

Italy and the Antitrust Law: an Efficient Delay?

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February 1, 2004

Abstract

The paper examines the reasons that induced Italian Parliament not to approve an antitrust law at the end of the nineteenth century and in the first half of the twentieth, while in the United States, the first national antitrust provision, the Sherman Act, was adopted in 1890.

Was the American decision to legally enforce competition not optimal? Or was Italians' *laissez-faire* policy on this issue inefficient? Or, still, were there significant enough differences in the underlying structure of the economy between the two States to justify two different, yet both efficient, paths in the adoption of the law?

The results, albeit controversial, seem to support the last hypothesis. The thread of the argument is the following: The United States economy was solid, so competition enhanced social welfare by eliminating the distortions generated by positions of market power by firms.

On the other hand, Italian economy was more diverse. The most developed industries were smaller and more competitive, in the analyzed time interval, than their Northern American counterpart. The heavy industry, which lagged well behind both American and other European competitors, needed instead to operate in a non competitive market to catch up. Enforcing competition would have been useless for the former group, even harmful for the latter.

As a consequence, the various lobbies whose special interests have collided with the public interest do not appear to have significantly affected the pattern of adoption of Antitrust.

1 History of modern Antitrust Laws

Antitrust Laws are rules targeting the trusts, in their capacity of institutions that put in place a system of price fixation and of market sharing that potentially entails distortions on the political, economic and social grounds. Going beyond the etymological definition, and setting them in an historical perspective, Antitrust laws aimed at hampering the circumstances of market power held by private agents through cartels between firms or acquisition of a dominant position.

Many scholars identify in the Sherman Act, promulgated by the American Congress in 1890, the first modern Antitrust norm¹; however, seventeen American States, first of which was Maryland in 1867, had already adopted by 1890 their own competition legislation; furthermore, before the Sherman Act, there already existed in the United States some national Antitrust provisions targeting specific sectors. An example of these is the Interstate Commerce Act of 1887, forbidding the practice of pooling² for the railways companies. In essence, it is unquestionable that the modern Antitrust Law was born in the United States in the second half of the nineteenth century.

European countries have not had an effective³ Antitrust Law until after the second world war. The treaties instituting the European Coal and Steel Community in 1951 and the one initiating the European Economic Community in 1957 established Antitrust laws in the six original member States, France, West Germany, Italy, the Netherlands, Belgium and Italy. Besides, some of these States approved their own national organic Antitrust Law, the first of which was West Germany in 1957, followed by France in 1963. Italy adopted its own only in 1990, after more than thirty years of unsuccessful discussions in the Parliament⁴. As a consequence, the competition laws in countries adhering to the European Common Market are two-tiered, and the criterion for the decision of the appropriate norm to apply in each instance has to be recovered in the complicated, and often ambiguous, system of legal hierarchies and priorities enforced within the European Community. This generates significant differences among countries, facetiously summarized in the following aphorism used by a distinguished English solicitor: "In Germany, everything is forbidden which is not expressly permitted. In England, everything is permitted which is not expressly forbidden. In France, everything is forbidden, but nearly anything can be arranged"⁵.

Historical evidence displays a pattern toward adoption of Antitrust laws, while no instances of retrieval have ever been registered.

The present work performs a comparative analysis of the efficiency of competition law in the United States and in Italy. It analyzes the reasons for the different attitudes of the Italian and of the American law-makers in the time interval 1880-1920 with respect to Antitrust, and then attempts at evaluating the economic efficiency of the two policies within the environment in which each of them has been carried on. The discussion in the literature over the efficiency of

¹The Sherman Act is unanimously considered the first modern Antitrust law promulgated at a national level

²Pooling consisted in creating a pool of industries and delegating to a manager the fixing of the profit margins and the division of the market.

³West Germany adopted an unenforced Antitrust Law in 1924, during the Weimar Republic.

⁴Analogously to the American case, the path toward the approval of national competition-enhancing laws started with regulations concerning specific industrial sectors or specific geographical areas. For example, Italian Parliament passed a law devolving to the Bank of Italy an antitrust power for the banking and credit sectors.

⁵See Kinter-Joelson (1974), p. 192

Antitrust provisions in the American experience is extensive⁶, while analogous works for Europe are very rare. Furthermore, there has not been any attempts at comprehending the lag of the various European countries in the emergence of competition law in the light of the economic theory of rationality.

2 Theoretical arguments in favor of Antitrust

Before getting into the core of the paper, which adopts a positive standpoint to analyze the emergence of antitrust laws, it is useful to introduce a brief review of the vast body of literature, investing the fields of law, economics, politics, philosophy and sociology, dealing with this issue in a purely normative perspective.

A variety of scholars have studied the theoretical reasons for the necessity of the competition laws, reaching many conclusions; however, I feel the possible explanations may be roughly categorized into three groups.

Historically, the first argument emerging in the theoretical debate was the defense of the individual liberty *vis à vis* the emergence of market power, considered illegitimate, by the private sector. This idea of a deprivation of freedom that ultimately threatens the foundations of the democratic structure of the nations, by concentrating in groups of private citizens an overwhelming power, has been formally theorized by the Ordoliberal School of Freiburg, active in the half of the twentieth century. The school highlighted the importance of guaranteeing to small business the right of existing *per se*, regardless of their economic efficiency. Translated into a legal framework, this theory privileges the contractual freedom over efficiency arguments⁷. Flavors of it, of course in an *ante litteram* version, can be found already both in the antitrust instances decided by American Courts before the first explicit Antitrust laws - the Sherman Act and the State laws -, and in the preparatory works for the Sherman Act itself. Senator John Sherman indeed declared:

“The popular mind is agitated with problems that may disturb social order, and among them all none is more threatening than the inequality of condition, of wealth, and opportunity that has grown within a single generation out of the concentration of capital into vast combinations to control production and trade and to break down competition. These combinations already defy or control powerful transportation corporations and reach state authorities. They reach out their Briarean arms to every part of our country. They are imported from abroad. Congress alone can deal with them, and if we are unwilling or unable there will soon be a trust for every production and a master to fix the price for every necessity of life.”⁸

The German Law of 1957 was written by Franz Bohm, a member of the Freiburg school elected in the Bundestag, and was inspired by the Ordoliberal

⁶An overview of it will be provided in the 4.

⁷The argument is an heritage from Locke. For a detailed analysis, see Locke (edited by Lasslett, 1967), II, par. 4

⁸See Kinter-Joelson (1974), p. 4.

principles.

The traditional economic argument appeared on the scene in a second stage, and spread at first under the influence of Marshall's work, at the turn of the century, and subsequently, after the second world war, through the teachings of the Chicago School. Economic theory highlighted the role of competition as the essential mechanism leading to economic efficiency, through the maximization of social welfare; however, Chicago School theorists, among which George Stigler, were more careful in pointing out the gains in terms of efficiency by concentration⁹, thus assessing the existence of the trade-off between fully efficient and fully competitive markets nowadays unanimously recognized by the specialists.

Finally, a number of jurists¹⁰ regards prohibition of anticompetitive practices as merely instrumental to other economic processes. The European juridical literature extensively documents this instrumentality in relation to the process of European market integration and of competition between the different States. The thread of the argument is the following. As the State have lost the power of adopting traditional measures of sustain of the national economy, the permanence of dominant positions might generate negative externalities on a subset of States. For instance, the States involved in the Common Market have no policy defense against the low prices charged by firms located in other countries operating in condition of efficient natural monopoly¹¹; this could collide with national interests, and therefore potentially hinders the process of European unification. The theory of instrumentality applied to the process of European integration identifies the roots of the European competition law in considerations inspired to *realpolitik* rather than to economic efficiency. Indeed, a consequence of the theory is that dominant positions would be particularly harmful if efficient¹².

3 Legal analysis

A succinct history of the modern competition law is now traced, in order to set the stage for the subsequent economic analysis. After their approval, the Antitrust Laws have not had the same impact on the legislative structure of Italy and of the United States. In the Civil law systems, prevalent in Europe, with the significant exception of the United Kingdom, they represented a watershed, as prior to them the courts had no means to prosecute anticompetitive behaviors. On the contrary, in the Common Law system in place in the Anglo-Saxon countries,

⁹They recommended a case-by-case examination of the situations of concentration to determine whether the losses from being further from the competition actually outweighed the gains from increased efficiency. Their impact on the American courts has been very significant, and has entailed a greater flexibility in the court decisions, emanated after a thorough analysis of the matter.

¹⁰See Amato (1998).

¹¹This aspect is getting increasingly more important, as the national States have lost authority over the monetary policy, an instrument that in the past has been used to adjust the degree of competitiveness of national industries *versus* the foreign ones.

¹²See Jarman-Williams (2001), p. 6.

in which judges are given a creative power in the absence of a specific law or of previous sentences regarding analogous instances, the limitations of anti-competitive behaviors were prosecuted even before *ad hoc* provisions declared them illegal; therefore, in the United States the modifications arisen in the aftermath of the Antitrust Law have not been dramatic.

The present section will examine the evolution, the structure and the provisions of the Antitrust Laws in Italy and in the United States. The enforcement and sanctioning systems will be omitted, as a deep analysis of their significance cannot avoid to set them in the overall legal structure of the countries, a task that goes beyond the scope of this paper.

The formulation of both American and European major Antitrust laws is extremely straightforward; this phenomenon is particularly striking for the European countries, characterized by a tradition of enigmatic norms¹³.

The history of North American Antitrust is very complex and articulated; here, only the three most relevant and innovative pieces of national legislation are now briefly outlined, followed by a short summary of the state law adopted prior to the Sherman Act, and by an overview of the evolution of the American jurisprudence on the subject. The United States as a nation had their own national antitrust provision since 1890, when the Sherman Act was passed. It declared, with an extremely direct formulation, any “combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations” illegal. Furthermore, it prohibited attempts of monopolization of the market. The Clayton Act, emanated in 1914, prohibited price discrimination, exclusive contracts and tie-ins¹⁴. In 1936, the Robinson-Patman Act adapted the discipline of the discriminatory prices in the light of the new market conditions in which distributors with an high contractual power could obtain lower prices, thus achieving competitive advantages, sometimes not justified, damaging the small business¹⁵.

Seventeen States emanated their own Antitrust law prior to the Sherman Act. A wage of adoption was observed in 1889, but five states had previously enforced competition, Maryland in 1867, Tennessee in 1870, Arkansas in 1874, Texas in 1876 and Georgia in 1877¹⁶.

Even before the explicit norms, the Common Law system punished practices restraining competition, heading against the pooling and the trusts, promoted as a way of monopolizing markets¹⁷. The judges claimed they were protecting the freedom of contracting, in the case of “contracts in restraint of commerce”, and the freedom of third parties, guaranteed against exclusion practices, in the instance of “conspiracy in restraint of commerce”. Under such circumstances, agreements displayed restrictiveness as long as they limited the freedom of con-

¹³Most scholars attribute the cause of this phenomenon to the American influence.

¹⁴The tie in consists in making the conclusion of contracts subject to acceptance by other parties of supplementary obligations which have no connection with the subject of such contracts.

¹⁵See Sherman Act, sections 1 and 2, Clayton Act, section 2, Robinson-Patman Act, section 1.

¹⁶See Stigler (1985), p. 6.

¹⁷The literature often refers to John Rockefeller as the first promoter of trusts.

tracting of one of the parties, regardless of the effects on competition, or as long it deprived third parties from the freedom of staying on the market, or of buying goods or services at the best available prices. As a consequence of this framework, an agreement violates the contractual freedom, and therefore is considered illegal, if it imposes to the contractors constraints on their future contractual freedom. In the absence of such effects, the agreement cannot be deemed illegal, since it constitutes an expression itself of the contractual freedom that the system guarantees. According to the competition jurisprudence, the judicial criterion to identify agreements that actually violate competition laws is the so-called rule of reason, in which the degree of coercion of an agreement constitutes the parameter to be evaluated .

After the introduction of a formal law, the American jurisprudence has been oscillating among three alternative interpretations: the invalidity *per se* of any agreement or concentration in restraint of trade, much in the spirit of the texts of the Sherman and of the Clayton Act; the configuration of a violation only in the cases in which contractual freedom is excessively limited, in the spirit of the rule of reasons traditionally applied in the Common Law systems; finally, the illegality of agreements that determined disadvantages for the consumers, under the influence of the economic efficiency arguments¹⁸.

European competition regulation is shaped both by the European Community provisions, and by the national laws. The treaties instituting the European Community of Steel and Carbon, dating back to 1951, prohibits “all agreements between undertakings, decisions by associations of undertakings and concerted practices tending directly or indirectly to prevent, restrict or distort normal competition”¹⁹. In particular, cartels aimed at fixing or determining prices, at restricting or controlling production, technical development or investments and at sharing markets, products or sources of supply are declared illegal. Exceptions are allowed if the conditions relative to a substantial improvement in the production or distribution of the product and to the essentiality of the agreement for that purpose are satisfied. Furthermore, the treaty forbids all concentration that tend “to determine prices, to control or restrict production or distribution or to hinder effective competition” and “to evade the rules of competition instituted under this Treaty, in particular by establishing an artificially privileged position involving a substantial advantage in access to supplies or markets”²⁰. The ECSC norms can be interpreted in the light of the Marshallian theory, as it prevents the emergence of departures from the rules of competition, which assure the correct functioning of the economic mechanisms.

The treaty instituting the EC of 1957 presents strong similarities with the ECSC treaty; however, there are some interesting novelties worthwhile pointing out. The restriction of validity to “practices that may affect trade between Member States”²¹ enhances the argument of the instrumentality of the law with respect to the market integration. The prohibition of price discrimination and

¹⁸See Amato (1998), p. 13-15.

¹⁹Art. 65 of the ECSC treaty.

²⁰Art. 66 of the ECSC treaty.

²¹Art. 81 of the EC treaty.

of tie ins is introduced. The conditions for the exceptions, mainly the allowance to the consumers of “a fair share of the resulting benefit” from the increased efficiency, reveal the doubtless influence of the Chicago School. The prosecution of the dominant position is assessed.

In Italy, the Parliament has emanated an Antitrust law in 1990²², even though many proposals have unsuccessfully been discussed in the Parliament since the 1950. It follows very closely the lines of the European norm, with the obvious difference that it refers to the national market, lacking the instrumentality feature that characterize its counterpart. The explicit recall, at the first article, of the guarantee of the right of business initiative, with the citation of the article 41 of the Italian Constitution stating the principle of freedom of economic initiative, suggests a reference to the Ordoliberal theory and seems to indicate, contrary to the Communitarian legislation, the prevalence of the philosophical rationale over the economic one.

4 Arguments against efficiency

A precise definition of the concept of a socially efficient policy in the present context, albeit necessarily ambiguous, is an essential requirement for the identification of the possible roots of inefficiency and, ultimately, for the evaluation of the optimality of the choices effectuated by the decision maker. In the present framework, a socially efficient policy is one that maximizes the average welfare of the citizens of a nations within the spell for which that policy will be effective. It is useful to distinguish between the notions of *ex ante* and *ex post* social efficiency. The former considers only the information set available to the decision maker, in this case the legislative body, at time of the decision, while the latter incorporates factors that could not be reasonably forecast at the time of the decision, but have indeed affected the outcome of the policy. Even though empirically it is not easy to operate a clear distinction between the two notions, I will try to stick to the concept of *ex ante* efficiency for the rest of the paper, and show that, however, it is often the case, in the present analysis, that the two end up being equivalent.

The sources of *ex ante* inefficient economic policies can be roughly classified into three different categories, those that are determined by mistakes of the politicians, those that are affected by the pressure of vested interests, and those that are influenced by the prevalence of non-economic reasons. It is evident that not all the policies dictated by one of the three above mentioned reasons are economically inefficient, whereas I am claiming that all inefficient policies result from one of these causes.

The present paragraph delves into the extent of the two potential roots of inefficiency with reference to the historical experience of the United States and of Italy in the Antitrust sector between 1890 and 1945.

A huge debate over the economic efficiency of the American Antitrust Law has recently involved many law and economics scholars. George Stigler, pioneer

²²Law 287/90.

of the positive theory of the antitrust law, assessed that competition law has been driven by special interests and by constituencies that saw in it an opportunity of welfare-enhancement for their group²³. The lobby theory does not clash *per se* against the efficiency argument, as the two aspects can coexist. However, on the empirical grounds, the absence of an evidence of groups pressure orients to an efficiency-based explanation, while the reverse is not necessarily true.

George Stigler²⁴ tests the relevance of the actions of constituencies opposing the Sherman Act. The starting point of his analysis is that "the obvious losers from an Antitrust policy would be the present (1890), and prospective possessors of monopoly power". Using a concentration index of American industry²⁵, he estimates the correlation between the extent of potential monopolist and the adoption of a State antitrust level. The negative correlation which the special interest model would predict is actually observed, but it is scarcely significant. According to the author, it is due to the already mentioned minor impact of an Antitrust Law in a Common Law setting.

Boudreaux, Di Lorenzo and Parker²⁶ test the correlation between the emergence of State competition laws and the significance of the agrarian interests, finding the expected positive correlation. According to the authors, farmers were eager for statutes that thwarted the newly centralized food processing facilities, which represented their natural demanders. Stigler's work, while confirming the positive correlation between agrarian force and competitive laws, attributes it to agrarian opposition against railroad cartels, raising transportation costs. In this case, the alleged market imperfection concerned the input side of the special interest promoting action towards antitrust.

Sjostrom²⁷ claims that consumers are the only group that appears to benefit from banning collusion. However, their high organizational costs, according to him, prevented them from constituting an influential lobby, thus limiting their effects on the political decision making process.

I will examine the influence of the consumers group evaluating their impact as electors, within a simple political economy framework that, albeit not classifiable as a special interest model *strictu sensu*, might shed some light on the issue.

Before illustrating the model and discussing its explanatory power, a brief overview of the evolution of the United States election system is now presented. The United States legislative power is exerted by the House of Representatives and by the Senate. As the Constitution assigns to each State the faculty to decide the set of electors, a uniform regulation across the country has not been observed until very recent times; previously, various kinds of discrimination arose in the different areas, involving race, wealth, education or gender. The universal enfranchisement for women was adopted only in 1920; furthermore, no

²³For a survey of the interest group theory of Antitrust, see McChesney-Shughart (1995).

²⁴See Sylla-Toniolo (1991).

²⁵See (?).

²⁶See D. Boudreaux, T. Di Lorenzo, S. Parker, "Antitrust before the Sherman Act", in McChesney-Shughart, p. 255.

²⁷See Sjostrom (1998), p. 3.

single State had allowed the voting right to women by 1890²⁸, which will justify in the analysis that follows the restrictions to male in the consideration of the potential electoral base in the Sherman Act time. In 1870, the 15th Amendment was added to the Constitution, establishing that “the right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of race, color, or previous condition of servitude”. Some States, however, responded to the law by introducing measures that *de facto* nullified it, such as “Poll Taxes”²⁹, literacy tests, or even family clauses that limited the right to vote to descendants of people who already had it³⁰.

The simple political economy model I am constructing is based on the assumption, shared by all the economists, of the consumer welfare enhancement by competition laws, at least in the short run³¹. It does not imply the overall efficiency of antitrust, which, on the contrary, is disputed by many economists, led by Schumpeter. Each agents value function $v(w, p)$ depends on prices and wealth. For all agents, $\frac{\partial v}{\partial p} < 0$ and $\frac{\partial v}{\partial w} > 0$. As an effect of Antitrust law, prices increase. Defining a variable A identifying the level of enforcement of competition, the relation $\frac{\partial p}{\partial A} < 0$ follows by the consumer welfare maximization realized by Antitrust, and applies to all the agents. It is more complex to assess the effect of antitrust on wealth: A subset of agents, called α , participating in the profits of the firm in the unregulated environment, is forgoing them with competition enforcement, thus is harmed by it; a subset β on the contrary was not benefiting in the *status quo* of any gain, thus their wealth is not affected by the regime modification. Therefore, $\frac{\partial w(\alpha)}{\partial A} < 0$, and $\frac{\partial w(\beta)}{\partial A} = 0$. In conclusion, $\frac{\partial v(\beta)}{\partial A} > 0$, while $\frac{\partial v(\alpha)}{\partial A} \gtrless 0$, depending on which of the effects prevails. As an implication, all the electors in the set α support competition laws, while group β is split.

Historically, electors have not been selected randomly insofar as restrictions were put in place. In the United States, the wealthiest citizens have always had the right to vote. Prior to the introduction of the universal suffrage, discrimination, as mentioned, was based either on wealth or on individual characteristics that were correlated with it, such as literacy, education or race. Furthermore, empirical evidence shows that wealthiest people have a higher probability of belonging to the subset β defined in the model than poorer, given the intuitively clear correlation between participation in the profit of dominant firms and wealth. As a rough, yet useful, simplifying approximation, it can be claimed that individuals β have always had the right to vote in the United States, while the proportion of α voters has varied according to the restrictions. As a consequence, the widest is the set of voters with respect to the total population, the highest is the relative weight of group α electors, and the highest is the likelihood

²⁸The pioneering State has been Colorado (1893).

²⁹This measure, introduced in California, required citizens to pay a tax to obtain the right to vote.

³⁰The overview is based for the most part on the following: United States Department of Commerce, Bureau of Census, “Historical statistics of the United States”, Kansas International Publications, 1989, chapter Y.

³¹See Tirole (1998).

of successful pressure boosting antitrust in the decision-making process.

Translated in historical terms, this median elector model predicts that, *ceteris paribus*, the smallest the electoral base is with respect to the total population, the highest is the political power of those who benefit of rents in the regime of legal trusts, the least likely is that the reform passes. From the researcher's viewpoint, the United States present the advantage that national legislation is complemented by State legislation. Therefore, the test for the validity of the model consists in verifying whether there exists a positive relation between the passage of the law and the percentage of citizens with the right to vote. To estimate the evolution of the extension of the right to vote in the time, I have employed the data on the absolute number of voters, and on the affluence to the elections to the Presidential elections aggregated by State, to capture the amount of potential electors in each State at the different elections. Then, the ratio between the potential electors and the male population above the age of 21 has been computed to evaluate the percentage of citizens with the right to vote. The evidence is that the voting rules enforced for the Presidential elections reflected quite precisely, except for slight variations, those used for both the elections for the National Congress and the State Parliaments. As a consequence, data on the electoral body for Presidential elections constitute a good proxy for all other kinds of elections.

The econometric model is the following:

$$R_i = \beta_{0i} + \beta_{1i}\delta + \varepsilon_i \tag{1}$$

where R_i indicates the percentage of people with the right to vote in the years 1880 and 1888 in each State, indexed by i , and δ is a dummy taking the value 1 if the State has passed an antitrust law by the time considered, and 0 otherwise. The results show that the effect is indeed perceptible with β_1 taking the value of 5.2852% for 1880 and of 6.890684 % (variance of 0.005232) for 1888. A political economy reason might therefore contribute to the explanation of the phenomenon. One question that remains to be answered is whether or not there was actually more need in those states of an antitrust legislation than in the other states, or, in econometric terms, if the percentage of citizens with the right to vote is actually negatively correlated with state competitiveness.

In contrast with the American abundance of positive analysis of the evolutionary pattern of the competition law, the European literature on the issue exhibits a surprising deficit³². In particular, the special interests hypothesis accounting for the the lack of a competition law until 1990 in Italy has not been examined, nor the question of the optimality of the Italian pattern in the competition law has been touched. I am performing now a political economy analysis to cast some light on a potential root of inefficiency of the *laissez faire* policy on this ground put in place in Italy; given the absence of clear sources of identification, the analysis is going to be predominantly qualitative, and it is

³²One of the rare exceptions is Sjostrom (1998), who, however, in his discussion, confirms this deficit.

preceded by a review of the form of government and of the election and decision making mechanisms in the relevant time interval.

The Italian State was formed in 1861 under the aegis of the Savoia dynasty, which reigned, within a Constitutional Monarchy system, until the end of the second world war. The legislative power was exerted collectively by the Senate, whose members were appointed by the king, and by the House of Representatives, directly elected by the citizens. A lot of restrictions were established in order to circumscribe the electoral base, which, until 1882, included only approximately 2% of the overall population. The 1882 reform extended the right to vote to all male citizens older than 21 and either possessing a minimum requirement in terms of education or paying an amount of taxes higher than a predetermined threshold; as an effect, 6.2 % of the overall population could vote in the 1882 elections. The male universal suffrage under proportional representation was established by the electoral laws of 1912, proposed by Giolitti, and of 1919³³. However, just four years after, in 1923 the so-called "Acerbo law", actually designed by Mussolini, introduced a majority premium, allowing the coalition obtaining a relative majority in the election an absolutely majoritarian representation in the Parliament. The abnormal entity of the premium induced most of the commentators to regard the law as a regression from a representative to a plebiscitarian democracy³⁴. The degeneration of the election system during fascism became even more pronounced in the subsequent period. From 1928, the citizens were called only to ratify the candidates appointed by a newly created institution, the "Great Council of the Fascism", laying down the definitive transition to a plebiscitarian system, and the collapse of the representative mechanism. After the second world war, the switch to a Republican system was accompanied by the extension of the right to vote to women.³⁵

A division of the Italian politics history into four periods is useful: until 1912, an elitist democracy arose, characterized by the direct relation between elector and elected; the link vanishes with the proportional system combined with the male universal suffrage that informed the period 1912 to 1923. Then, the fascism was characterized by the transition to a plebiscitarian system and by an authoritarian attitude. Finally, after the war, a modern electoral system, based on universal suffrage and proportional representation, emerged in the Republican context.

The issue to be explored here concerns the degree to which special interests in the relevant time periods for the present analysis informed the competition policy. At first, the applicability of the theories developed for the American experience is verified; subsequently, country-specific vested interests theories are developed and tested using historical evidence.

Many scholars regarded the agrarian interests as the driving force of North American Antitrust. Agriculture pressure for reform was determined by the

³³The 1912 law subordinated the right to vote to an age of at least 30, or to the involvement in the military service, while the 1919 law extended it to all citizens above 21.

³⁴Sabbatucci, G., "Il suicidio della classe dirigente liberale: la legge Acerbo 1923-1924", in Sabbatucci (1995), p. 104.

³⁵The overview is based on Sabbatucci (1995).

increasing costs of transportation according to Stigler, and by the oligopsony generated on their demand side in Boudreaux, Di Lorenzo and Parker's view. In Italy, transportation developed later, and the railroads network at first very small, and then managed by the State. The demand for agriculture products, on the other hand, was not concentrated, as the indexes on industrial concentration³⁶ relative to food industry demonstrate. Furthermore, an investigation on the supply chain of agricultural products shows that a significant share of agricultural products were sold directly by the farmers to the final consumers³⁷, escaping the intermediation process often observed in the United States. Finally, the backwardness in the transportation system, persistent in Southern Italy until 1940, reduced the dimensions of the markets, thus generating potential for concentration and dominant positions, extensively employed, among the agricultural sector itself. As a consequence, the hypothesis formulated by Stigler and Boudreaux *et alii* displays a scarce match with the Italian history.

In fact, agrarian lobbies, especially in Southern Italy characterized by the institution of *latifondo*,³⁸ might have organized a pressure on the government against the adoption of the competition law. This hypothesis is grounded, and can be considered as explanatory until the introduction of the male universal suffrage in 1910. Indeed, because of the previously mentioned reasons, agriculture had developed around oligopolies in the Southern Italy; furthermore, interests of agriculture were well organized in associations, whose voice was very much heard by the Italian politics.

Stigler's hypothesis of the influence of potential monopolists in opposing the Antitrust law can be referred, in the Italian experience, both to the agrarian interests, which have already been analyzed, and to the industrial sector, whose presence was strong and influential in the Italian history. The tight link developed between industry, bank and the state in the heavy industries protected by the State can suggest a mixture of interests between politics and industry. The well known Italian economist Vilfredo Pareto observed back in 1887 the plot between politics and business, assessing that "As the State became the regulator of the economic life of the country, the entrepreneur is led to neglect the hard labor, that entails progress in the technology and in the economy, and instead to rush to the capital [Rome] in the circle of the public authorities, with the goal of obtaining some of the gifts that generously are poured from everywhere. Indeed, they are aware that a single trait of feather of a minister, or even of a simple reporter of a Parliamentary Commission, can give to an industry advantages that long years of the most intelligent and most consistent carried on labor could not procure"³⁹.

The economic history literature provides extensive evidences, or in some cases suggestive clues, of the pursuit of special interests held by potential mo-

³⁶See 5.

³⁷See Zaninelli (1995).

³⁸The *latifondo* ownership structure provide for few owners owning each huge fields, and delegating the actual work to sharecroppers or workers through various forms of contracts.

³⁹See Castronovo (1980), p. 66-67.

nopolists, consisting in state aids to big industry in various forms⁴⁰, among which the lack of a competition law. Two significant stories now outlined, among the many documented by the literature. Piero Bastogi, an Italian banker and entrepreneur, was the finance minister at the time of Italian unification (1861). After quitting the government, in 1862 he led a pool of capitalists that obtained by a commission instituted in the Italian Parliament the management of Southern Italy railroad system. In the board of the newly created company, were sitting both the President and the secretary of the Parliamentary Commission. A subsequent judicial inquiry revealed that Bastogi had even hugely bribed the secretary of the Commission in exchange for his support. Despite his judicial misfortune, Bastogi was eventually reelected in the Chamber and afterwards appointed to the Italian Senate. The extent of his influence contributed to the stop of the process of nationalization of the railroad system, realized only in 1905, after his death.

Vincenzo Stefano Breda, originally from Padua, was elected in the Parliament in 1866. He developed a tight relation with the finance minister of that time, Cambray-Digny, and significant links with other members of the Parliament, that allowed him to successfully create the "Società veneta per imprese e costruzioni pubbliche" (Veneta Company for public works), an industry based on state works in the infrastructure and building sectors. His net of connections assures the company an amount of public purchases, accompanied by frequent anticipations of the payment and by other forms of facilitations, that altogether yielded an average yearly profit of 10% for the shareholders. The involvement of the State was even more intrusive at the time of the creation of the Terni, examined in greater details in the next section, of which Breda has been the first President. Emblematically, the profits achieved by the Terni in 1897, whose essentially exclusive customer was the public sector, are witnessed by Giulio Prinetti, an entrepreneur from Milan who estimated them, at approximately 200% of the beared costs⁴¹, versus an average of about 30% for the firms producing for the private sector.

Ferdinando Maria Perrone, leader of Ansaldo starting in 1908, is defined by his biographer Paride Rugafiori as a social broker, thanks to his ability in constructing a network of connections. His strategy, consisting in the attribution of highly remunerated tasks to employees recommended by the most influential politicians, has been widely applied subsequently.

Bastogi's, Breda's and Perrone's vicissitudes are suggestive of the influence that industrialists, representative of big business, were able to exert within the decision-making system. The relation between this aspect and the absence of an antitrust policy, which by now might seem vague, is illustrated in greater details in the next section⁴².

At the beginning of the paragraph, the second source of potential inefficiency, besides the prevalence of lobbies whose objectives are not coinciding

⁴⁰For an extensive discussion on this point, see 5.

⁴¹See Castronovo (1980), p. 65.

⁴²The story of Breda, Bastogi and Perrone is mainly based on Amatori-Colli (1999), ch. 1-3.

with the public interest, has been identified in failures by the politicians, due to their miopic view. The failures are defined in this context as discrepencies in the evaluation of the *ex ante* efficiency of a certain provision between the authority emanating it and subsequent analysis performed only on the basis of information available to the decision-maker at the time of its deliberation. In a sense, they can be interpreted as irrational behavior by the politicians, not motivated by anything but their inability to correctly forecast the impact of their policy, given the information set available to them prior to the decision. For various reasons, it appears very hard to estimate the extent of political mistakes according to this definition, as both the available information set and the real intention of the legislators are usually only imprecisely detectable. Therefore, in the impossibility of illustrating and testing a theory of political failures, the topic is exhausted by reporting a citation from a well-known Italian economist, Vilfredo Pareto, who at the end of the nineteenth century wrote: "A singular mania leads our governors to put their hands on everything, and a constant disgrace follows them, so that whatever they do, even with the best purposes, turns out to have bad results. Naturally, Italy worked for the products with the smallest comparative cost, and was prosperous. Nothing else could be done, but let Italy pursue that pattern; however, the idea of changing the Italian nature came to our governors' mind. They sentenced the death of some industries, and promoted others artificially - knowing that artificially now simply means through the taxpayers' money -, the only effect of all that being that they destroyed a great deal of the wealth of the country"⁴³.

The connection between *étatisme* and the absence of an Antitrust law might at this point appear vague; it will be illustrated in greater details in the next paragraph. In any case, Pareto's view is disputed, and the next section of the paper is challenging it. However, it represents a theory shared by most of the *laissez faire* economists, and shows that many scholars have resorted to the argument of political failure in their attempt at illustrating the inefficiency of economic policy in the process of the Italian industrialization. There does not exist an analogous argument, at least developed by as much reknown personalities, with reference to the American economic policy, a plausible reason being that the optimal pattern is less disputable in a forefront country in the industrial development process country than in a backward country.

Non economic reasons have been enumerated as the last possible reason for social inefficiency. The American experience offers a clear example of a non economic reason that has led to the adoption of antitrust, and has had a negative impact on the American welfare: letting the small business to operate, freedom of existing for small business. Translated into policy: preventing cost cutting so that small business could stay alive regardless of their economic efficiency. Economic impact of this is negative in the short run: you impose an oligopolistic production and pricing policy, getting far from economic efficiency in terms of both total surplus and productive efficiency.

⁴³See Zamagni (1990), p. 207.

The connection between this thought and the Italian pattern of competition policy is highlighted in the next section.

Overall, the evidence for an effect, in favor of inefficiency, of the policy failure argument over the evolution of the Antitrust policy does not seem strong in either of the two countries, being basically absent in the United States, and very arguable and disputed in Italy. The impact of non-economic motives has not been negligible in the United States, as the quote from Senator Sherman cited in the previous section witnesses eloquently. Furthermore, evidence of the action of special interests has been provided in previous studies related to the United States. In conclusion, there is room for inefficiency in the American Antitrust policy; the next section will provide a most exhaustive examination to determine whether or not the special interests and the non economic reasons were actually operating in the same direction of the collective welfare, or not. On the other hand, the Italian pattern is suitable of a lobby-based explanation, as illustrated in the previous analysis. A deeper question, though, arises, extending one step further, and having to do with the motivations for the state intervention, which itself tends to generate distortions due to groups pressure because of an incentive mechanism extensively explored in the political economy literature. The issue can be reformulated in the following terms: Given the *ex ante* predictable negative impact of the lobbying activity in an economy featuring state intervention, was such state intervention, finally leading to the prevalence of anticompetitive public policies, still optimal? The next section is devoted to a tentative answer to this question.

5 Arguments in favor of efficiency

The vested interest argument, more remarkable in Italy than in the United States, leaves an issue open, which is the extent to which the Italian policy of direct state intervention in the economy, inherently entailing the prevalence in some cases of special over public interests outside the mechanisms of the competitive economy, is still suitable of being considered efficient.

The economic historian Alexander Gerschenkron derived a number of hypotheses about the patterns of European industrialization. In particular, he assessed the positive correlation between the backwardness of a country and a list of other variables, including the speed of its industrialization process, the stress on producer goods as compared with consumer goods, the size of the typical scale of plant and firm, the emphasis of up-to-date technologies, the importance of the role of special institutional factors, such as banks or government, in supplying capital and promoting industrialization, and finally the relevance of ideologies in the shaping of policies and events⁴⁴.

Oliver Williamson reached similar conclusions adopting an industrial organization perspective. His work has focused on the benefits and limits of competitive markets and the rationale for complex contracting arrangements and hierarchical organizations. He assessed that large hierarchical arrangements, aiding certain continuing relationships, constitute an institutional device that increases efficiency by permitting specialization that requires special skills and

⁴⁴See Sylla-Toniolo (1991), p. 5.

capital. They provide the beneficial lock of "transaction specific assets" in a single relation, within which they are most valuable. In a market economy, similar goals can be achieved either through the costly self-enforceability or law enforceability of the contract, or within a context of economies of throughput, to use a Chandlerian term, requiring *ipso facto* a large market. Furthermore, the relevance of transaction specific assets depends on the potential for substitutability of the second contractor, which is positively correlated with the dimension of the economy, as the presence of multiple suppliers and multiple markets tends to reduce the switching costs. As a consequence, Williamson's theory predicts that the advantages of the hierarchical structure, according to Williamson, offset its drawbacks, in terms of dilution of incentives to efficient behavior, in the most backward countries, featuring small markets, and imperfect judiciary system. Large scale firms and State and bank intervention accomplish a hierarchical organization⁴⁵. It now appears clear that Williamson and Gerschenkron arguments get to an analogous landing.

The purpose of the present section is to apply the two theories to the analyzed contexts, to extend them, to explore their implications on the issue of the efficiency of the adopted competition policies, and, finally, to test the validity of the results.

5.1 The Italian situation

Before proceeding in a sectorial discussion, some general statistical indicators are presented:

Percentual composition of the GDP by productive sector

	1861	1913	1938
Agriculture	46.1	37.6	26.6
Industry	18.4	24.9	30.3
Services	30.4	32.0	31.7

Source: Ercolani, P., "Documentazione statistica di base" (Basic statistical documentation), in Fuà, G., "Lo sviluppo economico in Italia" (Economic development in Italy), Franco Angeli, Milano, 1969, reported in Zamagni (1990), p. 56.

Percentual composition of the labor force in the manufacturing sector

⁴⁵The overview of Williamson's theory is based on C. Knick Harley, "Substitution for prerequisites: endogenous institutions and comparative economic history", in Sylla-Toniolo (1991), p. 33-35.

	1911	1927	1937
Food and beverage	13.8	11.4	14
Textiles	22.9	23	17.6
Metal	1.9	3.2	3
Mechanical	16.7	18	24.9
Chemical	2.6	3	4.5
Clothing	8.9	10.9	8.3

Source: Zamagni, V., "A Century of Change: Trends in the Composition of the Italian Labor Force, 1888-1981", in *Historical Social Research*, n. 44, 1987, reported in Zamagni (1990), p. 52.

Added value of the industrial sectors, 1878 - 1911

	1911	Annual growth rate 1878-1911	Total # of employees	Average # of employees per firm
Total textiles	429	0.9	505806	70
Silk	125	3.0		
Cotton	187	0.7		
Wool	87	0.7		
Metals	90	5.7	42663	38
Mechanical	843	5.3	269372	17
Chemical	158	6.9	19083	21
Food and beverages	797	1	295286	5

Sources: Zamagni (1990), pp. 114-115.

At the end of the eighteenth century, the Italian economic structure crucially hinged on agriculture, whose incidence on the national GDP has exceeded those of the industrial and of the service sectors until after the first world war. Regional differences persisted in the long-run: the cultivation techniques of the *Pianura padana*, in the North of the country, were far the most advanced of the country, supported by the prevalence of incentivating contractual schemes of ownership and management, such as small property and rent contracts. The most backward *Mezzogiorno* featured the outdated *latifondi*, huge plots of land under a single ownership often only partially exploited by the scarcely monitored salaried workers. As far as international comparisons are concerned, Italy claimed the supremacy within Europe in terms of productivity per area, while the Italian productivity per worker hardly attained the 60 % of the British level, reflecting an excess supply of labor force⁴⁶.

The *incipit* of the textile industry dates back to the sixteenth century. It is unanimously deemed the most traditional Italian industrial activity, or, as most contemporary scholars used to define it, a "natural industry". Italy dominated

⁴⁶See Zamagni (1990), pp. 75-98.

in the silk production, characterized by a tight link with the agricultural sector, with a share of the world production oscillating at around one third in the time period between the 1850 until after the first world war. The prevalence of the offer of raw or spinned products, observed in the 1880s, gradually vanished, replaced by the offer of the final weaved products. Indeed, specialization and technological process characterizing the first decade of 1900, lead most firms to cover all the phases of the production process, including the final weaving stage, the major contributor to the value added of the industry. The high degree of mechanization and the low labor cost explain the impressive success of the Italian silk on the world markets. Available estimation of the productivity of the silk industry indicate the Italian leadership, shared with Britain and the United States, at the international level. the capital flow generated by silk contributed to the development of other industries in the North of Italy. A major percentage of the production was concentrated in the industrial district around Como, and fragmented in a plethora of small firms, who could exploit the organizational advantages of the district. Despite its measurement problems, due to the significance of household production and of very small firms not captured by the available data, the industrial concentration in silk soared during the spell, but did not attain a considerable level. The importance of the skill sector lies also in its capability of generating both positive externalities, in terms of technology and of labor organization, and a significant capital flow, that helped the industrial development of Northern Italy⁴⁷.

The wool industry clustered into three major industrial districts, Prato, Schio Valdarno, and Biella. The dimension of the wool-mills, on average more relevant than the silk-mills, register nevertheless a very high variance. As a tendency, the capital intensive weaving activity was performed in bigger factories. Marzotto, the main entrepreneur in the field, employed 2000 people at the beginning of the twentieth century in his vertically integrated firm, which disposed of 10 % of the wool spindles endowment of the country. Overall, the wool industry registered a noticeable expansion throughout the period, peaking in 1914, when spindles jumped to 240000 q, with a 70000 q, or 40%, increase with respect to 1907, and weavers attained 340000 q, a growth 314000 q compared to seven years before. Despite these improvements, on the eve of the first world war, imports overwhelmed exports by 67%. The control of a large share of the market by a few giants should not induce to think of them as dominant firms *strictu sensu*, since a myriad of smaller factories imposed a competitive conduct within the whole sector.

In the twenty years between 1880 and 1900, the cotton-mills rapidly outspread; spindles rose from 2 to 4 millions, while looms more than doubled, from 70000 to 160000. Technological accomplishments were accompanied by considerable productivity enhancements, that allowed Italy to reduce the lag with respect to the most advanced countries, and to rank third in terms of productivity, following right after United States and Britain. Lombardy hosted more than two thirds of cotton factories, including the two giants, Crespi and Can-

⁴⁷See Zamagni (1990), pp.120-121, and Amatori-Colli (1999), pp.69-70.

toni. Analogously to the wool sector, the main companies had to face smaller challengers, able to achieve the same quality, which kept production and pricing policies at the competitive level.

The food industry acquired at the end of the nineteenth century a rather merchantile characterizations that assimilated it to the American food industry. The major companies, such as Barilla, Cirio, Buitoni, Galbani, established a profound connection with their suppliers in the agricultural sector, and, as a tendency, preserved their original a small dimension. The high average quality standard of the products contributed to international reputation of the Italian food industry, which in 1911 accounted for almost the 20% of the national industrial production, and employed on average 5 workers⁴⁸.

A number of labor intensive light industrial productions were organized in small firms grouped in industrial districts. The condition of the small business was quite homogenous across different industrial sectors. Therefore, only an illustrative example of one of these, relative to the shoe industry, is now presented. The industrial census of 1911 revealed that, out of the 26000 shoe factories spread in Italy, only 400 employed more than ten workers. The average productivity of the sector is estimated in 1911 at one sixth of the metalmechanical industry, with a further shrinkage to one twelfth accounting for the widespread home production. In spite of these drawbacks, the best known shoes industrial districts, among which Macerata, in the region of Marche, displayed an impressive commercial dynamism, and managed to sell their products on the European and on the American markets; in 1911, shoes account for more than 2% of the total value of the Italian exports⁴⁹.

The phenomenon of small business has always been very pronounced in Italy, and has pervaded many Italian industrial sectors, among which textile and food, already discussed, plus wood, mechanics, clothing and furniture. The share of the labor force employed in small business, including piece workers and entrepreneurs working at home, oscillates in the time period between 35% in 1911 and 42% in 1920.

The energy industry exploited the abundant Italian natural resources in terms of waterfalls to experience the use of hydroelectricity. The first Italian electric firm was founded by Giuseppe Colombo in 1881. The extreme capital intensity required in the generation of electricity explains the significant investment allocations in the sector, which accounted for over 4% of the overall Italian investments in plant and fixed installations in the spell 1880-1920. Notwithstanding the seeming fragmentation, suggested by the activity of 264 firms in 1915, the sector was indeed monopolized: sixty percent of the total capital was controlled by twenty companies, holding also 57% of the plant values and 47% of the installed power; more importantly, the government assigned exclusive concessions, on a local basis, for the provision of electricity, in exchange for a low canon; furthermore, universal banks, in particular Comit and Credit,

⁴⁸The overview of the Italian situation of silk, cotton, wool and alimentary sectors is based on Zamagni (1990), pp.114-115, 118-124, and Amatori-Colli (1999), pp.21-26, 69-75.

⁴⁹See *Annuario Statistico Italiano* (Italian Statistical Annals), 1911.

controlled a vast fraction of the industry⁵⁰. The stemming regional monopolies, among which Edison in Milan and in most of the Lombardy, and Sade (Adriatic company of electricity) in Veneto and Emilia, dominated the Italian scene⁵¹.

The iron industry at the end of the nineteenth century lied in a very primitive plight. The steel-works and foundries company Terni was founded in 1884 under the State impulse with the objective of endowing Italy with a complete cycle of steel, from pig iron to finite products. It employed very up-to-date technologies, which excluded any continuity with prior iron industry experiences. The State maintained a direct engagement in the operation, by participating in the initial capital investment, by guaranteeing a flow of future purchases for military reasons, particularly war ships, and by anticipating large amounts of money in order to help the investments. As a result of the State intervention, the universal banks perceived the sector as not excessively risky; thus, the General Bank, the Credit and the National Bank decided to enter it as shareholders or as lender. In 1887, the Terni, at grips with a profound crisis that threatened its own existence, was sustained by the National Bank, through a renewed lending operation, and by the State, through further anticipations on future public purchases, in the frame of a very costly operation. At the end of the nineteenth century, a set of new plants joined the hiterto monopolistic iron industry, giving rise to the so-called iron trust, assembling the quasi-totality of high-quality-output firms suitable to supply the advanced shipbuilding, mechanical and electromechanical factories. The six industries in the oligopoly, *Terni*, *Elba*, *Siderurgica di Savona*, *Ligure metallurgica*, *Ferriere Italiane* and *Iva*, were in the hands of the universal banks Credit and COMIT. When the deep recession of 1907 stroke the trust, the Bank of Italy subsidized the sector to assure its survival, and established a supervising consortium in charge of determining prices and market shares. In this context, the production of steel, pushed by the state demand, grew rapidly, from 480382 t in the period 1886-1890 to 2751390 t in the time period 1906-1910. . In spite of all the progresses, Russia, another latecomer, performed comparatively better in the same spell: indeed, after having trailed Italy until the turn of the century, overcame it, and by 1913 produced 5 millions of tons of steel. To conclude the analysis with a quantitative remark, in 1913, the Italian steel production amounted to a third of the Austrian, a fifth of the French, a ninth of the English, and a twentieth of the German⁵².

The foundation of the first modern Italian mechanical industry dated back to 1874, when the Cantoni-Krumm initiated its activity of construction and reparation of machinery for the cotton industry, shortly followed by the Falck, which operated a diversification in the mechanical production. The Marelli, started in 1905, marked the outset of the electromechanical industry. The two sectors proceeded along parallel development patterns, remaining independent

⁵⁰In 1911, when Comit and Credit held directly more than 50% of the capital of Edison, five of the eight members of the board represented the two banks, and both the President and the Vice President were affiliated to the Credit.

⁵¹See Amatori-Colli (1999), p. 94 and pp. 147-152.

⁵²See Amatori-Colli (1999), p.117.

of the State aids and exhibiting a low level of concentration.

The belated appearance of the chemical industry in the Italian industrial scenario is ascribable to the lack of tariff barriers, and to the consequential exposure to the the challenges from German powerful rivals, first of which Bayer. Until 1890, the output was limited to a set of basic products used in agriculture, mainly fertilizer. Its expansion irrational and chaotic expansion of the sector was irrational and chaotic. At the eve of the first world war, the two main firms, the Colla Concimi and the Unione Concimi, controlled roughly two thirds of the national market, while the rest was shared among very small local producers. The two giants merged in the 1920, originating the undisputed chemical leader Montecatini, whose twine with the Italian government, in a continuous operation of *do ut des*, has come to symbolize the Italian State- driven industrial progress.

With the creation of Fiat and of Alfa Romeo, at the beginning of the nineteenth century, the Italian automobile industry moved its first steps. Its successive expansion benefited of the governmental intervention as a regular customer, purchasing military vehicles, and other transportation equipments. The adoption of the mass production paradigm revolutionized the labor organizational models within firms. During his frequent visits to the United States, Giovanni Agnelli, founder, chairman and executive of the Fiat, was often hosted by Henri Ford, in order to observe the most successful application of the Taylorian scheme, and eventually to import it.

Five main works about industrial concentration stand out. They all deal with the scantiness and lack of precision of the collected data, and their results are contradictory. Vinci⁵³ and Saibante⁵⁴ inappropriately employ the Gini index, which measures the size distribution failing to account for the number of firms. Rossi and Toniolo⁵⁵ use hardly reliable data, obtaining implausibly high values for the parameters; furthermore, given their macroeconomic perspective, they provide aggregate measures, and do not examine the singular industries. Giannetti, Federico and Toninelli⁵⁶ provide an estimation based on data from the yearbook of Italian joint stock companies, published every two years from 1907 onwards, listing all companies with a capitalization higher than a threshold, established in one million lire. They choose to adopt the Herfindhal-Hirschman index, which appropriately measures the concentration, but does not describe satisfactorily the extent of market power exerted by a firm, as it does not capture agreements and concertations among firms that trigger cartelization, and, *de facto*, an oligopolistic production and pricing policies by an industry. According to this argument, since the focus of the analysis concerns market power, the index is biased downward, underestimating what could be defined as the "effective concentration". On the other hand, the restriction to stock companies, *a fortiori* with the imposition of a threshold in terms of a capitalization, tends to bias the results upward, as it omits both other types of common partnerships

⁵³See Vinci (1918).

⁵⁴See Giannetti *et alii* (1994), p. 493.

⁵⁵See Rossi-Toniolo (1992).

⁵⁶See Giannetti *et alii* (1994).

among medium and small firms⁵⁷, and the least capitalized stock companies.

The most relevant result, for the purpose of the present paper, are reported in the following table:

Herfindhal index of concentration for some Italian industries as measured by Giannetti, Federico and Toninelli

Sector	1907	1911	1922	1927	1936
Coal mining	0.63267	0.383091	0.262855	0.286669	0.317483
Electricity and gas	0.029315	0.029161	0.027961	0.035581	0.050406
Iron and steel	0.043025	0.081425	0.16312	0.105021	0.128799
Chemicals	0.043443	0.04497	0.03263	0.035046	0.180774
Motor vehicles	0.043378	0.171767	0.515971	0.460775	0.414849
Food	0.05271	0.062357	0.039846	0.029065	0.052784
Textile	0.013998	0.015279	0.020922	0.017386	0.019904
Overall					
Mining, metallurgy and chemicals	0.014447	0.020697	0.036741	0.052293	0.043782
Mechanical engineering	0.027914	0.027919	0.046351	0.052892	0.047231
Manufacturing except the two above	0.007707	0.009507	0.009428	0.010803	0.012243

Source: Giannetti *et alii* (1994), p. 496.

The authors conclude that the Italian stage of industrial development in the early twentieth century was not characterized by the dimensional dualism between small and competitive light industry and big heavy industry, which was commonly assessed in the previous studies on the field; on the contrary, it indeed featured medium or small industry quite homogenously across sectors. The findings crucially depend on the evaluation of the effects of the bias on their validity. The authors believe that the two biases, operating in opposite directions, end up canceling out. Empirical observations appear to contrast the claim. First of all, evidence of cartelization and creation of trusts pertains only to some sectors, the most significant of which, as previously mentioned, is the iron and steel. Secondly, the various sectors are not equally capital-intensive. It is therefore likely that industries requiring lower capital investments, such as the textile or the food industries, are not sufficiently represented in the data, as a higher percentage of firms in these industries either were not joint-stock companies, or had a low level of capital. Furthermore, some potentially capital intensive sectors featured the contemporary presence of big firms producing technologically up-to-date products, and smaller firms, whose output was absorbed by customers requiring lower quality products. Sometimes, the two products were not substitutable. For example, the small iron and steel industry thriving in Lombardy at the beginning of the twentieth century were not able to supply the Italian army with iron of sufficient quality to build ships.

⁵⁷See Giannetti *et alii* (1994), p. 494.

The results obtained by the authors are therefore questionable both on a scale perspective, and with respect to an intrasectorial comparison. It appears that the results underestimate market power for the technologically advanced subset of the iron and steel industry, because of the twofold effect of the emergence of a trust among the firms producing highest quality products and of the prevalent intrasectorial non substitutability previously described. The exact same argument can be applied to the motor vehicle industry in 1907; the extension of the demand for innovative products, such as car and war vehicles, to the detriment of more traditional products, entails a composition effect that explain the reconciliation between the measured index and the degree of effective market power. The findings for the chemical industry fit the above illustrated historical evidence, while electricity, despite its fragmentation on a national scale, was a locally monopolistic market, as a consequence of the concession system put in place by the state. Finally, the traditional labor intensive industries, such as food and textile, are probably underrepresented in the data, from which the smallest are excluded. Therefore, the estimates of market power for these sectors are biased upward.

Unfortunately, given the unavailability of more precise data, the most accurate approximation of the market power index may be given by the Giannelli, Federico and Toninelli index, corrected through the qualitative observations just listed. Some implications may also be derived by Zamagni's measurement of the average number of employees per firm, reported in table 2, while Rossi and Toniolo concentration estimates do not allow any disentanglement across sectors. Even in the presence of remarkable differences, the works agree over the intuitively plausible fact that, at the end of the nineteenth century and at the beginning of the twentieth, the capital intensive heavy industries, or, according to Chandler's classification, the Second Industrial Revolution industries, were more concentrated and had a more significant tendency toward market power production and pricing policies than the traditional light industries did.

Given the analysis, it seems fair to claim that an antitrust law would have been neutral with respect to the light industry, already fragmented and competitive, while it would have affected, more or less deeply, the more concentrated heavy industry. Therefore, the efficiency analysis boils down to the counterfactual evaluation of the impact by an hypothetical law enforcing competition on the heavy industry sector. It is now presented.

As noted, the traditional industries, such as textile, food, light machinery, defined "natural" by the *laissez-faire* free-traders, displayed a gradual and autonomous development; indeed, these industries, generally directly supplied by the agricultural sector, did not benefit of any specific form of state intervention. The free trade policy, coupled with the economic slogan "small is beautiful"⁵⁸, prevailed in Italy until 1875, as long as the right wing represented the Parliamentary majority. Until 1880, Italian industrial panorama was twofold. The heavy industry lagged well behind its American and many of its European counterparts, and contributed to the Italian GDP for a very small portion, while the

⁵⁸See Castronovo (1980), p. 30

light industry, albeit fragmented, was quite advanced in the North of Italy. In the 1880, at the time in which many American States were approving their Antitrust Laws, Italy did not need one, since it would not have significantly influenced the industrial structure. As a left wing government came into power at the beginning of the eighties, the heavy industry issue was faced, by adopting a policy of state intervention in favor of the creation of the heavy industry. The distinguishing traits of such economic policy towards heavy industries were articulated into three main directions. It contributed directly in the capital accumulation of a selected group of firms through participation or concession of loans under favorable terms; in its capacity of last resort lender, it guaranteed, also through the Bank of Italy after its creation in 1893, the non-statal lenders or shareholders; finally, it was the customer of many heavy industries, for a subset of which the State demand largely offset the private one, as the case of Terni discussed in the previous section unquestionably shows. The data on the public expenditure reported in the following table at a first glance do not appear to reflect this upward tendency. However, Vera Zamagni, who computed the figures, identifies the escalation, and points out at the boom of public expenditure with the left wing, culminated with the 20% of the GDP in 1889, followed by oscillations around 19% until 1897, by a slow descent down to 14.2% in 1907, and finally by a new peak to 18% in the years immediately preceding the first world war⁵⁹. Indeed, in any case, further investigations on the composition of the public expenditure are required to verify more accurately the assertion that the incidence of State intervention on heavy industry increased in the spell.

Public expenditure in Italy in the years 1866-1913

	Percentage of the ratio between total State expenditure and GNP	Percentage composition of total expenditure			
		public works	edu	redistribution	military
1866	16.8	3.2	2.3	0.4	33.9
1870	14.4	14.2	3.2	0.3	14.1
1872	13.1	15.7	3.5	0.5	12.8
1880	13.7	13.3	5.0	0.5	14.9
1890	18.4	12.9	5.6	0.5	15.9
1900	16.2	8.2	6.5	1.0	15.0
1906	16.1	10.8	7.4	2.3	14.3
1912	18.3	11.4	8.7	2.1	21.1
1913	17.7		7.7	2.4	22.1

Source: Zamagni., p. 210.

There is not a consensus among scholars on the entity and on the composition of public expenditures. Valerio Castronovo⁶⁰ estimates in more than a fourth,

⁵⁹See Zamagni (1990), p. 210.

⁶⁰See Castronovo (1980), p. 65.

and increasing over time, the ratio of military expenditure to the overall State budget in 1888. Given that the Ministry for war absorbed a relevant slice of the public purchases from the heavy industry, this result better fits the previous findings.

Alexander Gerschenkron's thesis of substitution for prerequisites, according to which the development of countries characterized by relative industrial backwardness is boosted by the substitutive institutions, such as the banks and the government, that side the traditional free-market institutions, is in this context strongly supported by historical evidence. However, the question of whether or not the State intervention was actually a *condicio sine qua non* for the prospering of heavy industry has still to be addressed. The most obvious alternative to State intervention is the market-enhanced development; in the specific instance of highly capital intensive industries, single capitalists usually not disposing of a sufficient availability of resources, either the stock market or the banks are necessary. However, the Italian capital market at the end of the nineteenth century, despite its growing dynamism, was at an early stage of development. Even under the assumption, still to be discussed, that the investments in the heavy industry would have been profitable in the long-run, the potential investors' imperfect informational set relative to the performances of absolutely new industries, coupled with uncertainties towards capital market institution, *a fortiori* because of its young age, rendered the *ex ante* perception unclear. Naturally, the new industries were supposed to bear high production costs in the short-run, for many reasons, among which the scarce know-how, the spell for the amortization of the fixed costs, and, last but not least, the need to create a market *ex novo* and the consequent limited dimensions of the initial one. To conjugate high production costs and profitability, high prices are required. However, because of both the presence of international competitors, which the tariffs were not able to deter, and the usual effect of declining demand associated with price rising, it is possible to deduce that short-run profitability was chimerical. The banks may represent an alternative source of capital flow to the industry. However, on their turn, they were afraid to engage in long term and uncertain investments, and to expose to the risks of volatility and of failure of the projects, which really happened in many occasions. While State intervention in the industry capital and through loans at favorable terms offers a direct and immediate solution to the financing problem, its insurance of a market for the output of the industry or as a last resort lender does not. Indeed, the problem of enforceability of the promises of the government should be solved. It is clear that, while the single capitalists would not have the force to impose to the State the fulfillment of its promises, the big banks did. Thus, a consequence of the State intervention in the heavy industry in the three above specified directions was that the big banks, which could exert pressure on the State so that it fulfilled its obligations, intervened in the Italian development. The conclusion is that the expansion of the heavy industry would not have been possible without the State intervention, which triggered the banks flow of financing, too.

The reasoning leads to some interesting conclusions related to the Antitrust law. The development of heavy industry had to be accompanied by a

set of policies that minimize investors' risks and lead to an acceptable expected level of profitability, despite the high production costs, due to comparative gaps that firms had to bear in the short run. Otherwise, investors, as argued before, would not have financed the project, and the only left over alternative would have consisted in a State-owned industry. The State intervention as last resort lender and as privileged customer aimed precisely at assuring a sufficient expected utility to a portion of the investors so that they could ultimately participate in the investment. The effect of an Antitrust law is to redistribute the surplus from the industry to the consumers; thus, its effect would operate in the opposite direction. As a consequence, an Antitrust law would have made it more difficult, probably impossible, to develop the heavy industry.

After establishing that a counterfactual Antitrust law would have been neutral with respect to the light industries, and would have negatively affected the artificially forced development of the heavy industry, it is legitimate to conclude that the adoption of an Antitrust rule would not have been optimal as long as it is reasonable to assert that the State organized construction of a powerful heavy industry system in Italy actually was an optimal strategy. The last step of the analysis is then devoted to an evaluation of the plausibility of the latter assertion.

At first, it is worth remarking what has been previously pointed out: because of the imperfections in the capital market and the significance of the role of the State as a customer of the heavy industry within a context of a small market, the necessity of the intervention of the public sector does not imply, *per se*, the efficiency of the strategy of development of the industry. The issue can be rephrased by assessing that State intervention was required to expand the market for the heavy industry and to allow to add to long term profitability, under the assumption that it is achieved, the short term profitability.

Specifically, in order to gauge the actual social long term profitability, it is sufficient to compute the potential net social gain from the soaring of heavy industry, meanwhile seizing further causes, beyond the already mentioned phase-displacement between the short term and the long term, for the unfeasibility of the traditional market approach.

The most common type of market failure is represented by externalities, which in this story appear to play a major role. It is reasonable to identify at least two main sources of externalities in the process of creation of the Italian heavy industry. The still high transportation and connection-establishing costs raised the price of output of the foreign heavy industry utilized as inputs by a variety of light industry firms. The development of heavy industry, after the initial adjustment stage, would have eventually ruled out these costs, ultimately dropping the price of output, and thus generating a positive effect for the demanders of these goods. Secondly, the spillover effect triggered by the creation of a powerful industrial system would benefit Italy; most remarkably, the diffusion of a technology, of an organization and of new frontiers for the markets, all generated by the second industrial revolution, would benefit the overall Italian economy.

Another reason for the optimality of the development could be classified as a

rather political-strategical reason. As Europe was disintegrating, it would have been dangerous for the industries that were customer of the heavy industry to have to depend from foreign countries for the provision of raw material necessary for its production. The disintegration would have really been dangerous, at that point, for the whole Italian industrial system.

Concluding, externalities, non economic factors and phase-displacement between short run and long run profitability have determinantly contribute not to attract Italian private investors in the Italian capital intensive industries, notwithstanding the social benefits potentially achievable by the overall economy through them.

5.2 The American situation

The American industrial apparatus registered a sizable expansion at the half of the nineteenth century, when historians usually spot the transformation of the hitherto agricultural United States into an industrial country.

The following sectorial overhaul, extensively drawing on Chandler (1990), purportedly casts some light on the entrepreneurial environment that the competition policy was supposed to affect.

The electrical equipment industry developed in the 1880s and concentrated production in a few plants. The Thomson-Houston merged with Edison General Electric, and formed the General Electric Company in 1892. General Electric and Westinghouse formed a patent pool in 1896, and came to dominate the American electrical manufacturing industry. In the telephone sector, Western Electric developed in that same time period.

The American entrepreneurs in metal achieved an equally quick development. In ferrous metals, Andrew Carnegie had completed what was at the time the world's largest integrated Bessemer rail mill by installing blast furnaces in Pittsburgh. The impressive output of steel in the 1880s and early 1890s marks the beginning of the modern American steel industry. In nonferrous metals the transformation resulted from the perfecting in 1891 of a high-voltage generator that made possible electrolytic refining. In that year the construction of five giant copper refineries began a major transformation of that industry. In electrolytic copper refining the minimum efficient scale was so great that only fifteen industries were built in the United States before World War II. Indeed

Rockefeller's Standard Oil Company inaugurated the American oil adventure. In 1870, the wide corporation embodying Rockefeller and some partners boasted the world supremacy in terms of dimension. By 1910, eight integrated oil companies - Standard Oil, Texaco, Gulf Oil, Associated Oil, Union Oil of California, Shell Oil, Tide Water Oil and Sun Oil - were listed among the nations' two hundred largest industrial enterprises, and Pure Oil grazed the inclusion in the same list. As a consequence, the industry was transformed into an oligopoly prior to the judicial ruling prescribing dissolution of Standard Oil, in the aftermath of the Antitrust Law. During the second decade of the twentieth century,

both old and new members of the domestic oligopoly grew through vertical integration; a relevant fraction of them was absorbed by the domestic market, whose rapid growth was thwarted only by the Great Depression. Between 1913 and 1915, the former Standard Oil companies became price leaders in their own regional marketing areas. As the Federal Trade Commission pointed out in 1920, "in most of the marketing areas east of the Rocky Mountains, Standard companies usually take the lead in announcing price changes, while other companies follow". The leaders based their prices on their costs, reflecting both capacity and demand, meanwhile caring of keeping the prices high enough for the smaller firms to report profits. Only in the worst years of the depression, from 1931 to 1935, the industry experienced a severe price war, with discountings and rebates. Otherwise, leaders had little incentives to cut prices: not only was the demand for petroleum products relatively inelastic, but the Standard companies were sensitive to the accusation of price cutting, which had been a major charge against Standard Oil in the Antitrust case of 1911. Indeed, as the Federal Trade Commission observed in 1920, competition is more directed to developing facilities for getting business than obtaining it by underselling. Between 1921 and 1926, the share controlled by the Standard Group in the domestic market fell from an estimated 50-55% to 37-40%. Even though estimates for the group are not available for the period immediately following 1926, they do exist for individual firms. Between 1926 and 1938, the share of Jersey Standard in its domestic marketing territories dropped from 46.1% to 24.3%, of the Atlantic Refining from 44.5% to 21.9%, and of Standard of California from 28.7% to 17.7%. By the 1920s, the transformation from monopoly to modern oligopoly was complete. In the domestic market, the leading oil companies made no formal agreements about price and production. Abroad, it was only after the oil glut of the late 1920s that Jersey Standard, and later Socony, Texaco, Gulf, and Atlantic Refining, attempted, with varying success, to implement written agreements to stabilize price and output. The increased competition for market share at home and abroad encouraged the oil companies to invest in research and development. In 1921, the oil industry employed only 159 scientific personnel, well below the number employed in chemicals, electrical machinery, rubber, and transportation equipment⁶¹.

In rubber, improvements in the technology of production brought significant, but not comparable, cost advantages. The industrial major outputs consisted in apparel, industrial items, and tires. At the end of the nineteenth century, the attempt at the control of price and production and at combination finally culminated in the formation in 1892 of an industry-wide holding company for each of the two major product lines, the United States Rubber Company for apparel, and the Mechanical Rubber Company for industrial products. In both subindustries, the main companies, in spite of their voluntary exclusion from the combinations, eventually thrived. The voracious demand for tires brought about by the birth of the automobile industry further transformed the rubber industry at the beginning of the twentieth century, quickly creating a global

⁶¹See Chandler (1990), pp. 92-104.

oligopoly. In the United States, two new firms, Firestone and Goodyear, stood out in the production of tires, soon followed by Goodrich and United States rubber. The latter invested in research and development more than than the former; overall, in research intensity, rubber was second only to chemicals. There is little readily available data on price leadership in the industry, although a recent study indicates that in replacement tires, prices tended to move broadly in line, and the Goodyear wholesale list served as a standard⁶².

The paper industry adopted a parallel development pattern, with the establishment of a company, in the specific instance the International Paper Company, in charge of the coordination of the market shares and of the pricing policies. In the specific instance, the holding, named International Paper Company, headed slowly towards the centralization of its administration and the rationalization of its production.

The glass industry exhibited a steadily pronounced level of concentration. The Pittsburgh Plate Glass company opened the way in the production of plate glass using new highly capital intensive technologies, which overwhelmed the handicraft methods adopted by the traditional firms, such as the United States Glass Company. Entrepreneurs of the windows compartment strived after the cartelization of the sector since 1880, when the American Window Manufacturer Association was established. However, after many unsuccessful attempts, most undertakings resorted to the idea of a holding company, constituted in 1899 under the name of American Window Glass Company. In the aftermath of the suit by the Antitrust regulators in 1910, the holding was compelled to split, and had to face the challenges of both the recently created Libbey - Owens, and of the old Pittsburgh Plate Glass.

A new technology for the aluminium production, invented by Hall and Herault, was at first exploited by the Pittsburgh Reduction Company, in its gigantic plant constructed at Niagara Falls in 1896. Renamed Alcoa, or Aluminium Company of America, in 1907, the firm boasted since then of a monopolistic position on the American market, never scratched by the Antitrust regulation.

Prosperity in the copper industry was favored by innovations dating back to the early 1890s. The enterprises of the sector clustered in a well established oligopoly, composed of Anaconda Copper, Phelps Dodge, American Smelting and Refining, Kennecott and American Metal.

Andrew Carnegie opened the first establishment adopting the modern productivity-enhancing technologies in steel processing. The large dimension of the steel market determined a larger optimal, and also actually observed since the beginning of the twentieth century, participation in the original oligopoly. In 1889, three entrepreneurs combined to form the Illinois Steel Company, the main Carnegie's competitor. During the 1880s, Carnegie Steel and Illinois Steel expanded through diversification, dwindling dramatically the costs. The price of steel rails at Pittsburgh plummeted 67.50\$ a ton in 1880 from the 29.25\$ of 1889; by the late 1890s, Carnegie total costs had fallen to 11.25\$, while its profit, standing at 7 Million \$ in 1897, soared to 11 million \$ in 1898, and

⁶²See Chandler (1990), pp. 105-112.

eventually topped \$40 millions in 1900, in the aftermath of a sharp increase in demand that raised steel prices to 28.12\$ a ton. A number of organizations born in the 1890s as trade associations transformed, starting in 1898, into industry wide holding companies. These included American Steel & Wire, National Tube, American Steel Hope and American Bridge. In February 1901, under the aegis of Morgan, American investment banker leader, Carnegie Steel and Federal Steel merged to create the United States Steel, in what is deemed as the most impressive combination of American industrial history. The challengers, realizing their likely difficulties in competing with the leading giant, joined it, thus extending the merger to a handful of other firms, such as American Steel & Wire, National Tube, American Sheet Steel, American Steel Hoop, and American Tin-Plate. Within a short time, Shelby Steel and Tube, American Bridge, and the Rockefeller-owned Lake Superior Consolidated Iron Mines aggregated. The resulting enterprise, unique in American industry, was by far the world's largest industrial corporation. Only Standard Oil came close. By 1917, its assets of \$2,449.5 million were more than four times those of Standard Oil, and nearly eight times those of the second largest steel company, Bethlehem Steel. The new company remained a holding company, failing to accomplish the step towards productive rationalizations that the new big structure would allow. Under the leadership of the banker Herbert Gary, output was lowered and prices raised, a policy that, in spite of the benefits for small producers, provided with the opportunity of surviving, ultimately revealed itself as noxious for United States Steel, which lost its dominant position on the market⁶³.

Branded packaged products marked a revolution in purchasing activity, and consequently in consumption, of food. In the refining of sugar and vegetable oil, modern production paradigms were adopted simultaneously by a number of small firms. Pioneers in the new high volume packaged technologies, such as Borden in canned milk, Heinz in canned vegetables, Campbell soup in canned soups, Libby, McNeill in canned meat, and later California Packing, *aliter* del Monte, in canned fruit, made occasional acquisitions. Moreover, because the foods they processed were perishable, they also invested in extensive purchasing and storage organizations that assured a flow of seasonally grown products through their processing plants.

In chemicals, the first enterprises to exploit fully the new high volume production and packaging technologies in soap - Procter and Gamble, paints - Sherwin-Williams -, and pharmaceuticals - Parke, Davis -, consolidated their dominant position in their industries throughout an entire century. Their challengers, such as Colgate in soap and Glidden in paints, followed much the same pattern of growth.

Only three mergers of a certain significance interested industrial chemicals, arising in the E.I. du Pont de Nemours Powder Company, formed between 1902 and 1904, in General Chemicals, an 1899 merger of eleven producers of sulphuric and chemically related acid, and finally in the Barrett Company, an 1896 combination of several firms producing coal-tar products. The managers

⁶³See Chandler (1990), pp.127-140.

of the resulting companies accompanied followed legal consolidation with administrative centralization, thus reshaping many of the industry's facilities and the activities of its personnel. In electrochemicals, Union Carbide's investments opened the way to a series of new plants. Interestingly, a scanty evidence of growth by merger is available for the industry; the only relevant illustrative examples have Allied Chemical & Dye and Union Carbide & Carbon as protagonists.

In the nonelectrical machinery, the focal sectors were sewing, led by Singer Sewing Machine, office, initiated in 1875 by Remington Typewriter Company, quickly followed by others, such as Underwood, Densmore, Smith Premier and Yostand, and finally agricultural machinery, McCormick and Deering, which combined, together with three smaller firms, in 1892, to originate the International Harvester Company, in order to face the increasing intensification of competition. In 1935, the eight largest firms in the sewing machines industry accounted for 90% of the American output, and the eight largest in typewriters for 99%.

The automobile industry marked one of the most impressive and rapid progresses on the American industrial scenario. The assets of entrepreneurs in automobiles and allied products quickly boosted, while those of producers of older transportation equipment grew at a much slower rate. By 1925, the automobile industry ranked first in wage paid, in cost of materials, in value added by manufacturing, and in the value of product. A detailed history of the automobile industry is very well known, yet very peculiar, and therefore it is omitted in the present discussion.

The American electric sector assumed at the end of the nineteenth century the leading role in the world; its supremacy was established by the opening at Pearl Street in New York City in 1882 of the world's first central power station. Dominated by Westinghouse and General Eletrics, itself resulting from the merger of two giants, Thomson Houston and Edison General Electric, the sector prospered in spite of the absence of governmental concessions, and of the deriving legally enforced regional monopolies, which instead characterized the Italian plight. Agreements within the major manufacturers thus consolidated the industry oligopoly.

After the qualitative analysis of the condition of the American industrial sector in the relevant period, a quantitative exam on the concentration indexes follows. The most meaningful computations have been performed by Chandler and by Nutter and Einhorn. In their work, Nutter and Einhorn present an accurate summary of the level of concentration of the American industry at the end of the nineteenth century, reporting bounds obtained by the comparison of previous and contemporary studies on the subject. The following tables, grouped according to the products, synthetize their results:

Mining

		Output controlled by largest firms	
Industry	Product	Per Cent	Number of Firms
Metal mining	Copper	33-60	1
		64	4
	Iron Ore	60-85	1
	Anthracite mines	90	6
Non metal mining	Asphalt	84	4
		35-95	1

Food, beverages and tobacco

		Output controlled by largest firms	
Industry	Product	Per cent	Number of firms
Food	Meat packing	50-"bulk"	4
	Biscuits & crackers	70	1
	Canned fruits	40	1
	Canned milk	"large"	1
	Sugar refining	57-90	1
Beverages	Liquors	100	1
Tobacco	Cigarettes	75-90	1

Textile

		Output controlled by largest firms	
Industry	Product	Per Cent	Number of Firms
Cotton goods	Duck	45-90	1
	Thread	50-67	1
	Yarn	20-40	1
	Cordage and twine	48-58	3
Wool	Woolen and worsted	60	1
	Oilcloth	50	1
Leather	Sole leather	50	1
	Upper leather	75	1

Rubber and paper

		Output controlled by largest firms	
Industry	Product	Per Cent	Number of Firms
Rubber	Shoes	50-70	1
	Other rubber	40-100	1
Paper	Pulp	70-80	1
	Newsprint	60-80	1
	Writing paper	55	1
	Envelopes	50-60	1
Printing Material	Wallpaper	60	1
	Publishing	77	1

Chemicals

		Output controlled by largest firm	
Industry	Product	Per Cent	Number of Firms
Cons. chemicals	Heavy chemicals	70	1
	Casein and milk sugar	70	1
	Borax	100	1
	Cottonseed	65	1
	Linseed	85-95	1
	Glue and Gelatin	55	1
	Paints and varnishes	85-95	1
	Salt	30-90	1
Ind. chemicals	Explosives	"Substantial"	1
Fertilizers	Phosphates	60	1

Oil, clay, glass

		Output controlled by largest firm	
Industry	Product	Per Cent	Number of Firms
Oil	Petroleum Refining	80-86	1
Clay	Pottery	65	1
Glass	Table glassware	50-70	1
	Plate glass	72-80	1
		100	4
	Window glass	73	1

Iron and steel

		Output controlled by the largest firms	
Industry	Product	Per Cent	Number of Firms
Blast furnace	Pig iron	43	1
Steel-mill	Overall	61-75	1
	Ingots and castings	66	1
	Rails	60	1
	Plates and sheets	65	1
	Overall	65-90	1
Nails and spikes	Overall	65-90	1
Steel springs	Railway cars	95	1
Wire	Smooth wire	75-80	1
Cast iron	Soil pipe	80-95	1

Nonferrous metals

		Output controlled by the largest firms	
Industry	Product	Per Cent	Number of Firms
Smelting and refining	Copper	30	1
		64	4
	Lead	85-95	1
	Secondary metals	100	2
	Gold and silver	85-100	1
Silverware	Overall	10-40	1
	Plated ware	55-60	1

Machinery

Industry	Product	Output controlled by the largest firm	
		Per Cent	Number of Firms
Foundry and machine shop	Pneumatic	87	1
	Air compressors	80	1
	Car wheels	20	1
	Brake shoes	90	1
	Elevators	65-85	1
	Boobins and shuttles	85-90	1
	Shoe machinery	50	1
	Heavy steam power	80	1
	Overall	70-85	1
Agricultural implements	Seeding	90	1
	Hand	80	1
Business machines	Cash registers	95	1
	Typewriters	75	1
	Electrical	90	2
	Sewing	45	1
		65	2

Transportation

Industry	Product	Output controlled by the largest firms	
		Per Cent	Number of Firms
Equipment	Bicycles	65-70	1
	Railroad Cars	65	1
	Locomotives	70	1
		100	2
Transportation	Ship and boats	35-60	1
	Steam railroads	100	4
	Pipelines, oil	84-96	
	Water transport.	40	1

Trade, communication, energy

Industry	Product	Output controlled by the largest firms	
		Per Cent	Number of Firms
Trade	Illuminating oil	89	1
Communication	Telephone	"very high"	1
	Telegraph	"very high"	1
Electric Light	Power systems	90	2

Source: Nutter-Einhorn (1969), pp. 132-136.⁶⁴

The tables by Nutter and Einhorn indicate that the American industrial concentration outweighed, in most of the sectors, the Italian one. However, since the United States could exploit the first movers advantage, their heavy industry

⁶⁴For a precise statement of the sources and a discussion of the methods, the reader is referred to Nutter-Einhorn (1969), ch.1, pp.1-13, and Appendix B, pp. 122-150.

sector did not have any problems in getting financed. Therefore, subtracting the rent to the firms in favor of the consumers would not have damaged the American industrial sector. On the other hand, it might well be possible that it was not optimal. The analysis would require a higher degree of specialization.

One view about that has been expressed by Chandler⁶⁵, who, referring to the Sherman Antitrust Act, claimed that "The legislation was more an expression of fundamental American values than the results of pressure groups at work. Unlike the Interstate Commerce Act, passed three years earlier, its enactment had not been demanded by a powerful group of shippers and wholesalers. Indeed, it was passed with relatively little debate and even less opposition. The vote in the Senate was 52-1, and the vote in the House was 242-0, with 85 members not voting. Not surprisingly, the terms of the statute were imprecise and therefore ambiguous, but it made clear the strong antimonopoly bias of the American public. This legislation, amplified by the Supreme Court's decisions in the 1890s, and enforced by the executive branch in the early years of the next century, remained uniquely American; no other nation adopted a comparable law before World War II. That legislation and the values it reflected probably marked the most important non-economic cultural difference between the United States and Germany, Britain, and indeed the rest of the world, insofar as it affected the long term evolution of the modern industrial enterprise". Chandler interprets the Antitrust as a noneconomic factor. Within a comparison with the Italian situation, it can be said that, while for the Italian case the Antitrust legislation would have produced a negative impact on the country economy, hampering the development of a vital portion of the Italian industries, the American antitrust revealed itself neutral with respect to the American industrial development. However, Chandler's assessment is not universally agreed upon. Therefore, an evaluation of the economic impact is required.

6 Comparative analysis

The previous analysis has shown that the drawbacks of the application of an Antitrust policy in the Italian experience for the time period 1890-1920 would have unambiguously offset its potential advantages. Indeed, an Antitrust law would have been neutral with respect to the already fragmented light industry labor-intensive sector, meanwhile being detrimental *vis à vis* the capital intensive industry. The argument for the negative impact of Antitrust on the heavy industry has been articulated in the following way. In order for a capitalist or for a financial institution to endorse a project, profitability in a reasonably short period is required. However, fixed costs, added to the initial high operational costs stemming from lack of productive and organizational know-how, imply that short-run profitability has necessarily to be coupled with a sufficiently high level of prices. Competition from mature foreign industries triggers unsustainability of high national prices; furthermore, the negative correlation between

⁶⁵See Chandler (1990), p. 72.

prices and demand is suitable to constrain the rise of a capital intensive industry in a young, thus limited-sized, market, *in ultimis* determining a null optimal number of firms. In such a scenario, an institutional push, in the specific instance provided by the public sector, appears to stand as a *condicio sine qua non* for creating a virtuous circle leading to the development of the heavy industry. An Antitrust law would have gone in the opposite direction, divesting industries of a share of their profits, and consequently interposing a farther stumbling-block for the financiers, and thus for the creation of the industry. An evaluation of the effects - both direct and external - of the heavy industry on the overall Italian economic performances allowed to conclude that benefits brought by the heavy industry have largely outweighed the costs, and, as a consequence, that the Italian choice not to adopt an Antitrust can reasonably be deemed efficient.

The American capital intensive industry differed from the Italian one in two main respects. At first, it enjoyed in most circumstances the position of first mover, from which derives the feasibility of a pattern of gradual expansion in the absence of foreign competitive pressure, and secondly, its output was directed to a much larger market, naturally protected by the foreign competitors. These two peculiarities gave financiers of new industrial projects, usually exploiting significant inventions or innovations, a solid expectation of a short run positive profit, since the initial high prices for the output could in this case still be conjugated with a strong demand for the product, given the large market and, alternatively, either the absence of foreign competitors or the geographical shelter. The sustained demand in turn determines a positive optimal number of firms, even in the presence of a high optimal firm size, due to economies of scale resulting from capital intensity. From this reasoning, it may be deduced that the American capital intensive industries, also said second industrial revolution industries, boomed independently of the State, and rapidly managed to reduce their total costs, and to expand the market. In this environment, the Sherman Act was approved, with a series of repercussions that clearly looked very far from those which would have occurred in Italy had an analogous provision been passed. For the United States, the issue of survival of the industries in the aftermath of the law is not susceptible of being raised. The *ditto* reported data reveal the elevated remuneration of capital at that time; the subtraction of a portion of it, through the Antitrust provision, could not reverse the firm's profitability, and as a consequence could not indeed ultimately undermine the existence of the industry.

[First: prevent the emergence of cartels. From the economic viewpoint, the effect of cartels can be classified into a direct and an indirect effect. Direct effect: oligopolistic production and pricing policies, the effect of which is the reduction of total surplus. Circumstances under which this is negative can be classified according to the "outside option" total surplus: the capital intensive industries at their early stages of development, and, more generally, all the industries that would not exist weren't the market conditions oligopolistic. For the rest, it is fair to claim that fighting cartel was positive. Indirect effect: innovation. Chandler's point: innovation is enhanced by competition vs. Schumpeter's point: to innovate, need rents, which may easily be oligopolistic rents. Historical evidence is

provided by Chandler, and obviously supports his view. So, for indirect effects, oligopoly should never be deemed positive, thus Antitrust should be deemed positive.

Second effect of the Antitrust policy: preventing the emergence of market power, which can give rise to situations of excessive political power in a handful of areas. Translated into policy: prohibition of attempting to monopolize the market, so: Prohibition of mergers; dissolution of firms in monopolistic situation. Circumstances under which such policy can be negative: in case of capital-intensive industries, in which production at the minimum efficient scale entails a monopolistic situation, the losses from cost increase can offset the gains from a competitive pricing and production policy in the new competitive situation. There is scanty evidence of this trade-off. Also, again innovation issue as an indirect effect (see *supra*).

Third effect: let small business operate, freedom of existing for small business. Translated into policy: preventing cost cutting so that small business could stay alive regardless of their economic efficiency. Economic impact of this is negative in the short run: you impose an oligopolistic production and pricing policy, getting far from economic efficiency in terms of both total surplus and productive efficiency. In the long run, despite the apparent contrasts, it can be assimilated to the policy of preventing the emergence of market power by private actors. Thus, on the long run, the economic impact of this policy is unclear.

In conclusion, it is not clear whether the adoption of the antitrust law in the United States has really been optimal from an economic standpoint. More precise measurements and considerations would be required in order to evaluate the impacts of the various previously mentioned economic consequences of the Antitrust policy, and to assess whether the advantages of an antitrust policy have really offset its costs (in this case, we would obviously have efficiency), or, on the other hand, if the contrary happened (and in the latter case, this would certainly be inefficient)].

7 Conclusions

In the conclusive paragraph, I present an overview of the most salient points raised during the paper, and, from the specific issue that has been considered, I attempt to induce some implications with a general validity, capable of leading to valuable rules of optimal policies.

Italy and the United States proceeded along two diverting path of industrial expansions in the analyzed spell. The comparison provides some useful insights on the role of institutional factors, specifically the State, in the rise and in the control of heavy, capital-intensive industries. The different *modus operandi* of the public institutions in the industrial growth of the two countries is reckoned to respond to different exigencies of the underlying economy. The general lesson that can be inferred concerns the optimal role of the State during the string of the evolution stages of each capital intensive industry within an economy. As

a tendency, the availability of a source of financing represents a precondition for the growth of a capital intensive heavy industry; in circumstances of small markets or of exposure to foreign products manufactured by more advanced competitors, short or medium run profitability is not warranted, and therefore the private sector cannot alone create the industry. Under these conditions, the intervention of public institutions, in the above listed configurations, finalized at increasing the industry's profits in the short and medium term, appears to be an indispensable push for the industry. Evidently, a relatively backward country satisfies these conditions, and *a fortiori* does a country in which a certain industry, already established in other nations, does not exist, or adopts ancient technologies incapable of competing with the most advanced ones. This was the case of a significant portion of the Italian heavy industry sector at the end of the nineteenth century. On the contrary, in the absence of exposure to most efficiently produced foreign products, and in the presence of a sufficiently large market, a capital intensive industry can combine high prices and sustained demand for its output, thus private capitalists can coordinate to finance its birth and its consolidation. In both instances, an Antitrust law could not be deemed as a wise policy: when the State should optimally intervene to yield industry profitability, Antitrust, which shrinks capital remuneration, would be detrimental; when an industry can be created by private capitalists, it still needs, at its outset, high level of profits to compensate for the amortization of fixed costs and other start-up costs, and an Antitrust law could in principle undermine the incentives for the creation of the industry. Summarizing, in the initial phase of the development of a capital intensive industry, the attitude of the public institutions towards the industry profits should be positive or neutral, in the sense that a State's most efficient policy should either support the industry or be permeated by the *laissez faire*, according to the circumstances.

In a successive stage, which could be referred to as the maturity stage, when the dimension of the market and the costs are set to a steadier level, each public institution should gauge the trade-off emerging from the application of Antitrust, along the lines exposed in the previous paragraphs, and act accordingly.

To generalize the results, and provide a flavor of an analysis of external validity and of policy implications, the identification of the main ingredients of the argument is an important step. They can be systematized in the capital intensive industry, the level of backwardness, or the absence at all, of the industry in the country, and the dimensions of the market. It is reasonable to assess that the findings do not apply *ipso facto* to labor intensive, or human capital intensive, industries, for which the investing issue does not arise, and for which advantages from economies of scale are arguable. It is now important to briefly reflect upon the implications of backwardness. A backward industry, or an industry on the verge of being created with a lag with respect to foreign countries, faces difficulties in being financed if the demand at the prices required to guarantee short run profitability is insufficient. This implies that explanations for short run non profitability, besides the expenses for fixed capital, can be categorized in the excessively limited size of initial market, and in the non-transmissibility

of technological or organizational skills from other advanced industries in the country. These conditions are usually verified after a process of an industrial revolution, of which the second industrial revolution has been one of the most dramatic examples, or after similar processes of drastic modifications in the industrial output, organization, or technology, whose effect include a growth of the size of the market on one side, and the non transmissibility of productive or organizational skills from *pre-shock* industries. Therefore, the necessity of public subsidization for a young industry *ceteris paribus*, is positively correlated with the degree of discontinuity with respect to the previous industrial experiences, while, by the same token, the length of the stabilization process for a new born industry - during which an Antitrust law would undermine the existence of the industry - is positively correlated to such discontinuity. Capital intensive industries in the considered time period were affected by the second industrial revolution, thus satisfied the previously listed assumptions.

In conclusion, the findings obviously confirm the general theory of regulation, according to which the standard criterion for the evaluation of monopoly *versus* perfect competition, and all the intermediaries combinations in-between, is the maximization of social surplus. The paper sets the general theory into specific cases, historically explores the optimality of Antitrust policies, and, through an inductive process, identifies a set of public policies, for the relevant case, that allow to achieve the optimal result.

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