

A team, 2017). there  
are lots of different



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A negative externality is “ a negative effect of a production, consumption or other economic decision that is not specified as a liability in a contract” (TheCore Team, 2017). There are lots of different negative production externalities such as: air pollution, damage to the environment, external costs of fertilizers and pesticides used in farming and noise pollution to name a few. Negative consumption externalities on the other hand includes for example: fly-tipping of household waste, effects of passive smoking, impact on family life from negative addictions and noise pollution from sport and music events. Spillover costs are created by these externalities which then causes market failure.

To show how this leads to market failure, one has to make a distinction between the private costs and benefits to the individual consumer and producer and the social costs and benefits to society as a whole. If we add together private cost and external cost, the result is social cost. In the diagram above, P1, Q1 is a free market optimum. This means that the marginal private cost of consumption and production is equal to the marginal private benefits. However, if there are negative externalities then the marginal social cost curve lies above the marginal private cost curve due to the addition of external costs. If the marginal social cost is positioned away from the marginal private cost then the marginal external cost of extra output is assumed to be increasing.

The difference between the two curves (MSC and MPC) shown by the dotted red vertical line is the external cost which is associated with the output Q1. If these externalities are not taken into account, this can lead to market failure. Preferably, one would need another output as shown in the diagram as Q2 - a

quantity which is less than  $Q_1$ . Without intervention, free market can overprovide or overconsume goods and services where there are negative externalities.  $P_2$ ,  $Q_2$  in the diagram takes into account the negative externalities and therefore creates the social optimum output. The equilibrium level of output delivered by a free market is at  $Q_1$  where marginal private benefit equals marginal private cost and it is allocatively inefficient.

One would assume in this example that there are no externalities arising from consumption so the social optimum is at  $P_2$ ,  $Q_2$  when we take into account the externalities. There is also a deadweight loss of welfare due to market failure. The shaded area on the diagram shows the social welfare loss which is caused when the market output supplied is higher than the social optimum which in turn is a wasteful allocation of resources.

Using corn farming as an example, a farmer uses his private costs such as fertiliser to help his crops grow in both quality and quantity. However, some of this fertiliser goes into a river nearby and contaminates the water thereby causing fish to die which in turn incurs a negative externality on the fisherman and the land owners downstream. There are three possible solutions for these negative externalities- taxation, regulation and property rights. In order to reduce the amount of production of the goods that created negative externalities, Arthur Pigou suggested that the government could introduce a tax on the producers. However, this found difficulty in monitoring. With regards to the example, it is difficult to know how much fertiliser is being laid out or the amount of pollution that is being emitted which means that the cost of monitoring is high.

This is seen as a disadvantage. Regulation, on the otherhand, has many different varieties. One for example is through technologyspecifics methods. This is where the government requires producers to involvethe use of certain technologies to reduce pollution or emissions. Monitoringcosts are low using this method which is beneficial. There is no need to havesomeone constantly monitoring the emissions because it is clear that thetechnology is present and working. On the down side, it means that firms do notneed to find other ways to further reduce their emissions resulting in a lackof incentive and innovation. Another type of regulation is to simply restricthe amount of goods and pollution that is being created.

A disadvantage to thisis that monitoring costs are dear. Property rights play a very bigpart in negative externalities as without them it can cause a lot of issues. Coase's theory explains this " Under perfect competition, once governmenthas assigned clearly defined property rights in contested resources and as longas transactions costs are negligible, private parties that generate or areaaffected by externalities will negotiate voluntary agreements that lead to thesocially optimal resource allocation and output mix regardless of how theproperty rights are assigned"(Ronald H. Coase, 1960). The solution to thenegative externality is simple - assign a property right.

In order for theserights to be successful, they must follow certain requirements. The rights needto be well defined and specific. They also need to be divisible and have theability to be traded. Finally, the rights have to be dependable, enforceableand recognisable.

If, in the example, the farmer has property rights of the river, one would assume he does not need to change his routine. However, those affected downstream (the fishermen) could negotiate with the farmer prompting him to use less fertiliser on the fields thus reducing the amount contaminating the river and the quantity of fish dying. If the rights are assigned to the fisherman, who initially required the farmer to stop putting fertiliser on the land, then the farmer now has the incentive to negotiate the fisherman. The fisherman would allow a certain beneficial amount of fertiliser to be used on the fields but less than the amount the farmer was using before.

In each scenario, a solution is made to internalise or overcome the externality. Both parties now know the cost of the externality and are able to overcome it. There is also incentive for both parties to find way to reduce the negative impact on the social welfare. In comparison to other regulations the monitoring costs are significantly low making it more beneficial. In conclusion, negative externalities play a huge part in market failure but are easily overcome with certain solutions. The government can intervene but imposing taxes, regulation and giving out property right