

THE EXPANSION OF PRIMARY
EDUCATION IN AN INDUSTRIALISING
ECONOMY: CATALONIA IN THE AGE
OF MASS SCHOOLING (1860-1930)

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UB Economics *Working Paper No. 496*

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JEL Codes: I20; N33; N93; R11

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Date: January 2026

Acknowledgements: The dataset on primary schooling used in this paper comes from a research project carried out jointly with our colleagues Francisco J. Beltrán Tapia, Alfonso Díez Minguela, Pau Insa-Sánchez and Daniel A. Tirado-Fabregat and financed by the Bank of Spain. Within this group, we built a dataset on primary education infrastructure for Spain as a whole, broken down by province. We thank all of these colleagues for allowing us to use these data for this paper. We also gratefully acknowledge the financial support provided by the Centre d'Estudis Jordi Nadal, the Ministry of Science and Innovation (Grant PID2021-127636NB-I00, MCIN/AEI/10.13039/501100011033), the Generalitat de Catalunya (2021SGR00762) and the Generalitat Valenciana (Prometeo 2023/39).

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1. Introduction

The aim of this paper is to describe the evolution of primary education in Catalonia between 1860 and 1930. Analysing the Catalan case during this specific period is of interest for several reasons. First, the relationship between human capital, industrialisation and economic progress is particularly relevant. In this regard, Catalonia was one of the few regions in Southern Europe that underwent industrialisation in the 19th century (Pollard, 1981; Nadal et al., 2012). With a notable specialisation in cotton textiles, Catalan industrialisation followed in Britain's footsteps by adopting the first Industrial Revolution technologies as early as the late 18th century (Sánchez, 1989; Thomson, 1992; Martínez-Galarraga and Prat, 2016). By the mid-19th century, steam-based industrialisation was already taking root, and the subsequent expansion of industry led to a profound transformation of the Catalan economy, thereby turning Catalonia into the 'factory of Spain' (Nadal, 1975; Carreras, 1990).

Second, from an educational perspective, another highly significant process was taking place across Europe alongside industrialisation during the period under study: the spread of mass schooling. This phenomenon, characterised by broad access to educational opportunities across society, is tied to the creation of modern states that became widespread across the continent throughout the 19th century, albeit at varying rates in each country. While children's education had been largely disregarded during the Ancien Régime, the state began to play an increasingly prominent role in many areas of social and economic life with the formation of modern states. In this context, intervention in education became one of the fundamental pillars supporting the creation and deployment of modern states. Eventually, education systems began to take shape through various laws and education reforms (Westberg et al., 2019). Among these, the role of primary education was particularly important, since equipping the population with basic skills such as reading and writing made it a key instrument for educating the masses of new citizens (Goldin and Katz, 2008; Lindert, 2004; Hanushek and Woessmann, 2008).¹

Catalonia shared some of the typical problems associated with the spread of education in the continental periphery. In general, Southern Europe started out with lower education levels and struggled to make progress in mass schooling, which, as argued in the literature, was hampered by institutions plagued by problems. In this regard, Spain's transition to a liberal state throughout the 19th and 20th centuries was particularly complex and encountered frequent problems, including political and financial challenges (Calatayud et al., 2016; Pro, 2019). This is a crucial point, since the evolution of education in Catalonia must be analysed within the Spanish institutional framework, which was characterised by the creation of the liberal state and, in educational terms, was closely associated with the enactment of the 1857 Public Education Act (*Ley de Instrucción Pública* or Moyano Act). Taken together, this duality between economic

¹ Since the creation of modern states preceded democracy in many cases, it has been argued that the objective of the education systems established at that time was not only to promote skills and equity, but also to control the masses and ensure that they obeyed the law, at a time marked by frequent social revolts, when critical thinking was considered dangerous (Paglayan, 2024). A similar argument is made in Mitch (1999). In other cases, education is conceived as a means of cultural transmission, which can lead to resistance to education (Carvalho et al., 2024).

modernity driven by industrialisation and the institutional and educational backwardness typical of Southern Europe makes the Catalan case study particularly distinctive.

To gain a better understanding of how primary education evolved in Catalonia in the historical context described above, new quantitative evidence was gathered. The sources used for data collection were various official statistics relating to primary education published in Spain between 1860 and 1930. These statistics lack homogeneity, both because they were not published continuously over time or at regular intervals, and because the information they contain is not always presented consistently across the different datasets, which required us to carry out a standardisation process. In summary, the data compiled from official statistical sources used in this study refer to the number of pupils, schools and teachers, and public expenditure on primary education. In turn, the sources allowed the data to be broken down by public and private education, as well as by gender. The dataset contains information on the eight decades between 1860 and 1930. The sources used and the method employed to process the education statistics are described in the statistical appendix included at the end of the paper.²

This dataset, together with demographic information from various population censuses, made it possible to construct different primary education indicators, such as enrolment rates, public expenditure per school-age child, the number of schools and teachers, the pupil-to-school ratio and the gender parity index. Based on these indicators, a descriptive analysis is subsequently conducted to shed light on the main characteristics and evolution of primary education in Catalonia. Within the historical context of the profound shifts in Catalonia's economy and society as a result of industrialisation, together with the complex transition from the Ancien Régime to the liberal state in Spain, this work quantifies the advances that took place in public and private primary education in Catalonia, while also studying the differences between rural and urban areas and between boys' and girls' education. Furthermore, to better understand the results and figures presented, they are compared, wherever possible, to those of the rest of Spain and those of Italy, another Southern European country whose similar economic and institutional characteristics make it a particularly appropriate point of comparison.³

Based on all this, the following pages provide new information to gain a deeper understanding of the efforts made to respond to the growing demand for education within a society that had been undergoing profound economic, political and institutional transformations since the mid-19th century. From contemporary authors concerned with educational matters to historians, there has been consistent recognition of the difficulties and limitations encountered by the development of primary education in Catalonia, especially public education (e.g. Galí, 1986; González-Agàpito et al., 2002; Solà, 2011). The analysis carried out thus seeks to explore and quantify these limitations and challenges that affected primary education during this key historical period. Understanding the dynamics of primary education in Catalonia serves two purposes:

² The statistical appendix also notes some of the shortcomings of the dataset constructed, which relate mainly to information on private education in the 20th century.

³ For a comparison of primary education in Spain and Italy, see Cappelli and Quiroga (2020).

first, to contribute to the study of the relationship between industrialisation and education in Catalonia (Nadal, 1996; Rosés, 1998b); and second, to broaden our understanding of how the spread of mass schooling took place in Europe in the 19th and early 20th centuries (Cappelli et al., 2025), in this instance by including the study of a specific example, namely that of Catalonia. Finally, our findings and the new quantitative evidence gathered may be useful to reflect on some of the issues that, within the economic history literature, inform current international debates on the historical accumulation of human capital.

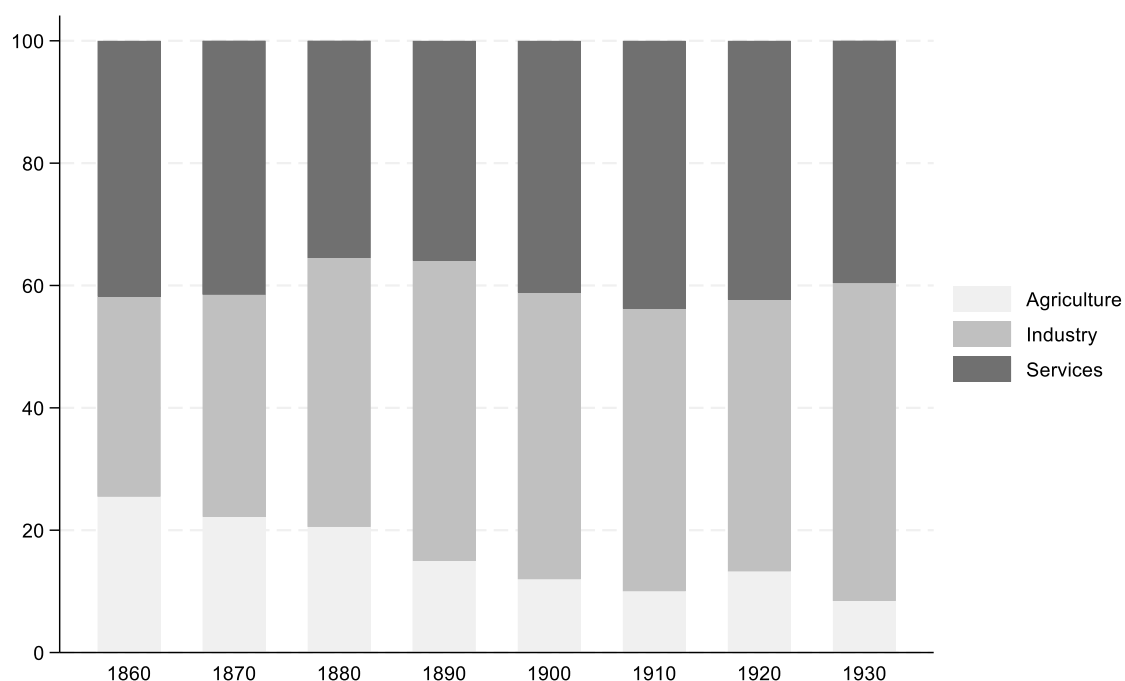
To that end, the work is structured as follows. Section 2 provides a historical background on the evolution of the Catalan economy, education levels, the institutional framework that regulated primary education, and other political and cultural aspects that shaped education in Catalonia between 1860 and 1930. Section 3 studies the expansion of public primary education, while Section 4 focuses on the role played by private institutions. Section 5 takes a more geographic approach to explore urban and rural differences. Section 6 analyses primary education from a gender perspective, with a focus on the differences for boys and girls. The work ends with some brief conclusions.

2. Historical background

2.1. Socioeconomic change and the institutional framework for education in Catalonia, 1860-1930

One of the most notable characteristics of Catalonia's economy and society is its traditionally industrial nature. Catalonia became one of Southern Europe's main industrial hubs in the 19th century (Pollard, 1981; Nadal et al., 2012), in a process that had its roots in the 18th century (Sánchez, 1989; Thomson, 1992; Martínez-Galarraga and Prat, 2016). This makes it a rather exceptional case within the European context, since industrialisation took place at a similar pace to that of the most industrially advanced regions in the west and north of the continent. Some figures serve to quantify the significance and growth of industry in Catalonia during this period. In 1860, industry already accounted for 32.7% of GDP, a sign that industrial development was already sizeable at that time. By 1930, the share of industry in GDP had risen to 52%, a considerable proportion (Figure 1). Meanwhile, agriculture contributed barely a tenth of GDP (8.4%), while services that year, and throughout virtually the entire period, stood at around 40% (Díez-Minguela et al., 2018). This picture of progress and industrial dominance in Catalonia, drawn from GDP figures, can be complemented by employment figures from the population censuses. In 1860, approximately one-fifth of the working population was employed in industry (20.8%). By 1900, this percentage had risen to 27.5% and, in the decades that followed, it had increased to such an extent that industry employed 46.9% of the working population by 1930. Catalonia had clearly become an industrial society.

Figure 1. Gross domestic product (GDP) by economic sector (%). Catalonia, 1860-1930.



Source: Díez-Minguela et al. (2018).

In turn, this industrial progress was accompanied by significant population growth. In 1860, Catalonia had 1.67 million inhabitants. By 1900, the population had risen to 1.97 million, and by 1930 it had reached 2.8 million. This demographic growth, which was particularly pronounced in the early decades of the 20th century, was driven largely by migration, which also underwent certain changes in both the intensity and the origin of the flows. The migrants who initially arrived in industrial areas during the second half of the 19th century came from other parts of Catalonia, both rural areas and traditional inland proto-industrial centres that began declining during industrialisation (Camps, 1997).⁴ With the turn of the century, adjacent areas such as the Balearic Islands, Valencia and Aragon joined this process. Emigration intensified in the 1920s and included other, more distant Mediterranean areas such as Murcia and Almeria (Pons et al., 2007). Migration was particularly pronounced in the city of Barcelona. Between 1900 and 1930, the city's population doubled to one million, with the percentage of the population born outside the city reaching 56.1% by the end of that period (Silvestre et al., 2015).

In parallel to all these economic and social transformations major institutional changes took place. Throughout the 19th century, Spain underwent a difficult transition from the Ancien Régime and absolutism to the formation of the liberal state (Calatayud et al., 2016; Pro, 2019). The entry of Napoleonic troops in 1808, and the subsequent Peninsular War, effectively resulting in the annexation of Catalonia to the French Empire between 1812 and 1814, the loss of the American colonies in the early decades of the 19th century, or the Carlist Wars, which were particularly severe in Catalonia, are some examples of the

⁴ Studies have been carried out on Igualada (Marfany, 2001), Manlleu (Llonch and Sancho, 1990) and Olot (Simon i Tarrés, 1996).

troubles faced by the new liberal state. One of the areas where institutional change was most evident was education. Until the mid-19th century, education in Spain was characterised by the absence of state intervention, which meant that there was no centralised education system or official education policy (Viñao and Guereña, 1999). However, from the early 19th century, a series of legal measures was introduced to regulate the education system,⁵ which culminated in the 1857 Moyano Act (Ávila Fernández, 1987; Guereña and Viñao, 2013).⁶

The Moyano Act aimed to structure and organise every level of education. Primary education was divided into an elementary and a superior level (Art. 1), with curricula established for both. According to Article 2 of the Moyano Act, primary education comprised six subjects: Christian doctrine, reading, writing, the principles of Spanish grammar, the principles of arithmetic, and basic knowledge of agriculture, industry and commerce, the latter being dependent on location. At the same time, primary education became compulsory between the ages of six and nine (Art. 7), and was free for those whose parents or guardians could not afford it (Art. 9). The compulsory nature of education, however, was not absolute, since pupils could request an exemption if they were ‘sufficiently provided with this type of education in their homes or in a private establishment’ (Art. 7). In turn, to obtain free elementary education, they had to provide a ‘certificate issued by the relevant parish priest and endorsed by the town mayor’ (Art. 9).

To improve the poor infrastructure, the Act laid down a minimum number of schools for each town or city, depending on its size. Communities with more than 500 inhabitants had to have at least one public primary school for boys and another for girls, even if the latter was ‘incomplete’ (*escuelas incompletas*) (Art. 100).⁷ Communities with more than 2,000 inhabitants had to have two complete schools each for boys and girls, while those with 4,000 inhabitants or more had to have three, and so on (Art. 101). It was also recommended that communities with fewer than 500 inhabitants form districts so that they could have access to a complete primary school (Art. 102). Where this was not possible, the establishment of an incomplete or seasonal school was allowed.

With regard to the funding and maintenance of public schools, this continued to fall under the remit of local councils, as was the case under the Ancien Régime. In this regard, the Act did not represent a substantial change. Before the mid-19th century, in the absence of a uniform, hierarchical education system, the building, running and funding of primary schools was a local affair. Expenses, essentially teachers’ salaries and materials, were covered by local councils and pupils’ parents (Viñao, 1990). After the Act was passed, the decentralised primary education system continued throughout the second half of the 19th century. However, this situation changed with the creation of the Ministry of Public Instruction and Fine

⁵ These included the Constitution of 1812, the Quintana Report of 1814, the creation of the *Comisión Central de Instrucción Pública* (Central Commission for Public Instruction) in 1834, the establishment of the *Dirección General de Estudios* (Directorate-General for Studies) in 1846, and the Pidal Plan and Duke of Rivas Plan passed in 1836 and 1845, respectively, although these were short-lived and barely effective (Núñez, 1992).

⁶ The Spanish act was strongly influenced by the French Guizot Act of 1833. To frame it within the context of the 19th-century education acts and reforms that were taking place across Europe, see Westberg et al. (2019).

⁷ An ‘incomplete’ school was one in which not all subjects on the curriculum were taught (Art.3).

Arts in 1900. Two years later, the central government assumed responsibility for funding primary education, which meant that the costs were included in the state budget from 1902. This marked a shift from a decentralised, municipal system to a centralised system under the Ministry.

This institutional framework regulated primary education in Spain from the mid-19th century onwards. However, differences were established between male and female education. The 1857 Moyano Act represented major progress for female education in certain respects, as it made the creation of girls' schools compulsory in towns with more than 500 inhabitants (Art. 100) and proposed the creation of teacher training colleges (so called 'normal schools' or *escuelas normales*) to train female teachers (Art. 114). However, the Moyano Act also created a framework that favoured male education over female education, by imposing gender-based discrimination in education provision, women's access to teaching and various aspects of the education system. With respect to differences in education provision, it established, first of all, that although municipalities with more than 500 inhabitants were required to have one school for boys and another for girls, the girls' school could be incomplete (Art. 100). In practical terms, this meant that only municipalities with more than 2,000 inhabitants were required to have a complete school for girls. Furthermore, it stipulated that in a gender-segregated system, incomplete schools could be coeducational (*escuelas mixtas*) (Art. 103).

Regarding access to teaching, the Act stipulated that women could work solely in girls' schools or coeducational schools. In addition, unlike men, women were not allowed to teach without having obtained a degree. Furthermore, while every provincial capital was required to have a teacher training college (*Escuela Normal*) to train future male teachers, the Act only recommended that such colleges be established for women, which meant that the number of training colleges for women in Spain (27 in 1880) was lower than those available for men (47). This made it difficult for women to obtain a teaching degree. Moreover, the remuneration determined by law, which depended on the size of the municipality, was 33% lower for female teachers than for male teachers across all salary scales (Art. 194). Finally, there was also clear discrimination in the education offered to boys and girls, as their curricula differed. In the case of boys (Art. 2 and 4), the subjects sought to prepare boys men for work, while girls' subjects were more geared towards preparing women for domestic roles (Art. 5). The curriculum for girls included subjects such as 'tasks appropriate to their sex', 'elements of drawing applied to these tasks' and 'basic notions of domestic hygiene'. Education was therefore segregated and differentiated. Finally, girls were not able to access secondary education until 1910, when the law guaranteed their right to enrol freely in any official educational institution.

Although the 1857 Moyano Act made primary education compulsory between the ages of six and nine (subsequently raised it to 12 in 1909 and 14 in 1923), this requirement was not always enforced. Failure to attend school has been repeatedly highlighted in the literature as one of the main problems facing primary

education and one of the authorities' greatest concerns at the time (González-Agàpito et al., 2002).⁸ When considering their children's schooling, families also had to weight the opportunity cost associated with child labour, which could be essential to the household economy. In the second half of the 19th and early 20th centuries, child labour, whether within the family or as wage labour, was widespread south of the Pyrenees, especially in rural areas, and has been linked to high levels of school absenteeism (Borràs, 2005; Sarasúa, 2002). Various factors affected parents' willingness to send their children to school. First, in rural areas it was common for children to help their families with farm work. Thus, school attendance typically depended on the farming calendar and increased in winter, when agriculture required less time and effort. This shows that, although peasant families may have been interested in sending their children to school, the need to resort to child labour often ended up affecting their children's schooling (Borràs, 2005).

Second, new industrial activities and economic dynamism in urban environments shifted people's perceptions of the usefulness of education and led to greater interest among families in their children's education. However, in areas undergoing industrialisation in the late 19th and early 20th centuries, factory work was also very common in the years of limited labour regulation and offered families a paid alternative, thereby increasing the opportunity cost of school attendance. In this regard, local studies have shown that poor schooling and absenteeism in industrial areas near Barcelona were higher than in rural areas (Borràs, 2002), thus adding further complexity to the analysis of the causes of absenteeism. Finally, it should be noted that there do not appear to have been significant differences in school absenteeism according to gender, as both boys and girls participated in child labour, although girls had to perform a greater variety of domestic tasks (Borràs, 2005). It was not until 1873, with the passing of the Benot Law, that the first steps were taken in Spain to regulate child labour, and even then its application was limited.

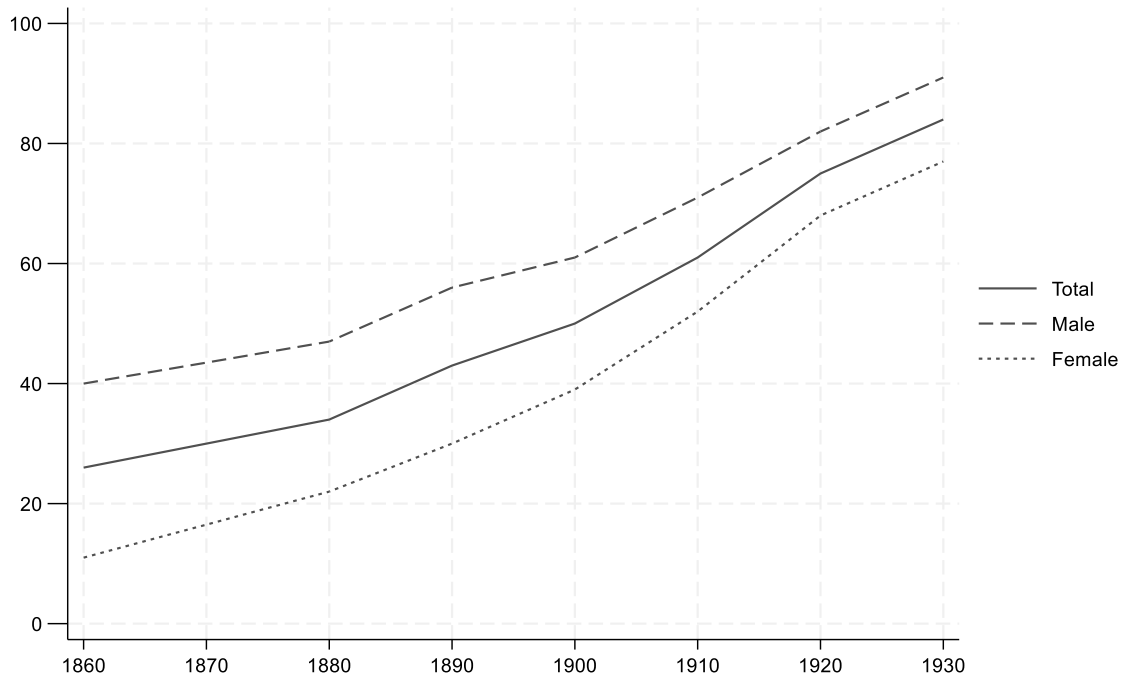
2.2. Literacy in an industrialising economy. Catalonia, 1860-1930.

One of the reasons primary education is so crucial lies in its link to literacy, since it is at school that children acquire basic reading and writing skills. In the mid-19th century, within the historical context described above, the literacy rate in Catalonia was very low (Núñez, 1992; Beltrán Tapia et al., 2022). With a rate of just 26% in 1860, only around one in four Catalans over the age of 10 could read and write. Furthermore, there were sizable differences by sex. While men presented literacy rates of 40%, only 11% of women were literate. Female illiteracy was therefore highly prevalent. However, this bleak picture began to change in the second half of the 19th century. By 1900, the total literacy rate had virtually doubled to 50%, and the gender gap had narrowed. While male literacy had reached 61%, female literacy now stood at 39%. This progress continued and even accelerated in the first three decades of the 20th century. By 1930, Catalan society was

⁸ 'Faced with the high number of children not attending school, in breach of the provisions established by the Moyano Act of 1857, the government enacted various measures. A royal decree of 11 August 1904 declared attendance at school compulsory for teachers and pupils and set penalties for non-compliance' (González-Agàpito et al., 2002, p.100).

already approaching universal literacy, with 84% of the population able to read and write. In the case of men, the rate reached 91%, while women still lagged behind at 77%. Taken together, the data reveal that this was a period marked by a substantial rise in literacy in Catalonia, especially in light of the low starting point, alongside a trend towards convergence between male and female rates (Figure 2).⁹

Figure 2. Literacy rates in Catalonia, 1860-1930.



Source: Núñez (2005). Note: The data for 1870 has been interpolated. For the years 1880 and 1890, the information comes from the censuses of 1877 and 1887, respectively.

In view of its low literacy rates, the Catalan case has given rise to a puzzling question that appears frequently in the literature: how was Catalonia able to industrialise despite such low levels of education? First, Rosés (2003) pointed out that Catalonia had a sufficiently large pool of skilled workers to adopt and adapt the new technologies required for industrialisation. In many cases, these came from the proto-industrial textile manufacturing that had expanded throughout many areas of inland Catalonia and provided workers trained in more traditional, artisanal methods. In this regard, Gómez-i-Aznar (2025) showed that numerical skills in 18th-century Catalonia were high, measured using the age-heaping methodology applied to municipal population registers (*padrons*), particularly in urban environments and in proto-industrial textile activities, where levels were comparable to those of other Western European regions.¹⁰

⁹ In general, during the period under study, literacy rates were higher in the provinces of Barcelona and Girona than in the provinces of Lleida and Tarragona. For a more disaggregated territorial analysis of literacy at municipal level, see Beltrán Tapia et al. (2021a) and Gómez-i-Aznar (2024).

¹⁰ Other studies have also argued that the state of education during the early modern period was better than traditionally thought, especially in terms of the extent of the primary school network (Burgos Rincón, 1994; Camprubí, 2023).

Second, Rosés (1998a,b) highlighted the importance of on-the-job training during this key period in the early stages of Catalan industrialisation. This would have occurred in both proto-industrial households and workshops and factories. In this regard, the textile sector in the mid-19th century would be a good example of knowledge transfer in the workplace: ‘Children entered the factories at the age of eight or nine, doing preparatory and auxiliary jobs (blowing, carding and rowing). Over the following years, they worked beside a parent, relative or other experienced worker receiving little pay and sometimes changing occupation or even factory. In this way, many children gained a wide knowledge of the factories and their machinery. By the age of 15 or 16, the most proficient children were still attached to a work group receiving fixed weekly wages. At the age of 17 or 18, many had acquired a high degree of dexterity and were ready to supervise their own work group as main mule-spinners. Therefore, during their time in the factories children not only worked but also received an informal education’ (Rosés, 1998a, p.171). Thus, it has been argued, children acquired the necessary skills in the workplace and not in the school classroom. Later on, however, as industrialisation progressed, advanced training would become increasingly important to keep pace with technical change. At this point, Nadal (1996) argued that formal technical education played a key role in the subsequent phases of Catalan industrialisation.¹¹

This relationship between industrialisation and literacy in Catalonia echoes the British case, which has been extensively studied. Britain’s relatively low literacy rates and their stagnation during the years of the Industrial Revolution, compared to other European countries, have prompted questions about the role of basic human capital in industrialisation (Nicholas and Nicholas, 1992; Mitch, 1993, 1999). The data on school enrolment do not appear to be particularly positive (Lindert, 2004), and the average years of schooling also show a notably unfavourable trend during this period (Humphries, 2010; De Pleijt, 2018). This could be linked, as suggested by the de-skilling hypothesis, to the fact that the mechanisation of production and skill-biased technologies led to a rise in demand for unskilled workers and, in turn, an increase in the proportion of these workers within the British workforce, as well as a negative effect on primary education (De Pleijt and Weisdorf, 2017; De Pleijt et al., 2020).

The importance of apprenticeships and on-the-job training in the British case has also been highlighted, particularly the role of knowledge transfer between artisans and craftsmen in facilitating the transition from the pre-industrial to the industrial world, as well as between workers in the workplace during the early years of industrialisation (Epstein, 1998; Humphries, 2003; Mitch, 2004; Wallis, 2008). In this regard, it has been widely argued that the real driver of new technologies and technical change during the Industrial Revolution was the availability of a pool of highly skilled workers with applied knowledge, such as engineers and mechanics, in what has come to be known as ‘upper-tail knowledge’ (Meisenzhall and Mokyr, 2012; Kelly et al., 2014; Feldman and van der Beek, 2016; Ben Zeev et al., 2017). Finally, the role played by intermediate knowledge, which is more closely associated with specialised technical education and sits between basic

¹¹ A study on technical education in Barcelona can be found in Alberdi (1980). For Spain, see Lozano López de Medrano (2007).

human capital, such as literacy and numeracy, and upper-tail knowledge, has also been underscored (Diebolt et al., 2021).¹²

Therefore, although the main means of accumulating basic human capital in a society is typically the formal education system, it is important to bear in mind that this is not the only way to acquire it. Other abilities, such as numerical and technical skills, can be acquired in the workplace. In other words, while literacy is closely linked to the development of formal school systems, other skills that play a crucial role in productivity and technical change can be acquired in places outside the school setting. In this regard, it has been argued that education beyond the formal school system took place not only in households, guilds, mills and factories, but also through other institutions and through formal and informal social networks that served as vehicles for the exchange and transmission of information and knowledge. In recent years, this process has been widely proposed as a major driver of the British Industrial Revolution (Mitch, 1992; Mokyr 2017; Galofré-Vilà, 2023). It also played a major role in Catalonia, where the spread of basic education also took place, to a significant extent, outside the formal school system.

In this regard, it is worth highlighting the role played by *ateneus* and other cultural institutions in Catalonia. These civic associations were devoted to spreading scientific and literary culture, generally through lectures, seminars, courses, readings, debates, magazine publishing and, above all, classes for both children and adults.¹³ To this end, they often had a library and newspaper archive, which were instrumental in achieving their objective of improving the cultural knowledge of their members, who supported them financially through membership fees (Solà, 1978). *Ateneus* were established primarily in connection with the labour movements and with the aim of educating the lower classes. It should be noted that literacy and cultural activities also served as political and ideological propaganda tools at a time when political movements such as socialism and anarchism were emerging—there were republican, radical and libertarian *ateneus*—thus allowing emancipatory ideas and class struggles to circulate among workers (González-Agàpito et al., 2002, pp. 383-388). In the 19th century, against the backdrop of industrialisation and the expansion of the industrial workforce, the desire for literacy and access to education and culture gradually infiltrated working-class circles. Thus, *ateneus* became centres of popular culture for the working classes. However, they encompassed a range of ideological orientations. In Catalonia, there were also traditional, conservative *ateneus*, such as those associated with employers, Carlists and Catholics, including Marian Congregations and Catholic circles, which also sought to engage with workers and were complemented by the establishment of Sunday schools (Solà, 2011).¹⁴

¹² This study focuses on France. In this regard, see also Squicciarini and Voigtlaender (2015), Franck and Galor (2022) and Montalbo (2022). For secondary education in Spain, see Insa-Sánchez (2021).

¹³ This phenomenon spread throughout Europe under different names. Its origins are usually traced back to the creation of the Athénée de Paris (1785) and the Athénée des Arts (1792).

¹⁴ Towns often had several cultural associations distinguished by social class. Thus, while *ateneus* were usually linked to the working classes, *casinos* were normally meeting places for members of the more affluent classes (Izquierdo 2018, p. 156).

In this context, many *ateneus* emerged in the second half of the 19th century in the city of Barcelona, the centre of Catalan industrialisation. Among them, the following are worth mentioning due to the relevant role they played in Catalan society at that time: the *Ateneu Barcelonès* (1860), which had links to political Catalanism¹⁵; the *Ateneu Català de Classe Obrera* (1861), a working-class cultural association, which gradually adopted anarchist ideas until it was closed down in 1874; the *Ateneu Obrer de Barcelona* (1881), which took over from the latter—albeit with positions that were progressively less radical than those of its predecessor—and which had more than 700 students enrolled in its classes for children and its evening classes for workers by the end of the century; and, finally, the *Ateneu Enciclopèdic Popular* (1903). This left-wing, working-class association, with more than 25,000 members, was created, among others, by Francesc Layret and featured the active involvement of prominent political leaders such as Salvador Seguí and Lluís Companys, as well as distinguished figures from the world of culture such as Federico García Lorca, Margarita Xirgu and Joan Salvat-Papasseit, the latter serving as secretary general and librarian. Beyond these notable examples in the Catalan capital, *ateneus* also proliferated in towns on the outskirts of Barcelona, where most of the factories were located.¹⁶ Likewise, they also maintained a strong presence in medium-sized towns, as well as in small villages where the *ateneu* or *casino* was sometimes the only cultural facility (Solà, 2011, pp. 178-182).¹⁷ Records show that around 140 *ateneus* were created throughout Catalonia between the mid-19th century and the Civil War (Solà, 1978, pp. 220-237).¹⁸

These associations became genuine hubs of popular culture that extended beyond purely cultural and educational activities. They served not only as spaces for the dissemination of culture and political ideas, but also as venues for social interaction through a range of recreational and leisure activities. Thus, in addition to libraries, some also had spaces for theatre productions and concerts, thereby offering a wide range of cultural and recreational opportunities. In addition, they often coordinated or collaborated on intense efforts to promote cultural activities, which became highly significant in Catalonia. Alongside *ateneus*, examples of the buoyant activity of cultural and civic associations included musical associations such as the choral movement promoted by Anselm Clavé, choirs, orchestras, traditional dances such as Pep Ventura's *sardanes*, theatrical performances, literary evenings, sports clubs such as FC Barcelona, hiking associations such as the *Centre Excursionista de Catalunya*, which dates back to 1876, and youth scouting groups (*moviment*

¹⁵ Established under the name *Ateneu Català* in 1860, it became *Ateneu Barcelonès* in 1872 after it merged with the *Casino Mercantil Barcelonès*.

¹⁶ For instance, *Ateneu San Lluís Gonzaga de Sant Andreu* (1866), *Foment Martinenc* (1877), *Ateneu Gracienc* (1878), *Ateneu Obrer de Sant Andreu* (1885), *Ateneu de Sant Gervasi* (c.1888), *Ateneu Obrer de Sant Martí* (1889), *Ateneu de Sants* (1896), *Ateneu d'Hostafrancs* (1896), *Ateneu Obrer de les Corts* (1897), *Institut Obrer Gracienc* (1897) and *Ateneu Racionalista de Sants* (1914).

¹⁷ For instance, *Ateneu Igualadí de la Classe Obrera* (1863), *Ateneu Manresà de la Classe Obrera* (1864), *Ateneu Obrer de Mataró* (1873), *Ateneu Lliure Instructiu de Terrassa* (1877), *Ateneu Arenyenc* (1885), *Ateneu Obrer Roda de Ter* (1888), *Ateneu La Unió de Santa Coloma de Cervelló* (1892), *Ateneu Obrer de Badalona* (1894), *Ateneu Lliure de Sant Felip de Llobregat* (1895), *Ateneu de Sant Joan Despí* (1895), *Ateneu Obrer de Vilafranca del Penedès* (1904) and *Ateneu de Vilanova i la Geltrú* (1904).

¹⁸ Associations such as the *Sociedad Autónoma de Mujeres de Barcelona* (1891), which became the *Sociedad Progresiva Femenina de Barcelona* in 1898, played a prominent role in defending feminist values.

escolta).¹⁹ These initiatives gave rise to a dense network of associations that spread throughout Catalan civil society, where they promoted the dissemination of knowledge and culture. In the economic sphere, this desire for associationism was also evident in the growing importance of cooperatives in Catalonia, both in rural and agricultural settings and in urban areas (Celada, 1989; Planas, 2016; Medina-Albadalejo et al., 2021).

To conclude this subsection, it is important to mention one of the distinctive features of Catalan industrialisation: the creation of industrial colonies in inland river regions (Terradas, 1987; Serra, 2011; Dorel-Ferré, 2003; Balcells and Serra, 2019). These large industrial establishments, positioned at the intersection of the urban and rural worlds and dedicated primarily to textiles, played a crucial role and achieved significant prominence, even within the wider European context.²⁰ They were located in rural areas that developed into population centres where the workers also lived, and spread throughout the interior of Catalonia, mainly along the Llobregat and Ter rivers. Based on this industrial and social model, Catalan cotton industrialists sought to harness the hydraulic energy of rivers, which was cheaper than coal, to overcome the energy shortage that had been stifling the Catalan textile industry. Up to 71 textile colonies were in service between the mid-19th and mid-20th centuries, 42 of which were located along the Llobregat River and 29 on the Ter River (Nadal et al., 2012, p. 176). In a context of industrial paternalism, industrial colonies offered workers and their families a wide range of amenities and were usually equipped with churches, grocery stores and, of course, schools.²¹

2.3. The political context: state, religion, nationalism and educational innovation

In addition to all of the above, educational supply and demand was also influenced by a wide range of factors. An important aspect to consider when analysing primary education in Europe during this period, which was marked by the creation of modern states and the spread of mass schooling, is the interplay between state, education and religion. The relationship between religion and education and its implications for economic development have been a recurring theme in the literature, even as far back as Max Weber's (1905) contributions. One strand has focused on analysing the role played by different religions and traditional religious institutions during the advent of mass public education. Several studies in this field have demonstrated that both Protestants and Jews historically invested more than Catholics in basic human capital (e.g. Becker and Woessmann, 2009; Botticini and Eckstein, 2007).

¹⁹ *Ateneus* also sometimes organised welfare and charity initiatives among their members through mutual aid and resistance funds to support the families of members without regular incomes due to strikes and other labour-related contingencies. This helps explain the origins of associations such as the *Caixa Laietana* (Izquierdo, 2018, p. 153).

²⁰ The first industrial colonies were established in Great Britain in the 18th century. The best known were located in New Lanark in Scotland, run by Robert Owen from 1800, and Saltair (1853) in Yorkshire, as well as those located near Bergamo in Northern Italy, 'but nowhere else is there such a density of industrial colonies as in Catalonia' (Serra, 2011, p. 241).

²¹ A study on numeracy levels during this period in the Baix Llobregat region, which was home to a large number of industrial colonies, can be found in Pujadas-Mora and Pérez-Artés (2024).

The relationship between Church and state was particularly complex in 19th-century Europe and must be viewed within the context of a secularisation process that led modern states to assume functions previously performed by the Church. Chief among these was education. In the 19th century, especially in Southern Europe, Catholic doctrine struggled to maintain its presence and influence in basic education and opposed state schooling, which led to direct competition between public and religious education. In this regard, it has been argued that Catholic countries traditionally had a higher proportion of private-run schools and reduced public education provision (West and Woemann, 2010). In turn, recent studies in relation to France have shown that private religious education was favoured in more religious regions, which hampered the accumulation of human capital and the dissemination of knowledge in such areas, given that religious schools offered differentiated curricula (Franck and Johnson, 2016; Squicciarini, 2020).

In Spain, education emerged as one of the areas in which the struggle between Church and state was most evident at the time when the new liberal state was being established (Mayordomo, 1982; Yetano, 1988; Salomón Chéliz, 2022). Throughout this period, the Church strove to prevent the advance of secularism in schools in an attempt to maintain its influence over education. In this regard, the 1857 Moyano Act reflected some of the issues addressed in the 1851 Concordat signed between Spain and the Holy See, which recognised not only the Catholic confessional nature of the Spanish State, but also the Catholic Church's right to oversee the education offered in all schools, whether public or private.²² In this context, it has been argued that the poor condition of the public school system encouraged the creation and proliferation of religious schools, under the protection of the private initiative freedoms granted by the 1857 law (González-Agàpito et al., 2002; Solà, 2011). Furthermore, this trend accelerated at the turn of the century due, among other reasons, to the educational secularisation measures imposed in France, which led to an exodus among the orders expelled from the country and their subsequent establishment in neighbouring Catalonia, with many settling in the city of Barcelona (Cañellas and Toran, 2013, 2020).

Another relevant factor in the complex process of building new modern states throughout 19th-century Europe is that these countries aspired to become nation-states. This led to the implementation of a series of policies aimed at forming nations and fostering a sense of belonging to the newly created states. This was not always straightforward, however, because most European countries at that time were characterised by heterogeneous territories in terms of ethnicity, language and religion.²³ Under these circumstances, central states often implemented a wide range of policies aimed at cultural homogenisation (Rohner and Zhuravskaya, 2023). In this regard, one of the key policies to foster nation-building was education. Importantly, where different languages coexisted, compulsory schooling mandated by the new state had to be conducted in a single, designated common language chosen from the many spoken within its borders.

²² This freedom of establishment was only curtailed by the so-called 'Padlock Law' (*Ley del Candado*) in 1910, which prohibited the opening of new religious orders for a period of two years.

²³ The literature has argued that such heterogeneity and the lack of social cohesion can affect the provision of public goods (Alesina et al., 1999) and has also examined the impact that cultural homogenisation policies can have on primary education (Alesina et al., 2021).

As Hobsbawm (1990, p. 62) stated, the ‘official or culture-language of rulers and elites usually came to be the actual language of modern states via public education and other administrative mechanisms’.

From a historical perspective, given that the expansion of primary education provision is one of the basic features of the nation-building process, a key issue could lie in the differences between the language of instruction mandated by the education system and the language predominantly spoken by the population (or mother tongue), especially in contexts with underdeveloped education systems affected by significant financial constraints. Several studies have examined the effects of a language mismatch on education outcomes, including in India in the second half of the 20th century (Jain, 2017), the United States (Lleras-Muney and Shertzer, 2015; Fouka, 2019; Bandiera et al., 2019), Prussia (Cinnirella and Schüller, 2016), France (Blanc and Kubo, 2023), as well as other Catalan-speaking areas such as Valencia (Beltrán Tapia et al., 2021b).²⁴ Despite the wide-ranging results obtained, all of these studies were based on the premise that the compulsory language of instruction within the historical context of 19th-century nation-building is a crucial factor that merits inclusion in studies on primary education.

In this regard, the Catalan case is also paradigmatic (Monells i Pujol-Busquets, 1984). As mentioned, the 1857 Moyano Act regulated the education system at all levels and, among many other aspects, also established Spanish as the language of instruction in primary education.²⁵ Thus, from the Moyano Act until the Second Republic (1931), public schools in Catalonia delivered classes in Spanish. The situation was similar in private schools, at least in religious institutions, where Spanish was also chosen as the language of instruction. Despite this, it is not always easy to identify the language that was ultimately used in schools. Although it seems clear that Spanish was used in urban public schools, it is possible that the situation was different in rural and more remote areas, and that, despite the presence of inspectors, Catalan was used in the classroom to some degree. Nevertheless, school textbooks were in Spanish, and teacher training in normal schools was also conducted in this language (González-Agàpito, 1992).

However, the linguistic situation in schools was the subject of intense debate. There was constant pressure from the central government to promote instruction in Spanish. The heated parliamentary debates on this issue provide a good example. For instance, the Count of Romanones, who served as Spanish Minister of Public Instruction in the early 20th century, stated in a speech: ‘To be a teacher, you do not need to be or speak Catalan, but rather speak and have a good command of Spanish. [...] Can we allow schools in Spain to teach a language or dialect other than Spanish? [...] in state schools, which are supported and supervised by the state, only the national language can be taught, and the national language in Spain is Spanish...’. The unitarian policy at the beginning of the century also led, for example, to the prohibition of catechism in Catalan (1902) and a circular from the civil governor of Lleida threatening disciplinary action for teachers who spoke Catalan at school (González-Agàpito, 1992, p. 149). The situation worsened during the

²⁴ For these issues in relation to the Catalan case in recent decades, see Clots-Figueras and Masella (2013) and Di Paolo et al. (2025). For a historical perspective, see Balcells (2013).

²⁵ The compulsory teaching of Spanish in primary education had already been established by a royal decree signed by Charles III in 1768 and was also reflected in several education projects undertaken thereafter.

dictatorship of Primo de Rivera (1923-30), when a Royal Order of 1924 established that, apart from sanctioning teachers, ‘they shall also proceed to suspend national or municipal teachers who do not comply with the provisions in force regarding teaching in Spanish or who, in their explanations, express doctrines opposed to the unity of the homeland, offensive to religion or of a dissolving nature, or who act with such weakness that it can be presumed that there is a bias against these sacred principles’ (López Martín, 1994, p. 52).

Meanwhile, the desire for standardisation imposed by the Moyano Act was increasingly contested in Catalonia throughout the second half of the 19th century. This was a period marked, politically, by growing nationalist sentiment linked to Romanticism, and culturally and linguistically by the strengthened *Renaixença* movement. Against this backdrop, the demand for Catalan-language schooling among civil society was growing, and in the early 20th century it was reinforced by the emergence of *Noucentisme*, a renewed cultural and ideological movement. In the 1880s, Valentí Almirall and Francesc Flos i Calcat were among the first prominent voices to call for Catalan-language schooling. The latter, in defiance of legal constraints, established one of the first Catalan schools (the *Col·legi Sant Jordi*) in 1898, which remained in operation until General Franco’s troops entered Barcelona in 1939. An association established within this school would go on to play a major role in defending education in Catalan: the *Associació Protectora de l’Ensenyança Catalana* (APEC), which was founded in 1898 and underwent considerable expansion until the outbreak of the Civil War, eventually becoming the organisation with the largest membership in Catalonia.²⁶ Within the sphere of public education, significant initiatives also took shape, including the *Federació de Mestres Nacionals de Catalunya*, which was founded in 1908.

All this occurred in a context marked by the dissemination of new ideas and approaches to educational reform across Europe and the United States from the late 19th century onwards, which in Catalonia manifested as the emergence of the movement known as *Escola Nova* (new school).²⁷ In contrast to the old state school system, the Catalan bourgeoisie supported this movement through the institutions under its control—municipal councils and provincial bodies (*diputacions*)—and, from 1914 onwards, through the *Mancomunitat de Catalunya* (Commonwealth of Catalonia). Thus, the movement for educational reform resonated with the Catalanist aspirations of *Noucentisme* and was reflected primarily in the educational initiatives of the *Mancomunitat* and those promoted by Barcelona City Council during the first few decades of the century.

Throughout the first 30 years of the 20th century, most of the efforts of *Escola Nova* and of the conservative Catalanism that governed the *Mancomunitat* were directed towards primary education. The aim was to establish a modern, scientific approach to teaching in Catalonia. To that end, the leadership of the *Seminari-Laboratori de Pedagogia* was entrusted to Maria Montessori, who resided in Barcelona between 1918 and 1936,

²⁶ Among its advisors were prominent figures such as Alexandre Galí and Rosa Sensat. The *Protectora* undertook direct action in literacy by subsidising Catalan schools and publishing textbooks.

²⁷ This movement adhered to the principles of John Dewey and was also influenced by the ideas of the *Institució Llibre de Ensenyança*, founded in 1876.

until the outbreak of the Civil War. It is important to note, however, that ‘the introduction of the Catalan language remained a secondary objective within the political project of conservative Catalanism and in the governance of the institutions under its control—an aim subordinated to the construction of a high-quality school system’ (González-Agàpito et al., 2002, p. 295). Nevertheless, the *Mancomunitat* provided APEC with subsidies and managed a network of 32 schools—15 in Barcelona and 17 elsewhere—in which instruction was conducted in Catalan (Grau Mateu, 2015, p. 91). It also published educational journals (*Quaderns d’Estudi* and *Butlletí dels Mestres*), promoted teacher training through summer schools (*Escoles d’Estiu*) and contributed to the dissemination of new teaching methods, particularly those proposed by Maria Montessori, through the *Consell d’Investigació Pedagògica*.²⁸

Constrained by state laws, primary education initiatives were particularly evident in Barcelona’s municipal schools. The creation of the *Mancomunitat de Catalunya* in 1914, the transfer of primary education responsibilities to Barcelona City Council—which gave the city full authority over educational matters—and the establishment of the *Patronat Escolar de Barcelona* ushered in a new era, thus giving rise to a series of innovative teaching initiatives within the public sphere. Barcelona City Council’s groundbreaking educational projects were most notable and included *L’Escola del Bosc* (1914), *El Grup Escolar Baixeras* (1917), *La Farigola* (1918), *Lluís Vives* (1921), *l’Escola del Mar* (1922), and *l’Escola a l’aire lliure del Guinardó* (1923). These complemented earlier private initiatives with a libertarian ethos, such as Ferrer i Guàrdia’s *Escola Moderna* (1901) and Pau Vila’s *Escola Horaciana* (1905).²⁹ There were also initiatives among the upper classes, such as *Mont d’Or* in the Sant Gervasi district, which applied the most modern methods of the time (Cañellas and Toran, 2013, 2020). All these examples reflect the educational reform that took place in Catalonia during this period (Solà, 2011). However, this process was interrupted by Primo de Rivera’s dictatorship (1923-1930) and only resumed briefly with the drive to modernise public education launched a few years earlier, following the establishment of the Second Republic in 1931.

Now that the economic, institutional, political and cultural backdrop to education in Catalonia during the period under study has been briefly outlined, the following analysis examines the state of primary education and its evolution over time based on new quantitative evidence. This approach aims to provide a more precise and detailed understanding of the formal elementary school system in Catalonia between 1860 and 1930 than was previously available, given that this historical period played a fundamental role in Catalonia’s economy and society.

²⁸ The educational reform taking place at the turn of the century embraced naturalist movements, which were embodied in the educational philosophies of Rousseau, Pestalozzi and Fröbel, modern teaching approaches and coeducation (González-Agàpito et al., 2002; IEC, 2008).

²⁹ Despite all these initiatives, the vast majority of children were educated in Spanish, whether in state schools, religious schools or anarchist libertarian schools. Only schools run by Barcelona City Council, along with a few others, provided instruction in Catalan.

3. The expansion of public primary education in Catalunya, 1860-1930: a long and winding road

To analyse primary education in Catalonia between 1860 and 1930, we begin by focusing on the public system. First, we examine the gross enrolment ratio (GER), which is the ratio of enrolled students to the total school-age population, defined here as children aged 6-14. These results are shown in Table 1 (column 1). The picture of public primary school enrolment in Catalonia that emerges has at least four notable features. First, the initial level was very low: in 1860, public schools accommodated just 27% of school-age children. Second, the evolution over the period under study is marked by modest growth—barely 10-15 percentage points. Third, the overall trend in the series indicates that the evolution of public GER was not linear over time. Indeed, most improvements occurred during two main periods: 1860-1880 and 1900-1910. Interestingly, these improvements appear to have been associated more with demographic stagnation in the school-age population (Table 1, column 2) than with a substantial increase in pupil numbers (Table 1, column 3). Furthermore, there were two periods marked by stagnation or even decline (1880-1900 and 1910-1930), which suggest that the gains achieved at certain times subsequently reversed, notably during the final two decades of the study period. Finally, it is worth noting that public GER had reached barely 35% by 1930, which means that Catalonia's public primary education system at that time enrolled just over a third of school-age children.

To make matters worse, there was widespread absenteeism, which would suggest that these figures likely overstate the actual condition of schooling at the time. Although data on school attendance during this period are scarce, some sources provide an indication of the degree of absenteeism. According to the *Estadística de Escuelas Nacionales*, average attendance at public schools in Catalonia was 68.1% in 1923, towards the end of the period under study. Thus, nearly a third of enrolled students failed to attend regularly. Additional data for 1880 show that the percentage of students attending public schools in Catalonia was 72%, slightly higher than the figure for 1923.³⁰ Therefore, absenteeism was a persistent problem. As a result, these data present an even more pessimistic picture of public-school enrolment levels during this period.³¹

To gain further insight into the state of public education provision in Catalonia, we next focus on public spending on primary education. As shown in Table 1 (column 4), such expenditure, expressed in constant 1913 pesetas, grew steadily, increasing from 1.8 million in 1860 to 6.4 million in 1930. This meant that per-child public expenditure for school-age children more than doubled over these years, from 6.1 to 14.9 pesetas, even though it declined temporarily at certain points, such as in 1900 (Table 1, column 5). Furthermore, the increase appears to have been more pronounced in the first few decades of the 20th century, particularly the first and third. Public expenditure on primary education is a key element of educational policy, as it is used to finance the construction and maintenance of public schools, as well as

³⁰ In 1880, attendance was recorded differently and referred to one specific day, that of the inspection, which in this case was 30 October (EGPE, 1883).

³¹ Absenteeism was particularly concerning in the rural province of Lleida, where, according to the data for 1923, attendance dropped to just 40% among boys.

the salaries of public teachers. Consequently, its scale and evolution play a crucial role in determining the provision of public primary education.

First, in terms of schools, progress in Catalonia was modest, with the number of public primary schools increasing slowly (Table 1, column 6). Between 1860 and 1930, a total of 848 new schools were established. Added to the 1,683 already in operation in 1860, this brought the total to 2,531 by 1930 (a 50.4% increase). Furthermore, the data indicate that this progress was largely concentrated in the first few decades of the period under study. Between 1860 and 1870, up to 375 new schools were opened, which accounted for nearly half (44%) of those established over the entire period. This substantial expansion during the period 1860-1870 was most likely linked to the enactment of the 1857 Moyano Act and the abovementioned requirement to create schools according to specific criteria based on the population of municipalities.³² This initial improvement is also reflected in the notable reduction in the number of school-age children per public school in the first 20 years of the study period (Table 1, column 7). However, this early momentum ended relatively quickly. After 1870, the growth in school numbers slowed considerably, and the number of school-age children per public school began to increase again.

Regarding the provision of public teachers in Catalonia, the results show a broadly similar trajectory to that observed for schools, albeit with a more positive trend (Table 1, column 8). The figures nearly doubled over the study period, from 1,447 to 2,886 teachers between 1860 and 1930. Once again, a strong initial push is evident: a third of the increase in teachers occurred in the first decade (1860-1870), thereby reinforcing the idea that the Moyano Act may have had a positive impact.³³ Given these circumstances, and judging by the results obtained for both public schools and public teachers, it can be concluded that the observed increase in public expenditure on primary education was insufficient to significantly expand education provision or meet the pressing and overwhelming needs of public primary education, which continued to show low enrolment rates throughout the period.³⁴

³² Additional evidence highlights the change brought about by the Moyano Act. In 1855, just before it was passed, there were 1,110 public schools in Catalonia. By 1865, this number had increased to 2,055, thus virtually doubling the public school supply. These data were obtained from official education statistics for 1855 and 1870, respectively.

³³ The data show that in 19th-century Catalonia, the number of teachers was systematically lower than the number of schools, which may indicate that there was a teacher shortage.

³⁴ In 1880, only 22% of schools had well-maintained facilities, while 63% reported that their teaching materials were inadequate. In addition, that same year, 30% of teachers lacked the necessary qualifications to teach.

Table 1. Public primary education in Catalonia, 1860-1930.

	Gross enrolment rate (GER)	School-age children (6-14 years)	Number of pupils in public schools	Public spending on primary education (1913 pesetas)	Public spending on primary education per school-age child (1913 pesetas)	Number of public schools	Number of school-age children per public school	Number of teachers in public schools
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1860	27.0	306,783	82,955	1,878,679	6.1	1,683	182	1,447
1870	33.0	303,750	100,243	2,120,000	7.0	2,058	148	2,047
1880	36.7	300,717	110,481	2,310,881	7.7	2,126	141	1,996
1890	35.8	332,624	118,990	3,105,794	9.3	2,224	150	n.a.
1900	32.4	360,550	116,669	2,890,238	8.0	2,284	158	2,305
1910	40.8	357,969	145,967	4,152,546	11.6	2,299	156	2,410
1920	39.7	377,133	149,792	4,565,981	12.1	2,420	156	2,568
1930	34.6	432,401	149,582	6,440,255	14.9	2,531	171	2,886

Source: See text and statistical appendix.

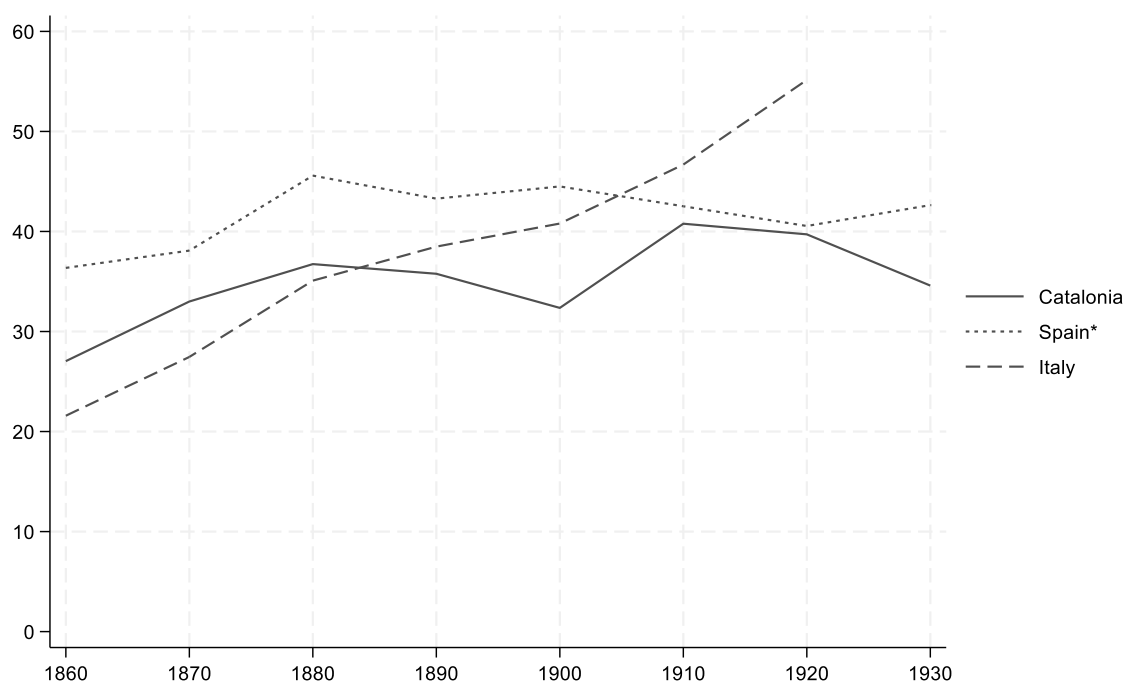
To enhance the significance of these findings and gain a clearer understanding of the reality behind the figures presented above, we next use a comparative approach. The comparison is made between Catalonia, the rest of Spain, and Italy—another Southern European country with similar institutional and socioeconomic characteristics. Conveniently, detailed information on primary education for both countries was available. In the case of Spain, the data came from the same sources used to obtain the figures for Catalonia, namely the official education statistics described in the statistical appendix. To facilitate the comparison, the portion corresponding to Catalonia was excluded from the Spanish total; thus, the Spanish data presented below and on the following pages actually refer to Spain without Catalonia. Data for Italy, on the other hand, were obtained from research by Cappelli and Quiroga (2020, 2021).³⁵

Figure 3 shows the evolution of public GER in Catalonia, Spain and Italy. Several aspects stand out from observing these data. For example, in 1860, public GER in Catalonia (27%) was more than 10 percentage points below the figure for Spain (37.5%). This confirms that the starting point in terms of enrolment was particularly low in Catalonia. Second, the evolution of public GER in Catalonia was slightly more positive than in Spain, where stagnation occurred from 1880 onwards. This resulted in a degree of convergence in enrolment rates until 1920, though Catalonia always remained below the Spanish average. However, in the final decade of the study period, the decline experienced in Catalonia caused the gap to widen again to a substantial level. By 1930, the public education system showed a GER of 43.1% in Spain and 34.5% in Catalonia. In this regard, it appears that Primo de Rivera's dictatorship represented a particularly unfavourable context for public primary education in Catalonia, especially when compared to the more favourable developments in Spain as a whole (López Martín, 1994).

The overall picture that emerges after an initial comparison with Spain does not appear particularly positive for Catalonia. However, a comparison with the evolution of Italy's GER provides a sense of how precarious the situation was in Catalan public primary education. In Italy, the enrolment rate in 1920—the last year for which data are available—stood at around 55%, clearly above both Spanish and Catalan figures, with a considerable gap of 10 and 20 percentage points, respectively. These figures are even more striking when one considers that the Italian public GER in 1860 was lower than that of both Catalonia and Spain, at just over 20%, thus encompassing barely a fifth of school-age children (Cappelli and Quiroga, 2021). Hence, the progress achieved south of the Alps in terms of public-school enrolment was far greater than that achieved south of the Pyrenees. And all this bearing in mind that schooling in Northern Europe was in a much better position, with enrolment rates in public primary education exceeding 70% during this period (Lindert, 2004; Cappelli et al., 2025).

³⁵ We thank Gabriele Cappelli for kindly sharing the Italian data with us.

Figure 3. Gross enrolment rate (GER) in public primary education, 1860-1930.



Note: Spain* excludes Catalonia.

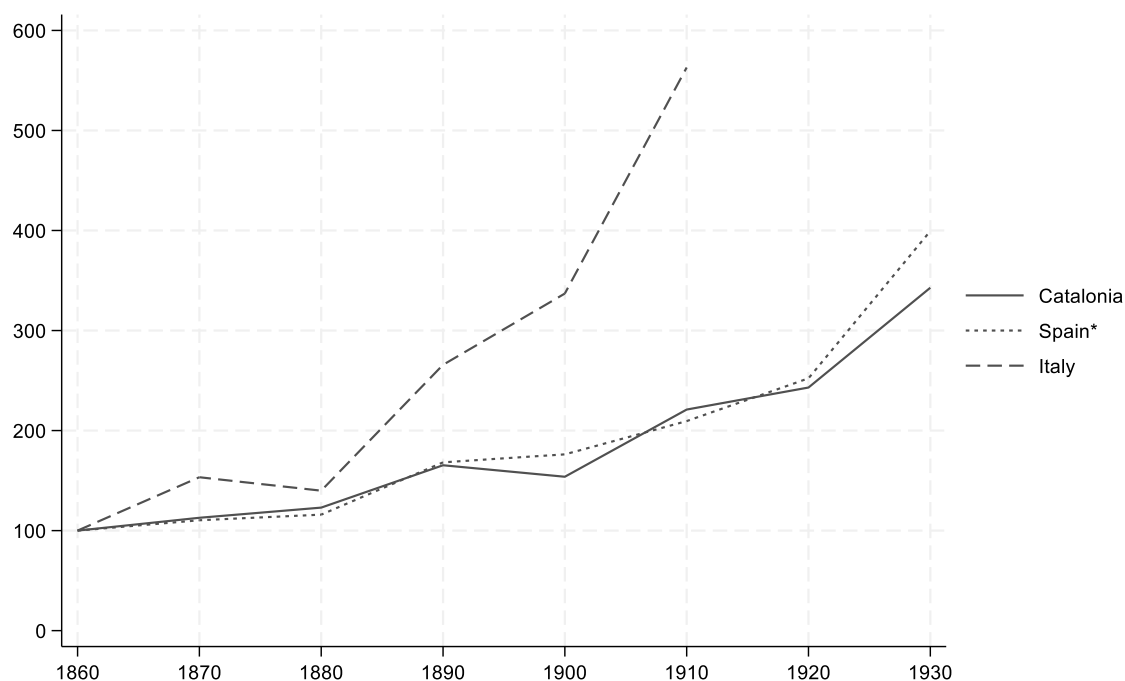
Source: For Catalonia and Spain, see text and statistical appendix. For Italy, Cappelli and Quiroga (2020).

Having outlined the disappointing state of public primary school enrolment in Catalonia, we next focus on the comparative evolution of public expenditure. Figure 4 shows public spending on primary education in Catalonia, Spain and Italy, using an index with 1860 as the base year (set at 100), from which several conclusions can be drawn. First, the dynamics in Catalonia did not differ significantly from those observed for Spain as a whole. In the case of Spain, the existing historiography has already noted that education expenditure was generally very limited (Tedde, 1981; Comín, 1996; Espuelas, 2013) and that the allocation of funds tended to prioritise secondary and higher education at the expense of primary education (Núñez, 1991). Likewise, the limited availability of financial resources has traditionally been identified as a factor affecting the provision of public primary education, particularly during the second half of the 19th century, when a decentralised financing system was in place (García and Comín, 1995; Moral Ruiz, 1986). It has been argued that the poor fiscal capacity of Spanish municipalities that was inherited from the Ancien Régime worsened following the 1855 Disentailment Act.³⁶ In the case of Catalonia, it seems that municipalities were also affected by these widespread financial problems in the second half of the 19th century, or even earlier (Casas i Roca, 1995). In the first few decades of the 20th century, with the shift

³⁶ In this regard, it has been suggested that the process of dismantling the communal regime following the law was geographically unequal. In areas where common lands persisted, these lands contributed to higher revenues for both municipalities and families, which in turn led to greater public expenditure on, and demand for, education (Beltrán Tapia, 2013).

from a decentralised to a centralised system, an upward trend can be observed; however, the institutional change does not seem to have caused a significant break in the evolution of public expenditure.³⁷

Figure 4. Public expenditure on primary education, 1860-1930 (1860=100).



Note: Spain* excludes Catalonia.

Source: For Catalonia and Spain, see the text and statistical appendix. For Italy, Cappelli and Quiroga (2020).

In the case of Italy, available data begin in 1860, immediately following the approval of the Casati Act (1859), which was enacted just two years after the Moyano Act was passed in Spain and imposed a decentralised financing system in which responsibility for public spending was transferred to the municipalities. The data end in 1910, just before the centralisation of the primary education system imposed by the Daneo-Credaro Reform of 1911. Throughout this period, public expenditure on primary education in Italy more than quintupled, thus surpassing the much more moderate growth observed in Spain and Catalonia. This occurred despite the financial challenges faced by primary education in Italy during the second half of the 19th century, which were exacerbated by the limited financial resources of the municipalities (Zamagni, 2002). Thus, a comparison with Italy underscores the limited progress made in public expenditure on primary education in Catalonia during the study period.³⁸

Finally, the data regarding the provision of public schools confirms the picture described thus far. As previously noted, Catalonia experienced an overall increase of 50% in the number of public schools

³⁷ Several studies have analysed the challenges of reducing regional disparities in public expenditure on primary education in Spain after the system was centralised in the early 20th century (Núñez, 1991; Azar and Espuelas, 2025).

³⁸ Furthermore, it has been argued that Italy experienced notable progress in public spending and improvements in enrolment and literacy levels following the centralisation of the primary education system after the 1911 reform (Cappelli and Vasta, 2020a).

throughout the study period. This increase was slightly lower than that observed for Spain as a whole, where the number of schools rose from 17,951 to 27,764 between 1860 and 1930 (an increase of 64.7%). Meanwhile, the situation in Italy was once again entirely different and much more positive: between 1861 and 1921, the number of public schools in the country nearly quintupled, from 23,340 to 112,083. Hence, the progress made in Italy in terms of public-school provision once again highlights the limited advances experienced south of the Pyrenees.

Table 2. Number of public schools, 1860-1930.

	1860	1870	1880	1890	1900	1910	1920	1930
Catalonia	1,683	2,058	2,126	2,224	2,284	2,299	2,420	2,531
Spain*	16,268	16,890	17,733	18,548	20,780	19,747	21,979	25,233
Italy	23,340	28,409	39,702	47,247	53,259	61,497	112,083	

Note: Spain* excludes Catalonia.

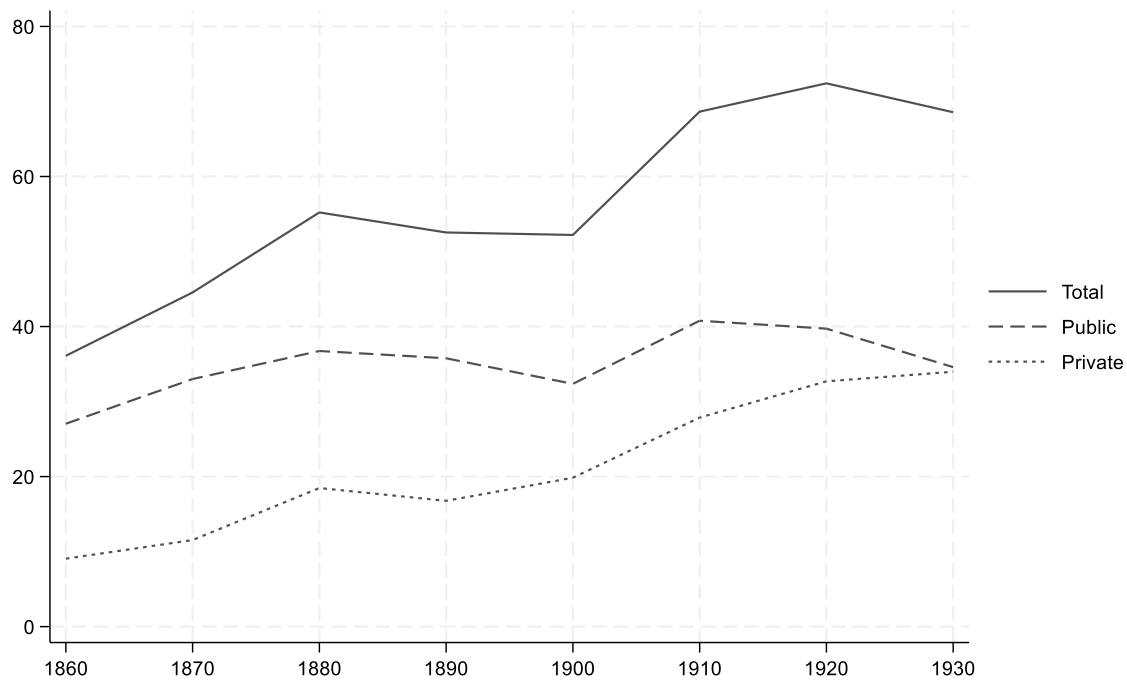
Source: For Catalonia and Spain, see text and statistical appendix. For Italy, Cappelli and Quiroga (2020).

4. The strong presence of private institutions in primary education: a Catalan exception?

All of the above paints a bleak picture for public primary education in Catalonia between 1860 and 1930, marked by very low levels of schooling and a GER that grew only modestly, with periods of stagnation and even decline. Although public expenditure was rising, it apparently remained insufficient to substantially increase the number of schools and teachers, which expanded very slowly. In these circumstances, which seem to suggest a public school system unable to provide the necessary supply to meet the growing demand for education, we next explore private primary education. With respect to enrolment rates (Figure 5), we observe that the GER in the Catalan private education system in 1860 (9.1%) was clearly lower than the figure for the public system (27%). However, unlike the latter, the GER in private institutions increased substantially and continuously throughout the period, to reach 34% in 1930. This led to a major change in the relative weight of public and private education in Catalan primary schooling during that time. In 1860, 75% of pupils in Catalonia were enrolled in public education, while the remaining 25% were in private education. By 1930, however, public and private schooling had reached equal proportions in terms of enrolment.³⁹

³⁹ The total GER, including both public and private education, rose from 36.1% in 1860 to 68.6% in 1930. Therefore, in spite of the progress, roughly a third of school-age children in Catalonia were still not enrolled in either public or private education.

Figure 5. Gross enrolment rate (GER) in primary education in Catalonia. Public schools, private schools and total (%).



Source: See text and statistic appendix.

To better understand the significance of these figures, which indicate that private primary education was playing an increasingly prominent role in school enrolment in Catalonia, we again carry out a comparison with Spain and Italy. Interestingly, the information in Table 3 reveals that the circumstances observed in Catalonia differed substantially from developments in the rest of Spain and in Italy. In 1860, the GER in private education in Spain (4.3%) represented less than half of the Catalan figure (9.1%). By 1930, the Spanish total (12.6%) was still far from the 34% GER reached in private education in Catalonia. For Italy, where the information is more limited, enrolment figures show that private education represented just 9% in 1877 and declined to 4% in 1907 (Cappelli and Quiroga 2021, p. 758). On the whole, the primary education enrolment data demonstrate that Catalonia stood out in terms of the relevance of private education. In addition, it should be noted that the situation described for Catalonia differed not only from that of Italy and the rest of Spain, but also from the broader context of Western Europe, where private primary education played a marginal role. Only in France and the Netherlands did private institutions assume such a prominent role in primary education as in Catalonia (Cappelli et al., 2025). Given these circumstances, the state of private education in Catalonia can be considered somewhat exceptional.

Table 3. Gross enrolment rate (GER). Public education, private education and total, 1860-1930.

	Catalonia			Spain*			Italy		
	Public (1)	Private (2)	Total (3)	Public (4)	Private (5)	Total (6)	Public (7)	Private (8)	Total (9)
1860	27.0	9.1	36.1	36.4	4.8	41.2	22		
1870	33.0	11.5	44.5	38.1	6.3	44.3	27		
1880	36.7	18.5	55.2	45.6	8.2	53.8	35	9	
1890	35.8	16.8	52.5	43.3	7.0	50.3	38		
1900	32.4	19.9	52.2	44.5	6.9	51.4	41		
1910	40.8	27.9	68.6	42.5	9.5	52.0	47	4	
1920	39.7	32.7	72.4	40.5	12.2	52.7	55		
1930	34.6	34.0	68.6	42.6	14.8	57.4			

Note: Spain* excluding Catalonia. In the case of Italy, the years correspond to 1861, 1870, 1877, 1887, 1901, 1907 and 1921. Source: For Catalonia and Spain, see text and statistic appendix. For Italy, see Cappelli and Quiroga (2020).

Information on the provision of private schools provides further evidence regarding the strong presence of private education in Catalonia. Although data on schools and teachers in private education are more limited, the information in Table 4 allows us to draw several conclusions.⁴⁰ First, private schools were already playing an important role in the Catalan education system in 1860, given that they represented 25% of the total supply at that time, thus suggesting that private primary education institutions had a strong tradition carried over from earlier periods.⁴¹ A second point refers to the evolution of private schools, which was more dynamic than that of public schools. Between 1860 and 1920, a total of 737 public schools were opened in Catalonia, while the number of private schools created during the same period amounted to 951. As a result, the share of private schools increased from 25% in 1860 to around 40% in 1920.

Once again, this pattern differs from developments in Spain and Italy. In the case of Spain, two aspects highlight the differences with Catalonia. First, the supply of private schools in Spain fluctuated between 13% and 17.5% of the total, a figure much lower than that of Catalonia, where private schools accounted for 25% of the total in 1860 and had reached 40% by 1920, as mentioned above. Second, nearly four times as many public schools (6,448) as private schools (1,744) were established in Spain between 1860 and 1920, whereas the opposite occurred in Catalonia, as we have seen.⁴² The comparison with Italy reinforces this view of Catalonia as an exception; there, the presence of private education was initially significant, but declined over time. In 1860, private schools accounted for 20% of all elementary schools, but this figure had fallen to just over 5% by 1910 (Cappelli and Quiroga, 2020).

⁴⁰ In the case of private schools, the information is scarcer, and data on schools for 1900 and 1930 are lacking. For this reason, we refer to 1920 in the temporal comparison. In the case of teachers, as we will see, the limitations are even greater, as described in the statistical appendix.

⁴¹ In fact, in 1855, before the approval of the Moyano Act, which, as mentioned, led to an increase in the number of public schools, almost a third of schools were private: 994 public vs. 453 private schools.

⁴² Moreover, much of the increase in the number of private schools in Spain occurred between 1910 and 1920, so the number of private schools in 1910 was similar to that of 1860.

Table 4. Number of public and private schools, 1860-1930.

	Catalonia				Spain*				Italy			
	Public (1)	Private (2)	Total (3)	% Private (4)	Public (5)	Private (6)	Total (7)	% Private (8)	Public (9)	Private (10)	Total (11)	% Private (12)
1860	1,683	560	2,243	25.0	17,951	3,332	21,283	15.7	23,340	6,082	29,422	20.7
1870	2,058	580	2,638	22.0	18,948	4,009	22,957	17.5	28,409	6,273	34,682	18.1
1880	2,126	823	2,949	27.9	19,859	3,972	23,831	16.7	39,702	7,906	47,608	16.6
1890	2,224	954	3,178	30.0	20,772	3,517	24,289	14.5	42,247	8,240	50,487	16.3
1900	2,284				23,064				53,259	8,518	61,777	13.8
1910	2,299	1,232	3,531	34.9	22,046	3,367	25,413	13.2	61,497	3,504	65,001	5.4
1920	2,420	1,511	3,931	38.4	24,399	5,076	29,475	17.2	112,083			
1930	2,531				27,764							

Note: Spain* excluding Catalonia.

Source: For Catalonia and Spain, see text and statistical appendix. For Italy, see Cappelli and Quiroga (2020).

The comparative approach thus reveals three clearly differentiated trajectories within Southern Europe in primary education. The Italian case was marked by notable progress in public education, while private education, which initially accounted for a significant share, declined to barely 5% of total schools by the early 20th century. The Spanish case, with Catalan figures excluded, presented slow development within the public system, which appeared even weaker when compared to Italian progress, as well as a relatively limited response from the private sector, whose share remained stable at around 15% of all schools between 1860 and 1930. By contrast, the slow growth of the public system in Catalonia, as echoed in the rest of Spain, was offset by the strong dynamism of private education, which accounted for 40% of schools and accommodated 50% of all students in the first few decades of the 20th century.

The pupil-per-school ratio provides further insight into this issue (Table 5). Analysis of this ratio makes it possible, for example, to examine whether public and private primary education fulfilled differentiated functions, as one might expect. In Italy, the pupil-per-school ratio in private education was lower than that seen in public schools for almost half of the study period. This fact has been used to argue that private education offered a more elitist form of schooling than public education (Cappelli and Quiroga, 2020). In 1860, the average number of students per public school in Italy was 42, compared with 21 in private schools, a trend that persisted until the end of the century. In Spain, a similar pattern initially prevailed: public schools had a higher number of students per school (54) than private schools (36), which was consistent with the view that private institutions served a more privileged population. However, from that point onward, the ratio grew faster in private schools than in public schools, with the gap narrowing to around 10 points. In the early 20th century, the ratio in private schools in Spain reached high values, around 80 pupils per school.⁴³ For Catalonia, the evidence reflects a somewhat different evolution. In 1860, the pupil-per-school ratio was similar across both public (49) and private (50) schools. From then on, the ratio in private schools increased considerably, even more so than in public schools. By the early 20th century, the

⁴³ This would suggest that, over time, private education in Spain may have ceased to fulfil an elitist function, as the pupil-per-school ratio had increased substantially, even surpassing that of public education.

pupil-per-school ratio in private schools was approximately 15 points higher than in public schools. These results suggest that, in the Catalan case, private primary education may not have been an elitist system that served only a few, but rather served as a means of responding to the growing demand for schooling. Private education thus appears to have filled the gap created by the inadequate public system.

Table 5. Pupil-to-school ratio by type of instruction, 1860-1930.

	Catalonia		Spain*		Italy	
	Public (1)	Private (2)	Public (3)	Private (4)	Public (5)	Private (6)
1860	49	50	54	36	42	21
1870	49	60	53	40	50	24
1880	52	67	62	51	46	22
1890	54	58	63	52	45	22
1900	51		64		48	22
1910	63	81	69	81	49	42
1920	63	82	65	77	36	
1930	59		61			

Note: Spain* excluding Catalonia.

Source: For Catalonia and Spain, see text and statistical appendix. For Italy, see Cappelli and Quiroga (2020).

Having described the distinctive nature of the Catalan case compared to some of its neighbours, it is worth mentioning an aspect related to the strong presence of private institutions in primary education in Catalonia: the role of religion in schooling. In 1908, there were more than 1,000 private schools in Catalonia, 94% of which were Catholic. In other words, private education during the period under study was largely synonymous with Catholic education. The existing historiography has already highlighted that religious institutions in Catalonia proliferated from the mid-19th century under the freedom of establishment granted to private initiative by the Moyano Act. Furthermore, this trend accelerated at the turn of the century, partly due to the educational secularisation measures implemented in France, which led to an exodus among the religious orders expelled from the country and their establishment in neighbouring Catalonia. Thus, there were numerous religious congregations dedicated to education throughout Catalonia.⁴⁴ These were complemented by an extensive network of parish schools. In general, the education offered by religious congregations was diverse, given that it fulfilled various functions, ranging from elite, fee-paying institutions aimed at the upper classes to free or affordable schools serving working-class children. Likewise, the educational content differed, since such schools were conceived as part of a charitable and paternalistic mission (González-Agàpito et al., 2002; Yetano, 1988).⁴⁵

⁴⁴ In the case of boys, the most prominent religious orders were the Piarists, Jesuits, Dominicans, Salesians, Marist Brothers and Brothers of the Christian Schools (La Salle), while the leading orders in girls' education were the Piarist Sisters, Dominicans, Carmelites, Cor de Maria, Jesus and Mary, and the Teresian Sisters.

⁴⁵ Within Church thought, there was a reorientation towards a form of social Catholicism aimed at the working classes, organised around the *Cercles d'Obrers Catòlics*. The position of the Catalan Church regarding the role it should play in

The preceding discussion highlights some of the challenges faced by Catalan society in the field of education during the period of study, including a context of economic and demographic change and intense social conflict resulting from rapid industrialisation, with an increasingly organised and politicised working class; a society characterised by growing demand for education; a state incapable of responding to this demand through the public system; and a strong Church presence in schooling through a large and expanding network of private schools. A historical episode that clearly illustrates the interaction between these factors and the complexity of the situation is the so-called Tragic Week (*Setmana Tràgica*) of 1909. The revolt in the city of Barcelona in late July was underpinned by many of the aforementioned aspects. Following the Spanish government's mobilisation of reservists for colonial wars in Africa, an insurrection broke out with a strongly anticlerical character, in which the Church's dominance of the educational system became the central focus of protests led by the working and popular classes. The initial strike and the incidents that followed resulted in the burning of religious buildings such as churches and convents, as well as a total of 33 religious schools across the city (Planell, 1998). In this context, the repression that followed these events had a significant impact on education, including the closure of secular schools in Catalonia.⁴⁶

5. Exploring the urban/rural differences in primary education

The information provided by the official statistics also allows us to examine the initial picture that emerges from a more detailed geographic perspective. Industrialisation, along with all its accompanying changes, did not occur uniformly across Catalonia. In areas where it did take place, its timing and intensity varied. Thus, a substantial part of the territory remained predominantly rural, so the economic conditions affecting the demand for education differed according to local circumstances, although they were also influenced by the possibility of migrating to industrial areas. While it is not possible to obtain highly detailed territorial information on education for the entire period under study, the sources used enable us to conduct an analysis based on disaggregated information for the four provinces into which Catalonia was divided in 1833 under the new territorial organisation of the Spanish liberal state. Given the economic situation at the time, it can be assumed that the province of Barcelona was representative of a more urban and industrial environment, while the provinces of Girona, Lleida and Tarragona represented a more rural reality.⁴⁷ It should be noted that this is a somewhat rough approximation. Even so, we believe it to be useful, since the disaggregated information for the four provinces yields a number of noteworthy results, as shown below.

education is reflected in the work of Josep Torras i Bages, Bishop of Vic (1910). For the presence of religious congregations in education in Catalonia, see Bada and Samper (1991), Galí (1986) and Marquès (1985).

⁴⁶ In addition, a prominent figure of the period associated with anarchism, the educator Ferrer i Guàrdia, director of the *Escuela Moderna*, was executed, having been accused of instigating the revolt.

⁴⁷ This does not mean that there were no significant industrial initiatives in the provinces of Tarragona or Girona (Nadal et al., 2012), or that the entire province of Barcelona, which extends almost to the Pyrenees, was completely industrial, as it also featured rural areas.

The first element where a more territorially detailed analysis offers valuable insight is the school-age population.⁴⁸ As shown in Table 6, the total for Catalonia conceals at least two clearly distinct trajectories. Firstly, the three relatively rural provinces experienced a decline in the school-age population between 1860 and 1930. By contrast, the province of Barcelona recorded a notable increase in the number of children aged eight to 14, which caused the school-age population to more than double over the period under study. This demographic growth significantly increased pressure on the education system in the case of Barcelona. However, this pressure was not nearly as intense in the rest of Catalonia, perhaps with the exception of provincial capitals and larger towns. This occurred against a backdrop in which industrial areas such as the city of Barcelona and its surroundings attracted migration, primarily from inland areas of Catalonia, during the early stages of industrialisation.

Secondly, Table 6 highlights that the prominence of private education mentioned in the previous section was also greater in the province of Barcelona, where private schools accommodated nearly two out of every three enrolled children (64.2%) in 1930, which was clearly higher than the figure for Catalonia as a whole (approximately 50%) and also for the provinces of Girona (35.1%), Tarragona (28.5%) and Lleida (24.1%).⁴⁹ The fact that public schools in the province of Barcelona accommodated just one in three pupils reinforces the notion that the public school system was incapable of meeting the demand for education in the most urbanised, dynamic and industrialised part of Catalonia, where demographic pressure and demand for education were also probably highest. In addition, it also highlights the significant role played by private education in serving areas where public provision was inadequate.

In the provinces of Girona, Lleida and Tarragona, most private religious initiatives were located in major population centres. In this regard, Luís Bello's account in his *Viajes por las escuelas de Catalunya* (Travels through the Schools of Catalonia) presents a view of the troubling state of Catalan schools at the end of the 1920s. Bello's words, in reference to Puigcerdà, the capital of the Cerdanya county in the Pyrenees, are particularly illustrative: 'Since public schools are insufficient, even though the teaching staff work well, the Piarist fathers, the Discalced Sisters, those of the Santo Ángel de la Guarda, and the Carmelite tertiaries encroach on their field. The Piarist school has been operating for over a century' (Bello, 1926, p. 126). Thus, religious congregations took advantage of the public system's inability to provide enough schools to absorb the demand for education in rural, mid-sized towns. In smaller towns within rural areas, the lack of public schools and the conditions under which teaching was delivered were often even worse, with no alternative provided by private education, which, as mentioned above, only extended to the largest population centres.

⁴⁸ It has previously been noted that the number of school-age children in Catalonia did not grow continuously throughout the study period, which was one of the factors explaining the evolution of the GER (Table 1).

⁴⁹ As shown in Table 6, the scant presence of private education in Lleida in 1860 is particularly noteworthy.

Table 6. School-age population and number of pupils in public and private education, 1860-1930.

	School-aged population			Pupils (public)		Pupils (private)		% Pupils (private)	
	1860 (1)	1930 (2)	1930/1860 (3)	1860 (4)	1930 (5)	1860 (6)	1930 (7)	1860 (8)	1930 (9)
Barcelona	128,726	270,332	2.1	28,826	61,562	20,094	110,594	41.1	64.2
Girona	56,649	53,264	0.9	14,061	27,179	3,974	14,670	22.0	35.1
Lleida	60,098	54,758	0.9	18,786	32,288	499	10,241	2.6	24.1
Tarragona	61,310	54,047	0.9	21,282	28,553	3,219	11,383	13.1	28.5
Catalonia	306,783	432,401	1.4	82,955	149,582	27,786	146,888	25.1	49.5

Source: See text and statistical appendix.

This pattern that emerges from the enrolment data is also evident when we focus on schools. By way of example, it is worth noting that the number of private schools in the province of Barcelona throughout the 20th century exceeded the number of public schools. In 1920, for instance, there were 997 private schools and 820 public schools. However, this differed from the situation across the rest of Catalonia; private education played a less prominent role in the more rural provinces. In Girona, Lleida and Tarragona, public provision fulfilled a substantial part of the demand for primary education during the study period. In these provinces, public schools accounted for 70-90% of the total number of schools. As noted above, the situation was different in the province of Barcelona, where public provision accounted for only 45-60% of all schools. The predominance of private education in this province is also reflected in the fact that it accommodated between 55% and 75% of all private schools operating in Catalonia throughout the study period.

Given that the province-level analysis suggests that pressure on the education system was strongest in the province of Barcelona, the most industrialised and urbanised part of Catalonia, one would expect this situation to have been even more pronounced in the city of Barcelona, Catalonia's main economic and industrial hub. The city experienced considerable demographic growth due to industrialisation and intense migratory flows in the period under study. In 1860, the city's population was 248,602 inhabitants. By 1900, this figure had more than doubled to 544,137, and by 1930 it had surpassed one million (1,005,565 inhabitants). To assess the state of primary education in Barcelona during such a period of intense economic and demographic change, we use information from the *Anuari Estadístic de la Ciutat de Barcelona* (AECB). Although this information is partial and covers only certain years of the early 20th century, we nevertheless consider it valuable for completing the picture of primary education in Catalonia. To allow for a consistent comparison over time, we focus on the years between 1908 and 1917.⁵⁰

The information available shows, firstly, that the number of public schools in the city remained constant throughout these years, at 154. The second point to highlight concerns the significant presence of private

⁵⁰ Comparison with earlier years proved problematic. In 1903, for example, there were 83 public schools accommodating 9,434 children. However, a Royal Order in 1906 allowed auxiliary schools to become independent schools, nearly doubling the number of public schools in a single year (Batlles, 1912, p. 14; AECB, 1921, p. 275). For this reason, and due to the greater availability of statistical information, we focus primarily on the year 1908.

schools (or *escoles particulars*, as they are referred to in the AECB). Although data on these private schools are more limited, information relating to the year 1908 is comprehensive and therefore useful for our purpose of quantifying the relative importance of public and private primary education in the city (Table 7). That year, there were 505 private schools compared to 154 public schools; in other words, there were 3.3 private schools for every public school. Moreover, private schools accommodated 41,204 pupils, while public schools served just 11,954. Thus, primary education in Barcelona at the beginning of the 20th century was characterised by a relatively small share of public schools (23.4% of the total), which enrolled 22.5% of the city’s school-age children.

Moreover, as mentioned in a previous section, one of the features of primary education in the city of Barcelona—and in Catalonia in general—was the presence of a range of different associations and institutions that also provided primary education outside the formal education system, a fact that increased the complexity of the school network. As noted in the 1921 report drafted by the city’s *Comissió de Cultura* (AECB, p. 277), ‘[t]he statistics on private schools exclude a large number of religious, political and cooperative organisations, as well as parish schools, that run primary classes. These should be considered, given how many pupils they teach.’ These associations and institutions, which are harder to track across Catalonia as a whole, are recorded for the city of Barcelona in AECB under the heading *Ateneos Obreros, Patronatos y otras Asociaciones dedicadas a la primera enseñanza gratuita*. Aggregated data for 1908 reveal that a total of 102 additional educational centres served 11,395 pupils.⁵¹ When these centres are taken into account, the share of public primary education in the city falls even further than previously noted: 20.2% of schools and 18.5% of pupils.⁵²

Table 7. Number of schools and pupils by type of school in the city of Barcelona, 1908.

	Schools			Pupils		
	Boys (1)	Girls (2)	Total (3)	Boys (4)	Girls (5)	Total (6)
Public schools	78	76	154	5,858	6,096	11,954
Private schools (<i>particulars</i>)	233	272	505	25,184	16,020	41,204
Total 1	311	348	659	31,042	22,116	53,158
<i>% Public 1</i>	<i>25.1</i>	<i>21.8</i>	<i>23.4</i>	<i>18.9</i>	<i>27.6</i>	<i>22.5</i>
Other	68	34	102	8,559	2,836	11,395
Total 2	379	382	761	39,601	24,952	64,553
<i>% Public 2</i>	<i>20.6</i>	<i>19.9</i>	<i>20.2</i>	<i>14.8</i>	<i>24.4</i>	<i>18.5</i>

Note: ‘Other’ includes *Ateneos Obreros, Patronatos y otras Asociaciones dedicadas a la primera enseñanza gratuita*.

Source: *Annari Estadístic de la Ciutat de Barcelona* (AECB).

⁵¹ These institutions included religious centres like the *Centre Moral Instructiu de Gràcia* (298 children), as well as secular organisations such as the *Ateneu Obrer de Sant Andreu* (286 children), the *Ateneu Obrer de Barcelona* (141) and the *Foment Martinenc* for girls (173).

⁵² The total refers to day schools. Night schools and Sunday schools are excluded.

All these data show that the city of Barcelona's highly complex primary education system was dominated by private schools, alongside various informal centres. However, it is important to note that the picture obtained for Barcelona reflects a specific point in time. This situation is explained in large part by the trajectory of primary education over the preceding decades, though it should be noted that the conditions in the early decades of the 20th century were highly changeable. Firstly, as mentioned above, a considerable number of private schools and other informal centres were indiscriminately closed following the events of Tragic Week in 1909. Secondly, the stagnation affecting the city's public schools between 1908 and 1917 began to change in those later years. As noted, the creation of the *Mancomunitat de Catalunya* in 1914 meant that primary education responsibilities were transferred to Barcelona City Council, thus giving the city full control over educational matters, and the *Patronat Escolar de Barcelona* was established, thus ushering in a new era and giving rise to a series of innovative educational initiatives in the public sector.

In this regard, according to additional information from the *Comissió de Cultura*, there were 14,592 pupils in public schools and approximately 48,000 in private schools in 1916. Therefore, public schools continued to account for roughly a quarter of the pupils enrolled at that time.⁵³ Indeed, contemporary actors were well aware that the number of public schools in the city of Barcelona was entirely insufficient. In 1912, Valencian physician and politician Mariano Batlles, who was serving as the government's Delegate for Public Instruction, addressed the minister in charge to express his concerns about the deficiencies: 'Barcelona, with its active, hardworking and enlightened teachers, cannot claim that its official public education meets the high teaching standards it ought to' (Batlles, 1912, p. 7). According to this politician, the main reason primary education failed to meet the proper standards was the lack of schools, as well as the conditions under which they were maintained.⁵⁴

Given these circumstances, the limited number and quality of public schools was a factor that greatly influenced Barcelona families' preference for private primary education. Yet, the reality was more complex. For example, not all places available at the city's public schools were filled in 1920. A total of 3,200 of the 17,800 places available remained vacant (AECB, 1918-1920, p. 277), which reflected the poor conditions of public schools and the tendency of families with sufficient resources to opt for private education. In this regard, the report from the *Comissió de Cultura* (AECB, 1918-1920, p. 278) provides especially valuable insight into why Barcelona families opted for private schools:

'The reason is simple: as we have already seen, educational reforms—school buildings, free schooling, graded instruction, etc.—reach public schools very late. And despite the personal efforts and competence of Barcelona's public teaching staff, most of our residents, who want a school that responds to their needs and aspirations, feel that certain private schools meet

⁵³ In addition this total of 62,592 pupils, the *Comissió de Cultura* estimated that a further 20,000 were not enrolled in any school (AECB, 1916, p. 175).

⁵⁴ The Ministry of Public Instruction and Fine Arts was also well aware of this situation: 'The most notable point here is undoubtedly the inclusion of Madrid and Barcelona among the provinces with the lowest school enrolment, which reflects the considerable shortage of national schools in the capital cities of these provinces' (EEN, 1923, p. 23).

their educational expectations more directly. It is the private institutions dedicated to primary education that have built spacious and hygienic school premises; many of them were the first to introduce graded instruction, to provide educational ideals based on various perspectives, and to attempt to implement teaching methods that had been successfully tested elsewhere. [...]

All this primary education, developed in response to the cultural needs felt locally and organised both by private individuals for profit and by religious, political and social entities concerned with shaping minds, helped establish a distinctive approach to education grounded in the lived realities of Barcelona. These realities demanded intellectual, civic and moral instruction supported by far greater resources than those available to Barcelona's public teachers, who were forced to work without adequate premises or materials, despite the fact that most public teachers represented a genuine selection of educators.'

It went on to conclude:

'Owing to the misguided ambitions of the local middle class (*menestralia*) for the liberal professions, and because of a particular sense of dignity, they would not send their children to a school where they could scarcely be prepared for admission to the institutes or other specialised schools.'

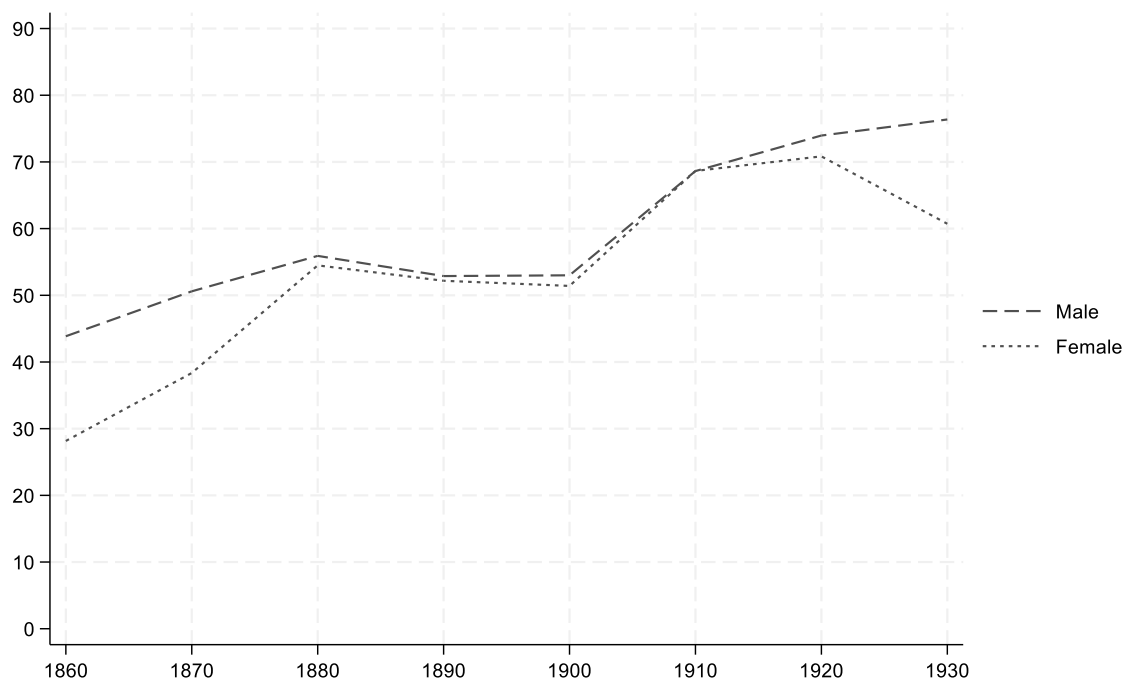
6. Female education: the fall and rise of the gender gap in primary schooling

Gaining a better understanding of how primary education evolved in Catalonia requires a gender perspective that distinguishes between boys' and girls' education. In this regard, the literature in recent decades has increasingly focused on the role of gender differences in educational achievement. The importance of girls' education is evident in its positive effects on many socioeconomic outcomes in adulthood, including labour market participation (Goldin, 1995), family life, fertility, child mortality and children's education (Cinnirella, 2019), and on economic development in general (Lagerlöf, 2003; Klasen and Lamanna, 2009; Duflo, 2012).

The importance of female education during the era of mass schooling has also been highlighted from an economic history perspective (e.g. Diebolt and Perrin, 2013; Hippe and Perrin, 2017; Bertocchi and Bozzano, 2020). Traditionally, during the Early Modern period, women—especially in Southern Europe—had lower literacy and school enrolment rates than men (Nalle, 1989; Viñao, 1990; Houston, 2002). This phenomenon was linked to cultural factors and the role assigned to women in society, which revolved around domestic work and family care, and led families to allocate their typically scarce resources towards sons. Thus, it has been argued in the Spanish case that, due to the opportunity cost of educating boys and girls, many families considered that sending their daughters to school would not be worthwhile (Núñez, 1992; Sarasúa, 2002). Moreover, schools were aimed predominantly at boys until the late 18th century, so the limited education girls received was provided mainly in the home (Viñao, 1990; Howe, 2008).

The beginning of mass schooling was thus conditioned by the inertia of this traditional past.⁵⁵ In this context, economic progress and the creation of a formal education system from the mid-19th century marked the beginning of a period of substantial changes in female schooling. In our case, adopting a gender perspective not only enriches the analysis, but also makes it possible to identify distinct traits and dynamics by sex, thereby deepening our understanding of some of the patterns previously highlighted in this study. To begin with, we focus on enrolment rates. Figure 6 shows that the differences between male and female GER occurred primarily in the first two decades (1860-1880) and in the final two decades (1910-1930), while the pattern remained virtually unchanged during the central decades of our study (1880-1910). In this regard, the decline in female GER towards the end of the period is noteworthy, as the gap between boys' and girls' schooling appears to have reopened, thus reversing the progress achieved in previous decades.

Figure 6. Gross enrolment rate (GER) in primary education, by sex. Catalonia, 1860-1930.



Note: GER includes both public and private education.

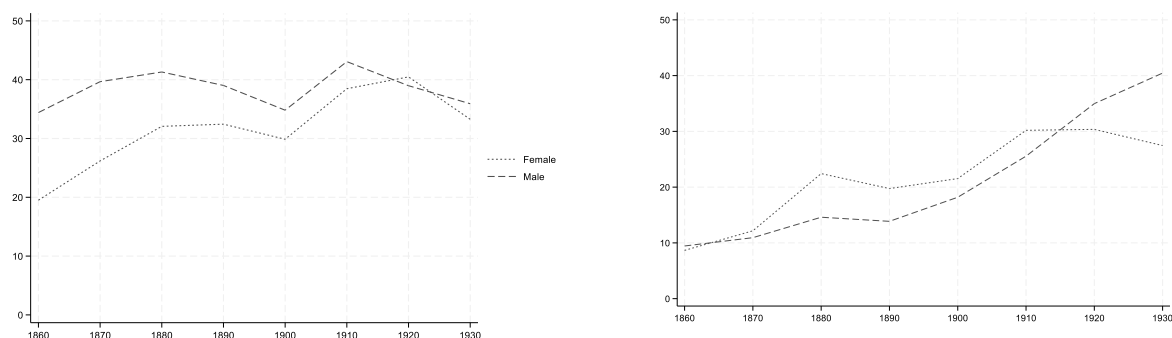
Source: See text and statistical appendix.

When we combine this information with the type of education received (public or private), a more accurate picture of schooling in Catalonia emerges. Figure 7 (left) shows that, in public education, female GER lagged behind male GER for much of the period, although some convergence between the two can be observed. This can be explained by the stagnation of male GER, coupled with the growth attained by female GER. However, it is also noteworthy that the final decades of the study period were marked by a notable

⁵⁵ In the case of Spain, according to the data compiled in Madoz, only half of towns had a school for girls (or a coeducational school) by 1847, thus limiting their access to education. This problem was particularly evident in rural areas (Sarasúa, 2002).

decline in both male and female enrolment rates in public education. By contrast, Figure 7 (right) presents a very different picture for the GER in private education. While male and female GER started at very similar levels in 1860, a higher enrolment rate among girls at private schools occurred in the following decades. However, the trend changed from 1910 onwards; while male GER in private education continued the growth trend experienced in previous decades, female GER stagnated.

Figure 7. Public GER (left) and private GER (right) in primary education, by sex. Catalonia, 1860-1930.



Source: See text and statistical appendix.

To examine the evolution of sex-based differences in more detail, we next calculate the so-called gender parity index (GPI), which expresses female GER as a percentage of male GER. When one focuses on the total GPI data shown in Table 8, several stages become clear. First, the gap at the starting point is considerable, with a difference of more than 35 points in favour of male enrolment. Second, the stronger growth of female GER between 1860 and 1880 led to a rapid narrowing of the initial gender gap. In just two decades, the GPI was close to 100, which indicated near equality in enrolment between genders. Third, this parity in enrolment rates persisted between 1880 and 1910. Fourth, the gap reopened between 1910 and 1930, and exceeded 20 points by 1930. Thus, this fall and subsequent rise of the GPI resulted in a U-shaped pattern in the gender gap.

Returning to a comparative perspective, we observe that, in this regard, the evolution and timing of the narrowing of the gender gap in Catalonia up to 1910 were similar to those observed for Northern Italy (Cicarelli and Weisdorf, 2019). Moreover, in the Italian case, it has been concluded that the centralisation of the primary school system with the Daneo-Credaro Reform of 1911 led to an increase in female literacy rates, thereby resulting in a substantial narrowing of the gender gap from that moment on (Cappelli and Vasta, 2020b). By contrast, while the centralisation of the public education system in Spain from 1902 may have had a positive effect on male and female enrolment rates in Catalonia, this effect appears to have been limited in duration. By 1910, growth in female public GER had stalled, and from 1920 onwards it began to decline, thereby causing the gender gap in enrolment rates to reopen.

Table 8. Gender parity index (GPI) by type of education. Catalonia, 1860-1930.

	1860	1870	1880	1890	1900	1910	1920	1930
Total	64.2	75.8	97.5	98.7	97.0	100.0	95.8	79.5
Public	56.7	66.0	77.6	83.1	85.8	89.3	103.8	92.6
Private	91.6	111.3	153.6	142.4	118.4	118.1	86.8	67.9

Source: See text and statistical appendix.

Disaggregating the GPI by education type once again reveals two clearly distinct patterns. The picture for public education is less optimistic. There, differences in GPI were greater in 1860, almost 45 points, in favour of private education (91.6) over public (56.7). From that point on, improvements in the GPI for public education were gradual, with the gap closing around 1920, when the figure exceeded 100. However, the next decade once again saw the gender gap reopen in 1930. The evolution of private education, by contrast, followed a different pattern. For much of the period, female enrolment exceeded male enrolment. In 1880, the GPI was more than 50 points above parity, in favour of female enrolment. However, from that moment, the widening of the gender gap between 1910 and 1930 was quite pronounced, and it can be seen as part of a downward trend that started in 1880. By 1930, the situation had completely reversed, with the GPI in private education that year standing more than 30 points below the parity value of 100.

On the whole, this reopening of the gender gap in 1910-1930 represented a setback in the progress achieved in previous decades towards providing boys and girls with similar schooling opportunities. Moreover, incorporating gender within the analysis also helps shed light on the stagnation in total GER that was initially observed (Figure 5). The challenges faced by female schooling in those decades largely account for this stagnation, which was only offset by an increase in male private enrolment. However, this development once again gave rise to significant differences in boys' and girls' enrolment rates.

The fact that the gender gap, which had been narrowing rapidly since the mid-19th century, reopened in the final decade of our study can, to some extent, be considered an anomaly that warrants closer examination. This development coincided with a political context marked by the dictatorship of General Primo de Rivera (1923-1930). It has been argued that the new regime pursued a modernising agenda, and education was included in this drive. During this period, efforts were made to improve the school network through the construction of new public schools. In Spain, excluding Catalonia, the number of public schools increased from 24,615 to 27,764 between 1923 and 1930, a considerable rise of 12.8%.⁵⁶ By contrast, our results show that Catalonia was largely excluded from this drive to create public schools, with growth standing at just 2.7% (from 2,465 to 2,531 schools). Regarding private education, limitations in the available data makes it difficult to quantify the exact events of those years. This is an important point,

⁵⁶ The literature has pointed out that this increase made it possible to accommodate the growing school-age population, but was nonetheless insufficient to remedy the deficiencies of the public network. Furthermore, the quantitative expansion was not necessarily accompanied by an improvement in the quality of education. The limited evolution from the unified model, whereby students of different ages were mixed within the same class, to the graded model confirms this (López Martín, 1994).

because the commitment to expand the public school network should not obscure the dictatorship's preferential treatment of private education and the religious orders involved, through favourable legislation, subsidies and tax advantages.

In this regard, it should be noted that, in addition to the regime's prioritisation of Catholic religious values, Primo de Rivera's dictatorship was also characterised by the promotion of patriotic values centred on Spanish unity. The educational foundations of this new period are neatly summarised in the following excerpt by López Martín (1994, p. 31): 'The Dictator, who cannot disappoint the groups that have supported his rise to power, has turned education into a vehicle for promoting the ideology of the regime, where religion and patriotism—key values of the Spain envisioned by his government—serve as the guiding principles of school activity.' The words of the Director General of Primary Education are equally enlightening: 'The school system must be nationalised. Any school, whatever the type, that does not educate children in the beliefs of the Catholic religion and in love for Spain must, and will, be closed' (cited in López Martín, 1994, p. 35). This ideological combination does not seem to have been particularly favourable to girls in Catalonia. As we have described, only the GER for boys in private schools appears to have improved during this period. The female GER declined in both public and private education, as did the GER in boys' public education. In any case, our results further highlight the value of analysing the dynamics of education under the dictatorship in greater depth, since, according to official statistics, this period in Catalonia brought about a significant setback both for public education in general and for female education in particular.

Finally, another important gender-related aspect is the degree of feminisation in the teaching workforce. Only partial information is available to analyse this factor, which at least allows us to observe the situation at the beginning and end of the period. The feminisation rate is calculated as the percentage of female teachers out of the total number of teachers. In 1860, Catalonia had 38 female teachers for every 100 teachers (Table 9). A few decades later, however, this share had changed, with an increase of 20 points over the entire period. This evolution occurred in public schools and, to a lesser extent, private schools, although the feminisation rate of private schools was approximately 10 points higher than public schools throughout the period. In the Catalan case, the historiography has highlighted that teaching was a very common career option for young, middle-class women. For example, the women's teacher training college (*Escuela Normal*) in Barcelona had three times as many students as the men's college in 1897, thus illustrating the importance of female teachers at the turn of the century (Solà, 2011, p. 218). The data allow us to quantify the presence of women in the teaching profession and, in turn, conclude that the higher feminisation rate achieved in Catalonia was linked mainly to the role played by private education, where the presence and proportion of female teachers were notably higher than in the public sector.⁵⁷

⁵⁷ Women could teach solely in girls' and coeducational schools (*escuelas mixtas*). However, coeducational schools do not seem to account for the higher feminisation rate, since their presence in Catalonia during the second half of the 19th century was minimal. Only after the 20th century did such schools begin to play a significant role, accounting for 20-25% of all schools, but most were located in small, rural municipalities in the province of Lleida.

Table 9. Feminisation rate in primary education, 1860-1930.

	1860	1870	1880	1890	1900	1910	1920	1930
Public	35	40	40				51	53
Private	46	51	53				58	61
Catalonia	38	43	44				54	58
Spain*	29	33	34				48	52
Italy	41	43	50	58	66	70		

Note: The feminisation rate is calculated as the percentage of female teachers out of the total number of teachers.

Source: For Catalonia and Spain, see text and statistical appendix. For Italy, see Cappelli and Quiroga (2021, p. 17).

Once again, including a comparative perspective in our analysis of the feminisation rate among teachers may give greater significance to the figures obtained. Table 9 shows, first, that the feminisation rate in Catalonia was systematically higher than the rate in Spain, and secondly, that Catalonia's feminisation rate at the starting point was very close to that of Italy, although Catalonia gradually fell behind. By 1910, the Italian rate (70) was clearly higher than the Catalan rate in 1920 (54). This comparison is important, because the feminisation of teaching has been identified as a key factor in Italy's progress and Spain's delay in schooling rates, especially for females, during this period (Cappelli and Quiroga, 2021). In other words, it has been argued that the feminisation rate contributed to Italy's improvement in human capital accumulation, while Spain's low level of feminisation accounted for the stagnation in female schooling rates. In this regard, the data on teacher feminisation rates indicate that Catalonia occupied an intermediate position—better than the rest of Spain but lagging behind Italy.

Overall, the picture that emerges from the gender-based data on primary education in Catalonia, including enrolment rates, the GPI and teachers' feminisation rates, is rather complex. It reveals significant changes over time, advances and setbacks, and non-linear trends, along with substantial variations in the levels and dynamics of public and private education. All this occurred during a period of gradual and continuous progress in female literacy rates, which, as mentioned, rose from 11% in 1860 to 77% in 1930 (Beltrán Tapia et al., 2021a; Gómez-i-Aznar, 2024). Therefore, while this new evidence offers a more detailed and nuanced picture of the differences in primary education between boys and girls in this period of Catalan history, the complex nature of our findings also raises new questions for future research.

7. Concluding remarks

In the preceding pages, we described the evolution of Catalonia's formal primary education system between 1860 and 1930 using official education statistics. One of the first aspects revealed by our analysis is the challenge faced by the public system in advancing and providing primary education throughout the period under study. By 1930, public schools enrolled just one-third of school-age children; thus, the provision of public education appears to have been manifestly inadequate. In addition, a more detailed territorial analysis of public education allowed us to confirm that these difficulties were even more pronounced in parts of Catalonia experiencing the greatest demographic growth and economic dynamism.

Our study also quantified the evolution of private primary education. The data suggest that private education underwent a substantial increase throughout the period, to the extent that it reached a presence comparable to that of public education, in terms of both the number of students enrolled and the number of schools. In this regard, our findings reveal that the Catalan case was a clear exception within Southern Europe, at least compared to developments in Italy and the rest of Spain during that same period, and, to a certain extent, within Western Europe, where only countries such as France and the Netherlands had a private primary education sector comparable to that of Catalonia. Moreover, we also showed that private education was more prevalent in areas of Catalonia experiencing the greatest demographic pressure linked to the economic changes of industrialisation and, therefore, where the demand for education was also likely highest, such as Barcelona province and city.

Furthermore, analysing the education system as a whole may have obscured at least two different patterns in the experiences of boys and girls. Our work shows that they did indeed evolve differently. In this regard, we quantify how much girls' education lagged behind, with enrolment rates less than two-thirds of those of boys at the beginning of the period. On a more positive note, we also observe that this gap closed rapidly and that by 1880, just two decades later, the two enrolment rates had converged. Our data also highlight that girls were more likely than boys to attend private schools for much of the period under study. However, somewhat surprisingly, these gains reversed in the final two decades of the study. The progress made in female schooling stalled, and even declined, in both public and private education. In any case, these advances and setbacks suggest that further research is needed to fully understand the reasons underlying this evolution.

Nevertheless, despite the difficulties faced by the primary education system, the period under study can, on the whole, be assessed reasonably positively in terms of the accumulation of basic human capital. Despite the low starting values for school enrolment rates, these had practically doubled to almost 70% by 1930, while literacy rates rose from 26% in 1860 to 84% in 1930. Industrialisation and the resulting economic transformation were therefore accompanied by remarkable progress in the education levels of Catalan society, and the education system played a fundamental role in this process. However, this required significant reliance on private education to fill the gap left by the public system, as well as increased use of education options beyond the formal system.

Catalonia was unique in this regard, since a broad, dense network of civil society initiatives, such as *atenens* and other social and cultural associations, also contributed to the task of improving basic education. We were able to partially quantify this phenomenon, which has already been highlighted in the previous literature, based on information relating to the city of Barcelona. As previously pointed out by other authors, in addition to this network of social and cultural associations, on-the-job learning in workshops and factories, as well as technical schools, also played an essential role in improving education levels. All of this shows that Catalan society mobilised its resources to address the challenge of educating and promoting

literacy among a population that, in the context of industrialisation, was moving decisively towards modernisation, following in the footsteps of the most advanced regions of Western Europe.

Finally, we believe that the specific characteristics of Catalonia, which combined early, intensive industrialisation with a backward institutional framework more typical of Southern Europe, make it a valuable case study and adds an important piece to the European puzzle to deepen our understanding of how mass schooling spread across the continent during this decisive historical period. Furthermore, studying a particular society, in this case Catalonia, and analysing the trends and patterns of its formal primary schooling system can enhance our comprehension of how basic human capital was accumulated in the early stages of economic development. In our view, it is essential to gain a full understanding of the details and mechanisms of this complex process, since education is a determining factor in achieving long-term progress and improving a society's standard of living.

Acknowledgements

The dataset on primary schooling used in this paper comes from a research project carried out jointly with our colleagues Francisco J. Beltrán Tapia, Alfonso Díez Minguela, Pau Insa-Sánchez and Daniel A. Tirado-Fabregat and financed by the Bank of Spain. Within this group, we built a dataset on primary education infrastructure for Spain as a whole, broken down by province. We thank all of these colleagues for allowing us to use these data for this paper. We also gratefully acknowledge the financial support provided by the Centre d'Estudis Jordi Nadal, the Ministry of Science and Innovation (Grant PID2021-127636NB-I00, MCIN/AEI/10.13039/501100011033), the Generalitat de Catalunya (2021SGR00762) and the Generalitat Valenciana (Prometeo 2023/39).

Statistical appendix – a dataset on primary education in Catalonia (1860-1930)

The dataset constructed for this study was obtained from a range of official education statistics published in Spain between 1860 and 1930. For the purposes of this study, we compiled data relating to three dimensions of primary education: pupils, schools and teachers. For each of these dimensions, the statistics generally allow information to be broken down by public and private education, as well as by sex. In addition, information relating to public expenditure on primary education was also obtained from education statistics and other sources, and was incorporated into the dataset.

Based on the information provided by these official statistics, a panel dataset was constructed at 10-year intervals for the eight benchmark years between 1860 and 1930 (i.e. 1860, 1870, 1880, 1890, 1900, 1910, 1920 and 1930), broken down by public and private education, and by sex. Since the primary sources contained geographically disaggregated information (by province), the totals for Catalonia were obtained by aggregating the values for its four provinces. This dataset provided the basis for analysing the evolution of primary education in Catalonia in the period under study.

The sources used, listed chronologically, were as follows:

- *Anuario Estadístico de España* (AEE, 1860)
- *Estadística General de Primera Enseñanza correspondiente al quinquenio que terminó en 31 de diciembre de 1870* (EGPE, 1876)
- *Estadística General de Primera Enseñanza correspondiente al decenio que terminó en 31 de diciembre de 1880* (EGPE, 1883)
- *Anuario de Primera Enseñanza correspondiente a 1886* (APE, 1887)
- *Anuario Estadístico de Instrucción Pública, correspondiente a 1889-1890* (AEIP, 1891)
- *Gaceta de Madrid*, 16 March 1895 (GM, 1895)
- *Anuario Estadístico de Instrucción Pública, curso 1899-1900* (AEIP, 1899-1900)
- *Estadística Escolar de España, año de 1908* (EE, 1909)
- *Anuario Estadístico de España, 1916* (AEE, 1916)
- *Anuario Estadístico de España, 1920* (AEE, 1920)
- *Estadística de Maestros Nacionales, 1922* (EMN, 1922)
- *Anuario Estadístico de España, 1922-23* (AEE, 1922-1923)
- *Estadística de las Escuelas Nacionales* (EEN, 1923)
- *Anuario Estadístico de España, 1925-26* (AEE, 1925-1926)
- *Anuario Estadístico de España, 1928-29* (AEE, 1930)

Although these sources generally offer valuable information regarding primary education, a few shortcomings emerged in the process of constructing the dataset. First, the years covered by the statistics did not always coincide with the benchmark years we had selected, which occasionally meant resorting to the closest available year. Furthermore, there were some consistency issues. While the official statistics published between 1860 and 1885 are highly detailed and homogeneous, the frequency of publication

changes thereafter and information is no longer presented in a consistent way. Thus, to obtain the most reliable data possible, information on public and private education for a given year was sometimes obtained from other sources. It is important to keep this in mind when aggregating public and private education data to calculate totals. In other cases, data were missing for a given year or were so incomplete that it was deemed preferable not to report the figures at all. This was a particular problem for private education from the late 19th century onwards. Finally, in some cases it was not possible to distinguish between males and females (for instance, in the case of teachers in certain years). To address these issues, specific choices were made to overcome the limitations. What follows is a description of the sources and decisions made to calculate each of the four variables considered: pupils, schools, teachers and public expenditure.

1. Pupils

Public education. The total number of pupils enrolled in public schools, disaggregated by sex, for 1860 came from AEE (1860). Data for 1870 were obtained from EGPE (1876) and for 1880 from EGPE (1883). For 1890, we used the figures reported for 1885 in APE (1887). For 1900, while the overall totals were available, disaggregating them by sex required us to make a methodological decision: the source distinguished between boys' schools, girls' schools and coeducational schools, but it was not possible to determine the sex of pupils enrolled in the latter. Given that coeducational schools accounted for just 12.7% of primary school enrolment in Catalonia that year, we assumed an equal distribution of boys and girls. For 1910, we used the 1908 data from EE (1909). Again, this source reported totals but not sex-specific figures. To estimate these, we used the proportions observed in 1900 and 1916 (i.e. 52% boys and 48% girls in both years) and applied these to the 1908 total. For 1920, we relied on the data provided by EEN (1923) for 1923, while the 1930 benchmark used AEE (1930), which referred to the 1928-1929 school year.

Private education. The sources employed were generally the same as those described for pupils in public education, with some differences in certain years. For 1900, we resorted to information on pupils enrolled in private schools provided by the *Gaceta de Madrid* (1895). For 1910, it was again necessary to estimate the proportion of enrolled pupils by sex. We proceeded as before, but in this case applying the percentages for 1895. The data for 1930 on this occasion came from information relating to the 1925-1926 school year in AEE (1925-26). Finally, no data were available for the 1920 benchmark; therefore, as an exception, we interpolated the values for that year.

2. Schools

Public schools. As in the case of pupils, data on the total number of public schools for 1860, 1870 and 1880 came from AEE (1860), EGPE (1876) and EGPE (1883), respectively. For 1890, we employed the figures for 1885 from APE (1887). Data for 1900 were obtained from AEIP (1899-1900), data for 1910 came from EE (1909, referring to 1908), 1920 from AEE (1922-1923, referring to 1921), and 1930 from AEE (1930, referring to 1928-1929).

Private schools. For 1860, 1870, 1880, 1890 and 1910, we used the same sources as for public schools. For 1920, we relied on the 1916 figures provided by AEE (1916). No data were available for private schools in 1900 and 1930.

3. Teachers

Public education. For the benchmark years between 1860 and 1880, complete, homogeneous data were available, with separate reporting for male and female teachers, from AEE (1860), EGPE (1876) and EGPE (1883). For the year 1890, no data were available. The source for 1900 was AEIP (1900-1901), while for 1910 the source was EE (1909, referring to 1908). Importantly, neither of these sources disaggregated data by sex, so it was not possible to determine the respective shares of male and female teachers. For 1920, we used EMN (1922, referring to 1921), and for 1930 we used AEE (1930, referring to 1928-1929). In both of these latter cases, the statistics were disaggregated by sex.

Private education. For 1860-1880, the same sources as for public education provided data on private school teachers. However, no such information existed for 1890, 1900 or 1910. For 1920, the data were obtained from AEE (1916, referring to 1916), while for 1930 they came from AEE (1925-1926, referring to 1925). In the years for which data were available, the information was presented separately for male and female teachers.

4. Public expenditure on primary education

Education statistics between 1860 and 1880 reported total public expenditure, disaggregated by personnel and material costs. Data were obtained from AEE (1860) for 1860, EGPE (1876) for 1870, and EGPE (1883) for 1880. For 1890, we relied on AEIP (1891, referring to 1889-1890), and for 1900 on AEIP (1899-1900). For 1910, we once again used EE (1909, referring to 1908). For 1920, the source was AEE (1920), and for 1930 we used AEE (1925-1926, referring to 1925-1926). Expenditure figures, expressed in current pesetas, were converted into constant 1913 pesetas by means of the GDP deflator provided by Prados de la Escosura (2017).

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