An Interpretation of Ronald Coase's Analytical Approach[1]

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> 'Rather, he [Coase] offers a new approach, a new angle, from which economic phenomena can be seen in a different light'. (Cheung 1992, p. 55)

Abstract: Coase has made important contributions to economics and has been recognised as one of the most important economists of the twentieth century, but the recognition has mainly focused on the subject matter and much less attention has been given to his analytical approach. In this paper, an attempt is made to identify a distinctive, simple, and straightforward analytical approach that is implicit in his major works. Specifically, it is argued that in both of his famous 1937 and 1960 papers, as well as in some of his other important works, a reasoning procedure of setting a benchmark first and then using the benchmark as the reference point for analysis can be identified. The uniqueness of Coase's benchmark approach is specified and the implications are derived.

1 Introduction

Coase (1988, p. 1) observed wryly once that in general his view has not commanded assent among economists, nor has his argument been understood. Nevertheless, in view of the frequent citations and high acclaim his work has enjoyed, Coase is undoubtedly one of the most important economists of the twentieth century.[2] Specifically, his 1937 article provides a theoretical explanation for the existence and the nature of the firm, and thus initiated subsequent research in the theory of the firm, and the theory of industrial organisation more generally.[3] Alternatively, his 1960 article on the problem of social cost is generally viewed as an important landmark in the development of the modern literature on law and economics.

While Coase's work concerning the subject matter has been extensively discussed in the literature, the analytical approach he employs has received much less attention.[4] This led Mäki (1993, p. 5; 1998a, p. 249) to remark that 'much less work has been done on the methodological and conceptual foundations of the theories and approaches of, say, Ronald Coase', and that '[h]is methodological thought is beginning to be explored ... but much more needs to be done'. For economists, how one of the masters of twentieth-century economics actually accomplished his tasks remains a fascinating as well as a puzzling question. In responding to Mäki's call, and in trying to answer the question just stated, this paper will concentrate on the methodology, or the analytical approach, employed by Coase. In particular, I will argue that a distinctive, simple and straightforward analytical approach can in fact be identified in his major works, one that can be termed a benchmark-and-comparison approach, or a benchmark approach for short. More specifically, I will show that, in both of his 1937 and 1960 papers, Coase adopts a reasoning procedure of setting a benchmark first and then using the benchmark as the reference point for his analysis. As such, I am making a limited claim that it is helpful from the perspective of the benchmark approach to

understand Coase's methodology in his two most important papers, but at the same time it should be noted that I am not suggesting that the benchmark approach can be identified in all, or even most, of his works. But while the larger issue of whether Coase employs the benchmark approach in all or most of his works remains to be examined, I will demonstrate that the distinctive analytical approach can be seen in at least some of his other major works. Nevertheless, it is not clear from his own writings that Coase is aware of his particular way of reasoning.

As the concept of transaction costs can be said to crystallise Coase's contributions to the subject matter of economics, similarly I argue that the benchmark approach provides a unifying theme for Coase's analytical approach, at least for his most important works. Furthermore, the intuitively straightforward benchmark approach may be so obvious that, 'like the postman in G.K. Chesterton's Father Brown tale, "The Invisible Man", it has tended to be overlooked' not only by other economists but also by Coase himself.[5] This would then help explain why Coase's methodology has not attracted much attention, for the approach may be simply too obvious to be noticeable.

The paper is organised as follows. In the next section, I will briefly review Coase's own methodological stance and the previous discussions of his methodology. In section 3, the meanings of the benchmark approach will be explained. Then in section 4 I will identify the benchmark approach used in his two most famous papers, and demonstrate that the approach has also been present in at least several of his other works. In section 5, the contrast between Coase's approach and certain other analytical approaches will be illustrated, including the one that is generally accepted by mainstream economists such as Gary Becker. The strengths, the weaknesses, as well as the implications of his analytical approach will also be discussed. The final section summarises the present inquiry and points out an important issue for further inquiry.

2 The Background

To provide the background for subsequent analysis, in this section I will first provide a review of Coase's own position on the analytical approach of economics and then summarise previous discussions of Coase's methodology.

Coase

Consider first Coase's general attitude towards economic research. Concerning methodological issues, Coase (1982; 1994) argues in 'How Should Economists Choose?' that the proper criterion to judge a theory is not its predictive accuracy, as strongly argued by Friedman, but its logical consistency. That is, it is more important that theory offers a better base for thinking about the problems of the economic system. In addition, on more than one occasion he argues that economists should not be occupied by so-called 'blackboard economics', and should instead study phenomena of the real world. For instance, commenting on the tendency that analysis is usually too separate from reality, Coase (1984, p. 230) remarks that 'it is as if one studied the circulation of the blood without having a body'. But this methodological stand is a very general one, and has been made by various other economists. As an example, consider the statement that '[his] approach has been different. He has chosen problems in the real world ... and written about them rather than about the literature about them. It is one of the advantages of an applied field like law and economics that it is rich in concrete real-world problems just waiting

to be analyzed, and not just a literature waiting to be further annotated'. However, this is Posner (1993b, pp. 214-15) writing about not Ronald Coase but Gary Becker.

Consider now Coase's discussion of his own method. With respect to his own methodology, Coase (1988, p. 1) suggested once that 'most economists have a different way of looking at economic problems', but interestingly he did not identify what his own way was. However, his discussion of method in 'Marshall on Method' (Coase 1975) in an approving way is indicative of the methodological position he himself supports.[6] Moreover, as is well known, Coase has very little use for mathematics in his own works, and he is concerned about economists' over-reliance on mathematics.

In sum, from either Coase's attitude towards economics in general or his own position on method in particular, one cannot identify a distinctive analytical approach.

On Coase

As indicated previously, Coase's analytical approach has not attracted too much attention in the literature.[7] While Posner (1993a) deals with Coase's methodology explicitly, he essentially argues that Coase's definition of economics (by the subject matter) is too narrow. Furthermore, since economists generally credit Coase with his contributions on the subject matter, Posner's discussion of Coase's analytical approach under the title of 'Ronald Coase and Methodology' leads Williamson (1994, pp. 201, 202) to observe that 'Posner dwells on Coase's methodology. Is that really where the central contributions of Coase reside?' and, again, 'But why deal with methodology in a forum where the Nobel Prize is being celebrated if, to repeat, the core contributions reside elsewhere?'[8]

Alternatively, Zerbe (1980, p. 90) has a section with the heading 'The Coasean Approach', in which he specifies the analytical framework as implied in Coase's social cost paper as follows: 'Coase's use of a zero cost world as a basis of comparison serves to emphasize this [that external effects are not taken into account because of transaction costs]'. In addition, Mäki (1998c) develops an argument that is more relevant to the present study.[9] Specifically, in trying to answer the question of whether Coase is a realist, Mäki introduces the concepts of vertical isolation and horizontal isolation, referring to the analytical practice of purposefully abstracting from details or reality either vertically or horizontally. By drawing on ample evidence and with forceful reasoning, Mäki illustrates that Coase, in his writings, has been skilful in combining reality with theoretical isolation, both horizontally and vertically. As such, Mäki's analysis brings out an important aspect of Coase's methodology that has not been illustrated before.

However, a unifying theme underlying Coase's analytical approach has not appeared. While the quote of Cheung (1992) beneath the title of the present paper suggests that Cheung believed that Coase employs a unique analytical approach, unfortunately he did not make it clear what the approach was. Alternatively put, whereas one can immediately think of the concept of transaction costs as representing Coase's contributions to subject matter, no corresponding key concept leaps to mind when one tries to summarise or represent Coase's works concerning his analytical approach. Given this backdrop, in the following analysis I will attempt to identify a particular analytical approach in Coase's major articles.

3 The Benchmark Approach

In this section the meaning of the benchmark approach will be explained. In essence, the benchmark approach is a way of describing and analysing things by way of contrast with respect of a benchmark.

Benchmark

The nature of a benchmark is a guidepost, and through comparison with the guidepost, differences and changes can then be illustrated easily. Various benchmarks are adopted to serve this purpose. For instance, to calculate the price index, the inflation rate, or the exchange rate, a basis of comparison has to be adopted to make the calculations, and the basis constitutes the benchmark. Similarly, to measure weight, height, volume, etc., it is obvious that certain generally accepted benchmarks have to be relied upon to do the measurement. As another example, a benchmark can be said to be employed in the rational choice model, though in this case implicitly. That is, when a person is confronted with a choice, his status quo is his benchmark, and he compares the potential alternatives *with respect to* the benchmark before making the final decision.[10]

More abstractly, a benchmark is sometimes used to help make value judgments. For instance, the theories of notable economists, especially those of Nobel Laureates, have often been invoked either as guidelines to judge alternative reasoning or as points of departure to advance new theory. In either case a value element has been implicitly made with respect to the benchmark. But benchmarks have been employed more extensively than just in theoretical discourse. To give a concrete example from everyone's daily experience, think of a casual remark such as 'it is bad to gossip'. The brief remark implies that behaviours other then gossiping have been implicitly adopted as the benchmark and that a value judgment has been applied to judge gossiping. As such, the remark vividly demonstrates that various benchmarks have been widely used, perhaps unknowingly, in everyone's daily life.

Benchmarking

When a benchmark is employed analytically, it constitutes what is termed the benchmark approach. Conceptually speaking, the use of a benchmark analytically is very simple; a benchmark is adopted as the basis or as a frame of reference, then a comparison is made with respect to the benchmark. Analytically, the benchmark approach often means that when a benchmark is adopted, either explicitly or implicitly, an alternative theory, theorem, or argument is being suggested with respect to the benchmark. Through contrast and comparison, hopefully the strengths and/or superiority of the alternative theory, theorem, or argument can be demonstrated. For example, when it was generally believed that the earth was flat, the belief was used as a benchmark to argue for a more convincing theory that the earth was actually round.

Consequently, the dominant characteristic of the benchmark approach is that it describes/analyses things through contrast or comparison with respect to a particular benchmark. Specifically, the benchmark approach as commonly adopted contains two ingredients: first, a benchmark, or a reference point, that forms the basis of analysis; second, a value element that may be either implicitly or explicitly employed in the analysis. For example, take 0 as a reference point; 1 is different from 0, but, without an additional value element, a choice or a judgment between 0 and 1 cannot be made, in which case only the contrast between 1 and 0 is

demonstrated. But even in this case the benchmark approach is useful, for it is being employed to illuminate the contrast between the benchmark and the subject under study. However, if a value element is included as a criterion, then the benchmark approach is capable of making a value judgment. In the above example of the contrast between 1 and 0, if the amount of spending per week or the number of donations per month is adopted as a criterion, then a choice or a judgment can be made between 0 and 1. In the following analysis, I will try to identify both the reference point and the value element employed by Coase.

Before proceeding, it seems helpful at this point to make a brief comparison of the benchmark approach with respect to the marginal analysis that is widely used in economic theory, such that the meaning of the benchmark approach can be better grasped. As commonly understood and generally practised, marginal analysis is conducted with the help of calculus, and the consumer's maximisation problem is a representative example. In contrast, the benchmark approach is a simple technique that does not rely on mathematics in any way. Moreover, in economics marginal analysis is often employed to analyse the behaviour of actors, either human beings or non-human entities such as firms, and has generated important insights. But behaviour is only one of the subject matters analysed in economics; in dealing with issues not directly related to *behaviour*, marginal analysis may become irrelevant. For instance, it is not clear how one can apply marginal analysis to examine the issue dealt with in Coase's paper on the lighthouse. In contrast, the benchmark approach is not limited to analysing behaviour-related subjects and can be applied to a wide range of issues, as will become clear below. Seen from a different angle, however, marginal analysis is related to the benchmark approach in an important way. Continuing with the example of the consumer's maximisation problem, it is clear that deriving the first-order conditions and finding the optimal consumption bundle is only the initial step. The more crucial step is the comparative static analysis that indicates the directional changes of the endogenous variables when the exogenous variables vary. For instance, the law of demand does not come from the first-order conditions but is the result of comparative static analysis. As such, in terms of the benchmark approach, the optimum can be viewed as the benchmark. The directional changes resulting from comparative static analysis constitute the contrast with respect to the benchmark, and the contrast illustrates the nature of consumer behaviour. In this illustration, the value element is the efficiency in resource allocation, that is, the directional changes imply that the consumer is behaving in a manner that would enhance his utility.[11]

In short, the concept of the benchmark helps to illustrate numerous phenomena, and the benchmark approach is a simple but distinctive analytical device. It would then be of interest to see how this intuitively appealing but methodologically simple technique has been employed by Coase to illustrate his great insights.

4 Coase's Use of Benchmarks

It will be argued in this section that the benchmark approach can be identified in Coase's major writings. Specifically, I will show that this approach can be seen noticeably in his two most famous articles as well as in some of his other important papers. However, as Coase himself indicates that he has not consciously been taking any particular analytical approach, the argument here is that the benchmark

approach can be identified consistently in some of his works, and that it provides a unifying theme to perceive his way of reasoning from a methodological perspective. But one must be cautious that even though one can identify Coase's use of the benchmark approach in his writings, it is difficult to argue further that Coase employs the technique in any systematic way. That is, one has to be careful in not reading too much into Coase's use of the analytical technique, for otherwise one might risk committing the same error of doing 'blackboard economics' with respect to Coase's methodology, i.e., suggesting things that exist in one's argument but are not supported by Coase's writings.

The Nature of the Firm

In his 1937 classic, Coase's intellectual insight is this: to assemble and utilise resources by relying on the market incurs cost, because of the transaction costs involved; therefore, if the cost of using the market is too high, then it may be worthwhile to form an organisation (a firm) to assemble and utilise resources. To illustrate this insight, Coase identifies a benchmark first, and then uses the benchmark as a reference point to analyse by way of comparison. In particular, the benchmark-and-comparison technique is employed on two different levels in this paper. First, he adopts the price mechanism as the benchmark, and explains the condition under which a firm should be brought into existence. Specifically, he argues that 'the main reason why it is profitable to establish a firm would seem to be that there is a cost of using the price mechanism' (p. 38).[12] That is, if forming a firm incurs less cost, then avoiding the market mechanism and forming a firm is certainly the proper decision – the benchmark is the transaction costs implicit in relying on the market mechanism, and the contrast with respect to the benchmark is the cost incurred in forming a firm to utilise resources. Thus, Coase indicates that

> we may sum up this section of the argument by saying that the operation of a market costs something and that, by forming an organization and allowing some authority (an 'entrepreneur') to direct the resources, certain marketing costs are saved. (p. 40)

It should be clear that the value element implicitly employed is the efficiency of resource utilisation. Alternatively put, an entrepreneur is trying to find a better way to utilise resources, and the choice between the firm and the market is made by comparing the relative efficiency of these two different ways of resource utilisation. And the market mechanism constitutes a benchmark with respect to which the entrepreneur can make a comparison concerning alternative ways of utilising resources. Forming a firm is one such alternative, and it is the focus of Coase's attention.

After dealing with the issue of whether to form a firm, Coase then turns to the issue of the proper size of the firm, and this is also determined by a comparison between using the firm and relying on the market. Specifically, he observes that

> a firm will tend to expand until the costs of organizing an extra transaction within the firm become equal to the costs of carrying out the same transaction by means of an exchange on the open market or the costs of organizing in another firm. (p. 44)

That is, the benchmark is again the transactions costs implicit in the market mechanism; the owner of a firm should expand to the point where the marginal cost of further expansion is equivalent to the marginal cost of utilising the market. Parallel to the first issue, the value element employed here is again the efficiency of resource utilisation.[13] Moreover, it is interesting to note that, after providing a

theory of the firm, Coase (1937; 1988, pp. 47-51) then uses his theory as the benchmark and compares it with those of both Frank Knight and Maurice Dobb. This can be argued to be an alternative application of the benchmark approach and thus constitutes another piece of evidence that the benchmark-and-comparison technique has been used. Obviously, the value element implicitly employed is the soundness of the theoretical explanation.

In summary, the major reference point adopted in Coase (1937) is the price mechanism, or the transaction costs as implied by (relying on) the market mechanism, and the value element is the efficiency of resource allocation. By employing the price mechanism as the reference point, the entrepreneur can properly determine whether it is more efficient to bring a firm into existence and, if it is, the appropriate size of the firm.

The Problem of Social Cost

Coase (1960) basically follows a similar reasoning procedure of identifying a benchmark first and then making comparisons. The paper begins with a brief introduction, then Coase explicitly states the major concern of this paper. In particular, when externalities are present, how does one (the economist or the court) determine what to do? Coase provides a straightforward answer by indicating that 'The real question that has to be decided is, Should A be allowed to harm B or should B be allowed to harm A? The problem is to avoid the more serious harm' (p. 96). Then Coase explains that since externality is reciprocal in nature, in analysing the externality problem the parties involved should not be identified as the harm-causing party or the harmed party; instead, only their gains or losses as measured in monetary terms should to be taken into account. Then, to conduct his analysis, Coase identifies the zero transaction costs as his first benchmark:

> I propose to start my analysis by examining a case in which most economists would presumably agree that the problem would be solved in a completely satisfactory manner: when the damaging business has to pay for all damage caused and the pricing system works smoothly (strictly this means that the operation of a pricing system is without cost). (p. 97)

In this world of zero transaction costs, he derives the famous Coase Theorem. With the assumption of zero transaction costs, he argues that the parties involved all know the gains/losses accrued to both oneself and the other party/parties under different property rights assignments. As a result, given that it is costless to negotiate, the parties will reach the efficient outcome so that maximal net gains will be obtained. Furthermore, this outcome will be invariant with respect to the initial assignment of property rights. Take the case of the farmer and the cattle-raiser as an example. In the world of zero transaction costs, Coase argues that 'the size of the herd will be the same whether the cattle-raiser is liable for damage caused to the crop or not' (p. 103).

Alternatively put, the Coase Theorem implies that in a world of zero transaction costs resource utilisation will be efficient, regardless of how property rights are assigned initially. But while the assumption of zero transaction costs is 'very unrealistic', it does serve as a good starting point, or a good benchmark, to examine the more realistic case where transaction costs are positive. And after explaining the properties of the world of zero transaction costs, Coase turns his attention to the real world, the world in which transaction costs are positive.[14] He argues that,

> once the costs of carrying out market transactions are taken into account, it is clear that such a rearrangement of rights will only be undertaken when the increase in the value of production consequent upon the rearrangement is greater than the costs which would be involved in bringing it about.[15] (p. 115)

That is, Coase reasons that 'in these conditions, the initial delimitation of legal rights does have an effect on the efficiency with which the economic system operates' (p. 115). The question then becomes the following: how should property rights be *assigned* when transaction costs are positive? Concerning this issue, Coase believes that one should examine the particular issue at hand:

> Whether anything is a nuisance or not is a question to be determined, not merely by an abstract consideration of the thing itself, but in reference to its circumstances; what would be a nuisance in *Belgrave Square* would not necessarily be so in *Bermondsey*. (p. 122)

But what criterion should be employed so that a decision can be made in each circumstance? Coase argues that the value of total social product provides the right benchmark for comparison:

> When an economist is comparing alternative social arrangements, the proper procedure is to compare the total social product yielded by these different arrangements. The comparison of private and social products is neither here nor there. (p. 142)

Therefore, Coase believes that total social product offers conceptually the right basis, that is, the right benchmark, to determine the assignment of legal rights, and that the assignment that yields the highest total social product should be adopted. The reference point is obviously the concept of total social product, and the value element is the efficiency of resource allocation.[16] Furthermore, in this paper on the problem of social cost, he basically follows the same route as in Coase (1937) – he illustrates the merit of his view by adopting his own theory as the reference point and then compares it with those of other economists. In this case, the major antagonist is Pigou and the story is well-known.

A few passages from this famous paper will illustrate how the benchmark technique has been employed, perhaps not knowingly, by Coase to make his point. For instance, in the section on 'The Pigovian Tradition', Coase suggests that

> It seems to me preferable to use the opportunity-cost concept and to approach these problems by comparing the value of the product yielded by factors in alternative uses or by alternative arrangements. (p. 150)

Then, in the section where Coase asks for 'A Change of Approach', he reiterates this point by saying that:

> Economists who study problems of the firm habitually use an opportunity-cost approach and compare the receipts obtained from a given combination of factors with alternative business arrangements. It would seem desirable to use a similar approach when dealing with questions of economic policy and to compare the total product yielded by alternative social arrangements. (pp. 153-54)

And he explicitly puts forward what he believes to be a better analytical approach:

> A better approach would seem to be to start our analysis with a situation approximating that which actually exists, to examine the effects of a proposed policy change, and to attempt to decide whether the new situation would be, in total, better or worse than the original one. (p. 154)

It is clear that in each of these three passages, a benchmark has been implicitly adopted by Coase; in the first two it is the concept of opportunity cost, and in the third it is reality.

Concurrently, the benchmark-and-comparison approach can be argued to have been employed by Coase on a more abstract level in this paper. Recall that Coase first describes the properties of the world of zero transaction costs, and then analyses the real world of positive transaction costs. Since resource allocation in the world of zero transaction costs is efficient, the implicit message is that efficiency should likewise be pursued in the world of positive transaction costs. This means that property rights assignment or institutional arrangements should be adopted with the goal of reducing the transaction costs involved. In this theoretical exploration, Coase adopts the world of zero transaction costs as the benchmark, and the implicit value element is the efficiency as guaranteed in the world of zero transaction costs.

In summary, in this famous paper two major benchmarks have been employed by Coase in his analysis. The first benchmark is the assumption of zero transaction costs, as the world of zero transaction costs is seen as a basis for analysing the real world of positive transaction costs. The second benchmark is the value of total social product, to be used to select the best property rights assignment when transaction costs are positive. Concerning the value element, the efficiency of resource allocation has been implicitly employed in both cases.

Other Works

As suggested in the beginning of the present paper, Coase's use of the benchmark approach is not limited to the 1937 and 1960 articles; three other famous articles of Coase serve as interesting and illuminating examples.

First, in 'The Marginal Cost Controversy', Coase proposes to examine the issue of pricing a product that has decreasing average costs. He first suggests that multi-part pricing, i.e., marginal cost pricing together with a payment to cover the fixed costs, is optimal. Then he uses this as the benchmark to examine alternative proposals that have been argued for in the literature. The headings of the sections clearly demonstrate Coase's use of the benchmark technique: 'IV. The Argument for Multi-Part Pricing' – the setting of the benchmark; 'V. Multi-Part Pricing Compared with the Hotelling-Lerner Solution' – the benchmark is used to illustrate the deficiencies of the Hotelling-Lerner Solution; 'VI. Average Cost Pricing Compared with the Hotelling-Lerner Solution' – the Hotelling-Lerner Solution is in turn used as a benchmark to illustrate that 'The question of average cost pricing against the Hotelling-Lerner Solution does not present any clear-cut case', Coase (1946; 1988, p. 92). Consequently, the comparisons yield the result that Coase's multi-part pricing is superior to alternative measures.

Second, in 'The Lighthouse in Economics', Coase (1974a; 1988, p. 191) observes that, 'However, knowledge of the British lighthouse system not only enables one to have a greater understanding of Mill, Sidgwick, and Pigou; it also provides a context within which to appraise Samuelson's statements about lighthouses'. It is clear from this very sentence that Coase is using the views of Mill, Sidgwick, Pigou, and Samuelson as the benchmark, and then draws on historical materials to illustrate that the views held by Mill and others are deficient. Alternatively, it can also be argued that the benchmark in this paper is the historical materials Coase employs; he uses the historical materials as the reference point to contrast the views of Mill and others. Through the contrast, Coase demonstrates

that what happens in the real world is not the same as what is taught in the classroom or on the blackboard. He believes that he offers a better and more interesting story about the issue of public goods.

Third, in 'Economics and Contiguous Disciplines', Coase (1978; 1994) examines the issue of 'what determines the boundaries between disciplines, in particular ... the boundaries between economics and the other social sciences, sociology, political science, psychology and the like' (p. 35). It is quite evident that the issue is in essence the same as the one he dealt with in the 1937 article. Not surprisingly, he reaches an almost identical conclusion that 'the broad answer I give is that it is determined by competition. The process is essentially the same as that which determines the activities undertaken by firms or, to take another example, the extent of empires' (p. 35).[17] Coase adopts the economic forces that determine the market shares, or the sizes of the firms, as the benchmark, and then compares the expansion of various disciplines with the benchmark. The comparison shows that the nature of academic activities is in essence not much different from that of economic activities. Coase demonstrates that one gains a better understanding as well as a more realistic expectation of the movement of economics into other fields by using such comparisons. As in the previous two articles, the technique Coase employs is fairly simple, but the result is illuminating.

While the three papers just discussed show amply that the use of the benchmark approach is not limited to his two most famous papers, it should be emphasised again that the issue of whether the benchmark approach is used in all or most of Coase's works remains to be explored.[18]

5 Contrasts and Implications

Concerning Coase's use of the benchmark approach, there are four interesting questions: Do we gain a better understanding of Coase in identifying his use of the benchmark approach? What are the differences between Coase's approach as compared with other analytical approaches? What are the strengths and the possible weaknesses of this approach? What are the implications of this methodological stance? These issues will be dealt with in this section.

First and foremost, identifying the benchmark approach as implicit in Coase's major writings offers a unifying theme in understanding his work. As indicated previously, the concept of transaction costs constitutes a core in appreciating Coase's contributions to economics concerning subject matter; similarly the simple idea of the benchmark approach suggests a unique perspective to appreciate his major writings concerning the analytical approach he employs. Furthermore, by examining the benchmarks Coase adopts one gains valuable insight in appreciating Coase's work as well as economic theory in general. Specifically, it is well known that Coase has argued repeatedly that reality constitutes the ultimate guideline in constructing economic models, and his criticism of 'blackboard economics' crystallises his stance. But his use of zero transaction costs as a benchmark in his paper on social cost indicates that the concept is in essence a theoretical invention, something that one does not observe in the real world. Subsequent literature on the Coase Theorem, as well as Coase's own lengthy defence in the 1988 collected volume, shows that the concept of zero transaction costs is not clear, as compared with the various other benchmarks he has employed. This means that while the concept of zero transaction costs has been applied extensively, sometimes with the help of the 'single owner' device, it is

unique in Coase's writings in being a rare case where he has departed from reality. It shows that on the one hand Coase is not exempt from his own criticism of economic theory and, on the other hand, that abstract theoretical constructions, properly perceived and interpreted, do serve valuable functions.[19]

Contrasts

A comparison of the benchmark approach with other analytical approaches can best illustrate the distinctiveness of Coase's approach. To achieve this goal, I will consider two alternative approaches, one employed by mainstream economists and one routinely adopted in conventional legal studies.[20] Consider first Becker's approach. According to Posner (1993a, p. 207), Becker is 'the greatest practitioner and exponent of non-market economics'. Becker (1976, p. 5) summarises his analytical approach concisely this way: 'The combined assumptions of maximizing behavior, market equilibrium, and stable preferences, used relentlessly and unflinchingly, form the heart of the economic approach as I see it'. As such, it is clear that Becker's approach, which can be termed the maximisation approach, is in sharp contrast with Coase's benchmark approach.

The differences between Coase and Becker are profound. To begin with, the benchmark approach does not imply either maximising behaviour, market equilibrium, or stable preferences, and vice versa. Moreover, the element of stable preferences in Becker's approach implies that the subject matter of his analysis is directly related to actors, whether human beings or otherwise; but this is overly restrictive, since the issues dealt with by economists are not all related to actors. For instance, as indicated above, Coase's paper on the lighthouse has nothing to do, at least directly, with stable preferences *per se*. It is difficult, if not impossible, to apply Becker's maximisation approach to analyse the lighthouse issue. But, as explained previously, Coase's paper on the lighthouse has become a classic, and methodologically speaking it made use of a technique no more complicated than the simple benchmark approach. Finally, the three ingredients of Becker's approach are all technical terms used by economists, and as such are not familiar to the general public. In contrast, the benchmark approach is intuitively clear and does not rely on technical terms. Consequently, if persuading the general public to think like an economist is a worthwhile goal, then it is obvious that the general public would find Coase's approach more friendly.[21]

To further contrast the benchmark approach with other analytical approaches, consider now the analytical approach of conventional legal studies. Conventional legal studies can be said to be mainly doctrinal analysis.[22] A typical doctrinal analysis starts by setting forth a doctrine, derived either from legal writings or from the decisions of various courts. Then the doctrine is used as a criterion to examine legal issues or to govern legal cases. Various schools of thought have also been adopted as doctrines. But the doctrinal approach and the benchmark approach are the same in essence, for the schools of thought and the various doctrines are being employed as the benchmarks for analysis in legal studies. This may help to explain why Coase's works in general, and his social cost paper in particular, have been immensely popular in the legal community.[23] The reason is that, in addition to the fact that the legal cases discussed in Coase (1960) are familiar materials to the legal scholars, it may be more important that the benchmark approach is in perfect harmony with what they have been doing all along.

Alternatively, Coase's works have generally been perceived to be essentially comparative institutional analyses, but comparative institutional analysis is only one application of the benchmark-and-comparison technique. Furthermore, comparative institutional analysis does not typify Coase's work as clearly as the benchmark approach. For instance, in 'Economics and Contiguous Disciplines', the benchmark approach has been employed by Coase to make his case; it is difficult to suggest that comparative institutional analysis has been used, however. In addition, one of the reasons that Coase's social cost paper has been influential in legal studies is that his analytical approach is compatible with the generally adopted doctrinal analysis in legal studies, and doctrinal analysis is in essence a benchmark approach, but it is certainly not comparative institutional analysis.

Implications

In this subsection I will discuss the strengths, the weaknesses, as well as the wider implications of the benchmark approach.

The strengths of the benchmark approach can be seen from several aspects. First, the technique is intuitively clear and conceptually simple, and thus can be employed easily. In Coase's case, he employs the technique to discuss theoretical issues (e.g., his papers on the theory of the firm and the problem of social cost), to demonstrate the discrepancy between theory and reality (e.g., the paper on the lighthouse), and to illustrate better accounting practices (e.g., the series of articles about business organisation and the accountant). While the issues dealt with have been different, Coase relied on the simple benchmark approach 'relentlessly and unflinchingly' and the result has been the recognition of a Nobel Prize. Second, the benchmark approach is less restrictive in nature, in the sense that it does not rely on stringent components such as those required by Becker's maximisation approach. This observation is supported by the remark made by Posner (1993a, p. 206) that 'the basic theory [of Coase's] does not (or at least pretends not to) include the concept of maximization'.[24] Third, one characteristic of the benchmark approach is that the benchmark adopted is typically well understood, so that through the contrast the subject under study will be easily perceived as well.[25] In this respect, Coase has been very successful with his use of the benchmark approach. For instance, since the market mechanism is well understood by economists, when Coase (1937) uses the market mechanism as the benchmark to illustrate how resources are utilised within the firm, the nature of the firm becomes immediately clear through the contrast. Likewise, in the social cost article, when the world of zero transaction costs is adopted as the benchmark and its nature is established, the issues in the real world with positive transaction costs are then vividly demonstrated through the contrast.[26]

The strength of Coase's simple but straightforward approach can be further illustrated when compared with more elaborate models. For example, it has long been known that monopoly output is smaller than competitive output, because the monopolist will reduce output in order to raise prices and hence profit. But this observation in essence compares the monopoly output with the competitive output as a benchmark, without necessarily assuming that the monopolist is a profit maximiser. In contrast, modelling the monopolist as a profit maximiser leads to the prediction of reduced output and usually nothing more precise. Therefore, it is true that, given specific functional forms and hypothetical numericals, the output of the monopolist can be derived theoretically; however, qualitatively speaking, the more

elaborate mathematical model essentially yields the same result as that given by the benchmark approach.[27]

But the benchmark approach also has its potential weaknesses. While it is intuitively clear, conceptually simple, and theoretically less restrictive, at the same time this means that it may be good only for qualitative analysis. Unless additional analytical elements are brought in, one is not likely to be able to make quantitative statements with the benchmark approach. For instance, the benchmark approach has been used by Coase to describe qualitatively how the size of the firm is determined – when the cost of expanding the firm is equivalent to the transaction costs of utilising the market – but unless relevant quantitative data are obtained, one cannot determine exactly the actual size of the firm.

Now consider the wider implications of Coase's benchmark approach. Since the analysis is based on a comparison with a benchmark, it clearly implies that the results as well as the predictions are contingent on the benchmark employed. Consequently, if a different benchmark is employed or the benchmark initially adopted changes, then the results and predictions are likely to change accordingly. In essence, this is perfectly in accordance with the conditional nature of most propositions in economics. For instance, in an interesting article that draws on more British historical materials, Van Zandt (1993) argues that the private lighthouses examined by Coase in fact obtained their patents from various agencies of the Crown. As such, holders of the patents were in fact backed by the government to enforce the collection of fees, and therefore the lighthouses were not private *per se*. Thus, by adopting a benchmark different from that used by Coase, Van Zandt illustrates that the views of Mill and others may not be as deficient as Coase believes. Alternatively, as Coase is known to emphasise that economic analysis cannot be separated from reality, the benchmark approach in a subtle way echoes Coase's position. As the ultimate concern of economics is the economic system, economic analysis should be conducted with the purpose of improving our understanding of the economic system as it is. That is, it can be argued that reality constitutes the utmost benchmark with respect to which economic analysis is (or should be) conducted and evaluated.

A somewhat controversial issue concerns the nature of Coase's benchmark approach. Is it an economic approach? On the surface, this question seems odd and irrelevant – by asking the question one is questioning whether a Nobel Laureate of economics is employing an economic approach. But, on further thought, the question proves to be quite meaningful. To see the subtle implications, consider Coase's article, 'The Lighthouse in Economics', as an example. As far as the substantial contents are concerned, the article could very well have been written by a professional historian and published in a non-economic history journal. In that case, neither its subject matter nor its analytical approach would be economics *per se*. That is, an historian could simply have used a forceful exposition to make legible an interesting page of history. This means that the benchmark approach Coase employs is not something peculiar to economics; it is a simple analytical technique that can be applied in various disciplines.[28] In fact, it is clear that on personal reflection the benchmark approach can be, and has been, applied by almost everyone in a wide range of circumstances. More fundamentally, research pioneered by Kahneman, Knetch and Thaler (1991) and Tversky and Kahneman (1986) clearly shows that terms such as *the framing effect* and *the status quo bias* are related to the idea of a benchmark. To increase our understanding of human behaviour, the benchmark is evidently a critical concept in this line of research.

That the benchmark approach is not peculiar to economics in turn provides a possible explanation for the fact that the subject matter of Coase's work has enjoyed high acclaim but his analytical approach has received relatively little attention. For while the subject matter of his work is distinctively different from the generally accepted views, his analytical approach may have been too common to be visible at all. This may help explain the reason why Posner feels that Coase seems to be against theory. Commenting on Posner's paper and defending Coase, Mäki (1998b, p. 591) argues that Coase may be 'non-theoretical rather than anti-theoretical'. The above analysis suggests, however, that Coase is in fact *theoretical*, in the sense that a simple, but illuminating, analytical technique has been consistently employed in his major works, even though he states that he has never been conscious of adopting any particular methodological position. And this may further explain Coase's belief that a discipline, such as economics, should be defined not by its analytical approach but by its subject matter. That is, Coase might have felt that there is nothing unique or unusual about his own analytical approach, but he has interesting as well as important things to say about subject matter. Seen in this light, Coase has employed a simple, one may even tend to say *non-economic*, technique to deal with *economic* issues.

6 Conclusion

Posner (1997, p. 14) once observed that 'The heart of economics is insight rather than technique'. As far as the contributions of Coase towards economics are concerned, it may be a combination of both insight and technique. He, perhaps unknowingly, adopted the benchmark approach in his youth, and then used this simple approach to write a series of important articles that illustrate his insights concerning transaction costs.

While Coase feels that his views have not had much influence on economic analysis, it is clear that the concept of transaction costs constitutes the unifying theme of his major papers and the concept has in fact had far-reaching impact on the theory of industrial organisation, law and economics, etc. It is suggested in this paper, however, that the analytical approach of identifying a benchmark first and then making comparisons with respect to the benchmark is also a unifying characteristic of the analytical approach Coase adopts in his major works. If the technique and its implications are recognised more fully by economists, then we will have a better appreciation of Coase, and the contributions of Coase to economics will conceivably be even more profound – for we economists can learn from the fact that an intuitive and simple technique can be employed to write insightful papers that have a far-reaching impact.

The discussion in this paper also points to the need for further study of an important issue, specifically, the possible origin of Coase's methodological approach. On this subject Zerbe and Medema (1998) make a strong case that it came from the British tradition that emphasises the inductive method, but it does not seem clear how the benchmark approach can be linked directly to the British tradition to which Zerbe and Medema refer. In addition, Coase (1994, pp. 176-84) stated that he was greatly influenced by Arnold Plant, but in Plant's inaugural address at LSE (Plant 1932), which was cited by Coase (1994, p. 180) as representative of Plant's viewpoint, the focus was on market mechanisms and state intervention. Methodological discussion was absent from Plant's address.

Moreover, in the short bibliographical entry Coase (1987) wrote for Plant, he did not mention anything about Plant that is methodological in nature.

Alternatively, a tentative but plausible explanation is that Coase conceived, perhaps unknowingly, the benchmark approach from his initial training at LSE as a commerce student. In accounting, which was one of the courses taken by the commerce students, the students were taught various accounting principles and learned how to handle accounting data by taking the principles as guidelines, i.e., as the benchmark. This is clearly reflected in the series of articles Coase published in 1938, in which he argued that economic concepts such as marginal costs, risk, and the factor of time should be adopted by accountants to improve accounting practices. It is interesting to note that the benchmark technique was evidently and almost explicitly employed throughout the series of articles. Specifically, to persuade accountants to accept marginal cost as a superior criterion in accounting so as to make better business decisions, Coase (1938, pp. 505-7) first introduced three different definitions of average cost, and then showed with numerical examples that marginal cost in fact offers a superior criterion in making business decisions. A few passages from some of the articles in the series will illustrate how the benchmark-and-comparison technique was employed by Coase. For instance,

> In order to add payments or receipts or to make comparisons, it is necessary to transform these sums into their value at a given date. The time chosen by those who have considered this problem has usually been the present. (p. 559)

Similarly,

> The marginal cost table shows the costs of producing further units of output from the undertaking's own mine, and it seems clear that this has to *be compared with* the costs of purchasing coal if the 'economical level of production' is to be reached. (p. 738, emphasis added)

And,

> If, for example, the changes in the amount of timber used, the number of men of different grades employed, the amount of power consumed and similar factors had been *compared with* alterations in output, more reliable results might have been reached. (p. 834, emphasis added)

It is evident that various benchmarks have been employed by Coase in these three paragraphs.

Interestingly, in a paper entitled 'Coase, Communism and the "Black Box" of Soviet-Type Economies', Boettke (1998, p. 201) states that 'the zero transaction cost world, for Coase, was a mental tool, not an assumption about the world. Following a method of contrast style of reasoning, Coase was able to simplify the real world of everyday life in order to explain'. And in the footnote attached to this paragraph, Boettke remarks that 'this style of reasoning was prominent in several thinkers at the time Coase wrote his "The Theory of the Firm" paper ... In both Knight and Hayek, the purpose of the frictionless model is not description, but to aid the task of isolating the real friction which affects the economic system' (p. 205). Boettke's remarks are relevant to the present paper in two important aspects. First, while he uses a different term (a 'method of contrast' style of reasoning), the method he refers to is essentially the same as the benchmark approach as specified in this paper. In this sense Boettke's remarks can be seen as supporting evidence for the claim made in this paper, even though he associates the method with Coase's social cost paper only. Second, Boettke's remarks indicate an alternative explanation for the origin of Coase's benchmark approach. While I am

suggesting that Coase's initial training at LSE as a commerce student may explain his unique way of reasoning, Boettke argues that Coase's reasoning style was adopted by other prominent thinkers in Coase's youth.[29] In personal correspondence, Coase indicates that 'I have never been conscious of adopting a particular methodological position. I just do what seems sensible'.[30] Coase's remark suggests that he does not seem to be against using the benchmark approach to characterise his analytical approach, but it certainly leaves the question open as to the underlying reason for doing what seems sensible to him. The issue is intellectually interesting and also important for the history of economic thought; thus a more extensive exploration is obviously needed.

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Notes

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2 For example, Posner (1993a, pp. 195, 209) states that 'The [1960] article ... is widely believed to be the most frequently cited article in all of economics', and that 'Coase [is] perhaps the finest English economist of this century after Keynes'. However, Williamson (1994, p. 202) offers a slightly different summary of Coase's contributions.

3 For instance, Williamson (1993, p. 39) states that 'transaction cost economics owes its origin to the series of conceptual breakthroughs made by Ronald Coase in his classic article on "The nature of the firm"'.

4 Coase argues that a discipline can be defined by either the subject matter or the analytical approach. More precisely, Coase (1978; 1994, p. 38) states that 'It seems to me that what binds such a group together is one or more of the following: common techniques of analysis, a common theory or approach to the subject, or a common subject matter', and that 'in the long run it is the subject matter ... [that is] the dominant factor'. However, both Posner (1993a, p. 207) and Williamson (1994, p. 201) condense the three factors into two – the subject matter and the analytical approach.

5 Here I am paraphrasing Coase (1992, p. 713): 'My contribution to economics has been to urge the inclusion in our analysis of features of the economic system so obvious that, like the postman in G.K. Chesterton's Father Brown Tale, "The Invisible Man", they have tended to be overlooked'.

6 Professor Coase indicates in personal correspondence, dated 30 December, 2000, that 'I approve of Marshall's practice as described in "Marshall on method"'.

7 For instance, Williamson (1994, p. 203) remarks that 'the Royal Swedish Academy plainly focused not on methodology but on the core contributions in awarding the 1991 Nobel Prize in Economics [to Coase]'.

8 See also the exchanges between Posner (1993c, d) and Coase (1993).

9 See Mäki (1998a, b), Wang (2003) and Hsiung (2001, 2003) for related discussions of Coase's methodology.

10 It is interesting to consider the concept of 'ideal types' developed by Weber (1949, 1968). For Weber, there are various ideal types that can be adopted in analysis. For instance, 'The "ideal" constructions of rigorous and errorless rational conduct which we find in pure economic theory have exactly the same significance'(1949, p. 42). Alternatively, 'For the purpose of characterizing a specific type of attitude, the investigator may construct either an ideal-type which is identical with his own personal ethical norms, …, or one which ethically is thoroughly in conflict with his own normative attitudes' (*ibid*., p. 43). Therefore, Weber's ideal types are particular benchmarks adopted by the investigator. I thank a referee for the reference. See below.

11 Reflecting on the methodology of economics, the sociologist Yonay (2000, pp. 343-4) observes that 'I have learned that economic theory has become much more elaborate than simple supply and demand functions; competition and general equilibrium are indeed used as *benchmarks*, but current models handle a much richer spectrum of situations' (emphasis added).

12 The page numbers of this and following quotes from Coase (1937, 1960) refer to his 1988 book, which is a collection of his major works.

13 It is of interest to note that essentially identical reasoning is used by Coase (1978; 1994, p. 36) to consider how the boundaries between different disciplines are drawn: 'The practitioners in a given discipline extend or narrow the range of the questions that they attempt to answer according to whether they find it profitable to do so, and this is determined, in part, by the success or failure of the practitioners in other disciplines in answering the same questions'.

14 Coase has emphasised more than once that, by discussing the peculiar world of zero transaction costs, he intends to draw economists' attention toward the real world of positive transaction costs. See, for example, Coase (1988, p. 174). For a critique and related discussions of the Coase Theorem, see Hsiung (1999, 2003).

15 It is obvious that this paragraph could very well have been inserted in Coase (1937). And this in turn partially supports the claim of the present paper that Coase is employing a similar analytical approach in his two most famous papers.

16 Interestingly, in discussing a relevant legal case, Coase (1960; 1988, p. 114) suggests that 'In deciding this [case], the "doctrine of lost grant" is about as relevant as the colour of the judge's eyes'. It is clear that this very sentence illustrates that the benchmark-and-comparison technique has been used; the total social product as a guiding principle in property right assignment is used as a benchmark to make a comparison with respect to a legal doctrine, and the (value of the) doctrine is then compared to the relevance of the colour of the judge's eyes.

17 In discussing the market for goods and the market for ideas, Coase (1974b; 1994, p. 28) uses a similar line of reasoning: 'What we are dealing with is a competitive process in which purveyors of the various theories attempt to sell their wares'.

18 The title of Coase (1974a; 1994) – 'The market for goods and the market for ideas' – speaks for itself in indicating that the benchmark approach has been employed in the analysis. In addition, in the paper 'Marshall on method', Coase uses Marshall's viewpoint as the benchmark to put forward, though implicitly, his own stand. It would be difficult to imagine that anyone reading this article will come away with the impression that Coase favours the use of mathematics in economics.

19 In this sense Coase's hypothetical assumption of zero transaction costs is similar to the concept of 'ideal types' argued by Weber (1968, pp. 21, 57). Weber used the term to refer to the 'ideal types of social action which … are thus unrealistic or abstract in that they always ask what course of action would take place if it were purely rational and oriented to economic ends alone. This construction can be used to aid in the understanding of action not purely economically determined but which involves deviations arising from traditional restraints, affects, errors, and intrusion of other than

economic purposes or considerations'. In this interpretation, the ideal types exist in theory but not in reality; so is the world of zero transaction costs. But both are helpful in theoretical discourse.

20 The benchmark approach is implicitly employed here; Coase's approach is the benchmark, and the value element is the usefulness of an analytical approach.

21 For an extended discussion of the methodological differences between Coase and Becker, see Hsiung (2001). In addition, Hsiung and Gunning (2002) discuss Coase's application of the benchmark approach along different directions.

22 For more detailed discussions of the doctrinal approach, see Posner (1990, 1995). It is well known that Cooter and Ulen (1998) adopt the rational choice theory as their analytical framework, but in describing the legal doctrines governing the transaction of stolen goods they inadvertently identify the spirit of conventional legal studies. Specifically, after explaining the American rule and the European rule, they summarise their analysis this way: 'Obviously, two legal doctrines are used as the *benchmark* to govern the decisions' (p. 130, emphasis added).

23 I thank Judge Posner for making this insightful observation.

24 On the concept of maximisation, Coase (1988, p. 4) himself argues that there is no reason to suppose that most human beings are engaged in maximising behaviours.

25 Recall that Coase (1960; 1988, p. 92) remarked early in the social cost paper that 'I propose to start my analysis by examining a case in which *most economists would presumably agree*' (emphasis added).

26 My interpretation here is preceded by Zerbe (1980, p. 86) when he insightfully observes that 'In a zero transactions cost world, institutions and processes are simply heuristic devices to allow establishment of a zero transactions cost world as a useful *benchmark*' (emphasis added).

27 Lipsey (2001) indicates that all major findings, or insights, in economics are qualitative in nature; both Coase's transaction costs and the benchmark approach are qualitative in nature. See Klaes (2000) for an extended discussion of the concept of transaction costs.

28 Weber (1949, pp. 90-104) employed the concept of 'ideal types' to discuss various issues such as church and sect as well as the Marxian 'laws'. To the extent that ideal types are particular benchmarks, their use shows that the benchmark approach can indeed be adopted in a wide range of circumstances. While Weber developed the concept in his writings between 1903 and 1917, it is not clear that Coase was influenced by Weber. In Coase's two collected volumes published in 1988 and 1994, Weber is not listed in the indices. An analysis of benchmarks in general and Weber's and Coase's use of benchmarks in particular seems a promising intellectual pursuit, though it must wait for another occasion.

29 Boettke (1997) develops his thesis about the analytical approach of using contrast more explicitly.

30 The letter, dated 30 December, 2000, is on file with the author.

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