The most polluted residential areas in south africa economics essay

Economics

Suveshnee ReddyMerebank is one of the most polluted residential areas in South Africa with air, water, noise and soil pollution from surrounding chemical factories, refineries and the old airport. (Sowman and Urquhart, 2006) Pollution, a negative externality imposed on the residents is a current and long-term problem. This can either be solved by the governments indirect approach of assigning property rights which allows for a private approach, where larger companies can negotiate with residents, failing which, the public approach where the government's direct intervention, emissions standards and emission fees , is required. (Perloff, 2009) We all have rights and these rights need to be taken into consideration and respected by all parties involved. Do factories have the right to discharge pollutants into the air and water? Should people have the right to an unpolluted environment? Property rights is having the legal and exclusive privilege to the ownership, use and disposal of an asset. (Parkin, 1993). A lack of well defined property rights is the root of this externality problem. Property rights can be exchanged on a voluntary basis if they are well defined. (Black et al., 2008) Will the private approach always be successful if the government doesn't directly intervene? Will the Coase Theorem be a solution to this negative externality problem? British economist, Ronald Coarse is best known for the Coarse theorem, which states that when property rights between parties are conflicting, the parties involved will bargain with each other. This will result in an efficient outcome irrespective of which party involved has the initial property rights, given that property rights are both well-defined and enforceable and transaction costs which are costs of the exchange process, are negligible. (Beggs, no date) The exact

outcome of the bargaining process will depend on the bargaining skills of parties involved. If all preconditions for the Coase Theorem are met, externalities can be completely internalised. (Black et al., 2008) It makes sense that markets will reduce the level of pollution if property rights are clearly assigned since parties involved will have to take responsibility for the costs which they impose on others. How practical will the Coase Theorem be in real life solutions? The Coarse theorem can be easily understood by looking at an example. We have 2 different firms, a fish canning factory and a diving school in the same area. The fish canning factory affects the diving school negatively as wastes from fish processing, for example blood, are dumped into the water. The fish canning factory can only reduce the amount of pollution by restricting its output as it has no other place to dump its wastes. This negatively affects the environment, such as off shore reefs, which in turn would cause the diving school to lose business as consumers would rather join diving schools which operate in clean, unpolluted water. People would only want to join this diving school if it charges a price low enough which will allow for a full compensation for the polluted water. By referring to (aw. com, no date), the diagram below was constructed. fig31-1. gifReferring to figure 1, the height of the supply curve S represents the marginal private costs of the fish canning factory. In the presence of externalities, the height of the new supply curve S* curve represents the marginal social cost of production which includes the marginal private costs and marginal external costs. The vertical distance between these 2 curves shows the marginal damage, which is the external cost imposed on the diving school. The height of the market demand curve D represents the

marginal benefit people receive from consuming the good. The efficient level of production is Qs, where msc= msb. If polluters do not face the full costs of their pollution, Qp is produced, which results in too much of pollution. Qp is the profit-maximizing competitive equilibrium, while Qs represents the efficient equilibrium. We look at the 2 different scenarios of the ownership of property rights. We see how the outcomes vary as the ownership of property rights changes. The first case we look at is when property rights are owned by the fish canning factory. We assume that the market is initially at Qp, the fish canning factory's desired point. The fish canning factory has the right to pollute the water as much as they want. We take note that the diving school recognizes the source of the pollution and wants to decrease the amount of pollution. If transaction costs are negligible, the diving school will benefit from offering a side payment to the fish canning factory to reduce its output hence the amount of pollution. If the diving school can persuade the fish canning factory to reduce its production from Qp to Qs, the amount of pollution imposed on the diving school will reduce by area bcef, shown in figure 1. In theory, the 2 firms will continue bargaining as long as the payment is greater than the loss in profit which the fish canning factory incurs from reducing production but also smaller than the diving schools' damage. If the fish canning factory reduce production from Qp to Qs, they will lose an amount equal to area beg, therefore the diving school must offer the fish canning factory a payment of at least bef for an agreement to be reached. The diving school will be willing to make an offer of bef since they will make a net gain of bcef – bef = bec, while the fish canning factory will accept an offer of at least bef since they will not be worse off. As a result, the

market will now produce at Qs. Assigning property rights to the fish canning factory will lead to an efficient equilibrium, where the diving school compensates the fish canning factory. We now look at the case when the diving school owns the property rights. The diving school with this right can stop the fish canning factory from polluting the water such that the fish canning factory's level of pollution is 0. Therefore we assume the initial point to be Q0. . Since the fish canning factory would prefer not to shut down, they would offer to pay the diving school to dispose off their wastes into the water as a compensation. Referring to figure 1, if the diving school allows the fish canning factory to produce at Qs, the fish canning factory may gain an amount equal to area ibfh, while the damage to the diving school is only area abfh. Therefore, the fish canning factory will be willing to offer a payment of at most area ibfh, while the diving school will accept a payment of at least area abfh, which is the damage the fish canning factory imposes on them by increasing their production to Qs. The exact outcome depends on the bargaining skills of both parties involved. The fish canning factory will pay the diving school to produce at Qs since the benefits they receive will be greater than the costs incurred by the diving school. The above example clearly explains the Coarse Theorem, we see how the fish canning factory and diving school who have conflicting property rights, bargain with each other and irrespective of which party was initially awarded property rights, the results of the bargain process lead to an efficient outcome, that is Qs, since we assume that property rights were well defined and transaction costs were negligible. This efficient level of outcome results in an efficient level of pollution. Situations like this are ideal, and do not often exist in the real

world. Along with well-defined property rights, some of the other preconditions of the Coase theorem are negligible transaction costs, having perfect competition as well as perfect information and also the absence of the wealth and income effect. The Coase theorem claims that if these conditions are met, the use of resources will be efficient and identical, irrespective of who owns them. (Huppi, no date). Are these conditions realistic in the real world or just in a theoretical sense? Transaction costs are the costs associated with the exchange process, which include the identification costs of parties involved, negotiation costs such as costs of drawing up contracts, and enforcement costs. For the Coase theorem to work, negligible transaction costs are required which is unlikely in the real world since nearly all bargaining processes attracts costs. The zero transaction cost assumption is quite powerful as it assumes away all externalities, imperfect information and social action problems. (Greenwood, 1990) The less valuable the resource, the smaller the transaction costs need to be to influence the outcome. If these costs are non-trivial, parties may not bargain, therefore agreements will not be formed and property rights will not be exchanged, especially if the costs exceed benefits as it would not be optimal to bargain. This prevents the internalising of the externality and results in an inefficient outcome. Hence, the Coase Theorem’s goal of an efficient outcome is rarely achieved in the real world (aw. com, no date) For example an old age home experiencing noise pollution from a nightclub near it, may incur transaction costs by getting a mediator to negotiate with the nightclub and legal costs for drawing up contracts. These costs may be too high for the old age home and thus bargaining process may not take place.

Direct government intervention, example setting trading hours of nightclubs , may likely be used to achieve optimality if it is cheaper than transaction costs. This contradicts Coase's Theorem which states that direct intervention by government is not needed. Coase himself was aware that zero transaction costs was purely hypothetical and wasn't relevant to the real world where transaction costs are always positive and in many cases, quite high. He claimed that his intentions were to highlight some problems with the neoclassical theory's standard assumptions. (Haab, 2006)Perfect competition, a precondition of the Coase theorem, leads to a high degree of efficiency which results in better quality and lower prices of goods. It requires a large number of competitors, homogenous products, perfect information and free entry and exit. These conditions rarely exist in the real world, therefore this may add to the further failure of the Coase Theorem. According to Coase, a world without transaction cost, means a world with perfect competition. He believed that competition in markets will decrease transaction costs if the firm or institution's value is known and constant. However, this isn't the case with transaction costs. (Chen, 2008) Contradiction in the theorem can clearly be seen as having many parties will lead to high transaction costs preventing bargaining, but many parties are required for perfect competition. For example in an area with many fishermen, a tanker company may incur higher transaction costs than if there were fewer fishermen, which will likely prevent bargaining. Coase defends himself by claiming that the zero transaction costs are a proxy for perfect competition. He claims that a monopoly which has zero transaction costs can behave like a perfect competitor, this is because it will try to

maximize its profits and efficiency. Economists such as Nobelist Paul Samuelson find the concept of competitive or efficient monopolies hard to believe. (Huppi, no date)Perfect information is required for the bargaining process, for example, knowing relevant information about competitors and bargainers. In the real world, it is very difficult for each party to know all the relevant information of all the other parties involved so that the outcome of the bargaining process is successful. (Huppi, no date) For example, a tanker company will only know about its own costs and profits and not the fishermen's costs, neither the damage it imposes on their operations, while the fishermen only knows how much damage he suffers from pollution and not the costs of operating the oil tanker. Also, if people don't have perfect information about other parties involved, they may assume that the other parties may not keep to agreements and may continue to take advantage of the situation, hence they need some type of assurance that others will co-operate. For example, referring to the Tragedy Of The Commons(Hardin, 1968), herdsman don't have perfect information about the other herdsmen and so each herdsman sharing the commons tries to maximise their own gain by adding more cattle once social stability is reached which eventually cause negative externalities such as overgrazing and soil erosion which leads to pollution of water. The above examples show that Coase's assumption of perfect information is unrealistic. Having perfect information allows for the elimination of transaction costs, since having perfect information is unlikely in the real world, transaction costs will surface in most cases which indicates a failure of Coase theorem in the real world. (Greenwood, 1990). The wealth effect refers to the change in wealth as the

initial distribution of property rights changes, since this will change the society’s overall supply and demand. Although the overall wealth effect remains the same, the initial distribution changes the profit outcome of the firms involved and thus having property is the favourable condition since the owner of the property rights will be the party who receives compensation as we have seen with the diving school and fish canning factory example. Coase neglects the wealth effect. He argued that an overall wealth effect should not result. (Greenwood, 1990). Coasians argue that although the outcomes may not be identical, they will still be equally efficient. A problem occurs when costs incurred by the party with no property rights are passed down to the third party and not the polluter by increasing their prices, resulting in the externality not being internalised. This outcome is not efficient and the Coase Theorem has not resolved the problem. (Huppi, no date) Assigning of property rights to a party may also allow them to take advantage of the situation. The Coase Theorem ignores the possibility that the outcome of the bargaining process may create wealth for the party who owns the property right. If people have the right to clean air, any income they receive from selling this right, may increase their demand for clean air, since this will increase their income. Similarly, profits received by a polluter from selling pollution rights may be an incentive for them to increase demand for emissions. The final outcome will be dependent on who receives the initial property rights. (Haab, 2006) If entry into the industry is not restricted, assigning property rights to the firm which results in profits from the sale of property rights may attract opportunists such as other polluting firms to enter the market. Likewise, the bargaining process which may create wealth

for the victim who is assigned property rights, may attract new victims to take advantage over the opportunity. For example, people may make sacrifices and move into a polluted area if they can gain wealth through the sale of property rights. (Haab, 2006). Once people own property rights, they will expect a higher price for the same right for which they would want to pay less. There is a lot of criticism surrounding the Coase Theorem. Making reference to the Tragedy Of The Commons (Hardin, 1968). When resources are shared by a group of people or communities, some individuals will try to bend the rules for selfish gains at the expense of others. This behaviour might spread to many more individuals. In the case of common property, property rights are inadequate leading to negative externalities such as over-exploitation which leads to pollution, and an inefficient outcome. Each user of the common property can be seen as a polluter and also the individual who is benefiting. (Gangadharan and Maitra, no date) According to The Wealth of Nations (Smith, 1776) an individual who is acting in his own best interest will be guided by the invisible hand resulting in him making the best decision for the entire society. The article on The Tragedy Of The Commons shows how individuals maximise the use of resources for their own personal gain until these scarce resources are depleted or damaged. This can be seen in herdsmen who add more cattle once they know that the social optimum level is reached resulting in overgrazing, therefore negative externalities. (Hardin, 1968) These negative externalities lead to inefficient outcomes. Since one of the preconditions of the Coase Theorem is having many competitors for perfect competition, many competitors may lead to exploitation of the common. According to the Coase Theorem, the assigning

of property rights to either party involved will lead to an efficient outcome resulting in Qs as shown in figure 1. In the real world, in the case of common property, where there exists an incentive to overuse resources as shown in the Tragedy of Commons article, the community may produce at an output level beyond Qs. (Hardin, 1968) This results in short term benefits for the individuals who exploit resources while the negative effects are long term and affect society. This output level beyond Qs is not efficient. Coase theorem fails when the property rights are irrelevant to the environmental problem. (Huppi, no date) An example: population explosion in an area which does not have the infrastructure to meet its needs. The article on the Tragedy Of The Commons highlights how most of our environmental problems stem from the population growth problem which places an increasing demand on our environments scarce resources. Advancements in science and technology has lead to an increase in the land’s carrying capacity which has reduced many problems dealing with scarcity. (Huppi, no date) Improving property rights will not make much of a difference. The increasing population also causes a pollution problem as it causes an overload in the recycling process, this may require a redefinition of property rights. (Hardin, 1968)Some resources cannot be demarcated or divided into private property (Huppi, no date) for example, water and air cannot be contained in any private property, it doesn’t meet one of the most important criteria of the Coase theorem as a result, nothing would be able to stop factories and other industries from polluting air even further. Different forms of prevention need to be used such as taxing and coercive laws. This contradicts Coases Theorem which says that direct intervention by

government is not needed. (Perloff, 2009)Another problem with the Coase theorem is caused by mobility of resources within a property (Huppi, no date), for example fish in the ocean. Since fish are always swimming around and migrate during the year, dividing the ocean into parts for different companies in the fishing industry and for conservation will not prevent some companies from over-fishing as they are aware that there is no restriction placed on them. The only solution to preventing violation of fishing agreements is to monopolise the sea, which goes against the Coases theorem condition of perfect competition. A further flaw arises when the polluter is the owner of the property, for example, a farmer overgrazing cattle or using pesticides will finally damage his land and his profits will be short term and also developers and timber companies destroying natural habitats and other industries which gain profit from destroying the environment. Problems arise as profits benefit individuals but society face the long term negative effects. If the fish canning factory owns the diving school, it can financially come to a " self agreement", which is outlined in the Coase theorem, with the diving school so that it can continue with its level of pollution. This pollution is not confined to the owner’s property as air, water and land pollution travels over a vast area damaging ecosystems and adversely affecting other industries. Environmental degradation by these owners shows how Coase theorem fails even if its conditions are met. Government and other institutions are somewhat more equipped to help avoid this sort of destruction. (Huppi, no date). Some of the other criticisms of Coases theorem include the fact that we aren’t able to identify as many bargains in the real world as we should be, according to Pearce and Turner

(1989). The real world with its greater population and advancements in technology is more complicated than what Coase portrays it to be. The Coase theorem may not be well established in the real world. We also see how identifying the parties involved isn’t always easy (Pearce and Turner, 1989) Many sufferers aren’t aware that the air which they breathe is polluted and even if they are, they may not be able to identify polluters, for example drivers stuck in traffic congestions near an industrial area on a daily basis. Pollution and other externalities which are created today may affect the future generation. In general individuals will not take a stand for the future generation and thus government and voluntary organisations such as Greenpeace intervention may be needed, contradicting Coase. For example, global warming, as a result of emissions of harmful gases today are imposing a negative externality on future generations. Another flaw occurs when economic activity from threat-making is created as a result of a bargaining solution. (Pearce and Turner, 1989) For example, if the diving school from the example above compensates the fish canning factory, this may cause other fisheries to demand compensation as well. People may take advantage of the agreements to receive compensation. In conclusion it is evident that the Coase Theorem is more successful in theory than in practice as its success is based on zero transaction costs and well-defined and enforceable property rights which rarely exist in the real world. It suffers from too many flaws to be considered as a solution to the pollution problems and or a serious proposal for the environmental policy. Inefficiencies of the Coase theorem are also illustrated by the tragedy of commons as it points out that market failures such as overexploitation, pollution and other negative

externalities result. The Coase Theorem when formulated could have been more successful at that time when economic conditions were more favourable. These conditions have changed over the decades. Direct government intervention in the form of regulations, emission fees and taxes is currently being used as a partial solution to the pollution problem.