Convergence of primary schooling in France before the Ferry laws

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CLIOMETRICS

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Abstract: The development of primary schooling has been considered since the beginning of the nineteenth century as a major process and notably characteristic of developed capitalist societies. French research on education has generally merely noted this development, considering the interpretation to be obvious. We have a different conception, considering that the increase in school attendance in France requires a fresh conceptual approach and new empirical and theoretical validation work. For this, our cliometric study of primary education by administrative department in France in the nineteenth century is based on retrospective national accountancy and econometric methods.

1. Introduction

In this paper, we report findings of a joint study aimed at generating the foundations of new work on the empirical and theoretical validation of the growth of school attendance in France before the Ferry laws.

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Examination of progress in school attendance is followed by that of the change in educational structures and finally that of operating costs.

The greater part of the statistical data used in this research on the evolution of primary education in France is drawn from the report by Jules Ferry, Minister of Public Education and Fine Arts, to the President of the Republic dated 25 January 1880 (cf. References: Records and yearbooks). Thus, occasional changes were made to correct errors or absence of information revealed by comparison of all the statistics. These reserves concern in particular the detailed analysis at the level of a single year or for a given department, especially as the period covered was disturbed by variations in the territory of France.

Our analysis here is centred on two aspects: (1) the very strong increase in school attendance by an age category from 1850 to 1877 and (2) the operating cost of this school attendance, with distinction made between the four main sources of funds: the communes, the departments, the state and households. This is completed by a cliometric study of convergence.

2. Results

2.1. School attendance

The demographic information needed for our study of school attendance in France (total departmental population, population of 5-15-year-olds and the school attendance of this age category) is only available for the years 1851, 1861, 1866 and 1876. As an extension of this, the most complete financial information is for the period 1855-1876.

The population of France increased slightly during our observation period (1850-1876), given the variations in national territory resulting from annexations, increasing from 36 million in 1850 to some 37 million 26 years later. The proportion of children of school age, the 5-15-year-olds, remained comparatively stable at 17.3 to 18%, but with comparatively higher percentages in the rural regions in the west and the centre and in the industrial zones of northern and eastern France. A very strong increase in school enrolment was observed in this context of relative stability of the potential primary education population. In 1850, 3 321 423 children were enrolled, that is to say 51.5% of 5-15-year-olds; 4 515 967 pupils were counted (i.e. 68.6%) in 1867 and 4 716 935 in 1876, i.e. 73.6% of the age category.

This increase in school attendance by some 42% probably resulted from a very strong increase in the material and human resources made available to primary education. The increase in the resources made available to primary education also made it possible to respond to teaching requirements without making a substantial increase in average numbers per school. The average number of children per school was 55 in 1850, 64 in 1867 and 66 in 1876. This

observation is naturally linked to the fact that the spectacular variation in numbers results as much from the increase in the numbers of pupils attending existing schools as from the creation of new schools.

2.2. Financing

It is therefore not surprising to observe very marked disparities in school attendance between departments. As a result of this direct or indirect financing by parents, the highest levels of school attendance are observed in zones of rapid economic development and possessing a certain degree of wealth, both through the need for labour with a modicum of education and the obligation to finance the cost of this education.

The priority awarded to primary education changed both the volume and structure of this financing, leading to a distinct convergence in school attendance between departments.

The substantial growth in the resources made available to primary education was naturally accompanied by a strong increase in operating costs; these were multiplied by 2.7 over a period of 20 years, that is to say an annual growth rate of slightly less than 5%. We limit ourselves in this financial analysis to ordinary expenditure only, that is to say operating expenditures. The figures for non-recurring expenditure are markedly incomplete as they do not show the investment expenditure by communes.

In absolute value, total operating expenditure increased from 25 million francs to approximately 68 millions with, during the period, a strong 44% increase in 1868. Indeed, differents laws did change the financing structure of primary school operating costs during the period 1855-1876, as is shown in the table below:

Table 1: The structure of the financing of primary education (%)

	1855	1860	1866	1870	1875
State	11.9	8.5	8.9	12.5	15.2
Department	12.2	9.8	8.0	9.7	9.2
Commune	39.2	38.3	39.1	41.7	45.0
Households	36.0	42.5	43.0	34.5	28.9
Legacies and gifts	0.7	0.8	1.0	1.7	1.6
Total	100	100	100	100	100

But, how is primary education distributed in the national territory? How did this distribution evolve? Is there a convergence process between French departments with regard to both school attendance and expenditure on education?

2.3. Convergence

Convergence, the tendency for per capita income of different economies to equalise over time, is one of the predictions of the neo-classical growth model. In 1956, R. Solow came to the conclusion that economies naturally converge towards the stationary state at velocity v in such a way that:

$$v = (1 - \alpha)(n + \lambda + \delta)$$

in which n is the rate of growth of the working population, α is the elasticity of output in relation to capital, λ is the growth rate of technical progress and δ is the depreciation rate of capital. Over the past decade, much theoretical and empirical work has been done in this area. R. Barro and X. Sala-i-Martin (1992) report two types of convergence: β convergence (absolute convergence) and α convergence (dispersion in an instantaneous cross-section).

In this article, we put forward the hypothesis of the existence of a convergence of French departments with regard to school attendance. The absolute convergence coefficient is estimated using a non-linear regression of transverse data as follows:

$$\frac{1}{T-t} \cdot \ln\left(\frac{Y_{iT}}{Y_{it}}\right) = B - \left(\frac{1 - e^{-i(T-t)}}{T-t}\right) \cdot \ln Y_{it} + u_i$$

in which t and T are the first and last years of observation respectively, i is an economic entity, Y is the per capita economic indicator and u a remainder. In a convergence situation, the average growth rate during the period of observation and the log of the initial level of the per capita economic indicator are related negatively, implying a positive coefficient β. After estimating the equation above using the non-linear least squares method, testing the existence of convergence means performing a Student's significance test on coefficient β, that is to say testing the following hypotheses :

- Ho : $\beta = \beta o$, no convergence, here $\beta o = 0$.

- H_1 : $\beta \neq 0$, convergence if $\beta > 0$.

Convergence in school attendance is observed at the primary level. In other words, school attendance tended to be increasingly homogeneous in the various departments. The French departments also tended to converge in terms of school financing. Thus, the cost of education per pupil enrolled tended to be less and less different throughout the nineteenth century. This being said, the convergence process differed according to the stakeholders involved in the financing of education. Outlay by households thus converged during the first sub-period (1856-1867). Public financing converged only from 1867 onwards.

Table 2: Convergence in terms of school attendance

Period	Value of coefficient β	Order of importance of convergence
1850 - 1876 (entire)	0.0414 (13,99)	-
1850 – 1856	0.0276 (14,83)	2
1856 – 1863	0.0274 (8,28)	3
1863 – 1867	0.0146 (2,81)	4
1867 – 1876	0.0689 (9,43)	1

(in matches, t-Student value that is compared to the critical value, 1.96)

Table 3: Convergence in terms of financing per enrolled child

Period	Value of coefficient β (t-statistic)				
	Total cost of education	State expenditure	Department expenditure	Commune expenditure	Household expenditure
1856 – 1867	0.0087 (0,81)	-0.0014 (-0,28)	0.0033 (0,42)	0.0125 (1,32)	0.0135 (2,55)
1867 – 1876	0.1593 (6,82)	0.0425 (3,32)	0.1051 (6,43)	0.0292 (2,39)	0.0038 (0,50)
1856 – 1876 (entire)	0.0373 (6,53)	0.0194 (3,59)	0.0307 (5,98)	0.0072 (1,10)	0.0084 (1,88)

3. Conclusion

This article is aimed firstly at making an analysis of the statistical indicators that we have developed on the long-term evolution of the French educational system before the Ferry laws. It also draws up an analysis in terms of convergence that permits us to identify a convergence of French departments in matters concerning education, with 1867 being the key year.

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