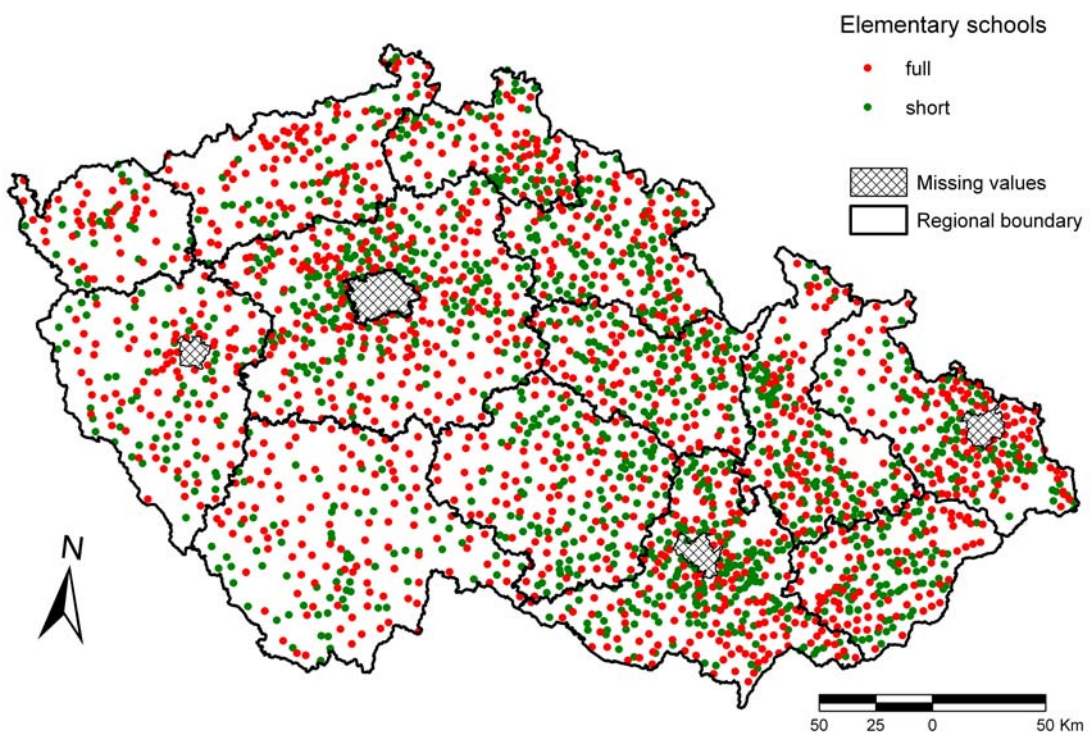


Fig 4. Elementary school network in 2004, Czechia
Based on: www.czso.cz/lexikon/mos

Fig. 4 (state in 2004) displays smaller spatial changes in distribution of little class schools connected with the reestablishment of local government after 1989 and the disintegration of municipalities. A high number of settlement units which were during the application of the nodal system administratively integrated with another settlement unit, began, in the early 1990s, to aspire at its own self-government function (for more details see Hampl, Müller 1998) and, within establishment of their administrative autonomy, they also re-opened various service facilities, including schools (although in general only that with a lower number of classes). In some cases, due to financial problems in the municipal budget, to an insufficient quantity of pupils, to a change of the limit number for opening the 1st class, the school was closed again still during the 1990s, or its closing is being considered.

It must be mentioned that the space pattern of full nine-year schools remained practically unchanged during the whole monitored period, which ensues from the fact that this type of schools is in general situated in a settlement of a higher population size which was preferred by the nodal system, which is attractive from the point of view of permanent residence, and thus having a sufficient quantity of pupils directly in the settlement or in its immediate background.

6. Differences in development of elementary schools network in rural and urban space

Up to now we have evaluated the development of the network of all types of elementary schools as a whole in the context of general social processes. Now we should aim our attention at differences in the development of the elementary schools network in the rural areas we have defined (territorial districts of municipalities of up to 3 000 inhabitants) and in urban areas.

We shall at first use the cartogram in Fig. 5 to evaluate the intensity of closing of school institutions in individual municipalities and in larger areas during the whole monitored period. Fig. 5 compares the school network at the beginning and at the end of the observed period and, at the same time and differently from the previous Figures 1–4, takes into account also the data on the number of school institutions. As we must differentiate the significance of closing, or, on the contrary, of opening of a full nine-year elementary school and of a school with a lower number of classes, we gave in our research a double significance to nine-year schools. If a short school was closed in a municipality between the two time horizons, the difference in the quantity of schools is -1, but in the case of a nine-year school it is already -2. However, such practice induces also significance discrepancies. The level of closing -2 for a certain municipality as to the given year may mean that a municipality composed of two settlement units lost during the past period one nine-year school, but also that two short schools were closed there. This information must be specified by comparing the data in Figs 1–4, as mapping at the same time the data both on the quantity and type of schools would charge the cartographic output at the level of municipalities to such a degree that it would not be legible anymore.

Fig. 5 shows clearly the change in spatial organization of the elementary education system, i.e. the pronounced transfer of educational institutions from rural to urban areas. During the monitored period, new school were opened mostly in district, or in general bigger towns and schools in district towns were in general not closed. To better demonstrate this phenomenon, we have included into the cartogram the limits of districts (administrative units). Nearly in each district, there is at least one town with more elementary schools in 2004 than in 1961. On the contrary, rural areas, mainly the border areas of Czechia and the inner peripheries (Marada 2001; Musil 2008) manifest a significant decrease of schools; in comparison with the previous Figs 1–4 it is evident that they are mostly schools with a lower number of forms.

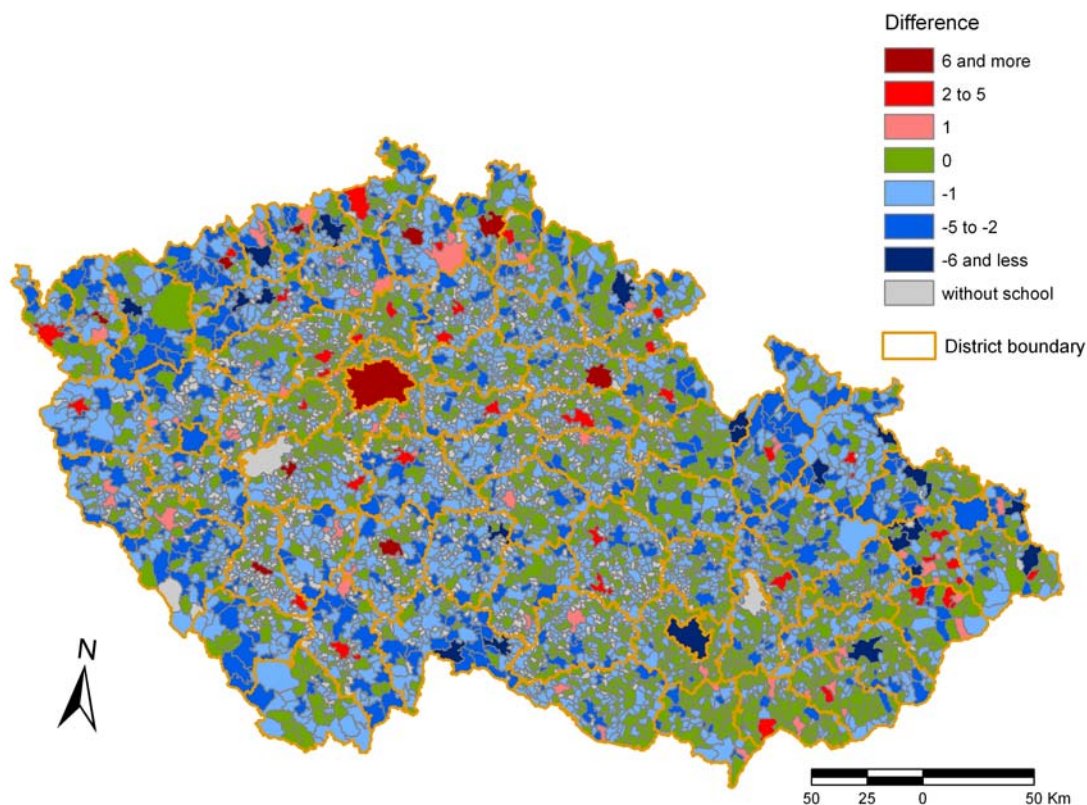


Fig 5. Differences in weighed numbers of elementary schools between 1961 and 2004, Czechia
Based on: Statistics on education

This fact can be documented also by Graph 1 and Table 1. The set of municipalities of Czechia is divided here according to their population size into rural municipalities (up to 3 000 inhabitants) and urban municipalities (more than 3 000 inhabitants). The number of short elementary schools was quickly falling down during the whole monitored period (a certain scale-down of the trend only between 1990 and 2004) in both urban and rural areas to less than one third of the initial state. In rural areas, however, also the number of full nine-year elementary schools was slightly decreasing, while in towns it was growing till 1990. Therefore in the period 1976–1990 we register in towns, in weighted values of schools, their overall increase, whereas in rural areas their steady and, in comparison with the initial state, ever more intensive decrease.

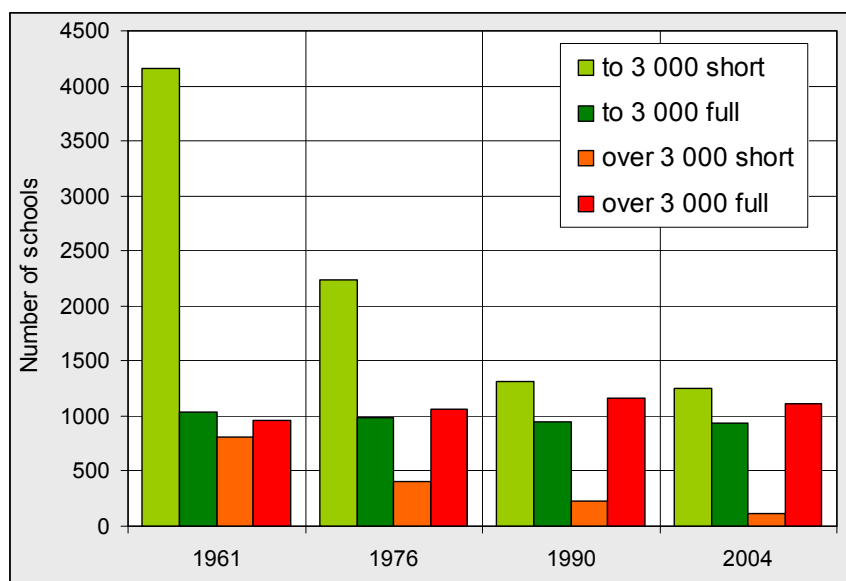


Fig 6. Development of numbers of short and full elementary schools according to population size of municipalities between 1961 and 2004 (selected years), Czechia
Based on: Statistics on education

Graph 1 and Table 1 confirm again the process of concentration of educational institutions into more population important settlements and closing of schools in rural areas and we can presume that children from small rural municipalities commute to bigger schools in neighbouring towns and bigger settlements. It must be added that our analysis at the level of municipalities does not display the situation within the municipalities, when the inhabitants of small settlement units can be similarly disadvantaged as to the accessibility of the educational institution situated in the biggest settlement unit within the municipality.

Population size of municipalities	1976/1961	1990/1961	2004/1961	2004/1961 Brno, Ostrava, Plzeň, Praha included
Lowest than 3 000	67,3	51,5	50,1	50,1
3 000 through highest	93,3	93,4	86,3	89,0

*Tab 1. Percentage index of weighed numbers of elementary schools according to population size of municipalities between 1961 and 2004 (selected years), Czechia
Based on: statistics on education*

7. Concluding notes

During the second half of the 20th century, a significant territorial concentration of elementary educational institutions into settlement units of a higher population size and hierarchical level occurred in Czechia. If we measure the degree of heterogeneity in distribution of elementary schools (for more details on the construction of this index see Hampl, Gardavský, Kühnl 1987), calculated from their weighted number, we find that, in 1961, the less concentrated half of schools were located in 70.4% of the territory of Czechia, whereas, in 2004, it had increased to 78.2%. This phenomenon corresponds to general concentration processes registered in the spatial organization of the Czech society during the observed period (Hampl 2005).

The performed analyses verified an increase in the number of schools (exclusive of the full nine-year schools) in towns and their rapid decrease in rural areas, representing more than a half of the total extent of the territory of Czechia (see Majerová et al. 2003; Perlín 2003). Nevertheless, the decrease in the number of elementary schools does not affect the rural space as a whole nor does it effect rural space in the same way in all of its parts. For instance the characteristics of the intensity of school closures in the area of southeast Moravia or in the surrounding of big cities are favourable in comparison with the situation in the inner peripheries of Czechia (e.g. Central Bohemia) and in the borderlands. In two last mentioned areas, the accessibility of educational institutions is, according to the data on the decrease of the number of elementary schools, insufficient. We must however take into account that terms such as “worse accessibility” or “insufficient service availability” are largely relative. The closing of educational institutions in small municipalities, in municipalities with a poor geographical position and the concentration of these institutions into larger settlements must be examined in the larger context of societal development. To ensure effective education, directly in the locality, it is necessary to have a certain minimal quantity of pupils and peripheral regions especially manifest the highest decreases in population (Fialová et al. 1996; Novotná ed. 2005). Therefore a territory characterized by a high intensity of school closures cannot, in general, be considered more disadvantaged than a territory exhibiting less intense closing of schools, if there are good transport facilities for pupils commuting to the corresponding educational institutions, if there are friendly relations among teachers, commuting pupils and their classmates in the school in the larger commuting centre and so forth. Not every region, which seems from our perspective and according to the criteria we have selected to be disadvantaged, must necessarily be perceived as such by local inhabitants or by subjects, operating in the given territory. And, similarly, the closure of a single school can cause many difficulties that we cannot see to the inhabitants of a region, which may appear to us to have no problems. Therefore, it is necessary, when studying the development of the elementary schools network, to combine quantitative and the macro-regional approaches with methods of field observation in micro-regional case studies.

Finally, it must be stated that the concentration process is a general and natural process, neither positive nor negative as such, which would very probably occur without any impacts

from the historically specific conditions of socialist Czechoslovakia. Similar closures of small village schools also occur in western European countries and in the USA (see e.g. Bell, Sigsworth 1987; Dostál, Markusse 1989; Kvalsund 2004; Lyson 2002; Pacione 1984; Sell, Leistriz, Thompson 1996). Rather than a deviation from the development trajectory, the above-mentioned centrally controlled conception of settlement and the location of service facilities represent its acceleration. The resulting problems, therefore, are mostly the consequences of directive decisions without alternative solutions for local population and of a too rapid change of living conditions in the municipalities concerned. The worsening of living conditions among the local population, even leading to emigration to towns and bigger settlement units, has been a significant problem, especially, in less populated rural areas. Anyhow, the closure of a school is, in many cases, a natural result of population development (a decrease in the number of children) in the municipality or in its service area, i.e. an inevitable event.

The question of qualitative impacts of the changes in the territorial organization of elementary education on local communities remains unresolved. Especially for rural communities, where the existence of mutual locally embedded links plays a more important role in the life of individuals than in towns (Wirth 1996; Zemánek 2003). Many studies (e.g. Jančák 2001; Musil 2002) make it clear that the loss of institutions and basic service facilities, such as elementary schools, produces negative sentiments in the local population of the territorial and functional marginalization of their municipality. However, it is not quite clear which impacts these facts have on actual relations within the community. In many cases, the external menace of closing of the school provides an impulse for the cohesion of local inhabitants, encouraging them to take collective action, because a closed school means less opportunities to meet one another.

For the above-mentioned reasons, it is, at present, not possible to make a general conclusion concerning the impacts of spatial changes in the elementary school network in rural areas. Only more intensive research into the relations in a given territory and the behaviour of local operators and groups can help identify the impacts of the spatial concentration of educational institutions on everyday life in the locality and in the region.

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