



The Birth of the Apprenticeship Tax (1890–1925): A French Approach to Financing Technical Education

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Abstract • Envisaged at the beginning of the twentieth century as a reaction to the perception of an “apprenticeship crisis,” the development of technical education in France was regulated after the First World War by the Astier Law passed in 1919. However, this development, particularly in the form of schools and courses, required resources that the law did not provide. The creation of the apprenticeship tax in 1925 was a response to this problem and was based on various projects and debates that had arisen before the war concerning the respective roles of employers’ representatives and the State. In this article, this tax is placed in the international context of choices in the management of technical education in order to examine the British precedent. It reflects the power issues at stake in the control of this form of education and introduces an original French approach to its financing and governance.

Keywords • Apprenticeship, technical education, legislation, employers, taxation

Introduction

There are, in fact, as I speak, few problems that are both more urgent and more serious for our country than that of apprenticeship, which has preoccupied merchants, industrialists and politicians for so long. [...] Let us not wait as we did after 1870 to create free and compulsory primary education in France. We must, without waiting for economic disasters, which I do not want to foresee, and which are not to be feared, immediately create compulsory vocational education in the practical and feasible form where it can, where it must be created.¹

In a speech he gave in June 1907 at the *Conservatoire des arts et métiers*, the former Minister of Trade and Industry, Alexandre Millerand, urged action to promote the vocational training of young French men and women. International economic competition, changes in production methods linked to industrialisation, transformations in society with the growth of the working class, and the need to train citizens who were convinced of the benefits of the Republic all called for remedies to the “apprenticeship crisis” that was being denounced on all sides.² In passing, this politician, who had sparked off a heated debate in France when he became the first socialist to enter the government ten years earlier, wanted to be a realist: if he referred to the free primary education made compulsory a quarter of a century ear-

1 Alexandre Millerand, “La crise de l’apprentissage,” in *Travail et travailleurs*, ed. Alexandre Millerand (Paris: Fasquelle, 1908), 257–67. All translations into English are by the author.

2 Stéphane Lembre, “La ‘crise’ de l’apprentissage: de l’échec à la loi (fin XIX^e siècle–années vingt),” in *L’échec a-t-il des vertus économiques?*, ed. Natacha Coquery and Matthieu de Oliveira (Paris: CHEFF, 2015), 309–18.

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lier thanks to the Ferry laws of 1881 and 1882, it was in order to better rule out the possibility, in the near future, of generalising vocational education in schools, given the cost that this would represent.

Twenty years later, in a report presented to the Higher Council for Technical Education, the Director of Technical Education, Edmond Labbé, strongly defended the apprenticeship tax.³ Created by the Finance Act of 13 July 1925, the need for it had gradually become apparent in view of the inadequacies of apprenticeship (in companies) and technical education (in schools) observed since the beginning of the century.⁴ This apprenticeship tax stipulated that any company paying more than 10,000 francs in salaries per year must pay a tax set at 0.2 per cent of the total payroll. Partial or total exemption from the tax was provided for if the employer could justify its expenditure on initial vocational training, either directly through the organisation of apprenticeships in the company, or indirectly by supporting technical education courses or schools. Up to that point, the law of 25 July 1919, known as the Astier law, had constituted the “charter” of technical education in France. This law defined technical education, organised it and made it compulsory for boys and girls under 18 employed in trade or industry to attend vocational courses lasting a few hours a week organised by companies or municipalities during working hours. No mention was made however, of the question of the financial resources required for the development of technical education and the application of this obligation. The inadequacy of the 1919 law therefore justified the creation of the apprenticeship tax six years later.

Presented as a matter of course to provide a trained workforce for trade and industry and to balance employers’ expenditure on training, the choice of taxing companies was not a natural one. It required the agreement of economic and political circles on the introduction of a tax in a particularly tense fiscal and political context due to the irregular receipt of post-war German reparations following the Treaty of Versailles, the flight of capital, the devaluation of the franc, the explosion of indebtedness, the burden of which represented 45 per cent of budgetary revenue in France in 1921, repeated exchange rate crises and inflation. In 1925, the apprenticeship tax appeared as an original measure, as only France had such a financial instrument at that time. Understanding the conditions of its adoption is all the more important as this often-decried mechanism, which has been reformed several times, has subsequently shown great resilience, to the point of being maintained for almost a century, and being adopted and adapted in various countries until recently, as shown by the apprenticeship levy introduced in 2017 in England.⁵

The history of the apprenticeship tax has begun to be written with an emphasis

3 Until 1920, the Department of Technical Education was under the authority of the Ministry of Trade, and then the Ministry of Public Education. In the 1920s, an Under-Secretary of State for Technical Education, attached to the Minister of Public Education, chaired the Higher Council for Technical Education and had authority over the Technical Education Department.

4 Archives nationales (AN) 20020354/1: Historique de la taxe d’apprentissage, 144 p. typed. The report was published the following year: Edmond Labbé, *L’apprentissage et la taxe d’apprentissage* (Paris: Eyrolles, 1928).

5 Malgorzata Kuczera and Simon Field, “Apprenticeship in England, United Kingdom,” in *OECD Reviews of Vocational Education and Training* (Paris: OECD Publishing, 2018); Andrea Laczik and Olly Newton, “Latest Apprenticeship Reform and Its Impacts: The Case of England,” in *Contemporary Apprenticeship Reforms and Reconfigurations*, ed. Thomas Deissinger, Ursel Hauschildt, Philipp Gonon, Silke Fischer (Zürich: LIT, 2019), 41–43.

on the study of local tensions and compromises at the time of its implementation, which has highlighted strong contrasts from one territory to another: in the Rhône, as in Toulouse, there was a predominant agreement between the interested parties, as Marianne Thivend and Michaël Llopart have shown. Antoine Vernet studied the tensions in the Loire department, while the North of France was characterised by strong opposition to the tax, analysed by Odette Hardy-Hémery.⁶ On the other hand, at the national level the issue was only approached from the point of view of the development of technical education. The apprenticeship tax, as proposed by Edmond Labbé, was seen as a simple instrument for providing the necessary resources to finance the creation of schools and vocational courses that corresponded to a certain concept of manpower training.⁷

However, if the adoption of the apprenticeship tax coincided with a political consensus in Parliament on the usefulness of technical education, as Jean-Michel Chapoulie demonstrates, this consensus is not sufficient to account for the slow maturation of the apprenticeship tax projects, which were already under discussion before the 1914–1918 war without yet reaching the consensus of 1925, or to understand where and how its instigators conceived their project. In a country that claims equal citizenry, in which expenditure on primary education is borne by the community in the name of the general interest, for which the State is the guarantor, the choice of the apprenticeship tax, unprecedentedly placed the financing of a partly public education on a part of the national community, by means of taxation. Less than a decade after the introduction of income tax in France, the argument of reducing inequalities through taxation refers to the political and ideological options that are inseparable from the financing of education and training.⁸ The history of French technical education has shown little interest in its financing,⁹ despite the existence of a collective volume devoted to the “cost of education.” Some studies have high-

6 Marianne Thivend, “Les formations techniques et professionnelles entre l’État, la ville et le patronat: l’emploi de la taxe d’apprentissage à Lyon dans l’entre-deux-guerres,” *Le Mouvement Social*, no. 232 (2010), 9–27; Antoine Vernet, “Les disciplines de l’industrie: Le patronat métallurgique et la formation organisée des travailleurs dans la région de Saint-Etienne (1865–1954)” (doctoral thesis, Université Lumière Lyon 2, 2018); Odette Hardy-Hémery, “Les milieux patronaux du nord et la question de la taxe d’apprentissage dans les années 1920,” in *Formation professionnelle et apprentissage XVIII^e–XX^e siècles*, ed. Gérard Bodé and Philippe Marchand, *Revue du Nord*, no. 17 (2003), 233–50; Michael Llopart, “La Chambre de commerce de Toulouse et l’organisation de la formation professionnelle en Haute-Garonne, 1919–1945,” *Annales du Midi* 128, no. 293 (2016), 67–89; Marc Suteau, “La mise en œuvre de la loi Astier: l’exemple nantais,” in *Les Patrons, l’État et la formation des jeunes*, ed. Gilles Moreau (Paris: La Dispute, 2000), 27–38; Stéphane Lembré, *L’école des producteurs* (Rennes: PUR, 2016), 250–63.

7 Jean-Michel Chapoulie, “Représentations de la main-d’œuvre, actions parlementaires et administratives. Le développement de l’enseignement technique entre les deux guerres,” *Vingtième siècle*, no. 88 (2005), 23–47.

8 Ferrán Ferrer, “Le financement de l’éducation: tendances et problèmes latents,” in *Financement des équipements éducatifs et décentralisation / Decentralisation and the financing of educational facilities* (Paris: OECD, 2002), 13–39; and more broadly Thomas Piketty, *Capital et idéologie* (Paris: Seuil, 2019). On income tax, see Nicolas Delalande, *Les batailles de l’impôt: Consentement et résistances de 1789 à nos jours* (Paris: Seuil, 2011).

9 Antoine Léon, *Histoire de l’éducation technique* (Paris: PUF, 1968); Vincent Troger, Patrice Pelpel, *Histoire de l’enseignement technique* (Paris: L’Harmattan, 2001). See also Stéphane Lembré, *Histoire de l’enseignement technique* (Paris: La Découverte, 2016) and Claude Didry, “L’apprentissage à l’épreuve du droit du travail: De la socialisation familiale à l’enseignement professionnel (1851–1936),” *Artefact*, no. 3 (2015), 39–51.

lighted the interest of the subject, such as the case of the city of Nantes (studied by Marc Suteau) or the *Société d'enseignement professionnel du Rhône* (SEPR, studied by Marianne Thivend).¹⁰ However, funding is particularly important for technical education and apprenticeship, as it is a power issue between the professions and the public authorities.¹¹

The archives of the Directorate of Technical Education (DET) within the Ministry of Public Education are a precious source in this regard.¹² They do not deal with the projects that led to the creation of the tax, but they do document its implementation through internal administrative notes, the numerous decrees and application circulars, as well as statistical documentation on the proceeds of the apprenticeship tax.¹³ The publications by observers and protagonists of this creation as well as parliamentary documents shed light on the conditions of its creation, in particular the Jean Locquin collection (1879-1949). He was an art historian and lawyer who, as a socialist deputy for Nièvre, was rapporteur for the technical education budget in the Assembly from 1925 to 1928.¹⁴ The *Bulletin de l'enseignement technique* published by the *Association française pour le développement de l'enseignement technique* (AFDET), which was recognised in 1902 but had been active since 1898 through this publication, reveals the knowledge of foreign experiences of those involved in French technical education at the beginning of the twentieth century, to whom this bulletin was distributed. All of these sources make it possible to review the various projects, then to present the law passed in 1925, implementing some of the proposals, and finally to determine the role of comparisons in this decision to create a tax system that was unprecedented in France.

The financing of technical education in projects from 1910 to 1925

In the early years of the century, the situation of technical education and apprenticeship had become a publicly debated issue in France. Surveys carried out by the Labour Office revealed the difficulties of apprenticeship in companies facing technical and organisational changes. However, the problem of financial resources was only gradually identified as the necessary reform of technical education became clearer.

In 1905, the Minister of Trade tabled a bill on technical education, the explanatory memorandum of which was very detailed and which took stock of the existing institutions in France. The need for a dual adaptation to the needs of trade and industry and to local needs was pointed out, as well as the economic urgency that argued for compulsory vocational education. The bill did not identify financing as a difficulty. Four years later, in the course of their study, which is a reference for the mass of

10 Marc Suteau, *Une ville et ses écoles, Nantes 1830–1940* (Rennes: PUR, 1999); François Robert, “Le financement de la SEPR (1864–1959),” in *SEPR, 1864–2014: 150 ans au service de la formation professionnelle en Rhône-Alpes* (Lyon: EMCC, 2014), 122–27; Jean-François Condette, ed., *Le coût des études: Modalités, acteurs et implications sociales, XVI^e–XX^e siècle* (Rennes: PUR, 2012).

11 Annie Vinokur, ed., *Pouvoirs et financement en éducation: Qui paye décide?* (Paris: L'Harmattan, 2007).

12 Their value has been demonstrated by Guy Brucy, *Histoire des diplômes de l'enseignement technique et professionnel, 1880–1965: l'État, l'école, les entreprises et la certification des compétences* (Paris: Belin, 1998).

13 AN, 20020354/1: History of the apprenticeship tax, 1925–1982.

14 AN, 310 AP: Fonds Jean Locquin (1879–1955). Files 43 to 47 contain documentation on technical education that attests to the sustained attention given to this subject. See Chapoulie (2005), 258–59.

information collected and presented, Placide Astier the radical-socialist deputy of the Ardèche and his collaborator Isidore Cuminal, himself a general councillor of the Ardèche, did not consider the cost of developing technical education to be an obstacle to the legislation they were calling for—probably so as not to jeopardise the bill's chances of success. The cost of vocational courses for young people already at work, on which the expected expansion of technical education was based, would be borne by the *communes* (smallest local administrative units) and the State, through a policy of subsidies.¹⁵

This state of mind must be seen in relation to the growth in educational expenditure in the 19th century, which can be quantified in terms of the State's share in particular.¹⁶ While a distinction must be made between primary education, which became free under the law of 16 June 1881, and secondary education, which had to be paid for, the operation of schools depended in both cases on several sources of funding. The building of primary schools was based on the joint financial effort of the State and the communes. In 1889, teachers acquired civil service status which removed the burden of salaries from the communes which then concentrated on operating costs. Secondary schools could not operate with the help of family contributions alone: their foundation and operation required the commitment of the State and the communes, which were interested in this facility for the children of the local elite.¹⁷ However, the study of public funding gives only a small idea of educational expenditure in nineteenth-century France. From the Catholic Church to associations and real educational entrepreneurs, private funding is as varied as it is difficult to estimate precisely.

The historiography of technical education confirms this observation. However, it is important to recall its profound diversity: its components are sometimes attached to the primary and secondary orders, in other cases they are autonomous.¹⁸ If the contributions represented by public funding from the State, the municipalities and the departments did not make it unique, it was the subsidies provided by companies, chambers of commerce—representing the interests of the companies to which they offered advisory and support services—or employers' unions, or even associations and unions of workers or employees, which marked one of the specificities of technical education, over and above the great diversity of the establishments that make up this sector.

The “local supply” of technical education, heterogeneous but abundant at the beginning of the twentieth century, was based on multiple financing, as recommended by the Commission on Vocational Education whose work led to a report published

15 Placide Astier and Isidore Cuminal, *L'enseignement technique industriel et commercial en France et à l'étranger* (Paris: H. Dunod et E. Pinat, 1912), 348–49.

16 Bruno Théret, “Les dépenses d'enseignement et d'assistance en France au XIX^e siècle: une réévaluation de la rupture républicaine,” *Annales ESC*, no. 6 (1991), 1335–74; Alain Carry, “La dépense de l'État pour l'éducation secondaire professionnelle (France, 1820–1938),” in Bodé and Marchand (2003), 115–28.

17 Philippe Savoie, *La construction de l'enseignement secondaire 1802–1914* (Lyon: ENS éditions, 2013); Solenn Huitric, “Transformer les collèges communaux en lycées: La coproduction d'une action publique (1830–1880)” (doctoral thesis, University of Lyon, 2016).

18 See Pelpel and Troger (2001); Jean-Michel Chapoulie, *L'École d'État conquiert la France* (Rennes: PUR, 2010), chapter 10; Lembré (2016).

in 1864–1865.¹⁹ The Commission discouraged the government from organising such education itself and considered that it was necessary above all to “encourage, by means of subsidies, the efforts made by towns, departments or even private individuals.”²⁰ Each year, a sum was distributed by the Higher Council for Technical Education created in 1870. However, the system was threatened by the increase in requests for subsidies that accompanied the creation of technical schools. According to Julien Fouqué, in 1900, the subsidy system delayed the development of this type of education. The financial issue could thus be identified as an obstacle; it was in fact a finance law, dated 26 January 1892, which gave rise to the practical schools of commerce and industry.²¹

At the local level, combinations of funding dominated, with different percentages of contributions depending on the type of establishment.²² The role of these practical schools in the development of technical education has been well studied in some cases, such as that of the technical schools in Nancy. Following the creation of the Nancy Faculty of Sciences in 1854, complementary courses (which extended elementary education) were organised but the lack of resources weakened the initiative, and it was taken over at the end of the century by the project to create a chemical institute and then other courses (on the manufacture of beer, on colouring materials, on applied physics). Finally, the electrotechnical institute project marked the involvement of industrial circles, with donations such as those from the company Solvay and more generally the “generosity of industrialists,”²³ which complemented the efforts of the general council to found the institute and equip laboratories.²⁴ The municipality remained a central player in this dynamic industrial landscape and in Nancy, a region with a high level of schooling, “France’s showcase” and which played a prominent role during the period of German annexation of neighbouring regions of France.²⁵ The financing of vocational training for young workers and apprentices in Nancy was not very different, institutionally speaking, from that of schooling in general. Several sources of funding have been identified. From 1881 to 1919, the Drouot Girls’ Vocational School operated under private status thanks to the annuity from the bequest of its founder, Pierre-Auguste Drouot, and from the proceeds of the work of its third-year pupils for the local clientele: from 1884 onwards, the latter pro-

19 *Enquête sur l’enseignement professionnel ou recueil de dépositions faites en 1863 et 1864 devant la commission de l’enseignement professionnel* (Paris: Imprimerie nationale, 1864–1865).

20 Julien Fouqué, *La Crise de l’apprentissage et les progrès de l’enseignement professionnel*, thesis for the doctorate (Paris: Arthur Rousseau, 1900), 115–16.

21 *Ibid.*, 129.

22 Gérard Bodé, “Les budgets des établissements d’enseignement technique sous la IIIe République (1870–1940),” in Condette (2012), 127–40.

23 Étienne Bolmont and Jean-René Cussenot, “La Faculté des sciences de Nancy (1854–1907): équipements, personnels et enseignements,” in *Aux origines d’un pôle scientifique. Faculté des sciences et écoles d’ingénieurs à Nancy du Second Empire aux années 1960*, ed. Laurent Rollet and Marie-Jeanne Choffel-Mailfert (Nancy: Presses universitaires de Nancy, 2007), 171.

24 Françoise Birck, “De l’Institut électrotechnique de Nancy à l’École nationale supérieure d’électricité et de mécanique (1900–1960),” in *Un siècle de formation des ingénieurs électriciens: Ancrage local et dynamique européenne, l’exemple de Nancy*, ed. Françoise Birck and André Grelon (Paris: éd. de la Maison des sciences de l’homme, 2006), 29–31.

25 Philippe Savoie, “Offre locale et engagement de l’État. Les enseignements technique et primaire supérieur à Nancy et les conditions de leur évolution sous la Troisième République,” *Histoire de l’éducation*, no. 66 (1995), 48.

vided at least 20 per cent and up to 30 per cent of the school's own revenue each year. The municipality had to balance the books especially from 1902 onwards.²⁶ Far from being merely the result of constraints, the distribution of sources of funding was also a deliberate choice: in the Nancy example, the *École professionnelle de l'Est* (EPE) selected its students by charging registration fees, whereas the boys' EPE, which prepared students for comparable careers, was free.

The composition of funders also changed, as did the rapprochement between the EPE and the Ministry of Trade and Industry, which was reflected in the subsidies from 1900 onwards, in a context of lasting rivalry with the Ministry of Public Education, which provided the EPS for boys with the necessary tools and teaching staff.²⁷ In Lyon, (the Société d'enseignement professionnel du Rhône), a private law organisation founded in 1864, developed thanks to its own revenues (student enrolments, member contributions, subscriptions from 1874 onwards, donations, interest, deposits and foundations) as well as public funds (Ministry of Trade and Industry, department, municipalities), semi-public resources (chambers of commerce) and private subsidies (trade unions, industrialists and shopkeepers). In 1900, their own income amounted to 49,592 franc and, the subsidies were 49,887 francs, that is to say there was a balanced distribution in which the subsidies compensated for the always insufficient revenue.²⁸

This varied funding had two major disadvantages in addition to the limits of state subsidy: that of forcing any training institution to meet the requirements of its various funders, thus leaving it relatively little autonomy; and that of the absence of any incentive to increase the investment of one funder, who was always quick to rely on the other funders to make this effort.

The taxation hypothesis

The idea of taxation gradually took shape. As early as 1909–1910, the chambers of commerce demanded that the professions participate with the State, the departments and the communes in the financing of an apprenticeship and vocational training that they would control.²⁹ For Auguste Boudra, founder and director of the Lyon watch-making school, “the organisation and regulation of apprenticeships is a big question of money; but the sacrifice, however great it may be, is nothing compared to the danger that awaits us,”³⁰ namely the relegation of France in economic competition and the degradation of its know-how. It would however be possible “to regenerate apprenticeship at little cost,”³¹ according to this modest educational entrepreneur, a good connoisseur of technical education and very hostile to “official schools” whose cost would be excessive and uncontrollable according to him. On the other hand, Georges Bourrey, director of the journal *La Technique moderne* and also, on a voluntary basis, an inspector of technical education, judged that government expenditure

26 Ibid., 55.

27 Ibid., 61–62.

28 Robert (2014).

29 Edgard Durandy, “L'apprentissage et l'instruction professionnelle,” *Le Journal des chambres de commerce et d'industrie, des chambres consultatives et des chambres syndicales*, no. 2 (1910), 19–22.

30 Auguste Boudra, *Pour l'apprentissage* (Lyon: Author, 1909), 5.

31 Ibid

was negligible and could be significantly increased by the proliferation of practical schools under the supervision of the Ministry of Commerce.³²

The search for the terms of a law led to imagining a resource allocation mechanism based on a principle of equity. Among the projects, some provided for plural financing that would depend on the respective roles of the State and the professions, and on centralised or decentralised management. Gustave Dron, a deputy from the Nord region and mayor of Tourcoing, feared the statist tendency of the 1905 project taken up by Astier in 1908. His experience as a local elected official, involved in numerous projects with national resonance, served him well in calling for a “transactional” system that went beyond the respective views of the Ministries of Commerce and Industry on the one hand, and Public Education on the other, and that spared the interests of employers, municipalities and the State.³³ The operating expenses (personnel, tools, supplies) of the vocational courses should be shared between the commune (one quarter), the State (one quarter) and the company managers (half).³⁴ But before the war, positions varied between recognition of the role of the municipalities and the desire for decentralised management on the one hand and, on the other, an appeal to the State to support private initiatives, in return for “a few subsidies, granted with discernment.”³⁵ In fact, the Ministry of Commerce and Industry subsidised or sponsored a great many technical education courses.³⁶

Assuming that the State budget, through the various ministries concerned, could bear the cost of a dense network of vocational schools—which were more costly than vocational courses—the relevance of State technical education was generally questioned in favour of adapting the forms to the needs of each profession for skilled labour. During the apprenticeship congress organised in Roubaix in 1911, the president of the *Fédération patronale du bâtiment et des travaux publics* (employers’ federation for building and public works) called, for attention to be paid to local and professional particularities: according to him, “apprenticeship at school” as developed in Paris, Roubaix or Tourcoing was “only an exception made possible by the financial power of these towns” whose efforts were supported by the State.³⁷ The cost of equipping schools would be too high to be borne by the municipalities or the State: it was up to the manufacturers to renew their machines in order to facilitate an apprenticeship that could not take place exclusively in schools.³⁸ The argument underlines the issue of the control over training, which a large number of the employers were not ready to abandon to the State, despite the numerous criticisms concerning the training provided “on the job” in the companies. Funding could be provided by the

32 Georges Bourrey, *Le problème de l'apprentissage et l'enseignement technique* (Paris: H. Dunod et E. Pinat, 1913). Bourrey's position as departmental inspector of technical education was voluntary, but he was a local collaborator of the technical education administration.

33 Gustave Dron, *L'Organisation de l'apprentissage* (Nancy: Impr. Pierron, 1909).

34 Gustave Dron, “La question de l'apprentissage devant le Parlement,” in Ligue de l'enseignement, *La Question de l'apprentissage* (Paris: Ligue de l'enseignement, 1913).

35 Paul Merlet, *Les lois sur l'apprentissage et leurs conséquences économiques et sociales* (Paris: Jouve et Cie, 1912), 283.

36 A list of the only courses subsidised or sponsored for less than three years by this Ministry is given in Marc Réville, *Enseignement technique et apprentissage* (Paris: Dunod et Pinat, 1913), 72–107.

37 Speech by Auguste Villemin, in Paul Jannettaz, *Congrès national de l'apprentissage de Roubaix: General report* (Paris, 1912), 143.

38 *Ibid.*, 144.

chambers of commerce through a modest increase in the additional pennies collected from their members to support their budget: this proposal was strongly criticised for giving too much power to company managers.

The most precise project was presented to the Paris City Council in 1910. According to councillor Pierre Quentin-Bauchart, solving the problem of apprenticeship was complicated by the cost of taking care of a large number of apprentices in a wide range of professions.³⁹ Taking up an amendment to the Astier project supported by the National Federation of Master Tailors of France, he judged that the employers should decide on the creation, within each “corporation,” of a special tax, the proceeds of which would go to apprenticeships. The intervention of the public authorities would be limited at the local level to providing premises and supervising the use of the funds. This proposal was linked to the situation in Paris, where the municipality had been making a financial effort since the 1870s to set up a network of special schools for girls and boys:⁴⁰ in 1908, the budget would be nearly two and a half million francs, whereas the budget of the city of Paris in 1905 amounted to nearly 820 million francs.⁴¹ To this must be added the cost of manual work in primary schools and of technical courses for adults, in a local context marked by the very specific socio-professional composition of the Parisian population (over-representation of arts and crafts industries).⁴²

This apprenticeship tax project was discussed and clarified. It was taken up by the radical deputy for the Vosges, Constant Verlot, member of the democratic republican party and also a teacher at the Chaptal college, in his report submitted to the Chamber on behalf of the trade and industry committee on 20 December 1912. In it, the elected centrist advocated the introduction of an apprenticeship tax to be paid into a departmental fund. Verlot regularly returned to the subject, for example, in his proposal tabled on 27 March 1917 with his radical-socialist colleague from Charente-Maritime, René Carré-Bonvalet, and then in a project submitted on 30 June 1921, aimed at multiplying and regulating the chambers of trade, one of whose prerogatives would be to collect taxes to create and support vocational training facilities.

Although the law had been under debate since 1905, it was not passed until July 1919, and financing was still a subject for discussion. Although it did provide a significant advance on the principle of compulsory vocational training, the law was probably all the more easily passed because it did not address the divisive issue of financing. The First World War had certainly demonstrated the importance of a trained workforce in the armaments industries and, in the post-war period, the role played by the qualification of the workforce in economic competition was better understood. However, the employers refused to accept financial responsibility if they did not have control over technical education and apprenticeships, whereas central government claimed this control, in particular through the certificate of professional competence

39 Conseil municipal de Paris, *Proposition relative à la création d'une taxe corporative d'apprentissage, présentée by M. P. Quentin-Bauchart, conseiller municipal* (Paris: Imprimerie municipale, 1912).

40 Lucien Lambeau, *L'Enseignement professionnel à Paris. Recueil annoté contenant les discussions, délibérations, rapports du Conseil municipal de Paris et les documents administratifs se rapportant à la question* (Paris: Imprimerie municipale, 1898–1900).

41 Eugène Raiga and Maurice Felix, *Le régime administratif et financier du département de la Seine et de la Ville de Paris*, (Paris: Rousseau, 1922), 533.

42 Astier and Cuminal (1912), 247.

created in 1911 and transformed into a certificate of professional aptitude in 1919.⁴³ For Ludovic Zoretti, a professor at the Faculty of Science in Caen and also an activist in the General Confederation of Labour (*Confédération Générale du Travail*, CGT) (a trade union created in 1895), free education should prevail for technical training that was fully integrated into the education system.⁴⁴ The principle of a tax was not contested by the CGT which, in 1922, referenced the Verlot project regarding an additional tax on the main tax on property.⁴⁵ The CGT was in favour of this because part of the expense would fall on the employers: this tax, which would support the budgets of the chambers of trade, stipulated that employers who did not train the number of apprentices set by the chambers of trade would have to pay a surcharge of up to 100 per cent for those who refused the training obligation. In the absence of an alternative proposal, the CGT demanded above all the control of the training of workers by the workers' movement and not by the employers' organisations⁴⁶.

The plan to set up chambers of trade was implemented at the beginning of the 1920s, along with the apprenticeship tax, given the importance of apprenticeship for craft businesses. At the International Apprenticeship Congress held in Lyon in October 1921, the representatives of the Alsace-Lorraine Chamber of Trades demanded control of apprenticeships.⁴⁷ Entrusting the tax to the chambers of trade was obvious to the Finistère deputy Maurice Bouilloux-Lafont, a centre-right politician (though a member of the left-wing republican group), who came from a banking background, but who devoted a complete study to the chambers of trade, motivated by the apprenticeship crisis.⁴⁸ This convergence of the two projects (apprenticeship tax and chambers of trade) can be explained by the intensity of the criticism directed at the chambers of commerce. The representatives of industry and commerce were preponderant, and the craft enterprises denounced their inaction in a field which it is true, was not at the heart of their missions. For the Inspector General of Technical Education Constant Caillard, who presented his argument in one of the first issues of the *International Labour Review*, the restoration of apprenticeship was a primary motivation for establishing the chambers of trade in France and providing them with permanent and abundant resources through the apprenticeship tax.⁴⁹ These chambers of trade would thus have the explicit mission of dealing with apprenticeship, unlike the chambers of commerce, which often manage higher business schools.

43 Brucy (1998).

44 Ludovic Zoretti, *Education: Un essai d'organisation démocratique* (Paris: Plon, 1918), 263.

45 The *patente* is a direct tax to which any company or person carrying out a non-salaried professional activity is subject. In France, from 1844 to 1975, the *patente* consisted of a fixed portion, depending on the size of the municipality in which it was levied, and a proportional portion.

46 *La Voix du Peuple*, no. 48 (1922), 752–57.

47 Christian Rendu, *Le mouvement artisanal lyonnais et la création des Chambres de Métiers 1919–1934* (Lyon: Chambre de Métiers du Rhône, 1987), 8 and following; Bernard Zarca, *L'artisanat français, du métier traditionnel au groupe social* (Paris: Economica, 1986), 36–37.

48 Maurice Bouilloux-Lafont, *Les chambres de métiers. Comment nous les concevons* (Paris: Payot, 1919), 50.

49 Constant Caillard, "Les chambres de métiers en France," *Revue internationale du travail* 3, no. 3 (1921), 255–76. The article summarises the work by the same author entitled *Chambres de métiers et conseils de métiers* (Paris: Librairie de l'enseignement technique, 1920), 257. The law of 9 April 1898 specifies the main responsibilities of the chambers of commerce: to provide the government with the opinions and information requested of them on industrial and commercial matters; to present their views on the means of increasing the prosperity of trade and industry (art. 11).

Comparisons and decision

On the eve of the vote on the 1925 Finance Act, the *Conseil supérieur de l'enseignement technique* made international comparisons. From the expected references to Germany, Austria and Switzerland, whose efforts to develop vocational schools and courses had already been commented on in the 19th century, to more unexpected examples such as Yugoslavia and New Zealand, the aim was to convince Parliament of the importance of a financial effort that had already been made abroad.⁵⁰ These comparisons were part of an already long-standing undertaking of documentation, carried out on the occasion of universal exhibitions and also carried out by the AFDET and various well-informed syntheses, starting with that of Placide Astier and Isidore Cuminal.⁵¹ They should not, however, make us forget the echo of local experiences, which convinced the Directorate of Technical Education to further explore the solution of taxation.

Financing, a subject of investigation

From 1898 to 1912, the pages of the *Bulletin de l'enseignement technique* (BET), a fortnightly published by the AFDET, which was close to the Ministry of Trade, contained a collection of sixty-six articles describing the situation in some twenty countries in Europe and the world, and comparing them more or less explicitly with the French situation.

More than half of the articles deal with the financing of technical education, but with varying degrees of precision. Most of them present the main institutions and programmes offered, in order to give a measure of the effort made by the promoters of courses or schools, but some articles devote several dozen pages to their subject, while others do not exceed two pages. When financing is discussed, in a relatively concise manner despite some exceptions, it is first of all to mention the tuition fees, registration fees or boarding fees, paid by the students and their families or covered in whole or in part by the promoters of the training, and then the subsidies granted by various funders are mentioned. The latter are most often the State, local authorities and economic or professional groups, the role of private initiative in the early days of the institutions being also frequently mentioned, even when it was later taken over by the public authorities. Income from the marketing of objects produced by students is also featured. Swiss trade schools earned a substantial annual income from this: one third of the income of the Winterthur metalworking school in 1902 came from the sale of objects to industrialists or to other schools.⁵²

The different definitions of technical education in different countries, which may cover training of widely differing levels, quality and scope, make comparisons difficult. But the common objective of preparation for work requires equipment in the

50 *Higher Council for Technical Education, June 1925 session. The problem of apprenticeship. Proposed solutions*, 26–36.

51 On the role of world exhibitions and the circulation of knowledge in educational debates, see Klaus Dittrich, “Experts Going Transnational: Education at World Exhibitions during the Second Half of the Nineteenth Century” (doctoral thesis, University of Portsmouth, 2010); Damiano Matasci, *L'école républicaine et l'étranger* (Lyon: ENS éditions, 2015); Alexandre Fontaine, ed., *Penser la circulation des savoirs scolaires dans l'espace transatlantique: émigration—transferts—créations (XVIII^e–XX^e siècle)* (Lormont: Le bord de l'eau, 2021).

52 Clavel, “Rapport sur un voyage d'études en Suisse,” *Bulletin de l'enseignement technique*, no. 11 (27 June 1903), 237.

form of machines, tools, supplies and materials for workshops, commercial offices or laboratories. The role of business in providing this equipment is rarely mentioned. Nevertheless, in their article on the Dortmund steam engine construction school, where “the dominant concern everywhere was to place at the disposal of the teachers and students apparatus or organs for testing and demonstration,”⁵³ Émile Corre and Edmond Labbé devote some space to this. Donations from industrialists allowed the opening of industrial and commercial museums in many countries, important components of an education through exhibitions that could be found elsewhere in Europe.⁵⁴ The Industrial and Technological Museum of the Prague Chamber of Commerce, opened in December 1898 and was also subsidised by the Provincial Diet of the Kingdom of Bohemia.⁵⁵ Some authors refer to the French situation, such as the director of the *Ecole Pratique de Commerce et d’Industrie* (EPCI) in Nîmes, who estimated that the combined subsidies from the cantons, municipalities and the State for Swiss vocational education amounted to more than three million francs: “It would be interesting to know how much money is spent on vocational education in France.”⁵⁶

The analysis of the distribution of the various funding sources is of greater interest for international comparison than that of national expenditure, which is dependent on specific definitions and contexts. German business schools received subsidies from states, cities and chambers of commerce, in varying amounts,⁵⁷ while in Swiss hotel education, represented in 1911 by four private schools, tuition fees were the main source of revenue. This plurality also refers to the importance of collaboration between public and private funders. This common characteristic was highlighted to emphasise the need to strengthen joint commitments to French technical education. Thus, Placide Peltreau, a member of the Paris Chamber of Commerce, described the training courses for the leather trades in several European countries, and then explained how the training effort of the *Syndicat général des industries du cuir*, (General union of leather industries) through the Lyon tannery school, can be explained by the modesty of its resources, which were derived solely from the contributions of some twenty trade unions and chambers of commerce and their members. The lack of interest on the part of the State was compared to the “official subsidies that foreign governments have granted everywhere in Europe to similar teachings.” Local connections filled the gap: the union was linked to the school of industrial chemistry at the University of Lyon, and the students of the tannery school took courses at the Faculty of Science, in order to reduce costs.⁵⁸ The example, which could be found

53 Émile Corre and Edmond Labbé, “L’enseignement technique en Allemagne: L’école de construction de machines à vapeur de Dortmund,” *Bulletin de l’enseignement technique*, no. 14 (27 July 1907), 322.

54 Stéphane Lembré, “Les arts industriels à l’école et au musée: L’École nationale de Roubaix et ses références au XIX^e siècle,” *Revue du Nord*, no. 422 (2017), 691–706.

55 Colomies, “L’enseignement industriel et commercial en Bohême,” *Bulletin de l’enseignement technique*, no. 2 (23 January 1909), 20–24.

56 Clavel (1903), 230–31.

57 Edmond Jourdan and G. Dumont, “Les écoles de commerce en Allemagne et en France,” *Bulletin de l’enseignement technique*, no. 50 (3 June 1899), 280.

58 Placide Peltreau, “L’enseignement technique des industries du cuir à l’étranger et en France,” *Bulletin de l’enseignement technique*, no. 11 (21 juin 1902), 175–76. Peltreau was the owner of one of the main tanneries in the Château-Renault industrial district. Cf. Cédric Perrin, “Le district en échec: L’exemple des tanneries de Château-Renault (v. 1860–1985),” in Coquery and de Oliveira (2015), 257–73.

in other professional fields and in other places, revealed the possible collaboration between institutions whose size and management have little in common.

In the very informed summary they published in 1908 in support of the 1905 bill, Astier and Cuminal offer an international overview of the organisation of technical education. The financing of the policies implemented is analysed on the basis of extensive documentation. The authors begin with Germany, a source of inspiration, where advanced courses were free for those who attended them. Some schools charged students and their families “a small fee.” The costs were covered by the communes and guilds, as well as by subsidies from the German states.⁵⁹ The report of a Parisian delegation to Austria-Hungary provides information on technical and vocational education governed by the law on industry of 21 May 1884. This included taxation:

Municipalities which have at least fifty apprentices, and for which there is no special school, are obliged to institute a special course for the instruction of apprentices. The taxes and fines collected under the present law shall be allocated to the maintenance of these schools. In the event of a shortfall, the communes may establish a special contribution of up to two per cent of the amount of direct taxes. If, because of their poor financial situation, they are unable to meet the costs of the school, they may also request assistance from the Minister of Cults and Public Instruction.⁶⁰

Anxious to demonstrate the efforts already made abroad and the modest financial cost, Astier and Cuminal also praised the sums devoted to vocational schools in Switzerland, leaving aside apprenticeships in companies, which were nevertheless developed.⁶¹ They also cited examples of other, more centralised forms of organisation, such as the Copenhagen Technical Society: using information provided by the *Bulletin de l'enseignement technique*, the two authors emphasise that the State played a large part in the financing.⁶² In Belgium, the choice was different, with the State subsidising only those vocational courses that had proved their worth and whose programmes had been validated by the Ministry of Industry and Labour. Funding played a discriminating role: “the selection is made by itself, simply by the national subsidies.”⁶³ The reference to the United States is based on the in-depth investigation carried out there by the Director of the Université du Travail (University of Labour) in Charleroi, Belgium, Omer Buyse.⁶⁴ In this publication, which was reprinted several times in the following years, the information collected is used to reflect on the achievements in the field of technical education of the government of the province of

59 Astier and Cuminal (1912), 64.

60 Ibid., 80.

61 Ibid., 113. See Lorenzo Bonoli, “La naissance de la formation professionnelle en Suisse: entre compétences techniques et éducation morale,” *Éducation permanente*, no. 192 (2012), 209–21; Esther Berner, Philipp Gonon, Christian Imdorf, “The Genesis of Vocational Education in Switzerland from the Perspective of Justification Theory: On the Development of a Dual Vocational Education Model in the Cantons of Geneva and Lucerne,” in *History of Vocational Education and Training in Europe. Cases, Concepts and Challenges*, ed. Esther Berner, Philipp Gonon (Bern: Peter Lang, 2015), 45–66; Lorenzo Bonoli, Jean-Louis Berger and Nadia Lamamra, ed., *Enjeux de la formation professionnelle en Suisse. The Swiss “model” under the microscope* (Zurich: Seismo, 2018).

62 Ibid., 116 and *Bulletin de l'enseignement technique*, no. 12 (23 June 1906), 280–300.

63 Ibid., 123.

64 Omer Buyse, *Méthodes américaines d'éducation générale et technique* (Paris: H. Dunod, 1908).

Hainaut, on whose behalf he had made the trip to the United States. The question of tuition fees is again addressed for some of the various schools mentioned by Buyse, without any specific development regarding the financing.

The comparison with other countries made the examination of funding a means of denouncing the state's reluctance to act in France. While praising private initiative, the various authors writing in the *Bulletin de l'enseignement technique* or in specialised publications called for reform. The writers thus called for technical education to come from the professions, while at the same time calling for a greater commitment from the State, rather than from local authorities whose role was already hampered by the crisis in local finances.⁶⁵ The conviction of this compatibility was to be found in the reflection on the apprenticeship tax, since from the government's point of view, the State could legitimise its intervention—which had been strengthened since the nineteenth century—on condition that it was presented as a support for private initiative, in order to accommodate the attachment to liberalism of employers and private school managers as well as of a whole section of political leaders.

Taxation and subsidy: references in perspective

The articles in the *Bulletin de l'enseignement technique* and the summary by Astier and Cuminal highlight the role of the British precedent in the French choice of taxation. In addition to the school fees still required to attend a school, the development of technical education in the UK was based on an original resource, additional to the subsidies granted by the Board of Education and the local authorities, introduced by the Local Taxation (Customs and Excise) Act of 1890 and “commonly known as Whiskey money.”⁶⁶ It was a tax on spirits that Parliament, sensitive to the need for a trained workforce to compete in the international economy, decided to allocate to technical education at the local level. Until 1902—the tax was decided for ten years—it provided substantial additional resources for technical education.⁶⁷ In their 1908 study, Astier and Cuminal specify that this British choice was made possible “thanks to the initiative of Sir Henry Roscoe and Mr Arthur D. Aclaud, founders of the National Association for the Promotion of Technical Education,” the counterpart of AFDET.⁶⁸ This influx of funds triggered a short-term awareness of the situation in London, where the sums collected were opportunely mobilised from 1892 by the London County Council. The economist and socialist activist Sidney Webb, one of the founders of the London School of Economics, joined this body. In 1893, the Technical Education Board of the London County Council was set up under the chairmanship of S. Webb. In 1898, this taxation brought in 740,000 pounds, and nearly 900,000 pounds in 1900–1901. The historian and educationalist Michael E. Sadler, professor at

65 This crisis was linked to the reduction in the relative share of indirect taxes in municipal revenues, in particular with the end of octroi duties on beverages decided with the law of 22 February 1918. Jean-Luc Pinol, “Villes ‘riches’, villes ‘pauvres’: Les finances municipales de l’entre-deux-guerres,” *Vingtième Siècle. Revue d’histoire*, no. 64 (1999), 67–82.

66 Pierre Texier, “L’enseignement technique français et anglais à l’Exposition franco-britannique de Londres,” *Bulletin de l’enseignement technique*, no. 7 (17 April 1909), 136.

67 Paul Richard Sharp, “Whiskey Money and the Development of Technical and Secondary Education in the 1890s,” *Journal of Educational Administration and History* IV, no. 1, (1971), 31–35; Anthony David Edwards, *The Role of International Exhibitions in Britain 1850–1910: Perceptions of Economic Decline and the Technical Education Issue* (Amherst: Cambria Press, 2008), 180–83.

68 Astier and Cuminal (1912), 132–33.

the University of Manchester, whose work was cited by Astier and Cuminal, estimated at that time the expenditure on “the various stages of public education” from public funds at about 25 million pounds for England and Wales.⁶⁹ The considerable sums derived from the tax, which was abandoned in 1902, corresponded to the beginnings of a Labour vision of fiscal issues, which culminated in the tax reform project presented in 1909 by liberal leader Lloyd George, in which the objective of reducing inequalities took precedence over that of financing public expenditure.⁷⁰ They explain the rapid expansion of technical education in Great Britain despite significant regional variations linked to the management of local authorities.⁷¹

Following the 1908 Franco-British exhibition in London, organised in the context of the Entente Cordiale, the comparison was made by Pierre Texier, a professor at the EPCI in Limoges since 1906, who had obtained a grant in order to “easily study technical education in England and compare it to what it is in France.”⁷² In addition to the study by Astier and Cuminal, Texier thus offers the most complete comparison in terms of financing. There was much less comment in France on Austria-Hungary, where taxation had been introduced in 1884.

The American choice, which was reported in various publications in France (for example in the *Revue d'économie politique*⁷³) and abroad (in the first issue of the *Revue internationale du travail*⁷⁴), also influenced the French choice. A few weeks before the United States entered the world war, Congress decided, through the Smith-Hughes Act signed on 23 February 1917, to provide federal funding for vocational training.⁷⁵ This option was adopted at the end of a study conducted since January 1914 by Senator Hoke Smith and relayed by Dudley M. Hughes to the House of Representatives, itself motivated by the ongoing reflections on vocational education since the report of the Douglas Commission (1906).⁷⁶ According to the Smith-Hughes Act, under certain conditions, states may use funds made available to them for the development of technical education, that is institutionally distinct from general education.⁷⁷

69 Michael E. Sadler, “England,” in *Nouveau dictionnaire de pédagogie et d'instruction primaire*, ed. Ferdinand Buisson (Paris: Hachette et Cie, 1911). See James H. Higginson, “Michael Ernest Sadler,” *Prospects: The Quarterly Review of Comparative Education* 24, no. 3–4 (1994), 455–69.

70 Pierre Rosanvallon, *The Society of Equals* (Paris: Seuil, 2011), 233.

71 Stephen Cotgrove, *Technical Education and Social Change* (London: Allen & Unwin, 1958), 63; Stewart Richards, “The South-Eastern Agricultural College and Public Support for Technical Education, 1894–1914,” *The Agricultural History Review* 36, no. 2 (1988), 172–87; Stanley James Curtis, *History of Education in Great Britain* (London: University Tutorial Press, 1967), 497.

72 Texier (1909), 129.

73 *Revue d'économie politique* XXXVI (1922), 524.

74 *International Labour Review* 1 (1921), 419.

75 Sixty-Fourth Congress, Second Session, *Public Acts and Resolutions*, Public Document, no. 347, 929–36, quoted in Marvin Lazerson and W. Norton Grubb, *American Education and Vocationalism: A Documentary History* (New York and London: Teachers College Press, 1974), 133–34; Howard R. D. Gordon, *The History and Growth of Vocation education in America* (Long Grove: Waveland Press, 2003), 79.

76 Stephen Provasnik, “Disentangling the Triumph of Vocationalism from the Institutionalization of Vocational Education: A Reexamination of the Douglas Commission Report, Social Efficiency, and the Cooley Controversy,” in *Educating in a Working Society: Vocationalism in 20th Century American Schooling*, ed. Glenn P. Lauzon (Charlotte: Information Age Publishing Inc., 2019), 79.

77 Michael Their, Joshua Fitzgerald, Paul Beach, “Partitioning Schools: Federal Vocational Policy, Tracking, and the Rise of Twentieth-Century Dogmas,” in Lauzon (2019), 21.

In this perspective, in June 1925, in France, the Higher Council for Technical Education's survey of the financial efforts made by various foreign countries led to an appeal to parliamentarians:

If we have mentioned the example of these foreign countries, it is not, needless to say, that we judge them to be superior to our own; even in this field France, at the cost of lesser efforts, has done as well or better than any of them. But it would be a dangerous mistake to rely too much on our natural qualities, especially our ingenuity and our ability to improvise. Beyond a certain limit, if we neglect the necessary means, we are bound to fall behind. [...] That is why we have the firm hope that Parliament will not refuse us the vote of a tax necessary to our needs, justified in its application as well as in its object, conforming at the same time to the particular interests of the economic circles to which it is requested and to the higher interests of France.⁷⁸

The international comparison conducted before and after the war is important to explain the debates on the financing and the final decision to create the apprenticeship tax. It argues in favour of going beyond a historiography that has long been content to identify the historical development of national models for the organisation of technical education and vocational training.⁷⁹

Local experiences

The Directorate of Technical Education's apprenticeship tax project also built on two local post-World War I experiences. After the armistice, the return of Alsace and Moselle to France provided the example of a different organisation of financing under the leadership of the Alsace-Lorraine Chamber of Trades. Edmond Labbé, who had previously been an inspector general in the North, gave details in a report to the general council of this department:

A tax is payable by each member of the Chamber of Trades; this tax is calculated on the basis of the professional tax (*Gewerbesteuer*) levied on the net profit of the business. [...], after approving the budget of the Chamber of Trades, the Prefecture notifies the Alsace-Lorraine Directorate of Direct Taxes and the Land Registry of the sum which this establishment needs to cover its expenses. To this sum must be added the amount of the rebates allocated during the previous financial year, given that for this tax there is no non-value fund. The amount thus obtained is then divided by the total of the collection units of the three departments. This total is determined with the help of the special registration forms drawn up by the auditors and on which all the taxpayers liable for the tax are listed. [...].⁸⁰

A second local experiment, the Armentières fabric manufacturers' union, (in the

⁷⁸ *Conseil supérieur de l'enseignement technique, session de juin 1925. Le problème de l'apprentissage. Les solutions proposées*, 37.

⁷⁹ Wolf-Dietrich Greinert, *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* (Luxembourg: Office for Official Publications of the European Communities, 2005); see the critique initiated by Anja Heikkinen, "How to Study Apprenticeship Comparatively," in *Vocational Education and Apprenticeships in Europe: Challenges for Practice and Research*, ed. Anja Heikkinen, Ronald G. Sultana (Tampere: Tampereen Yliopisto, 1997), 267–93.

⁸⁰ Report on technical education, by M. Labbé, Conseil général du Nord, 1920 session, 195–96.

North of France) created twenty years earlier, organised a compensation fund in 1922 for the development of apprenticeships for weavers. The aim was to bring together the means to train apprentices and prevent them, once trained, from leaving for a competitor in the area who had not invested in training. In a textile town undergoing reconstruction, recruitment difficulties motivated the training of the workforce, which was a guarantee of better productivity. The organisation of the financing of the training effort required a year of discussions. The apprenticeship fund that emerged from these discussions was fed by a monthly payment representing 1 per cent of salaries, which meant that the union had to be provided with payroll records, an obstacle that had long been insurmountable. Every month, each industrialist provided a list of the names of his apprentices, and the proceeds of the fund were divided monthly by the number of apprentices, taking into account the different lengths of apprenticeship according to the specialities (one year for weavers, three months for warpers, one month for winders and peelers).⁸¹ Despite the mistrust between competitors, training became a subject for the very influential local employers' union, and some companies were convinced of the need to develop apprenticeships in order to have a trained workforce.⁸² Although sources are lacking on this point, the fund set up before the creation of the apprenticeship tax seems to have adapted to it in order to coordinate companies' requests for exemption, which became a classic function of the local employers' unions: the tax system was superimposed on the pre-existing corporate organisation.

The experience of Alsace-Lorraine, the trial of an employers' apprenticeship fund run by textile manufacturers in Armentières and, more broadly, the essential role of local players in the budgets of establishments, led to the development of the tax project, in the same way as the options adopted in certain foreign countries.

Voting on the apprenticeship tax, 1924–1925

The creation of the apprenticeship tax was an important event for French technical education, which sought resources in order to develop. The adoption of the tax came at the end of intense parliamentary debates, thanks to the cautious support of employers' representatives and to a favourable political context.

The situation of technical education and the cautious support of employers' representatives

At the time of the debates in Parliament, in 1924–1925, the organisation of French technical education remained as it had been drawn up by the Astier law of 25 July 1919. Joseph Dupin, the director of the Tourcoing practical school and delegated inspector general, described the landscape of diversified provision at the International Congress of Technical Education in Charleroi which opened on 16 May 1925. The Directorate of Technical Education sought to structure this offer around schools, vocational courses and apprenticeships in companies. The full-time schools aimed to train workers, foremen, workshop managers or skilled workers, and engineers. The vocational courses, which offered part-time training, were aimed primarily at

81 Archives nationales du monde du travail (ANMT), 19994007/040, Rogeau aîné, "Apprentice. Armentières. Project," n.d. [1923], 3 typewritten pages.

82 ANMT, 1994007/032, letter from Dufour-Lescornez fils to the president of the *Fabricants de toiles d'Armentières*, Lille, 31 January 1922.

apprentices and young workers and employees under the age of 18. Apprenticeships were “on-the-job” and focussed on the construction site and the workshop. The priority given to training in schools or in companies depended on the professions, the knowledge and know-how required, and the capacity (including in terms of work organisation) of companies to train the workforce under good conditions. Diplomas and teacher training (with the creation of the vocational aptitude certificate in 1911 and the *École normale de l’enseignement technique* in 1912) contributed to the transversal organisation of this system.⁸³

Despite the prevailing agreement on the necessary development of vocational training, there was no shared position among employers’ representatives at the time of the vote on the apprenticeship tax. While some groups showed their support for this creation, others, and in particular the chambers of commerce, showed their distrust. The supporters of the tax came first of all from the metallurgy sector, in search of qualified workers.⁸⁴ Through the voice of the Union of Metallurgical and Mining Industries (UIMM), the employers of the metallurgy industry accepted the apprenticeship tax, insofar as thanks to their already significant expenses they expected to benefit from the exemptions provided for. The UIMM did not hesitate to call for State intervention to support technical education—which distinguished it from other employers’ organisations. The positions of the chambers of commerce oscillated between rejection of the tax, out of attachment to liberalism, and, more frequently, critical vigilance. For example, before the war, the Paris Chamber of Commerce changed its initially hostile position in favour of compulsory vocational training, in accordance with the Astier law. It then considered the creation and organisation of trade councils organised by professional family, from a corporatist perspective, and more specialised chambers of apprenticeship, also centred on professions. In the end, it favoured the latter. By situating the organisation of apprenticeship in relation to successive projects, in particular those of the deputy Constant Verlot, the Chamber first of all had to defend its prerogatives and its vision of what apprenticeship should be. The workshop-school formula was considered to be the most effective: it reconciled cost moderation, by avoiding the creation of vocational schools, and adaptation to the trades, by favouring apprenticeship in workshops that were supposed to reproduce the working conditions in companies. As far as budgetary resources were concerned, the employers’ agreement to an apprenticeship tax was recalled—the Chamber of Commerce even emphasised that a “large number of industrialists and shopkeepers” had “demanded” its creation—on condition that this tax was used “to form a special and autonomous fund for the exclusive needs of apprenticeship.”⁸⁵

83 AN, 310 AP 47: Fonds Jean Locquin, International Congress of Technical Education in Charleroi, section IV: French works, report presented by Joseph Dupin.

84 Danièle Fraboulet, *Quand les patrons s’organisent. Stratégies et pratiques de l’Union des industries métallurgiques et minières 1901–1950* (Villeneuve-d’Ascq: Presses universitaires du Septentrion, 2007), 198–200.

85 *Bulletin de la Chambre de commerce de Paris*, no. 44–45 (7 November 1925), 1487. On the workshop-schools, see Sandrine Leroy and Catherine Omnès, “La chambre de commerce de Paris et les ateliers-écoles (1883–1939),” in *La Chambre de commerce et d’industrie de Paris 1803–2003, II: Études thématiques*, ed. Paul Lenormand (Geneva: Droz, 2008), 153–66, Jean-Pierre Briand, “L’apparition du ‘préapprentissage’ dans les grandes villes au début du XXe siècle,” *Formation Emploi*, no. 27–28 (1989), 42–64, and *Au temps des ateliers-écoles: La chambre de commerce de Paris et l’apprentissage (1921–1939)* (Paris: CCI de Paris, Direction de l’information économique, 1996).

The prospect of a tax may have been experienced by business leaders as an intrusion into the management of their affairs, since its operation implied a scrutiny of their accounts by the State to verify expenditure on technical education, or even a dispossession of entrepreneurs, insofar as the decision to exempt a business subject to the tax might depend on an inspection of its training achievements. This upheaval in the relationship between the State and business took place in the wake of the 1914–1918 war, during which the economic interventionism of the authorities had increased significantly.

Until the adoption of the tax, the post-war period saw a twofold evolution, which could be seen in the parliamentary bills as well as in the positions taken by various groups. On the one hand, there was a development in the management of the mechanism which was initially entrusted to the professions, then integrated into the project to set up chambers of trade representing the craft industry in full institutional organisation. Although these chambers were finally introduced on 26 July 1925,⁸⁶ two weeks after the creation of the apprenticeship tax, in the end the management of the tax was entrusted to the departmental committees for technical education, chaired by the prefect and including representatives of the technical education administration, which therefore limited the power of the bosses or master craftsmen. On the other hand, there was a change in the purpose of the tax itself, since the special tax for apprenticeship paid into a dedicated fund would become a “tax for the development of technical education (and secondarily of apprenticeship). The proceeds of these sums were to be attached to the State budget, and were set at 0.5 per cent of the total amount of the wages, salaries and all cash remunerations paid during the previous year by the head of the company.”⁸⁷ The Paris Chamber of Commerce and the majority of its provincial counterparts were reluctant, even opposed, to the changes in the tax project, which was backed by the supporters of technical education and the radical and radical-socialist elected officials. The reduction of the tax rate from 0.5 to 0.3 and then 0.2 per cent and the clarification of the exemption mechanism partially reassured them. However, these changes undermined the consensus that had prevailed until then and animated the last sessions of the lower House devoted to this article of the Finance Act.

An opportunistic measure by the Cartel of the Left

Many points remained to be settled during the drafting of the 1925 Finance Act. Article 25, which introduced the apprenticeship tax, was particularly controversial. Its principle, as presented to the deputies at the end of 1924, was nevertheless simple: the crisis in apprenticeship could only be remedied by new training methods and be partly relocated to schools that the financial efforts of the State and local authorities (communes, departments) alone were not enough to support. Employers therefore had to bear part of the cost of training, a measure that was all the more legitimate as it concerned their future workforce.⁸⁸ This argument was put forward

86 See Steven M. Zdatny, *Les artisans en France au XX^e siècle* (Paris: Belin, 1999); Cédric Perrin, *Entre glorification et abandon: l'État et les artisans en France, 1938–1970* (Paris: Comité pour l'histoire économique et financière de la France, 2007).

87 *Bulletin de la chambre de commerce de Paris* (1925), 1489–90.

88 Maurice Bokanowski and Edmond Laskine, *Commentaire pratique de la nouvelle loi de finances du 13 juillet 1925: dispositions fiscales* (Paris: Librairie des Jurisclasseurs, 1925), 46–52.

by the Under-Secretary of State for Technical Education, on which the Directorate of Technical Education depended since it had been attached to the Ministry of Public Education by Alexandre Millerand, then President of the Council of Ministers, in January 1920.

The political context is essential for understanding the adoption of the apprenticeship tax. The *Cartel des gauches*, an electoral coalition bringing together the Radicals and the Socialists of the French Section of the Workers' International (SFIO), came to power in June 1924. This government, led by Édouard Herriot, introduced various educational and economic projects that met with strong opposition. While the Minister of Public Instruction, François Albert, was in favour of a reform towards a single school system, if not to abolish the different orders of schools that hindered the republican promise of equality, at least to bring them closer together, in the first instance, the project was entrusted to a commission known as the "single school" commission, whose work progressed slowly due to the lack of a shared conception of what should be reformed.⁸⁹ In monetary and financial matters, the weight of the expenses of the war years and then of reconstruction, and the inability of the Radicals and Socialists to agree on the debt or on the fight against inflation, caused Édouard Herriot's government to fall. Before he resigned as President of the Council of Ministers in April 1925, Herriot supported the project to introduce the apprenticeship tax included in the Finance Act, in line with his call to strongly develop technical education, which he believed was the only way to improve France's position in international economic competition.⁹⁰

In contrast to the most politically divisive subjects, the apprenticeship tax attracted more support: according to the parliamentary debates that preceded it, its creation was dissociated from the school issue and financial or monetary matters, and placed in the perspective of qualifying a workforce that was insufficient in number following the war. On the initiative of the radical-socialist deputy and mathematician Émile Borel, it also included an effort in favour of scientific laboratories, known as the "Laboratory Grant." It was the methods rather than the principle that were discussed, as was acknowledged by Senator Isidore Cuminal, whose extensive knowledge of technical education has been noted. As rapporteur for the Senate Finance Committee, he estimated that more than 300 million francs were needed to implement the programme for the extension of technical education from 1925 to 1929, including nearly 174 million francs from the State.⁹¹ Though the apprenticeship tax also seemed to be an indispensable means, its revenue was difficult to estimate, as was the operation of the exemption procedure. The Senator for the Ardèche was in

89 Bruno Garnier, *Les combattants de l'école unique: Introduction à l'édition critique de L'Université nouvelle par «les Compagnons» des origines à la dispersion du groupe (1917–1933)* (Paris: INRP, 2008); John E. Talbot, *The Politics of Educational Reform in France, 1918–1940* (Princeton: Princeton University Press), 1969, chapter 4.

90 Édouard Herriot, *Créer* (Paris: Payot, 1919), volume 2, chap. XIII: L'enseignement technique, 73–109. See Nicolas Beaupré, "Agir et Créer: Les écrits de guerre d'Édouard Herriot," in *Édouard Herriot en quatre portraits*, ed. Bruno Benoît (Villeneuve-d'Ascq: Presses universitaires du Septentrion, 2020), 275.

91 Senate, year 1925, ordinary session. Annex to the minutes of the sitting of 17 March 1925, *Rapport fait au nom de la Commission des finances chargée d'examiner le projet de loi, adopté par la Chambre des députés, portant fixation du budget général de l'exercice 1925. Ministère de l'Instruction publique (3^e section: Enseignement technique)*, par M. Cuminal, 17–18.

favour of a year of experimentation, in order to reassure the traders and industrialists liable to the tax. In June, a second report by the Senate's Finance Committee, taking up the request of several deputies, called for the article creating the apprenticeship tax to be separate for a more detailed study of its repercussions to be made. The political situation of the Cartel of the Left encouraged the government to ignore this, so as not to derail a measure that it would no longer be able to pass a few months later. Obviously, however, if the overall mechanism was well thought out, the methods of application and the possible repercussions of the tax are not known. The mechanism of exemptions to the apprenticeship tax, intended to recognise the expenses of companies that were already involved in apprenticeship and technical education, was partly reassuring for future taxpayers, provided that the rules were well determined.

Long parliamentary debates

As the lawyer and deputy Maurice Bokanowski (a member of the Democratic Republican Left) wrote a few months later, the Finance Act of 13 July 1925 was conceived during long and complex debates, in which he was one of the players. During the second passage through the House, on 1 July, the article concerning the apprenticeship tax was criticised. Like the senators, the deputy for the Seine, Emmanuel Evain (left-wing Republicans), as well as his colleague from the North, Louis Nicolle (Democratic Republican Union), asked, for the apprenticeship issue to be made separate in order to obtain a more in-depth study. Evain claimed to be the representative of the chambers of commerce and trade unions, who were unanimous in their concern about the increase in taxes and the announced takeover of vocational schools by the State.⁹² The Minister of Finance, Joseph Caillaux, recalled the principle of the universality of the budget, which prohibited the formal use of funds from the apprenticeship tax exclusively for apprenticeship and technical education, but supported his colleague Yvon Delbos, Under-Secretary of State for Technical Education, who defended the spirit of a "special" tax and the need to provide the necessary resources. Louis Nicolle unsuccessfully called for exemptions to be mandatory rather than optional: the possibility of being exempted, which was finally retained in the law, was conditional upon an assessment by the departmental technical education committees of the quality and importance of the support for apprenticeship and technical education cited in support of the request for exemption, whereas an obligation would allow employers not to have to justify the expenses cited.⁹³ The exchanges led to articles 25 and 26 of the Finance Act of 13 July 1925, which decided in particular on the allocation of the sums collected and the rules for exemption:

The proceeds of this tax are allocated to the expansion of trade schools, practical schools of commerce and industry, national vocational schools, vocational courses or any other works whose purpose is to renew apprenticeship or prepare children for a commercial or industrial profession, as well as to the operation and development of pure and applied science laboratories. The above expenditure includes, in particular, apprenticeship grants and the allocation of premiums to small employers who train apprentices.

⁹² *Journal officiel de la République française. Débats parlementaires, Chambre des députés*, meeting of 1 July 1925, 3055.

⁹³ *Ibid.*, 3058.

[...] Partial or total exemptions may also be granted to taxpayers, under the following conditions, in consideration of the measures taken by them to promote technical education and apprenticeship, either directly or through the intermediary of trade unions, chambers of commerce or any associations devoting part of their resources to this purpose. The exemptions shall be granted by the departmental committees for technical education [...].⁹⁴

This conclusion reflects the opportunism of the Directorate of Technical Education. It benefited from the abstention of the defenders of educational freedom and school proportionality, who were reluctant to oppose a scheme that could provide private resources to private technical and vocational schools and courses without burdening the state budget.⁹⁵ In contrast to the proponents of the single school systems, who failed to impose their views despite their rise to positions of power in the government of the *Cartel des gauches* and basically obtained the creation of a commission, the DET carried out its project away from school issues, succeeding *in extremis* in convincing employers of the modesty and coherence of the apprenticeship tax, and relying on an old idea, born in the wake of the 1905 bill, and which had evolved significantly under various influences.

Conclusion

From its intellectual elaboration to its political construction, any reform, in education or training as in other fields, is part of multiple temporalities.⁹⁶ Not only did debates arise in Parliament on the appropriateness of the creation of the apprenticeship tax, but it is necessary to qualify the idea that technical education would be “in a way, a neutral ground where the union of classes and parties takes place”⁹⁷ according to the deputy Jean Locquin, who for Jean-Michel Chapoulie is a privileged source for the understanding of this period. The divergences were long-standing, and despite the rapprochement shown by the agreement of some of the employers on the principle of a tax, they did not disappear at the time of the vote creating the apprenticeship tax. The mechanism of exemptions certainly opened the door to negotiations between the government and employers’ representatives, while the central role given to the departmental technical education committees gave hope for local management which involved the stakeholders. However, in the wake of the creation of the tax, uncertainty prevailed as to the practical arrangements for its implementation.

Beyond the technical details, the stakes of this creation were important. They were of three kinds. First, it made technical and vocational education a real subject, which was discussed by parliamentarians each year not only to examine the Directorate of Technical Education budget, but also to evaluate the development of technical schools and vocational courses. Secondly, the tax laid the foundations for a negotiat-

94 Thérèse Charmasson, Anne-Marie Lelorrain and Yannick Ripa, *L’Enseignement technique de la Révolution à nos jours, tome 1: 1789–1926* (Paris: INRP, Economica), 1987, 536–37.

95 Jean-Étienne Dubois, “Les droites françaises face aux questions scolaires au temps du Cartel des gauches,” *Carrefours de l’éducation*, no. 48 (2019), 16.

96 Alain Chatriot, “Réformer le social sous la Troisième République,” *Revue d’histoire moderne et contemporaine*, no. 56–4 bis (2009), 40–53; Antoine Prost, *Du changement dans l’école: les réformes de l’éducation de 1936 à nos jours* (Paris: Seuil, 2013).

97 Chapoulie (2005), 37–39.

ed construction involving the government on the one hand, and the enterprises and their representatives, on the other. Although the mechanism can be read as a management tool for the State, it was in fact based on the possibility of local agreements under the control of the Directorate of Technical Education and the national employers' organisations. The tax could therefore be read both as an obstacle to the freedom of companies, and thus as an instrument of a form of state control of vocational training through taxation, and as a means of reconciling the freedom of companies with the need to train a workforce whose need was increasingly clearly felt in various economic sectors. Therefore, the model of bureaucratic centralisation embodied by the French vocational training system deserves to be analysed in its complexity.⁹⁸ If the State does play a role in this system, it is not so much at the central level as through the local management provided for by the legislation through the role devolved to the departmental committees for technical education. The creation of the tax was tantamount to the introduction by the legislator of a regulation intended to remedy long-standing difficulties; it was presented as a temporary solution to compensate for the inequalities in the way training was paid for by different enterprises. The mechanism of exemptions presupposed careful administration while introducing a possibility for escaping taxation: the opposition between the liberal market economy and the coordinated or administered market economy would be replaced by the idea, supported by the Technical Education Department, of close governance intended, in the medium term, to ensure the freedom of enterprises and to guarantee their competitiveness thanks to a trained workforce.⁹⁹

A final issue is more qualitative. The apprenticeship tax is not just about the sums it collects: it has an impact on the organisation and quality of technical education and apprenticeships. In order to obtain partial or total exemptions, it is necessary to comply with standards that make it possible to evaluate the achievements claimed. These assessments, which were generally entrusted to departmental technical education inspectors, often former traders or industrialists, were also intended to reconcile the views of central government and company managers.¹⁰⁰

Several decades later, the taxation of companies remains one of the mechanisms for financing vocational training: the issue of how to finance education and training is a permanent one.¹⁰¹ Although this issue has partly shifted to higher education, a review of the debates that accompanied the birth of the apprenticeship tax

98 Peter Hall and David Soskice, *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage* (Oxford: Oxford University Press, 2001).

99 Pepper D. Culpepper, *Creating Cooperation: How States Develop Human Capital in Europe* (Ithaca: Cornell University Press, 2003), 2.

100 Stéphane Lembré, "Les inspecteurs départementaux de l'enseignement technique et les besoins de formation dans l'industrie en France (1911–1946)," in *Former la main-d'œuvre industrielle en France. Acteurs, contenus et territoires (fin XIX^e et XX^e siècles)*, *Cahiers d'histoire du CNAM* 9–10 (2018), 149–66; Stéphane Lembré, "Les inspecteurs départementaux de l'enseignement technique dans le Nord de la France. Des inspecteurs comme les autres? (1888–1945)," in *Les personnels d'inspection. Contrôler, évaluer, conseiller les enseignants. Retour sur une histoire, France-Europe (XVII^e–XX^e siècle)*, ed. Jean-François Condette (Rennes: Presses universitaires de Rennes, 2017), 145–60.

101 Odile Join-Lambert, "La formation professionnelle: qui oriente? qui finance? qui contrôle?," in *Dictionnaire historique du patronat français*, ed. Jean-Claude Daumas et al. (Paris: Flammarion, 2010), 889–93; Lynn Gambin and Terence Hogarth, "Who pays for skills? Differing Perspectives on Who Should Pay and Why," in *The Oxford Handbook of Skills and Training*, ed. Chris Warhurst, et al. (Oxford: Oxford University Press, 2017), 652–70.

reminds us that there is no obviousness in the choices made: in the field of vocational training, the complexity of the collection and financing mechanisms and the questions raised by their yield are equal to their political implications for the present and future of societies.

References

- Astier, Placide, and Isidore Cuminal, *L'enseignement technique industriel et commercial en France et à l'étranger*. Paris: H. Dunod et E. Pinat, 1912.
- Au temps des ateliers-écoles: La chambre de commerce de Paris et l'apprentissage (1921–1939)*. Paris: CCI de Paris, Direction de l'information économique, 1996.
- Beaupré, Nicolas. "Agir et Créer: Les écrits de guerre d'Édouard Herriot." In *Édouard Herriot en quatre portraits*, edited by Bruno Benoît, 265–77. Villeneuve-d'Ascq: Presses universitaires du Septentrion, 2020.
- Berner, Esther, Philipp Gonon, and Christian Imdorf. "The Genesis of Vocational Education in Switzerland from the Perspective of Justification Theory: On the Development of a Dual Vocational Education Model in the Cantons of Geneva and Lucerne." In *History of Vocational Education and Training in Europe. Cases, Concepts and Challenges*, edited by Esther Berner and Philipp Gonon, 45–66. Bern: Peter Lang, 2015.
- Birck, Françoise. "De l'Institut électrotechnique de Nancy à l'École nationale supérieure d'électricité et de mécanique (1900–1960)." In *Un siècle de formation des ingénieurs électriciens: Ancrage local et dynamique européenne, l'exemple de Nancy*, edited by Françoise Birck and André Grelon, 23–88. Paris: éd. de la Maison des sciences de l'homme, 2006.
- Bodé, Gérard. "Les budgets des établissements d'enseignement technique sous la III^e République (1870–1940)." In *Le coût des études*, edited by Jean-François Condet, 127–40. Rennes: PUR, 2012.
- Bokanowski, Maurice, and Edmond Laskine. *Commentaire pratique de la nouvelle loi de finances du 13 juillet 1925: dispositions fiscales*. Paris: Librairie des Jurisclasseurs, 1925.
- Bolmont, Étienne, and Jean-René Cussenot. "La Faculté des sciences de Nancy (1854–1907): équipements, personnels et enseignements." In *Aux origines d'un pôle scientifique. Faculté des sciences et écoles d'ingénieurs à Nancy du Second Empire aux années 1960*, edited by Laurent Rollet and Marie-Jeanne Choffel-Mailfert, 153–203. Nancy: Presses universitaires de Nancy, 2007.
- Bonoli, Lorenze, Jean-Louis Berger, and Nadia Lamamra, ed. *Enjeux de la formation professionnelle en Suisse: The Swiss "model" under the microscope*. Zurich: Seismo, 2018.
- Bonoli, Lorenzo. "La naissance de la formation professionnelle en Suisse: entre compétences techniques et éducation morale." *Éducation permanente*, no. 192 (2012), 209–21.
- Boudra, Auguste. *Pour l'apprentissage*. Lyon: Author, 1909.
- Bouilloux-Lafont, Maurice. *Les chambres de métiers. Comment nous les concevons*. Paris: Payot, 1919.
- Bourrey, Georges. *Le problème de l'apprentissage et l'enseignement technique*. Paris: H. Dunod et E. Pinat, 1913.
- Briand, Jean-Pierre. "L'apparition du 'préapprentissage' dans les grandes villes au début du XX^e siècle." *Formation Emploi*, no. 27–28 (1989), 42–64.
- Brucy, Guy. *Histoire des diplômés de l'enseignement technique et professionnel, 1880–1965: l'État, l'école, les entreprises et la certification des compétences*. Paris: Belin, 1998.
- Bulletin de la chambre de commerce de Paris (1925)*.

- Bulletin de la Chambre de commerce de Paris*, no. 44–45 (7 November 1925).
- Bulletin de l'enseignement technique*, no. 12 (23 June 1906).
- Buyse, Omer. *Méthodes américaines d'éducation générale et technique*. Paris: H. Dunod, 1908.
- Caillard, Constant, "Les chambres de métiers en France," *Revue internationale du travail* 3, no. 3 (1921), 255–76.
- Caillard, Constant, *Chambres de métiers et conseils de métiers*. Paris: Librairie de l'enseignement technique, 1920.
- Carry, Alain. "La dépense de l'État pour l'éducation secondaire professionnelle (France, 1820–1938)." In *Formation professionnelle et apprentissage XVIII^e–XX^e siècles*, edited by Gérard Bodé and Philippe Marchand, 115–28. Villeneuve-d'Ascq, Paris: Revue du Nord, INRP, 2003.
- Chapoulie, Jean-Michel. "Représentations de la main-d'œuvre, actions parlementaires et administratives: Le développement de l'enseignement technique entre les deux guerres." *Vingtième siècle*, no. 88 (2005), 23–47.
- Chapoulie, Jean-Michel. *L'École d'État conquiert la France*. Rennes: PUR, 2010.
- Charmasson, Thérèse, Anne-Marie Lelorrain, and Yannick Ripa, *L'Enseignement technique de la Révolution à nos jours, tome 1: 1789–1926*. Paris: INRP, Economica, 1987.
- Chatriot, Alain. "Réformer le social sous la Troisième République." *Revue d'histoire moderne et contemporaine*, no. 56–4 bis (2009), 40–53.
- Clavel. "Rapport sur un voyage d'études en Suisse." *Bulletin de l'enseignement technique*, no. 11 (27 June 1903).
- Colomies. "L'enseignement industriel et commercial en Bohême." *Bulletin de l'enseignement technique*, no. 2 (23 January 1909), 20–24.
- Condette, Jean-François, ed. *Le coût des études: Modalités, acteurs et implications sociales, XVI^e–XX^e siècle*. Rennes: PUR, 2012.
- Conseil municipal de Paris. *Proposition relative à la création d'une taxe corporative d'apprentissage, presented by M. P. Quentin-Bauchart, conseiller municipal*. Paris: Imprimerie municipale, 1912.
- Corre, Émile, and Edmond Labbé. "L'enseignement technique en Allemagne. L'école de construction de machines à vapeur de Dortmund." *Bulletin de l'enseignement technique*, no. 14 (27 July 1907).
- Cotgrove, Stephen. *Technical Education and Social Change*. London: Allen & Unwin, 1958.
- Culpepper, Pepper D. *Creating Cooperation: How States Develop Human Capital in Europe*. Ithaca: Cornell University Press, 2003.
- Curtis, Stanley James. *History of Education in Great Britain*. London: University Tutorial Press, 1967.
- Delalande, Nicolas. *Les batailles de l'impôt: Consentement et résistances de 1789 à nos jours*. Paris: Seuil, 2011.
- Didry, Claude. "L'apprentissage à l'épreuve du droit du travail: De la socialisation familiale à l'enseignement professionnel (1851–1936)." *Artefact*, no. 3 (2015), 39–51.
- Dittrich, Klaus. "Experts Going Transnational: Education at World Exhibitions during the Second Half of the Nineteenth Century," Doctoral thesis, University of Portsmouth, 2010.

- Dron, Gustave. “La question de l’apprentissage devant le Parlement.” In *Ligue de l’enseignement, La Question de l’apprentissage*, 67–78. Paris: Ligue de l’enseignement, 1913.
- Dron, Gustave, *L’Organisation de l’apprentissage*. Nancy: Impr. Pierron, 1909.
- Dubois, Jean-Étienne. “Les droites françaises face aux questions scolaires au temps du Cartel des gauches.” *Carrefours de l’éducation*, no. 48 (2019), 11–24.
- Durandy, Edgard. “L’apprentissage et l’instruction professionnelle.” *Le Journal des chambres de commerce et d’industrie, des chambres consultatives et des chambres syndicales*, no. 2 (1910), 19–22.
- Edwards, Anthony David. *The Role of International Exhibitions in Britain 1850–1910: Perceptions of Economic Decline and the Technical Education Issue*. Amherst: Cambria Press, 2008.
- Enquête sur l’enseignement professionnel ou recueil de dépositions faites en 1863 et 1864 devant la commission de l’enseignement professionnel*. Paris: Imprimerie nationale, 1864–1865.
- Ferrer, Ferrán, “Le financement de l’éducation: tendances et problèmes latents.” In *Financement des équipements éducatifs et décentralisation / Decentralisation and the financing of educational facilities*, 13–39. Paris: OECD, 2002.
- Fontaine, Alexandre, ed. *Penser la circulation des savoirs scolaires dans l’espace transatlantique: émigration—transferts—créations (XVIII^e–XX^e siècle)*. Lormont: Le bord de l’eau, 2021.
- Fouqué, Julien. *La Crise de l’apprentissage et les progrès de l’enseignement professionnel*. Paris: Arthur Rousseau, 1900.
- Fraboulet, Danièle. *Quand les patrons s’organisent. Stratégies et pratiques de l’Union des industries métallurgiques et minières 1901–1950*. Villeneuve-d’Ascq: Presses universitaires du Septentrion, 2007.
- Gambin, Lynn, and Terence Hogarth, “Who pays for skills? Differing Perspectives on Who Should Pay and Why.” In *The Oxford Handbook of Skills and Training*, edited by Chris Warhurst et al., 652–70. Oxford: Oxford University Press, 2017.
- Garnier, Bruno. *Les combattants de l’école unique: Introduction à l’édition critique de L’Université nouvelle par «les Compagnons» des origines à la dispersion du groupe (1917–1933)*. Paris: INRP, 2008.
- Gordon, Howard R. D. *The History and Growth of Vocation education in America*. Long Grove: Waveland Press, 2003.
- Greinert, Wolf-Dietrich. *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*. Luxembourg: Office for Official Publications of the European Communities, 2005.
- Hall, Peter, and David Soskice. *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*. Oxford: Oxford University Press, 2001.
- Hardy-Hémery, Odette. “Les milieux patronaux du nord et la question de la taxe d’apprentissage dans les années 1920.” In *Formation professionnelle et apprentissage XVIII^e–XX^e siècles*, edited by Gérard Bodé and Philippe Marchand, *Revue du Nord*, no. 17 (2003), 233–50.
- Heikkinen, Anja. “How to Study Apprenticeship Comparatively.” In *Vocational Education and Apprenticeships in Europe: Challenges for Practice and Research*, edited by Anja Heikkinen, Ronald G. Sultana, 267–93. Tampere: Tampereen Yliopisto, 1997.

- Herriot, Édouard. *Créer*. Paris: Payot, 1919.
- Higginson, James H. "Michael Ernest Sadler." *Prospects: The Quarterly Review of Comparative Education* 24, no. 3–4 (1994), 455–69.
- Huitric, Solenn. "Transformer les collèges communaux en lycées: La coproduction d'une action publique (1830–1880)" Doctoral thesis, University of Lyon, 2016.
- International Labour Review* 1 (1921).
- Jannettaz, Paul. *Congrès national de l'apprentissage de Roubaix: General report*. Paris, 1912.
- Join-Lambert, Odile. "La formation professionnelle: qui oriente? qui finance? qui contrôle?" In *Dictionnaire historique du patronat français*, edited by Jean-Claude Daumas et al., 889–93. Paris: Flammarion, 2010.
- Jourdan, Edmond, and G. Dumont. "Les écoles de commerce en Allemagne et en France." *Bulletin de l'enseignement technique*, no. 50 (3 June 1899).
- Kuczera, Malgorzata and Simon Field. *Apprenticeship in England, United Kingdom*, OECD Reviews of Vocational Education and Training. Paris: OECD Publishing, 2018.
- Labbé, Edmond. *L'apprentissage et la taxe d'apprentissage*. Paris: Eyrolles, 1928.
- Laczik, Andrea, and Olly Newton. "Latest Apprenticeship Reform and Its Impacts: The Case of England." In *Contemporary Apprenticeship Reforms and Reconfigurations*, edited by Thomas Deissinger, Ursel Hauschildt, Philipp Gonon and Silke Fischer, 41–43. Zürich: LIT, 2019.
- Lambeau, Lucien. *L'Enseignement professionnel à Paris. Recueil annoté contenant les discussions, délibérations, rapports du Conseil municipal de Paris et les documents administratifs se rapportant à la question*. Paris: Imprimerie municipale, 1898–1900.
- Lazerson, Marvin, and W. Norton Grubb. *American Education and Vocationalism: A Documentary History*. New York and London: Teachers College Press, 1974.
- Lembre, Stéphane. "Les arts industriels entre école et musée. L'École nationale de Roubaix et ses références au XIX^e siècle." *Revue du Nord*, no. 422 (2017), 691–706.
- Lembre, Stéphane. "La 'crise' de l'apprentissage: de l'échec à la loi (fin XIX^e siècle—années vingt)." In *L'échec a-t-il des vertus économiques ?*, edited by Natacha Coquery and Matthieu de Oliveira, 309–18. Paris: CHEFF, 2015.
- Lembre, Stéphane. "Les inspecteurs départementaux de l'enseignement technique dans le Nord de la France. Des inspecteurs comme les autres? (1888–1945)." In *Les personnels d'inspection. Contrôler, évaluer, conseiller les enseignants. Retour sur une histoire, France-Europe (XVII^e–XX^e siècle)*, edited by Jean-François Condette, 145–60. Rennes: PUR, 2017.
- Lembre, Stéphane. "Les inspecteurs départementaux de l'enseignement technique et les besoins de formation dans l'industrie en France (1911–1946)." In *Former la main-d'œuvre industrielle en France. Acteurs, contenus et territoires (fin XIX^e et XX^e siècles)*, *Cahiers d'histoire du CNAM* 9–10 (2018), 149–66.
- Lembre, Stéphane. *Histoire de l'enseignement technique*. Paris: La Découverte, 2016.
- Lembre, Stéphane. *L'école des producteurs*. Rennes: PUR, 2016.
- Léon, Antoine. *Histoire de l'éducation technique*. Paris: PUF, 1968.
- Leroy, Sandrine, and Catherine Omnès. "La chambre de commerce de Paris et les ateliers-écoles (1883–1939)." In *La Chambre de commerce et d'industrie de Paris 1803–2003, II: Études thématiques*, edited by Paul Lenormand, 153–66. Geneva: Droz, 2008.

- Llopart, Michael. “La Chambre de commerce de Toulouse et l’organisation de la formation professionnelle en Haute-Garonne, 1919–1945.” *Annales du Midi* 128, no. 293 (2016), 67–89.
- Matasci, Damiano. *L’école républicaine et l’étranger*. Lyon: ENS éditions, 2015.
- Merlet, Paul. *Les lois sur l’apprentissage et leurs conséquences économiques et sociales*. Paris: Jouve et Cie, 1912.
- Millerand, Alexandre. “La crise de l’apprentissage.” In *Travail et travailleurs*, edited by Alexandre Millerand, 257–67. Paris: Fasquelle, 1908.
- Peltureau, Placide. “L’enseignement technique des industries du cuir à l’étranger et en France.” *Bulletin de l’enseignement technique*, no. 11 (21 juin 1902).
- Perrin, Cédric. “Le district en échec: L’exemple des tanneries de Château-Renault (v. 1860–1985).” In *L’échec a-t-il des vertus économiques?*, edited by Natacha Coquery and Matthieu de Oliveira, 257–73. Paris: Comité pour l’histoire économique et financière de la France, 2015.
- Perrin, Cédric. *Entre glorification et abandon: l’État et les artisans en France, 1938–1970*. Paris: Comité pour l’histoire économique et financière de la France, 2007.
- Piketty, Thomas. *Capital et idéologie*. Paris: Seuil, 2019.
- Pinol, Jean-Luc. “Villes ‘riches’, villes ‘pauvres’: Les finances municipales de l’entre-deux-guerres.” *Vingtième Siècle. Revue d’histoire*, no. 64 (1999), 67–82.
- Prost, Antoine. *Du changement dans l’école: les réformes de l’éducation de 1936 à nos jours*. Paris: Seuil, 2013.
- Provasnik, Stephen. “Disentangling the Triumph of Vocationalism from the Institutionalization of Vocational Education: A Reexamination of the Douglas Commission Report, Social Efficiency, and the Cooley Controversy.” In *Educating in a Working Society: Vocationalism in 20th Century American Schooling*, edited by Glenn P. Lauzon, 75–93. Charlotte: Information Age Publishing Inc., 2019.
- Raiga, Eugène, and Maurice Felix. *Le régime administratif et financier du département de la Seine et de la Ville de Paris*. Paris: Rousseau, 1922.
- Rendu, Christian. *Le mouvement artisanal lyonnais et la création des Chambres de Métiers 1919–1934*. Lyon: Chambre de Métiers du Rhône, 1987.
- Réville, Marc. *Enseignement technique et apprentissage*. Paris: Dunod et Pinat, 1913. *Revue d’économie politique* XXXVI (1922).
- Richards, Stewart. “The South-Eastern Agricultural College and Public Support for Technical Education, 1894–1914.” *The Agricultural History Review* 36, no. 2 (1988), 172–87.
- Robert, François. “Le financement de la SEPR (1864–1959).” In *SEPR, 1864–2014: 150 ans au service de la formation professionnelle en Rhône-Alpes*, 122–27. Lyon: EMCC, 2014.
- Rosanvallon, Pierre. *La société des égaux*. Paris: Seuil, 2011.
- Sadler, Michael E. “England.” In *Nouveau dictionnaire de pédagogie et d’instruction primaire*, edited by Ferdinand Buisson. Paris: Hachette et Cie, 1911.
- Savoie, Philippe. “Offre locale et engagement de l’État. Les enseignements technique et primaire supérieur à Nancy et les conditions de leur évolution sous la Troisième République.” *Histoire de l’éducation*, no. 66 (1995), 47–83.
- Savoie, Philippe. *La construction de l’enseignement secondaire 1802–1914*. Lyon: ENS éditions, 2013.

- Sharp, Paul Richard. "Whiskey Money and the Development of Technical and Secondary Education in the 1890s." *Journal of Educational Administration and History* IV, no. 1 (1971), 31–35.
- Suteau, Marc. "La mise en œuvre de la loi Astier: l'exemple nantais." In *Les Patrons, l'État et la formation des jeunes*, edited by Gilles Moreau, 27–38. Paris: La Dispute, 2000.
- Suteau, Marc. *Une ville et ses écoles, Nantes 1830–1940*. Rennes: PUR, 1999.
- Talbott, John E. *The Politics of Educational Reform in France, 1918–1940*. Princeton: Princeton University Press, 1969.
- Texier, Pierre. "L'enseignement technique français et anglais à l'Exposition franco-britannique de Londres." *Bulletin de l'enseignement technique*, no. 7 (17 April 1909).
- Théret, Bruno. "Les dépenses d'enseignement et d'assistance en France au XIX^e siècle: une réévaluation de la rupture républicaine." *Annales ESC*, no. 6 (1991), 1335–74.
- Their, Michael, Joshua Fitzgerald, and Paul Beach. "Partitioning Schools: Federal Vocational Policy, Tracking, and the Rise of Twentieth-Century Dogmas." In *Educating in a Working Society: Vocationalism in 20th Century American Schooling*, edited by Glenn P. Lauzon, 15–32. Charlotte: Information Age Publishing Inc., 2019.
- Thivend, Marianne. "Les formations techniques et professionnelles entre l'État, la ville et le patronat: l'emploi de la taxe d'apprentissage à Lyon dans l'entre-deux-guerres." *Le Mouvement Social*, no. 232 (2010), 9–27.
- Troger, Vincent, and Patrice Pelpel. *Histoire de l'enseignement technique*. Paris: L'Harmattan, 2001.
- Vernet, Antoine. "Les disciplines de l'industrie: Le patronat métallurgique et la formation organisée des travailleurs dans la région de Saint-Etienne (1865–1954)" Doctoral thesis, Université Lumière Lyon 2, 2018.
- Vinokur, Annie, ed. *Pouvoirs et financement en éducation: Qui paye décide?* Paris: L'Harmattan, 2007.
- Zarca, Bernard. *L'artisanat français, du métier traditionnel au groupe social*. Paris: Economica, 1986.
- Zdatny, Steven M. *Les artisans en France au XX^e siècle*. Paris: Belin, 1999.
- Zoretti, Ludovic. *Education: Un essai d'organisation démocratique*. Paris: Plon, 1918.