

**Taxation of corporate profits,
inflation and income distribution
in France, 1914-1926.**

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preliminary, comments welcome

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The impact of World War I on the distribution of income and particularly on profits is a frequently neglected but central issue to understand the rapid growth rate France enjoyed during the 1920s¹. A frequent opinion during and after the war was that many firms benefited greatly from the conflict, because of the monopolies it allowed them to establish by limiting the supply of most goods and the efficiency of communications and trade. Its holders considered firms as the primary responsables for inflation. They asked for a taxation or a confiscation of war profits as permitting to counterbalance the losses of war victims, and also to facilitate their compensation. After the creation in 1916 of the tax on extraordinary profits for the war period, the same people considered frequently that it had little effect because the firms were able to escape taxation by hiding profits.

Retrospectively, the necessity or the insufficiency of that tax are not self-evident and need demonstration : firms were not the only responsible for inflation, which was largely a consequence of monetary and budgetary policies, and they didn't benefit of it in all cases : they owed frequently little debt and had to pay for scarce labor. The fact that firms turned to the financial market during the 1920s (and frequently as early as 1920) much more than before the war (Hautcœur, 1993) could indicate that war profits were not sufficient to finance their growth, even complemented with war victims' compensation funds they received. One of the reasons for such a recourse should be an excessive taxation. In fact, managers and capitalists protested strongly against the new tax and its application, considering that the fiscal administration didn't recognize the necessity of inflation-adjusted depreciation.

Unfortunately, national accounts are very insufficient for the war period and until 1921, so it is difficult to measure the variation in profits and in their share in GDP during the war in order to choose between these two opposite points of view. The purpose of this paper is to propose a first approach of the problem and to study the consequences of the tax considering particularly its relations with inflation. The paper is organized as follows : section 1 relates the creation of the extraordinary tax on profits and gives its essential characteristics. Section 2 estimates its impact at a macro level.

¹ We thank participants to the second summer school of the European historical economics society on "Growth and distribution" (Gröningen), R. Altschuller, M. Bordo, S. Broadberry, G. Hubbard, H. Rockoff and especially A. Ritschl for helpful comments.

Section 3 examines in details its organization and tries to explain some of its defects. Section 4 proposes an estimate of some effects of the tax at a micro level.

1. The creation of the tax on war profits

There is no tax on profits before the war in France. Whereas in Great Britain the Income Tax has been running for many years, in France it is only voted in 1914 after an important debate. Furthermore it is not applied because of the war until 1917.

The extraordinary tax on war profits which is adopted on July 1st, 1916 is then the first tax on industrial and commercial profits. It is unanimously approved in Parliament in spite of the war-long government preference for borrowing, because it seems to be the best response to the claims about confiscation, requisition and revision of war contracts that arise in the public opinion. From the beginning, the political motives (equity between all citizens in front of the war) seems to dominate the public finance (to raise revenues) aspect of the tax².

The law which creates the tax defines a general context for its application more than a complete and detailed taxation procedure. Anyway it gives to the tax many characteristics that we have to consider. At first the tax on war profits taxes every person who did a commercial act –even brievously– during the period which goes from the beginnning of the war until the end of June, 1920. It means notably that farmers are not concerned by this tax, a point which will prove very unpopular.

The law puts a tax on supplementary profits caused by the war, that is to say on the difference between the profits made during the conflict and the normal profits during the peace time (precisely the average of the profits made in the three fiscal years preceding the war). Four months after the promulgation of the law, the tax-payer has to send his first declaration concerning the war profits made from August 1914 to December 1915. Then, for each fiscal year, he has to make out his tax return before April of the following year. The simplicity of this obligation has to be pointed out : the tax-payer only writes the amounts of the normal profit, of the profit made during the year and the supplementary profit resulting. No precision is asked about the calculation of the profit declared.

An administrative commission for each *département* (called of the first degree) studies the declaration and, thanks to the accounting records it can ask every tax-payer for, decides to accept the tax return or not. If this commission refuses the statement, it imposes a new taxable profit. At this point, the tax-payer is allowed -according to the

² This point was discussed a few years later by Faivre-Reuille (1920) who pretended that public finance aspects dominated. The debates and public opinion during the period before approval seems nevertheless to favor the political thesis (see e.g. Taboureaux, 1919 ; Proux, 1924, p. 158).

law- to call on the Superior Commission of war profits which decides the amount of the tax as a last resort³.

The law defines the rate of taxation as 50% of all supplementary profits. In fact, this rate only concerns the first taxation period (1914-1915) since a following law (on December 31st, 1916) brings the rate to 60% for the part of the supplementary profit that exceeds 500000 francs. This rate affects the profits of the second period of taxation (1916). A final law (on December 31st, 1917) defines a heavier and more progressive rate that is applied for the following fiscal years⁴. The rate reaches 80% for the part above 500000F.

The law is very evasive about the way the taxable amount shall be calculated. It recommends to keep pre-war firm-specific accounting methods. Nothing is said about depreciation allowances, except for exceptional depreciation resulting from the war, which are defined as follows : 'supplementary depreciation allowances required either by the exceptional depreciation of the material resulting from the extension of the daily worktime, or by the fact of special fittings or expenditures made with a view to war furniture'. These depreciations are re-estimated definitively for the last period of taxation, since the law allows for a revision. In order to correct possible injustices, the law institutes also a procedure of tax refund. It will be organized at the end of the period of taxation, to compensate partly for the principle of non-compensation of profits and losses between the fiscal years.

2. A macroeconomic estimation of the tax.

We try below to have a first look at the tax by comparing the foreseeable return of the tax to the amount actually collected, and to compare this amount to both financial needs of firms and the State's budget⁵.

a. The foreseeable return of the tax

It seems impossible to find any official forecast of the return for the tax on war profits. No estimate is to be found neither in the preambles nor in the comments on the law creating the tax, nor during the parliamentary debates preceding the vote of the law⁶.

³ A final appeal to the Conseil d'Etat is possible in theory, but it is not actually considered.

⁴ These rates are similar to those applied in Great Britain in the same period (Stamp, 1932, p. 146ss).

⁵ Most macro-economic data used here are from Villa (1994).

⁶ It should be noted that this reinforces the opinion considering that the law resulted more from political than financial considerations.

We may suppose that such a tax would not have been asked for so vigorously nor passed without a significant move of the wages-profits ratio in favour of profits. This move could result from the transformation of the economy during the war : shortages, reinforcement of local monopolies because of worsening communications and transport conditions, which allowed firms to rise their prices. From this hypothesis, we can make a very simple tentative estimate of the amount the tax could raise.

If we suppose that thanks to the war the share of profits in total value added by firms increased by 10 points (an important move indeed), and if we consider value-added in manufacturing, transportations and services in 1913 as about 26 billions, we can estimate a supplementary war profit of 29 billions of current francs (by adding up in current francs the yearly amount of 2,6 billions 1913 francs supplementary profits, from August 1914 to June 1920). This estimate is an upper limit because the value-added in fact decreased sharply during the war (what is not considered here because of lack of data).

A mean tax rate of 60% on this estimate of war profits should raise about 17.5 billions as total return. Comparing that amount to the actual amount collected gives an idea of the actual weight of the tax.

b. The actual importance of the tax

Economic historians frequently emphasized the small return of the tax on war profits during the conflict. They forgot frequently that the final return was important. When the collection of the tax was stopped in March 1940, 15 billion francs had been collected (to compare to a GNP of 51 billions in 1913, 105 billions in 1919 and 160 billions in 1920 in current francs). This amount is surprisingly close to the simple estimate we proposed above. This can lead to the following conclusion : the tax paid represents an amount equivalent to an increase of the share of profits in total value-added close to that we supposed above. Whether that increase occurred or the tax was paid by firms on unchanged or different profits is another question we will try to consider below.

One thing is certain : with such an amount collected, the tax on war profits had a substantial economic impact both on the taxpayers, that means on non-agricultural firms, and on the State's finances.

c. Consequences for the firms

The consequences of the tax do not depend only on its final return, but rather on the annual payments. Because of the delays encountered by the collection process (23

years to collect a tax on 5 taxable years), the annual return should be very small compared to the total. Actually, apyments reached a maximum during the years 1920 and 1921 : during this short period, the disappearance of the large administrative errors concerning the rolls' issue and the growing efficiency of the collection procedure allowed the proportion of the final total return already collected to increase from 9% in December 1919 to 52% at the end of 1921. After that date, the return declined and the remaining amounts were collected much more slowly because of the number of firms appealing to the Superior Commission. It took until the end of the 1920s to collect most of the second half of the amount of the tax, and small amounts were still to be collected until the end of the 1930s (graph 1).

The impact of the tax is then certainly concentrated on a few years around 1920-21. For example, if one compares the annual return of the contribution to the investments of non-agricultural firms, the annual tax never represents more than 6% of investments but during the years 1920 and 1921, when the coincidence of the postwar stabilization crisis with the years of maximum tax return causes it to reach 12% of investments in 1920 and 16% in 1921 (graph 2). Compared directly to macro-estimates of non-agricultural gross trading profits, the tax exceeds 10% for the period 1920-1922 and reaches 40% in 1920 and 72% in 1921. This result is the consequence of the crisis, that undermines profits (graph 3). Compared to the financial needs of the aggregate private firms' sector, record levels are reached in the years 1920, 1921 and 1922 (1922 was a special year because of the decrease of the financial needs of the firms) (graph 4).

As a first conclusion, we can say that the impact of the tax on the firms was concentrated on a few postwar years during which the collected amounts represented a high proportion of their profits. The tax probably caused during these years both a decrease in investment and an increase in the debt of the firms. After 1922, we can consider that diminishing collected amounts, rising prices and growing relieves made the macro-economic effects of the tax quite negligible.

d. The consequences on public finances

What budgetary resource was that tax ? During the war and more precisely the period 1914-1919, it was quite limited : a little more than 1.25 billion was collected before December, 1919, which represents a small part (0.56%) of the total expenditures of the State during this period.

With the progress in administrative methods and the following massive increase in the rolls issues immediately after the war, the tax became an important budgetary resource at the beginning of the 1920s. In 1920-1921, the annual return of the tax

represented more than 3.5% of the short term debt and 2.5% of the long term very heavy debt of the State, 13-14% of all budgetary receipts, 8-10% of all expenses (graph 5). It is during that period the most important single resource of the budget, representing 40 to 60% of all direct taxes and 12 to 20% of all tax receipts. However, its importance decreases rapidly from 1922 onwards.

For the State and its finances, the question arises as to what could and should have been the amount raised by the tax on war profits if the delay caused by the initial disfunctionning of the administration and the long disputes between it and the firms on the level of the tax had not appeared⁷. The fact is that this delay could have prejudiced not only the public finances (directly by lack of resources and indirectly by the rise of the rate of interest the State had to pay when borrowing), but also the coherence of the budget and the stability of many governments of that period, since the budgetary question is at the center of most explanations of both the monetary and political instabilities of the 1920s.

In order to estimate the losses incurred by the Treasury due to the delay in the issue of the tax rolls, we may make two estimates of the opportunity cost supported by the State. A first hypothesis consists in considering that when fiscal receipts were delayed, the State had to borrow the same amount instead of disposing of new resources in order to pay its expenses. If we suppose that the State borrowed at the interest rate of the rente 3%, the loss caused by the delay in the issue of the rolls may be estimated at near 2.6 billion, nearly 17.4% of the final returns on the tax⁸. Since the issue of the tax rolls was almost completed in December 1925, the 2,6 billions estimated above were “lost” during the period from 1917-1925.

The previous estimate supposes that the State's expenses were not modified by the delay in the tax collection. A second one is necessary which corresponds to another interpretation of the opportunity cost supported by the State. This rests upon the hypothesis that the delay in tax collection implies a similar delay in expenditures. If expenditures must be paid in real terms, inflation has a different impact on incomes (the delayed tax receipts are not reevaluated for inflation) and expenditures (which increase with prices). Although it is not the case of all expenditures, the share of the “real” ones (reparation payments for example) is sufficiently important to be clearly the determinant of the marginal cost for the State. In a period of rapid inflation, we suspect this evaluation to be more important than the previous one. But it is not. Estimating that loss for the budget using the wholesale price index gives an amount inferior to the previous estimate (exactly 1.024 billion). This difference is due to the fact that an important

⁷ A question already raised by Le Cars (1924, p. 10).

⁸ One may consider that this estimate is a minimum since the interest rate paid when issuing a new loan is usually superior to that on existing debts. On the other hand, if the public issues had been lower, the interest rate may have been lower too.

amount of tax that was due in 1920 was actually paid in 1921, which made the State benefit from the deflation of the 1921 crisis. So paradoxically, the slow work of the administration provoked not only losses but also some gains in the value of the receipts that counterbalanced part of the losses. Actually, we should consider this gain as the only beneficial side of the great pro-cyclical effect of this 1921 transfer from firms to the State in the midst of the only sharp contraction of output of the interwar.

These estimates are both incomplete and should include two more points that we only mention here. First, we only estimated the delay in the rolls issue, which is insufficient since from 1926 tax relieves substituted to rolls issues. These relieves totaled 4 billions (a great part of which during the year 1926), which could counterbalance the loss due to the delay in their issue. But this amount was probably not paid : we can actually suppose that the tax relieves only concerned rolls that had not been collected (because of an appeal to the Superior Commission for example). This hypothesis is not insane insofar as the difference between the amounts of rolls issued and of tax collected from 1917 to 1925 represents 6 billions, more than that of the tax relieves. Finally, this figure of 6 billions means too that a delay between the rolls issue and the payment also existed, and should be added to our previous estimates. Before having made the necessary calculations, we can already conjecture that this point will not change the amount of the loss calculated above, because if on the one hand, the delay in the payment adds to that in the issue, on the other hand the payments represent a total amount of 15 billions, that is to say 4 billions less than the amount attained by the rolls issued before December 1925.

We can close this rapid examination of the macro-aspects of the tax on war profits with the following conclusions :

- The total return of the tax is important, and would be justified only by a very significant rise of the share of profits in total value added by private firms.
- The tax payments are concentrated in a few years around 1921, so that their macro-economic impact may have been important during these years.
- There was a large delay in the rolls issue and also a small one between rolls issue and payments. Both contributed to worsen the situation of the Treasury, but only to a small extent.
- These two delays seems to have been compensated by a great severity of the tax administration, which would be reflected by the importance of the tax relieves that were decided from 1925 onwards. So that the description of the history of the tax should be : at the beginning, the administration taxed few firms and with an important delay. After the war and more precisely from 1920, it taxed with a reduced delay and severely. But that severity reposes on the assumption that the tax relieves of 1926 and later were

justified. Their concentration in 1926, the year in which Poincaré and the conservatives came back to government after a few years of left-wing power, could suggest that the relieves were the result of the political change more than of previous excessive severity⁹. We will turn now to a more detailed account of the practices of the tax administration and to a micro-estimate of the weight of the tax in order to understand better all these points.

3. The practice of taxation

We saw that the extraordinary tax allowed the administration to collect a significant amount of money. Nevertheless, as we already said, many people considered that the belated collection of the tax or including its insufficient amount were the result of an administration either incompetent or excessively indulgent to private firms. In the other hand, most firms protested against the excessive weight of the tax. We try here to explain this opposition examining the two main issues in the debate between the two opinions :

- the organization of the Administration which was responsible for the collection of the tax ;
- the definition of profits, and specially its accomodation of inflation.

Before turning to these issues, we must present rapidly our sources, at least the one differing from the discussions in newspapers, contemporary books by lawyers or *financiers*, or in (numerous) speeches by politicians.

a. Archival source

We try to address some of these questions by using a source that was overlooked until now : the collection of individual firms files at the Archival records of the Superior commission on war profits, conserved at the Ministry of Finance¹⁰. These files allow us to understand the methods the Administration established to control the firms declarations and so their accounting methods.

We must nevertheless keep in mind that this source presents some defects. Considering only the cases for which appeal was made to the Superior commission, it exaggerates the conflictual aspect of the payment of the tax while the numerous cases of rapid or no payment disappear. More, the firms which benefited from a generous estimation by the tax administration didn't appeal for a new decision of the superior

⁹ We should remark that the two years of the left-wing Cartel des gauches (1924-1926) did not provoke any noticeable change in the collection process, which severity appeared during a right-wing government.

¹⁰ The archives of the Ministry of finance are quoted as SAEF in references below.

commission, so the files conserved induce us to overestimate the tax payments. Last, but not least, the firms appearing in this source are frequently the most important, because large firms were at the center of the public discussion on war profits and were probably subject to more detailed examination by the tax administration; they are also more able to pay good lawyers and lobby the administration in order to obtain some decrease of their tax liability. In spite of these limitations, the great number of files available allows us to consider the debates and evolutions they reflects as representative of those of most of the firms (and particularly great firms) which were subjected to the tax.

The close examination of the files concerning a few firms gives a first idea of the validity of the explanations we are looking at. This is although only a preliminary analysis before a larger and more systematic study. We chose large firms (although of quite different sizes) because their files contained frequently more detailed accounts of the negotiations with the administration, and because we needed them to be quoted at the Paris Stock-exchange in order to make the estimation of the effective weight of the tax we will present in the last part of this study. The firms we chose up to now are almost all direct furnishers of the armies. Although we will have to include firms from purely civilian industries in order to compare the effects of war and taxation in both cases, this first set allows us to discuss the alleged enormous war-related profits of this period. The sample includes firms from siderurgy, machinery and shipbuildings (Schneider, L'Aster, Ateliers et chantiers de la Loire, Chantiers et ateliers de Saint Nazaire (Penhoët)), as well as from chemicals (L'Air Liquide, Saint-Gobain, Le Ripolin, Produits chimiques de Saint Denis).

b. The creation of a new administration

A first exam based on the claims of the text of the law and contemporary discussion emphasizes two initial characteristics of the tax clearly related to these issues.

- The choice of controlling the firms declarations before asking for payment of the tax. This choice was dictated by considerations of administrative (and not fiscal) efficiency : the Registry administration, which was responsible for taxes based on property and was accustomed to a stable money, imposed that practice arguing that control would be neglected if some payment had already been made and that the Treasury should not be conducted to reimburse excessive payments.

- The principle of indifference of the administration towards the accounting methods followed by the firms (or principle of firm's autonomy in their accounting methods). This principle originates in the parliamentary debates on the creation of the tax : the preferred argument of opposing voices concerned the inquisitorial aspect of the tax and the risks for the confidentiality of business. The solution proposed consisted in a

tax based on a declaration made by the firms with as only rule to keep the accounting principles used before the war, so that the years 1911-1913 became the point of reference both for the level of the profit and for the method used to estimate it.

These two characteristics explain the initial delay in the issue of the tax rolls (delay which was reinforced by the partial suspensive effect of the appeal to the superior commission) and could explain a possible insufficient amount of the tax raised. However, both were rapidly corrected, so that we have to look for complementary explanations.

The choice of control before taxation was made by an old administration with inadequate methods. It caused a delay in the taxation of the profits of the first years of the war (few rolls were emitted before 1919, what represents 2 years of delay since the first declarations had to be fulfilled before the end of 1916). The delay has a cost for the budget (as we saw earlier) ; it makes also more difficult the collection of the tax since firms can disappear without paying, and most firms reinvest their profits. All these defects were perceived quite soon¹¹, a new administration constructed its own methods, and a law authorized in March 1920 the issue of the rolls before the control of the declaration so this special reason cannot be put forward to explain the problems of collection of the tax after 1920.

Other explanations are related with the creation of the new administration necessary for collecting this new tax. The absence of any tax on profits before the war signifies that the new administration has to invent its own rules and principles, what requires long delays and produces a number of errors.

A first and important problem is the lack of a sufficient staff. In 1924, 982 inspectors were responsible for the control of 1.76 million of firms¹². Another one is the delay in the firms declarations, caused first by the war, second by lack of habit of declaring, third by the time necessary to achieve the accounts in due time (which is in March, before the normal date for annual general meeting of shareholders), fourthly by the hope of escaping the new tax. The administration will pursue during many years the firms trying to escape the tax, but the 10% fine for delay in declaration is probably an insufficient incitement to honesty in that period of high inflation.

In retrospect, the limits of the new administration are not to be found in its organization, which proved rapidly to be able to receive and deal with a great number of files and to pursue smugglers. They lie in the limited experience of the new inspectors in

¹¹ See the report by the Inspection générale des finances dating from February, 15, 1919 (SAEF B28779). See also Proux (1924).

¹² Le Cars (1924, p.11 & 100). This author considers that it was impossible for the administration to exert a control on most firms before the reform from April 16, 1924 which creates a simplified lump sum system for 1.6 million small firms. See also the report by IGF quoted earlier, which signals that inspector's wages were so low that they didn't stay enough time in the administration to develop the new procedures and methods that were needed.

private accounting and in the resulting frequent errors they made in the control of the firms profits. For example, confusions were made between depreciation calculated on the accumulated stock or on the annual flows of fixed assets¹³. The comparison between pre-war and war-time profits was troubled because the administration refused to modify the normal profit (which served as a benchmark for war profits) in order to take into account a rise in the equity capital, even if it occurred before the war¹⁴. In another case, the inspector neglected the generally accepted exclusion of potential capital gains on securities from profits and wants to estimate each year the firm's portfolio at stock-market prices¹⁵. More, in one case at least, it seems that the inspector considered that the nominal profit resulting from the change of status of a firm was subject to taxation¹⁶.

These examples show that the new tax administration made many errors in the control of firm's accounts and needed much time to correct them. These errors were in most cases detrimental to the firms interests (although our source perhaps exaggerates that impression). This adds to a law that was severe in a few details that appeared later to have much importance : the first example is the solution adopted for the estimate of inventories. A general balance of the variations of the inventory value should be done after the war, what prohibited (at least from the inspectors point of view) any reserve for depreciation of inventories. That meant previous payment for potential taxes. The same conclusion results from the prohibition of carrying forward losses which was theoretically partially offset by the definition of a "détaxe" or reduction on the amount of the tax, which had to be calculated after the end of the taxable period.

As a first conclusion, the delay and the complexities in the creation of the administration responsible for the collection of the tax don't seem to have resulted in less tax paid by firms¹⁷. There was certainly a delay in the collection of the tax from 1917 to 1919, that was largely corrected from 1920 onwards. On the other hand, the administration interpreted rigourously the text of the law and committed a number of

¹³ These errors are corrected when the firm explains sufficiently the point in question, but it can last much time : in the case of Le Ripolin, the decision in its favor is taken only the 27 of June 1923 (SAEF B 15.584).

¹⁴ E.g. the case of Schneider : the stock issue occurred in June, 1913. The accountants of the firm (who edited the professional journal on the extraordinary tax on war profits) protested until 1924 against that decision without obtaining satisfaction (Archives nationales, 187 AQ 540).

¹⁵ E.g. Chantiers et ateliers de Saint-Nazaire, notes dated January 17, 1917 and March 3, 1918. In this later case, a manuscript commentary by a superior official signals that the first decision in that sense by the Commission was corrected (SAEF B 15.640). But the correction wasn't accepted in every cases (cf. note from Air Liquide dated June, 28, 1923, protesting against the decision of the inspector and arguing from the pre-war jurisprudence and from its own ancient practice ; SAEF B 15.639).

¹⁶ Cf. Letter from Berliet dated January 18, 1921, to the Tribunal of commerce of Lyon (Archives of the Crédit lyonnais, DEEF 61116).

¹⁷ The IGF report quoted above signals that before 1919, 75% of the declarations had been corrected, the administration raising the profits declared.

errors that were detrimental to the firms, and that were corrected only much later and not in every case. Both points could although appear secondary if we consider now the difficulty in the application of the tax that resulted in more conflicts : the definition of profits.

c. The definition of profits and the death of the autonomy principle.

Apart from its own organization, the tax administration puts in place progressively detailed principles of evaluation of all items on the balance sheet. The law creating the extraordinary taxation of profits is very vague on many points¹⁸. Only the profits made in France should be taxed (implicitly because only these profits could have damaged other French people), but they are not precisely defined ; the depreciation allowance on inventories doesn't explain what principles should conduct their normal estimate ; the same is true for the supplementary depreciation allowances also authorized by the law for investments dedicated to war production.

We saw earlier that a restrictive interpretation of the inventory allowance system resulted in previous payment of taxes by the firms. That was so in part because administrative decisions allowed the inspectors to carry their point of view, prohibiting any reserve for depreciation of inventories until the end of the war and thus conducing to higher profits and taxes. The estimate of the profits made in France was difficult, so in many cases firms paid the tax on their total profits until corrections were made later¹⁹, frequently with very simplifying assumptions on the estimate of the foreign profits. The practice of special depreciation allowances for investment dedicated to war production, also allowed by the law, seems also to have been severely restricted by the tax administration²⁰. In many cases, the special wear and tear resulting from intense use of machines or from their use in bad conditions (unskilled labor, bad raw materials, ...) ²¹ wasn't compensated. A lot of discussions between firms and the administration resulted from this severe and frequently variable interpretation of the law.

All these points are nothing but a sign of the progressive disappearance of the principle of accounting autonomy of the firms. Other more important signs of this phenomenon appeared during the discussions on all other items on the balance sheet, especially reserves and depreciation allowances. They were at the origins of most conflicts for which firms appealed to the Superior commission.

¹⁸ The same is true in the case of the income tax shedule dealing with profits and, in the extraordinary tax, in that of lump-sum evaluations avaible theoretically from the beginning and that was in fact belated.

¹⁹ Especially if it benefitted to the administration, see e. g. Le Ripolin and compare with L'Air Liquide.

²⁰ E.g. in the case of Chantiers et ateliers de Saint-Nazaire, the decision dated November, 2, 1921 (SAEF B. 15.640) . See also for Schneider the decision dated from June 1917 (AN, 187 AQ 540).

²¹ Penhoet 13; 14.

A detailed examination should conduct to the conclusion of a very severe limitation of all reserves (for bad debts, for depreciations, etc), violating in many cases the principle of autonomy of the firm's accounting principles. But it would be an erroneous or at least limited interpretation. The really important point is that the principle of accounting autonomy wasn't viable. Why ? Because the evaluation of profits was determined before 1914 by many various considerations, from the distribution of a sufficient dividend to the stability of the cash flow, the evaluation of costs, the control of employees, etc., much more than by abstract principles of measuring earnings²². The exact notion of depreciation wasn't present in all managers minds²³. And they were in a good position when they wanted to affect important amounts to reserves and depreciation, as all the efforts of the Courts before the war had been concentrated on the restriction of excessive dividends to shareholders and insufficient depreciation, which were the main reason of conflicts between firms and their creditors²⁴.

Depreciation is the subject that permits the best understanding of the necessity of abandoning the principle of accounting autonomy of the firms. Firms understood very early the necessity of compensating the wear and tear and the obsolescence of its assets, and also of preparing their replacement. But depreciation allowances were not decided in proportion to effective depreciation of assets nor according to any fixed rule : in many firms it was mainly a function of gross earnings, what was a good solution in very cyclical periods²⁵. It is clear that these practices are in contradiction with the very idea of a tax on profits, except if all depreciation allowances are reintegrated in profits, what would penalize hardly all capital-intensive industries²⁶.

Last but not least, the old practices should create probably an unequal treatment of different firms regarding the tax, because the evaluation of depreciations and reserves varied before the war from one firm to another for reasons quite unrelated with those legitimating differences in tax payments. For example, if neglect of fixed assets and concentration on circulating assets was a quite general characteristic of balance sheets, it varied heavily with the forms of the financing of the firm. In the opinion of

²² For a synthesis on this point, see Lemarchand (1993, p.16).

²³ It was not until July 1914 that the difference between depreciation and reserves was defined clearly by a court (Lemarchand, 1993, p.733ss).

²⁴ On the conflicts between shareholders or creditors and firms on the determination of dividends, see Hautcoeur (1994, chap.4).

²⁵ See Cellerier (1905, p.401, 406-14), Morin (1908, p. 348) and already Moreau-Néret (1939) ; many examples can be found in the reports to annual meeting of shareholders. When it was possible, durable assets were frequently depreciated in one year (see Bouvier, Furet & Gillet, 1965).

²⁶ Le Ripolin remarks it ingenuously to the tax administration (letter dated from January 1st, 1918 to the tax inspector) : "We didn't think to hide any profits. We should have put important amounts in the item "reserve for factories extension" if we would have wanted to rise the reserves". This reserve do in fact exist before the war, so the principle of accounting autonomy would allow effectively to diminish the taxable profits (SAEF B 15.584).

Lemarchand, "the financing of investments on earnings or on previous reserves explains the immediate disappearing of assets. On the other hand, in railways, the exclusive recourse to debt traduces –or authorises– the keeping of the assets on the balance" (1993, p.737).

Because the principle of accounting autonomy cannot be respected, the tax administration imposes new rules, consisting mainly in the strict limitation of free reserves and an evaluation of depreciation based on a fixed rate multiplied by each category of fixed assets. The rules are elaborated progressively, without any general decision. At the beginning, the rates are based on a retrospective calculation of the rates equivalent to the depreciation allowances decided before the war, what is clearly an ambiguous and provisory solution²⁷. The same is true for the possibility, that is maintained during some times, of depreciating inventories in a few cases, using mean rates corresponding to those used before the war²⁸ : in this case, the new rule is clearly inadequate, since reserves for inventories depreciation are by their very nature a circumstances-specific decision which cannot be organized in such an abstract way. Gradually, the administration will prescribe "normal" depreciation rates for every kind of assets, justifying its decision by the absence of clear equivalent rules before the war.

As a conclusion, we can say that in most cases, the absence of a precise definition of profits allowed the administration to define them in the greatest interest of the budget. The principle of accounting autonomy of the firm proved to be impossible to respect in practice. Its disappearance created a gap which was fulfilled by the decisions of the administration, which created an accounting system much more general and rigid than the previous one and a taxation that was probably much more severe than what the parliament had in mind at the creation of the tax. This transformation was reinforced by the absence of any correction for inflation.

d. Inflation, accounting rules, and taxation

²⁷ For example, see the note dated from July 7, 1921 from the inspector to the Chantiers et ateliers de Saint Nazaire. He explains that he recognizes that the specificity of the firm is the importance of the risk it incurs on each ship, what explains that profits appear very late and are calculated to keep stable dividends. The inspector refuses these practices for the estimation of taxable profits. He calculates a mean rate of depreciation of 19,18% between 1911 and 1913 and applies it to fixed assets. The firm protests arguing that its logic is completely different : before the war, its principle was to increase each year the depreciation allowances independently of the increase of fixed assets (letter dated from September 13, 1921) (SAEF B 15.640).

²⁸ Cf. the report by the inspector of Le Ripolin dated from March 7, 1923, which recognizes that the firm always allowed for depreciating inventories, establish that it was done in a very irregular manner (with changing from one year to another for each product from zero to very high rates), but requires nevertheless permanent and limited rates in the future (SAEF, B 15.584).

The war inflation produces a great confusion in the balance sheets. It is certainly partly the cause of the hesitations on the valuation of firms portfolios we described earlier. But the main points are, as before, the evaluation of inventories and depreciation. Firms as well as the tax administration have been accustomed by a century of stable money to neglect price variations, and they don't know how to adapt²⁹. They first want to protect themselves against the risks associated with a greater volatility in prices. Later, when the prices appear to stay at the high level they reached, many firms try to rise depreciation allowances to ensure the replacement of fixed assets. The administration accepts partially the first intent, but rejects the second one, in line with the general denial of abandoning the principle of the homogeneity of the franc through times.

The permanent claim of the firms consists in pretending that they are only looking for more protection against the risk of failure or of assets reduction which could result for example from insufficient depreciation. But this conduces them to hold a contradictory discourse.

First, concerning inventories, they try to obtain reserves for depreciation arguing that the end of the war will bring prices back to their normal level. Although we could think their only motive is to allow them to diminish their taxable profits, their concern about price variations seems to be a sincere one³⁰. The administration hesitates sometimes on the legitimacy³¹ of such reserves. The examples of prices fixed at low levels by the State during the war and the crisis of 1921 with its violent falls in prices reinforce momentarily the argument of the firms. A solution is found in 1920 with a law prohibiting inventory depreciations for normal balance sheet setting, but authorizing a special reserve for that purpose based on a comparison between inventories and prices at the beginning of the war and in July, 1920.

The case of fixed assets appears at first sight to be very different from that of inventories, since in that case it is the lasting rise of prices that allows more to depreciation, permitting to replace used assets. In a few cases, we nevertheless find the

²⁹Bisson (1925) and Mabit (1928) signaled, but quite later, the problem arising by the lack of attention to inflation.

³⁰ In favor of this opinion, the example of Le Ripolin which, as late as 1920, makes an error against its own interest in estimating the non taxable depreciation it is authorized to ask for. Contrary to what we frequently think at the end of the XXth century, inflation rates differ so greatly from one product to another that the idea of a global correction for inflation is not self evident at that date.

³¹ A few decisions accepting some reserves for inventory depreciation are known. See Le Ripolin (note from the tax inspector dated from April 23, 1917 and response dated January 7, 1918) (SAEF B 15.584). Similar concern can be found at L'Air Liquide (note 3937-2 from the financial studies department of Crédit lyonnais, Archives of Crédit lyonnais, DEEF 30212). The definitive decision against these reserves is taken by the Superior commission on September, 27, 1918 (see Nouel, 1923, p. 78).

same argument than for inventories, arguing that a rapid depreciation is necessary because of the future fall of prices and the end of the war special conditions³².

But in most cases from 1919 onwards, it is the debate between depreciation at cost price or at replacement price which becomes essential. On that point, the rule of preserving pre-war practices has no sense, since the question didn't exist in a world without inflation. The important mail received by the Ministry of Finance, and the number of books and articles published during the 1920s claiming for replacement costs depreciation are clear signs of the importance of the question. All consider that to keep the traditional system of depreciation at cost should result in heavy losses and unfair balances³³. The same demands are present in the mail between the tax administration and the firms³⁴. Commentaries by banks on the balance-sheets of their clients show that many firms tried to practice such depreciation in spite of its prohibition by the tax administration³⁵. It seems that in any cases even the securities portfolios were depreciated without any corresponding loss.

The reaction of the tax administration is clear : it prohibits every depreciation at replacement cost, and asks for an each time more detailed information on assets, costs and depreciation practices³⁶, what will result in protests against its inquisitorial methods. The tax administration refuses depreciation, with such a severity that it will be corrected in many cases by the superior commission, which recognizes the bona fide and the good cooperation of certain firms³⁷.

Not only is the principle of prohibition of replacement cost depreciation clearly imposed (the final decision was taken in 1919), but the tax administration never considers the possibility of a global reevaluation of balance sheets, a procedure that would preserve its own interests and permit to limit the pernicious effects of inflation for the firms. It seems that the politically important fiction of the parity of the franc prohibited until 1928 to consider such a solution.

One of the many consequences of this timorousness is that profits or losses linked to inflation are badly considered, and that the disparities of their distribution between

³² E.g. L'Air Liquide (note quoted in previous note).

³³ See especially the letters from many Chambers of commerce. The claims last until the stabilization of the franc in 1928 (SAEF, B 33.070).

³⁴ E.g. Chantiers et ateliers de Saint Nazaire, letter from the firm to the tax inspector dated from September 13, 1921, p.5 (SAEF, B 15.640).

³⁵ Cf. the study on Berliet by the financial studies department of Crédit lyonnais : "The balance sheet doesn't give an exact idea of profits of the first two years. Important depreciation allowances were made before the making up of the balance sheet (Archives of Crédit lyonnais, study n°4626.3 dated from December 29, 1920, DEEF 61116). From the same origin, commentaries on L'Air Liquide (DEEF 30212, note 3937-2 and 3937-4).

³⁶ See for example the tens of pages long list of materials purchased during the war sent by Ateliers et chantiers de la Loire to its tax inspector (SAEF B15.640).

³⁷ E.g. Chantiers et ateliers de Saint Nazaire, letter from the Superior commission dated from April 12, 1924, and report from tax inspector dated from July, 6, 1921 (SAEF B 15.640).

firms was accentuated by an unequal correction of war profits by the tax. Industries in which circulating capital is essential concentrate their claims on the reserves for inventory depreciation, and obtain some results with the 1920 law. But industries with mostly fixed assets cannot escape a rigorous taxation, augmented by the absence of correction for the rapid post war obsolescence of many machines.

These inequalities are exaggerated by the public opinion, which concludes frequently that firms escape the tax or that they are overburdened with taxes³⁸. If we consider that one of the main objectives of that tax was to restore the feeling that the distribution of income had been fairly corrected and that the consequences of the war had been overcome, such a division of the public opinion is a striking failure.

As a conclusion of this exam of the progressive organization and of the functioning of the extraordinary tax on war profits, we should emphasize the doubt that remains about the effective weight of the tax. We saw that in many cases, the tax administration made errors in its interpretation or in its application of the tax, and that its interpretation was in most cases quite severe. This contradicts clearly those who proclaimed that the administration was excessively indulgent with the firms. But this doesn't allow us to say that the tax overburdened them. In the last part of this study, we will propose a method which should allow to estimate the effective importance of the tax.

4. Micro-economic evaluation of the weight of the tax.

The purpose of this last part is to present a method and a few examples permitting an evaluation of the importance of the taxation of profits during the 1914-1920 period. We saw previously that the amount of the tax collected supposed a substantial rise of the share of profits in total value-added by firms. But we had to recognize that even the best data available don't permit to conclude on the effective weight of the tax at the macro-level. Our method permits an evaluation in a limited number of cases, but concerning the most important firms in the economy : those quoted on the Stock-exchange. It is based on financial theory and allows to calculate the profits as they are evaluated on the financial markets.

³⁸ Another fact reinforces the feeling of inequality in the public opinion : the difference between banks and other firms. Banks escape completely the tax (and also the normal income tax) because of the high share of their assets invested in tax-exempted Treasury bonds (more exactly *bons de la défense nationale*). Although banks suffered quite much from the war (their assets stay well below their 1913 level during all the 1920s if measured in constant francs), their financial power is denounced in relation with tax evasion via capital flights during the period of high inflation. So the fact they don't pay the extraordinary tax scandalize a great part of public opinion and leads to the special measures of the *Cartel des gauches* (on these points, see Archives of Crédit lyonnais, 31 AH 720-721).

We first expose that method and then apply it to any of the firms whose files were used in the former section.

a. The method

Until now, most historical micro-economic studies were based on accounting data, which proved quite insufficient when trying to evaluate profits, because of the variations of accounting methods (between firms or accross time), of hidden profits for tax purpose, and of the absence of any correction for inflation³⁹. When they try to overcome these problems, they reintegrate all the depreciation and reserves they find in the profits, considering the result as more satisfactory than the published balance-sheets destined to hide the true results to shareholders or creditors (Bouvier, Furet & Gillet, 1965).

In an opposite view, we try to avoid any use of accounting data by using financial data available for quoted compagnies. Their advantages are the following : all operations on the paid capital or long term debts are clearly defined and known, the firm has no power to modify their amount since they are measured by the market. Furthermore, the value of a firm's securities on the stock market gives the best estimate possible, including the value of retained earnings which is so difficult to evaluate using the balance sheet.

Our method consists in measuring the variation of a firm's value, and in evaluating the value of retained earnings by deducting the value of other sources of finance. It relies upon financial theory by supposing that the capitalization of a firm's securities on the Stock-exchange furnishes a non-biased estimate of the firm's value. The capitalization includes the value of all assets of the firm (from fixed to intangible assets, monopolistic rents, know-how, etc) evaluated by their joined profitability. The evolution of a firm's value can be analysed as follows : depreciation of existing assets, purchase of new assets and depreciation of these now assets. The purchases of new assets may be financed by stock or bond issues or by retained earnings. If we suppose that every financial operation is affected to the purchase of new assets and that in the long term the value of these assets is never very different from their purchase price (corrected for depreciation and inflation)⁴⁰, we can write :

$$E = V_n - V_1 (1 - d_1 + p_1) - \sum_{t=1}^n (D_t + K_t + N_t) (1 - d_t + p_t)$$

³⁹ For examples of such studies, cf. Grangé (1943), Marquis (1948), M. Lévy-Leboyer (1980).

⁴⁰ What means that Tobin's q is near from one.

where E is the value of retained earnings during the period from 1 to n , V_t the value of the firm (the capitalization of its securities) at date t , D_t , and K_t the amounts of debt and stock issues at date t , and finally d_t and p_t respectively the depreciation rate of assets and the variation of their prices between date t and n .

Since it is based on the comparison of the capitalization of a firm's securities at two dates, this method is not adequate for the measure of retained earnings on short period and must be used with some caution. Short term variations of the Stock-exchange quotations could move capitalization away from the value of any particular firm, what would give aberrant estimates of retained earnings. But in the long term, we can reasonably think that this method allows a better estimate of accumulated profits than does the comparison of balance sheets with the limits we presented above⁴¹.

That method should enable us to estimate whether the rise of the firms profits corresponded to what the amount taxed suggests. We only have to compare the market estimation of retained earnings (E) to the profits evaluated by the tax administration minus dividends and taxes, or :

$$C = \Sigma(B_t - \delta_t - \tau_t) (1 - d_t + p_t)$$

where B_t is the amount of profits of year t as evaluated by the tax administration, δ_t the dividend payments of year t and τ_t the amount of taxes (extraordinary tax on war profit and normal income tax) paid during year t .

b. Examples

We applied that method to a few examples chosen in the firms whose files were examined above, for the period between June 1913 and June 1914. We chose these dates because they correspond to the period covered by the extraordinary tax, and also considering the fluctuations of stock market prices. June 1913 is before the first anticipations of war, and June 1920 is, like June 1913, a period of a maximum in stock prices.

Our first intention was to make a systematic study of all quoted firms for which a file was opened at the Superior commission (it seems that it is the case of a large majority of them), what means about 300 firms for the official Paris Stock-exchange. We had to limit our work until now to a few examples because of the complexity of each file, which makes quite long the understanding as well of the exact amounts of profits estimated by the tax administration as of the dates of the payments of each firm.

⁴¹ For a more detailed description of this method, a discussion of the main problems it rises and sensibility analysis of its results on different periods, see Hautcoeur (1993).

It is difficult to measure the effective weight of taxation during that period. First, all firms in our sample appealed to the Superior commission. In many cases, they didn't pay before June 1920 the total amount of the tax they will have to pay in total (or they paid some more than what they should have paid). So we can hesitate between an estimation based on the tax already paid, the tax already decided and the tax that will finally be paid, a difficulty reinforced by the choice of the actualization rate in the last cases (the estimation of the firm's value is made on the market, and includes only the information available). The same is true for the measure of profits by the tax administration, since it is modified during the discussions with the firm.

Endly, we had to complete the amount raised by the extraordinary tax with that collected by the income tax schedule on profits. The problem is that we have no information on the assessment of that tax. We supposed the taxable income was the same as for the extraordinary tax. Since the rate of the income tax is relatively low (8%, and only from 1918 onwards), we don't think that this problem can modify significantly the result.

Fortunately, the examples we examine give a non-ambiguous result whatever the hypothesis used on all the points mentioned above. The main results are summarised in table 1.

As the table shows, the cumulated retained earnings of the four firms for which we had all the information needed are negative for the period mentioned. For three firms out of four, the total of the profits estimated by the market is negative, what means that the decrease of the value of the assets is greater than the amounts of joined dividends and taxes. These firms would not have had enough profits to keep their initial value even if they had retained all their profits without paying dividends or taxes. The tax was imposed to firms losing money, so all were overburdened by the mere fact that they paid taxes. And the fact is that they paid much taxes.

Only l'Air Liquide made some money, although it paid in dividends and taxes much more than its profits. Taxes represent in our estimate 137% of total profits. This difficult situation will be restored by numerous and important stock issues that allow the firm to keep growing.

The cases of the three other firms are also quite different from each other. Le Ripolin made much money before the war, and the tax administration recognized that its profits didn't rise much during the war : it paid taxes only for the years 1918 and 1919. But as it distributed growing dividends, its retained earnings are negative, both from the point of view of the administration and of the market. And the market estimate shows that all dividends were pure inflationary illusion, and that the firm didn't take effective depreciation into account.

The Ateliers et chantiers de la Loire and the Chantiers et ateliers de Saint Nazaire tell another story. They worked for the army during the war, so they maintained their activity more easily than other industries, and made high apparent profits. The Ateliers de la Loire afforded to rise their market value by important debt issues. But, probably because depreciation were prohibited by the tax administration in spite of the very capital-intensive nature of this industry, market estimates of retained earnings and profits are highly negative, so that the payment of heavy taxes worsen the decrease of the firm's value.

Conclusion

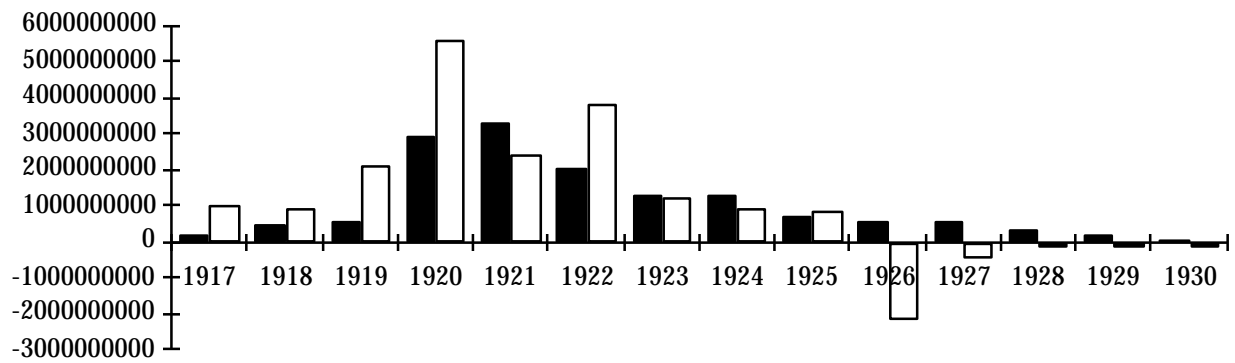
The contemporary protests against unmerited enrichment of any firms during the war caused the creation of an extraordinary tax on profits made during the war. Some observers considered that this tax had insufficient results because of a timorous application by a new administration and of the capacity of firms to hide profits. The qualitative and quantitative evidence we presented above shows that the firms were probably quite heavily taxed, and that the amount that were collected by the tax may have had some negative influence on their investment at the beginning of the 1920s.

References

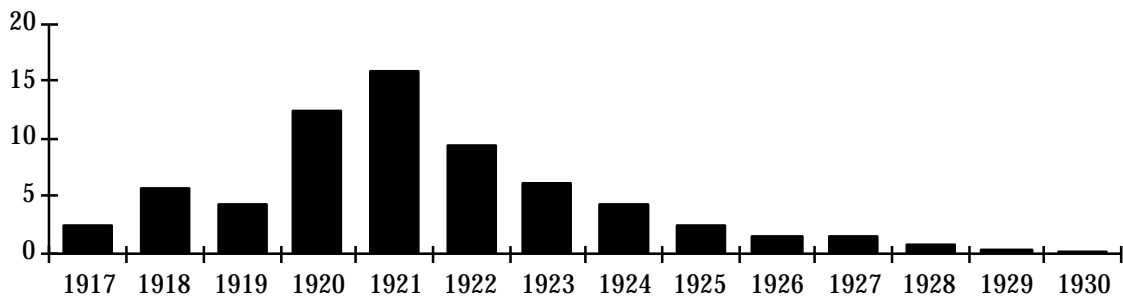
- Bayart, P., *Les effets de l'inflation sur le bilan au point de vue fiscal*, Paris, Sirey, 1924.
- Bisson, A., *Le bénéfice réel d'après le bilan*, Paris, Sirey, 1925.
- Bouton A., *La fin des rentiers*, Paris, M.-P. Trémois, 1931
- Bouvier J., F. Furet & M. Gillet, *Le mouvement du profit en France au XIX^e siècle*, Paris, Mouton, 1965.
- Cellerier L., *Études sur les sociétés anonymes*, Paris, Sirey, 1905
- Colin M., *Des mesures à prendre pour défendre l'épargne dans les sociétés par actions*, Paris, Sirey, 1911
- Fuzet H., *Cours de comptabilité de l'École libre des sciences politiques*, Paris, 1934
- Galibert J., *La réévaluation des bilans après la stabilisation du franc*, Douladour, Toulouse, 1930.
- Eichengreen, B., "The capital levy in theory and practice", in R. Dornbusch & M. Draghi, *Public debt management: theory and history*, CUP 1990
- Grangé M., *L'autofinancement des entreprises*, PhD thesis, Paris, 1943.

- Hautcoeur, P.-C., "Le financement des entreprises françaises de 1890 à 1936 : une approche microéconomique sur données boursières", *Économie & Statistiques*, n°268-69, 1993-8/9, pp. 141-57
- Hautcoeur, P.-C., *Le marché boursier et le financement des entreprises françaises, 1890-1939*, PhD thesis, Paris I, 1994.
- Faivre-Reuille, J., *Etude théorique et pratique sur la loi du 1er juillet 1916 établissant une contribution extraordinaire sur les bénéfices de guerre*, PhD thesis, Paris, 1920.
- Jacques-Charpentier, *Traité pratique des bilans et inventaires*, Berger-Levrault, 1921.
- Le Cars, A., *L'application de l'impôt sur les bénéfices industriels et commerciaux, modalités et résultats*, thèse Paris, Floch, 1924.
- Lemarchand, Y., *Du dépérissement à l'amortissement, enquête sur l'histoire d'un concept et de sa traduction comptable*, 2 vol., PhD thesis, Paris XII, 1993.
- Lévy-Leboyer M., "The large corporation in modern France", in : A. D. Chandler & H. Daems, *Managerial Hierarchies, Comparative Perspectives on the Rise of Modern Industrial Enterprise*, Cambridge, Harvard U.P., 1980, p.117-60.
- Mabit, J., *La restauration monétaire et les bilans*, Paris, Hachette, 1928.
- Marquis P., "Des "excédents comptables" des sociétés à l'autofinancement", *Études et conjonctures*, E.F., n°6-7-8, 1948, p.11-45.
- Moreau-Néret O., *Les valeurs mobilières*, Paris, Sirey, 1939
- Morin G., "De la constitution de réserves non statutaires dans les sociétés anonymes par délibération de l'assemblée générale des actionnaires", *Annales de droit commercial*, XXIX, 1908, p.345-408.
- Moulin, A., *La guerre et le développement industriel à Clermont-Ferrand*, PhD thesis, Paris-X, 1986.
- Nouel, J., *L'amortissement dans la loi sur les bénéfices de guerre*, Paris, Sirey, 1923.
- Oualid, W., *Les bénéfices de guerre, enquête soumise au Comité national d'études sociales et politiques*, Paris, 1918.
- Petitbon, *La taxation des bénéfices de guerre et le prélèvement temporaire sur les excédents de bénéfices*, PhD thesis, Nancy, 1943
- Proux, P., *Du privilège du Trésor pour le recouvrement de la contribution extraordinaire sur les bénéfices de guerre*, PhD thesis, Paris, Jouve, 1924
- Stamp, J., *Taxation during the war*, London, 1932.
- Taboureaux, R., *L'impôt sur les bénéfices de guerre*, PhD thesis, Paris, 1919.
- Villa, P., *A Century of Macro-economic Data*, Paris, INSEE, 1994.

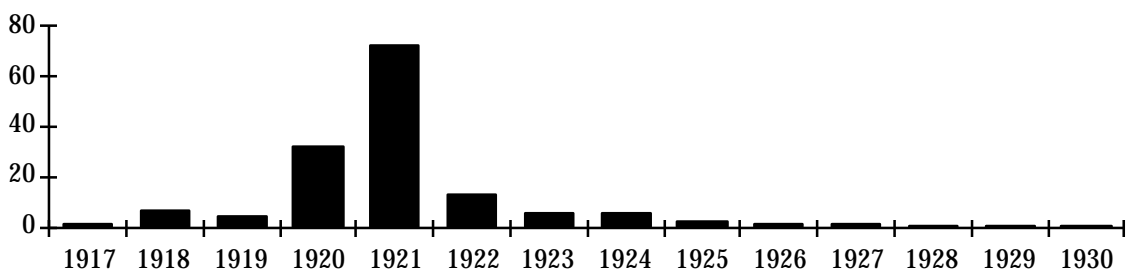
Graph 1 : annual amount of rolls issued (white) and tax collected (black) (1917-1930)



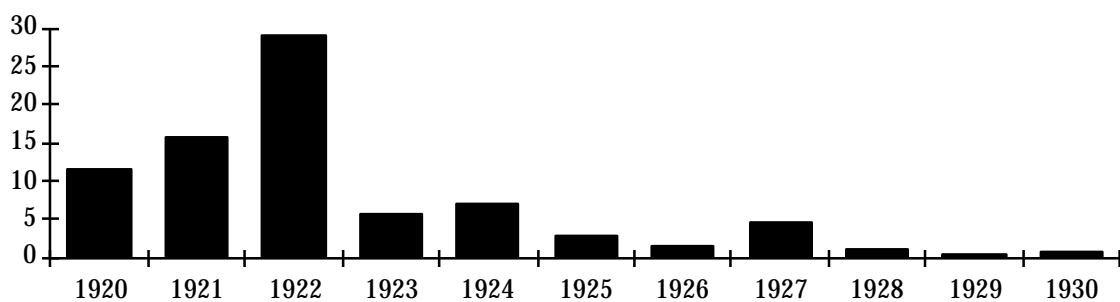
graph 2 : annual collections of the rolls in percent of non-agricultural investments (1917-1930)



Graph 3 : annual collections of the rolls in percent of non-agricultural gross trading profit, 1917-1930.



Graph 4 : annual collected amounts in percent of the financial needs of non agricultural firms (1920-1930)



Graph 5 : annual rolls issued in percent of budgetary receipts (1917-1930)

