

**CATEDRÁTICOS IN THE MAKING OF THE SPANISH SECONDARY EDUCATION SYSTEM,
1861-1885**

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CATEDRÁTICOS EN LA CONSTRUCCIÓN DEL SISTEMA ESPAÑOL DE EDUCACIÓN SECUNDARIA, 1861-1885

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RESUMEN

Este artículo proporciona una visión de conjunto del cuerpo de catedráticos de segunda enseñanza en la España del siglo XIX utilizando el Escalafón General de Catedráticos de Instituto de Segunda Enseñanza de los años 1861, 1876 y 1885. Esta nueva base de datos de más de 1600 individuos nos permite llevar a cabo un detallado análisis del número total de profesores, sus años de experiencia, las asignaturas que enseñaban y cómo estaban distribuidos entre las diferentes provincias. Más allá del aumento en el número de miembros, la consolidación del cuerpo de catedráticos de enseñanza secundaria estuvo caracterizada tanto por su progresiva transformación en un cuerpo funcional de élite, como por una relación estrecha con la realidad económica del país.

Palabras clave: Educación secundaria, catedráticos, profesores, España.

ABSTRACT

This article provides an overview of the body of secondary education catedráticos in 19th century Spain using the Escalafón General de Catedráticos de Instituto de Segunda Enseñanza of years 1861, 1876 and 1885. This new database of more than 1600 individuals allows us to carry out a detailed analysis of the total number of teachers, their years of experience, the subjects they taught and how they were distributed among the different provinces. Beyond the increase in the number of members, the consolidation of this body of teachers was characterized both by its progressive transformation into an elite body of public servants, and by a close relationship with the economic reality of the country.

Keywords: Secondary education, catedráticos, teachers, Spain.

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CATEDRÁTICOS IN THE MAKING OF THE SPANISH SECONDARY EDUCATION SYSTEM, 1861-1885¹

1.- Introduction

The study of secondary education systems is a well-established topic of research for historians of education. The first works on the comparative development of secondary education systems showed the relationship between this educational stage and the processes of economic and social change in nineteenth-century Europe.² Following their lead, specific studies of different European countries have provided evidence of different evolutions in the relationship between the development of national secondary education systems and the political circumstances in each country.³ For the case of Spain, existing studies have emphasized the role of secondary education in the process of construction of the liberal State in several ways. On the one hand, because in an administrative sense, the education system was one of the tools the State had at its disposal to exercise his nationalization power.⁴ On the other hand, because it was thought to be the type of education aimed at educating the middle classes, that is, those who were going to lead the society in a period of profound changes.⁵

One of the facets that has received most attention is the role of the actors in this sphere, that is, the interactions in the academic community, mainly between teachers and students. Works on the characteristics of students, such as the number, age, gender or geographical origin of pupils in specific high schools have abounded in the literature,

¹ This research received financial support from the Spanish Ministry of Education (*Beca de colaboración* fellowship in academic year 2017-2018 and FPU predoctoral research contract ref. 18/01210 in academic year 2019-2020) as well as from the Bank of Spain research project "Desigualdad, formación de capital humano y desarrollo económico regional: España, 1787-1930." The author gratefully acknowledges the feedback and suggestions received from Alfonso Díez-Minguela, Daniel Tirado, Julio Martínez-Galarraga, Salvador Calatayud, Francisco Medina and Pablo Cervera. The usual disclaimer applies.

² Fritz K. Ringer, *Education and society in modern Europe* (Bloomington and London: Indiana University Press, 1979); Detlef K. Müller, Fritz Ringer and Brian Simon, eds., *The Rise of the Modern Educational System: Structural Change and Social Reproduction* (Cambridge: Cambridge University Press, 1987).

³ Olive Banks, *Parity and prestige in English secondary education* (London: Routledge, 1955); Antonio Viñao Frago, *Política y educación en los orígenes de la España contemporánea. Examen especial de sus relaciones con la enseñanza secundaria* (Madrid: Siglo XXI, 1982); Phillipe Savoie, *La construction de l'enseignement secondaire français (1802-1914). Aux origines d'un service public* (Lyon: ENS éditions, 2013).

⁴ Viñao Frago, *Política y educación*.

⁵ Antonio Gil de Zárate, *De la instrucción pública en España*, (Madrid: Imprenta del Colegio de Sordomudos, 1855).

though most of them focus on particular regions.⁶ With respect to teachers, existing works have only focused on the biography of certain individuals who later became public figures or the analysis of teaching staff from specific regions or disciplines. Carmen Benso has noted that the history of secondary teachers in Spain “has important gaps and needs new approaches” and identifies one of the main characteristics of this transformation with the examination of secondary teachers as a group, rather than on an individual basis.⁷ However, literature reviews on the matter keep insisting on the fact that studies on the history of Spanish teachers from an aggregate perspective are still scarce.⁸ Adopting such approach would also serve to respond to the methodological concerns with respect to the analysis of secondary education systems expressed by historians in other parts of Europe. In particular, several authors have suggested the adoption of a perspective that goes beyond local studies and considers educational institutions in their relationship with other administrative entities, stressing the role individual educational establishments in specific socio-economic contexts had in shaping educational policies at the state level.⁹ This approach coincides with recent historiographical proposals about the interpretation of the emergence of the liberal State in nineteenth-century Europe. In particular, it may contribute to nuance the role of the State by questioning *top-down* approaches to understand nationalization processes and emphasizing the relationship between the State and sectors of the civil society in the different territories of the country.¹⁰ In the case of Spain, the adoption of such perspectives is particularly suggestive, as it may contribute to play down the overexposed theory of a “liberal failure” in nineteenth-century Spain.¹¹

⁶ José María Hernández Díaz, “Los alumnos de segunda enseñanza en el siglo XIX,” *Historia de la educación*, 1986, no. 5: 251-73; Carmen Benso Calvo, “Los destinatarios del bachillerato en Galicia. Estudio geográfico y social del alumnado orensano,” *Revista de Educación*, 1994, no. 305: 321-52; Ignacio Martín Jiménez, “La figura del bachiller en el distrito universitario de Valladolid: 1875-1900,” *Educació i Història*, 1995, no. 2: 44-49; María del Carmen Sanchidrián Blanco, “Desarrollo de la burguesía y destinatarios de la segunda enseñanza en Málaga en el siglo XIX,” in *Enseñanza media y sociedad malagueña: 150 aniversario del inicio de la Enseñanza Media en Málaga (1846-1996)* (Málaga: Cámara Oficial de Comercio, Industria y Navegación de la Provincia de Málaga, 1998), 77-92.

⁷ Carmen Benso Calvo, “La historia social del profesorado en España,” in *Os professores na história*, eds. Justino Magalhães and Agustín Escolano (Porto: Sociedade Portuguesa de Ciências da Educação, 1999), 101-2.

⁸ Jean-Louis Guereña, “La enseñanza secundaria en la historia de la educación en España,” *Historia de la educación*, 1998, no. 17: 415-43; Antonio Viñao Frago, “La educación secundaria,” in *Nuevas miradas historiográficas sobre la educación en la España de los siglos XIX y XX*, eds. Jean-Louis Guereña, Julio Ruiz Berrio and Alejandro Tiana Ferrer (Madrid: Ministerio de Educación, 2010), 109-44.

⁹ Marie-Madeleine Compère and Phillipe Savoie, “L’établissement secondaire et l’histoire de l’éducation,” *Histoire de l’éducation*, 2001, no. 90: 1-12; Phillipe Savoie, “The Role of Cities in the History of Schooling: A French paradox (Nineteenth-Twentieth Centuries),” *Paedagogica Historica* 39, no. 1/2 (2003): 37-51; Phillipe Savoie, Annie Bruter and Willem Frijhoff, “Secondary Education: Institutional, Cultural and Social History,” *Paedagogica Historica* 40, no. 1/2 (2004): 9-14.

¹⁰ Celia Applegate, *A Nation of Provincials. The German Idea of Heimat* (Berkeley: University of California Press, 1990); Anne-Marie Thiesse, *Ils apprenaient la France. L’exaltation des régions dans le discours patriotiques* (Paris: Éditions de la Maison des Sciences de l’Homme, 1997); Salvador Calatayud, Jesús Millán and María Cruz Romeo, eds., *Estado y periferias en la España del siglo XIX: nuevos enfoques* (València: Publicacions de la Universitat de València, 2009); Salvador Calatayud, Jesús Millán and María Cruz Romeo, eds., *El estado desde la sociedad: espacios de poder en la España del siglo XIX* (Alacant: Publicacions de la Universitat d’Alacant, 2016).

¹¹ Mónica Burguera and Cristopher Schmidt-Nowara, “Backwardness and its Discontents,” *Social History*

Taking these considerations into account, this article is aimed at providing a general picture of the professional situation of secondary education *catedráticos*¹² during the second half of the nineteenth century in Spain. Our main objective is to provide an aggregate perspective on the country's system of secondary education through its teachers, their geographical location and the subjects they taught. This approach goes in line with recent proposals by historians of education who have pointed out to the need of considering aggregate perspectives in the study of secondary school teachers and, particularly, an exhaustive analysis of their promotion rosters as a useful source to gain knowledge about teachers' postings in order to get a more complete picture of their professional field.¹³ In addition, doing this will allow us to know how the consolidation of a first-level body of civil servants created during the development and expansion of the Spanish liberal state in the 19th century and that has not been explored from an aggregate perspective before, with the advantages this can bring to the study of processes of state construction and its administrative deployment.

In order to do so, we structure this work in three parts. On the first part, we provide a general description of the construction of the secondary education system during the first half of the nineteenth century, emphasizing the importance of *catedráticos* in the context of the secondary education system in the 19th century. We also provide an overview of the administrative regime of teachers during the second half of the nineteenth century, relating their seniority and their location in the different sections of the promotion rosters. On the second part, we analyze the sources and the methodology used to carry out our analysis. The third part presents the results, focusing on the total number of teachers, their distribution among sections, years of experience, subjects they taught and geographical location. The fourth part discusses the results, linking them with previous literature.

2.- Historical context

During the first half of the nineteenth century debates arose regarding what should be the main objective of secondary education. The previous absence of an educational level located

29, no. 3 (2004), 279-83; Carles Sirera Miralles, "Neglecting the 19th century: Democracy, the consensus trap and modernization theory in Spain," *History of the Human Sciences* 28, no. 3 (2015), 51-67; Jesús Millán, "La primera fase del Estado-nación en España, 1808-1880: cambios sociales y espacios políticos," *Cahiers de civilisation espagnole contemporaine*, 2018, no. 20, doi: [10.4000/ccec.7259](https://doi.org/10.4000/ccec.7259), <http://journals.openedition.org/ccec/7259>.

¹² We opt not to use the English word *professors* in this article since the meaning of that word in English-speaking countries does not correspond exactly with the usage in Spanish. Although in a university context, the Spanish word *catedrático* and the English *professor* are equivalent, in Spain we can also find secondary education *catedráticos* without any connection with universities. However, in English-speaking countries the word *professor* refers to the highest rank of university faculty, and professionals of secondary education are only referred to as *teachers*, never as *professors*. In order to avoid confusion, we stick to the Spanish word *catedrático* throughout the text, although we will use *catedrático* and *teacher* interchangeably in cases when there is no contextual confusion in order to favor text fluency.

¹³ Raimundo Cuesta Fernández y Juan Mainer Baqué, "Guardianes de la tradición y esclavos de la rutina: historia del campo profesional de los *catedráticos* de instituto," *Historia y memoria de la educación*, 2015, no. 1: 372n.

between the basic training provided by primary education and the advanced instruction acquired through university studies, led to the emergence of very different positions regarding the purpose of secondary education. On the one hand, it was thought that secondary studies should serve as preparation for university studies. On the other hand, secondary education was considered as the educational level that would provide a more advanced training than mere literacy, thus providing the general culture expected to the average citizen.¹⁴ Also, the Spanish Enlightenment had been noting since the 18th century the importance of technical training related to hands-on knowledge, such as that of the arts and crafts.¹⁵ The progressive abandonment of the guild system revealed the need to create new educational institutions that could substitute the tasks of specific training of the labor force who was supposed to nourish the productive system. Enlightened institutions such as the Economic Societies of Friends of the Country (*Sociedades Económicas de Amigos del País*) were the incubators from which numerous informal initiatives aimed at improving the practical knowledge of those who were part of the first industrial experiences were born.¹⁶ However, these first projects were very localized in space, because the main objective of Economic Societies was the promotion of proto-industrial activities in regions that already had a particular industrial specialization.¹⁷ It would not be until the last decade of the century when, due to French influence, some more serious pedagogical experiences started to take place.¹⁸ After the *Cortes de Cádiz*, the concern to create legislation related to state issues from a liberal perspective intensified. Although there were several discontinuous experiences of educational institutions aimed at providing industrial training, it will not be until the decade of 1850 when the first educational laws regulating the specificities of technical education as a differentiated educational stage from the rest will appear.

Materializing the ideals of liberal secondary education implied the creation of a new type of educational facility exclusively devoted to secondary education, as it had already been done in France with the establishment of *lycées* at the beginning of the century.¹⁹ However, in the Spanish case the first projects for the implementation of secondary education were based on the basic premise of generality, in the sense that secondary education should be as broad in its curriculum as possible. The second premise was its

¹⁴ Natividad Araque Hontangas, *Manuel José Quintana y la instrucción pública* (Getafe: Universidad Carlos III de Madrid, 2013), 95.

¹⁵ Pedro Rodríguez de Campomanes, *Discurso sobre la educación popular de los artesanos y su fomento* (Madrid: Imprenta de Antonio Sancha, 1775)

¹⁶ Vicent Llombart and Jesús Astigarraga, “Las primeras ‘antorchas’ de la economía: las sociedades económicas de amigos del país en el siglo XVIII,” in *Economía y economistas españoles*, ed. Enrique Fuentes Quintana (Barcelona: Galaxia Gutenberg-Círculo de Lectores, 1999), vol. 3: 677-707.

¹⁷ Belén Espejo Villar, “La proyección de la Ilustración francesa en la formación profesional española. Génesis y desarrollo político de la formación profesional,” in *Francia en la educación de la España contemporánea (1808-2008)*, ed. José María Hernández Díaz (Salamanca: Ediciones de la Universidad de Salamanca, 2011), 249-72.

¹⁸ Antonio Rumeu de Armas, *Ciencia y tecnología en la España ilustrada: la Escuela de Caminos y Canales* (Madrid: Turner, 1980); Marc Ferri Ramírez, *El ejército de la paz. Los ingenieros de caminos en la instauración del liberalismo en España (1833-1868)* (València: Publicacions de la Universitat de València, 2015).

¹⁹ Savoie, *La construction de l'enseignement secondaire*.

geographical extension, since secondary education should be easy to acquire and, therefore, be made accessible to as many citizens as possible without forcing them to travel long distances to reach the nearest educational center. The institutions responsible for teaching the second education should therefore be a sort of “provincial universities”.²⁰ In addition, this process had to embrace the educational context of pre- liberal Spain, characterized by the enormous heterogeneity of educational institutions, such as *Universidades Menores* and *Colegios de Humanidades*, where degrees related to Law, Philosophy or Humanities were offered mainly to train public officials.

The need to create a new system brought as a consequence an important legislative output aimed at regulating the contents to be taught in secondary education, the functioning of high schools and the regime of its teachers. Although the first reference to secondary education establishments as “institutos” can be found in the *Plan Duque de Rivas* in 1836,²¹ it would not be until the onset of the *Plan Pidal* in 1845 when an explicit regulation of the characteristics of such establishments and the teachings imparted in them first appeared. This law was the first one to offer a unified structure of the educational system, setting the differences between its different stages. Specifically, it stated the different educational stages (primary, secondary and professional) and their respective curricula; the characteristics of the educational facilities; the regime for teaching staff, including how their remuneration was to be determined; as well as other provisions regarding the daily functioning of schools and their internal rules.

Plan Pidal also stipulated that all provincial capitals should have a high school, which caused the proliferation of new high schools during the same year the law was passed.²² As a consequence, the consolidation of high schools as the central figure in the new secondary education system acted in parallel with the progressive introduction of this type of establishment in all provincial capitals. Also relevant were the provisions devoted to the funding of schools, as they would determine the general structure of educational funding that will last throughout most of the century. Focusing on high schools, its article 58 established that their main sources of funding should be the amounts obtained as tuition and degree fees, as well as rents from other institutions.²³ Only if these two sources combined were not enough to sustain school expenses, provincial councils (*diputaciones provinciales*) should provide the remaining quantities needed. Given that the amounts obtained as tuition and degree fees were rather meager,²⁴ the appeal to

²⁰ Dictamen y proyecto de decreto sobre el arreglo general de la enseñanza pública, 7 de marzo de 1814. Reproduced in: Aranque Hontangas, *Manuel José Quintana y la instrucción pública*, 217-38.

²¹ Federico Sanz Díaz, *La segunda enseñanza oficial en el siglo XIX (1834-1874)* (Madrid: Ministerio de Educación y Ciencia, 1985), 105.

²² Viñao Frago, *Política y educación*, 397-407.

²³ Real Decreto de 17 de septiembre de 1845, aprobando el Plan General de estudios, preamble.

²⁴ See, for instance, Carles Sirera Miralles, *Un título para las clases medias: el instituto de bachillerato Lluís Vives de Valencia, 1859-1902* (València: Publicacions de la Universitat de València, 2011), XX. In the case of Valencia high school, students found the *Bachiller* degree title fee to be so costly that most of them did not hasten to pay it. In fact, in 1874, the high school faculty complained that 35% of those students who had passed all required exams between 1859 and 1873 hadn't obtained the degree yet because they hadn't paid the fees.

provincial councils in order to obtain funding was common.

The approval of *Ley Moyano* in 1857 did not introduce substantial changes with respect to the administrative functioning of high schools. As a novelty in this new statute, high schools were classified according to two criteria: the municipality in which they were located (article 115) and the public administration it obtained its funding from (article 116).²⁵ According to the first criterion, those high schools located in Madrid would be first-class; those located in provincial capitals or in those cities with university would be second-class, and those located in other places would be third-class. According to the second criterion, high schools were classified as provincial or local depending on whether their funding stemmed from provincial councils (*diputaciones*) or city councils (*ayuntamientos*). The fact of being provincial and, thus, depending financially from the provincial council, was of great importance for the newly created high schools.²⁶ Firstly, because the economic capacity of the provincial institutions was, in general terms, better than that of the city councils. Secondly, because provincial high schools perceived, in addition to their ordinary tuition and title fees, a fraction of the tuition fees of the private educational institutions in their province, as a compensation for the tasks of supervision and inspection of these centers that provincial high schools were assigned. Furthermore, according to the testimonies of many high school principals of the time, the nature of the personal relationships between high schools teaching staff and provincial representatives determined to a large extent the smoothness in the relations between both institutions, especially with reference to economic and financial matters, showing how close the interplay between teachers and public officials was in most cases.

The success of high schools as formative institutions implied that teaching duties had to be exerted by technically capable faculty. Teacher hiring before 1845 was characterized by its “casualness, improvisation and unreliability”.²⁷ In addition, it was usually difficult to find suitable candidate to sit the admission exams. Boosting the creation of high schools all over the Spanish geography with *Plan Pidal* entailed the need to establish a more elaborated plan for the massive recruitment of teaching staff. The characteristics of the Spanish school system up to the 19th century, just like the previous inexistence of a formal body of secondary education teachers, made the selection of suitable candidates extremely difficult and compelled the administration to create a system that allowed the selection of candidates with a suitable training.²⁸ Due to the absence of references, the government decided to implement a system resembling that of university professors, in the sense that “in both cases the center of gravity was a professor affiliated to a particular subject”.²⁹ It is thus not surprising that the name chosen to name the members of the new body of secondary teachers was the same than that of their higher

²⁵ Ley de Instrucción Pública de 9 de septiembre de 1857, artículos 115 and 116.

²⁶ Sanz Díaz, *La segunda enseñanza oficial*, 139-43.

²⁷ Carmen Benso Calvo, “Ser profesor de bachillerato. Los inicios de la profesión docente (1836-1868),” *Revista de educación*, 2002, no. 329: 296.

²⁸ Raimundo Cuesta Fernández, *Sociogénesis de una disciplina escolar: la Historia* (Barcelona: Pomares-Corredor, 1997), 129.

²⁹ Benso Calvo, “Ser profesor de bachillerato,” 293.

education colleagues: *catedráticos*. This contrasts with the case of France, for instance, where at least initially there was a clear intention of prevailing the pedagogical aptitudes to the specialist knowledge of secondary teachers.³⁰

In order to do so, *Plan Pidal* institutionalized public competitive examinations (*oposiciones*) as the main mechanism of access to teaching roles, as this system was “less subject than others to error and unfairness, even with all flaws attributed to it”.³¹ Such statute established the position of *regente* —which, in turn, was divided in first or second class depending on whether the candidate had obtained a doctoral degree or not— as the basic rank in the body of secondary teachers. In order to attain such position, the candidate must have graduated from a university and pass an examination related to the subjects looking forward to teach. Once appointed as *regente*, the teacher could opt to participate in further examinations for the designation as full teacher (*catedrático*), depending on the number of vacant positions in the rest of Spanish high schools. The adequacy of this system to the goals aimed with the *Plan Pidal* and its capacity to select the most competent candidates is still today a matter of debate amidst historians of education.³² The truth is that a large number of teachers were appointed as full teachers through this path during the central decades of the century, and many of them would remain active and teach in important cities of the country during the second half of it. So much so that, when the *Ley Moyano* was passed, it already existed an important number of active *catedráticos*. Nonetheless, with the exception of their remuneration regimes and promotion systems, *catedráticos* hadn't been formally declared a body of public servants, as we will see in the next section.

According to Raimundo Cuesta Fernández and Juan Mainer Baqué, the body of *catedráticos* was characterized by their reduced number and strong differential of gender, functional hierarchy, economic mediocrity, meritocratic spirit and specialized disciplinary monopoly.³³ After the approval of *Ley Moyano* in 1857, the body of secondary education teachers became fully institutionalized, in the sense that its access systems, remuneration regimes and a hierarchy between its members were regulated by law. Indeed, in article 210, the *Ley Moyano* established the creation of a “general promotion roster of all high school teachers in the kingdom”.³⁴ Although the wording of the act did not include any reference to the creation of an official body, the production of a roster for purposes of promotion “according to seniority and merit”, as the norm went, has been suggested to be a proof of “corporative distinction” that equalized secondary education teachers with other renowned bodies of public servants, giving them not only a solid fit within the State's administrative structure, but also a strong corporatist

³⁰ Savoie, *La construction de l'enseignement secondaire*, ch. 5.

³¹ Real Decreto aprobando el Plan General de estudios, de 17 de septiembre de 1845, preamble.

³² Benso Calvo, “Ser profesor de bachillerato”, 291-310. Cf. Sirera Miralles, *Un título para las clases medias*. Sirera emphasizes the virtues of public competitive examinations as an efficient hiring method based on free concurrence, at least for the case of Valencia provincial high school.

³³ Cuesta Fernández and Mainer Baqué, “Guardianes de la tradición”, 362.

³⁴ Ley de Instrucción pública, sancionada por S. M. en 9 de Setiembre de 1857, article 210.

personality among its members.³⁵ In fact, this demarcation should be understood as part of the process of creation of special bodies (*cuerpos especiales*) within the Spanish public administration, the main objective of which was not only recognizing the status of that staff performing duties which required a very specific training, but also guaranteeing work stability of those who were influential in certain power spheres.³⁶ The same way magistrates or engineers did, secondary teachers claimed a differentiation as a result of the specificities of their training and duties.

The awareness of owning a disciplinary monopoly in their field of expertise is one of the features around which this collective personality revolved. This distinction was important specially in the presence of other lower-level teaching categories, such as auxiliary teachers (*profesores auxiliares*). *Ley Moyano* recognized the possibility of hiring auxiliary teachers to cover absences of professors, provided that other professors could not do so. It will not be until 1875 when we find a specific regulation of auxiliary teachers, including the obligation of all high schools to have them, and specifying the requirements that candidates for such positions should meet, as well as their remunerations. Of course, in all the successive regulations of auxiliary teachers, they always appear as subaltern figures to that of the *catedrático*, who always maintained their role of pedagogical leadership. This would have important effects in the delimitation of the scope of the field, the selection of contents or the elaboration of teaching materials as the century went by and secondary education gained prominence in the society. In addition, the power of teachers went beyond high schools, since among their responsibilities was to examine the students who had studied in private establishments or in domestic education. Besides, *catedráticos* usually participated in local cultural initiatives, most of them were close to provincial elites and usually became an important character within provincial affluent spheres.³⁷

Regarding their professional career, *Ley Moyano* specified that after joining the body they should be distributed in sections according to the *numerus clausus* system stipulated in article 210. This division was meant to establish different remunerations for teachers according to their experience with respect to their colleagues. All teachers in active were divided into four sections with a maximum number of teachers in each of them. The first section should be formed by a maximum of 30 teachers; the second one, by a maximum of 60; the third one, by a maximum of 120; and the fourth one did not have a limit of members.³⁸ A teacher's monthly wage was then constituted by two amounts: the base wage and the section complement. The base wage was determined by the category of the high school where a teacher was posted. The section complement, also called *premio de escalafón* (hierarchy prize),³⁹ implied a salary increase when a

³⁵ Cuesta Fernández y Mainer Baqué, "Guardianes de la tradición", 358n.

³⁶ Rafael Jiménez Asensio, "Cuerpos generales 'versus' cuerpos especiales: la fragmentación de la función pública española en el siglo XIX," *Revista Vasca de Administración Pública*, 1989, no. 23: 81-110.

³⁷ Cuesta Fernández and Mainer Baqué, "Guardianes de la tradición," 371.

³⁸ Ley de Instrucción Pública de 9 de septiembre de 1857, article 210.

³⁹ Sanz Díaz, *La segunda enseñanza oficial*, 116.

teacher was promoted to the next section in the roster. In particular, being posted in a high school categorized as in the fourth section did not lead to a complement; the third section had a complement of 2,000 *reales*; the second section had a complement of 4,000 *reales* and the first section had a complement of 6,000 *reales*.⁴⁰

In theory, under such scheme of sections with maximum number of members, achieving high remuneration levels was actually very difficult, because being promoted to an upper section implied the release of seats through the retirement or demise of teachers belonging to them. However, promotion to upper sections was not an automatic mechanism that acted in parallel with years of experience. Article 232 stipulated that the promotion to upper sections would be recommended by the government considering the merits and services that the teacher under consideration had performed "with the publication of works and other literary or scientific works", but always respecting the experience of individuals in the body.⁴¹ Thus, there was a clear economic incentive for teachers to maintain their intellectual activity during the exercise of their functions in high schools.

In conclusion, we the body of *catedráticos* was born to cover a very specific function in the process of implementing secondary education in Spain, which needed a highly qualified teaching staff with the ability to move along the Spanish geography in order to realize the ideal of provincial universities. The conjunction of these needs gave rise to an official body that not only had a well-defined professional career, but also a strong collective personality among its members that, in short, epitomizes the spirit of secondary education in the Spain of the second half of the 19th century.

3.- Data and sources

As we have already indicated, the literature on secondary education in Spain in the 19th century has focused on specific areas or regions and has not provided many aggregate perspective of the situation of the educational stage. Considering the role of *catedráticos* and their importance within provincial high schools and the education system in general, we believe that information about the number of professors and their spatial distribution can be extremely informative for a better characterization of secondary education. In particular, getting information at the individual teacher level we can obtain information not only about how many teachers were there in each high school, but also what subjects they taught and how experienced they were, allowing us to build a more complete picture of the situation of secondary education in the period under scrutiny.

In order to obtain information at the individual teacher level, we resort to different promotion rosters of the body of secondary teachers (*Escalafón General de Catedráticos de Instituto de Segunda Enseñanza*), a publication edited by the educational

⁴⁰ Ley de Instrucción Pública de 9 de septiembre de 1857, article 210.

⁴¹ Ley de Instrucción Pública de 9 de septiembre de 1857, article 232.

administration during the second half of the nineteenth century. These publications were not published in a regular manner, specially immediately after *Ley Moyano* and this fact was often a matter of controversy between its members, since a lack of information about one's position with respect to its fellow teachers was an additional obstacle in a system in which promotions were very difficult to obtain.⁴² In particular, we will use the rosters of years 1861, 1876 and 1885.⁴³ Having information about these separate points in time allows us to obtain a clear picture of the evolution of the Spanish system of secondary education through its teachers in the period in which its consolidation took place after the approval of *Ley Moyano* in 1857. We are aware that other rosters were published in 1878 and 1891, although we do not think that they would provide additional insights due to their temporal proximity to the ones we analyze in this article.

The rosters provide information at the individual level on work-related information relevant for the official career of *catedráticos*. In each of the rosters, all active *catedráticos* are ranked in order of seniority. For each *catedrático*, the roster then reports information on their full name, the section (see above) they were in, the date in which they joined the body, the subject or subjects they teach and the high school in which they were posted the academic year the roster was published. If a *catedrático* had enjoyed a leave of absence or any other special circumstance in which he did not work, this time was discounted from his total seniority. The total time considered as seniority was the net value considering the time elapsed since joining the body minus the time discounted by special circumstances.⁴⁴

Using this information, we have constructed a unified database that includes all the information reported in the rosters, making it consistent both spatially and temporally so that we can be able to perform comparative analyses within a roster and between different rosters. The three rosters together comprise 1630 individuals. In the 1861 roster there are 412 individuals. In 1876, we find 612 individuals although the roster numbers them up to 616, because some of the numbers are duplicated. In 1885, there are 599 individuals with the roster numbering them up to 601, again because of the duplicates. However, some individuals appear on more than one roster. After tracking the individuals who appear in more than one roster, our dataset contains information on 995 different individuals: 480 of them appear in one roster only, 396 appear in two rosters and 119 appear in all three rosters. With these data it is possible to provide an overview of the situation of secondary education in Spain throughout the second half of the 19th century.

⁴² Sanz Díaz, *La segunda enseñanza oficial*, 121.

⁴³ *Escalafón general de los catedráticos de instituto de segunda enseñanza en 1º de enero de 1861* (Madrid: Imprenta Nacional, 1862); *Escalafón general de los catedráticos de instituto de segunda enseñanza en 1º de enero de 1876* (Madrid: Imprenta Nacional, 1876); *Escalafón general de los catedráticos de institutos de segunda enseñanza en 1º de enero de 1885* (Madrid: Imprenta del Colegio Nacional de Sordo-mudos y de Ciegos, 1885).

⁴⁴ *Escalafón general... en 1º de enero de 1861*, 5.

4.- Findings

Figure 1 illustrates the evolution in the number of incorporations to the body of *catedráticos* for those who were listed in the three rosters. As we can see, the bulk of teachers who were active in 1861, 1876 and 1885 joined after *Plan Pidal* was passed and secondary education started to consolidate in the system as a different educational stage. After that moment, the number of teachers accessing to the body is consistently higher than before 1845, although with large fluctuations between years.

This reinforces the idea that *Plan Pidal* was the legal landmark actually consolidating secondary education in the context of the construction of the liberal state in Spain, at least with respect to the public servants who were meant to implement the changes in this realm.

In this respect, Table 1 classifies all teachers according to their years of experience (total number of years since joining the body, without discounting leaves of absence) in each of the sections of the different rosters.

As we would expect from the characteristics of the professional career explained above, the most frequent situation for *catedráticos* in the first section in any of the three rosters is to have a large experience. In fact, while in the 1861 ranking there is more diversity in the experience of first section *catedráticos*, over the years it slowly disappears so that in 1885 the totality of professors in the first section has more than 30 years of experience. A similar thing occurs in the second section: as time goes by the most frequent situation for a *catedrático* in the second section is to have more than 30 years of experience. In the third and fourth sections the number of years of experience required by the professional career is lower and thus the most frequent situation is having between 0 and 20 years of experience. The only exception is the third section of the 1876 roster, where the most frequent situation is having between 21 and 30 years of experience. However, it is interesting to see that, in both the third and fourth sections, once the system was consolidated in 1885 the most frequent years of experience are those we would expect according to the professional career (11 to 20 years and 0 to 10, respectively). These figures show that, although during the first years of implementation of the *catedráticos* professional career the system by sections did sometimes not work to properly reflect the experience of its members, as the century progresses and the system consolidates the structure by sections actually became an effective classification.

Nonetheless, there are individuals who do not abide by this system. Specifically, there are *catedráticos* who remained in the fourth section although they had a large experience. This particular phenomenon was not an individual-specific situation, but rather several teachers found themselves in such situation. While it is true that individuals in this situation represent a very small percentage of the total, in absolute terms the number increases in the different rosters as the century progresses. Thus, in the 1861

roster there are 5 *catedráticos* with more than 20 years of experience in the fourth section, while in 1876 they are 42 and in 1885, 117. For instance, the first teacher ranked in the 1876 roster, Francisco Claret y Barrera, teacher of trade arithmetic in Barcelona, who joined the body in 1831, was positioned in the third section although he had 45 years of service. Similarly, Francisco Anglada y Reventós, teacher of French also in Barcelona, joined the body in 1839 but was positioned in the fourth section in 1876 after 37 years of service.⁴⁵ There are several possible explanations to this phenomenon. The first and most obvious one is that, once they had obtained tenure as *catedráticos*, some professors may have lost interest in striving to carry out intellectual activities that could be recognized as merits for promotion. Thus, they chose to remain in lower sections even if that meant earning a lower salary. Secondly, it may have been the case that teachers in this situation had taken leaves of absence since they joined the body and, thus, did not actively serve during all the period, reducing their actual possibilities to be upgraded vis-à-vis other fellow teachers who had been active continuously. Thirdly, it is also possible that, once posted in a particular high school that was interesting for them, whether it was due to its location in a particular city or because of the prestige of the school or the discipline, teachers stopped striving to get a promotion and, thus, ceased being interested in achieving upper sections. These cases demonstrate that, although the system was largely effective in assuring an adequate progression to professors who were interested in following the academic professional career, it also admitted cases of individuals who were not interested in progressing in professional terms.

With regard to the subjects taught, Table 2 illustrates the number of teachers by their subjects of specialty in the different rosters, as well as the percentage each group represents with respect to the total number of teachers.

The analysis of the variations in the number of teachers of each subject reveals some interesting patterns. As we expected, teachers of compulsory and basic subjects represent the largest faculty group in all three rosters. For instance, the number of Latin and Spanish and Mathematics *catedráticos* represent around 15% and 21% of the total number of instructors, respectively. However, it is interesting to point out the asymmetric division that exists between humanistic and scientific disciplines, as the greater abundance of chairs of humanistic disciplines is a common factor in the three years analyzed. Other subjects which were compulsory at certain levels also have an important representation in all three rosters, such as Physics and Chemistry, Natural History, Geography and History or Rhetoric and Poetics, with between 6% and 11% of all teachers.

Subjects related to industrial training deserve a specific mention. One of the most important provisions of *Ley Moyano* affected the relationship between general studies

⁴⁵ *Escalafón general... en 1º de enero de 1876*, 18.

and industrial training. Specifically, article 12 stated that industrial training should be taught in high schools, along with general secondary education courses,⁴⁶ restraining the expansion of centers of industrial training as independent entities from high schools. Likewise, the law merged second and third level studies into a single curriculum which could now be studied in cities where industrial schools had existed, as they had been turned into superior ones. Thus, high schools became provincial referents of intermediate education knowledge, whether it was in pure or applied disciplines. This situation would abide for around a decade, until 1869, when the *Sexenio Revolucionario* (1868-1874) allowed city and provincial councils to freely establish educational centers at will. In practical terms, this meant that high schools should accommodate both types of education and, thus, that teachers of applied subjects were not going to be considered separately from secondary teachers.

However, the data on the number of teachers of practical subjects in Table 1 does not correspond to the consolidation of industrial teachings that one would expect from the legislative changes. In the 1861 roster, the number of professors of applied subjects is only 8% of the total. In the 1876 roster they become 6.5% and in 1885, the number increases up to 11.2% of the total. Nonetheless, the increase observed between 1876 and 1885 is largely attributable to the increase in the number of professors of Agriculture, which we will discuss more deeply below. It is paradoxical that a country like Spain that was a pioneer in offering proposals related to practical instruction or industrial education failed to consolidate an important number of chairs in applied disciplines. The reasons for this fact can be attributed to the noticeable backwardness of the Spanish economy with respect to its European counterparts, essentially due to the predominance of the agrarian component, which was mainly labor-intensive and scantily modernized. Industrial experiences in the nineteenth Spanish were very localized in space and barely managed to mobilize resources in the bulk of the economy, preventing any significant productivity gains. It should not surprise us, therefore, that Agriculture is the only subject of applied character whose number of members grew to a greater extent.

Agriculture went from just one teacher in 1861 to twelve in 1876 and almost tripled this number in the years between 1876 and 1885. This trend should be looked at from the light of the consolidation of the agronomical profession in Spain, that mainly took place after the creation of the body of agricultural engineers in 1855 and, specially, after the Central School of Agriculture was moved to Madrid in 1869.⁴⁷ During the decades that followed, the conditions of the agricultural activity in Spain changed drastically, mainly due the entrance of national products in the world market and the incidence of plagues. As

⁴⁶ Ley de Instrucción Pública de 9 de septiembre de 1857, article 12.

⁴⁷ Juan Pan-Montojo, "De la agronomía a la ingeniería agronómica: la reforma de la agricultura y la sociedad rural españolas, 1855-1931," *Áreas. Revista Internacional de Ciencias Sociales*, 2007, no. 26: 75-93.

some authors have argued, the need to adapt to the new situation brought with it an important boost to research and teaching in the field of agriculture both in the form of new public institutions and settling pre-existing initiatives all over the country.⁴⁸ In the case of secondary education, this translated in the fact that Agriculture was made a compulsory subject in all secondary studies.⁴⁹ The sharp increase on the number of secondary teachers during this period suggests that this consolidation of the agronomical profession was also translated into the realm of secondary teachers. As evidenced not only by agriculture but also by the rest of subjects related to industrial training, there is evidence suggesting that industrial subjects within secondary education were somehow intertwined with the structural conditions of the Spanish economy. The only applied subject that benefited from a considerable increase in its number of chairs was Agriculture, the discipline most directly related to the main sector of activity of the Spanish economy at the moment.

Maps 1, 2 and 3 display the spatial distribution of secondary teachers of certain subjects for the three different rosters. Article 122 of *Ley Moyano* stated that “(...) high schools should lay down those applied studies which are more suitable considering the characteristics of the municipality”.⁵⁰ In other words, the central administration was recognizing the usefulness of the type of knowledge taught in high schools in the promotion of economic activity. What is more, the government was making the case for curricular specialization so that local schools could train their students in those subjects that could be useful in local businesses, factories and other productive structures. In fact, there existed numerous examples of high schools which conducted some degree of curricular specialization that met the characteristics of industrial activity in different areas, especially in regions with higher economic dynamism, such as Catalunya, Asturias, Andalucía or Valencia.⁵¹ Apart from the provincial shares of population and the provincial share of secondary teachers, four subjects representative of specific fields of knowledge have been chosen, namely Latin and Spanish, Mathematics, Agriculture and French.

In Map 1, corresponding to the 1861 roster, it is interesting to see that with the exception of Madrid, provinces with the largest share of teachers are located in the periphery as opposed to Castilian provinces. It is important to point out that in 1861 Madrid was the only province with two independent high schools, *Instituto de San Isidro* and *Instituto del Noviciado*, both located in the city of Madrid. Latin and Spanish had a

⁴⁸ Salvador Calatayud Giner, “La difusión agronómica en la segunda mitad del siglo XIX: a propósito de la enseñanza agrícola,” *Estudis d’Història Contemporània del País Valencià*, 1985, no. 6: 165-194; Jordi Cartaña, Enric Mateu Tortosa and Salvador Calatayud Giner, “Una agronomia en mutació,” in *La ciència en la història dels Països Catalans*, vol. 3, eds. Joan Vernet and Ramon Parés (València: Institut d’Estudis Catalans-Universitat de València, 2004).

⁴⁹ Jordi Cartaña, *Agronomía e ingenieros agrónomos en la España del siglo XIX* (Barcelona: Ediciones del Serbal, 2005), 69.

⁵⁰ Ley de Instrucción Pública de 9 de septiembre de 1857, article 122.

⁵¹ Celia Lozano López de Medrano, *Ideología, política y realidad económica en la formación profesional industrial española (1857-1936)* (Lleida: Fundació Ernest Lluch-Editorial Milenio, 2007), 144-149.

fairly constant distribution of teachers among its provinces, although in Huesca, Guadalajara and Las Palmas there were no teachers at all. With regards to Agriculture, there is only one teacher located in Barcelona. The distribution of French teachers is also an interesting case, since it is a subject that is still being implanted throughout the territory. As we can see, the first provinces where there are French teachers are mostly located in the periphery.

Map 2 corresponds to the 1876 roster and portrays a more fully implemented system of secondary education. Not only the number of teachers increased at the national level, but also core subjects such as Latin and Spanish and Mathematics have now a much more solid deployment throughout all provinces. Even so, we still find that provinces with a larger share of teachers are located in the periphery. Between 1861 and 1876, however, new high schools had been created in provinces where there was already one.⁵² Thus, in some cases the number of teachers by province represents the teachers in two or more high schools.⁵³ As a result, the pattern we see in the map of total number of teachers becomes clear: provinces with more than one high school have more teachers. This indicates that there was no competition of subjects between different high schools in the same province, but rather all high schools in a province were endowed equally. In Agriculture, however, we do not observe such a pattern. Madrid, for instance, does not have a teacher of Agriculture, while most of Andalusian and Mediterranean provinces do. With regards to French, the only provinces with two teachers are Navarra, Barcelona, Córdoba and Coruña. With the exception of Barcelona, all of them have two high schools and, thus, one teacher per high school. Madrid, for instance, does not have any French teacher.

The situation of the 1885 roster is illustrated in Map 3. As we can see, in 1885 the general situation of the previous roster consolidates, with most of the teachers posted in Madrid and in peripheral provinces. Considering the division by subjects, we see how the distributions of Latin and Spanish and Mathematics teachers are very similar, which is what we would expect for two basic and compulsory subjects in a consolidated system. The image in Agriculture has changed remarkably, since now most Spanish provinces have at least one Agriculture teacher, with two of them only in Madrid and Coruña. As for French, the total number of teachers has decreased given the increasing importance of English as a foreign language. The distribution, however, is similar to the one we found in 1876: peripheral provinces have a larger number of teachers as opposed to Castilian

⁵² For a chronology of the creation of high schools, see Viñao Frago, *Política y educación*, 397-406.

⁵³ This was the case of Alicante, with high schools in Alicante and Alcoy; the Balearic Islands, in Palma and Mahón; Cádiz, in Jerez and Cádiz; Córdoba, in Córdoba and Cabra; Coruña, in Coruña and Santiago; Girona, in Girona and Figueres; Jaén, in Jaén and Baeza; León, in León and Ponferrada; Murcia, in Murcia and Lorca; Navarra, in Pamplona and Tudela; Asturias, with Oviedo, Gijón and Tapia; Salamanca, in Salamanca and Béjar; Sevilla; in Sevilla and Osuna; Tarragona, in Tarragona, Reus and Tortosa; and Valencia, in Valencia and Xàtiva.

provinces.

5.- Concluding remarks

This study provides new evidence on the characteristics of the body of secondary education *catedráticos* in the second half of the 19th century in Spain. Although *catedráticos* were not the only group exercising teaching functions, they were the references in their specialty field and their presence signals the influence a particular subject had in a particular context. Therefore, they function as a quantitative support for the existing qualitative historiography, constituting one of the first aggregate perspectives of this body of public servants. To do so, we built a new database with professional information at the individual level of all active *catedráticos* included in the rankings published in 1861, 1876 and 1885. The analysis of this data allows us to obtain new insights on the total number of public servants in this body and their spatial distribution. The body of *catedráticos* consolidates in parallel to secondary education and represents a successful example of the creation of a high-level body of public servants in 19th century Spain.

The number of teachers who accessed the body of secondary teachers grew considerably after the system of secondary education was unified with the approval of *Plan Pidal* in 1845. Although the intakes by year fluctuated, the total number of secondary teachers in Spain grew from 1861 to 1876, although it stabilized during the Bourbon Restoration up to 1885. This evidence goes in line with the consolidation of secondary education within the Spanish education system in the period under scrutiny, both because of the increase in the number of students and, in a first stage, of the increase in the number of subjects to be taught with the inclusion of applied studies subjects.

If we turn to the years of experience of the teachers in each section of the rosters, we find interesting results. In general, the system of promotion by sections is very effective for classifying *catedráticos* according to their seniority and merit, especially as the century progresses and the system consolidates. While this is not the case in the early years after *Ley Moyano*, we progressively observe how the different sections end up correctly classifying its members' experience in the different sections. However, there is a small number of individuals whose experience is not reflected in their position in the ranks. In particular, some *catedráticos* with many years of experience did not rise to the highest sections, probably by choice. Although the years of experience of the least experienced teachers do follow a pattern coherent with the hypothesis that upper sections may require higher experience, the years of experience of the most veteran teachers are consistently high, indicating that not all experienced teachers chose to be promoted to upper sections.

With regards to subjects, the data shows that the most prominent subjects in terms of total number of teachers were those that had a general and compulsory character, as we expected since they were the ones with a larger number of students and, thus, with

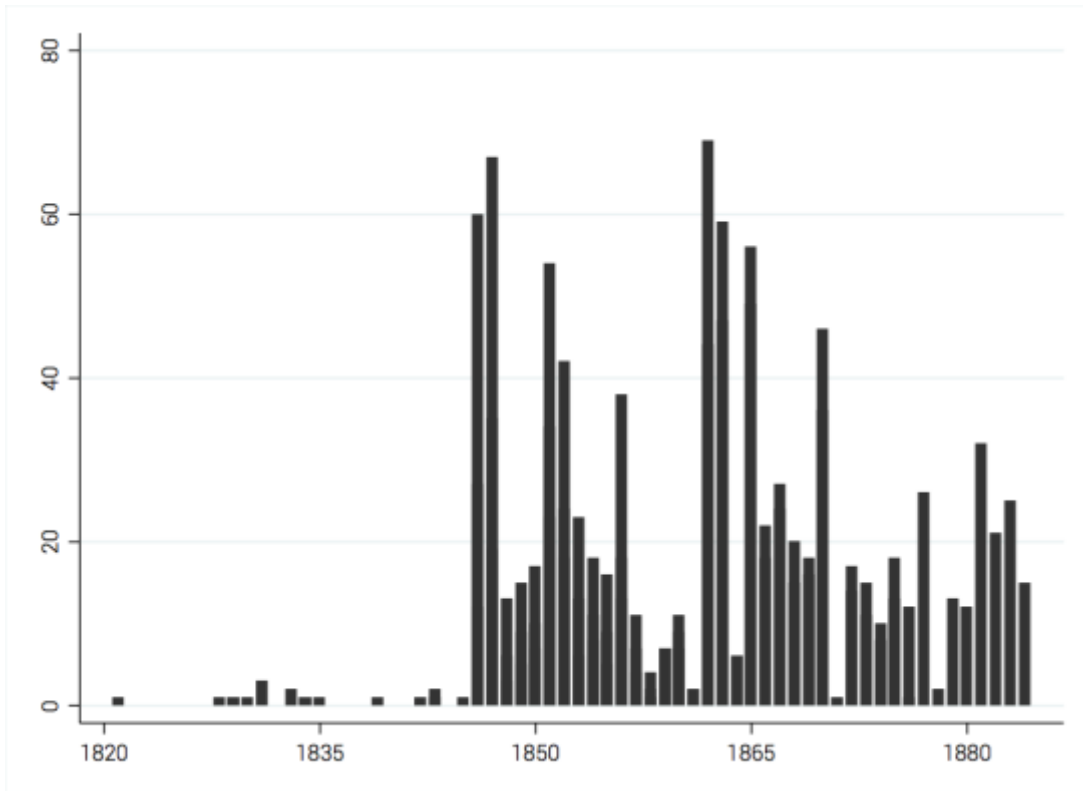
more teachers needed. Concerning applied subjects, we observe an increase in their number of teachers in most of its subjects. This is consistent with the legislative changes introduced after *Ley Moyano*, that stipulated the inclusion of applied studies within general high school syllabi. Although there is a constant presence of teachers of technical subjects in the three ranks, the fact that Agriculture is the only one that grows over the years leads us to think that there was a link between the consolidation of a very professional profession linked to the productive sectors of the country and the secondary education system. In addition, subjects related to more technologically advanced economic activities, which would take a long time to successfully implement the Spanish economy, have a small number of teachers in all three years.

Lastly, the spatial analysis of the distribution of teachers provides evidence of the consolidation of the secondary education system in the sense that basic subjects such as Latin and Spanish or Mathematics achieve a relatively uniform number of teachers across provinces as the century progresses. However, there are two relevant geographical patterns. On the one hand, in terms of the percentage of professors over the national total, we observe how the peripheral provinces together with Madrid are the ones that monopolize the highest figures, both in the middle of the century and at the end of it. On the other hand, provinces with a larger number of teachers are usually those that had more than one high school, indicating there was no competition for subjects between high schools in the same province. In short, the territorial distribution of secondary education *catedráticos* consolidated following a pattern in which the peripheral regions had a greater prominence, in line with their demographic and economic relevance.

Until now, there had not been a systematical exploitation of the nineteenth-century promotion rosters of secondary teachers in Spain, although historians of education have suggested the use of these sources for a long time. The analysis of the body of secondary education *catedráticos* from the perspective of their promotion rosters has allowed us to know more in depth the process of consolidation of an official body of public servants in 19th century Spain. As it also happened in other governmental areas, the Spanish liberal state was able to successfully create a body of education professionals with a well-defined professional career that led the implementation of the secondary education level in Spain. This paper contributes to this matter by providing an overview of the total number of secondary teachers in Spain, along with other information included in the rosters such as subjects of specialty and experience. As opposed to existing literature focusing on specific individuals or high schools, this approach allows us to obtain an aggregate vision that can be useful for further studies related to nineteenth-century secondary education teachers in Spain.

APPENDIX

Figure 1. Number of entries to the body of secondary teachers by year



Source: *Escalafón general de los catedráticos de instituto de segunda enseñanza en 1º de enero de 1861* (Madrid: Imprenta Nacional, 1862); *Escalafón general de los catedráticos de instituto de segunda enseñanza en 1º de enero de 1876* (Madrid: Imprenta Nacional, 1876); *Escalafón general de los catedráticos de institutos de segunda enseñanza en 1º de enero de 1885* (Madrid: Imprenta del Colegio Nacional de Sordo-mudos y de Ciegos, 1885).

Table 1. Number of teachers by their years of experience in the different sections

	Years of experience	1861	%	1876	%	1885	%
First	0 – 10	0	0	0	0	0	0
	11 – 20	2	22,2	0	0	0	0
	21 – 30	4	44,4	14	70	0	0
	> 30	3	33,3	6	30	21	100
Second	0 – 10	0	0	0	0	0	0
	11 – 20	60	100	0	0	0	0
	21 – 30	0	0	43	100	5	11,1
	> 30	0	0	0	0	40	88,9
Third	0 – 10	114	97,4	1	1,2	0	0
	11 – 20	3	2,6	2	2,4	43	43,9
	21 – 30	0	0	80	95,2	31	31,6
	> 30	0	0	1	1,2	24	24,5
Fourth	0 – 10	110	48,9	193	41,2	171	39,1
	11 – 20	110	48,9	233	49,8	149	34,1
	21 – 30	2	0,9	41	8,8	100	22,9
	> 30	3	1,3	1	0,2	17	3,9

Note: Percentages are computed over the total of each section. Shaded areas correspond to the most frequent interval of experience in each section.

Source: see Figure 1.

Table 2. Evolution of the distribution of teachers by subject, 1861-85

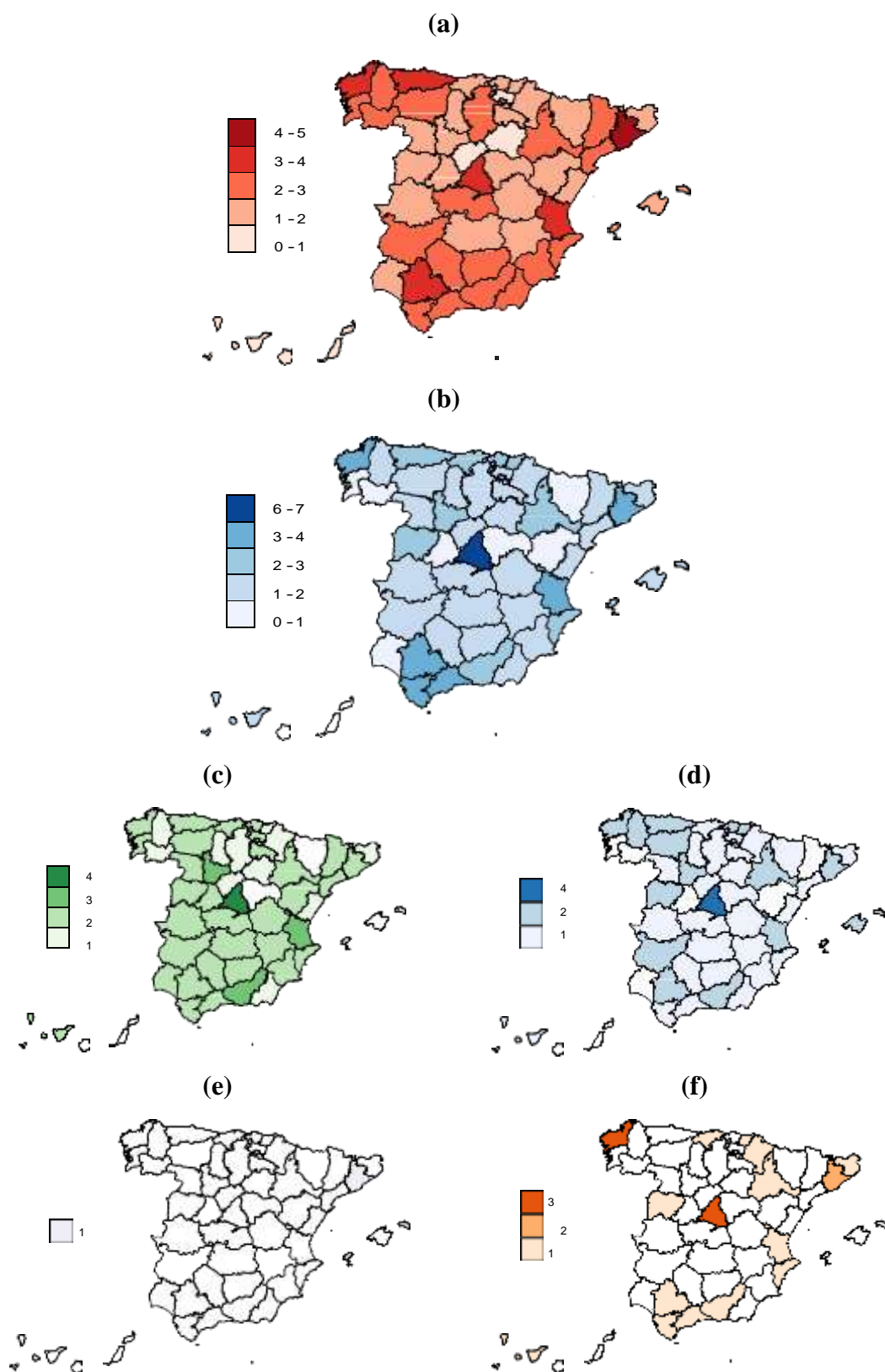
Subject	1861		1876		1885	
	Teachers	%	Teachers	%	Teachers	%
Agriculture	1	0,2	12	2,0	35	5,8
Cosmography and piloting	-	-	2	0,3	1	0,2
Applied chemistry	1	0,2	4	0,7	5	0,8
Industrial mechanics	-	-	3	0,5	3	0,5
Trade arithmetic	11	2,7	8	1,3	10	1,7
Geography and industrial and commercial statistics	8	1,9	1	0,2	1	0,2
Political economy and commercial law	11	2,7	10	1,6	12	2,0
Geography and commercial law	1	0,2	-	-	-	-
Physics and chemistry	31	7,5	54	8,8	54	9,0
Mathematics	61	14,8	121	19,6	112	18,7
Natural history	27	6,6	52	8,4	51	8,5
Art	5	1,2	23	3,7	17	2,8
Arithmetic and algebra	3	0,7	-	-	-	-
Psychology and logic	12	2,9	57	9,3	59	9,9
Logic and ethics	33	8,0	2	0,3	8	1,3
Rhetoric and poetics	37	9,0	62	10,1	63	10,5
Latin and Spanish	84	20,4	103	16,7	91	15,2
Geography and history	37	9,0	58	9,4	49	8,2
Religion and moral	9	2,2	1	0,2	-	-
Latin and Greek	13	3,2	1	0,2	-	-
English	6	1,5	9	1,5	10	1,7
French	21	5,1	32	5,2	18	3,0
Italian	-	-	-	-	1	0,2
German	-	-	1	0,2	1	0,2
Total	412	100	616⁵⁴	100	601⁵⁵	100

Source: see Figure 1.

⁵⁴ There are four duplicates in the 1876 roster: the numbers 71, 142, 161 and 164. Thus, the total number of real teachers is 616, although they are ordered up to 612.

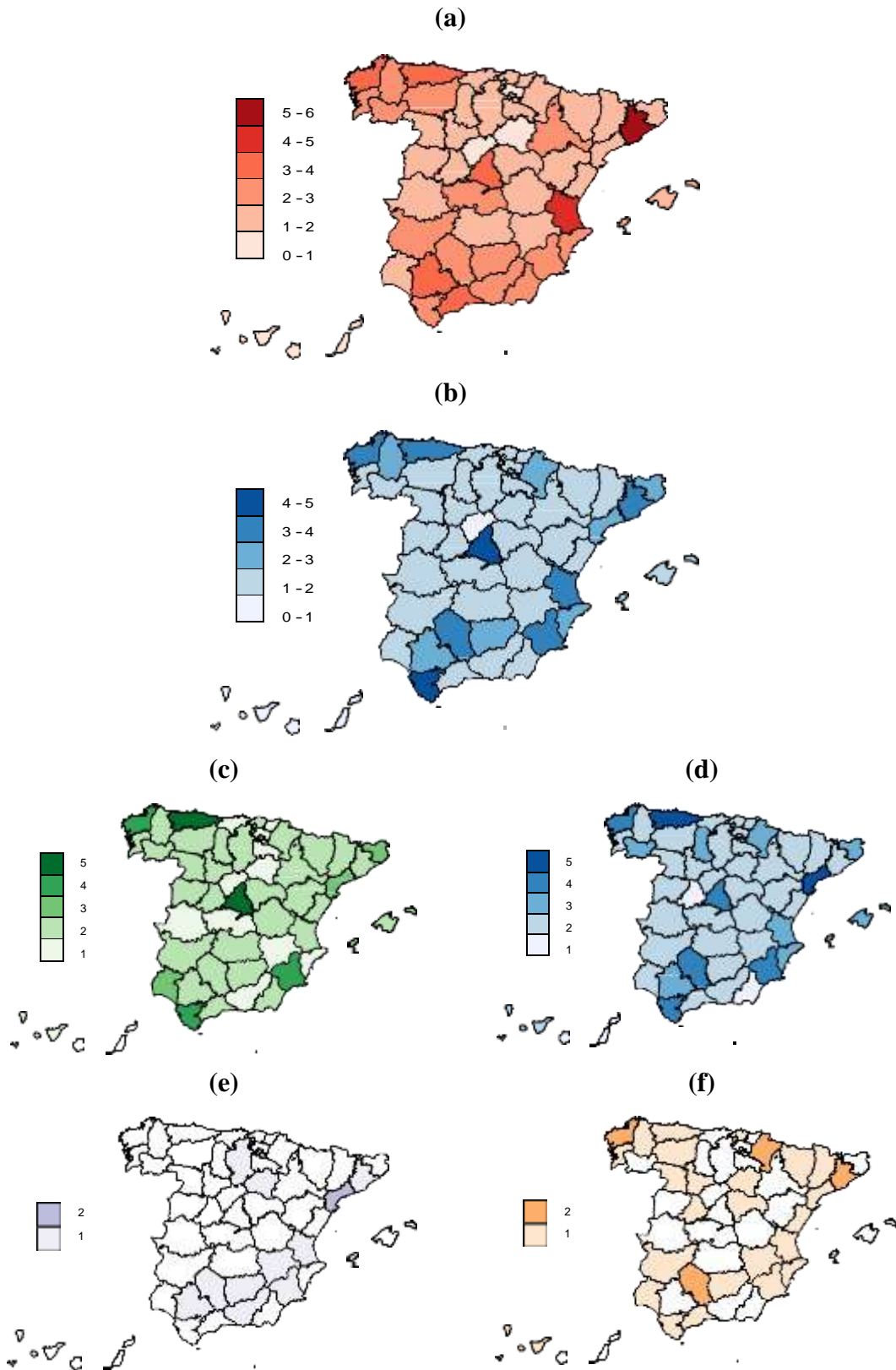
⁵⁵ There are two duplicates in the 1885 roster: the numbers 78 and 86. Thus, the total number of real teachers is 601, although they are ordered up to 599.

Map 1. Spatial distribution of teachers in 1861



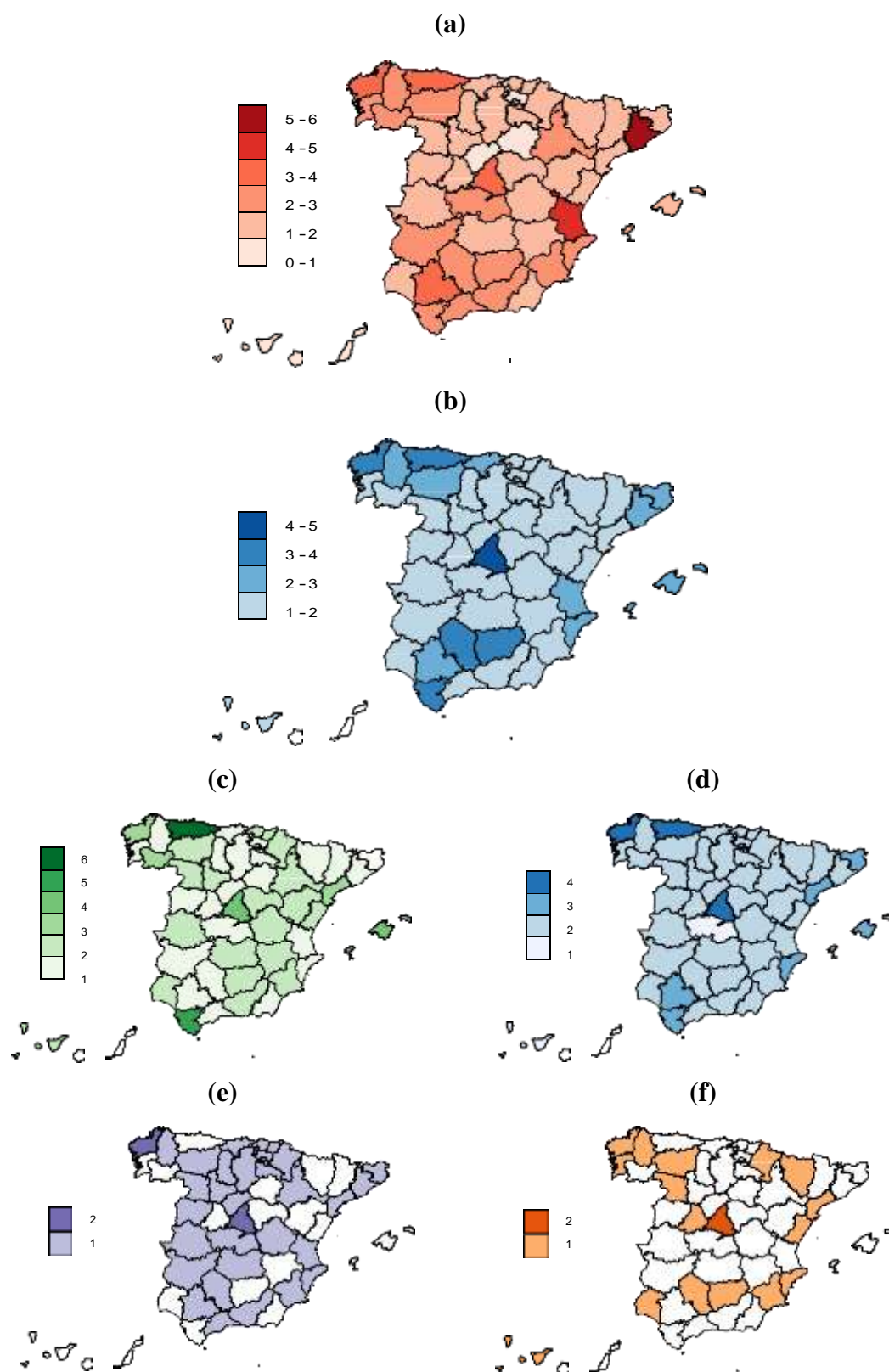
(a) Share of population by provinces (in %); (b) Share of secondary teachers by provinces (in %); (c) Number of teachers of Latin and Spanish; (d) Number of teachers of Mathematics; (e) Number of teachers of Agriculture; (f) Number of teachers of French. **Source:** Population Census 1860; *Escalafón general de los catedráticos de instituto de segunda enseñanza en 1º de enero de 1861* (Madrid: Imprenta Nacional, 1862)

Map 2. Spatial distribution of teachers in 1876



(a) Share of population by provinces (in %); (b) Share of secondary teachers by provinces (in %); (c) Number of teachers of Latin and Spanish; (d) Number of teachers of Mathematics; (e) Number of teachers of Agriculture; (f) Number of teachers of French. **Source:** Population Census 1877; *Escalafón general de los catedráticos de instituto de segunda enseñanza en 1º de enero de 1876* (Madrid: Imprenta Nacional, 1876)

Map 3. Spatial distribution of teachers in 1885



(a) Share of population by provinces (in %); (b) Share of secondary teachers by provinces (in %); (c) Number of teachers of Latin and Spanish; (d) Number of teachers of Mathematics; (e) Number of teachers of Agriculture; (f) Number of teachers of French. **Source:** Population Census 1887; *Escalafón general de los catedráticos de institutos de segunda enseñanza en 1º de enero de 1885* (Madrid: Imprenta del Colegio Nacional de Sordo-mudos y de Ciegos, 1885).