

Criticisms of Coase Theorem: Can Ethical Strength of the Parties Ensure Efficient Resource Allocation?

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Abstract

Ronald Harry Coase (1910–2013), a British economist and author in his famous Coase Theorem states, 'As long as private property rights are well defined under zero transaction cost, exchange will eliminate divergence and lead to efficient use of resources or highest valued use of resources.' The theorem has greater implications to internalize the externalities through market mechanism. However, the theorem has been criticized by environmental economists since the fundamental flaws of the theorem lie under the invalidity of its assumptions in the reality. Specially, in the presence of environmental externality, the assumptions of the theorem are not valid. This paper focuses on the role of parties in transaction where environmental externality exists, from the perspective of Islamic ethics. The paper argues, in the presence of negative externality where the assumptions of Coase Theorem are not applicable, the internalization of externality can still be possible without any government intervention. Such internalization is related to the ethical strengths of the parties involved in the environmental pollution. The paper further argues, the efficiency of resource utilization is positively related with the ethical strength of the parties in the market.

Key Words: *Coase Theorem, Ethical Strength, Efficient Resource Allocation, Internalization of Externality, Environmental Pollution*

1. Introduction

One of the major problems in the modern societies is the environmental pollution generated by various economic agents. Such pollution is known as negative externality that costs society to a great extent, for which no compensation is made to the sufferers. The Coase theorem is considered a significant basis for most modern economic analyzes of government regulation in a market economy especially in the case of externalities. Moreover, the theory has been

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used by jurists and legal scholars to evaluate and bring solutions to the lawful disputes. In law and economics, the Coase theorem, commonly credited to The University of Chicago's Nobel laureate Ronald Harry Coase, describes the economic efficiency of an economic allocation or outcome in the presence of externalities. The theorem states that if trade in case of an externality is possible and there are sufficiently low transaction costs, bargaining will lead to an efficient outcome regardless of the initial allocation of property rights (Coase 1960, 1-44). As a result no government intervention is required to ensure efficient resource utilization. Only bargaining between the parties guarantees internalization of externalities in a market economy. In practice, obstacles to bargaining or poorly defined property rights can prevent Coasian bargaining.

Most of the economies in the modern world are run under market based approach. According to many economists, in a market economy individuals and private firms make the major decisions about production and consumption (Samuelson and Nordhaus 1948, 8). As a result government hardly has any role to play in such an economy. However, economists argue in favor of government intervention if there is externality and market failure. The problem of externality leads to market failure and cannot ensure efficient utilization of resources in a market economy (Dewett 1948, 529). Nevertheless, Coase asserts that under certain conditions (e.g. property right, zero transaction cost and trade bargaining), market economy can still solve the problem of externality and ensure efficient allocation. While in reality, the assumptions of Coase theorem do not exist and require further modification.

To most of the economists, market based outcomes are more efficient. Here, efficiency is defined in terms of Pareto Optimal allocation. It emphasizes on a utilization of resources where no individual can be made better off without worsening others (Varian 1987, 302). Such definition of efficiency is promoted by Islamic ethics as well. Since the Coase theorem fails to explain the desired level of efficiency in the absence of property right and a zero transaction cost, Islamic ethical solutions can be an alternative to ensure efficient resource allocation.

The first section of the paper deals with the Coase Theorem and its criticisms. The second section discusses about the Islamic principles regarding negative externality as well as environment. The third section deals with Islamic perspective on production, pollution and the rights of neighbor. The final section analyzed how Islamic ethics can ensure efficient resource utilization in the absence of Coasian assumptions in real market place followed by recommendations and conclusions.

2. Objectives of the Study

The objective of the study is to find an alternative solution to internalize externality, apart from Coasian bargaining. The specific objectives are as follows-

1. To evaluate Coase Theorem critically in a market led economy.
2. To analyze Islamic principles toward environment.
3. To propose a model alternative to Coasian solution of efficient resource allocation based on Islamic ethics.

3. Materials and Methods

The paper is basically a theoretical analysis of Islamic ethical perspective toward environment, places an explanation of efficient resource utilization when the conditions of Coase theorem are invalid in a market led economy. In order to argue, existing literature was studied thoroughly. Based on available researches on Coase theorem, its criticisms in a market economy and Islamic ethical principles, the study proposed a model of efficient resource allocation.

4. The Coase Theorem and its Criticisms

The “Coase theorem,” in one respect, is an accomplishment of social science scholarship. Web searches using “Coase theorem” as key words typically produce over 100,000 hits in seconds. Economists, legal scholars, environmental experts, and political scientists and other academicians have written volumes on the theorem (Fox 2007, 1). Following Figure-1 depicts the theorem graphically. The amount of pollution is shown in horizontal axis. The left vertical axis represents the marginal benefits (MB), the benefit of production accrues to the life of polluter. On the other hand, the right vertical axis shows marginal costs (MC), the cost of environmental pollution on the pollutee. Here pollution is the negative externality generated by the polluter as the units of production increase. The MB of the polluter decreases since it is assumed that the production follows the law of diminishing returns. According to the law of diminishing returns, if one of the factors of production (usually capital) is fixed, the marginal product of the variable factor (labour) will diminish after a certain range of production (Koutsoyiannis 1975, 82). Eventually, the MB of polluter diminishes as the production (pollution) increases shown by the downward slopping MB curve in Figure-1. In contrast, the MC of the pollutee increases with the increase in pollution represented by the upward slopping MC curve from the origin.

Both MC and MB intersects at point E where the marginal benefit of the polluter from the production of an extra unit equals the marginal cost of the pollutee from an extra unit of pollution. According to Coase, both parties can reach at point E, the efficient point through bargaining under zero transaction cost (the cost of bargaining) if the property right is assigned to the parties. Because, to the left of the point E, the MB is higher than the MC leads to a bargain between polluter and pollutee.

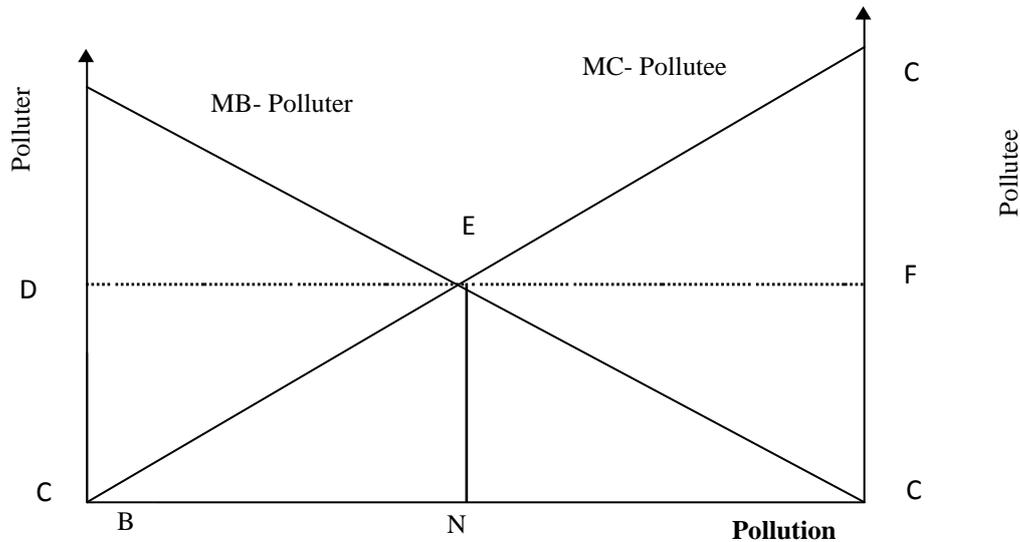


Figure-1: Graphical Explanation of Coase Theorem

The polluter finds it profitable to continue production by compensating the pollutee and continues the compensation as long as the MB is higher than the MC. The polluter thus stops pollution when both marginal cost and marginal benefits are equal. In contrast, to the right of the point E, it no longer profitable to compensate the pollutee since the MC is greater than MB. So the polluter reduces its pollution and reaches at point E. The intersection point shows the optimal level of pollution.

The above discussion on Coase theorem sounds good. However, the theorem suffers from a variety of criticisms. The major criticism arises from the inapplicability of the assumptions of the theorem. First, the assumption of property right becomes invalid in case of public goods. Public goods are characterized by non-rivalry and non-excludability in consumption that the problem of free-rider exists, property right cannot be assigned to particular parties. Second, both the polluter and pollutee consider the externality from the perspective of maximizing their respective self-interests, not from the social viewpoint. The large scale effects of negative externality might be higher in reality and the asymmetric information fails to achieve an efficient allocation. Moreover, the externality might have intergenerational transformation effects that create a serious threat to sustainable development. Third, in many cases of externalities; the parties might be a single large factory versus a thousand landowners nearby. In such situations, say the critics, transaction costs rise extraordinarily high. All these criticisms make the theorem unenforceable in the reality although the theorem laid the foundation to dealing with the negative externalities in environmental resource economics.

5. Islamic Ethics Toward Environment

Islamic scholars have developed a series of principles of Islamic ethics towards environment over the years after analyzing major sources of Shariah, the Quran and the Hadith. For most of scientists and a large number of environmental economists, nature conservation is a major ethical matter and humankind's way of life need to be changed in order to safeguard the natural environment. Islam considers the natural environment in a specific standpoint in which Allah, the originator encompasses all things. This view helps to deliver a more comprehensive and holistic approach of environmental ethics in which any destruction to the environment is just as break to universal integrity and God's ayahs (Abedi-Sarvestani and Shahvali 2008, 9).

For environmental protection, Islam encourages individual inspiration rather than state intervention. Moreover, Islam promotes environmental stability. The holy Quran describes the notion of environmental balance in various terms like *'adl'*, *'qadar'* and *'mouzoon'*. The term *'adl'* literally means acting justly, rightly, or equitably. While explaining the meaning of *'adl'*, one interpreter of the Quran has observed that the universe has been created in balanced form. Similarly, most of the early interpreters interpret the term, *'mizaan'* in the meaning of *'adl'* (Usmani, 689). Additionally, some other terms *'haq'* and *'qist'* have also been interpreted to have the same meaning. All of these terms, therefore, carry the notion of environmental stability as well as the ecological balance. This term corroborates the notion of balance in the following ayah:

*"Verily all things We have created in proportion and measure."
(Qur'an, 54:59)*

The notion of environmental balance is further supported by another term *'mouzoon'* which befalls in the first of the following ayahs:

"And the earth We have spread out, set therein mountains firm and immovable and produced therein all kinds of things in due balance. And We have provided therein means of sustenance for you and for those whose sustenance you are not responsible." (Qur'an, 15: 19-20)

According to above ayahs, all kinds of supplies have been made for the sustenance of human and the non-human beings in a way that the quantity demanded of these provisions equals their supply (Akter 1996, 61). All these clearly signpost, modern environmental scientists promoting environmental conservation and sustainable development is also included in Islamic principles.

Human beings are created as the guardian of the earth. The concept of "stewardship" which is the closest in this specific field to the notion of "Caliphate" is a concept which implies dependence between humanity and nature. This notion emphasizes the sense of responsibilities and good governance (Karimi 2012). Human being is both Allah's caliph on earth and responsible for safekeeping of creations. As Qur'an said:

Behold, thy Lord said to the angels: "I will create a vicegerent on earth". They said: "Wilt thou place therein one who will make mischief therein and shed blood? - whilst we do celebrate Thy praises and glorify Thy holy (name)?" He said: "I know what ye know not" (Qur'an, 2: 30).

Islamic ethics toward environment thus prevent humans from overexploiting natural resources because human is being asked to avoid from any damage to living organisms. As Qur'an said:

"When he turns his back, His aim everywhere is to spread mischief through the earth and destroy crops and progeny. But Allah dose not love mischief-making" (Qur'an, 2: 205).

Several criteria are of relevant when examining the Islamic ethical system from a stakeholders' perspective: justice and balance, trust, and benevolence (Beekun and Badawi 2005:134). One of the important criteria of Islamic ethics is benevolence or excellence. Benevolence (Ihsaan) or kindness to others is defined as "an act which benefits persons other than those from whom the act proceeds without any obligation" (Umar-ud-din1991, 241).

Kindness is encouraged in Islam. The Prophet (Sm) is reported to have said that among the inhabitants of Paradise will be:

"... one who wields authority and is just and fair; one who is truthful and has been endowed with power to do good deeds; and the person who is merciful and kindhearted towards his relatives and to every pious Muslim, and who does not stretch out his hand in spite of having a large family to support" (Muslim: 6853).

6. Production, Pollution and the Rights of Neighbor

Production of goods and services are immense need for human survival. In primitive society, human being survived on the nature. However, following the development of human civilization, the demand for various good and services increased over the centuries. Eventually, a number of industrial sectors emerged to meet the growing demand for goods and services. The modern life of human being is so complex that the interdependence among the people from different locations is increasing. As a consequence, the entire world is becoming like a global village. When one contemplates the Qur'anic ayahs of Surat An-Nahl which begin with the ayah that reads-

"And the cattle hath He created, whence ye have warm clothing and uses, and whereof ye eat." (Qur'an 16:4)

And in same Sura, Allah said,

"And it is He Who hath constrained the sea to be of service that ye eat fresh meat from thence, and bring forth from thence, ornaments which ye wear. And thou seest the ships ploughing it that ye (mankind) may seek of His bounty, and that happily ye may give thanks" (Qur'an 16:14)

One will realize that Allah has subjected the universe to man. Further, Islamic doctrines encourage Muslims to manufacture any valuable production to meet the requirement of living from primary needs to luxuries (Subandi 2012, 348).

As mentioned earlier, men are the caliph of Allah on this earth; they must keep the universe as pure and magnificent as Allah has created it. Needless to say, all divine religions have called for protecting the environment and have prohibited polluting and damaging it. Several ayahs of the Qur'an and even in a number of Hadiths, cleanliness is emphasized. Moreover, pollution or the negative externality generated from the activity of an economic agent can breach the rights of the neighbors. The Qur'an declares about kindness to neighbors,

"Worship Allah and join none with Him (in worship); and do good to parents, kinsfolk, orphans, the poor, the neighbor who is near of kin, the neighbor who is a stranger, the companion by your side, the wayfarer (you meet), and those (slaves) whom your right hands possess." (Qur'an 4:36)

In several Hadiths, the prophet (Sm.) gives importance to the rights of neighbors. Good treatment towards neighbors is one of the characteristics that make a person among the best. The Prophet said,

"A perfect Muslim is he from whose tongue and hand Muslims are safe" (Bukhari 2:4)

In a nut shell, Islam encourages production and consumption in the light of Shariah. Further it promotes production in such a way that cannot create any harm to the environment and the neighbors.

7. Islamic Ethics and Coase Theorem

Since the Coase theorem fails to explain the efficient utilization of resources when the assumptions are invalid, an intervention from the state is immediately needed to improve efficiency in the market. However, state intervention does not entitled with zero transaction cost. Therefore, we can analyze the role of the parties according to the Islamic ethics. If both polluter and pollutee are the believers, they will follow the guidance of Islam. Moreover, the ethical dimension of the topic of the environment highlights sharing, through the shared access to natural and vital resources with the other members of humanity, between and through the generations. The concern to leave a livable, viable planet to upcoming generations is one of the crucial points of this principle of equity and sustainable development (Karimi 2012).

Islam does not promote zero production to protect environment from the negative externality since production of valuable goods and services are necessary for the society as a whole. On the other hand, Coase theorem illustrates the positive relationship between production and pollution. That is, as production increases, pollution also increases. It seems, zero pollution

means zero production which is neither desirable for human existence on this earth nor attainable. In contrast, producer or the polluter is not allowed to produce and pollute the environment for his or her profit maximization only according to the ethical norms.

The Shariah also evolved within the guidelines set by three principles agreed upon by scholar jurists over the centuries. First, the collective interest takes precedence over the interests of the individual. Second, relieving hardship takes precedence over promoting benefit. Finally, a bigger loss cannot be prescribed to alleviate a smaller loss and a bigger benefit takes precedence over a smaller one. Conversely, a smaller damage can be prescribed to avoid a bigger harm and a smaller benefit can be dispensed with in preference to a bigger one (Khalid 2002:3).

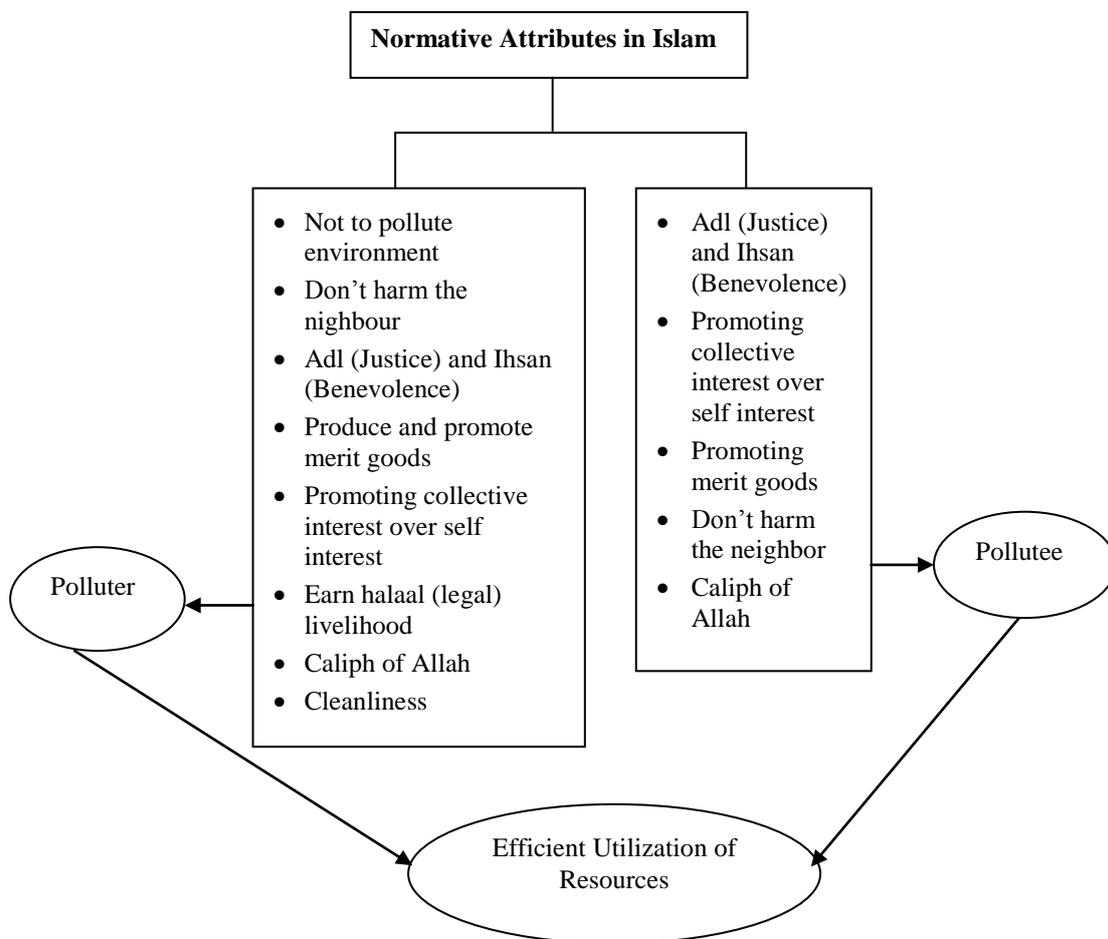


Figure-2: Efficient Allocation of Resources without Coasian Bargaining

The ethical perspective of the believers towards environment is shown in Figure-2. It depicts how efficient resource utilization can be achieved without Coasian bargaining. As mentioned earlier, the assumptions of Coase Theorem are not available in the real life in its full strength. As a result, ethical strengths of the parties can motivate towards an allocation that is Pareto Optimal, no one can be better off without worsening others. The more a party is inspired by the Islamic ethical principles, the more he/she approaches towards a position which is desired by other party.

Each party considers the rights of other party as neighbor. The collective interest and promoting merit goods for the society do not allow a single party to take advantage over others. Further, both the parties act as the caliph of Allah to protect the environment from the decay. Adl and Ihsan motivate the parties to reach a mutually beneficial point. All the principles of Islamic ethics thus push both the parties to reach a point which is socially desirable, the Pareto Optimal allocation of resources.

8. Conclusion and Recommendations

It is apparent, Coase Theorem has a great influence in policy making in various levels. It gives an explanation how society reaches an optimal solution through bargaining under certain conditions. But in reality, the conditions are not always met. Islam as the complete code of life promotes production of merit goods, environmental conservation for human survival, making balance for sustainable development and protects rights of neighbors. Moreover, Islam desires such personal characteristics among the followers that promote environmental protection by both polluter and pollutee. Ultimately, in the absence of Coasian bargaining conditions, both the parties come forward, motivated by the Islamic normative attributes to ensure a safe environment, the efficient utilization of resources. For such incentive, property rights and the transaction costs play less or no significant role. However, the degree of motivation plays a vital role in this context. The more the parties are inspired by Islamic ethical principles, the better environmental quality it ensures. Thus in order to ensure a better environment and the efficient resource utilization, parties must be motivated by Islamic ethical principles. Through education and dissemination of Islamic knowledge, one can be enlightened by ethical principles. The role of Islamic scholars and state is very important in this regard.

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