Environmental Science

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# Question 1

When one talks about the externality in the economic context, it is the cost and the benefit that is derived by the party that they did not choose to incur during the course of that activity. There are many instances when the externalities are bound to happen in the economics and one of the prime reasons for the externality to occur is that how the product and the price equilibrium that is witnessed in the marketplace is not able to reflect upon the true nature of the costs as well as the eventual benefits that are associated with the process. The cost and the benefit might be private, or they might be happening to an induvial or an organization. There is also likelihood that it might have social meaning and context behind that is bound to affect the society as a whole. There are positive and negative externalities and the major difference among them is that whether the benefits that are associated with it are feasible or infeasible to change. In the presence of positive externalities, i.e., public benefits from a market activity, those who receive the benefit do not pay for it and the market may under-supply the product. Similar logic suggests the creation of a Pigovian subsidy to help consumers pay for socially-beneficial products and encourage increased production.[3] An example sometimes cited is a subsidy for provision of flu vaccine.

# **Question** 2

Externalities are some of the prime reasons that there is lack of sustainability in the economy or marketplace at the given point of time. One of the reasons is that whenever there is negative or positive externality, it is quite hard to make sure that the total benefit or the cost that is derived from the process can be accumulated at the given point of time. The core reason that the sustainability has to be implemented is to make sure that the people are aware of the costs and benefits of their action, and when that is not happening, it means that there are questions to be asked about how allocation of the resources is being done and what are some of the implications of the economic resources at the given point of time. The other thing that makes it quite challenging is that how there is lack of control in case of how negative externalities are faced.

# Question 3

When one talks about the gas tax, it has always been considered somewhat a controversial aspect of how the fiscal policy is being determined. The United States of the Chamber of Commerce has estimated that the fiscal collection that is going to be happening with the advent of the gas tax is going to be around $ 394 billion for the next 10 years in Texas. One of the major changes that has happened during the course of the last five years specially in New York is that the amount has been increasing at a much greater rate. As there has been an effort on the part of the government to make sure that more and more people are integrated and made the part of the tax net, effort is needed to be made to make sure that the indexing for the inflation and other factors have not only increased the price of gas, they have also increased the Federal Gas tax considerably.

# Question 4

One of the first externality that is being faced due to the usage of the gasoline is that there is cost that goes with the environmental effect and how it affects to general populace in terms of the degradation of the environment. At the same time, the fishermen and the other people who are going to be facing issues due to the ineffective waste management policy is another issue that has to be kept in mind as far as the way these issues are going to affect the general populace at the given point of time. The key thing that is important in this regard is that these are the negative externalities. Not only that, there are sub industries as well that are created during the course of the consumption of the fuel and vehicle usage such as the whole automobile industry as well as the personnel deployed in the fuel industry that have their interests linked with both the activities.

# Question 5

The Pigouvian Tax is the government tax that is witnessed when there are activities that are creating negative externalities and there is an effort by the government to make sure that they are controlling them. There are many instances when Pigouvian Taxes are going to be implemented, the first major example of the Pigouvian tax is the tax that is levied on the consumption of the gasoline. The idea behind this tax is to make sure that the negative externalities that are created during the driving of the automobiles are being created. At the moment, the federal gas tax which is an example of the Pigouvian Tax is one of the prime examples in this regard. The other example of the Pigouvian Tax is the carbon emission tax. Now, needless to say that whenever there is an activity in which there is going to be any fuel emission, there is going to be a case for the Pigouvian Tax. There are about 40 countries around the world that are implementing Pigouvian Tax. These taxes are being levied on the companies that are involved in the consumption and burning of the coal, oil, gas and any other natural fossil fuel that is going to create a carbon tax. This tax is an important Pigouvian Tax due to the fact that there are many negative disasters that are associated with the carbon footprint of the organization such as natural disaster and increase in the sea level. Now, one thing that is needed to be kept in mind is that how the Pigouvian Tax is supposed to be implemented at the broader level at the given point of time. It has to be noted that when there is a case that the emissions are taking place, the climate changes are quite damaging, and this is the right instance when the Pigouvian taxation are going to be making sense at the given point of time. So, all the consideration has to be taken care off at the given point of time.

# Question 6

There are many challenges that are faced by the organizational stakeholders when it comes to making sure that how the implementation of the Pigouvian Tax is being done. The first major challenge is that how the negative externalities that are going to be taken care. The main premise of the Pigouvian tax is that how the evaluation and the measurement of the negative externality is going to be faced by the businesses. The other challenge that is faced when it comes to the implementation of the Pigouvian taxes is that how they are rather regressive in terms of how they are being implemented. The major problem with these taxes is that how they are supposedly imposing a harsher burden in terms of how the local populace is going to be facilitated. There are some types of the Pigouvian taxes such as taxation on cigar ret and gas tax are considered to be regressive in nature. What it means is that they end up taking greater percentage of the proportion of income in terms of the amount of money that is being made by them at the given point of time. At the same time, the other major problem is that government intervention is going to be taking shape. The people who do not have much higher income as compared to the others are the one that are most affected by the Pigouvian Tax. The problem is that how the people who are at the disadvantage are not able to determine the incremental income that is going to be paid out due to the increased tax and it presents a significant dent to their overall level of income. Not only that, the Pigouvian tax at times does not have the desired effect on the economy and instead of providing the desired effect, it can actually work in the opposite manner.

# Question 7

As compared to some of the other tax rates that are implemented on different nature of products, the nature of the gas tax is completely different as compared to the other. The key advantage that it provides is that as compared to the some of the other legislation where art times it is quite hard to determine the amount of tax that is supposed to be charged, here things are much more easier in terms of the revenue calculation. When the gas is cheap, the revenue collection is going to be on the lower and thus it is reflective of the general state of the economy. Specially if one talks about the Gas Tax that is implemented in Alabama, it is applied in the manner that it tends to provide The allocative efficiency that is witnessed in the given tax is such that it makes it all the more easier for all the stakeholders to endure that the collection is being done in the right manner. The equitable nature of the tax also makes it one of the more environmentally sustainable tax as far as the way its interpretation is going to be done. Another alternative to applying Pigovian taxation is for government to place a limit on the total amount of the production of the output causing the negative externality and create a market for rights to generate that specific output. In the United States since the late 1970s, and in other developed nations since the 1980s, the concept of a market for "pollution rights" has emerged. Giving out the rights for free (or at less than market price) allows polluters to lose less profit or even gain profits (by selling their rights) relative to the unaltered market case. Most of the criticism of the Pigovian tax relates to the determination of the tax and the implementation. Pigou and Friedrich Hayek point out that the assumption that the government can determine the marginal social cost of a negative externality and convert that amount into a monetary value is a weakness of the Pigovian tax.

# Question 8

Due to the relative lack of success of the Pigouvian tax, there are some people who are of the point of view that there must be some alternatives for the Pigouvian Tax and effort must be made to make sure that these alternatives are being used other than levying a tax on people that is inequitable and cannot be measured by the majority of the population. The first method that can be used as an alternative of the Pigouvian Tax is the command and control regulations. These regulations along with the subsidies can be used to make sure that the government at least have some knowledge with regards to the way market is supposed to be functioning at the given point of time. There is some economist who thing that the government must not intervene at all in such matters and any effort on the part of the government to control externality is something that is not going to provide the desired result. What happens is that when there is involvement from the third party and there is a likelihood that it might lead to problems in terms of the lack of efficiency. The other major thing that has to be kept in mind in terms of the Pigouvian Tax is that there has to be limit that is needed to be placed on the total amount of the production of the output that is creating negative externality. What it is going to do is that it would eventually lead towards the creation of the market right that is going to generate the specific output at the particular moment. Selling permits and having locks on the firm is another thing that has to be noted in terms of the way alternatives are going to be setup for Pigouvian Tax.

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