

Difference between coasean and pigouvian solution to an environment problem



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Explain in your own words the difference between a Coasean and a Pigouvian solution to an environmental problem? Which type of solution do you prefer, and why?

The Explanation of the Difference between Coasean and Pigouvian Solution to an environmental problem.

In a very simple way, Pigouvian solution prefer to use government intervention to solve externality while Coasean solution prefer to use market method to solve externality.

In detail:

Pigouvian theory is based on the method of modern economics especially based on welfare economics; and Pigouvian theory provides a perspective systematic study of the externality problems.

According to Pigouvian theory the marginal private net output and marginal social net output has following relationships: Besides the increasing of marginal private benefits, if other people can still get benefit from the private activities, then the marginal social net benefit is greater than the marginal private net benefits; on the other hand, if other people's benefit is decreasing due to the private activities, then the marginal social net output is less than the marginal private net output. In the first situation the society will get the " Marginal social benefit"; in the second situation the will face the " Marginal social cost".

Actually, Externality is caused by the inconsistency between marginal private cost and marginal social cost. . Without externality, the marginal private cost

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of production or consumption of an item is equal to the cost of itself. When there are negative externalities, there will cost to compensate these externalities.

By adding marginal private cost with the marginal external cost we will get the marginal social cost. On the other hand, when there are positive externalities, the benefits which generated by business activities are not fully occupied by the company, but will also become some external social benefits. Through economic model, Pigou shows that because of the presence of external economic effects, the Pareto optimal allocation of social resource can not be achieved by purely individualistic mechanism.

Since there is a deviation among the marginal private benefit and marginal social benefit, marginal private cost and marginal social cost; therefore the maximization of social welfare can not be achieved only through free competition. The Government should take appropriate economic policies to reduce this deviation as much as possible. The proper policy is that: when the marginal private cost is less than marginal social cost (negative externality), government should impose taxes; when the marginal private benefit is less than marginal social benefits (positive externality) then the government should provide incentives and subsidies. Pigou believes that by using such taxes and subsidies, the externality problem could be internalized. And such policy is known as Pigovian solution, and the tax is called Pigouvian tax.

Pigovian solution has been widely used. In the field of infrastructure, the policy is who invest who benefits; in the environmental protection, the policy is who pollute who pay (a. k. a. Polluter Pays Principle PPP).

Over the years, the problem of how to internalize external effects is dominated by Pigouvian theory. To some extent, Coase theory is developed through the criticizing of Pigouvian theory.

Coase's critique of the Pigouvian solution are focused on the following three aspects. First, the externality is very complex; it is not as simple as "one side damages the other side". For example, in the case of chemical factory vs. residents, it is unfair to tax the factory without discussing whether the factory has the right to emission or not. Because, it maybe the case that the factory is established years before any resident areas was setup, and in this case, the factory may have the emission rights (The example of factory vs resident is from Ronald Coase "The problem of Social Cost", Journal of Law and Economics Vol 3: 1(1960)). In order to reduce the emission, perhaps the government should encourage residents purchase the redemption instead of just posing tax on the factory. Second, in the case of zero transaction costs, the Pigouvian tax is absolutely unnecessary. Because in this case, through voluntary negotiation of parties, the optimal allocation of resources can be reached. In this case, with the help of clearly defined property rights, voluntary negotiation can also achieve the optimal level of allocation just as the same effect through the Pigouvian solution, then why should the government intervene? Third, even in the case of non-zero transaction costs scenario, we still need to balance the cost of using government and using

voluntary negotiation. Pigouvian solution may be an effective institutional arrangements, it also may be an inefficient institutional arrangements.

According to Coase theorem: If the transaction cost is zero, no matter how the initial definition of property rights is, optimal allocation of resources can be achieved through market; if there is non-zero transaction costs situation, then maybe the institutional arrangements and choice is important, however people still need to do a cost-benefit-analysis of about the government intervention. In order to solve the problem of externality, Coasian's market solution could just be as useful as Pigouvian solution.

Coasian solution shows that even there is a market failure it doesn't automatically means we should use government intervention.

Which type of solution do you prefer, and why?

I don't prefer either one, I think a mix use of both solutions will be more helpful.

The Pigouvian theory/solution has some limitations. First, the Pigou theory presupposes there is a function of the existence of the so-called social welfare, and the government is the natural representative of public interest, and the government can perceive the public interest and then choose the right policy to reduce the externalities in economic activity through intervention. However, the fact is that public policy itself may be flawed. Second, the use of Pigouvian solution is based on the premise that the government knows the cause of externalities can calculate all marginal costs or benefits, however it is impossible for any government to obtain all

information to make a Pareto optimal allocation of resources. In theory, Pigouvian solution is perfect, but the actual implementation may be largely constrained. Third, government intervention also makes costs. If the cost of Government intervention is more than the losses caused by externalities, then there is no reason for use to use government intervention. Fourth, the Pigouvian solution may cause the rent-seeking activities, which will lead to waste of resources and distortions of resource allocation.

On the other hand, the Coasian solution is also limited. The first problem is that in order to make the Coasian solution work, the market should be developed, however, for many developing countries, the whole economy system is still in transforming, I don't think Coasian solution can work very well without a certain protection level toward property right. Second, the costs of voluntary negotiation transaction need to be considered. The feasibility of voluntary consultation is depending on the size of transaction costs. If the transaction costs are higher than the social benefits, then why should we have such negotiation. Third, the voluntary negotiation is based on the premise that property rights are clearly defined. In fact, some property rights of environmental resources such as property rights are often difficult to define or very costly to define.

For the environmental pollution problems, policy makers should consider the characteristics of pollution sources, the different costs of regulatory management and institutional arrangement; they should also consider the degree of maturity of the market and many other conditions. Only through a comprehensive consideration can we achieve a better solution.