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壹、計畫背景

一、計畫內容

(一) 主要問題

本研究希望探討廣義的寇斯定理，這是基於幾點非常明確的理由。首先，寇斯定理是對資源運用很深刻的體會，Buchanan (1973, 1984)、Posner (1998)、和 Parisi(2002) 等人的研究，把寇斯定理運用到政治和法律等領域裡；但是，除了財富和物質之外，資源(resources) 當然可以作更廣泛的解釋。名譽、親情、地位等等，都隱含有形無形的資源。因此，檢驗是否有一普遍成立的寇斯定理(而不只是把寇斯定理應用到某個特定的範圍)，顯然是有意義的智識之旅。

其次，自1960年起，經濟學者大舉進入法律、政治、社會等領域；在這個探索和擴充的過程裡，經濟學者對經濟分析的長處和侷限，有了更深刻的瞭解。同樣的，藉著探討廣義的寇斯定理，希望能更清楚的體驗出這個定理的精髓和限制。再其次，延續前面的考慮，寇斯定理的內涵，是關於效率的界定。探討廣義的寇斯定理，等於是檢驗效率這個觀點的適用範圍。而且，由此也可以進一步了解，經濟學(者) 和其他社會科學(研究者) 對話時，效率所具有較廣泛的意義。

最後，寇斯定理的基礎，是客觀的價格體系；以現存的價格體系為依據，來定義效率。但是，在經濟活動裡，價格最終還是由主觀價值來支持；也就是，透過一連串環環相扣的牽連，主觀價值支撐了客觀的價格體系。然而，一旦脫離了經濟活動，沒有客觀的價格；那麼，如何由主觀價值出發，雕塑出客觀價值？在這些領域裡，是否有廣義的寇斯定理，依然可以用來處理人際互動時的效率問題？

(二) 研究方法

對於寇斯定理的探討，在經濟學的領域中已有許多相關的研究，但在法學領域裡卻是方興未艾；但寇斯定理對於這兩個學科、乃至於社會科學，都有重要的涵義。本研究將針對相關文獻，作基本的回顧；而後，針對寇斯定理是否能有「廣義的解釋」作更深入的探討。

(三) 計畫目標

本研究預期成果，將完成中英文論文各一至二篇；論文將投稿到相關刊物發表。此外，關於寇斯定理是否有廣意的解釋，都還有很多可以探討的空間；本研究將是探索的第一步，

可望有後續更廣泛深入的相關論述。

二、 相關文獻探討

(一) 相關研究

寇斯定理的意義，最好以 Coase(1937)來襯托。在 1937 和 1960 這兩篇論文裡，寇斯處理的問題，都是資源運用的效率 (efficiency);不過，兩者之間有一點微妙而重要的差別。

在 1937 年的文章裡，寇斯像是一位當事人，他問自己：到底要不要、值不值得成立廠商？如果要組成廠商，又要如何決定廠商的規模？經過思索，他的答案很簡單：以市場為參考座標！如果組成廠商比依賴市場更有效率，就組成廠商；否則，就利用市場來運用資源。而且，在組成廠商時，也是以市場為決定廠商規模的判斷指標。

在 1960 年的論文裡，寇斯變成是一個旁觀者，他問自己：當兩個人（兩個廠商、兩個鄰居）的行為彼此影響時，如何處理資源運用的效率問題？他的體會，還是以市場為參考座標！在外部性 (externality)存在的情形下，還是以效率——他用的專有名詞是「社會產值」 (the value of social production)——為評估的依據。既然外部性無所不在、是正常（經濟）活動的一部份，因此還是可以利用效率的概念——以貫之。

由此可見，1937 和 1960 這兩篇文章的差別之一，是「當事人」和「旁觀者」角度的差別，也就是單獨一個人和二個人以上時的差異。不過，兩篇文章都是處理資源運用的問題，都是由效率的觀點著眼。而且，都是利用市場的價格體系，作為衡量和評估效率的依據。還有，兩篇論文都是屬於部份均衡分析 (partial equilibrium analysis)，而不是考慮整個體系的問題。

(二) 相關應用

由寇斯定理在各個領域裡的應用，可以更深切的體會出寇斯定理的內涵。在經濟領域裡，最著名的應用，當然是標售污染權和無線電波。只要相關的市場很活絡，就可以藉著標售的方式處理稀少性資源；無論財產權當初是如何賦予，終會透過自願性的交易，流向價值最高的使用途徑。

在經濟領域之外，寇斯定理對法學有最深遠的影響。法律經濟學這個研究領域，由此而誕生；即使是傳統法學，也因此而逐漸接納經濟分析。具體而言，寇斯定理在法學上的應用，可以藉著「財富極大」 (wealth maximization)和「單一主人」 (single owner)這兩個概念來反映。

Posner(1981, 1985)所強調的「財富極大」，是由寇斯的「社會產值極大」衍生而來；但是，在概念上和實務上，財富極大的概念都要較清晰和易於操作。在處理原告被告的爭訟時，財

富極大隱含著向前看 (forward looking)、事前 (ex ante)、希望餅愈來愈大、注意誘因等觀點。「單一主人」的概念,則是讓爭訟雙方、上下游工廠、農場和牧場變成一體;由這個新的個體(也就是整體)利益的角度著眼,思索如何界定相關權益、處理資源運用的問題。當單一主人得到最大的利益時,社會產值和財富自然也是達到最大。

寇斯定理能在法學裡發揮顯著的影響,有幾點重要的原因。首先, Coase(1960)裡所用的例子,就是習慣法裡的許多個案;因此,原告被告的爭訟,可以和經濟的活動呼應。也就是,分析經濟活動的邏輯思維,可以很容易的用來分析法學問題。其次,官司多半牽涉到貨幣上的衝突,和經濟活動買賣雙方的關係相呼應;即使爭議的焦點是抽象的精神名譽,也都發展出適當的方式(無論多麼粗糙),可以轉換成貨幣上的價值。因此,在相當的程度上,「貨幣量尺」(the measuring rod of money)依然存在。爭訟雙方的各種利害,都可以轉換成可以度量、單一維度(one-dimensional)上的數量。再其次,無論是寇斯社會產值或蒲士納財富極大的概念,重點都不再是個別的官司或爭訟雙方各自的利益,而是社會長遠的價值。這種觀點上的轉折,為法學研究注入新血、添增新的智慧。最後,寇斯和蒲士納所強調的,其實就是經濟學裡效率的概念;可是,效率概念的背後,有經濟學的行為理論 (behavioral theory) 為基礎。因此,寇斯定理等於是搭起了經濟學和法學之間的橋樑。公平正義,不再是來自於抽象的道德哲學或倫理學,而是有經濟學紮實的行為理論為基礎、為依恃。

和法學裡連篇累牘的引用寇斯定理相比,在政治學和社會學裡,對寇斯定理的討論可以用鳳毛麟角、甚至是絕無僅有來形容。在政治學裡, Buchanan (1973) 和 Parisi (2002) 具體的引用寇斯定理;他們主要的慧見是:當交易成本為零時,無論政府的型式為何(無論採哪一種表決方式),資源的運用都會是有效率的。而且,衡量效率的尺度,不是根據當事人的主觀價值,而是根據一套眾議僉同的尺度;在性質上,其實和市場裡客觀的價格體系一樣。

因此,寇斯定理對不同學科滲入程度不同,和人在各個領域裡活動性質上的差異有關。如果把法學和經濟學歸為一類,而社會學和政治學歸為另一類,這兩類之間的對照非常明顯有趣。在法律和經濟的領域裡,行為的利益非常明顯;無論是買賣或爭訟,行為者很清楚利弊得失為何,而且也是以利弊得失的考量、作為行為的依據。相形之下,在政治和社會的範疇裡,人在投票、聽看政見、和家人同事互動等等時,利弊得失通常不直接、也不明顯;人們多半是由習慣、規範的角度,決定行為上的取捨—在經濟和法律領域裡,直接間接的用到金錢或貨幣;在政治和社會的範疇裡,很少觸及金錢或貨幣。

另一方面,在經濟和法律的領域裡,行為的意義通常被切割成狹隘的片斷 (pieces);買賣和爭訟的雙方,意義都再明確不過。然而,在政治和社會的範疇裡,行為(投票、看新聞、人際互動等等)的意義往往包含很多成分、而且彼此摻雜糾纏—在經濟和法律的領域裡,社會產值的意義很清楚,因此寇斯定理很容易操作;在政治和社會的範疇裡,社會產值的意義卻非常

模糊。

最後，上一點相關的考慮。在經濟和法律的領域裡，已經有明確的遊戲規則 (rules of the game);人的行為 (買賣和爭訟),就是在既定的遊戲規則之下進行。因此,角色和行為的意義,也非常清楚。相形之下,在政治和社會的範疇裡,遊戲規則往往是由當事人自己去摸索形塑;因此,遊戲規則和行為幾乎是同時進行、同時決定。這時候,行為者的角色以及行為的意義,像是聯立方程式 (simultaneous equations)裡的變數;受到諸多因素的影響,也因而包含了許多不同的成分 —在經濟和法律的領域裡,一個人是買者或賣者,是原告或被告,但不會在一樁買賣裡同時是買者和賣者、在一件官司裡同時是原告和被告。在政治和社會的範疇裡,一個人可以同時是丈夫、父親、兒子、選民、候選人、意見領袖、隨波逐流者。在這種情形下,以「單一主人」的概念來界定效率,似乎幫助不大。

三、 研究結果

藉著上面的對照和比較,可以看出對不同領域,寇斯定理有不同的影響、以及造成這些差異的原因。不過,由這些討論裡,也引發了一連串的問題。

在一般人的日常生活裡,和法律的直接關聯最小 (打官司的只是生活中的一部份)。直接牽涉到金錢的行為,其實也只佔二十四小時裡的一小段時間。但是,其他大多數的時間裡,人的行為都屬於廣泛的政治和社會範疇 (看報紙是社會行為、也是政治行為;和同事朋友聊天,也是如此。)因此,既然寇斯定理是關於經濟活動很深刻的體會 (insight),對於其他佔據人們大部份心力時間的政治社會乃至於其他領域裡,這種體會是不是也能適用呢?

如果要產生連結,顯然不能直接套用寇斯定理;因為,前面的分析已經指出,寇斯定理只有在法學和政治學的領域裡發揮作用。那麼,要產生連結,可能必須把寇斯定理作較抽象的解釋;以寇斯定理的精髓 (精神所在),一以貫之的運用在人類行為的各個面向。也就是,先提煉出廣義的寇斯定理,再檢驗這個廣義的寇斯定理成立與否!

而且,前面曾經指出,寇斯定理的重心是關於「效率」;一旦討論廣義的寇斯定理,效率的形成和內含是不是都必須重新界定呢?還有,如果經過分析,發現沒有廣義的寇斯定理、或廣義的寇斯定理並不成立;那麼,為什麼?原因為何?最後,由討論廣義寇斯定理的過程裡,可以得到哪些啟示?寇斯定理的政策涵義之一,是設法降低交易成本;對於廣義寇斯定理的分析,是不是也會有類似的啟示呢?本研究的分析,就嚐試回答這些問題。

由分析裡,可以歸納出兩點關於寇斯定理的啟示。首先,眾所周知,在分析方法上,寇斯強調歸納 (the inductive method),而反對演繹 (the deductive method);而且,他也多次指出,零交易成本的世界,是黑板上的世界、是幻覺。不過,他寫下 1960 年的論文,事實上是為了闡釋那篇

1959 年論文的觀點；而且，在 1988 年的邏輯裡，他又以極大的篇幅，為 1960 年的論文提出辯護。因此，他似乎採取一種兩部曲的立場：「寇斯定理是對的；但是，在真實的世界裡，交易成本為正」。

這個兩部曲的後半部，當然符合他一貫的態度，而且是歸納式的觀點。可是，兩部曲的前半部，其實有非常濃厚的演繹成分。因為，「價格體系以零成本運作」(the pricing system worked without cost)的意義，不是由真實世界裡的材料歸納而來；相反的，這個觀點的內涵，必須訴諸於經濟學者的推論和想像。史蒂格勒回憶錄裡所描述的大辯論，不就是寇斯藉著當年邏輯推演、說服其他二十二位經濟學重鎮嗎？

在探討廣義的寇斯定理時，自然會延用演繹式的推論。前面的論述裡，先提煉出寇斯定理抽象的內涵，再檢驗在一般的情況下，這些條件是否成立。這種推論過程，都是運用演繹法。因此，在寇斯的著作裡，寇斯定理其實佔有很特殊的地位；和他其餘的論著相比，寇斯定理是演繹下的結晶。

其次，寇斯曾指出，和其他學科相比，經濟學者佔便宜的地方，是他們有貨幣這種量尺 (the measuring rod of money)。貨幣，明確可見，容易移轉交換，也容易成為締約的媒介或標的。在研究經濟活動時，經濟學者有貨幣這種材料，確實佔了很大的優勢。不過，由前面的分析裡，可以發現：寇斯定理成立的條件，並不在於貨幣本身，而是有某種客觀的量尺 (the measuring rod of something)。只要有某些客觀、你知我知他知的量尺可以依恃，就容易成為衡量效率的基礎。因此，長寬高、時間、重量、甚至是勝負，都和貨幣具有類似的性質。此外，即使沒有具體的數字，只要有其他的尺度可以依恃，也可以發揮類似的功能。譬如，公平正義等價值觀、或傳統的風俗習慣，都隱含一種高下的尺度。當這些尺度穩定時，也可能成為人們依恃的工具 (像貨幣一樣)，影響行為的取捨和資源的運用。

因此，寇斯定理延伸的極限，就在於客觀「量尺」的有無。有客觀的量尺，寇斯定理就可能延伸成立；沒有客觀的量尺，就不可能有廣義的寇斯定理。

四、建議與結論

由討論中可以發現，在構成寇斯定理的三個要件裡，關鍵在於「衡量效率的尺度」。在人類的各種活動裡，不一定存在著明確客觀的量尺。由這個體會，可以在兩方面作進一步的推論。

一方面，無論是寇斯的價格體系或貨幣量尺、或是其他衡量高下的量尺，都是人際互動的結

果 (results);所以,這些量尺是人類活動的一種沈澱物、一種結晶體,反映了過去的經驗。人們可以依恃這些量尺,賦予行為各種意義,並且評估高下或美醜或善惡。而且,這些量尺,不一定和價格或貨幣或財富有關;但是,人們在取捨自己行為和因應別人行為時,它們是非常重要的參考座標。在這層意義上,它們是「人類活動的制度性結構」(the institutional structure of human behavior)。因此,就像寇斯在諾貝爾演講辭中所強調,經濟學者應該研究「生產的制度性環境」;同樣的,對於更廣泛的、人類活動的制度性環境,經濟學者當然也責無旁貸。

不過,從另外一個角度來看,這些量尺既然是過去經驗的累積,也就可能成為一種束縛。當新生事物出現時,已經超越了過去的經驗;以過去的量尺來評估臧否,顯然未必是有意義的作法。因此,抽象的來看,企業家的創新 (entrepreneurial innovation)和寇斯定理之間,存在著一種對立互斥的關係。可是,各式各樣的企業家,事實上是推動社會進展的驅動力 (driving force)。如何調合企業家精神和寇斯定理,顯然是個有趣的問題;而這個問題,就涉及本小節另一方面的推論。

具體而言,當價格或其他的量尺不存在時,對於行為的取捨或資源運用的狀態,可能無法作適當的評估。這時候,注意的焦點,可以由「結果」(outcome)轉移到「規則」(rules)上。這是布坎楠 (J. Buchanan)對寇斯定理和交易成本的深刻洞見 (insights),事實上也呼應了寇斯強調「生產的制度性環境」的呼籲;因為,任何「結果」,都是某種「規則」發揮作用下的產物。

不過,對規則的重視,並不只是如布坎楠所主張的「共識」(consensus)—只要相關的人同意,任何結果都是合於效率的!他認為,規則的重要,在於重視過程 (process),而對結果保持中性的立場。只要讓規則發揮作用,任何結果都是好的。可是,不同的規則,會誘發出不同的結果;因此,規則的性質,還是必須具有某種客觀性,才可能成為人們取捨的依據。也就是,當衡量結果的量尺存在時,可以用來評估效率的高低;當這種量尺不存在時,就不再能有效評估結果。這時候,只能退而求其次,把焦點放在規則上;在取捨規則時,顯然也需要「衡量規則」的量尺。譬如,水平式的組織 (一種規則),有益於創新;垂直式的組織 (另一種規則),有益於追求單一目標。如果不能追求有效率的結果,至少能追求有效率的規則—無論「效率」的內涵如何界定。

當然,由另外一種角度來看,對很多人而言,以貨幣或價格為基礎的量尺,有太多的可議之處。因此,把焦點轉移到「規則」上,可能反而會得到更多人的支持。不過,即使是基於這種考量,規則的內涵和客觀性,依然是重點所在。除非有客觀、可以操作、可以依恃的著力點,否則規則並不能成為人們所接受和支持的對象。

一旦把焦點移到規則上,也自然而然的化解了寇斯定理和企業家精神之間的衝突。因為,即

使對於嚐試和創新的結果,現有的各種量尺很難作出適當的評估;但是,某些規則容許、甚至是鼓勵嚐試和創新!

貳、計畫工作項目及期中成果

一、會議與出版品摘要

無相關會議辦理規劃

二、計畫績效指標及人力投入

(一) 績效指標說明

■量化成效			
指標構面與項目		篇數	說明或附件別
著作成果	論文總計		1
	國內(研討會或期刊)	篇數	-
	國外	篇數	1
	研究報告(指書籍裝訂成冊者)	本數	-
	出版品(指經政府出版品管理辦法而發行者;ex.年鑑/白皮書等)	項數 本數	-
會議	座談會(含論壇)	場次(人次)	-
	研討會	場次(人次)	-
	說明會(含發表會、展覽活動)	場次(人次)	-
	其他	場次(人次)	-
■其他效益說明(上表無法呈現之預期成果,請填列於下表。)			
其他績效指標		成果	

(二) 參與人力簡歷

編號	姓名	職稱	最高學歷	聘任期間	總支用經費
1	謝德宗	計畫主持人	台灣大學經濟學 博士	101.04~12	18,000
2	熊秉元	協同主持人	美國布朗大學經 濟博士	101.04~12	72,000
3	曾政燁	研究助理	台灣大學經濟系 學士	101.09~12	48,204
4	張佳敏	研究助理	淡江大學經濟系 學士	101.05~12	84,460
5					

參、附件

一、投稿論文

Is There a Generalized Coase Theorem?*

Bingyuan Hsiung**

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Is There a Generalized Coase Theorem?

Abstract

Coase Theorem has been extensively applied in economic and legal studies, but it has seldom been discussed in political science and has almost never been invoked in sociology. An explanation is needed, and it can be related to the question of whether a Generalized Coase Theorem exists. The inquiry yields several results. First, Coase (1978) argued that economists enjoy the advantage of having “the measuring rod of money” at their disposal; it will be argued, however, that what is important is not the measuring rod of money *per se*, but a measuring rod of *something* that is objective, observable, and acceptable to the individuals concerned. If this measuring rod exists, then the Coase Theorem can be extended to a more general setting. Secondly, it is known that Coase strongly favors the inductive approach, but the inquiry shows that in both the 1960 article as well as his subsequent defense of the Coase Theorem, he adopts a deductive approach. This is in sharp contrast with his stated methodological position and is very different from essentially all of his other writings. Third, that the Coase Theorem has had significantly different impact on different social sciences can be explained by whether interests of the actors can be readily identified in various activities. The Coase Theorem has its greatest impact on studies that focus on activities with clear, concentrated, and piecemeal interests. Finally, the Coase Theorem is most relevant for activities that are repetitive; for activities that involve new events or artifacts, a measure of efficiency is often non-existent and the relevance of the Coase Theorem would therefore be weak.

Keywords: Coase Theorem, efficiency, single owner, inductive approach, deductive approach.

JEL classification: B41, D80, K10, L14.

1. Introduction

Discussions of the Coase Theorem are voluminous, and it is even becoming difficult to write a paper on the Theorem with a different beginning. The interest on the Theorem, however, has not subsided, for economists still seem to be attracted and fascinated by the Theorem.¹ The present paper shares with many previous discussions in taking the Theorem as a springboard to focus on not the Theorem itself but its implications. Alternatively, it is well known that Coase did not have *a theorem* in mind when he wrote the famous 1960 article on social cost, and that he was concerned with economic activities and not activities in other areas such as politics or law. With Stigler (1988) coining the term, however, Coase Theorem has had far-reaching impact not only in economics but also in legal studies. The modern law and economics movement has been launched by the Theorem. Therefore, even though it was not Coase's intention, the Theorem has been applied to issues in disciplines other than economics. The present paper can be viewed as one such application. Specifically, the paper aims at exploring the question of whether there is a Generalized Coase Theorem.

There are several compelling reasons for asking the question of whether there is a Generalized Coase Theorem. To begin with, Coase Theorem contains deep insights about resource allocation, and Buchanan (1986), Posner (2003), and Parisi (2003), among many others, have applied the insights to studying political and legal issues. But resources can be interpreted more generally, as reputation, fame, social status, etc. are also resources. Therefore, to examine whether there is a Generalized Coase Theorem that can be applied to resource allocation in general is intellectually a challenging question. Secondly, economists have moved into areas of political science, law, and sociology since the 1960s, and have enriched both economics as well as the other social sciences. The expansion has enabled economists to gain a better understanding about both the strengths and weaknesses of economic analysis. By exploring a possible Generalized Coase Theorem, hopefully a deeper understanding about both the strengths and weaknesses of the Theorem can be achieved, and the understanding may be related to the reason why economics has been more successful in some areas than in others. Third, Coase Theorem is generally understood to be related to the idea of efficiency; examining a possible Generalized Coase Theorem is in a sense examining the boundaries of the concept of efficiency. The inquiry is likely to deepen our understanding about the wider implications of the concept when economists are engaged in a dialogue with scholars in the other social sciences. Finally, the basis of Coase Theorem is price mechanism, with efficiency being defined implicitly by taking the monetary measurement as the reference. However, the monetary prices implicit in economic activities are ultimately supported by the actors' subjective values. That is, through a series of

¹ See the interesting recount in Herzel (1998) of why it takes several decades for the US Government to adopt auctioning to allocate radio frequencies. When there were no relevant markets, then auctioning may not be a feasible measure to allocate scarce resources. In a very different domain, Posner (1998, pp. 172-72) suggested that to alleviate part of the problems created by its one-child policy, China could issue a birth permit to each couple and then allow a market for permits to emerge. Coase (1960) is the most cited article in both economics and law; see Shapiro (1996).

interlocking transactions and interactions, subjective values of the individuals are converted into elements to support the price mechanism. But once attention is shifted away from economic activities, monetary prices become non-existent; as a result, how would objective values be shaped by subjective values in non-market activities? In these non-market spheres, is there a Generalized Coase Theorem that can be employed to illustrate the efficiency, however defined, implicit in interpersonal interaction? These issues seem to be intellectually interesting and theoretically important.

In addition to these considerations, there are two theoretical implications concerning a possible Generalized Coase Theorem. On the one hand, to examine a possible Generalized Coase Theorem, a brief literature review is indispensable in identifying the impact Coase Theorem has had in various disciplines, and a series of interesting questions surface naturally. For instance, in which area has the Theorem generated the greatest impact? Why? Is it related to the difference between subjective and objective values? Is it true that the impact the Theorem has made is mainly related to academic pursuit and not public policy? What are the implications? On the other hand, the basis of the Theorem is the price mechanism, a natural artifact of economic activities. It is a known fact, however, that entrepreneurial activities are important in being the driving force for economic progress. What then is the relationship between the Theorem and entrepreneurial spirit? Would public policies based on the Theorem hinder entrepreneurial spirit? These and related issues will be taken up in the following analysis.

A few findings emerge from the inquiry. First, Coase (1978) argued that economists enjoy the advantage of having “the measuring rod of money” at their disposal; it will be argued, however, that what is important is not the measuring rod of money *per se*. What is important is that there is a measuring rod of something that is objective, observable, and acceptable to the individuals concerned. If this measuring rod exists, then the Coase Theorem can be extended to a more general setting. Secondly, it is known that Coase strongly favors the inductive approach, but the inquiry shows that in both the 1960 article as well as his subsequent defense of the Theorem, he actually adopts a deductive approach. This is in sharp contrast with his stated methodological position and is very different from essentially all of his other writings.² Third, that the Coase Theorem has made significantly different impact on different social sciences can be explained by whether the interests of the actors can be readily identified in various activities. The Theorem has its greatest impact on studies that focus on activities with clear, concentrated, and piecemeal interests. Finally, the Theorem is most relevant for activities that are repetitive; for activities that involve new events or artifacts, a measure of efficiency is often non-existent and the relevance of the Theorem would therefore be weak.

The paper is organized as follows. In the next section, Coase Theorem will be interpreted

² See Mäki (1998), Posner (1993), Medema (1994), Wang (2003) and Hsiung (2001, 2004a) for analyses of Coase’s methodological stance.

with respect to Coase's earlier paper on the nature of firm, and then the Theorem's different impact on the social sciences will be explained. Then, in section 3, abstract elements underlying the Coase Theorem will be identified, and a modified version of the Coase Theorem will be suggested. An inquiry about a possible Generalized Coase Theorem follows in section 4. Implications are derived and related questions examined in section 5. The final section concludes.

2. Coase Theorem and Its Applications

In this section, the Coase Theorem will be briefly reviewed, and its applications in areas such as law and political science will be illustrated. Then, implications of the Theorem will be summarized to provide the basis of an inquiry in the next section about a possible Generalized Coase Theorem.

2. 1 Coase Theorem

The meanings of Coase Theorem can be fruitfully interpreted by the article Coase published in 1937. While both the 1937 and the 1960 articles dealt with the problem of resource allocation, there is, however, a subtle but important difference between the two.

Specifically, in the 1937 article, Coase is like a participant of economic activities and asks himself straightforward questions: Is it meaningful or profitable to form a firm? If a firm is to be formed, then what would be the proper size of the firm? His answers to these questions are very simple: Let the market decide! One should use the market as a benchmark to make decisions. If forming a firm is more efficient, or profitable, than relying on the market, then a firm should be formed. Otherwise, one could simply rely on the market. Similarly, if a firm is to be formed, then its size is also determined, on the margin, by the efficiency as implicit in market activities. In the 1960 article, by contrast, Coase is not a participant but a disinterested observer, and again he asks himself straightforward questions. When the behaviors of two parties (two firms, two neighbors, etc.) affect each other, then how does one deal with the efficiency issue involved? His insight is, again, to use the market as a reference point! When externality exists, the concept of efficiency should still be employed to allocate resources. In his words, "the value of social production is to be maximized." (Coase, 1988, p. 114) That is, as externality is a normal part of economic activities, the concept of efficiency can be employed consistently to deal with the issue of resource allocation.

Seen in this light, one difference between the 1937 and the 1960 articles is the perspective of a participant in the former and that of an observer in the latter. But it is clear that both articles deal with the problem of resource allocation, and that both examine the issue through the lens of efficiency. Moreover, in both articles, the price mechanism implicit in market activities has been

employed to measure efficiency. Similarly, both articles adopt the perspective of partial equilibrium analysis.³

2.2 Applications of Coase Theorem

An examination of applications of the Coase Theorem in various fields helps illustrate the meanings of the Theorem. In economics, the most famous application of the Theorem is the auctioning of pollution rights and radio frequencies. If there is an active market, then auctioning can be fruitfully employed to deal with the use of scarce resources.⁴ Regardless of how property rights are assigned initially, resources will flow to their most valued destination.⁵ In addition to economics itself, the Theorem has had its greatest impact on legal studies. It can be argued that the 1960 article is the cornerstone of the modern law and economics, and that legal scholars have gradually accepted economic analysis as a result. More specifically, the concepts of *wealth maximization* and *single-owner* provide telling illustrations.

In particular, the idea of wealth maximization as forcefully argued by Posner (1985) has its origin in Coase's argument that "the value of social production is to be maximized." Conceptually and practically speaking, however, Posner's wealth maximization is clearer and more operational in deciding cases. That is, in dealing with legal cases between the plaintiffs and the defendants, the idea of wealth maximization implies that the courts should adopt the perspectives of forward looking, *ex ante*, increasing the size of the pie, and incentive compatible.⁶ In addition, the conceptual device of a single-owner has been devised to make the Coase Theorem more operational. It implies that the parties of a dispute (the upstream and downstream factories, the cattle rancher and the farmer, the train and the cornfield, etc.) would have their interests integrated and owned by a single party, the single-owner. Then, one can try to find out the best way to utilize resources from the perspective of the newly merged interests. As a result, when the *single-owner* maximizes the combined interests, social wealth would have been maximized.⁷

There are several reasons why the Theorem has made such a significant impact on legal scholarship. For one thing, the examples used in Coase's 1960 articles are common law cases that are familiar to the legal profession. If economic reasoning can provide a new, illuminating reading of the cases, then economic analysis can serve as an additional tool in studying legal

³ That the 1937 article is a partial equilibrium analysis is straightforward, but the case for the 1960 article is slightly more complicated. If a general equilibrium framework has been adopted in the latter case, then the price mechanism would not exist when transaction costs are zero. See analysis below.

⁴ Coase (1998) describes why it takes 67 years for his recommendations to be adopted by the US government.

⁵ Coase is known to be against the use of the term externality, but here the convention of the profession is followed; it seems more efficient to use the term in discussion than otherwise.

⁶ Easterbrook (1984) argued that an (*ex ante*) perspective has been adopted by the Supreme Court of the US in some of its decisions.

⁷ For a discussion of the concept and its application in law, see Epstein (1993).

issues.⁸ Also, lawsuits are often related to conflict that can be expressed in monetary terms; even conflicts related to intangibles such as reputation or emotional harm can, with some efforts, be converted into or approximated by monetary numbers. That is, interests of the litigating parties can be converted into measurable, one-dimensional quantities, rough as they may be. As such, the measuring rod of money still exists and is applicable, to a certain degree at least. Furthermore, both Coase's value of social production and Posner's wealth maximization are not concerned with individual cases *per se*, but are guidelines, or doctrines, that can be employed to help improve social welfare in the long-run. This change in perspective brings new blood, or new insights, to legal scholarship. Finally, what both Coase and Posner emphasize is in essence the efficiency consideration implicit in economic analysis, and behind the efficiency argument there is a well developed behavioral theory providing rigorous reasoning. Therefore, the Coase Theorem is a bridge that links economics and law. Discussions of justice can be conducted not by relying on abstract moral philosophy but can be related to the solid framework of the behavioral theory.

Interestingly, however, compared to the voluminous discussions in legal studies, Coase Theorem is rarely invoked in political science or sociology. To be more precise, in political science, Buchanan (1973), Parisi (2002) and Acemoglu (2003) are rare examples in applying the Coase Theorem, and even though their topics are related to political science, the articles all appeared in economic journals.⁹ Their insights are essentially the same; when transaction costs are zero, then regardless of the particular forms of the government (or which voting procedure is adopted), resource allocation will be efficient. Furthermore, the measurement of efficiency is not determined by subjective values but by a generally accepted criterion, with the generally accepted criterion being something similar in nature to the objective price mechanism.

The fact that the Theorem has had different impact on the social sciences can be explained by the different nature of human activities in these various disciplines. If economics and law are considered as one group, with sociology and political science being the other, then the contrast between these two groups is illuminating and interesting. For the former group, the costs and benefits of human behavior studied in these two disciplines are evident; for both economic transactions and lawsuits, the parties involved know clearly about the gains and/or losses they face, and they would conduct themselves accordingly. By contrast, for political science and sociology, behaviors such as voting, listening to political debate, interacting with family members and friends and colleagues, etc. are related to costs and benefits not explicitly or directly. People tend to conduct themselves according to customs, norms, or traditions, but not necessarily considerations of explicit gains/losses, monetary or otherwise. Moreover, in the economic and legal areas, money or monetary payoffs are routinely employed; in political and social activities,

⁸ For a general discussion of the similarities between the disciplines of economics and law, see Hsiung (2004b).

⁹ A search over the internet on 20 August 2005 shows that Coase (1960) has been cited by about a dozen articles in journals of both political science and sociology, but Coase Theorem has not been the focus in essentially all of these articles; it has been listed in the references.

money or monetary payoffs are rarely involved. In the economic and legal spheres, behavior is often divided into independent, isolated pieces; transactions and lawsuits are straightforward examples. By contrast, in political and social spheres, behavior (voting, watching the news, interpersonal interaction, etc.) tends to have various interlocking, tangling meanings. For the former group, the value of social production has a relatively clear and unmistakable interpretation; for the latter group, the value of social production is vague, to say the least.

Finally and continuing the previous argument, in the domain studied by economics and law, rules of the game are clearly defined, i.e., transactions and lawsuits are taking place within clearly specified rules. In the domain studied by political science and sociology, by contrast, forming the rules and behaving are almost taking place simultaneously. That is, in the latter the roles of the actors as well as the meanings of the behaviors are like variables of a set of simultaneous equations; the variables are affected by various factors and thus contain various elements. For instance, in the economic and the legal spheres, a person is either a seller or a buyer to a transaction, or either a plaintiff or a defendant in a lawsuit; but he would not be both the seller and the buyer in a particular transaction, or both the plaintiff and defendant in a particular lawsuit. In the political and social spheres, a person can simultaneously be a husband, a father, a son, a voter, a candidate, an opinion leader, and a follower. It is difficult to imagine how the single-owner device can be applied in this case, to integrate all of the interests of the different roles. Similarly, analytical concepts such as embeddedness (Granovetter, 1985) and social capital (Coleman, 1990) are intellectually interesting and practically important in analyzing social phenomena, but as they are dealing with interlocking interpersonal relationships, it is difficult to associate them with the concepts of either wealth maximization or single owner.

In short, the different impact Coase Theorem has had on various social sciences can be related to their different nature. It then follows that examining a possible Generalized Coase Theorem is indeed a meaningful endeavor.

2.3 Critical Juncture

As illustrated in the previous section, it is evident that Coase Theorem has influenced various social sciences differently, a fitting outcome considering the different nature of the social sciences. This fact, however, brings about a series of questions. In the daily life of the general public, most people would have very limited contact with law (a small percentage of people would be suing or being sued), and they would spend a tiny portion of their time directly involved in monetary transactions. By contrast, most people would spend most of their time in the general areas of political and social activities. For instance, reading newspapers is both a social and political behavior, similarly for talking with a friend. Consequently, as the Theorem is a deep insight about economic activities, it would be of interest to examine whether the Theorem is relevant and/or applicable to human activities in a more general setting. To have a possible

Generalized Coase Theorem, however, it is evident that the Theorem cannot be interpreted narrowly or straightforwardly in these other spheres. That is, to examine the wider implications of the Theorem, it must be interpreted in a manner that the issue of examining a possible Generalized Coase Theorem can be properly dealt with.

Moreover, it was indicated above that the Theorem is in essence an insight concerning efficiency in resource allocation, a relevant question is therefore whether efficiency should be given a different reading when discussing a Generalized Coase Theorem. If a Generalized Coase Theorem is to be found, how would efficiency be interpreted accordingly? If a Generalized Coase Theorem is not to be found, what would be the reasons and what implications or insights can be drawn from this intellectual pursuit? In addition, as is well known, one policy implication of the Coase Theorem is that transaction costs should be reduced whenever possible; are there similar implications in examining a possible Generalized Coase Theorem? The following analysis attempts to answer these questions.

3. Abstraction of Coase Theorem

To explore a possible Generalized Coase Theorem, there are two obvious ways to proceed. One is to interpret the Theorem differently in different fields; e.g., discussing a *Political Coase Theorem* in political science, and employing the *single-owner* device in legal studies, etc. The other is to derive elements of the Coase Theorem abstractly, and then apply the elements to various fields. The approach taken in this paper is the latter. In this section, general implications of the Theorem would be outlined first, and core elements of the Theorem would then be identified.

Specifically, while there are various versions of the Coase Theorem, a generally accepted statement of the Theorem is the following:¹⁰

When transaction costs are zero, resource allocation will be efficient, regardless of how the property rights are assigned initially.

The Theorem has several major elements: transaction costs, zero, property rights, resource allocation, and efficiency. Of these major elements, most controversies have surrounded along (zero) transaction costs and efficiency. A summary of the relevant considerations concerning these two concepts follows:

- (1) Transaction costs: Coase defined transaction costs as the costs of search, bargaining, and enforcement of contracts;¹¹

¹⁰ See Zerbe (1980, p.84) and Shurhart, Chappell and Cottle (1994, p.577).

¹¹ This is Coase's clarification about the concept of transaction costs fifty years after the famous 1937 paper.

- (2) Zero transaction costs: Both Williamson (1985) and Stigler (1988) likened the world of zero transaction costs to the physical world of the vacuum.¹² In contrast, Dahlman (1979) and Hodgson (1993) used perfect information to interpret the world of zero transaction costs.¹³
- (3) Efficiency: According to Coase (1960), efficiency is defined with respect to the price mechanism of the market.¹⁴

There are numerous discussions about the validity of the Coase Theorem, and logically speaking the emphases can be focused on two aspects. First, it is generally understood that a major function of money is to reduce transaction costs; similarly, it is also well known that price mechanism is a product of positive transaction costs. When transaction costs are zero, there is no need for prices to exist. As such, the measuring rod of money that Coase employed to determine “the value of social production” does not exist, which in turn implies that it is meaningless to try to maximize the value of social production. Seen in this light, the so-called Coase Theorem contains an inherent logical inconsistency. Secondly, the meanings of transaction costs being *zero* are very vague, when interpreted in either a local or universal sense.¹⁵ To avoid these two potentially weaknesses, the Coase Theorem can be expressed alternatively so as to convey Coase’s original idea more accurately and less problematically:

When property rights can be transferred and/or combined costlessly, then regardless of how they are assigned initially, resource allocation will be efficient.

In this restated version, the price mechanism is again employed to measure efficiency; the idea of zero transaction costs refers to the frictionless transfer and combination of property rights among *particular* parties. For instance, in the examples of the upstream and downstream factories as well as the cattle rancher and the farmer, property rights change hand among specific parties without incurring any cost and transactions in general are not relevant. That is, here the idea of zero transaction costs is interpreted narrowly, as applicable only to particular transfer(s) of property rights. If transaction costs are zero in general, then the price mechanism would not exist in the first place and efficiency cannot be properly defined as a result.

Specifically, he stated that transaction costs are “costs of discovering what the relevant prices are; there are the costs of negotiating and completing a separate contract for each market transaction; and there are other costs besides.” Coase (1988, p. 63)

¹² When the logic is pushed to the limit, it is not clear how to conceive of human behaviors in a vacuum.

¹³ The meanings as well as implications of perfect information are not clear, either. See Hsiung (1999) for a relevant discussion.

¹⁴ According to Coase (1988, p.114): “These operations are often extremely costly, sufficiently costly at any rate to prevent many transactions that would be carried out in a world in which the *pricing system* worked without cost.” (emphasis added) Zerbe (1980, pp.84-90) analyzed both the efficiency claim and the invariance claim of the Coase Theorem. For a general discussion of the Coase Theorem, see Medema (1994, 1995) and Hsiung and Gunning (2002).

¹⁵ For instance, Medema (1994, p.165) stated: “The greatest difficulty with Coase’s use of the concept of transaction costs is his failure fully to operationalize the concept.” Concerning transaction costs, see Coase (1937), Williamson (1975, 1979, 1993), Dahlman (1979), Allen (1991a, b) and Hodgson (1993).

When this restated version is examined more carefully, three core concepts can be identified: measurement of efficiency, transfer of property rights, and property rights. The meanings of these three concepts should be elaborated. First of all, in previous discussions the measurement of efficiency has generally been taken to mean the price mechanism implicit in market activities. When Coase Theorem is to be interpreted more generally, the measurement could and should not be limited to the price mechanism. It is more important that there exists one or more measurements of efficiency and that the individuals are aware of the measurement(s). Secondly, consider the idea of a transfer of property rights. This involves two elements: one is the existence of actor(s), and the other is related to action(s). In the case of the cattle rancher and the farmer, for instance, the transfer of property rights involves two individuals, and regardless of where property rights reside eventually, the act of transferring the property rights leads to an efficient outcome. As such, the transfer of property rights is related to both actor(s) and action(s). Finally, consider the concept of property rights. It refers to either concrete entities (the cattle ranch and the farm, or the cattle rancher and the farmer) or abstract things (the cattle grazing on the farm).

In sum, the Coase Theorem implies three elements: for interpersonal interactions, there is a measurement of efficiency, there is a transfer or combination of property rights, and there is the implicit property rights structure.

4. Generalized Coase Theorem

To answer the question of whether there is a Generalized Coase Theorem, a natural approach is to examine the three elements as stated in the previous section, and see whether these elements are present and hold in a more general setting. As such, in this section these three elements will be studied carefully in order.

Consider the third element of property rights first. It is the most basic one among the three, referring to the definition of property rights ownership. The reason that a property rights structure would emerge is obviously that there is potential conflict of interests between or among individuals.¹⁶ In the world of Robinson Crusoe, there is no need to define property rights; the idea of property rights becomes relevant only after Friday shows up. In addition, it is clear that to enforce property rights, both tangible and intangible resources are to be employed. Consequently, unless the interests involved reach a significant or meaningful magnitude, (property) rights would not be defined and enforced. For instance, imagine the case that a person keeps standing outside a bakery, staring at the delicacies inside and is literally mouth-watering, or the case that a man on the street keeps staring at the upper part of the women passing by; in these and countless other grey areas, (legal) rights are not clearly defined. What constitutes rights in these cases is vague. Furthermore, in the information or bio-chemical sector, new technologies or artifacts are created

¹⁶ Demsetz (1967) is a classic in illustrating this observation.

continuously; as they are new, their properties and relationships with respect to the existing ones are not clear. One such example is cloning the human beings; what would be the meanings, legal as well as otherwise, concerning a human clone? Or, what about cloning parts of the human beings, e.g., if and when it is technologically feasible, is it permissible to have, say, Elvis Presley's voice or Mary Monroe's lips not by surgery but by cloning? Concerning these events, the meanings of rights are not clear, at least presently, and as rights are not clear it is even more problematic to deal with the issue of transferring the (property) rights. Therefore, when (property) rights cannot be clearly defined, Coase Theorem loses its foundation, and it follows that it would be difficult to see how the Coase Theorem would be applied in a more general setting. Moreover, as rights are often not well defined for new artifacts or technologies, there is an inherent tension between the Coase Theorem and entrepreneurial spirit, a point that will be taken up in the analysis below.

Consider now the element of a transfer of property rights. It should be clarified first that defining a (property) rights structure does not imply that the rights will always be transferred. In the previous example about a person standing outside a bakery, even if he is granted the legal right of doing so, it is difficult to imagine how such a right will be transferred. As such only when the interests implicit in the property rights are large enough would the issue of transferring property rights become relevant. In addition, concerning the transfer of property rights, there has been extensive discussion in the literature concerning this aspect of the Theorem. One point generally agreed upon is related to the *income effect*.¹⁷ If A and B have different endowments, then they might allocate the same resource differently. Coase himself recognized this point in his 1988 book, a collection of his most influential articles. His initial intention in the 1960 article, however, was to capture the idea that a transfer of property rights (among a limited number of parties) would not affect resource allocation. That is, when "the pricing system worked without cost," in his words, then regardless of the particular owner of a certain property, the final outcome would be the same. Conceptually speaking, the idea is to take away the human factor, so resource allocation would be invariant with respect to the initial property rights assignment. If the analysis is to remain positive in nature, however, then what happens in the real world and not on the blackboard should count. In the real world as we know of, even in facing the same situation, different individuals are likely to behave differently, a fact that has been repeatedly verified in various experiments. Therefore, in the real world, a transfer of property rights may lead to different resource allocations for various reasons. It then follows it would be difficult to argue that a Generalized Coase Theorem exists in a more general setting.

Finally, what is left is the first element of the Coase Theorem, a measurement of efficiency. Coase (1978; 1994, p. 44) suggested that the main difference between economics and the other social sciences is that economics deals with issues related to the measuring rod of money. While discussions of money in economics are voluminous, for the purposes of the present study a few

¹⁷ See the insightful discussion in Zerbe (1980).

important points are worthy of repeating: Prices, as expressed in monetary terms, are observable, and are as such objective. In addition, monetary prices are a result of voluntary exchange, and they form part of the basis for the next wave of exchanges. Alternatively put, the price system provides numerous pieces of information that will become part of the data set for actors engaged in economic activities. Furthermore, through the incentives provided, or implied, by the price mechanism, the parties of an exchange would enjoy mutual gains from trade and resources will flow to the most valued destination. Moreover, wealth as expressed in monetary units can be easily converted into other values, but it is not likely that other values can be converted into money easily.¹⁸ For instance, one can use the money in one's pocket to purchase a drawing by a famous artist, so a certain amount of artistic value is obtained. At the same time, however, it may be quite difficult to convert a piece of drawing by an average person into money. Likewise, through the price mechanism, resources are mobilized efficiently and as a result creation as well as accumulation of wealth would become possible. For instance, it is easier to accumulate 500 units of money than to accumulate 500 units of, say, fairness, justice, or beauty.

In the 1960 article, Coase adopted monetary price as the measurement of efficiency; i.e., Coase Theorem is stated implicitly with respect to the price mechanism. In addition, in economics the generally accepted definition of efficiency is Pareto efficiency, and while the criteria of Pareto efficiency are not dependent on prices, both of the Fundamental Theorems of Welfare Economics are related to (monetary) prices.¹⁹ But in non-economic activities, the meanings of *prices* are often vague, and when a monetary price is absent, other measurements may not be clear enough to be employed, with general consent, to measure efficiency.²⁰ A few examples suffice. In sports, games such as running, boxing, baseball, football, etc. have winning and losing as a natural measurement for strength, but in other areas such as gymnastics, beauty contest, music performance, etc. a *procedure* is adopted instead to determine quality, as no objective measuring rods can be relied on to assess quality in these latter cases. Similarly, the reviewing process of professional journals, familiar to all economists, does not have objective criteria to rely on. Articles are accepted not because they are objectively good, but because they pass the reviewing procedure. As another example, in trying to resolve the conflict across the Taiwan Strait, the stand-off between North Korea and South Korea, or the tension between India and Pakistan, there is evidently no objective rule to determine what constitutes an efficient

¹⁸ Stigler (1986, p.308) argued that “money is par excellence the command over goods in general, ready on the instant to serve any desire as no other commodity can.”

¹⁹ It should be emphasized that, when interpreted broadly, the two Fundamental Theorems are not restricted to goods and services as commonly understood. The goods can be things analyzed by Becker (such as the number of children, the amount of discrimination, the degree of crime, etc.) as well as the more abstract values (such as equality, justice, beauty, etc.) See Feldman (1980, pp.47-58) for the Two Fundamental Theorems of Welfare Economics.

²⁰ For instance, Becker's analyses of crime, discrimination, family, and human capital have surpassed traditional discussions in economics about goods and services, and have generated important insights. But in general Becker's models incorporate the concept of a shadow price; while it is easy to aggregate monetary prices, the aggregation of shadow prices is understandably more difficult, for economists who study the shadow prices as well as for actors who are affected by the shadow prices. One difference between the Coase Theorem and the Two Fundamental Theorems of Welfare Economics is that the former is in essence partial equilibrium analysis while the latter general equilibrium analysis.

outcome.²¹ Posner (1995) observes insightfully that, “Decisions by the Supreme Court are final not because they are right, but because they are final.”

Practically speaking, elements of a measurement of efficiency and a transfer of property rights are often entangled and inseparable. For instance, when the responsibility (the right) of raising children shifts from, say, the mother to the father, a different philosophy might be employed, even though both the mother and the father would like to be as good parents as possible. When a journal changes its editor, the style and contents may change visibly and significantly, even though both the succeeding and the succeeded editors would like to produce the best journal possible. Similarly, when a company replaces its CEO, the company often changes its course drastically, even though both the former and the present CEOs may have the same goal of creating a bright future for the company. All these and similar cases show that in both market and non-market activities, there may not be an objective monetary price to judge efficiency. As such, if there is no objective measurement of efficiency, the premises of the Coase Theorem are not satisfied, and it would be difficult to apply the Theorem in a more general setting.

To sum up, the Coase Theorem is supported by three core elements: a measurement of efficiency, a transfer of property rights, and a property rights structure. Concerning human activities in the real world in general, these three elements are often absent or ill-defined. Therefore, a tentative conclusion is that a Generalized Coase Theorem does not exist!

5. Going beyond the Coase Theorem

Analysis in the previous section suggests that a so-called Generalized Coase Theorem does not exist. However, the analysis can be used as a springboard to explore relevant questions. As discussions of the Coase Theorem have generated important insights concerning not the world of zero transaction costs but the real world of positive transaction costs, an inquiry about a possible Generalized Coase Theorem might similarly illustrate the wider meanings of the Coase Theorem. In this section, a few issues will be examined further; the first is related to the Coase Theorem itself and its implicit methodology, the second is to examine the concept of transaction costs again and its relevance to public policies, and the third is to derive the implications of an inquiry about a possible Generalized Coase Theorem.

5.1 Coase Theorem Yet Again

As is well known, Coase emphasized on more than one occasion that he believes in the

²¹ See Hsiung (2004c) for an analysis of applying the Coase Theorem to resolve the conflict across the Taiwan Strait.

inductive method and has reservations about the deductive approach.²² Furthermore, he is also known to argue figuratively that the world of zero transactions costs is imaginary, non-existent, a world that exists only on the blackboard or in dreams. Alternatively, however, the reason he wrote the famous 1960 article was to elaborate the theoretical point he made in the 1959 article, and in his 1988 collection he takes pains to defend his 1960 article. As such, he seems to adopt a two-part position: transaction costs are positive in the real world, but Coase Theorem is correct.²³

It is obvious that the first part of this two-part position is consistent with his well-known methodological view and is in essence an inductive stance. The second part, in contrast, has a very strong flavor of being deductive. Specifically, in expressing the idea of zero transaction costs, Coase used the phrase that “the pricing system worked without cost,” but the meanings of this phrase arguably are not derived from the daily experiences of ordinary people. On the contrary, the meanings of the phrase are to be inferred from rigorous reasoning and imagination of the highest level by economists, and controversies over the years about the precise meanings of the phrase attest to the difficulties in identifying its exact meanings. The story recounted by Stigler (1988, chapter 5) in his memoirs about the exhilarating experience of *Eureka* vividly illustrates how Coase persuaded the other twenty-two top economists with his powerful reasoning. In this respect, therefore, the 1960 article is unique among Coase’s writings in its adopting a deductive approach in reasoning. It should be no coincidence that the above discussion about the Generalized Coase Theorem similarly follows the deductive approach. Core elements of the Coase Theorem were first identified and then examined to see whether they are applicable in a more general setting.

In addition, Coase pointed out that compared to the neighboring disciplines economists enjoy the advantage that their subject is related to “the measuring rod of money.” Money, being visible and easy to be transferred, serves as a medium of exchange and a tool for contract. In analyzing economic activities, the measuring rod of money indeed gives economists significant advantages in their studies. The discussion in the last section, however, shows that actually the Coase Theorem is not dependent on the existence of money itself. Rather, it depends on the measuring rod of *something*. As long as there is an objective, generally accepted measurement to rely on, it would form the basis of comparison and efficiency can then be determined accordingly.²⁴ The conceptual device of *single owner* offers a telling example. The device has been extensively and fruitfully applied to discuss the best way to resolve disputes, but its use is related not to a measuring rod of money but a measuring rod of the relative weights of the litigants’ respective merits. Similarly, the reason that economics is considered to be the most

²² Coase (1994).

²³ Coase (1988, p.15) explained in this way: “when there are no costs of making transactions, it costs nothing to speed them up, so that eternity can be experienced in a split second.” It is not clear what this means in terms of the daily experiences of the ordinary people.

²⁴ In an article about the relationship between efficiency and social institutions, sociologists Oberschall and Leifer (1986, p.248) expressed a similar observation, “When there is ambiguity over the functions of institutions, or goals of corporate units, efficiency analysis is problematic.”

developed among the social sciences is related to a large extent to the extensive use of mathematics. For economists, mathematics is a forceful medium and, in an abstract sense, it is high on the scale of being easy in communication.

As such, measurements for length, time, and weight, etc. as well as criteria of winning and losing share some similarities with money, for they all have been employed to make measurement. Furthermore, other tools could be adopted to serve similar functions. For instance, the sense of justice, a value system, customs, and traditions all imply that an ordering of different magnitude exists and that individuals would be affected by these orderings. When the orderings are stable, they would be used as tools, just like money, and they would affect human behavior as well as resource allocation generally.²⁵ Seen in this light, an important aspect of Coase Theorem hinges on whether an objective measuring rod exists or not. If there is one, then Coase Theorem becomes relevant and may be extended. If an objective measuring rod does not exist, then it is problematic to reach a generally accepted criterion of efficiency, and discussions about extending the insight of Coase Theorem would be difficult.

5.2 Transaction Costs Again

As is well known, a recurrent theme in the discussions about Coase Theorem is related to the concept of transaction costs. When transaction costs are zero, Coase Theorem is argued to hold. But in the real world transaction costs are positive, and price mechanism is the product of positive transaction costs. It is then of interest to examine that, in non-economic spheres, what mechanisms have been developed to deal with positive transaction costs, and this hopefully would help illustrate the relevance of Coase Theorem in a more general setting.

While a major function of the price mechanism is that economic actors take prices as signals to guide their behaviors, the price system is obvious not the only source of signals. When transaction costs are positive, other measures have been developed to deal with interpersonal interaction. *Norms* are an obvious example. In general, norms are not written, but they are important in the daily lives of human beings. For instance, by following the norms, family members would reduce interaction costs. As norms facilitate coordination in interpersonal interactions, in the same way that money facilitates interpersonal transactions, the differences between norms and monetary prices should be examined more carefully.²⁶ To begin with, both norms and monetary prices are the results of human interactions, but compared to monetary prices, norms are usually non-observable and non-measurable. Moreover, norms are local in nature, relevant only to a particular place, time, and group of people. Most importantly, the price system would guide resources to their highest-valued destination, resulting in an accumulation of

²⁵ See Hsiung (2000, 2003) for related discussions.

²⁶ For discussions of norms, see Lazear (1993), Posner (1997), Young (1996) and North (1990). Here norms are used as a vehicle to develop the analysis. There are other points of reference that have similar functions, for instance, laws, religious teachings, etc.

monetary wealth which can be transformed into other values easily. By contrast, concerning both scope and extent, norms are not as effective.²⁷

Alternatively, compared with employing the price system as a measurement of efficiency, using norms to evaluate efficiency has some subtle but important differences. For one thing, monetary prices are expressed in numbers, but norms are not, as there are in general only three categories for norms: those behaviors that follow the norms, those behaviors that violate the norms, and those in between. In addition, the price system is a tool, developed and adopted by human beings to exchange mostly non-personal goods and services. By contrast, norms are also tools developed and adopted by human beings, and they also facilitate interpersonal interactions; but norms are generally applied to human beings directly and are thus non-separable from human beings, unlike the various items that serve as money.²⁸ Furthermore, when behaviors are affected by norms, the behaviors are generally the end products. By contrast, an important by-product of the price mechanism is that the incentives implicit in it would bring about further economic activities.

Consider now the relationship between norms and transaction costs. Since norms are formed to solve potential conflict of interests resulting from interpersonal interactions, as such they are means and can also be seen as institutions.²⁹ In an interesting case study examined in Elster (1995, chapter 3), the issue is this: How would a hospital determine the ordering on the waiting list for kidney transplant? Elster found that various criteria have been adopted to determine the ordering. That is, a universal, or standard, norm does not exist.³⁰ Since a number of different norms have been formed to guide the decisions, i.e., to solve the problems, therefore in a sense the various norms are all efficient.³¹ This is, however, the case when transaction costs are positive; the case when transaction costs are zero has to be examined separately. According to Coase (1988, 1992), in the world of zero transaction costs, there is no need for institutions; therefore, institutions would not exist in the world of zero transaction costs. It follows that norms would not exist in such a world. Consequently, in the case of arranging the waiting list for kidney transplant, various local norms would not appear in the world of zero transaction costs. But how would the problem of setting the ordering be resolved then? The root of the problem is related to the assumption of perfect information. Following Dahlman (1979) and Hodgson (1993), zero

²⁷ In a delicate sense, following norms generates beneficial results (e.g., shaking hands is a gesture of good-will), and thus serves the function of creating values (i.e., shaking hands is a physical act, but the good-will reflects a certain value).

²⁸ Here norms refer to those related to personal behavior and not to those related to gift exchange, etc. Nevertheless, the purpose of the norm of gift exchange is to convey certain values as represented by the gift; see Posner (1981, chapter 1) and Landa (1994) for relevant discussions.

²⁹ Coase (1988, p.14) argued that “in the absence of transaction costs, there is no economic basis for the existence of the firm.... in the absence of transaction costs,... the institutions which make up the economic system have neither substance nor purpose.” As history and culture are part of the institutional structure of a society, in the world of zero transaction costs there would be no history or culture. For a discussion of institutions, see North (1990, 1991) and Williamson (1985).

³⁰ See Young (1994) for an illuminating analysis.

³¹ Buchanan (1986) argued that the only criterion for efficiency is whether an agreement is reached.

transaction costs can be defined as *perfect information*. When transaction costs are zero, there are three main elements to be considered: the goal, the measure, and zero transaction costs. The goal is to arrange the ordering on the waiting list for kidney transplant; the measure is a procedure that can be employed to determine the ordering; and zero transaction costs refer to the case where information is perfect. When transaction costs are zero, there are still patients waiting for kidney transplant, and it is still possible that a shortage of supply exists. Therefore, the goal (to arrange the ordering on the waiting list for kidney transplant) still exists. In comparison, the other two elements (i.e., rules and perfect information) are more complex; they should be dealt with in turn.

When information is perfect, all the pertinent information concerning the patients' characteristics, availability of operation equipments, as well as the doctors' capabilities, etc. is free and transparent to all the parties involved. Even with a thousand pieces of useful information, however, certain criteria have to be adopted to determine the ordering. For instance, the probability of a successful operation may be a good criterion, but a series of difficult questions arise: First, this criterion (the probability of a successful operation) in turn depends on a number of factors. Does the assumption of perfect information apply to these other factors? Secondly, if information is perfect, will there be a concept of the *probability* of a successful operation? With perfect information, should it not be either 100 per cent or zero? Third, if two or more patients satisfy the criterion at the same time, will additional criteria be brought in to determine the order?³² Therefore, when the assumption of perfect information is examined more closely, one will be facing something like infinite regression--perfect information about perfect information. It is not clear how the ordering on the waiting list will be determined eventually. Consequently, given the assumption of perfect information, a mechanism that can measure and deal with resource allocation may not exist; it follows that resources will not necessarily flow to the highest valued destination. Actually, when the price mechanism is present, monetary prices can be employed to define the highest valued destination for resource allocation. When the price mechanism is absent, the idea of a highest valued destination is rather vague in itself.

When transaction costs are not zero, solving the problem of resource allocation seems to be much easier. Under this circumstance, the transaction costs involved can be seen as part of the price for each transaction. When the price is lower (i.e., when the transaction costs are lower), quantity demanded (i.e., the volume of transaction) increases. When transactions are less costly to make, the allocation of resources will in turn become more likely to be efficient. In the case of determining the ordering on the waiting list for kidney transplant, information is more abundant when transaction costs are positive, lower, but not equal to zero. Therefore, a large number of criteria can be employed, and the measurement of the criteria employed will be more refined. Since with abundant information communication becomes easier, as a result norms (rules

³² The probability of a successful operation may not be a generally accepted criterion; other possible criteria include the patient's contribution to the society, the patient's capacity to enjoy life, etc.

generally agreed upon) tend to form more easily.³³ Norms may be different in different localities, but the situation will be different from the case of zero transaction costs where no norms would exist.

Finally, one implication of the Coase Theorem concerning public policies that has been mentioned often is that transaction costs should be reduced whenever possible. While the idea is intuitive, it in fact has to be qualified. Under certain circumstances, transaction costs would be purposely increased to improve welfare. For instance, a savings account of the Christmas Club yields no interests and the savings cannot be withdrawn before Christmas, but the rigidity of the arrangement promises that a certain amount of money will be available for Christmas. Similarly, Posner (1987) pointed out that the checks and balances as implied by the U.S. Constitution increase communication costs between the three branches of the government, but a balance of power is achieved as a result. And this is another case that applying the single-owner conceptual device is problematic, for checks and balances among the branches imply that their interests are not directly opposite, as would be the case between the defendant and the plaintiff, therefore simple aggregation of their interests is not feasible. In the same spirit, Buchanan and Brennan (1978) argued that while earmarking taxes increases the rigidity in budgetary management, the arrangement reduces the potential waste of the Leviathan. Likewise, Buchanan (1997) re-emphasized the importance of a balanced federal budget, even though a balanced budget reduces the flexibility of budgetary management, i.e., it increases transaction costs.

5.3 Implications

It is clear from the discussion above that a critical element for the Coase Theorem to hold is the existence of a measurement of efficiency. This insight can be extended further.

Specifically, whether it is the measuring rod of money or other generally accepted measurements, they are outcomes of interpersonal interaction. As such, the measurements are a crystallization of what has occurred in the past. Individuals rely on these measurements, monetary and otherwise, to conduct themselves, to assign meanings to what they observe, and to make value judgments. They are reference frameworks employed by individuals to organize their daily lives and go about their business. Thus interpreted, the various measurements are the *institutional structure* of human behavior. When Coase delivered his Nobel Prize speech he emphasized the importance of the institutional structure of *production*, but if his logic is pushed further, then it is no less, or arguably even more, important that economists pay attention to the institutional structure of *human behavior*. Alternatively, however, the measurements are outcomes of past experiences, and as such may become constraints. When new events, new products, or new technologies are being produced, they may well surpass past experiences. To

³³ Elster (1995, chapter 7) emphasized that contents of norms are affected by numerous factors. In a sense, norms can be seen as the result of a power-weighted consensus; see Coleman (1990) for the latter observation.

make judgments by relying on the existing measurements, therefore, may not be the best response or even a meaningful one. It then follows that there is an inherent tension between entrepreneurial innovation and Coase Theorem. Since entrepreneurial spirit is known to be the driving force for economic and social progress, a proper interpretation of the relationship between Coase Theorem and entrepreneurial spirit seems an interesting and important issue.

When the measuring rod of money or other measurements are absent or not relevant, a proper judgment about resource allocation or human behavior may not be feasible. Consequently, attention may be shifted from *the outcome* to *the rules*. This indeed echoes Buchanan's (1986) insightful critique of Coase's 1960 article;³⁴ it is also consistent with Coase's call for studying the institutional structure of production, for any outcome is a manifestation given the existing institutional structure, the existing rules. Buchanan argues forcefully that one should focus on not the outcome but the rules, and that as long as the parties involved are making decisions based on free and equal positions, then any outcome agreed upon by the parties involved would be the ultimate criterion of efficiency. That is, as long as a consensus is reached, then the outcome is efficient. Furthermore, rules are important because it is often the case that the process and not necessarily the outcome is more critical; one should be neutral to the final outcome. But this begs another question. Different rules, however, would induce different outcomes, therefore there should be an objective measurement about the rules. For instance, polyarchies (a certain organizational rule) may be good for innovation, while hierarchies may be good for pursuing a chosen goal; checks and balances are good for the society in the long-run, but they may slow down the political process as well as economic progress in the short-run. If a measurement of efficiency concerning the outcome is not feasible, then a measurement of efficiency concerning the rules would then be the focus of attention, regardless of how efficiency is defined. Moreover, a subtle implication is that any consensus would imply some objectivity, for the consensus must be observable and accepted by, say, the two parties involved and each knows about the other's (re)action. A general implication of this observation is that it is important to instill *some* core values in the socialization process of future generalizations of a society so that a certain consensus can be relied on to deal with the problem of setting up and maintaining the fundamental structure of the society, economic, political, and otherwise.

It is very true that many people would find the measuring rod of money or the price mechanism repelling in various cases, therefore shifting the attention to rules might attract more support. This consideration, however, has to be qualified. Both the contents and the objectivity of rules are to be studied carefully, for unless the rules contain some objectivity that is operational, capable of being relied on by the individuals concerned, the existence of rules *per se* does not imply that efficient rules would be adopted. On the other hand, once attention is shifted to the rules, then the potential tension between Coase Theorem and entrepreneurial spirit is resolved. Even though a proper assessment, based on the existing measurements, about the innovations

³⁴ See Hsiung (2003) for an extended discussion of Buchanan's critique.

themselves may be difficult to make, certain rules are likely to be more tolerant or even encouraging to innovative efforts than others.

Alternatively, analysis in previous sections shows that a Generalized Coase Theorem does not exist. The implications of this result, however, are not all negative. At the very least, one would appreciate that resource allocation, in addition to that of goods and services, is much more complex, and thus much more interesting, than one might have expected. For one thing, with the discussion of the Generalized Coase Theorem, one would have a better understanding about the importance of the price mechanism. Previous discussions of Coase Theorem tend to focus on verifying whether the efficiency claim and the invariance claim are true, but it has often been neglected that there was the implicit assumption that an observable, stable price mechanism is available for reference.³⁵ When the relevant information on price is known to both parties of a potential conflict (i.e., the upstream and the down stream factories, the farmer and the rancher, etc.) and when non-monetary factors can be set aside, then the price mechanism naturally guides the direction of resource allocation. By contrast, for interpersonal interactions in general, monetary prices are either irrelevant or unimportant. Even when there are shadow or non-monetary prices, the functioning as well as the properties of the non-monetary mechanisms are very different from those of the price mechanism. In addition, compared with other mechanisms that affect or guide resource allocation, the price mechanism not only facilitates transactions directly, it also induces waves of further transactions. As a result, monetary wealth would accumulate, and monetary wealth in turn enables the pursuit of other, non-monetary values. In addition to the price mechanism, it is difficult to conceive of other mechanisms that have similar properties.³⁶

Furthermore, continuing the above argument; since price mechanism has a distinct advantage in mediating the flow of resources, monetary prices have become an effective means. In cases such as environmental impact assessment, pollution control project, national park development, etc. economists have made great efforts to find some monetary indicators that can be used as references in cost-benefit analysis. Similarly, in tort cases, damages to reputation, health and human body have routinely been expressed in monetary terms before compensations can be awarded. All of these imply that non-monetary values can sometimes be converted into, or at least approximated by, monetary prices. On the other hand, money has been adopted as a means to modify behaviors concerning moral, i.e., non-monetary, values.³⁷ Thus, while scholars

³⁵ See Medema (1994, chapter 5) and Zerbe (1980).

³⁶ This illustrates in essence the insight of Adam Smith in *The Wealth of Nations*. Therefore, McClosky (1997) argued that the so-called Coase Theorem is just a re-statement of Adam Smith's insight. In addition, North (1990, 1993) stressed that the emergence of impersonal exchange leads to long-term growth of a society. The idea of wealth maximization argued by Posner (1985) also implies that monetary wealth can be converted into, or be used to support, other values.

³⁷ The 16 May 1994 issue of *Time* has an interesting report, on page 31, about a measure adopted in a high school in Colorado: To prevent teenage girls from getting pregnant, the high school introduced an incentive scheme. If safety measures have been taken when engaged in sexual behavior or no sexual activities were conducted in the previous week, then the girls participating in the program are awarded seven dollars----Get one dollar a day for being a nice

in the other social sciences and the general public tend to downplay or denigrate the importance of money, economists have sound reasons to properly interpret, and arguably the responsibility to emphasize, the meanings as well as the significance of money. Moreover, price mechanism is a means in guiding human behavior and resource allocation; similarly, norms are also means in guiding human behavior and resource allocation. Likewise, contracts and laws have similar functions. If all these mechanisms are seen as constituting a spectrum, then one can arrange these various mechanisms along the spectrum according to the degree of objectivity. When objectivity is employed as a criterion, price mechanism has the highest degree of objectivity, next comes the written contracts and laws, and the non-written norms have the lowest degree of objectivity. The difference in objectivity helps explain the range of applicability of these various mechanisms. The higher degree of objectivity of monetary prices enables the price mechanism to expand the scope of the market; contracts and laws are normally effective within some administrative or national boundaries; norms are applicable in a local, restrictive manner, reflecting the difficulties in supporting non-written, non-observable points of reference.³⁸ This property in fact echoes an implication of Coase Theorem: To improve the efficiency of resource allocation, the mechanisms employed should be as observable and objective as possible.

Finally, the above reasoning points to an abstract but subtle insight: The meanings of a certain thing are supported and determined by its contrast with other, relevant things. For instance, by relying on money and prices, transactions can be effectively completed; by relying on various laws and regulations, disputes can be mediated or resolved; by relying on various norms, interpersonal interactions are smoothly lubricated. Furthermore, the insight is not limited to the *functional* interpretation as reflected by these examples. The meanings of the price mechanism are determined by its contrast with respect to other points on the spectrum of mechanisms, and the meanings of those other points are further determined by their contrast with respect to the price mechanism as well as other points on the spectrum. Similarly, the meanings of Coase Theorem are supported by zero transaction costs and other relevant concepts, and Coase Theorem in turn helps illustrate the nature of resource allocation under various other circumstances.

6. Conclusion

Coase Theorem is undoubtedly one of the most well-known theorems in economics, and its impact on legal studies in particular has been far reaching. The purpose of the present paper has been to examine whether there is a Generalized Coase Theorem. Three major attempts have been made. First, an inquiry was made to examine the reasons why the Theorem has had different impact on different disciplines. Second, an attempt was made to extract abstractly the core

girl!

³⁸ The description here is rather simplified, for customs and norms may transcend national boundaries. In addition, the influence of mass media on values is not considered here. See, however, Elster (1992, 1995) for an analysis concerning norms in a local area.

elements of the Theorem, and then the elements were applied to study whether Coase Theorem can be extended to a more general setting. Third, implications of such an inquiry about a possible Generalized Coase Theorem were illustrated.

Academic research has been likened to an on-going dialogue. While the dialogue is going on under the same roof, conversations in different rooms often focus on different subjects. The present study has been an effort to participate the dialogue in the room that focuses on Coase Theorem. The purpose has been to try to add new elements to this dialogue but not to suggest any conclusion for this interesting dialogue that is likely to continue into the distant future.

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