Marketing, Production Knowledge and Innovation: a Marshallian Perspective on Post-Coasian Theories of the Firm

Carlo Cristiano*

Abstract: Developments in post-Coasian theory of the firm suggest that the definition of knowledge implicit in standard transaction costs analysis is too narrow. This definition privileges the information which is employed in market exchanges at the expense of a vast and heterogeneous set of capabilities, knowledge and information employed in production. It is also pointed out in the same literature that when the focus shifts from the static comparison of intra- and extra-firm transactions to the dynamic process of innovation, the role of marketing is pivotal. Presented as an alternative to the Coase-Williamson approach, and to a large extent a spin-off of Alfred Chandler's historical reconstruction of the emergence of North American giant corporations during the last century, this way of looking at industrial phenomena presents strong analogies with Alfred Marshall's interpretation of the relationship between marketing and innovation during Britain's nineteenth-century era of industrial leadership.

Introduction

Recent post-Coasian literature on the 'nature of the firm' has introduced, or re-introduced, certain lines of thought which are of great interest from the standpoint of economic thought in general, and of Alfred Marshall's analysis of industrial organization in particular. One of these lines of thought, 'Adam Smith's theorem', belongs to the widespread tradition identified in Stigler (1951). Another concerns the trade-off between the advantages of specialization and the increasing need for coordinating specialized functions, which is pivotal in Marshall's as well as in Alfred Chandler's understanding of managerial structures and in Herbert Simon's proposal of an alternative to transaction costs analysis. Finally, a third line of thought relates to the 'capabilities approach'.

For Richard Langlois (2007, 14), "the capabilities approach extends the insights of Coasian transaction-cost economics into the realm of production. Coase noticed that there can be costs of transacting because of limitations of knowledge and information; capabilities theory insists that limitations of knowledge and information are the key to understanding *everything* an organization does". Building on these extended assumptions, Langlois and Nicolai Foss (1999) introduced the distinction between "transaction knowledge" and "production knowledge", arguing that the latter is as limited and imperfect as the former, and

* University of Pisa, e-mail: cristiano@mail.jus.unipi.it. I wish to thank Simon Cook, Marco Dardi and Tiziano Raffaelli for their useful comments and suggestions. The usual disclaimer applies. An earlier draft of this article was published as an ICER working paper in 2010. See www.icer.it.

that as there are costs connected with a limited transaction knowledge so there are costs connected to the incompleteness of production knowledge. A clear example of these costs is the "dynamic transaction costs" introduced in Langlois and Paul Robertson (1995, 35), namely, "the costs of persuading, negotiating, coordinating, and teaching outside suppliers", or "the costs of not having the capabilities you need when you need them".

Taking a HET perspective, this paper investigates whether the post-Coasian distinction between transaction and production knowledge can be found in the pre-Coasian works of Marshall.[1] It will be demonstrated that something very similar to the distinction between production knowledge and transaction knoweldge and the notion of dynamic transaction cost is indeed present in Marshall's work, although not labelled in the same way, and that it is connected, in both *Principles* and *Industry and Trade*, to the trade-off between specialization and coordination. In Marshall's work, it will also be shown, this distinction is closely related to the role of marketing and, via marketing, to the entrepreneurial version of the Adam Smith theorem.

In the course of this demonstration it will become clear that the link between Marshall's view of the use of knowledge in production and the way that he approached marketing is both suggested by and also resolves the apparent contradictions between the views of Mark Casson (1993, 2006) and Brian Loasby (1990, 2006) regarding the lack of a Marshallian theory of vertical integration in general and theory of the integration between marketing and production in particular.

A question that Marshall left unresolved

In *Principles of Economics* (Book IV, chapters viii-xii) Marshall developed a theory of industrial organization that he derived from the Smithian doctrine that productivity depends on the division of labour. His view of organization was framed within an evolutionary logic, in which 'variation' happens through entrepreneurial action while the market provides a mechanism of 'selection'. Just as with variation, selection is not driven altogether by chance. Marshall included marketing among the fundamental managerial functions, arguing that "the manufacturer who makes goods not to meet special orders but for the general market" must have the power of "seeing where there is an opportunity for supplying a new commodity that will meet a real want" (1920, 297). In *Industry and Trade*, this view was expressed in the statement that "[p]roduction and marketing are parts of the single process of adjustment of

[1] Langlois (2007, 14) included Marshall, together with Smith and Schumpeter, among the forerunners of the capabilities approach.

supply to demand" (1927, 180). While Marshall was following Smith when he wrote that "[i]t is the largeness of markets … that leads to the division of labour" (1920, 255), unlike Young (1928) and Stigler (1951) after him, he did not assume that the division of labour automatically adapted to the extent of the market. In *Principles*, the Smithian relation between specialization and market extent takes the form of a strong nexus between marketing and production, which is particularly evident in the definition of the entrepreneurial functions: "[l]ooking at business men from one point of view we may regard them as a highly skilled industrial grade, from another as middlemen intervening between the manual worker and the consumer" (1920, 293).

Any improvement – a new product, a better process – can successfully be introduced if, and only if, its organization guarantees a sufficient degree of coordination on the side of production and if it meets an "efficient demand" in the market. When innovation is at stake, the fact that the merchant and the supervisor of production are the same person therefore fits the case perfectly. The right hand knows what the left hand is doing, and the matching of any variation on the side of production with the merchant's knowledge of unexploited efficient demand coming from the market occurs smoothly. However, in the "age of rapid change" in which Marshall lived, this pattern of progress was undergoing a dramatic modification.

"Merchants" – Marshall wrote – "were the 'Venturers' or 'Adventurers' from whom modern enterprise descended. They had a large part in the coordination and the finance of localized manufacture, as soon as it began to outgrow the capacity of the small master working with two or three assistants" (1927, 172). Before it drew to a close, this merchant phase lasted long into the era of machine production: "Liverpool Merchants looked down upon the Manchester cotton spinners, even after a hundred years of mechanical invention had raised the capitalist manufacturer up to the level of leading merchants in regard to the magnitude of his operations, and had entrusted to him a greater responsibility than theirs as a leader of men" (ibid.). But when this heroic period came to an end, new problems emerged that called for new solutions. By the time that *Industry and Trade* appeared, "a large class of improvements" were "beyond the range of anyone who does not unite the command of a great business concern … with the possession of high faculty for appreciating new inventions, if not of creating them" (ibid., 173). Other sectors, in which it was necessary to rouse an interest in new and very expensive products, required conspicuous investments and specific marketing ability (ibid.).

For Marshall, then, marketing and production were two parts of the same process, and marketing had long been the driving force of that process. But Marshall had no reason to

expect that these two functions would always remain in the hands of the same person, nor did he think that leadership would always belong to the merchant function. However, looking at Marshall in retrospect, economists acquainted with transaction cost analysis and Coasian theories of the firm observe that there is no general and theoretical explanation – neither in *Principles* nor in *Industry and Trade* – of vertical integration or disintegration of the elements of marketing and production.

Loasby and Casson respond differently to this point. Following Loasby (1990), one would conclude that the problem simply does not exist: given that, in a Marshallian perspective, there can be no clear-cut Coasian distinction between market and organization, therefore there can be no absolute need for a theory of integration between different functions. Casson (1993), however, argues that Marshall failed to provide a theory of the integration of marketing and production functions, and that the lack of a 'Coasian dimension' in this respect can be regarded a shortcoming of his value theory. More recently, in an entry in the *The Elgar Companion to Alfred Marshall* (Raffaelli, Becattini, Dardi, 2006), Loasby repeated his 1990 position, which is indeed the 'commonsense view' within the Marshallian literature, that for Marshall organization pertains to the firm as well as the market. In this *Elgar* entry, however, Loasby also went further, making use of a new development in transaction cost theories (dynamic transaction cost theory) and thereby producing an argument which sounds very much like a reply to Casson (1993): "[i]f we interpret transaction costs as 'the cost of running the system', including the cognitive costs of developing and using knowledge within the firm, Marshall is the founder of dynamic transaction cost theory", while "[i]nternal and external organizations are built through investments which reduce the costs of managing particular future activities" (Loasby 2006, 374). Rather than lacking a Coasian dimension, therefore, Marshall is the forerunner of post-Coasian theories of the firm.

In his entry on 'Marketing' in the same *Elgar Companion*, Casson (2006) chose not to replicate his earlier argument pertaining to Coase. Rather, he focussed on the centrality of marketing in Marshall's work and suggested a wider view on the subject that, together with Loasby's *Elgar* reference to post-Coasian transaction cost theories, will be developed in this paper. Casson noticed firstly that Marshall did not significantly change his own theoretical view of marketing between *Principles* and *Industry and Trade*, but secondly that Marshall saw the link between marketing and production as a historical development, and therefore as a relationship subject to change. What Casson's later work suggests is that, theory aside, this changing relationship between production and marketing was crucial to Marshall's interpretation of the historical development of capitalism.

The following sections of the paper compare Marshall's historical reconstruction of how the entrepreneurial functions evolved over a loosely defined period – from the eve of "Britain's industrial leadership" to the time when this leadership came "under strong challenge" (Marshall 1927 [1920], Book I, chapters iv and v) – with the description of industrial organization which has been put forth in recent and interrelated contributions by Herbert Simon (1991), Alfred Chandler (1992), Langlois and Robertson (1995), and Langois and Foss (1999), and which provides an alternative to that description conveyed in the standard Coase-Williamson version of transaction cost analysis.

The same distinction between 'production knowledge' and 'transaction knowledge' introduced in post-Coasian literature is implicit in Marshall's works, where it runs parallel to the related distinction between production and marketing as two parts of the same process. In both cases, the historical figures of the 'merchant undertaker' and the 'constructive trader' – or, more generally, the leading role of marketing in the early stages of the capitalistic development in England – represented for Marshall the link connecting the two parts of the process.

When viewed from this standpoint, the question that Marshall left unresolved has more to do with history than with theory. The question emerged when higher specialization lead to an increasing separation of production and marketing, with the search for new processes thus becoming more and more separated from the search for an "efficient demand" for the new products.

From this point of view, the outcome of this study will be a close analogy between, on the one hand, the 'merchant undertakers' and 'constructive traders' that Marshall identified within nineteenth century British industries, and on the other hand, Chandler's 'salaried managers' and 'organizational innovators' of the 'visible hand' era (Chandler 1977). Although usually placed within opposing poles of the big business-localized industries dichotomy, when one looks at their considerations about the use of knowledge in production and marketing Chandler and Marshall appear to share the same perception of the pattern of economic development. This pattern is a variation of Smith's basic intuition as to the relationship between the extent of the market and the division of labour, in which the connection between market and production is provided by individuals who are endowed with a less specialized knowledge that they employ in providing the coordination between the (otherwise unconnected) more specialized lower level functions of production and marketing. Within this shared view, the power of innovation of Chandler's giant firms appears to be an indirect response to the old Marshall's late doubts as to the evolution of capitalism in the

twentieth century; just as nowadays post-Coasian capability-based theories of the firm are sometimes stimulated by the return to a pattern of development in which smaller size, extra-firm organization and external economies are the leading forces (Langlois 2007).

Knowledge in a Coasian framework

As anticipated above, a point made by Loasby (1990) is that, unlike in Coase (1937), in Marshall both the market and the firm require management, and that a business has an "internal" as well as an "external organization" (Marshall 1920). The substance of the argument put forth by Loasby is that the kind of knowledge that is central to Marshall cannot be processed and transferred through the price mechanism. The internal organization of the firm is a "device for organising the knowledge of all who work in it, and for using that organised knowledge as a basis for new initiatives" (Loasby 1990, 114). Outside the firm, external relations replicate the same organization of knowledge in competitive industries. This is especially the case with a localized industry – which "behaves rather like a scientific community, advancing knowledge through a process of conjecture, criticism, and experimentation" (ibid., 117) – and, more generally, of businesses in the same trade. Through a range of opportunities and devices, varying from localization to trade journals and associations, firms in the same trade organize knowledge while they continue to compete (ibid.).

In this respect, Marshall's theory appears to be compatible with Richardson's (1972) reading of Coase (1937) – in which pure market relations represent no more than a limiting case, while the organization of industry chiefly depends upon the interplay between intra-firm coordination and inter-firm cooperation – and therefore similar (through Richardson's interpretation) to Penrose's (1959) theory, in which each business is a bundle of specialized capabilities and each "firm's skills are to be directed to the specialized needs of another business" (Loasby 1990, 119).

Dealing with 'Marshall and marketing', however, Casson (1993) comes to opposite conclusions. Casson observes that by focusing on the market between production and wholesale, and thus excluding the other two prices in the chain (wholesale-retail and retail-consumption), Marshall put marketing outside the core of his price analysis. As a consequence, Casson argues, he could not even attempt an analysis of the reason why wholesale and retail markets may become internal to or remain external to the firm. For Casson (1993, 197), this relates to a "more general weakness", which is the "lack of a Coasian dimension" and therefore the absence of a theory of vertical integration, as well as to

a more specific aspect of Marshall's thought on industrial organization, which corresponds to the reversal of Loasby's argument based on knowledge: "Loasby has sought to defend Marshall on the grounds that his analytical insights showed him that no theory of vertical integration is really required" – Casson contends – but "[t]he sad truth is that Marshall did not explore the relative merits of alternative methods of 'conscious organization', and of alternative mechanisms for promoting the 'growth of knowledge' in a systematic way" (1993, 216).

Casson observes that this analytical failure is very relevant within Marshall's general framework. This is because Marshall recognised the entrepreneurial dimension of marketing (Casson 2006) and laid due emphasis on the power of innovation of entrepreneurs as "pure information workers", whose task has always been to plan production and distribution on the basis of their anticipation of what consumer wants will be, thus bearing the risk that this anticipation may be wrong and insuring all the other agents in the chain of production (Casson 1993, 214). In Marshall's work there is a host of remarks about the two fundamental functions of "gathering information about consumer preferences, and synthesising this with information about production conditions" (ibid., 217), and, because it is the process of information synthesis that drives the economy through change, these remarks bear witness that he was pointing in the right direction. Nevertheless, the shortcomings of partial equilibrium analysis hindered his path:

> Had Marshall formulated an explicit time-dependent model, it would have been more obvious to his readers that the role of the entrepreneur middleman is to collect information about a disequilibrium, and to turn this information to his own advantage by 'buying cheap and selling dear'. By contrast, in equilibrium the role of the middlemen is simply to pass products from producer to retailer. In equilibrium the middleman performs a simple break-bulk activity – effected through transport and storage – which is of limited economic significance" (Casson 1993, 217).

Thus, we have two interpretations. The first, by Loasby, focuses on Marshall's analysis of organization in Book IV of *Principles.* The second, by Casson, insists on the incompatibility between Marshall's broad view on marketing and the analytical framework of Book V. Though different, these readings of Marshall share a common view in which the agents' "knowledge" and their ability in processing "information" is what matters. But, while knowledge is the element that makes the Coasian dimension irrelevant in Loasby's reading of Marshall, Casson focuses on the role of knowledge for Marshall in order to demonstrate that the opposite is the case.

Transaction knowledge and production knowledge

Developments in the post-Coasian field during the 1990s provide a possible way out of this apparent contradiction. Simon (1991) and Chandler (1992) both emphasized the need to expand the assumptions regarding human behaviour and knowledge that are typical of transaction cost analysis (and of Oliver Williamson's works in particular) so as to include, along with transaction behaviour and knowledge, those behaviours and competences that are associated with production. Once this alternative perspective has been chosen, "production knowledge" (Langlois and Foss 1999) – incorporated in "the firm's facilities and skills" (Chandler 1992, 86) – joins with "transaction knowledge" in determining the size and boundaries of the firm.

From this perspective, Loasby's parallel between Marshall and modern dynamic transaction cost theories has more to do with production knowledge, while Casson makes no such a distinction. By contrast, for non-mainstream post-Coasian economists, both kinds of knowledge are relevant, but production knowledge is overlooked in standard Coasian theory.

For instance, in Simon (1991) the fundamental defect of the new institutional economics, including Williamson, is that it is based on *ad hoc* hypotheses, the aim of which is to make organization compatible with market analysis based on maximizing behaviour. Taking a more catholic position, Chandler acknowledged the importance of Williamson's work, but nonetheless parted company with him on the general approach to be taken in the study of industrial organization: "The basic difference between myself and Williamson is that for him (1985, 41): 'The transaction is the unit of analysis'. For me, it is the firm and its specific physical and human assets" (1992, 85-6).

In turn, Langlois and Foss's (1999) main tenet is that "production knowledge" is as incomplete as "transaction knowledge", and that this form of imperfect information has been overlooked in the mainstream post-Coasian literature. Production knowledge is largely made up of "tacit knowledge" (Polanyi, 1958) acquired through a time-consuming process of learning by doing, distributed among individuals and firms, and to varying degrees non-transferable. When individuals and organizations are endowed with non-transferable complementary skills, they need to cooperate in order to produce. As with Loasby (1990), Langlois and Foss refer to Richardson's (1972) concepts of "capabilities" and "activities", thus conveying the idea that distributed productive competences necessitate another form of incomplete, partly tacit and distributed knowledge; that is, "knowledge about how to link together one person's (or organization's) productive knowledge with that of another" (1999, 203).

For his part, Marshall obviously could not avail himself of Polanyi's concept of 'tacit knowledge', but his analysis of the division of labour, as well as that of Smith before him, seems to point to the same idea.

The division of labour in production is the subject matter of chapter 9 of Book IV of *Principles*, where it is said to take the form of a cumulative process of learning by doing, conveyed through the common sense idea that "practice makes perfect" and the concept – borrowed from physiology – of "'reflex' or automatic action" (1920, 250). Behind these ideas lies the scheme elaborated in Marshall's early model of the human mind ('Ye Machine'; see Raffaelli 2003), in which the driving force is the dialectic between innovation and routine. Each routine is an action that can be performed automatically, and this preserves a reserve of conscious energy that can be employed to contrive new solutions and/or in redeploying old routines when adaptation to a changed environment is required. In turn, successful innovations lead to repeated actions and, eventually, new routines that allow for the creation of new reserves of conscious energy. Viewed from this perspective, Smith's labour saving economies due to the division of labour are explained through attention-saving mental routines that increase the productivity of labour in two steps: firstly, by making it more uniform and repetitive, a process that leads to the second step, which is that of mechanization, and which occurs once a particular task has become altogether uniform and repetitive and can, therefore, be taken over by a machine – thereby creating new labour saving economies and shifting human attention from manual labour to the work of supervision of mechanised processes. In modern terms, the whole process amounts to a substitution of tacit knowledge, such as manual handicrafts skills, for appropriable and transferable knowledge, such as codified competences and technology, often in the form of "mechanization".

According to Marshall, specialization and mechanization have the cumulative effect of shifting human intervention to a higher level of supervision, thus favouring the higher faculty of judgment at the expense of lower manual skills. Moreover, changing the labourers' requisite capabilities from complex manual skills to less specific/higher level competences "weakens the barriers that divide different trades" (1920, 258), thus increasing the labourers' adaptability to new processes. Finally, mechanization presupposes and at the same time favours standardization, thus generating a trend which is considered in greater detail in *Industry and Trade*, where this favouring works as a further basis for innovation (Raffaelli 2009). The outcome of the whole process is that, while appropriable and transferable knowledge progressively takes the place of individual skills, the highest degree of "complexity" is progressively transferred from lower-level tasks to the organization of

business (Marshall 1927, 62), and this explains the existence of a trade-off between specialization and coordination costs.

Localization and large-scale production, corresponding to the exploitation of external and internal economies, are the two pathways to coordination that Marshall considers in Book IV of *Principles* (chapters 10 and 11). Both methods permit employment of highly specialized machinery and human skills. In the case of localization, "subsidiary industries devoting themselves each to one small branch of the process of production, and working it for a great many of their neighbours, are able to keep in constant use machinery of the most highly specialized character" (1920, 271). This type of organization may be driven out by new and more expensive technology that small businesses cannot afford (1920, 279) to the advantage of large scale production, in which the same result is obtained through internal organization and, therefore, through the investment of large capitals by one or more big businesses. As to human capital, the main advantage of localization is the creation of a local market for highly specialized skills, acquired through the time-consuming process of learning described in chapter 9 (1920, 271). On the other hand, one of the main advantages of large-scale production under this aspect is that it permits higher specialization in management, relieving the "head of a large business" from routine work and thus reserving "all his strength for the broadest and most fundamental problems of his trade" (1920, 284). As we have seen above, marketing was one of these fundamental problems (1920, 286-89).

Between markets and hierarchies: the undertaker as a specialized multipurpose function

A preliminary aspect that has to be taken into account in dealing with Marshall and marketing is that, while the Coasian framework takes for granted that markets exist, in a Marshallian perspective "[o]rganised firms are no more the explanandum than market transactions are" (Raffaelli 2003, 122-3).

Marshall's starting point was the methods of British business that prevailed in the early stages of industrialization, when knowledge management and information processing were – to a great extent – in the hands of merchant undertakers. This point marked the start of a long process that eventually led to a completely new industrial state of affairs in which the use of any kind of knowledge and information was dependent upon a multitude of individuals employed in the organizational structures of bigger firms and impersonally connected by market relations, while marketing had become a more specialized function integrated within larger hierarchical organizations or performed by specialized firms. This more modern state

of affairs, Marshall pointed out, was especially the case outside of Britain. However, not all the make or buy decisions that according to Marshall had occurred in the process of transition, nor even those located at the end of the transformation, can easily be understood through the application of the standard Coasian framework.

The hierarchically oriented employer/employees relation which is typical of Williamson's (1975) development of Coase's (1937) ideas is but one of a multitude of connections in which the Marshallian businessman habitually enters. Rather than giving orders, as Loasby implicitly suggests they do in the 1990 paper quoted above, businessmen frequently "transmit premises for making decisions rather than commands for specific behaviors", thereby creating a situation in which other people "can contribute their knowledge in a single decision" (Simon 1991, 32). Marshallian industries are a hybrid between market and organization in which the mere existence of hierarchies would scarcely be of use if employers were not knowledgeable enough about their employees' skills. In fact, in many cases reported by Marshall a voluntary exchange between the undertaker's willingness to bear the risk and his partner's willingness to accept the premises upon which they will employ their personal knowledge would suffice in order to carry out the process of production.

Taking Casson's (or Williamson's) standpoint, one may certainly say that all these dealings between merchant undertakers and producers could be analysed in terms of transaction costs. In fact, all the situations in which the entrepreneur transmits 'premises' instead of 'orders' could be expressed by saying that the undertaker chooses 'to buy' rather than 'to make', and that if this happens it is because the cost of using the market is lower than the cost of integrating production. This accepted, however, it still remains to explain why this happens.

Medema (1994) observes that considerations of this kind sometimes lead to the conclusion – accepted neither by Medema nor in the present paper – that Coase's argument is a mere "tautology" (in which the market costs less than organization because organization costs more than the market, or *vice versa*). On the contrary, what seems to emerge in so many of Marshall's descriptions of the distribution of tasks within an industry is that, as Langlois and Foss (1999) suggest, the distribution of qualitatively different types of knowledge within that industry generates transaction costs, just as (for instance) information asymmetries in the principal-agent model are another source of transaction costs in other developments of Coase's seminal idea. However, Langlois and Foss, Simon (1991), and also Marshall (albeit implicitly) point out that there exist non-hierarchical settings in which qualitatively different types of knowledge generate costs of using the market that could scarcely be reduced or

avoided by the adoption of vertical integration and formal hierarchies. It is for this reason that explicit non-price coordination emerges within the market as well as within the firm. Finally, it is typical of Marshall to consider the entrepreneurial function, and the merchant undertaker in particular, as the driving force of this intra-market explicit coordination. While for Coase (1937) the cost of using the market leads to the firm, for Marshall the costly and risky operation of certain types of market transactions occasion the development of a specific entrepreneurial function. Furthermore, while Coase focuses on costs, Marshall's main concern is the distribution of risk among the agents involved in production and marketing.

Generally speaking, according to Marshall, the undertaker has the power to organize production when he can give, in exchange for producers' skills, his knowledge advantage about markets (which latter gives him an advantage as a risk bearer). Although it does not require a formal hierarchy, this exchange cannot be carried out through impersonal market relations because it is based on the communication of information that cannot be transmitted by prices. This entails a bargain, and therefore transaction costs. But this also means that Marshall was dealing with a practical setting in which – as Simon (1991, 38) suggests – there are transactions that can be the object of conscious organization but not of market operations mediated (exclusively) through prices. While the Coasian employer needs formal power to give orders, the Marshallian undertaker cannot enter broader productive relations if he is not knowledgeable enough about the producers' capabilities. It is in fact the undertaker that takes the initiative in business.

In Marshall's own words, the "undertakers" are "those who take the risks and the management of business as their share in the work of organized industry" (1920, 745 n.1), while "business" is loosely defined as "all provision for the wants of others which is made in the expectation of payment direct or indirect from those who are to be benefited" (ibid., 291). Therefore, a business always involves some risks, but not necessarily the existence of a hierarchy. There is "the undertaker who is not an employer" as well as "the undertaker who is an employer" (1920 IV, xii).

Undertakers are also described as "a specialized body of employers, or to use a more general term, of business men" (ibid., 293), and even if "profits … are generally connected in people's minds with the employer of labour", "the superintendence of labour is but one side, and often not the most important side, of business work" (ibid., 297).

In the woollen trade before the advent of the factory system, for instance, the work of superintending the details of production and the "narrower risks of carrying out definite contracts" were "handed over to small masters", while the undertaker took over "the

speculative work and the broader risks of buying and selling" (1920, 294). This method is particularly suited to those trades in which "the difficulty of forecasting the future is very great" (ibid.). A mixed organization is that of the "Manchester warehousemen": these businessmen "give themselves to studying the movements of fashion, the markets for raw materials, the general state of trade … and employing, if necessary, skilled designers to carry out their ideas … they give out to manufacturers in different parts of the world contracts for making the goods on which they have determined to risk their capital" (ibid., 295). In these industries, there is "a continual contest between the factory and the domestic system" (ibid.), ruled by a variety of technical contingencies. This is what happens in the boot trade, for example, in which "the growing use of sewing machines worked by steam power is strengthening the position of the factories", while "the hosiery trade is being tempted back to dwelling-house by recent improvements in hand knitting machines" (ibid., 296). A similar situation is that of the Sheffield cutlery industry, in which the undertakers direct their employees and find the other capabilities they need at arms' length in the market: "[m]any cutlery firms … put out grinding and other parts of their work, at piece-work prices, to working men who rent steam power which they require, either from the firm from whom they take their contract or from someone else: these workmen sometimes employing others to help them, sometimes working alone" (ibid.).

All these examples show that, for Marshall, the boundaries between market and hierarchy are sometimes very blurred. As Chandler would suggest, the existence of "labor-intensive industries such as textiles in past times and the service industries, software and the like today" (1992, 87) reminds us that the method of capital-intensive industries – where steady flows of input and secure markets for large volumes of output are provided through sophisticated hierarchical organizations that substitute markets altogether – is not the only one possible: "[i]n labor-intensive industries the creation of a learning base and the resulting pattern of continuing growth differed substantially" (ibid.).

Marshall was more familiar with these latter kinds of industries, where individual producers, small firms and merchant undertakers organized production through contracts of varying duration: from long-term relationships with employees to one-piece jobs commissioned from a variety of independent producers and depending on very contingent factors. Moreover, when Marshall wanted to emphasize that the work of the undertaker corresponded to a multipurpose function made of heterogeneous competence, that production is carried out within the firm as well as through the market, and that undertakers can be employers and merchants at the same time, the situations in which production knowledge was

highly distributed provided useful examples and a good basis for generalization.

Thus, in Chapter 12 of Book IV, Marshall explains that there are two key functions that the undertaker performs, each requiring a specific "ability". In "his first role as merchant and organizer of production", the "manufacturer" who works for the general market must "have a thorough knowledge of *things* in his own trade". Secondly, "in his role of employer he must be a natural leader of *men*" (ibid., 297). Viewed in detail, however, each ability consists of an entire set of abilities:

> He must have the power of forecasting the broad movements of production and consumption, of seeing where there is an opportunity for supplying a new commodity that will meet a new want or improving the plan of producing an old commodity. He must be able to judge cautiously and undertake risks boldly; and he must of course understand the materials and machinery used in his trade (Marshall 1920, 297).

In addition to these competences, there are the administrative abilities of a "leader of men":

> He must have a power of first choosing his assistants rightly and then trusting them fully; of interesting them in business and of getting them to trust him, so as to bring out whatever enterprise and power of origination there is in them; while he himself exercises a general control over everything, and preserves order and unity in the main plan of the business (ibid., 297-8).

Marshall was aware that even though this account was based on empirical grounds, it was nevertheless the portrait of an "ideal employer" (ibid., 298). In chapter 12 he emphasized that, as the size of the representative firm was growing, the functions of the employer were becoming a source of further specialization, being increasingly distributed at different levels of business administration. This change represented an opportunity for people with business abilities but scarce capital to reach managerial functions, but it was also expected to result in a bureaucratisation of industry and, therefore, in a decline of the returns to management, thus imposing a limit to the growth of the firm. More retrospectively, the same change was marking the passage to a more Coasian-like world of markets and firms. But this did not happen at a stroke.

Making the move to capitalism: merchant undertakers

The transformation of the British pre-capitalistic trades into a fully-fledged capitalistic system is described in *Principles* (1890, Book I, chapter iii; later reproduced as App. A of the

final edition) and in *Industry and Trade* (1927, Book I, chapters iii and ix, and App. C).

In Marshall's opinion, the decisive mutation took place in the field of trade and pertained to the mercantile function of the undertaker. The "growth of free capital" (i.e., capital which was not directly associated with ownership or use of land) "gave scope for men with marketing ability of a constructive order", who changed the tone of British trade (1927, 47). The "constructive trader" is a typical representative of this new class of businessmen. Instead of relying on his skill "in buying a thing for less than it is worth, and selling a thing for more than it is worth":

> [t]he constructive trader … is constantly forecasting future developments of demand, and endeavouring to turn to account the rising force of new methods of production so as to supply something which can be produced in large quantities at a low cost, and force its way into general consumption. It is to force its way, because it is sold for less than people had previously thought it to be worth; while yet it has cost him, and is in a sense worth to him, much less than what he sells it for (1927, 47).

The trader's task, therefore, was to drive the market from one equilibrium to another, coordinating present production with future demand and so 'turning to account' the producers' unexploited capabilities:

> Such an undertaker sought out 'homely' producers who had the skill and aptitude for making certain classes of things economically and well; instructed them as to the precise character of the thing which he wanted; supplied generally the material and sometimes the requisite plant; and by ever widening experience learnt how better to enlarge and economize the processes of marketing (1927, 48).

As regards the function they performed, these undertakers were highly specialized, but their specialization consisted exactly in the acquisition of the less specialized/higher order knowledge required to coordinate more specialized/lower order functions.

Capitalism began before the factory system, when trade fell into the hands of a new class of undertakers who could join together capital and a broader "outlook" (1927, 49). Looking at the work of these "men of means, knowledge and resources" (ibid.) through the Coasian lens, we find that it entailed several tasks, each implying transactions and costs: the cost of finding homely producers and of testing their skills and aptitudes, the cost of instructing them, the marketing costs of supplying these producers with materials and implements purchased on the market, and the costs of marketing the final product. All these functions and the corresponding costs were later distributed within larger firms and the risks reduced by organised markets. But before this could finally happen, the transition to capitalism

occasioned the selection of a class of people who could afford all these costs and take advantage of the opportunity this provided them. These flesh and blood ‘ideal employers’ put to use what they learned about production and marketing in the creation of new connections among producers and between producers and consumers, thereby extending markets and improving their organization.

The advantages that the whole system could derive from a lesser degree of knowledge specialization on the part of merchants are perhaps more evident if we look at their work from the point of view of “homely producers”. Taking this perspective and considering the risk involved in each transaction as a potential cost, it can also be noticed that Marshall actually described a process which is somehow compatible with transaction cost analysis, albeit with two fundamental differences. First, the costs of the transactions carried out outside the firm – which in a Coasian perspective may lead to the expansion of the firm – provided the opportunity for the creation of a specialized managerial function which was external to the firm and devoted to the coordination of specific competencies in the field of production knowledge within a whole industry. Second, transaction costs may be better understood as “dynamic transaction costs”: “the costs of persuading, negotiating, coordinating, and teaching outside suppliers”, or “the costs of not having the capabilities you need when you need them” (Langlois and Robertson 1995, 35).

Suppose, for instance, that a “textile manufacturer … contracts to deliver a quantity of some fabric, of quality and design selected by a merchant, at a certain price”, and that he “fortifies himself by buying in advance the materials which he will need”. As Marshall explains, for the merchant this serves “to turn to the fullest account his powers of contriving improved models, patterns, etc., of the goods of which he has obtained special knowledge; and also of anticipating the future course of demand”. On the other hand, for the manufacturer the same method boils down to “escape from a task for which he is not peculiarly fitted” and which allows him “to give nearly his whole energies to the administration and technical work of making” (ibid., 50). The merchant checks the homely producer’s risk and substitutes for a thicker market, making it possible to carry out increased production without enlarging the boundaries of the primitive firm:

> A great part of the homely industries of the country, at a later stage, were financed by capitalist traders to the extent at least that they undertook in advance to buy specified products at certain prices: that is to say the producer carried no considerable risks in regard to any particular contract, when once he had attained a fair security as to the prices he would pay for material and for such labour as he might require (Marshall 1927, 49).

Thanks to the merchant undertakers, the change in business organization took place outside the factory. Moreover, the evolution of British industrial organization shows that the eclectic system of contracts managed by merchant undertakers was abandoned for external and not irreversible reasons.[2] On the other hand, when the relocation of production into larger firms finally took place, the merchant did not abandon his original function, but had to do the same job with a different hat, that of the "capitalist manufacturer". As a result, he enlarged the scope of his activity so as to include that of employer (Marshall 1927, 48). Furthermore, along with organizational adaptations connected with technological changes – which Marshall considered reversible – there were other, more permanent reasons – such as increasing R&D costs and the widening of markets to an international level – that were progressively driving capital away from the multipurpose function performed by merchant undertakers (1927, 507-8).

Meanwhile, all the risk-connected services that individual undertakers offered producers were subdivided in the form of specialized functions within the firm and coordinated by wider market relations connecting these firms. This led to a new and more efficient distribution of risks. However, better risk management went along with a new and increasingly dispersed distribution of knowledge and information about production and innovation.

The decline of the capitalist merchant and the rise of markets and hierarchies

From the point of view of economic history, the capitalist merchants are those who coordinated production when the dimension of firms was negligible. But they are also those who built markets, disseminating within society the "business point of view", that is, the "conscious adaptation of means to ends" that replaced ancient social relationships based on habits and custom (1927, 164). Meanwhile, the increasing extension and decreasing intensity of society, as families and clans gave way to larger communities, transformed "neighbourliness" into more "business-like" social relations: "the transactions between

[2] According to Simon (1991, 41-2), "The wide range of organizational arrangements observable in the world suggests that the equilibrium between these two alternatives [organizations and markets] may often be almost neutral, with the level highly contingent on a system's history". In a similar fashion, in Marshall's opinion the extension of the boundaries of the firm was not the crucial event: "… at length general attention was called to the great change in the organization of industry which had long been going on; and it was seen that the system of small businesses controlled by the workers themselves was being displaced by the system of large businesses controlled by the specialized ability of capitalist undertakers. The change would have worked itself out very much as it has done, even if there had been no factories: and it will go on working itself out even if the retail distribution of force by electric or other agencies should cause part of the work that is now done in factories to be taken to the homes of the workers" (1890, 40-1).

neighbours began to be governed by arithmetical comparisons between the value of that which was given, and that which was received in exchange" (ibid., 165). Later, when (and where) firms and markets had sufficiently grown in complexity and dimension, the opportunities for concentrating one's efforts on the coordination of highly specialized independent producers disappeared. Marketing and production became two connected but nonetheless separate functions, and the old network of business-like but personal relations became a web of impersonal market connections:

> The traders who bought goods in one locality and sold them in another were distinctively business men. But the greater number even of them seldom needed to look long ahead or very far afield: partly because they were in personal touch with those from whom they bought, and to whom they sold; and were thus directly cognisant of nearly all changes … which were likely to upset their calculations in the short run over which each such transaction generally ran. On the other hand a broad confidence in the steadfastness and efficiency of large and various markets is a necessary condition of the highly complex modern division of labour among producers, and between producers and middlemen (1927, 165).

In modern conditions, individual agents cannot achieve the producers' coordination and their connection with the general market. Business organization comes to depend on the thickness and continuity of several intermediate and final markets that, from the producers' point of view, buffer risks as middlemen did in the past:

> The breadth, persistency, and fluidity of modern markets enable the producer to make things on the "speculative" chance of selling them … The modern producer throws all his energies into one particular group of operations, trusting that the same market organization, which secures for him in advance approximately known prices for his sales, will enable him to buy at approximately known prices such things as he may want; whether they be small supplies of personal necessaries and luxuries … or relatively large supplies of just those highly specialized kinds of raw material and implements which are used in his work (ibid., 166).

Marshall (1927 II, v, 2) explained that modern organization is more efficient, because it "tends to distribute the risks inherent in making and marketing [so] that they fall increasingly on the shoulder best fitted to bear them". However, since this result is achieved by deepening the gap between making and marketing, the process of specialisation creates a new problem of coordination: even though making and marketing are no longer coordinated by the same person (and, in the case of disintegration of marketing and production, not even by the same firm), they still remain two "parts of the single process of adjustment of supply to demand" (1927, 181).

As industry developed further along the path of labour specialization, it became more and

more unlikely that individual agents could take upon themselves the multipurpose function performed by capitalist undertakers in England. Marshall was aware that the British road to industrial leadership could not be repeated and, refusing the "blind fatalism" of those who thought that "those changes, which are general, are probably irresistible" (1927, 175), pointed in the direction of managing the transition to the future through a better understanding of the prevailing trends (1927, 174-5). As far as Marshall could see, the crowding out of the individual entrepreneurs who, for a long time, had promoted innovation was one of these trends. Whether this entrepreneurial function could be replicated in a world of giant firms was something that Marshall could only guess.

Concluding remarks

The name of Marshall is usually associated with small firms and localized industries, and it comes naturally to think of Chandler or Williamson when the discussion turns to the massive firms of twentieth-century US industrial history. Moreover, Chandler's emphasis on the leading role of multidivisional firms during the twentieth century and on their success in the exploitation of innovative productive knowledge on a large scale stands in stark contrast with Marshall's scepticism about managerial 'bureaucracies' as a model of innovative entrepreneurship. Even among those who took inspiration from Chandler in criticizing Williamson, therefore, Marshall is not considered as a plausible alternative to transaction costs analysis. At best, as in Lazonick (1991), Marshall stands out as a missed opportunity, not believing in the power of "business organization" and remaining loyal to the "myth of the market".

Nevertheless, there is an alternative to these conventional views of Marshall's relation to more recent economists and economic historians – a different outlook in which the key interpretative point is the way the economic process of innovation is interpreted and explained, rather than the average size of firms. Viewed from this angle, Chandler's and Simon's criticisms of the Coase-Williamson approach, the way others have recently built on these hints, and the importance these authors give to qualitative differences in human capabilities, knowledge and information, lead to an approach to industrial economics that presents important analogies with that of Marshall.

It must be said at the start that, on some points, the analogy between Marshall and post-Coasian literature is a rather loose one. For instance, Marshall put a strong emphasis on organization, including it among the factors of production, and did not consider the market to be the default solution. Likewise, Simon has argued that the pure market as opposed to

organization is not the obvious choice for the starting point of industrial theory as was the case with Coase (1937). However, in Simon (1991) this argument is based on the observation that the space occupied by intra-firm organizations in the current industrial landscape is far larger than the space that remains for pure market transaction. For this reason, he proposed to look at market relations as the result of organizational failures rather than the reverse. In the same vein, and in the same year, Lazonick (1991) proposed to consider market failures as 'organisational successes'. In itself, this is not very Marshallian. In an altogether different context, Marshall attempted a genealogical approach, in which the capitalistic exploitation of productive knowledge stands out as the driving force that brought economic rationality and deliberateness into a pre-capitalistic world of economic relations based on habit and custom. Furthermore, Marshall saw no rigid partition between markets and firms, assumed that organization pertained to both, and put his emphasis on industries; and all of this has no place in the post-Coasian juxtaposition of markets and firms.

On the other hand, entrepreneurs' behaviour within localized industries as described by Marshall are a good representation of Simon's ideas both about Coase and about Williamson's theory and its shortcomings. As Simon would have suggested, these 'merchant entrepreneurs' and 'constructive traders' used their information about other people's knowledge rather than formal authority as the means to their ends.

Another analogy encountered along the way, one that is even less generic than the former between Marshall and Simon, is the way Marshall and Chandler looked at marketing in relation with Smith's theorem. This is something that puts them in contrast with Coase – which is obvious, as Coase simply went in a different direction – while at the same time situating them differently to other contributors within the Smithian tradition[3]. Finally, the affinity between Marshall and Chandler on the role of marketing leads to the other link, identified at a deeper level and connecting Marshall to the post-Coasian definitions of knowledge as an economic factor by Langlois (2007), Langlois and Foss (1999), Langlois

[3] In particular Young (1928) and Stigler (1951). The mechanical, or automatic interpretation of Smith's theorem in both these contributions is the object of Lazonick's (1991) attack, while in Chandler (1977, 490) the same criticism pertains only Stigler (1951) - this probably because Young came on the scene too early to propose his arguments as an alternative to Coase (1937), while Stigler explicitly proposed his work as an alternative to transaction analysis. Arguably for the same reason, Coase (1988, 65) replied to Stigler while ignoring Young. Curiously enough, in the concluding pages of his article, Stigler quoted a passage from G. C. Allen's *The Industrial Development of Birmingham and the Black Country, 1860-1927* (London 1929), in which the coordinating function of merchant entrepreneurs in localized industries is the same as that of Marshall's historical retrospectives in *Principles* and *Industry and Trade*. This quote was taken as a confutation of "[t]hose too numerous people who believe that transactions between firms are expensive and those within firms are free" (Stigler 1951, 192). But, as far as I know, none of these authors ever mentioned Marshall as a possible alternative to Young and Stigler's version of Smith's theorem (although indirectly this is hinted at in the above mentioned works by Casson).

and Robertson (1995). The extended definition of knowledge, and the notion of production knowledge in particular, that post-Coasian writers aim at including in economic analysis appears to be compatible with that part of the idea of knowledge that Marshall included in the definition of capital which has to do with human skills, or capabilities.

Moreover, within Marshall's and Chandler's entrepreneurial development of the Smithian logic, the qualitative nature and the degree of complexity of the knowledge employed in production seems to be the element that determines the kind of organization that will prevail in a specific context. In the mature stage of Marshall's thought, this insight took the shape of an expectation of the dawn of a new era, which was expected to be different in nature from the British industrial pattern of development during the nineteenth century (1927, 174-5), but not necessarily the opposite of it (Raffaelli 2009). Much later, Chandler (1992) replicated the same idea in an argument which looks like the mirror image of that of Marshall, warning that – notwithstanding their success in the 'visible hand' era – the managerial structures of large scale operations are not a panacea. According to both Marshall and Chandler, the size and boundaries of firms therefore depends at least to some extent on the productive knowledge they employ.

Within a shared concept of the entrepreneurial function, there is no irreconcilable contradiction between Chandler's multidivisional firms, run by "a new subspecies of the economic man – the salaried manager" (1977, 484), and the Marshallian pattern of development, based on privately owned firms mutually connected through local or inter-sectorial networks of external economies. Rather, as Marshall and Chandler would probably agree, while relations of mutual adaptation between managerial structures and the kind of productive knowledge that is employed in different industries do exist, the difficulties that Marshall's merchant undertakers had to solve were conceptually the same as those encountered much later by the salaried managers of Chandler's big firms:

> Organizational capabilities … provided the dynamic not only for the continuing growth of such firms, but also for the industries which they dominated, and for the national economies in which they operated. They were created during the knowledge-acquiring processes that are always involved in commercializing a new product for national and international markets. These learned capabilities resulted from solving problems of scaling up the processes of production, from acquiring knowledge about customers' needs and altering product and process to service needs, coming to know the availabilities of supplies and the reliability of suppliers, and in becoming knowledgeable in the ways of recruiting and training workers and managers (Chandler 1992, 83-4).

Moreover, both Marshall and Chandler were of the opinion that the required "organizational capabilities" were provided by specialized agents endowed with less

specialized knowledge and skills, who respectively took the form of Marshall's 'constructive traders' and Chandler's 'organizational innovators'.

Operating in different contexts, these agents performed the same function that Chandler (1977, 490) thought was missing in Stigler's (1951) theory of the functions of the firm and that in Marshall (1920) made the Smithian nexus between labour division and the extent of the market a non-automatic relation of cause and effect. The common feature of these agents is that they employ their less specialized knowledge to provide the coordination that specialization requires. In Marshall, they were in control *before* large markets connecting complex firms were built up, when production knowledge was mostly made up of individual skills and when productive processes required these non-transferable skills to cooperate, while it was a matter of secondary importance whether they were employed within the same firm or not. In Chandler (1977) they prevailed *after* market coordination had become too inefficient in order to grant coordination among the different parts of capital-intensive processes.

The prominence given to the higher-order managerial function endowed with less specialized knowledge and devoted to the coordination of more specialised capabilities through processes of innovation might be viewed as the hallmark of an approach to the capitalistic pattern of economic development which belongs to the Smithian tradition and which is complementary, though not necessarily alternative, to the Coase-Williamson paradigm. This view could probably be conveyed through a reformulation of 'Smith's theorem' in which the 'division of labour is limited by the entrepreneurial power to extend the market'. From this perspective, Marshall provides a good historical background for those authors who argue for the necessity of extending the Coasian logic so as to include the processing of 'production knowledge' and the 'dynamic transaction costs' which have much to do with innovation and which are missing in standard Coase-Williamson analysis.

References

Casson, M. 1993, 'Marshall on marketing', in J. Creedy and R. E. Backhouse (eds), *From classical economics to the theory of the firm. Essays in Honour of D.P. O'Brien*, Cheltenham: Edward Elgar.

- 2006, 'Marketing', in T. Raffaelli, G. Becattini, M. Dardi (eds) *The Elgar Companion to Alfred Marshall*, Cheltenham UK, Northampton, USA: Edward Elgar.

Chandler, A. D. 1977, *The Visible Hand. The Managerial Revolution in American Business*,

Cambridge US: Belknap/Harvard University Press.
- 1992, 'Organizational Capabilities and the Economic History of the Industrial Enterprise', *Journal of Economic Perspectives*, 6,3: 79-100.

Coase, R. H. 1937, "The Nature of the Firm", *Economica* 4: 386-405.
- 1988, The Firm the Market and the Law, Chicago and London: University of Chicago Press.

Langois, R. N. 2007, *The Dynamics of Industrial Capitalism. Schumpeter, Chandler, and the New Economy*, London and New York: Routledge.

Langlois, R. N., Foss, N. J. 1999, 'Capabilities and Governance : The Rebirth of Production in the Theory of Economic Organization, *Kyklos*, 52,2 : 201-18.

Langlois, R. N., Robertson, P. 1995, *Firms, markets and economic change: a dynamic theory of business institutions*, London: Routledge.

Lazonick, W. H. 1991, *Business Organization and the Myth of the Market Economy*, Cambridge: Cambridge University Press.

Loasby, B. L. 1990, "Firms, Markets, and the Principle of Continuity", in J. Whitaker (ed) *Centenary Essays on Alfred Marshall*, Cambridge: Cambridge University Press.
- 2006, 'Industrial organization', in T. Raffaelli, G. Becattini, M. Dardi (eds) *The Elgar Companion to Alfred Marshall*, Cheltenham UK, Northampton, USA: Edward Elgar.

Marshall, A. 1890, *Principles of Economics, Vol. I*, London: Macmillan.
- 1927 [1920], *Industry and Trade* (third edition), London: Macmillan and Co.
- 1920, *Principles of Economics. An Introductory Volume*, London: Macmillan and Co.

Medema, S. G. 1994 *Ronald H. Coase*, London, Macmillan, New York, St. Martins Press.

Penrose, E. T. 1959, *The Theory of the Growth of the Firm*, Oxford: Basil Blackwell.

Polanyi, M. 1958, *Personal Knowledge*, Chicago: University of Chicago Press.

Raffaelli, T. 2003, *Marshall's Evolutionary Economics*, London and New York: Routledge.
- 2009, 'Industry and Trade reconsidered', *History of Economic Ideas*, 17, 3: 59-73.

Raffaelli T., Becattini G., Dardi M. (eds) 2006 *The Elgar Companion to Alfred Marshall*, Cheltenham UK, Northampton, USA: Edward Elgar.

Richardson, G.B. 1972, "The Organization of Industry", *Economic Journal*, 82: 883-96.

Simon, H. A. 1991. "Organizations and Markets", *Journal of Economic Perspectives*, 5,2: 25-44.

Stigler, 1951, 'The division of labor is limited by the extent of the market', *Journal of Political Economy*, 59,3: 185-93.

Williamson, O. E. 1975, *Markets and hierarchies: Analysis and antitrust implications: A study in the*

economics of internal organization. New York: Free Press.

- 1985, *The Economic Institutions of Capitalism: Firms, Markets and Relational Contracting*, New York: Free Press.

Young, A. A. 1928, 'Increasing returns and economic progress', *Economic Journal*, 38: 527-42.