JOURNAL OF THE
HISTORY OF
ECONOMIC THOUGHT
PUBLISHED FOR THE HISTORY OF ECONOMICS SOCIETY

Theories of the firm in England before Coase: Stemming the tide of 'rationalisation' on the eve of 'The nature of the firm'.

Journal:	*Journal of the History of Economic Thought*
Manuscript ID:	13-08-Res-049.R2
Manuscript Type:	Research Article

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THEORIES OF THE FIRM IN ENGLAND BEFORE COASE: STEMMING THE TIDE OF ‘RATIONALIZATION’ ON THE EVE OF ‘THE NATURE OF THE FIRM’.*

ABSTRACT. Before the publication of Ronald Coase’s ‘The Nature of the Firm’, new developments in the theory of the firm were under way in the works of Arnold Plant at the LSE, and Dennis Robertson, Frederick Lavington, and Austin Robinson among the Cambridge Marshallians. Although in disagreement on industrial policy, these economists shared the belief according to which the common view that bigger firms are always more efficient – a very popular view within the movement for industrial ‘rationalization’ – was untenable from a theoretical point of view. In the works of these economists the ‘make or buy’ scheme is sometimes employed, and Coase’s idea of a cost for using the market can be found, in implicit form, in some writings of Plant that appeared before Coase’s article. But the fundamental principle that we now call transaction costs was hardly of any help to any of those who, at Cambridge as well as at LSE, were insisting on the costs of coordination as a limit to the growth of the firm.

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I. INTRODUCTION

‘The Nature of the Firm’ by Ronald Coase, was published in 1937 in the November issue of *Economica*. By this time, as Coase himself later recalled (1988a), the orthodox view on the subject

* I am grateful to the referees for their helpful comments. I would also wish to thank the participants to the research project on ‘Contracts, markets and competition in English economists from Marshall and Edgeworth to Coase. At the origins of the economic analysis of law’ (PRIN 2008), directed by Alberto Baccini and Tiziano Raffaelli. The usual disclaimers apply.

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of industrial organization could be derived from a literature that was, to a significant extent, Marshallian. Coase mentioned Alfred Marshall (1919), Austin Robinson (1935 [1931]), and Dennis Robertson (1928), from whom he took the image of firms as "islands of conscious power in this ocean of unconscious co-operation like lumps of butter coagulating in a pail of buttermilk". Coase found this literature useful as a description of the industrial system, but he thought it lacked a "theory which would enable us to analyse the determinants of the organization of industry. It was this situation which led me to write ... my paper 'The Nature of the Firm'" (1972, pp. 61-2).

Another economist who is mentioned in Coase's recollections is Arnold Plant. Steven Medema (1994, p. 3) quotes a passage from Coase's autobiography in which Plant is credited for having introduced his pupil to the significance of the price mechanism in a competitive economy: "He made me aware of how a competitive system could be co-ordinated by the pricing system".[†] This occurred in 1930, when Plant was appointed Professor of Commerce at the Commerce faculty of LSE and Coase attended his seminar (Medema 1994, p. 3). As Coase recalled in another paper, it was from Plant that he learned "that prices tend to equal cost and composition of output to be that which consumers value most highly. Plant also explained that governments often served special interests, promoted monopoly rather than competition, and commonly imposed regulations which made matters worse. He made me aware of the benefits which flow from an economy directed by the pricing system" (Coase 1988a, pp. 6-7).

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The main purpose of this paper is to contextualize Coase's own account of his road to 'The Nature of the Firm', bringing to light the theoretical approach that existed before 1937 and that had been largely forgotten. It will be argued that Coase overstated the situation when he described the English literature of the interwar period, including Marshall and the Marshallians, as "casual empiricism" (Coase 1972, p. 61). It is true (at least to the best of my knowledge) that all authors assumed the very existence of firms, and that no one addressed this issue with the aim of explaining

[†] See also Coase (1994).

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why the whole process of production is not carried out by means of market transactions. But as will be shown in the following sections, a theory of the size and boundaries of the firm was nonetheless taking shape in England. Moreover, it will be shown that, especially in the work of Marshall (1919) as developed by Frederick Lavington (1927) and taken up again (although not quoted) in Plant (1937), the theory of the size and boundaries of the firm that was taking shape was not just about "the determination of the size of its output", as Coase would lament of later theories , but was rather about the range of "activities carried out by the firm", which is exactly what such a theory should do according to Coase (1972, p. 65).

Connected with these results, which it is the main purpose of this paper to present, another issue has emerged during the research work. If it is indeed the case that there was a group of British economists who were working on the theory of the firm, the fact that, even at LSE, Coase's article passed altogether unnoticed is puzzling, and the more so if we consider that, as Coase himself reported, he began circulating his own new ideas as early as 1932. Given that the new theory presented itself as more general, on the grounds that it could explain not only the size and boundaries of the firm but its very existence, and in view of the fact that transaction costs analysis later established itself as a new benchmark in economic analysis, it is far from obvious why 'The Nature of the Firm' had no immediate impact.

Part of the explanation for this curious occurrence can probably be derived from other attempts at contextualising Coase's seminal article that have recently appeared. David Campbell and Matthias Klaes (2005) and Per Bylund (forthcoming) have shown that although Coase mentioned the works of the Marshallians as the received view he aimed at modifying, the concepts he had in mind while writing 'The Nature of the Firm' arose from the discussion on socialist planning and state intervention as opposed to free market capitalism that had taken center stage at LSE as a consequence of Lionel Robbins's appointment to the chair of political economy in 1929 and Friedrich von Hayek's arrival in the early 1930s. One possibility, which can be derived from the above mentioned papers by Campbell and Klaes and by Bylund, is that the context provided by this

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debate was probably not the best one in which to present a new theory of the firm, all the more so if one considers that Coase's approach, combining competition and planning, was in partial contradiction with both of the opposing positions represented in a rather polarized debate. A further possibility, which emerges in this paper and is complementary to the above one, is that 'The Nature of the Firm' presented a theory which was also too far-removed from the positions expressed by the other theories of the firm as they had previously emerged in the debate on the 'rationalization' of British industries.

It will be shown in section II below that the theory of the firm in this period was a response, coming from a group of professional economists, to the non-theoretical rule-of-thumb view of firms that was frequently presented under the umbrella term of 'rationalization' (Brady 1932) – an industrial policy proposal connected with manufacturing industries in particular – and not an explanation associated with the question of why firms exist within a market economy. It will then be argued in Section III that the Marshallian scholars mentioned by Coase, though not in agreement with the view on rationalization expressed by Plant, shared with Coase's teacher a concern that the rationalization movement would establish the erroneous opinion that the efficiency of a firm is *always* a positive function of its size. Opposing this view, Plant, Lavington and Robinson elaborated analyses of the size and boundaries of the firm based on the trade-off between (sometimes) increasing returns to scale and (after a certain point at least) decreasing returns to management. As will be shown in section IV, they employed their analyses in order to show that the case of some British staple industries, such as the Lancashire cotton industry, in which the average size of firms was too small and for this reason inefficient, could not be generalized. In addition to this, it will also be shown in the same section that not later than the end of 1936, Plant began to employ an argument which bears comparison to that of Coase (1937) as an explanation for the integration of different processes within the same firm, and that he presented this explanation as an extension, and not as an alternative, to the approach adopted in particular by Lavington. But, this notwithstanding, Coase (1937) did not attract particular attention. In a very tentative way, the final

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section will consider some possible explanations for this fact, giving prominence to the hypothesis that in the specific context of the battle against the 'bigger is better' banner, Coase's work was considered rather useless, and this at least for two reasons. One was that although his aim was to bring an excessively abstract theory of markets (in which firms did not appear) into closer relation with reality (in which firms do exist), Coase's work still remained at the level of theory, without entering directly and explicitly into the field of policy prescriptions; the other, and perhaps stronger reason, was that Coase's theory placed emphasis on the costs of using the market while all the other theorists were trying to investigate exactly the opposite situation, in which the market is more efficient than the firm. More generally, following Mark Blaug's well known distinction between "absolutism" and "relativism" (Blaug 1968, p. 2), and his later distinction between "rational reconstruction" and "historical reconstruction" (Blaug 2001), the evidence presented in this paper suggests that the case of the missed reception of Coase's article can be better explained from the "relativist" standpoint of "historical reconstruction", in which the context is duly taken into account.

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II. FROM COMBINATION TO RATIONALIZATION

Plant's conviction, outlined by Coase, that "governments often served special interests, promoted monopoly rather than competition", was probably an echo of an established tradition in British economic and political thought, that dates from the end of the eighteenth century and which delayed the adoption of legislation in defense of competition until well after WWI (Swann et al 1974). Works by Henry W. Macrosty (1907) and Hermann Levy (1911) had shown that industrial combination as a way of evading competition was a widespread practice in British industry. Since 1890, Marshall had argued that combination is not necessarily the opposite of competition, and one of his pupils, David Hutchison Macgregor, developed this view in his first monograph.[‡] Since 1893,

[‡] Marshall (1890, 1897), Macgregor (1906). Cristiano (2011) presents an overview of Macgregor's earlier work on combination.

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however, Marshall had been aware that combination was frequently pursued for the sake of saving the least efficient firms, and in *Industry and Trade* he made it clear that this tendency had been evident in British industry before the war.[§]

The war strengthened this tendency. The reports of the Royal Commission appointed to investigate "Trusts," and of the Standing Committees appointed on the basis of the "Profiteering Acts" of 1919 and 1920, demonstrated that competitive conditions had become more the exception than the rule. However, the general philosophy that informed the work of the commissioners was not that market power was to be eliminated; it was enough to ensure that it did not lead to 'abnormal profits'.[**] Connected with this view was the idea that British firms were, on the whole, too small, that this was the main reason for their lack of competitiveness, and that combinations and amalgamations could therefore be a solution. During the post-1920 crisis, and especially after the return to gold in 1925, when the difficulties of British exports became even more acute, these views generated a vast movement of opinion in favor of 'rationalization'.

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The term 'rationalization' was generally employed to refer to a reduction of the productive capacity of a whole industry by means of the elimination of the less efficient firms and the concentration of production in larger and more efficient ones. In order to obtain this result, strong support was given to horizontal and vertical integration of industries, and schemes of combination and amalgamation were adopted. The rationale for this choice was found in the economies of scale that larger units could obtain in production as well as in marketing.

[§] Marshall (1893, p. 83 fn 2; 1919, Book III, Ch. 11-13).

[**] HMSO, *Reports from commissioners, inspectors, and others*, Voll. XV (1920) and XVI (1921). For an overview of the works of the commissions during the war see the Board of Trade Memorandum on "Combination" Vol. III of the Balfour Committee Reports. Grant (1922), Rees (1922), and Fitzgerald (1927) quote extensively from the reports of the Standing Committees on "Prices" and "Profiteering".

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This meaning of the term, however, was just one of a much wider range that Robert A. Brady (1932) catalogued in his analysis of the concept of rationalization. It was associated with the idea that it was possible to reduce average costs per unit of output by means of larger firms without necessarily incurring the problem of monopoly power – an idea that enjoyed wide circulation in the British press at that time. Henry Clay (1929, p. 171) wrote that rationalization "implies industrial combination with the object of securing not monopoly prices, but certain productive economies". Writing about the situation in Lancashire in 1926, John Maynard Keynes sympathized with "what the Germans are calling 'rationalisation', that is, the concentration of demand on the most efficient plants, which are worked at full stretch and the rest closed down" (CWK XIX, p. 579); "a 'rationalising' process designed to cut down overhead costs by the amalgamation, grouping or elimination of mills" (CWK XIX, p. 584). Keynes, and Clay as well, were of the opinion that this would not happen spontaneously. More generally, this was the Liberal Party view on the subject as put forth in the Yellow Book: "The economic order in which the doctrine of *laissez-faire* had its origin has already in large measure passed away. The typical unit of production used to be the small firm, built up within a generation or two by its owner, and financed by his savings or those of his immediate connections. Very many such businesses of course still remain. But the industrial unit which is now predominant is different" (pp. xxi-xxii). Behind these proposals and analyses lay the ever increasing conviction that the post-war crisis was not a passing phase, and that it reflected an irreversible change in British overseas trade which entailed a reduction of the extent of the market for the staples industries like cotton, coal, iron and steel, and shipbuilding. The Balfour Committee had expressed this view in its 1925 Report (Balfour Committee, Vol. I), and the same point was made by Keynes in 1926 (CWK XIX, p. 579).

This idea of rationalization as inevitable, since it was connected with irreversible processes, was not undisputed. Even among supporters of rationalization there were economists who thought that the crisis might be temporary – Macgregor (1927) expressed this view, for example (see also Macregor et al 1930). On the other hand, there was a substantial consensus that whatever else was

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the case, free competition was not the solution. This consensus was in large part the legacy of the pre-war combination movement and of the war economy. Several publications, many of which employed the reports of the Commission on Trusts and Profiteering as their empirical basis, recorded, and on the whole celebrated, the ever increasing scope of combination,[††] and Walter Meakin (1928) went even further, claiming that rationalization was nothing less than *The New Industrial Revolution*. In this context and especially for those who, like Plant, were more loyal to the idea that markets are the most efficient allocators of resources, a certain "fixation" with the problem of monopoly was not out of place.[‡‡] But, at least in the case of Britain in the interwar period, this did not result, as Coase would suggest, in a lack of attention to the study of the organization of industry.[§§] Quite the contrary, the unconditioned emphasis that rationalizers were placing on the absolute need for larger firms stimulated a reaction, on the part of Plant and a group of Cambridge industrial economists, in which the evils of monopoly were momentarily left aside and in which the main focus was put, in a very Marshallian fashion, on the managerial costs of organizations.

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III. ARNOLD PLANT AND THE CAMBRIDGE ECONOMISTS ON RATIONALIZATION

In a nation increasingly skeptical as to the possibility of its industries returning to a competitive status, some economists remained loyal to a conception of society as based on the automatic functioning of the market economy. Against Clay (1929), Edwin Cannan (1930) argued that precisely because the crisis of British overseas trade was irreversible, any attempt to save the old

[††] See Grant (1922), Rees (1922), Fitzgerald (1927), Levy (1927).

[‡‡] As Medema (1994, p. 22) has argued, "the main reason that Coase sees for the neglect of studies of the organization of industry is the long-time fixation on the study of monopoly".

[§§] See Coase (1972).

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staple industries was a waste of time and resources, and that the obstinacy of the 'rationalizers' was delaying the spontaneous development of new industries in new areas.[***] For Plant, a former student of Cannan, despite all the efforts that had been made to keep rationalization and the search for monopoly power as separate as possible, rationalization was no more than another step in "the transition from the conception of intervention to prevent monopoly to that of intervention to create monopoly" (Plant 1932a, p. 58).

In his inaugural lecture as holder of the newly created Chair of Commerce at LSE, Plant argued against any attempt to overrule the spontaneous adaptation of industry to the new conditions. He took issue with "the half-conscious attempt to displace the controlling power which ultimately determines the nature and volume of all production, that is, the demand of ultimate consumers, and replace it by some other ill-defined criterion", and he added that "[s]ome of the manifestations of planning and of rationalization are of this nature" (1932a, p. 46). Plant quoted the passage from Arthur Salter (1921) that Coase (1937, p. 587) would make so famous, in which it is stated that "[t]he normal economic system works itself. For its current operation it is under no central control" (Plant 1932a, p. 51). And he lamented the impact of the war on the economic opinion of the country: "we have carried over from war a desire to plan and to rationalize, not in the sense of perfecting the responsiveness of our economic system to ubiquitous change, but with the effect of frustrating the spontaneous experimentation which perfect responsiveness implies" (Plant 1932a, p. 57). In this perspective, the absolute priority was to preserve the market economy from the hypertrophic combinations of the period, rather then to explain how firms could exist in the ideal world depicted by Salter, as Coase (1937) would subsequently do.

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[***] An argument that Clay found rather unsatisfactory: "No doubt by the year 2000, or even 1950, industry will have adjusted itself to the changes brought about by the war and the return to Gold Standard; but the people engaged in industry today, unlike economists, are not able to look at economic problems *sub specie aeternitatis*" (1930, p. 335).

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Compared to the radically market-oriented views of Cannan and Plant, the position of the Cambridge economists was more complex. From a strictly theoretical point of view, their Marshallian upbringing gave them no reason to ask how firms could exist in a market economy and not the other way round.[†††] Their main preoccupation was rather with the fact that the crisis of the textile industry constituted a particularly harsh blow to Marshall's vision, in which Lancashire was identified as providing a vivid representation of 'automatic' cooperation within a localized industry. Now, outside Cambridge, Marshall's external economies were sometimes employed as an explanation for the protracted delay in responding to the new conditions.[‡‡‡] Moreover, together with coal-mining, the cotton-spinning industry had become one of the main fields of rationalization. Keynes' opinion, as expressed in a series of articles published between 1926 and 1929 in *The Nation and Athenaeum* and written in support of the Cotton Yarn Association (a cartel) and the Lancashire Cotton Corporation (the amalgamation eventually created by the Bank of England), has been summarized as a "microeconomic case against laissez-faire" (Marchionatti 1995) and presented as an example of an "anti-Marshallian" approach to industrial policy (Belussi and Caldari 2011, pp. 154-55).

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[†††] On this latter point see Raffaelli (2003, pp. 122-3).

[‡‡‡] This is rather implicit in Jones (1926) and explicit in Allen (1933). As George C. Allen wrote: "The development of highly specialized industrial areas was, indeed, characteristic of the nineteenth century … The growth of the foreign markets assisted this local specialization, and as long as demand was expanding the 'external economies of production' attending a highly concentrated industry were likely to promote this tendency. But it had been recognised that the fact that the established industries were carried on in specialized rather than variegated areas would, in the event of their decay, make the redistribution of the country's resources among other trades more difficult" (1933, pp. 24-5).

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Cambridge views on rationalization were, however, not generally based on the idea that bigger is necessarily better. The point of view expressed by the Cambridge economists was rather that, *in the specific circumstances of the ongoing crisis*, larger units would certainly reduce costs in Lancashire and several other producing areas. However, their main preoccupation was not so much to support the claim for bigger units as to explain what was not working in the spontaneous mechanism that, according to Marshall's time period analysis, should have regulated the transition from short to long period adaptations.

A re-adaptation of Marshall's time-period analysis that could explain this unpredicted outcome was proposed by Richard Kahn in his fellowship dissertation in 1929.[§§§] Kahn's argument was that assuming conditions of imperfect competition, the individual expectations of non-coordinated entrepreneurs hampered firms in their attempt to expand their size in order to exploit scale economies. For Kahn, the obstacle in the way of the growth of firms' average size was a strategic situation that could today be assimilated to the prisoner's dilemma. While each firm should reduce prices in order to attract new customers and then expand output, this cannot be done without risk unless the reaction of other firms can be predicted. Especially when the number of firms within the same industry is very high, as in the case of the Lancashire cotton industry during the 1920s, the most rational decision was, according to Kahn, to keep each firms' output fixed at a constant level. A similar argument was also proposed by Gerald Shove (1930), who spoke of unexploited economies "of rationalization" and "concentration", and then by Robinson in *The Structure of Competitive Industry* (Robinson 1935 [1931]). Like Shove, A. Robinson abandoned Marshall's life-cycle hypothesis and proposed a new solution to Marshall's reconciliation (or Cournot's) problem of explaining the coexistence of unexploited economies and competitive conditions. Likewise in

[§§§] Kahn's dissertation remained unpublished until much later. It appeared for the first time, translated into Italian, and edited by Marco Dardi, as Kahn (1983). The original English text appeared six years later as Kahn (1989).

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Macgregor (1906) and also Robertson (1928), Robinson's definition of competition was well within the Marshallian ground and therefore intrinsically imperfect, as it assumed the existence of a special but contestable market for each firm. And in the same fashion as Shove (1930), the theory proposed by Robison is couched in terms of limited exploitation of internal and concentration economies, with market imperfection creating a cost in transferring customers from one firm to another (Robinson 1935, pp. 120-2). Along with the "five forces" (technical, managerial, and financial forces; the influence of marketing; risk and fluctuations) that determine a firm's efficiency, this cost creates a costly and discontinuous pattern along which firms cannot always grow to the "optimum size"[****].

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These works of Kahn, Shove, and Robinson shifted attention from rationalization as a panacea to a re-adaptation of Marshall's time period analysis. Nevertheless, in A. Robinson's book, and in other works more focused on industrial organization, such as Lavington (1927) and Robertson (1928[1923]), the Cambridge industrialists can be seen being at pains to keep alive the Marshallian idea that there is no one-way trend in industrial history, and that the 'bigger is better' banner is no more than an anti-scientific and ideologically-driven misconception. Thus, even though Plant and the Marshallians were in opposite camps on industrial policy, with regard to the analysis of industrial organization they shared a common view that occasioned a small but nonetheless visible reaction on the idea that efficiency is always positively related to the size of business.

All these economists agreed that the problem was much more complicated than was generally assumed. Even more importantly, while they did not entertain a common opinion on rationalization, they based their arguments on a common analytical approach, for they shared a basic theory of organization and its costs. This theory, in which the costs of organization contribute to determining

[****] See Cristiano (2009) for a more detailed analysis of the contributions by Kahn, Shove and Robinson. Jacobsen (2008) provides a more detailed analysis of Robinson's book and its influence on Coase (1937).

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the size of firms, had an immediate antecedent in Marshall's works, specifically in *Industry and Trade*, and roots in Adam Smith's account of the division of labor. But this shared theory was more than mere repetition of old ideas, because the increasing size of British firms was posing a new problem: provided that the increasing costs of organization counteracted scale economies on the side of production, thus putting a limit on the efficient size of business, it was far from clear how far this upper limit could be raised by the new methods of management. With this general issue in view, the Marshallians at Cambridge were working on a better analysis of coordination costs. Plant developed a similar approach, but, at least on one occasion, he went even further by introducing the idea that larger business dimensions could sometimes be the outcome of ill-conceived market regulations that increased the cost of using the market.

IV THE THEORY OF THE BOUNDARIES OF THE FIRM IN ENGLAND BEFORE COASE (1937)

In relation to general opinion, *Economic Journal* and *Economica*, Cambridge and LSE, were the main centers of a more analytical, less ideological approach to the practical issues connected with rationalization, as well as to the theoretical problem of determining the size and boundaries of firms. For instance, 'Problems of Rationalisation' (Macgregor et al 1930) is the report of discussions held at LSE, on the occasion of the Annual Meeting of the Royal Economic Society, with Arthur Cecil Pigou in the chair and Macgregor, John Ryan (the managing director of the Lancashire Cotton Corporation), Keynes, and Philip Sargant Florence among the speakers. Plant sometimes took advantage of his book reviews, both in *Economica* and the *Economic Journal*, to adopt a more detached and reasoned approach to proposals connected with rationalization (e.g. Plant 1933, 1934, 1935). And it was in *Economica* that Lavington, certainly one of the most loyal Marshallians among the Cambridge men, published "Technical Influences on Vertical Integration. Based on Dr. Marshall's *Industry and Trade*", which is the natural starting-point for the present reconstruction of the various theories of the size of firms before 1937.

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In order to accord with the general idea that it was both possible and desirable to increase firms' average dimensions, and also that it was possible to thereby gain the advantage of efficiency without incurring any cost in term of monopoly power, Lavington started by "setting aside the desire of monopoly" (Lavington 1927, p. 27). On this premise, Lavington's main contentions were that there was no "general 'tendency to vertical integration'", that "the representative economies of modern industrial methods work towards the dissociation of processes", and that "the presence of such vertical integration as now exists is to be explained by the peculiar technique of one or two conspicuous industries and by the presence in other industries of certain technical conditions which partially neutralise the effect on the business unit of the main forces working for the vertical dissociation of processes" (1927, p. 27).

Lavington's theory was an application of the principle of specialization. It consisted in the idea that costs of coordination grow with the number of processes performed by a firm and that management is more efficient when a larger volume of output is produced through a narrower range of processes. Accordingly, Lavington (1927, pp. 29-30) distinguished between vertical and lateral integration – namely, the association of different processes at different stages or at the same stage of production, and horizontal combination, which is the association of like processes at the same stage, and postulated that business organization would spontaneously tend towards both vertical and lateral "dis-integration" and "horizontal combination".

The assumption of this theory is that organization as a factor of production is the product of human faculties and that these faculties are inherently limited. Accordingly, the main economies of organization come from "concentrating human faculties on a narrower range of tasks", and are associated (following Marshall 1919) with the application of "powerful appliances of production" to "uniform continuous process[es]" (Lavington 1927, p. 28).

Lateral and vertical specialization are only limited by the "effective range of marketing" (Lavington 1927, p. 29) and by a restricted group of "technical influences". First, there may be technical relations between successive processes which make it necessary for these stages to be

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carried out in close physical relation with one another, the iron and steel industries being the typical example. Second, a low degree of standardization of the products hampers the introduction of uniform continuous processes and the use of mechanization. Third (and again connected with a low degree of standardization), the adaptation of one stage of production to the scale of the next and the preceding ones in the chain sometimes makes it necessary for these stages of production to be integrated vertically within the same business unit.

Standardization is a key element in the theories of business size before Coase. For Lavington, as well as for Marshall, standardization permitted the specialization of firms on a narrower range of processes. For Lavington, standardization as opposed to individuality of product permitted the production of larger volumes of output through a narrower range of processes, thus reducing the average managerial costs per unit of product. In addition to this, for Marshall, standardization could also open up new avenues for very small firms, which could reduce their task to assembling standardized components in the manufacture of new products[††††]. By replicating the analysis of the American case put forward in *Industry and Trade*, in which large and homogeneous markets permit a high level of product standardization and the adoption of large scale production, Robertson provided an explanation of the limits to the growth of firms in different industries that is couched in terms of the degree of standardization, which itself is said to be "conditional on the growth of communications and the widening of markets" (1928, p. 20). The main advantage of large-scale

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[††††] See Marshall (1919, p. 227). As Tiziano Raffaelli (2009) has argued, this was a counterintuitive idea. In fact, it corresponded to the reversal of the generally accepted view that "there is a growth of specialisation no less striking than the growth of standardisation, and that, while the latter more and more tends to centralisation and mass production, the former retains the sub-divided form of industry, and affords scope for the small master and individual producer" (*Reports from commissioners, inspectors, and others* Vol. XV, 1920, p. 509). In Marshall, by contrast, specialization and standardization do not necessarily walk hand in hand with "mass production".

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production is the reduction of costs that can only be obtained by a "large firm" – one that can introduce "more highly specialized machinery, and keep it occupied more continuously than a small" industry (Robertson 1928, p. 21) – can obtain. For Robertson, however, the "economies of large-scale government rather than of large-scale technique ... dictate the size of the modern business unit" (1928, p. 25). This latter statement by Robertson introduced a further and more controversial element: the question of innovation in management and its impact on coordination costs. In itself, Robertson's statement was potentially innovative, because it indicated at least the possibility that larger managerial structures could be more efficient than privately owned firms. In true Marshallian fashion, however, Robertson was not saying that there was an absolute advantage on the side of big business. Rather, he explained, "the battle between the large firm and the small is not one which is ever fought to a definite finish", and furthermore, the advantages that could be reaped from large-scale technique and management varied from one industry to another.

A similar view was adopted in his more refined work by Robinson (1935 [1931]). A very critical transition in the passage from one local optimum to a better one in Robinson's theory is the "departure from individual management and a local market, in the direction of organised and coordinated management, and a national market" (1935 [1931], p. 122). Like Robertson, Robinson was a rather conservative Marshallian on this point, and though he admitted that management had been the major field of innovation in British industry over the last decade, he nevertheless remained loyal to a faith in the "flexibility" and "energy" of small businesses, and of the primacy of individuals over organization. Hence, while he saw no upper limit to the growth of technical efficiency, Robinson affirmed that the managerial optimum sets "not only a lower but also an upper limit to the scale of operation" (Robinson 1935 [1931], p. 53).

This latter position of Robinson collided with that developed in Sargant Florence's *The Logic of Industrial Organization* (1933). As in Lavington's scheme, Florence argued that maximum technical efficiency is reached when the highest output is placed under a single managerial unit; but Florence's managerial unit was an "organization", not an individual. Moreover, he placed no upper

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limit upon the optimum managerial unit: "In the assumption ... of the economic advantage in specialization of men and equipment, and of long-run conditions when factors of production can be adjusted and reorganized, there is in my view no limit to the increase in the physical return obtainable by larger-scale operation" (Sargant Florence 1933, p. 24).

This disagreement between Robinson and Florence, who had graduated from Cambridge in 1914 and was now Professor of Commerce at Birmingham, resulted in a quarrel in the *Economic Journal* (see A. Robinson 1934 and Sargant Florence 1934). Though rather sterile, this argument was nonetheless revealing of the questions that bigger businesses, with larger managerial structures, were posing to economists.[‡‡‡‡] The division of labor was now working heavily in management as well , and this was creating an increasing demand for business education at a high level. But how far business administration could go in reducing managerial costs was far from clear, and Plant, like Lavington and Robinson, remained loyal to the idea that "it is one thing to increase the speed and range of contacts within a firm, and quite another to evoke indefinitely a greater and greater volume of response from the (still only human) organism which endeavours to direct the business from the centre" (Plant 1937, p. 15).

The intrinsic limits of human faculties in dealing with complex processes and structures were frequently taken as the starting point for any theory of business administration, with the result that the latest of such theories sometimes looked like mere repetition of Lavington (1927). We will soon see that this is true of Plant (1937); indeed, the correspondence with Ronald Fowler reported in Coase (1988a, pp. 9-11) shows that even Coase in early 1932 had for some while been adopting the same approach.

On March 24, 1932 Coase wrote to his friend that he was considering the problem of the "bringing together under one control of different functions". Just as with Lavington's distinction

[‡‡‡‡] A. Robinson himself, in his book, emphasized the progress that had been made in managerial techniques and structures (1935 [1931], pp. 45-8).

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between lateral and horizontal integration, "[w]hat is important is that different functions are in fact brought together under one control, what stage they are in being of little account". And, probably stimulated by this analogy, Fowler in his reply wrote that "Lavington, I believe it was, wrote an article denying any general tendency towards vertical integration (I mean apart from attempts to obtain monopoly)"; but, apparently, Coase was not acquainted with this article. At this stage, Coase was not "so sure how far all economies are as a rule due to greater specialization.... I started with this attitude but found it was not very helpful since it is not clear really whether modern business is more or less specialized than it used to be". Fowler's comment on this point insisted on the arguments put forward by Lavington, though without mentioning them explicitly, and this time Coase responded "with enthusiasm": "I think your remark about decreasing returns to managerial ability arising not because the firm is more specialized but because it is less hits the nail on the head. There may be technical advantages in increasing complexity but it is decreasing returns to managerial ability which seems to set the limit". But, in the end, Coase abandoned this theory because, as he wrote in 1988, it "was going nowhere". He now inaugurated his own approach.

Albeit implicitly, in 'Centralize or Decentralize', Plant (1937)[§§§§] adopted Lavington's approach, combining it with an analysis of 'make or buy' decisions[*****] that is not very far from the idea that these decisions depend on coordination costs within the firm as well as the cost of using the market.

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[§§§§] 'Centralize or Decentralize' appeared in a collection of essays, *Some Modern Business Problems* (1937), edited by Plant himself. As Plant explained in the forward, the papers included in the book "originated in a series of public lectures to audiences of business people who gathered together in the evenings at the London School of Economics during the winter months of 1936-1937".

[*****] According to Lowell Jacobsen (2008, p. 73), Coase derived the concept of make or buy decisions from A. Robinson. It is at least plausible that Robinson exerted a similar influence also on Plant.

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Plant's theory is divided into two parts. The first reproduces (without quoting, maybe because the paper was written for a non-academic audience) Lavington's (1927) argument that the spontaneous trend of any industry will be a general movement towards specialization rather than integration. In the second part, processes of centralization are considered for those gains these may procure "which do not depend upon the acquisition of power to influence prices" (Plant 1937, p. 19). Both parts of Plant's paper are framed in terms of make or buy decisions. But while in the first part (as in Lavington 1927) the focus is exclusively on the variations of managerial costs, the second part moves from the observation that the cost of using the market can also vary according to different circumstances, thus reproducing a scheme which is closer to the one adopted by Coase (1937).

The general principle expressed in the first part is that the opportunities for decentralization will be least "where the success of the firm depends mainly upon the personal qualities of the central authority" (Plant 1937, p. 9). The number of individual decisions that have to be taken by the central authority can only be reduced to the extent to which decisions can be standardized in the form of "standing orders":

> "If the market in which the firm operates is highly heterogeneous in kind, so that each transaction, or a large proportion of transactions, involves separate attention, further decentralization will soon become impracticable and a limit be set to expansion. If, on the other hand, a decision once taken can become a precedent, or standing order, governing a volume of future transactions, then one central decision will suffice for an expanding volume of work of that kind" (Plant 1937, p. 11).

This is a replica of Lavington's argument, in which the relative degree of homogeneity of demand determines the feasible "standardization of output" and, therefore, the volume of output that can be produced at the maximum coordination cost, which corresponds to "the working day of the head of a business" (Plant 1937, p. 12). As usual, therefore, the fundamental trade-off is that between production (technical) costs and coordination costs: "As business grows ... the time approaches when the capacity of the co-operating specialists in the firm to serve its clients will be

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greater if the attempt at maintaining central 'co-ordination' of all of their activities is abandoned, and parts of the firm are disintegrated into more easily manageable units" (Plant 1937, p. 15).

The first part of Plant's argument was, to a large extent, expressed in terms of make or buy decisions, taken as the consequence of the growing coordination costs of an expanding business. Thus, for instance, "[i]t is not accidental that motor-car manufacturers in this country, whose business rapidly expands, generally tend at the same time to 'buy in' more and more parts, instead of continuing to make them for themselves" (Plant 1937, p. 17). Another example, which Plant considered in more detail, is the trend of development of department stores in retail distribution (1937, pp. 15-8). Plant noticed that the degree of central control in department stores tends to be highest in the case of standardized merchandise, while store managers are allowed some degree of discretion when merchandise has to be adapted to a local demand. In the latter case, the contracts of the local stores with central management come very close to a "virtual leasing of the department from the firm". "In such cases it is a very short step to the complete 'disintegration' of the risk by the actual leasing of departments as independent businesses" (1937, p. 16). In this case, make or buy decisions are considered within the Lavingtonian scheme, but in the second part of the paper, Plant presented an analysis which is closer to that of Coase (1937).

Taking "the second standpoint", which was the one connected with "the advantages of centralization", Plant presented a scheme of analysis for the integration of processes in which the notion of a cost in using the market was at least implicit:

"centralization is the means by which the collaborating enterprises secure the advantage of specialized services or equipment which would not otherwise be available to them on such favourable terms, if at all. If the service or merchandise in question is freely bought and sold on any scale in a well-organised market, there will be no need for centralization of firms. It is the absence of a well-organized market which may justify firms in pooling their requirements" (Plant 1937, p. 19).

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The remaining part of Plant's paper consists of exemplifications of the same general principle that can be found in Coase (1937): "Specialist accountant service is usually easily acquired in the open market from professional firms; but here again, there may be an economy to the larger firm or amalgamation which can offer full-time specialized employment to a professional accountant" (Plant 1937, p. 20); "the market in human effort is not yet so well organized that the qualities of workers offering themselves for employment can be accurately and expeditiously tested except by specialists" (p. 22); "No doubt if there were an open market, the delivery function would frequently be better disintegrated to specialist haulage contractors, but the Rail and Road Traffic Act of 1933 has put an end to the open market in road goods transport services; and large firms which centralize their delivery service secure an economy of pooling which their smaller competitors cannot share" (p. 26).

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The latter example was connected with Plant's previous work on transport legislation. As Coase explained, "Plant was critical of the rationalization schemes that were at that time advocated for a number of industries in Britain, and he was particularly hostile to proposals for the coordination of the various means of transport, a subject on which he presented a paper to the Institute of Transport in 1931" (1988a, p. 7). The paper mentioned by Coase is probably related to Plant (1932b).[†††††] As Coase observed, at this stage "Plant argued that competition would provide all the coordination needed. Yet we had in economics a factor of production, management, whose function was to coordinate" (Coase 1988b, p. 7). What has been shown is that Plant himself, towards the end of 1936 or the beginning of 1937, was at least beginning to reason in terms of 'make or buy decisions', and that he was also beginning to comprehend these decisions in terms of a balance of the costs of two ways of coordination, the price mechanism within the market and management within the firm;

[†††††] Plant (1932b) was published in the January issue of the *Journal of the Institute of Transport* as a "Lecture for Graduates and Students delivered in London on December 16th, 1931" (Plant 1932b, p. 127).

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but it still remains true that Coase's path-breaking article had no immediate significant impact on the literature. This might have been due to the fact that it was a good idea at the wrong time; or, maybe better, a good idea on the wrong side of the controversy on rationalization.

V. A GOOD IDEA AT THE WRONG TIME?

The concept of a cost in using the market, along with the idea that business size depends on the balance between this cost and coordination costs, is implicit but nonetheless rather clear in Plant's argumentation. Moreover, there was no apparent obstacle in the way of direct transmission of ideas from Coase to Plant, because Coase was a former pupil of Plant and a member of the same commerce studies group at LSE.[‡‡‡‡‡] But this notwithstanding, and even though the last step that was still to be taken in order to arrive at Coase's theory was by no means large, only Coase himself actually took this final step, and this poses the question of why the reception of 'The Nature of the Firm' did not take shape until very much later. One possible answer to this question, which can be proposed at the end of the present study, is that for more than one reason, Coase's article appeared in a context that was not favorable to its immediate reception.

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This is not a complete novelty in the literature. Klaes (2000) has already proposed the idea that 'The Nature of the Firm' aroused little interest until the term 'transaction cost', which was not introduced by Coase in 1937, took shape in other contexts, and more specifically as an economic explanation in terms of costs that could replace the metaphor of 'friction' that was so often employed in the economic literature, and especially in the literature on money and the money markets. In this perspective, Coase (1937) had no immediate impact because his proposal contained the answer to a question that had not been posed yet, while it acquired its outstanding prominence only as a result of later contributions and discussions, including the one generated by Coase (1960) himself. Another element which is not altogether new is related to the debate on socialist planning. Within the contemporary literature on these topics, Coase (1937) was at a disadvantage at least for

[‡‡‡‡‡] See Coase (1970, pp. 114-5).

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two reasons. The first, which emerges rather clearly in Campbell and Klaes (2005) and Bylund (forthcoming), is that Coase was proposing a view which reconciled the price mechanism with planning, while all the other participants in the discussion were neatly divided in a polarized debate between socialist planners and free market ideologists. If, as Bylund contends, Coase's view was inspired by the idea of resource heterogeneity, which is at the roots of the Austrian theory of capital, the same view was not Hayekian in deriving from this intuition the other idea that, precisely for this reason, the market is not always better than planning, as Bylund also observes in his paper. Furthermore, if 'The Nature of the Firm' gave planning its due place within the economy, it nonetheless left to competition the task of determining "the volume of planning (and therefore of market allocation)", as emphasized in Campbell and Klaes (2005, p. 270). This was an idea that must have been fairly unpalatable for the socialists. What Coase actually had to offer was neither a new theory of socialism nor a new analytical support for the specific Hayekian free market standpoint. Admittedly, Coase's new theory was couched in the terms of the planning vs. market debate – indeed, it was presented as an explanation for the existence of planning within a market economy – but it still remained a theory of the firm.

It is perhaps at this point that the present research can provide a new element in the picture that is progressively emerging in the literature. As Coase (1937) presented a new theory of the firm, his approach could certainly have been awarded greater attention in the debate on rationalization. As shown in this paper, it was within the debate on rationalization that a theory of the firm (and not just a mere description) had been taking shape during the 1920s and the early 1930s. This might have placed Coase in the position to enter the group of economists that were developing this theory, but there is no evidence, at least in his later recollections of the past, that Coase ever took part in this discussion. It is revealing, in this respect, that in 1932 Coase was only indirectly familiar with the argument put forth by Lavington (1927), finding it in a letter from a friend (Fowler), and that although as early as 1932 he developed his own approach as an alternative to it, he did not mention Lavington's contribution. Very plausibly, this was a further side-effect of the discussion on

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socialism vs. competition. In the late 1930s, the latter topic had replaced rationalization as the central issue of debate, being obviously of much more interest for a young socialist who was pursuing his very personal route towards a more liberal political stance. Had Coase (1937) appeared some ten years earlier, a fair reception of it would certainly have been easier. But while this remains only a hypothesis, there was also a conceptual distance between Coase and the other theorists of the firm, because they were concerned with different problems. While Coase was trying to lead a rather abstract theory of prices into contact with reality, Plant, Lavington, and Robinson were involved in a debate on industrial policy. And while Coase ignored this specific topic, setting out to deal with (what was in his view) the more important problem of explaining why firms existed in a market economy, at least one of the others, Plant, lamented that a market economy as Coase interpreted it in his article of 1937, that is, an economic system completely based on the price mechanism, simply could not exist in the Britain of his time. In the light of the existing historical and institutional context, Plant and his Cambridge colleagues were at pains to show that 'bigger' is not necessarily 'more efficient' and, it should be borne in mind, with this specific aim in view the idea that using the market had a cost was scarcely of any help to them. The cost of using the organization, rather than the cost of using the market, is the point upon which Plant, Lavington, and Robinson were forced to insist. In the abstract, the concepts employed in the two theories were complementary rather than rival, and it is therefore unfortunate that the Marshallian approach, with its emphasis on organization as a factor of production, and the Coasean approach, with its emphasis on the costs of market transactions, parted company instead of joining their explanatory powers. Plant (1937) is a case in point. With its replica of Lavington (1927) in its first part and its quasi-Coasean approach in its second, this work came very close to combining the two theories. But, unfortunately, this catholic approach was not developed further, and, given the surrounding circumstances, this was a predictable outcome. While it would be silly to pretend to have advanced 'the' explanation of the missed reception of 'The Nature of the Firm', it seems reasonable to affirm that this element, among the others, should be taken into account.

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