

SESSION 19

An approach to the public financing of industrial vocational education in Spain, 1857-1935

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1. Introduction¹

The interest about human capital and its link with industrialization and economic growth has been increasing in recent years. T.W. Schultz was the first to establish the concept of human capital in 1971 incorporating thus education as a decisive factor in the economic growth. It determined that economic historians payed more attention to the question of the technical education. In the concrete case of the public financing of education there are some interesting national and international studies mainly dealing with elementary and upper education². However, they'd rarely examine the specific case of elementary and intermediate vocational training, whether in a State or a local/provincial perspective.

The main objective of this paper is exactly to do a first analysis of the expenditure of the public sector (State, provincial and municipal) in industrial vocational training in Spain between 1857 and 1935. The main hypothesis is based on the idea that the public financing of general education was insufficient in that period and a lot more negative relating to vocational training. In fact the State, the public administration with more economic resources, spent very little in education: from 1850 to 1892 the 1% of its total expenditure; since then the percentage was enlarging until

¹ This work is the result of a research project granted by the Bank of Spain during the course 2004-05. I give special thanks to professor Josep M^a Benaul for his comments in the elaboration of this work, to Francisco Comín for the interest shown in this project as well as to professors Alfonso Herranz, Julio Martínez and Daniel Tirado for the bibliographical information and the data yielded. Finally, the statistical calculations would not have been possible without the aid of M^a Luisa López de Medrano.

² See NÚÑEZ, Clara Eugenia (1992, 1993) and DIEBOLT, Claude (1999, 2000) for the Spanish case.

reaching the 5% in 1920-30. In spite of this situation, elementary and intermediate vocational training was not exclusively beyond competence of the State, but also they depended on the local administrations. Those had limited resources, which determined, on the one hand, the creation of a reduced number of centers and, on the other, the capacity and quality of the existing schools.

To contrast these hypotheses there has been carried out a study about the evolution of the public financing of industrial vocational training and its relative position from the total expenditure in education. The analysis has followed these objectives but has been conditioned by the kind and quantity of the primary sources located, as it is explained subsequently.

SOURCES AND METHODOLOGY

The quantitative base of this study refers to the expenditure on public education and industrial vocational training budgeted in the State General Budgets and in the local and provincial Current Budgets of expenditure of a reduced sample (7 provinces and 9 city councils), collected in gross terms.

The lack of a homogeneous and continuous series of municipal and provincial data, apart from those in the Spanish Statistical Yearbooks and in some provincial accounts, obliged us to select a sample of representative provinces and municipalities regarding its industrial development. This sample is summarized as follows: in the provincial field, Barcelona, Madrid, Valencia, Alicante, Vizcaya, Guipúzcoa and Asturias; in the municipal field the cities of Madrid, Barcelona, Terrassa, Sabadell, Valencia, Alcoi, Bilbao, San Sebastián and Gijón.

The local and provincial sources correspond to the Current Expenditure Budgets, that is to say, the initial credits that were approved by the provincial and local councils and then authorized by royal ministerial decree. Therefore, these sources have the limitation that are only budgetary foresights of the maximum expenditure, so they only permit to make an estimation of the total expenditure on education and industrial vocational training, or more precisely, to determine the will of expenditure of each administration. They are not the most suitable data but the most homogeneous and

detailed one. The same thing has happened to State level with the figures on the General Budgets³.

The type of information collected in these sources refers to the current expenditure items in gross terms: staff, school material, the maintenance of schools, the workshops endowment, rooms and schools rental expenditures, general subsidies to public and private schools, as well as scholarships and prizes. This quantitative information has been computed for each level of teaching already defined. These educational categories are⁴: administration in public instruction (only in the provincial and State case), elementary education, secondary education, vocational training (organized in three categories: industrial⁵, agricultural and commercial), upper technical teaching (schools of engineering), university and other teachings (heterogeneous category).

Firstly, there has been carried out a study on the expenditure budgets in education of the State and the provincial and local councils. In the second place, there's been studied the public expenditure in each educational level and the specifically computed to the industrial vocational training.

2. The legal framework

Up until 1857, vocational education had been supplied by the private schools, founded by local boards of trade (*Juntas de Comercio*) and scientific societies. The State, that is to say the major central government administration, had only set up the Madrid's Royal Conservatory of Arts (*Real Conservatorio de Artes de Madrid*) (1824)⁶, the lone State centre offering technical education at this time.

³ Two important studies on the expenditure of the central public administration in Spain are: ARACIL MARTÍN, J. Y DÍAZ GARCÍA, R. (dir.) (1976): *Datos básicos para la Historia Financiera de España, 1850-1975*, Vol. I, Madrid: Instituto de Estudios Fiscales; and COMÍN COMÍN, Francisco (1985): *Fuentes cuantitativas para el estudio del Sector público en España, 1801-1972*, Madrid: Instituto de Estudios Fiscales.

⁴ This functional classification in FERNÁNDEZ MAROTO, Leoncio (1968): "La clasificación funcional del gasto público" en *Economía financiera española*, nº 22, pp. 64-82.

⁵ This category of industrial vocational training includes the arts and trades schools and the mines foremen schools of the 19th century. In the 20th century the nomenclature of the first type of schools changed so that they were called schools of arts and industries and industrial schools, depending on the level or grade. During Primo de Rivera's Dictatorship they were classified in industrial schools, specialized in technical-industrial matters, and in schools of arts and artistic crafts, for the artistic-industrial teachings. It also includes the Graphic Arts Central School since the 1910s. Other specifically artistic teachings such as fine arts or ceramics, or the professional studies for women have not been computed in this category.

⁶ DÍEZ BENITO, J.J. (2002): *Las escuelas estatales de Artes y Oficios y la Educación del Obrero en España (1871-1900)*, pp. 194-206.

However, it was the passing of the Moyano Act (1857) that saw the introduction of the funding model that was to last the longest. The act established the course of action to be taken at each level of vocational training and the responsibilities of each institution in implementing these actions. Thus, municipalities (urban councils) were given responsibility for primary education (having to offer classes in technical drawing in towns of more than 10,000 inhabitants); while the provincial councils were left in charge of secondary education and teacher training schools (this included general secondary education curricula, as well as specific agricultural, industrial and commercial training courses). The State was left with the responsibility of funding universities and the higher technical schools. However, the effect of this measure was only partial, particularly because these schools were heavily dependent on the local government, which was virtually starved of financial resources⁷.

The first attempts at seriously fostering the vocational education of the working classes can be dated to the *Sexenio Democrático* (1868-1874). However, the funding model established in 1857 was not changed⁸. At the same time, the central government began to assume some responsibilities in this matter as the foundation of the Central Arts and Crafts School in Madrid in 1871 showed. In 1874, at the end of the First Republic (1874), this legal framework was reinforced since it was established that local and provincial councils would be able to establish fine arts, commerce, industry and agriculture chairs and to include in their budgets specific item for this aim⁹.

Thanks to these dispositions the first provincial and municipal schools of arts and trades were founded in different localities over the country, as for example, the Free Provincial School of Arts and Trades of Barcelona (1873), which was associated to that of Industrial Engineering¹⁰. After the first decade of the Bourbon Restoration (1875-1923) the central government was behind more initiatives regarding these teachings. Thus, in 1886 the State granted the Madrid's Arts and Trades School administrative independence from the Royal Conservatory of Arts and also created seven "District" schools in Alcoi, Almería, Bejar, Gijón, Logroño, Santiago and Vilanova i la Geltrú. It was also agreed that the arts and trades schools run by local and provincial councils

⁷ CANO PAVÓN, José Manuel (2001): *Estado, enseñanza industrial y capital humano en la España isabelina (1833-1868)*, Málaga.

⁸ In 1869, the right of provinces and municipalities to found and finance all type of schools (the called "free schools"), was established and according to the Royal Decree, September 21st 1870, facilities to the provincial and city councils were granted to found arts and trades schools. Royal Decree, January 15th 1869.

⁹ Royal Decree, July 29th 1874.

¹⁰ An interesting study of the vocational education in Barcelona is ALBERDI, Ramón (1980): *La formación profesional en Barcelona. Política, Pensamiento e Instituciones 1875-1923*, Barcelona: Don Bosco.

could obtain additional State subsidies, as long as the budget so allowed, and provided that as long as they implemented the new regulations¹¹. Indeed, a number of local corporations did just this during the last decades of the 19th century, but State funding was always to prove irregular in nature. However, the majority of them continued being “free”.

Legislation introduced in 1900 and 1901 saw several changes in elementary and medium-level professional education but not in its financing model. On the one hand, provincial and municipal councils would continue providing financial support to the new arts and industries schools. According to Royal Decree of January 4th, 1900 provincial and local councils, where the schools were established, should return to the State the amount consigned in the General Budgets in order to support personnel and material items¹². That is to say, “... that the new teachings continue depending on the local institutions, which are the ones that in last instance take charge of their expenditures...”¹³ On the other hand, the central government would be able to grant subsidies not only to the municipal and provincial schools but also to those adapted to official plans¹⁴. This it is the reason why the State expenditure on industrial vocational training increased so much since the beginning of the 20th century.

This model for providing vocational education was further consolidated during the Primo de Rivera’s Dictatorship (1923-1930). Professional education was organised in a three-level structure by the regulations of 1924 and 1926¹⁵. In addition, these regulations established that these courses could be studied in various types of schools: official schools (financed by public administration), private schools subjected to inspection (financed from private funds but subjected to State review procedures and, therefore, with the possibility of receiving State support), and ‘free’ private schools (free from any State regulation or intervention). Thus, the distribution of the main competence between municipal and provincial councils regarding this question remained.

Responsibilities were distributed as follows: municipalities with more than 20,000 inhabitants were obliged to maintain local elementary schools or to fund private schools subject to State inspection; while in municipalities with fewer than 20,000

¹¹ Royal Decree, November 5th 1886, art. 25, p. 13.

¹² Royal Decree, January 4th 1900, art. 34.

¹³ SOLDEVILLA LIAÑO, Maota (2000): *Del artesano al diseñador: 150 años de la Escuela de Artes y Oficios de Valencia*, Institució Alfons el Magnànim, p. 91

¹⁴ Royal Order, July 17th 1900.

¹⁵ Royal Decree-Law, October 21st 1924 and R.D.-Law June 26th 1926.

inhabitants provincial councils were obliged to contribute to this financial support by providing a sum equivalent to that of 1 student per 1,000 inhabitant¹⁶. However, it was also agreed that the State “... can contribute to the maintenance of the elementary and intermediate professional schools, where and when this is agreed by the Ministry...” Both local and provincial councils had to fund, co-operatively or individually, the engineering and technicians schools. Based on these previous regulations, vocational education studies were newly defined in 1928; these studies could once again be either public or private (though the latter would not be subjected to inspection)¹⁷.

The map of vocational education in Spain, as far as the elementary professional schools and industrial schools (as established by the 1928 statute) were concerned, had already been drawn up by the time of the Second Republic (1931-1936). In fact, the regulations introduced in the 1920s were those that were to govern professional education in this last period and the educational priority of the republican governments fell in the grade school. During the II Republic the educational reforms consolidated the regulating role of the State and the principles of compulsory elementary education and academic freedom, as well as of social and educative laicism.

All in all, during the 19th century vocational training studies were left in charge of provincial and local corporations. Nevertheless, since the last third of the century and above all during the 20th century the central government was assuming greater responsibilities regarding this type of technical instruction. One example of this situation was the foundation of various State arts and trades schools and the adaptation of many local schools to the ministerial regulations in order to receive official subsidies. Nevertheless, this greater involvement did not mean the creation of a national system of vocational training, at least until Primo de Rivera's Dictatorship. The objective was to promote this kind of technical education and to establish a legal framework in which local public and private institutions could carry out their projects.

3. The public financing of education in Spain, 1857-1935

The Spanish public financing of education, as well as the public expenditure, was determined by the predominance of a liberal and centralist system. From an

¹⁶ These contributions were distributed as follows: provincial and local administration contributed 0.20 pesetas per inhabitant, while the State contributed a percentage that was always lower than half the total income.

¹⁷ Vocational Education Statute (R.D.-Law December 21st 1928).

educational point of view, the central government intervened very little in social matters, as for example in public instruction, at least until the beginning of the 20th century.

The financial size of the Spanish State expenditure on education was similar to the Italian central government at least between 1905 and 1920 if we compare Spain with other European countries. The data presented in the following table refers to the total expenditure on education and science of the central governments of various European countries¹⁸.

Table 1: INTERNATIONAL COMPARISON OF THE CENTRAL GOVERNMENT EXPENDITURE ON EDUCATION, 1900-1935 (% ON TOTAL PUBLIC EXPENDITURE)

Years	Great Britain*	Germany	France	Italy	Sweden	Spain
1900	s.d.	s.d.	7,4	3,0	14,7	1,5
1905	s.d.	s.d.	8,6	3,2	s.d.	4,3
1910	s.d.	s.d.	9,0	4,1	s.d.	4,2
1915	s.d.	s.d.	9,3	2,1	7,3	3,0
1920	6,1	s.d.	3,7	3,7	10,6	4,4
1925	9,1	0,1	6,5	7,0	10,8	4,7
1930	9,9	0,1	8,1	6,1	10,3	5,2
1935	10,6	0,1	12,4	2,8	9,0	6,8

Source: Peter Flora (1983), IEF: Aracil y Peinado (1976) and Comín (1985) for Spain.

* **Great Britain:** includes all the public administrations.

According to figures in table 1, in 1900 the size of the Spanish expenditure was really far from that of France and Italy. In fact, the Spanish expenditure was a half of the Italian and a 20% of the French educational expenditure. At the end of the period, Spain had nearly caught up the others so that in 1930 the Spanish State expenditure on education represented an 85% of that of Italy and a 64% of France. Likewise, the situation of Germany denoted the huge regionalization of the expenditure on education, which reflected the relevance of each “länder” or regional State. On the other hand, Sweden, that had followed the prusian system, was an example of a centralist State that had a long interventionism tradition in educational matters as well as France.

In this international framework, the increasing economic involvement in education of the Spanish State really began its development since the 20th century. During the second half of the 19th century, the central government was entrusted only

¹⁸ FLORA, Peter (1983): *State, Economy and Society in Western Europe 1815-1975. A Data handbook in two volumes*, London: Macmillan Press. Claude DIEBOLT has studied more deeply the financial support on education of the Spanish State relative to different European countries (1999, 2000).

to provide economic support and to regulate universities and engineering schools. Elementary and Secondary education remained in charge of provincial and local councils that had no fiscal autonomy to enlarge their incomes or to reduce their debts¹⁹.

As we have already seen, this financing model of the Spanish educational system began with the Moyano Act in 1857. This regulation determined the economic responsibilities in educational matters of each one of the public administrations. However, different reasons had an important effect in the debate on the State intervention in public instruction such as the increase of population and the advance of the industrialization, the economic difficulties of the provinces and municipalities to face their obligations, the increasing power of the Catholic Church in education, and the “Regenerationists” claims carried out after 1898²⁰. In 1900 the Department of Public Instruction and Fine Arts was founded and since 1902 the State assumed the payment of the salaries to the teachers and the school materials in elementary education²¹, except for the Basque Provinces and Navarre, which, according to their specific autonomous States they negotiated and financed directly their education system.

During the Primo de Rivera’s Dictatorship the new municipal decree (1924) reinforced the intervention of the local councils regarding these questions, while the provincial administrations were losing importance²². During the Second Republic there were no substantial changes relating to this way of funding. The most characteristic fact was the increase of the public expenditure and the consolidation of the role of the public administration as responsible for education, mainly the State and, in the second place, the municipalities and the provinces.

The figures for the provincial and local expenditure in the Statistical Yearbooks clearly corroborate these conclusions, as it is observed in table 2. The series built with these data is limited to some years of the 19th and the 20th centuries²³. In spite of the internal incoherences owed to the strong chronologic imbalance of the series, we have

¹⁹ GARCÍA, C. & COMÍN, F (1995): “Reforma liberal, centralismo y Haciendas municipales en el siglo XIX”, *Hacienda Pública Española*, 133, Madrid, p. 93; MORAL RUIZ, Joaquín (1984): *Hacienda central y haciendas locales*, Madrid.

²⁰ PUELLES BENÍTEZ, Manuel (1980): *Ideología y educación en la España contemporánea*, Madrid.

²¹ The law regulating the 1901 General Budgets determined, in its art. 23, that the faculty to establish that payment was now of the State. From 1902, therefore, and except for the Basque Country and Navarre, the central government established a surcharge of the 16% on the contribution of assets. With the money collected the State would pay the expenses budgeted for the elementary education by each local council.

²² According to the Municipal Statute of 1924 the city councils were obliged to endow of adequate buildings to the national grade schools of the respective municipal term (R.D.-Law, October 21st 1924, art. 214). MORAL RUIZ (DEL), Joaquín (2003): *Las haciendas locales en España 1905-1931*, Madrid, pp. 19-23.

²³ There have been excluded from the Statistical Yearbooks the years of 1915 and 1917 since they present figures referred to the final accounts that altered completely the tendency of the series.

been able to carry out an estimation of the public expenditure on education and a distribution of the relative position of each public administration in this regard.

Table 2: PUBLIC ADMINISTRATIONS' EXPENDITURE ON EDUCATION, 1860-1933 (% ON THE TOTAL PUBLIC EXPENDITURE ON PUBLIC INSTRUCTION)

Years	State	Prov.	Local
1860	24,43	14,35	61,23
1861	23,96	14,94	61,10
1862	23,81	14,49	61,70
1863	22,97	14,02	63,01
1864	22,61	13,94	63,45
1865	21,65	13,78	64,57
1879	19,77	15,42	64,81
1880	19,60	15,23	65,18
1881	19,29	14,89	65,83
1882	20,03	16,04	63,93
1883	20,83	15,87	63,31
1924	83,77	3,84	12,39
1933	83,53	2,96	13,52

Source: Made on the premises with the *Spanish Statistical Yearbooks* and the *State Accounts*.

Between 1860 and 1883 the local and provincial expenditure on education represented an average of the 78% on the total public expenditure in education. On the contrary, in 1924 and 1933 the situation had been completely changed so that, in those two years, the State average was an 84% while the local average was a 20% of the State one. The economic contribution of the sample to the total educational expenditure increased from the Primo de Rivera's Dictatorship and the II Republic.

Nevertheless, each public administration made a different effort regarding the financing of education on each total expenditure, as we can detect in table 3. Until the 20th century the relative expenditure of the State in public instruction was very far from that of the city councils and provinces, but since 1900-1905 there was a clear catching up owed to the notable increment of the State expenditure on education. From the local perspective, these percentages were practically constant and after a certain decrease in the first two decades of the 20th century these percentages recovered, especially between 1925 and 1935. In the provincial case this relative position was decreasing between 1895 and 1935.

Table 3: RELATIVE WEIGHT OF THE PUBLIC EXPENDITURE ON EDUCATION OF THE CENTRAL GOVERNMENT, THE PROVINCES AND THE MUNICIPALITIES IN THE SAMPLE, 1895-1935 (% ON EACH TOTAL EXPENDITURE)²⁴

<u>Years</u>	<u>State</u>	<u>Prov. (average)</u>	<u>Local (average)</u>
1895	1,4	4,9	4,8
1900	1,3	5,9	6,7
1905	4,2	6,0	5,0
1910	4,4	5,4	5,3
1915	4,3	6,2	5,7
1920	5,2	5,4	4,4
1925	5,0	3,3	5,2
1930	4,8	3,2	5,2
1935	5,8	2,8	6,5

Source: Made on the premises with the *State General Budgets* and the *Expenditure Current Budgets* of the provincial and local sample.

Until 1905 the State expenditure on education was very under the percentages of the provincial and local administrations. In fact, in 1900 the average expenditure of the local sample practically increased fivefold relative to the State funds. Since 1905 those State percentages in public instruction greatly increased so that during the first third of the 20th century there was a catching up with the three public administrations regarding this item. Nevertheless, it fits to emphasize that the State relative expenditure in education did not come surpass the local councils' figures except in 1920, not thus with regard to the provinces. During the II Republic there was a considerable increase of the relative expenditure on education owed to a greater interest in the promotion of elementary education in order to make up for its lack and the problem of illiteracy. This happened in the case of the central government as well as in the local councils but not to provincial level, according to what is detected in table 3.

The distribution that the three public administrations did of this budget for public instruction was decisive to understand the different priorities given in the educational matter. According to table 4, until the 20th century the State gave priority to university and higher technical studies instead of those of medium and elementary level that remained in charge of local and provincial councils²⁵. Since 1900 there was a clear change of the political will regarding the educational matter. Thus, the priority of the

²⁴ In 1895 there are no figures representing either the provincial council of Oviedo or the local council of Terrassa but from 1900 the calculations include the whole 7-provinces and 9-municipalities samples.

²⁵ NÚÑEZ, Clara Eugenia (1991): "El gasto público en educación entre 1860 y 1935", *Hacienda pública española. Historia de la hacienda en España (siglos XVI-XX)*, 1991/1, Madrid: Ministerio de Economía y Hacienda, p. 121.

State expenditure became the lower levels of education. This process was a lot more evident during the II Republic.

Table 4: DISTRIBUTION OF THE STATE EXPENDITURE ON PUBLIC INSTRUCTION PER EDUCATIONAL LEVELS, 1860-1934: FIVE-YEAR AVERAGES (% ON THE TOTAL)

Five-year Period	Adm.	Elt.Edu.	Second.Edu.	Voc.Edu.	HighTech.	Univ.	Others
1860-64	1,2	5,5	11,2	0,3	11,9	50,8	19,1
1865-69	0,6	4,5	6,9	1,5	8,2	57,9	20,3
1870-74	0,1	0,4	4,3	4,5	9,6	66,3	14,8
1875-79	0,7	2,6	7,1	5,2	7,6	61,6	15,2
1880-84	0,7	7,3	7,1	5,2	8,8	56,6	14,3
1885-89	0,5	11,2	24,2	9,0	5,2	37,1	12,7
1890-94	0,3	7,4	30,8	11,1	4,7	32,7	12,9
1895-99	0,7	6,7	28,9	12,6	2,8	33,5	14,8
1900-04	1,6	51,9	14,6	7,9	1,5	15,8	6,7
1905-09	1,3	63,4	9,2	8,2	2,2	11,1	4,6
1910-14	1,6	61,2	8,9	8,7	2,3	12,1	5,2
1915-19	1,7	61,9	8,2	8,5	1,9	10,8	7,0
1920-24	4,0	68,4	5,1	6,6	1,3	8,5	6,2
1925-29	3,5	72,0	4,7	5,9	1,1	7,2	5,5
1930-34	3,4	74,4	5,4	4,6	1,1	6,9	4,2

Source: Made on the premises with the *State General Budgets*.

On the contrary, according to data in table 5, in the provincial case vocational training and professional studies were given priority from the decade of 1910, when the provincial expenditure on secondary education began to lose weight on the total budget for public instruction. Likewise, the city councils were aiming a greater part of their educational budget to other categories such as vocational training and grade school, as it is shown in table 6.

Table 5: DISTRIBUTION OF THE AVERAGE EXPENDITURE ON PUBLIC INSTRUCTION OF THE 7-PROVINCES SAMPLE PER EDUCATIONAL LEVELS, 1895-1935 (% ON THE TOTAL)

Years	Elt.Edu.	Second.Edu.	Voc.Edu.	HighTech.	Univ.	Others
1895	14,3	24,7	17,8	2,5	3,6	20,3
1900	12,9	21,7	10,7	6,6	6,4	24,2
1905	13,4	20,9	18,3	5,5	2,5	19,8
1910	13,4	18,5	24,0	4,8	3,9	17,8
1915	21,8	14,0	23,7	4,5	0,4	19,7
1920	30,5	11,6	18,8	2,9	0,1	21,0
1925	24,2	9,6	24,7	4,1	0,3	16,0
1930	25,0	0,7	34,2	4,0	1,8	22,0
1935	20,7	2,3	31,1	2,1	6,1	24,2

Source: Made on the premises with the *Expenditure Current Budgets* of the provincial sample.

Table 6: DISTRIBUTION OF THE AVERAGE EXPENDITURE ON PUBLIC INSTRUCTION OF THE 9-CITY COUNCILS SAMPLE PER EDUCATIONAL LEVELS, 1895-1935 (% ON THE TOTAL)

Years	Elt.Edu.	Second.Edu.	Voc.Edu.	HighTech.	Univ.	Others
1895	75,8	7,3	8,9	1,4	0,0	4,7
1900	68,8	5,1	18,1	2,4	0,0	4,3
1905	51,9	9,4	25,9	2,1	0,8	8,2
1910	53,8	1,1	33,4	1,8	0,1	9,1
1915	63,6	1,3	25,7	1,4	0,0	8,0
1920	64,2	0,7	24,5	1,2	0,0	11,5
1925	64,0	0,6	24,8	1,3	0,0	8,1
1930	62,8	1,7	23,5	1,0	0,0	8,7
1935	73,6	1,7	16,0	0,5	0,0	6,1

Source: Made on the premises with the *Expenditure Current Budgets* of the local sample.

As it is observed in table 6, the expenditure for grade school continued being very prominent on the total amount for education in the local sample and only between 1905 and 1920 the relative expenditure on vocational training could compete with that one. Nevertheless, at the end of the period the local expenditure for elementary schools had recovered positions relative to secondary and vocational studies.

4. The public financing of the industrial vocational training in Spain, 1857-1935

The financing of the industrial vocational training was consolidated between 1857 and 1935, although the real boost initiated from the late 19th century onwards²⁶.

From an international perspective, Spain continued a similar develop as other countries although the different financial size of each public expenditure was one of the determinant factors in its relative delay regarding the development of the industrial vocational training. In general, during the latter decades of the 19th century the majority of the countries began to officialize and regulate these teachings²⁷.

²⁶ There is a wider article on this question already Publisher in the Catalonian review *Recerques*: LOZANO LÓPEZ DE MEDRANO, Celia. (2003-04): "Polítiques sobre Formació Professional a Espanya, 1857-1936: legislació i pràctiques educatives", *Recerques*, nº 47-48, Barcelona.

²⁷ The CEDEFOP has carried out recently studies on the vocational training models of England, France and Germany that are interesting for the international comparison. According to these works, on the one hand, the English system of vocational training was characterized for being excessively oriented to the market and for the strong opposition of the businessmen to offer training to its workers; is the free market economy model. On the other hand, in Germany a dual-corporate system was developed very structured, with certain continuity regarding the traditional trade system of learning and with a strong interweaving of the market and of the business. Finally, in France a model of bureaucratic formation predominated characterized by a strong State regulation. See: *Towards a history of vocational education and training (VET) in Europe in a comparative perspective. Proceedings of the first international conference, October 2002, Florence*, vol. 1, CEDEFOP Panorama Series, 103, Luxembourg 2004; y *Mass vocational education and training in Europe. Classical models of the 19th century and training in England, France and Germany during the first half of the 20th*, CEDEFOP Panorama Series, 118, Luxembourg 2005.

In England, for example, the role of the central government in the organization of the technical education was limited and irregular, while in France the State carried out greater efforts in order to regulate and to officialize the elementary and intermediate professional education inside the educational system, mainly since 1880 and the first decades of the 20th century²⁸. Also in Italy vocational training was officially recognized and received State funds since the latter decades of the 19th century. During this period, the central government prominently increased the amount of funds for vocational education. Nevertheless, not all the regions took advantage of this situation in a similar way so that only the northern regions, of hardly industrial tradition, developed a system of elementary and intermediate technical instruction²⁹.

Finally, in Germany the unification process was a determinant factor in the development of a system of vocational training. Each regional government contributed in a different way to the financing of these studies depending on their “economic capacity”. Thus, for example, in Berlin the Prussian government only contributed in a 20% to the economic support of the industrial professional schools in the city in 1896, while the other 80% was responsibility of the local council, the guilds, and other private firms³⁰.

Table 7: VOCATIONAL EDUCATION IN EUROPE, 1933

Vocational education	Germany	Spain*	France*	Great Britain*
Schools	20.427	205	272	900
Students	1.445.819	39.958	54.550	165.285
Teachers	62.239	2.954	3.969	10.061

* Spain: 1932-33 academic year.

* Great Britain: Only Scotland. 1930-31 academic year.

* France: Probably it refers only to the intermediate vocational education.

Source: *Annuaire International de l'Education* (1933) and for Spain: *Spanish Statistical Yearbook* (1933) and Lozano (2006).

In this international framework, the most notable increment of the Spanish expenditure on industrial training was during the Borbon Restoration (1875-1923). Nevertheless, it was with the Moyano Act (1857) when this model of financing was defined. According to it, elementary and intermediate vocational training remained in

²⁸ T. CHARMASSON, A. M. LELORRAIN et Y. RIPA, (dirs.) (1987) : *L'Enseignement technique de la Révolution à nous jours*, Paris: Institut National de Recherche Pédagogique.

²⁹ CONTI, E. (2003): “L’istruzione secondaria tecnica e professionale nello sviluppo economico italiano dall’Unità alla Seconda Guerra Mondiale”, in FALCHERO, A.M.; GIUNTINI, A.; NIGRO, G.; SEGRETO, L. (2003): *La Storia e l’Economia. Miscellanea di studi in onore di Giorgio Mori*, Varese: Edizione Lativa, pp. 207-230.

³⁰ *Commissioner of Labor* (1902), pp. 872-875.

charge of the city councils and the provinces, while higher technical education would be supported with State funds. It was not until 1871 and 1886 when the central government assumed more responsibilities in this regard. This greater involvement of the State also supposed an increase of its expenditure in vocational training, although this continued being very reduced in comparison to other educational levels such as the higher education. Nevertheless, local and provincial councils continued giving funds for the industrial schools. This financing model of the vocational training was consolidated during the Primo de Rivera's Dictatorship owed to the 1924 and 1928 decrees, which continued in force during the II Republic.

Before analyzing the data, one must recall that, firstly, the provincial and local figures represent a limited sample corresponding to the most industrialized areas of the country in that period: the north and east with the exception of the capital, Madrid. Infact, the seven provinces chosen represented a 55.57% on the total of the Spanish industrial tax contribution in 1913, while in 1929 that percentage had increased up to 66.08%. Regarding the industrial active population, the provincial sample represented a 37.98% on the national total in 1910, while in 1930 this relative weight reached 43.66%³¹.

In second place, Catalonia and the Basque Country were the pioneering regions in the promotion of the industrial vocational training. In 1905 there were between 80 and 90 schools of arts and industries in Spain, 20 of them in Catalonia and about 15 or 20 located in the Basque Country. At the end of the period, in 1935, the number of vocational schools came up to 200. From that total, 40 were Catalonians and over 35 Basques³². The regional sample also stood out from the total regarding the number of students in industrial vocational education.

³¹ BETRÁN PÉREZ, Concha (1997): "Geografía industrial en España durante el primer tercio del siglo XX, *VI Congreso de la Asociación de Historia Económica*, Girona, 15-17 de Septiembre de 1997, pp. 2-38.

³² For the elaboration of this census official sources like statistical and public instruction yearbooks have been consulted, contemporary studies of the period and present bibliography on the theme as well. The industrial private schools have only been taken into account when we surely knew that they gave continuing professional teachings. Main references for the elaboration of these censuses: DIPUTACIÓ DE BARCELONA (1916), *Anuario de enseñanza elemental...* (1920), NOVO, Luciano (1933), ALBERDI, Ramón (1980), FUNDACIÓ A. GALÍ (1982), ALOY RUÍZ, M^a Mercedes (1987), TERRÓN BAÑUELOS, Aída (1987), DÁVILA BALSERA, Paulí (1997), LOZANO, Celia (2006).

Table 8: INDUSTRIAL VOCATIONAL EDUCATION POTENTIAL DEMAND IN SPAIN: REGIONAL COMPARISON, 1900-1930 (%)

Regions	1900		1930	
	Inds.Act.Pop.	VE Students *	Inds.Act.Pop.	VE Students
Andalusia	20,7	16,8	16,1	18,4
Aragón	4,3	1,8	4,2	2,7
Asturias	2,7	6,2	3,9	2,9
Baleares	2,4	2,1	1,8	1,6
Canarias	1,8	0,0	2,9	1,7
Cantabria	1,7	0,0	1,5	2,7
Castile - La Mancha	6,2	0,0	5,7	2,0
Castile-León	7,2	5,5	8,1	9,6
Catalonia	18,6	10,8	18,6	17,2
C.Valenciana	9,0	5,2	8,8	5,2
Extremadura	3,6	0,0	4,2	1,2
Galicia	4,9	5,2	6,4	7,0
La Rioja	1,0	1,3	0,8	1,3
Madrid	5,3	33,0	7,9	11,1
Murcia	1,9	0,0	2,5	0,3
Navarra	1,2	0,0	0,9	1,6
The Basque Country	7,4	12,1	5,4	13,5
SPAIN	100,0	100,0	100,0	100,0

* Only elementary vocational education.

Source: *Statistical Yearbooks* (1900, 1930), Llopis, Zapata et al. (2001), p. 568.

Finally, one must emphasize that the sample includes two of the four autonomous provinces, Vizcaya and Guipúzcoa, which, owed to their specific fiscal regime, they did not received State funds in order to finance their schools of arts and crafts, at least until the Primo de Rivera's Dictatorship. Therefore their provincial and local councils financed, along with the private sector, these centers.

THE TOTAL PUBLIC EXPENDITURE ON INDUSTRIAL VOCATIONAL TRAINING

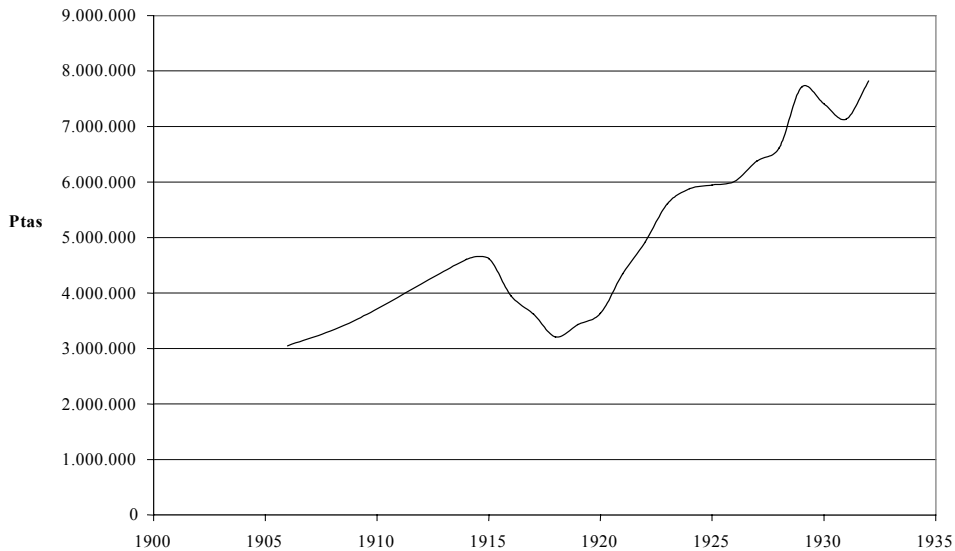
The total public expenditure on vocational training calculated by the addition of the State budgets and the provincial and municipal data, reckoned with the figures of the number of students³³, confirm the idea of an increasing involvement of the public administration regarding the financing of these studies, except for the First World War

³³ This estimation was reckoned by the number of Industrial Vocational Education (IVE) students included in the Statistical Yearbooks, although they present some important limitations. The first one, that it only refers to the official centers that received State support, so that many local schools founded since the 19th century are omitted. The second, that we refer to a provincial and local sample with specifically industrial localities, so that these estimations would be upward biased.

In order to calculate this total, first of all, we have estimated the number of students in the IVE schools for the whole country and for the provincial and local sample. Then, because we had the provincial and local figures of expenditure in these studies, we have supposed that the total expenditure on IVE in Spain should be proportional to its number of IVE students.

period and of the two-year period between 1929-31. As chart 1 shows, this expenditure dropped from no more than 3 million pesetas in 1906 to almost 8 million in 1932.

Chart 1: ESTIMATED PUBLIC EXPENDITURE ON INDUSTRIAL VOCATIONAL TRAINING, 1906-1932 (CONSTANT PESETAS OF 1913)



Source: Made on the premises with the *State General Budgets* and the provincial and local data estimated with the number of Industrial Vocational Education students.

According to table 9, until 1930 the relative weight of the State expenditure was higher than 50% and even it came up to 70% on the total expenditure on industrial vocational training in some years of the 1920s (total figures in Appendix). This showed that the standarization of many provincial and municipal schools supposed a greater economic effort from the central government, which contributed in more than half to the economic support of those schools all over the country, at least until the end of the Primo de Rivera's Dictatorship. Since 1924 the positions of these public administrations (central government on the one hand, and local-provincial on the other), were catching up until local and provincial councils supplied more than half of the total expenditure on industrial vocational training in 1930-35.

Table 9: DISTRIBUTION OF THE TOTAL PUBLIC EXPENDITURE ON INDUSTRIAL VOCATIONAL TRAINING PER ADMINISTRATIONS, 1906-1932 (% ON THE TOTAL V.E. PUBLIC EXPENDITURE)

Years	State	Provc.	Local
1906	56,5	25,8	17,7
1909	61,5	21,4	17,1
1914	66,9	18,3	14,8
1915	65,0	21,0	14,0
1916	67,4	18,8	13,8
1917	65,2	20,2	14,6
1918	59,9	23,9	16,3
1919	67,3	17,2	15,5
1920	70,8	17,3	11,9
1921	70,5	16,0	13,5
1922	67,9	17,0	15,1
1923	68,6	15,9	15,4
1924	69,2	17,4	13,4
1925	67,2	18,2	14,6
1926	66,8	19,9	13,3
1927	52,1	30,8	17,0
1928	51,1	27,8	21,1
1929	54,7	25,5	19,8
1930	46,3	30,2	23,5
1931	46,3	29,8	23,8
1932	43,3	28,6	28,1

Source: See Chart 1.

Nevertheless, the effort that this expenditure on industrial vocational training supposed for each of the three public administrations was very different. According to the studied cases, the relative weight of this expenditure on the each total budget for education was greater for the provincial and local councils and smaller for the State.

Table 10: RELATIVE WEIGHT OF THE PUBLIC EXPENDITURE ON INDUSTRIAL VOCATIONAL TRAINING OF THE CENTRAL GOVERNMENT, THE PROVINCES AND THE MUNICIPALITIES IN THE SAMPLE, 1895-1935 (% ON EACH TOTAL EXPENDITURE ON EDUCATION)

Years	State	Provc. (average)	Local (average)
1895	5,1	9,2	8,6
1900	8,3	6,1	15,9
1905	4,0	13,0	24,6
1910	4,9	18,5	28,3
1915	5,3	18,2	22,7
1920	4,0	15,5	21,7
1925	4,6	19,0	22,7
1930	3,4	31,9	21,3
1935	2,5	29,6	14,8

Source: See Table 3.

Between 1857 and 1935, the educational politics on industrial professional teaching was clearly liberal. According to table 10, the relative expenditure on vocational training was higher for the provincial and local administrations than for the State. In this sense, only 1900 reflect a substantial increment in the relative State expenditure on this type of studies. In fact, it dropped from representing a 5.1% in 1895 to an 8.3% in 1900. Nevertheless, these percentages decreased again in 1905 so that they came back to those of the latter decades of the 19th century. This decreasing tendency accelerated between 1925 and 1935.

Thus, in spite of the greater legislative activity and regulation of many local schools of arts and trades in order to obtain public subsidies, the central government did not increase its relative expenditure on this matter in a proportional way to the advance of the industrialization, as we'll see in table 12 and 13. From the beginnings of the 20th century the State gave priority to grade education to the detriment of elementary and intermediate professional studies, while local administrations assumed part of the responsibility for their funding.

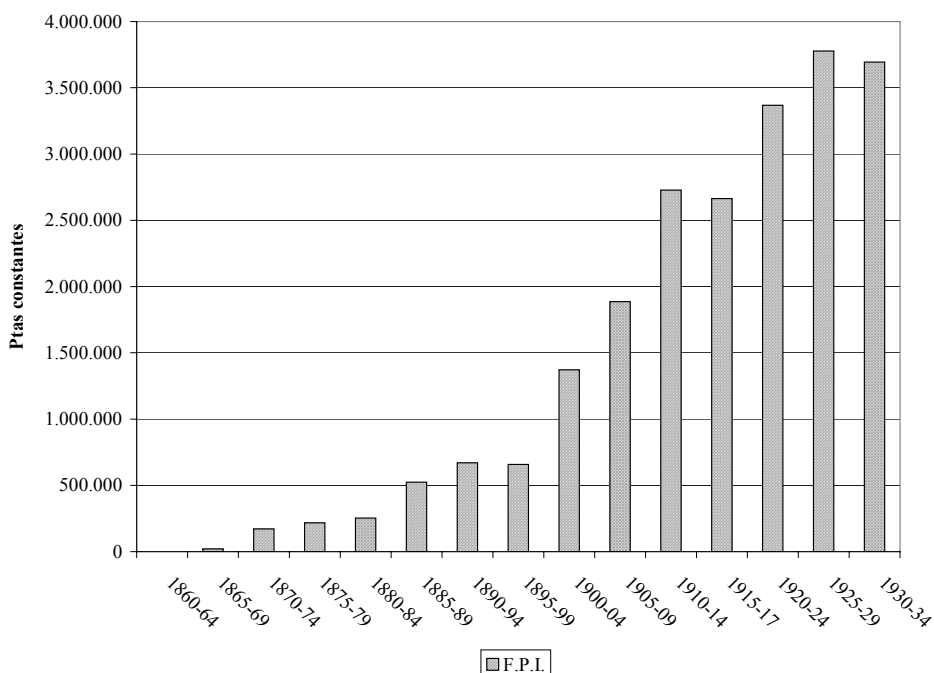
All in all, though provinces and city councils were at par in 1895, the differences in the relative weights of each expenditure on industrial vocational training were more evident immediately. The central government always spent less than the provincial and local administrations in these specialized studies. The most notable difference among them was due to the 1924/26 and 1928 decrees.

THE DISTRIBUTION OF THE PUBLIC EXPENDITURE ON INDUSTRIAL VOCATIONAL TRAINING

The role of the Central Government

It was not until the end of the 19th century that the State began to intervene in the industrial professional teaching as it also happened in other European countries. During the Borbon Restoration, the first State schools of arts and trades were founded besides the existing one in Madrid from 1870/71 and the mine foremen schools of the second-half of the 19th century. Since 1900 some local schools received ministerial funds, thus the State relative expenditure on this matter increased notably, according to Chart 2.

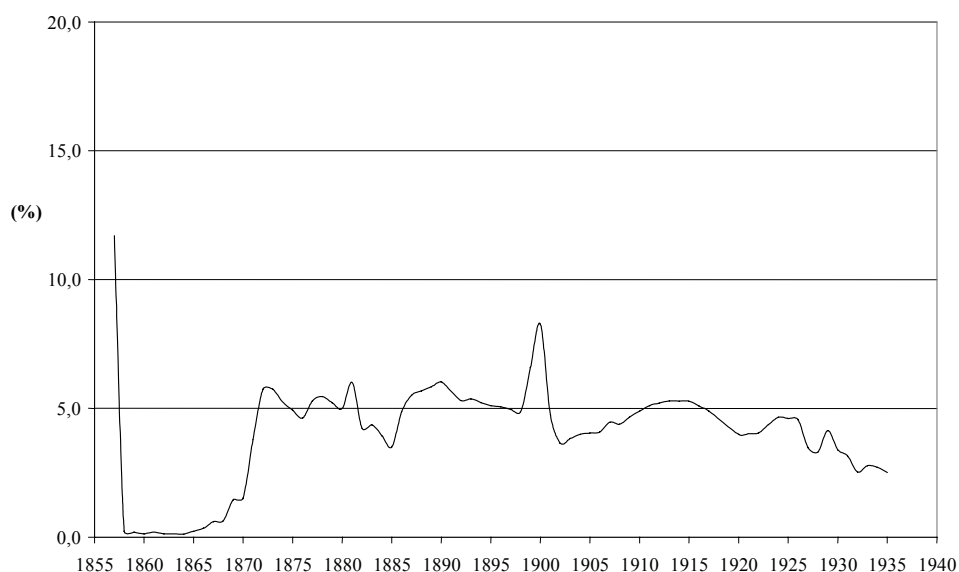
Chart 2: STATE EXPENDITURE ON INDUSTRIAL VOCATIONAL TRAINING: FIVE-YEAR PERIOD AVERAGES (CONSTANT PESETAS OF 1913)



Source: Made on the premises with the *State General Budgets*

In relative terms, till the beginning of the 20th century the State expenditure on industrial vocational training was significantly high on the total expenditure on education because during the second half of the 19th century the central government only financed higher education and also secondary and teacher trainings since 1887. During the first years of the 20th century, the State expenditure on public instruction increased notably owed to the rise of the expenditure on grade school. However, the other education levels did not increase in the same proportion. The notable decrease of the State vocational training expense during Primo de Rivera’s Dictatorship and, above all, during the II Republic was due to the strong increase of the relative weight of the State expenditure on grade school. This fact was a consequence of the new governmental priorities in this education level.

Chart 3: RELATIVE WEIGHT OF THE STATE EXPENDITURE ON INDUSTRIAL VOCATIONAL TRAINING, 1857-1935 (% ON THE TOTAL STATE EXPENDITURE ON EDUCATION)



Source: See Chart 2.

The geographical distribution of this State expenditure was irregular and very centralist, as it is observed in table 11. During the last third of the 19th century the major State financial effort focused on Madrid, at least until 1886. The percentages of 1895 reflected the participation of other regions in the State vocational education expense due to the foundation of the seven Arts and Trades “district” schools in 1886, since when they received State funds. This funding distribution extended to other regions by the beginning of the 20th century and, for instance, Andalusia reached one of the first positions on the total from then on. It can also be emphasized the participation of the State expenditure in Catalonia, located fundamentally in the province of Barcelona. All the regions were receiving State funds except for the Basque Provinces and Navarre, as we have already mentioned.

Table 11: REGIONAL DISTRIBUTION OF THE STATE EXPENDITURE ON VOCATIONAL EDUCATION (V.E.), 1870-1925 (% ON TOTAL STATE EXPENSE IN V.E.)³⁴

Years	AND	ARAG	AST	BALE	CANA	CANT	CASTLE	CASTMA	CAT	CVALE	EXTR	GALI	RIOJ	MAD	MURC	NAV	BASQC.	SPAIN
1870	0,0	0,0	7,2	0,0	0,0	0,0	0,0	6,2	0,0	0,0	0,0	0,0	0,0	86,6	0,0	0,0	0,0	100,0
1875	2,1	0,0	1,5	0,0	0,0	0,0	0,0	1,8	0,0	0,0	0,0	0,0	0,0	93,5	1,1	0,0	0,0	100,0
1880	2,4	0,0	1,2	0,0	0,0	0,0	0,0	1,9	0,0	0,0	0,0	0,0	0,0	94,5	0,0	0,0	0,0	100,0
1885	3,2	0,0	1,7	0,0	0,0	0,0	0,0	1,5	0,0	0,0	0,0	0,0	0,0	90,5	3,2	0,0	0,0	100,0
1890	5,8	0,0	6,1	0,0	0,0	0,0	5,4	4,6	5,4	5,4	0,0	5,4	5,4	55,8	0,6	0,0	0,0	100,0
1895	5,9	0,0	5,9	0,0	0,0	0,0	5,6	0,4	5,6	5,6	0,0	5,6	5,6	59,4	0,3	0,0	0,0	100,0
1900	19,4	4,2	6,0	2,8	0,0	0,0	6,8	0,0	11,7	6,9	0,0	5,9	3,0	33,3	0,0	0,0	0,0	100,0
1905	17,0	2,7	4,8	2,1	3,2	3,2	5,5	2,1	13,2	5,7	0,0	8,6	2,0	26,3	3,6	0,0	0,0	100,0
1910	23,3	2,4	4,8	1,9	3,4	2,9	6,4	2,6	11,8	7,1	0,0	7,1	1,5	21,7	3,1	0,0	0,0	100,0
1915	18,4	4,3	3,8	1,5	6,9	1,9	5,7	3,1	8,3	4,3	0,0	4,8	1,9	32,8	2,3	0,0	0,0	100,0
1920	29,3	2,0	2,7	0,4	5,7	1,2	5,8	1,6	15,3	4,1	0,3	3,6	1,0	23,1	1,5	0,0	2,3	100,0
1925	29,7	3,5	3,4	1,0	6,7	1,5	6,2	2,7	13,2	6,2	0,4	4,2	1,5	13,2	1,7	0,0	4,8	100,0

Source: See Chart 2.

Catalonia occupied the third position after Madrid and Andalusia all regarding the economic support provided by the State in order to maintain its professional education. Nevertheless, besides official schools, there proliferated a great number of public non-official vocational schools subsidized by the provincial and local councils and other private institutions. Thus, for example, between 1905 and 1910 among an approximate total of 20 elementary and intermediate technical schools in Catalonia, only three were official and they frequently received State subsidy while the others were generally run by local and provincial corporations.

But if we compare that distribution with the funds in percentage terms paid by each region for the local industrial tax³⁵ (Table 12) we can observe that Madrid, for example, that paid a slightly lower percentage of industrial tax than Valencia or the Basque Country, however, it was the second Spanish region in concentrating the funds of the State for industrial teaching. This imbalance is also detected in Andalusia. On the other hand, there were Catalonia, whose percentage of local industrial tax was nearly four times the State expenditure on vocational training in 1913 and almost three times in 1929, and the Basque Country, that did not percieve State subsidies due to its specific fiscal characteristics until de 1920s.

³⁴ These are personnel and materials' expenses.

³⁵ BETRÁN, C. (1997): Op. Cit.

Table 12: REGIONAL COMPARISON BETWEEN THE STATE EXPENDITURE ON INDUSTRIAL VOCATIONAL TRAINING AND THE LOCAL INDUSTRIAL TAX IN PERCENTAGE TERMS, 1913 AND 1929 (% ON THE SPANISH TOTAL)

Regions	1913		1929	
	StateExp.VE	Inds.Tax	StateExp.VE*	Inds.Tax
Andalusia	26,6	14,8	29,7	9,6
Aragón	4,0	5,4	3,5	5,1
Asturias	4,0	4,9	3,4	3,6
Baleares	1,3	0,9	1	0,8
Canarias	2,7	0,3	6,7	0,4
Cantabria	2,2	1,9	1,5	2,5
Castile - La Mancha	2,8	2,9	2,7	2,3
Castile - León	5,6	5,4	6,2	3,9
Catalonia	9,6	35,9	13,2	38,2
C. Valenciana	5,7	7,1	6,2	7,6
Extremadura	0,0	1,6	0,4	1,0
Galicia	5,5	2,4	4,2	1,7
La Rioja	2,5	0,5	1,5	0,0
Madrid	25,0	6,9	13,2	10,2
Murcia	2,4	1,1	1,7	0,8
Navarra	0,0	0,8	0,0	1,1
The Basque Country	0,0	7,2	4,8	11,0
SPAIN	100,0	100,0	100,0	100,0

* State general budgets of 1925/26.

Source: Made on the premises with the *State General Budgets* and Betrán (1997).

The results are almost the same if we compare that regional distribution of the state expenditure on industrial vocational education and the industrial active population.

Table 13: REGIONAL DISTRIBUTION OF THE STATE EXPENDITURE ON INDUSTRIAL VE AND OF THE INDUSTRIAL ACTIVE POPULATION, 1900 AND 1930 (%)

Regions	1900		1930	
	StateExp.VE	Inds.Act.Pop.	StateExp.VE*	Inds.Act.Pop.
Andalusia	19,4	20,7	29,7	16,1
Aragón	4,2	4,3	3,5	4,2
Asturias	6,0	2,7	3,4	3,9
Baleares	2,8	2,4	1	1,8
Canarias	0,0	1,8	6,7	2,9
Cantabria	0,0	1,7	1,5	1,5
Castile - La Mancha	0,0	6,2	2,7	5,7
Castile - León	6,8	7,2	6,2	8,1
Catalonia	11,7	18,6	13,2	18,6
C. Valenciana	6,9	9,0	6,2	8,8
Extremadura	0,0	3,6	0,4	4,2
Galicia	5,9	4,9	4,2	6,4
La Rioja	3,0	1,0	1,5	0,8
Madrid	33,3	5,3	13,2	7,9
Murcia	0,0	1,9	1,7	2,5
Navarra	0,0	1,2	0,0	0,9
The Basque Country	0,0	7,4	4,8	5,4
SPAIN	100,0	100,0	100,0	100,0

* State general budgets of 1925/26. Source: *State General Budgets* and Llopis, Zapata et alii. (2001), p. 568.

In 1900, Madrid concentrated 1/3 of the total state expenditure on vocational education while its industrial active population was only a 5.3% of the country. On the contrary, Catalonia, the first industrial region in Spain, received quite under its potential demand, attended to its percentages of industrial active population. This situation was repeated in both Castiles, Valencia and Murcia, and it did continue in 1930 although Madrid had less state funds than thirty years ago.

Relating to the position of the expenditure on industrial vocational training relative to other educational levels on the State educational budgets we can observe that this was more profitable in 1900, exactly when the decree of 1886 was already passed and just before the central government to assume the expenditure of elementary education. Until 1865-66, the expenditure on industrial vocational training was comparatively the worst one on the budget for public instruction in percentage terms. Nevertheless, since 1870 the item for the Madrid's Arts and Crafts School increased considerably, so that it could compete in greater equality with the other educational categories, mainly with grade school.

Table 14: DISTRIBUTION OF THE STATE EXPENDITURE ON EDUCATIONAL LEVELS RELATIVE TO THE INDUSTRIAL VOCATIONAL TRAINING (VE) EXPENDITURE, 1860-1935 (RATIO)

<u>Years</u>	<u>Elt/VE</u>	<u>Second/VE</u>	<u>HighT/VE</u>	<u>Univ/VE</u>	<u>Other/VE</u>
1860	45,2	78,0	92,7	409,8	137,6
1865	21,8	47,7	50,8	212,6	99,9
1870	0,0	3,2	3,9	47,2	10,6
1875	0,3	1,2	1,7	13,1	3,0
1880	1,0	1,4	1,8	11,3	3,0
1885	3,5	2,0	1,9	16,6	3,4
1890	1,6	5,2	1,0	5,2	1,9
1895	1,4	5,7	0,5	6,8	2,7
1900	0,6	3,5	0,4	3,9	1,7
1905	16,1	2,4	0,5	2,7	1,1
1910	12,7	1,8	0,5	2,4	1,0
1915	11,3	1,7	0,3	2,1	1,5
1920	16,7	1,4	0,4	2,4	1,6
1925	15,4	1,0	0,2	1,6	1,2
1930	21,5	1,5	0,3	2,1	1,5
1935	30,6	2,3	0,4	2,4	1,3

Source: See Chart 2.

During the first third of the 20th century, the State expenditure on elementary school relative to that on industrial education was higher owed to the strong rise of the

absolute expenditure on grade school since 1902. Relating to the secondary education, since 1910 that expense stopped while there was a greater State economic involvement in industrial vocational training, so it improved its relative position with regard to the secondary education, as it happened with university studies and other teachings.

To conclude, since 1887 the expenditure on industrial vocational training increased considerably with regard to the previous decades. From the first decade of the 20th century the State took a huge step in this regard but not for much time because since 1910 that expenditure slowed down, in spite of neither the increase of the number of students and schools nor the notable growth of the wealth of the country. This situation reflects the priority given to elementary school to the detriment of the expenditure on other teachings as it happened with vocational training. If this priority given to elementary education should be done at professional training's expense attends to diverse causes. One of the reasons that can explain this situation is the Spanish delay in literacy and elementary teachings.

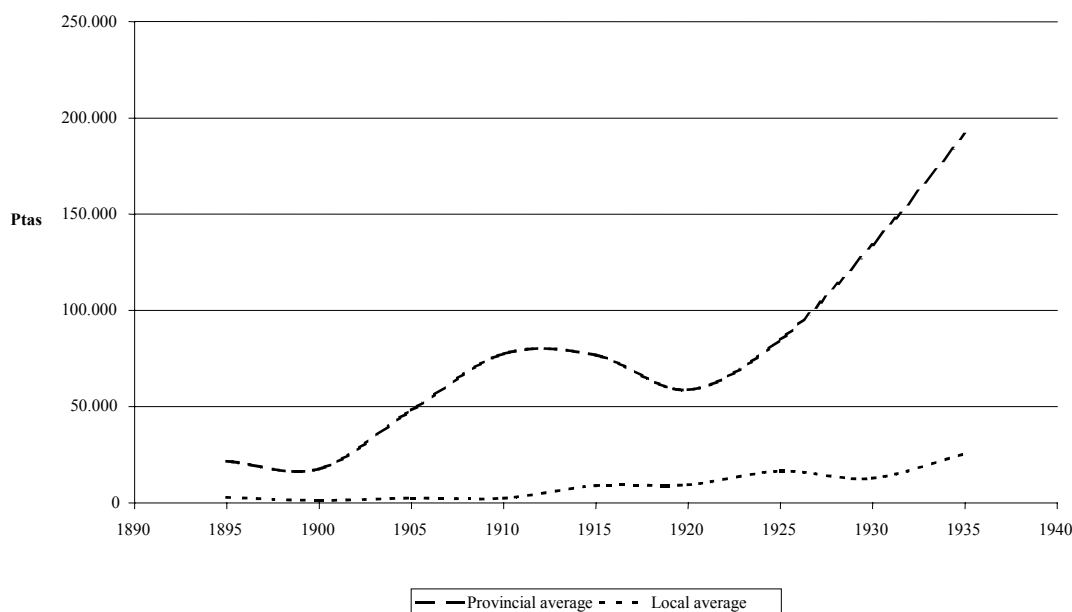
The role of the local and provincial administrations, 1895-1935

From the outset, the economic support for the industrial schools fell on the provincial and local councils. The only official center subsidized integrally by the central government was the School of Arts and Trades founded in Madrid in 1871. The remainder founded between 1870 and 1886 had been run by the local initiative under the protection of the 1870s legislation. Nevertheless, from ends of the 19th century the State began to give economic subsidies to these schools, mainly to the ones that have adapted their curricula to the official plans of 1886³⁶.

When entering the 20th century, the situation of the industrial vocational training in Spain was configured by a mosaic of schools, mostly maintained by the provincial and local initiative, while others were financed almost in their totality by the central government, and, finally, there were those financed jointly with local and private funds, which received very little or null public assistance. The industrial schools of the sample are an example of this mosaic both of ownership and financing.

³⁶ R.D. November 5th 1886, art. 25. This happened in Saragossa (R.D. July 11th 1894), Cartagena (R.O. September 27th 1902) and Santander (R.O. 22nd October 1903).

Chart 4: PROVINCIAL AND LOCAL EXPENDITURE ON INDUSTRIAL VOCATIONAL TRAINING: AVERAGES OF EACH SAMPLE (CONSTANT PESETAS OF 1913)



Sources: Made on the premises with the provincial and local *Expenditure Current Budgets*.

Those of Alcoi, Gijón and Madrid had been founded under the protection of the 1886 Royal Decree and, therefore, they were financed mainly with State funds. Others, like those of the Basque Country and some in Catalonia only received local, provincial or private funds. Only the Arts and Trade Schools of San Sebastián, that of Gunshop in Eibar, the Industrial School of Sabadell, and the School of Arts and Industries and Fine Arts of Barcelona began to receive State funds from the 1920s.

In percentage terms, if we measure the average expenditure of the provincial sample several phases are distinguished. Firstly, between 1895 and 1900, the expenditure on elementary and intermediate technical education represented less than a 10% on the provincial budget of public instruction. A second period began in 1905, when the relative weight of this expenditure increased notably so that doubled that of 1900. The third phase covers the final period, from 1930 to 1935; the relative numbers increased drastically in 1930.

Table 15: RELATIVE WEIGHT OF THE EXPENDITURE ON INDUSTRIAL VOCATIONAL TRAINING OF THE 7-PROVINCES SAMPLE, 1857-1935 (% ON THE TOTAL PROVINCIAL SAMPLE EXPENDITURE ON EDUCATION)

Years	Madrid	Barcelona	Valencia	Alicante	Vizcaya	Guipúzcoa	Asturia	Average
1895	0,0	14,7	1,0	4,7	30,0	4,8	s.d.	9,2
1900	0,0	13,5	0,7	4,5	15,3	4,7	4,0	6,1
1905	0,0	31,2	11,0	3,9	30,1	8,1	7,0	13,0
1910	0,0	48,9	16,5	7,9	37,1	8,7	10,1	18,5
1915	0,0	50,6	20,1	7,1	31,5	6,5	11,7	18,2
1920	0,0	46,4	23,8	5,4	9,5	10,4	13,1	15,5
1925	0,0	67,8	7,4	32,0	9,9	8,7	7,0	19,0
1930	0,0	57,3	61,9	21,3	8,9	34,8	39,1	31,9
1935	0,0	32,9	57,9	33,7	9,6	22,1	50,7	29,6

Source: Made on the premises with the provincial *Expenditure Current Budgets*.

Though the provincial average let us detect a tendency, it does not hide the notable differences registered among the selected provinces. The differences among them were due to the different distributions of their respective budgets of education and particularly to the role, more or less active, performed by each provincial council in order to promote the industrial vocational teaching. These cases include some economically powerful and very populated provinces (Madrid, Barcelona³⁷, Valencia, Vizcaya and Guipúzcoa) and other less important (Alicante or Asturias). In all of them, the expenditure on industrial vocational training competed initially with the one for secondary education and subsequently with that of grade school.

From a municipal point of view, there was an important increase of the average expenditure on industrial vocational training, in percentage terms, in the nine studied cases between 1895 and 1910. This average almost doubled in 1900 relative to 1895, due to the foundation of Terrassa's industrial school in 1902³⁸. Since 1905 this average was as higher than 20% on the total educational expenditure, reaching its maximum in 1910. It must be emphasize that in that year Sabadell, Valencia and San Sebastián had notably increased their budgetary expenditures on industrial vocational training in percentage terms. Only between 1930 and 1935 that percentage was reduced in each of

³⁷ The Barcelona's Provincial Council -from the late XIXth century and until 1914- and the autonomous government for Catalonia, called Mancomunitat, between 1914-23, were the 2 catalonian public institutions that played a leading role in the promotion of the vocational education in that province. See: MANCOMUNITAT DE CATALUNYA (1919): *L'Obra realitzada*, Barcelona, and CARRERAS I PUIGDENGOLAS, J.M. (1997): *Les finances de la Mancomunitat de Catalunya*, Barcelona.

³⁸ *Guía práctica de Tarrasa ...* (1907).

the nine localities due to the new priorities of the republican period in educational matters.

Table 16: RELATIVE WEIGHT OF THE EXPENDITURE ON INDUSTRIAL VOCATIONAL TRAINING OF THE 9-CITY COUNCILS SAMPLE, 1857-1935 (% ON THE TOTAL LOCAL SAMPLE EXPENDITURE ON EDUCATION)

Years	Madrid	Barcelona	Sabadell	Terrassa	Valencia	Alcoi	Bilbao	San Sebastián	Gijón	Average
1895	0,0	2,5	5,4	s.d.	2,4	22,8	10,7	19,7	5,2	8,6
1900	0,0	5,2	4,4	79,6	2,1	22,1	7,7	17,0	5,0	15,9
1905	0,7	10,1	26,1	72,7	3,9	75,1	11,5	16,8	4,7	24,6
1910	0,7	14,4	47,7	56,4	22,2	72,5	12,9	22,7	5,4	28,3
1915	0,3	11,9	35,6	55,2	6,4	55,6	11,1	18,6	9,9	22,7
1920	0,3	16,5	31,7	52,9	4,5	51,4	9,2	20,0	8,7	21,7
1925	2,1	13,0	62,1	55,2	3,6	37,6	7,6	18,9	4,3	22,7
1930	5,2	13,1	53,8	39,9	11,8	28,1	7,9	16,7	15,6	21,3
1935	5,5	4,1	32,6	29,0	6,4	22,0	7,2	15,2	11,1	14,8

Source: Made on the premises with the local *Expenditure Current Budgets*.

Likewise, the different distribution of the total expenditure on education in each local council can explain these divergences. It must be emphasized that referring to the average expenditure each particularity is being disregarded and that the sample include very populated cities such as Madrid, Barcelona and Valencia, others of medium size like Bilbao and San Sebastián, and others less populated such as Sabadell, Terrassa, Gijón and Alcoi. From the end of the 19th century and the beginnings of the 20th, there were important industrial schools supported with private and public funds in these last four localities. Therefore no wonder that, attended to its noticeable industrial activity, the relative weight of their local expenditure on industrial vocational training was very high.

According to the numbers in the budgets for education, the competence between vocational training and the rest of the educational categories was different wether we attend to a funding perspective or to an educational point of view. According to the following tables, both elementary and secondary education expenses clearly exceeded that of vocational training since only some provinces gave funds to maintain professional schools³⁹.

³⁹ In the cases in which the expense was zero appears a hyphen on the boards.

Table 17: DISTRIBUTION OF THE 7-PROVINCES SAMPLE EXPENDITURE ON INDUSTRIAL VOCATIONAL TRAINING RELATIVE TO ELEMENTARY EDUCATION, 1895-1935 (RATIO)

Years	Madrid	Barcelona	Valencia	Alicante	Vizcaya	Guipúzcoa	Asturias
1895	0,0	3,5	0,1	0,5	3,0	0,6	--
1900	0,0	3,7	0,1	0,4	2,8	0,7	0,3
1905	0,0	9,6	1,1	0,4	8,3	1,0	0,5
1910	0,0	17,0	1,9	0,7	10,3	1,2	0,6
1915	0,0	9,8	1,9	0,8	9,1	0,1	0,7
1920	0,0	6,2	2,0	0,2	0,2	0,2	0,8
1925	0,0	--	6,3	2,7	0,2	0,2	0,4
1930	0,0	--	147,5	0,5	0,2	0,9	8,8
1935	--	78,5	2,7	3,1	0,1	0,5	23,8

Source: See Table 15.

Firstly, with regard to grade school only Barcelona's expenditure on industrial vocational training exceeded that of elementary education during the whole period. In the remainder, the tendency varied notably. The most different case was that of Madrid, where the provincial council spent nothing in industrial vocational training.

Table 18: DISTRIBUTION OF THE 7-PROVINCES SAMPLE EXPENDITURE ON INDUSTRIAL VOCATIONAL TRAINING RELATIVE TO SECONDARY EDUCATION, 1895-1935 (RATIO)

Years	Madrid	Barcelona	Valencia	Alicante	Vizcaya	Guipúzcoa	Asturias
1895	--	0,9	0,1	0,1	1,1	0,1	--
1900	--	1,0	0,1	0,1	1,0	0,1	0,2
1905	--	2,2	1,1	0,1	2,6	0,2	0,3
1910	--	3,2	1,8	0,3	3,3	0,2	0,4
1915	--	6,1	1,7	0,2	3,5	0,6	0,5
1920	--	34,3	1,8	0,2	3,9	0,7	0,6
1925	--	--	--	0,9	0,9	0,4	15,4
1930	--	--	--	--	--	8,0	102,2
1935	--	3,4	--	--	6,9	4,3	--

Source: See Table 15.

In the second place, the expenditure on secondary education was another important competence for the industrial vocational training in the provincial budgets of public instruction. Again, Madrid was the most particular case since nothing was spent either in secondary or in vocational training, except for very punctual years. And again in Barcelona that ratio was over the unit except for 1895. In the other cases this greater advantage of the industrial vocational expenditure relative to secondary education began later.

From a municipal perspective, the sample had a notably high expenditure on vocational training due to its hardly industrial specialization and, above all, in the smaller cities such as Alcoi, Terrassa or Sabadell⁴⁰. The local expenditure on vocational training relative to that of primary school was smaller in the entire sample except for those three last cases, in percentage terms.

Table 19: DISTRIBUTION OF THE 9-CITY COUNCILS SAMPLE EXPENDITURE ON INDUSTRIAL VOCATIONAL TRAINING RELATIVE TO ELEMENTARY EDUCATION, 1895-1935 (RATIO)

Years	Madrid	Barcelona	Sabadell	Terrassa	Valencia	Alcoi	Bilbao	San Sebastián	Gijón
1895	--	0,0	0,1	--	0,0	0,3	0,1	0,3	0,1
1900	--	0,1	0,1	7,5	0,0	0,3	0,1	0,2	0,1
1905	0,0	0,2	0,5	6,7	0,1	3,5	0,2	0,2	0,2
1910	0,0	0,2	1,5	2,0	0,4	2,9	0,2	0,3	0,1
1915	0,0	0,2	0,7	1,0	0,1	1,7	0,2	0,3	0,2
1920	0,0	0,3	0,7	1,2	0,1	1,1	0,1	0,3	0,1
1925	0,0	0,2	2,9	3,1	0,0	0,6	0,1	0,3	0,1
1930	0,1	0,2	1,9	1,6	0,1	0,5	0,1	0,2	0,2
1935	0,1	0,0	0,6	0,7	0,1	0,3	0,1	0,2	0,1

Source: See Table 16.

On the other hand, in Barcelona, Madrid, Valencia or Bilbao, the largest, most populated and economically diverse nuclei in the sample, the educational expenditure was distributed giving priority to elementary and adults school, education for women, music or fine arts, etc. Thus, for example, in 1915 the industrial vocational expenditure was 1/5 of that for grade school in Barcelona and Bilbao. At the end of the period, this relative position had not increased in these populated cities. According to table 20, the municipal expenditure on secondary was nil or practically nil in the majority of the local councils since that type of instruction was supported almost exclusively by the State and the provinces.

⁴⁰ About the Arts and Industries' School of Sabadell there is a monographic study with some interesting historic contents by POMÉS I MARTORELL, Francesc (2003): *Cent anys d'escola. Escola Industrial i d'Arts i Oficis de Sabadell, 1902-2002*, Sabadell.

Table 20: DISTRIBUTION OF THE 9-CITY COUNCILS SAMPLE EXPENDITURE ON INDUSTRIAL VOCATIONAL TRAINING RELATIVE TO SECONDARY EDUCATION, 1895-1935 (RATIO)

Years	Madrid	Barcelona	Sabadell	Terrassa	Valencia	Alcoi	Bilbao	San Sebastián	Gijón
1895	--	--	0,4	--	--	--	--	--	0,1
1900	--	--	0,3	--	--	--	--	--	0,2
1905	--	--	2,1	6,9	--	--	--	--	0,1
1910	--	--	4,6	--	--	--	--	--	--
1915	--	16,6	5,3	13,0	--	--	--	--	--
1920	--	22,8	5,4	--	--	--	--	--	--
1925	--	12,3	14,4	--	--	--	--	--	--
1930	--	13,0	--	--	--	2,0	77,3	--	--
1935	--	9,7	--	4,7	--	2,4	--	--	--

Source: See Table 16.

Finally, from a provincial perspective, it was not until 1910 that this expenditure increased, contrary to what happened with the secondary school. From then on, this expenditure on industrial training continued its rising but in 1930 these numbers were similar to those of twenty years before, so that this expenditure did continue neither the population growth nor that of the provincial income of the sample. In the local sample, the industrial vocational training did not received as much local economic support as the primary school, however during the firsts decades of the 20th century the municipal expenditure on this technical training for workers increased notably, at least until the 1930s. The new municipal legislation (1924) and the dispositions about professional schools (1924, 1928) were clue factors for the promotion of the local industrial vocational education.

5. Conclusions

The first conclusion to be drawn from this study is that in Spain it was not until the first third of the 20th century that the central government took on the main role in founding and maintaining the vocational education schools. According to the funding model of public instruction established in 1857, the State was only concerned with the economic support and organization of the higher education since the elementary and intermediate instruction was in charge of local and provincial delegations. This model endured practically without changes until the first third of the 20th century. From then on, the central government began to assume a greater administrative and financial

responsibility on educational matters, discharging the local, public or private, administrations of some of its competences in this regard. However, those continued playing a prominent role in the financing and foundation of some studies such as the vocational training or the non official elementary schools.

Nevertheless, the effort that the expenditure on education supposed for each of the three public administrations was very different. In this regard, we agree with Núñez's hypothesis on the public expenditure on education between 1860 and 1935, according to which the bad distribution policy of this expenditure aggravated the problem of the lack of economic resources for public instruction.

Up until the 20th century, the State budgetary expenses for education were very under those of the local and provincial councils since the central government was only concerned with the higher colleges. Due to the 1887 and 1901/02 legal dispositions, the State attended to the financing of the primary and secondary teachings so its expenditure on education relative to its total expenditure in the budgets increased notably until reaching the percentages of the local administrations. From then, the situation gave a radical turn that reflects a change of the political will in educational matter. Thus, the State priority regarding the educational expenditure dropped from the higher education to the elementary studies. This process was a lot more evident during the Second Republic, whose governments gave priority to grade school.

The second conclusion to be drawn is that during the Borbon Restoration there was the most notable increment of the public expenditure on industrial training due to the 1886 and the first 20th century decrees. This happened both in the case of the central government and the provinces and local councils. From that date, the State increased its budgetary items for vocational training since it did not only found professional centers all over the country, but also contributed to their financial support mainly if those schools had become official. Nevertheless, the provinces and city councils continued being fundamental in the financing of the industrial schools. This financing model for the vocational training was consolidated during Primo de Rivera's Dictatorship thanks to the 1924 and 1928 decrees, which continued in force during the Second Republic.

Another different question was the effort of each administrations relating to the industrial vocational training funding. In the State budgets, until the 20th century the vocational training maintained a considerably high relative weight on the total expenditure on education since the central government only financed some categories of higher education and the teachers colleges (since 1887). Except for the peak of 1900,

during the first decade of the 20th century, that expenditure did not increase as it did it for the grade school. On the contrary, from then on this relative funds reduced gradually and more notably since the 1920s and 1930s. This showed that the priority of the central government was then the elementary education.

The regional distribution of this State expenditure on vocational training was very variable and had little adjustment to the potential demand (industrial active population, vocational education students and industrial local taxes). The major financial effort of the State focused on Madrid in spite of the fact that some provinces and local councils had already founded similar schools. In fact, although from 1890-1900 this distribution included more regions, the funding policy of the State regarding the industrial professional training did not follow the regional industrial development of the country. It was clearly focused on Madrid and Andalusia to the detriment of other more specifically industrial regions, such as Catalonia. The Basque Country was an exceptional case since due to its autonomous financial characteristics the central government did not contribute to their industrial schools' funding, except for some occasions during the 1920s.

In turn, the provincial and local administrations assumed a very important role in the funding of this type of schools. The relative weight of that expenditure competed in a variable way with that of the elementary and secondary education. In general, it's clear that the greater advantage of the industrial vocational training expenditure relative to other educational categories was occurred from 1925, due to the implementation of the new legal dispositions on this type of teachings. According to the provincial sample, only Barcelona opted clearly for the professional studies relative to other educational items in the provincial budget. Vizcaya did the same but not during all the period. In the remainder and except for some years, the funds budgeted for elementary and secondary education exceeded that for the industrial schools. In the case of the local councils in the sample, also those in Catalonia and the Basque Country greatly supported their industrial schools' expense.

Finally, some data show that the expenditure on education of the Spanish central government and the evolution of the students in industrial vocational education was reduced relative to those in other European countries. However, it is necessary to make a deep international comparison about this technical training in order to draw definite conclusions.

Appendix

PUBLIC ADMINISTRATIONS' EXPENDITURE ON INDUSTRIAL VOCATIONAL EDUCATION, 1906-1932 (PESETAS OF 1913)

Years	State	Provc.	Local	Total
1906	1.721.465	786.768	538.250	3.046.484
1909	2.155.233	750.310	598.301	3.503.844
1914	3.078.375	843.221	679.906	4.601.503
1915	3.004.817	970.526	645.121	4.620.464
1916	2.662.012	740.923	544.662	3.947.597
1917	2.362.716	731.478	529.883	3.624.076
1918	1.920.772	765.032	521.319	3.207.122
1919	2.309.147	591.464	530.797	3.431.408
1920	2.571.950	626.668	431.942	3.630.561
1921	3.065.310	696.257	587.745	4.349.312
1922	3.339.177	836.032	740.609	4.915.818
1923	3.850.204	893.847	866.262	5.610.314
1924	4.069.496	1.022.082	786.860	5.878.438
1925	3.993.517	1.083.035	869.484	5.946.036
1926	4.017.407	1.197.814	798.162	6.013.383
1927	3.322.183	1.966.650	1.086.168	6.375.001
1928	3.380.352	1.839.582	1.395.950	6.615.884
1929	4.217.449	1.962.574	1.527.053	7.707.076
1930	3.430.474	2.238.511	1.740.739	7.409.724
1931	3.306.616	2.127.292	1.700.559	7.134.467
1932	3.388.605	2.233.629	2.200.163	7.822.397

Source: See chart 1.

Sources and bibliography

Files

Archivo central del Ministerio de Economía y Hacienda: *Presupuestos generales del Estado*, 1857-1935.

Biblioteca Regional de Madrid "Joaquín Leguina": *Presupuestos de gastos de la provincia de Madrid*, 1873-1936.

Archivo histórico de la Diputación provincial de Barcelona: *Presupuestos de gastos de la provincia de Barcelona, 1872-1931; Presupuestos de la Mancomunitat de Catalunya, 1920/21 y 1924/25; Presupuestos de la Generalitat de Catalunya, 1932-1936.*

Archivo de la Diputación provincial de Valencia: *Presupuestos de gastos de la provincia de Valencia, 1863-1935.*

Archivo de la Diputación provincial de Alicante: *Presupuestos de gastos de la provincia de Alicante, 1859-1936.*

Archivo de la Diputación foral de Vizcaya: *Presupuestos de gastos de la provincia de Guipúzcoa, 1880-1936.*

Biblioteca de la Diputación foral de Guipúzcoa: *Presupuestos de gastos de la provincia de Vizcaya, 1898-1936.*

Archivo histórico provincial de Oviedo: *Presupuestos de gastos de la provincia de Oviedo, 1898-1936.*

Hemeroteca municipal de Madrid: *Presupuestos de gastos del ayuntamiento de Madrid, 1887-1936.*

Archivo municipal administrativo de Barcelona: *Presupuestos de gastos del ayuntamiento de Barcelona, 1858-1936.*

Archivo histórico municipal de Sabadell: *Presupuestos de gastos del ayuntamiento de Sabadell, 1896-1936.*

Archivo histórico comarcal de Terrassa: *Presupuestos de gastos del ayuntamiento de Terrassa, 1902-1936.*

Archivo municipal de Vilanova i la Geltrú: *Presupuestos de gastos del ayuntamiento de Vilanova, 1863-1909.*

Hemeroteca municipal de Valencia: *Presupuestos de ingresos y gastos del ayuntamiento de Valencia*, 1870-1935.

Archivo municipal de Alcoi: *Presupuestos de gastos del ayuntamiento de Alcoi*, 1857-1936.

Archivo de la Diputación foral de Vizcaya: *Presupuestos de gastos del ayuntamiento de Bilbao*, 1865-1936.

Archivo municipal de San Sebastián: *Presupuestos de gastos del ayuntamiento de San Sebastián*, 1870-1936.

Archivo municipal de Gijón: *Presupuestos de gastos del ayuntamiento de Gijón*, 1892-1935.

Bibliography

ALBERDI, Ramón (1980): *La formación profesional en Barcelona. Política, Pensamiento e Instituciones 1875-1923*, Barcelona: Don Bosco.

ALOY RUÍZ, M^a Mercedes (1987): *Historia de la formación profesional en la Comunidad Autónoma Vasca durante el siglo XX*, 4 vols. Bilbao: Universidad del País Vasco.

Anuario de enseñanza elemental, técnica y superior, Madrid-Barcelona: Calpe, 1920.

Anuarios estadísticos de España (Spanish Statistical Yearbooks), 1857-1936, Madrid.

Anuario estadístico de instrucción pública, correspondiente al curso de 1900-1901, con avances de 1902 y 1903, Madrid: Sección de Estadística del Ministerio de Instrucción Pública y Bellas Artes, 1904.

Anuario estadístico de instrucción pública, correspondiente al curso de 1906-1907 y matrícula oficial de 1907-1908, Madrid: Imprenta de la Dirección general del Instituto geográfico y estadístico, 1908.

Annuaire International de l'éducation et l'enseignement (1933), Genève, Bureau International d'Education.

ARACIL MARTÍN, J. Y DÍAZ GARCÍA, R. (dir.) (1976): *Datos básicos para la Historia Financiera de España, 1850-1975*, Vol. I, Madrid: Instituto de Estudios Fiscales.

BETRÁN PÉREZ, Concha (1997): “Geografía industrial en España durante el primer tercio del siglo XX”, *VI Congreso de la Asociación de Historia Económica*, Girona, 15-17 de Septiembre de 1997, pp. 2-38.

CANO PAVÓN, José Manuel (2001): *Estado, enseñanza industrial y capital humano en la España isabelina (1833-1868). Esfuerzos y fracasos*, Málaga, Imprenta Montes S.L.

CARRERAS I PUIGDENGOLAS, J.M. (1997): *Les finances de la Mancomunitat de Catalunya*, vol. I y II, Barcelona: Departament d'Història i Institucions Econòmiques. Tesis doctoral.

CARRERAS, Albert (coord.) (1989): *Estadísticas históricas de España. Siglos XIX-XX*, Madrid: Fundación Banco Exterior.

CEDEFOP (2004): *Towards a history of vocational education and training (VET) in Europe in a comparative perspective. Proceedings of the first international conference, October 2002, Florence*, vol. 1, CEDEFOP Panorama Series, 103, Luxembourg 2004;

CEDEFOP (2005): *Mass vocational education and training in Europe. Classical models of the 19th century and training in England, France and Germany during the first half of the 20th*, CEDEFOP Panorama Series, 118, Luxembourg 2005.

CHARMASSON, T., LELORRAIN, A.M. et RIPA, Y. (dirs.) (1987) : *L'Enseignement technique de la Révolution à nous jours*, Institut National de Recherche Pédagogique, Service d'Histoire de l'Education, Paris 1987.

COMÍN, Francisco (1985): *Fuentes cuantitativas para el estudio del Sector público en España, 1801-1972*, Madrid: Instituto de Estudios Fiscales.

COMÍN, Francisco (1988): *Hacienda y economía en la España contemporánea (1800-1936)*, 2 vols., Madrid: Instituto de Estudios Fiscales.

COMMISSIONER OF LABOR (1902): *17th Annual Report of the Comissioner of Labor. Trade and Technical Education*, U.S.A.

CONTI, Enrico (2003): “L’istruzione secondaria tecnica e professionale nello sviluppo economico italiano dall’Unità alla Seconda Guerra Mondiale”, in FALCHERO, A.M.; GIUNTINI, A.; NIGRO, G.; SEGRETO, Luciano (2003): *La Storia e l’Economia. Miscellanea di studi in onore di Giorgio Mori*, Varese, Edizione Lativa, pp. 207-230.

Cuentas del Estado Español, 1850-1935, 4 vols. Madrid: Instituto de Estudios Fiscales.

DÁVILA BALSERA, Paulí (1997): *Las Escuelas de Artes y Oficios y el proceso de modernización del País Vasco, 1879-1929*, Bilbao: Universidad del País Vasco.

DIEBOLT, Claude (1999): “Government expenditure on Education and Economic Cycles in the nineteenth and twentieth centuries. The case of Spain with special reference to France and Germany”, *Historical Social Research* 24 (1), pp. 3-31

DIEBOLT, Claude (2000): *Dépenses d’éducation et cycles économiques en Espagne XIXe et XXe siècles*, Paris: L’Harmattan.

DIEZ BENITO, J.J. (2002): *Las escuelas estatales de Artes y Oficios y la Educación del Obrero en España (1871-1900)*, Madrid.

DIPUTACIÓ DE BARCELONA (1916): *Guia de les institucions científiques i d'ensenyança*, Barcelona.

FERNÁNDEZ MAROTO, Leoncio (1968): “La clasificación funcional del gasto público”, *Economía financiera española*, nº 22, pp. 64-82.

FUNDACIÓ A. GALÍ (1982): *Història de les institucions i del moviment cultural a Catalunya, 1900-1936, llibre IV: Ensenyaments i serveis agrícoles*, Barcelona: Fundació A.G.

GARCÍA, C. y COMÍN, F (1995): “Reforma liberal, centralismo y Haciendas municipales en el siglo XIX”, *Hacienda Pública Española*, 133, Madrid, pp. 81-106.

GERMÁN, Luis, LLOPIS, Enrique, MALUQUER DE MOTES, Jordi, y ZAPATA, Santiago (eds.) (2001): *Historia económica regional de España. Siglos XIX y XX*, Barcelona: Crítica.

Guía práctica de Tarrasa publicada por el Centro administrativo de Llofriu i Castarlenas, Barcelona 1907.

LOZANO LÓPEZ DE MEDRANO, Celia (2003-04): “Polítiques sobre Formació Professional a Espanya, 1857-1936: legislació i pràctiques educatives”, *Recerques*, nº 47-48, Barcelona, pp. 215-242.

LOZANO LÓPEZ DE MEDRANO, Celia (2006): “Location of vocational training and regional industrialization in Spain, 1875-1935”, *Sixth European Social Science History Conference*, Amsterdam (Unpublished).

MANCOMUNITAT DE CATALUNYA: *L'obra realitzada. Anys 1914-1919*. Barcelona, nº 30, Juny 1919. Impremta de la Casa de la Caritat.

MORAL RUÍZ (DEL), Joaquín (1984): *Hacienda central y haciendas locales*, Madrid: Instituto de Estudios de Administración local.

MORAL RUÍZ (DEL), Joaquín (2003): *Las haciendas locales en España 1905-1931*, Madrid: Entimema.

NOVO, Luciano (1933): *La enseñanza profesional obrera y técnico industrial en España*, Barcelona: Imp. Ortega.

NÚÑEZ ROMERO, Clara Eugenia (1991): “El gasto público en educación entre 1860 y 1935”, in *Hacienda pública española. Historia de la hacienda en España (siglos XVI-XX)*, 1991/1, Madrid: Ministerio de Economía y Hacienda: Instituto de Estudios Fiscales.

NÚÑEZ ROMERO, Clara Eugenia (1992): *La fuente de la riqueza. Educación y desarrollo económico en la España contemporánea*, Madrid: Alianza editorial.

NÚÑEZ ROMERO, Clara Eugenia (1993): *La maldición divina. Ignorancia y atraso económico en perspectiva histórica*, Madrid: Alianza Universidad.

POMÉS I MARTORELL, Francesc (2003): *Cent anys d'escola. Escola Industrial i d'Arts i Oficis de Sabadell, 1902-2002*, Sabadell: Arts Gràfiques S.L.

PUELLES BENÍTEZ, Manuel (de) (1980): *Educación e ideología en la España contemporánea*, Madrid: Labor.

SOLDEVILLA LIAÑO, Maota (2000): *Del artesano al diseñador: 150 años de la Escuela de Artes y Oficios de Valencia*, Institució Alfons el Magnànim

TEDDE DE LORCA, Pedro (1981): “El gasto público en España (1875-1906): un análisis comparativo con las economías europeas”, *Hacienda Pública Española*, nº 69, pp. 237-265.

TERRÓN BAÑUELOS, Aída (1987): *La enseñanza primaria en la zona industrial de Asturias (1898-1923)*, Servicio de publicaciones del Principado de Asturias.