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How to Create an Externality

Abstract
Claim-makers/social entrepreneurs increase the likelihood that something becomes an externality by creating typical examples that quickly convey the nature of the externality, publicising stories about villains causing extreme harm to innocent victims and expressing social approval for their supporters and disapproval of their opponents. Unfortunately, simple typical examples tend to create simplistic views about various externalities, horror stories tend to invoke fight or flight responses which raises transactions costs and increases the difficulty of internalising externalities, and seeking social approval may discourage opponents from expressing disagreement so that uninformed people will assume that a false externality is true because there is little or no dissent.

Keywords
Externalities, Pareto optimality, political processes

Cover Page Footnote
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1. Introduction

> An externality is defined as potentially relevant when the activity, to the extent that it is actually performed, generates any desire on the part of the externally benefited (damaged) party (*A*) to modify the behavior of the party empowered to take action (*B*) through trade, persuasion, compromise, agreement, convention, collective action etc. An externality which, to the extent that it is performed, exerts no such influence is defined as irrelevant (Buchanan and Stubblebine, 1962, pp. 373-374).

As stated above by Nobel prize-winning economist James Buchanan and his coauthor Wm. Craig Stubblebine, an externality is irrelevant when *A*'s happiness or utility is not affected by an activity performed by *B*. Adam Smith (1790) in the *Theory of Moral Sentiments* tells of an earthquake that kills the inhabitants of China. Smith argues that even a humane man in Europe who had no connection to the people in China after expressing his sorrow for their loss would go on with his activities with an ease and tranquility as if nothing had happened. But if the man were to lose his little finger tomorrow, then he would not sleep tonight. Smith argues that this makes sense because if the man is not able to help these people, his sympathy only serves to depress him with no advantage to them. On the other hand, Smith states that: "When the happiness or misery of others depends in any respect upon our conduct, we dare not, as self-love might suggest to us, prefer the interest of one to that of many" (Smith III.I.47).

Assume *B* generates an externality which damages *A*. *C* is a potential observer who is not directly affected by *B*'s activities. Smith states that if *C* is not capable of affecting the externality then nature has blessedly endowed him with the ability to easily ignore *A*'s plight. His utility is not affected by *A*'s plight and the externality is irrelevant to him. However, if *C* feels that *A*'s happiness or misery depends on his conduct then his utility is likely to be affected and there is a potential externality to *C*.[1]

Collective action is usually required to affect the amount of an externality. Since any single person usually doesn't have much effect and becoming informed is costly, party *C* has very little incentive to become informed and will be rationally ignorant (Kuran and Sunstein, 1999). However, there are some people who feel that they can overcome the obstacles to collective action because of their resources, social circumstances, or skills. Kuran and Sunstein (1999) call these

[1] Since *B* generated the potential negative externality, *B* probably can help reduce the externality. If *B*'s utility is affected when he damages party *A* then there is also a potential externality to *B*.

people "availability entrepreneurs" and Best (1989) calls them "claim-makers." In this article, the term claim-makers will be used.

Claim-makers are people who try to persuade others that something is an externality. Claim-makers may be social movement activists, representatives of companies, scientists, members of the mass media, politicians, teachers, or anyone who has a bumper sticker, signs petitions or in conversation supports a cause (Best, 1989).

As Buchanan and Stubblebine (1962) point out, an externality is potentially relevant when that activity generates a desire on the part of the externally benefitted or damaged parties (*A* and *C*) to modify the behavior of party *B* through trade, persuasion, compromise, agreement, social norms, laws, collective action, etc. An irrelevant externality exists when there is no desire to modify the behavior of the other party.[2] Note that an externality remains as long as utility functions remain interdependent.

To persuade people that an externality is relevant requires three things. First, people have to be informed about the externality. This is especially true for *C* who is not directly affected. Second, for potential negative externalities, people must evaluate the spillover costs negatively and for positive externalities, people must evaluate the spillover benefits positively. If there is no negative evaluation there is no negative externality. Third, people must view the spillover costs or spillover benefits as relatively important and something they can affect. If the attributes of the externality are not important then the externality is not relevant.

These three attributes imply that claim-makers make an externality relevant by informing people about the externality and persuading them to evaluate the situation as important and worth affecting. This article also discusses methods claim-makers use to affect people's evaluations of the significance of the externality. People's evaluations also affect their perceptions of the optimal output.

Section 2 develops a model that explains how people judge which potential externalities are relevant. Section 3 discusses how people evaluate and how those evaluations affect potential externalities. Section 4 discusses how information affects externalities and Section 5 discusses how people's perceptions about the

[2] Rather than modify the behavior of *B*, *A* may choose to mitigate the effects of a negative externality. In the case of positive externalities, *A* may quietly accept the beneficial externality or use trade, persuasion, compromise, agreement etc. to seek additional rewards.

importance of different attributes affect externalities. Attributes are especially likely to be viewed as important if people are concerned that there is a danger to themselves or family.

2. A Model of People's Perceptions of Economic Externalities

Buchanan and Stubblebine (1962) define an externality to be present when

(1) $$u^A = u^A(X_1, X_2, \ldots, X_m, Y_1).$$

Equation (1) states that the utility of individual *A* is dependent upon activities $(X_1, X_2, \ldots, X_m)$ that *A* controls or has authority over and also upon activity Y_1, which a second individual *B* controls or has authority over. For simplicity, assume that a single activity, Y_1, affects *A*'s utility. Also, assume that *A* maximises his utility subject to the externally determined values for Y_1 and that as Y_1 changes he maintains equilibrium by modifying the values for the *X*s.

As shown in Equation (2), the utility of individual *C* is also dependent upon activities $(X_1, X_2, \ldots, X_m)$ that she controls or has authority over and also upon activity Y_1, which individual *B* controls or has authority over.

(2) $$u^C = u^A(X_1, X_2, \ldots, X_m, Y_1).$$

Let *MEC* measure the marginal external cost for individuals *A* and *C* when there is a negative externality and let *MEB* measure the marginal external benefit to individuals *A* and *C* when there is a positive externality. An infra-marginal positive externality exists when the total effect of Y_1 has increased *A*'s and *C*'s utility; however, incremental changes in Y_1 have no effect on their utility. Similarly, there is an infra-marginal negative externality when the total effect of Y_1 reduces *A*'s and *C*'s utility; however, incremental changes in Y_1 have no effect on their utility.

Figure 1 illustrates a negative externality. On the vertical axis is the price ($P(Y_1)$) and on the horizontal axis is Y_1. For simplicity, assume that the marginal cost (*MC*) is constant. D_B represents *B*'s demand for Y_1. The marginal social cost (*MSC*) is the vertical summation of *MC* and the *MEC*. When the marginal external cost is MEC_1, Y_1 only creates a relevant marginal negative externality when $Y_1 > Q_1$. When $Y_1 < Q_1$, there is an infra-marginal negative externality. When *MC* is the cost of an additional unit of Y_1, the efficient output is Q_0 where there is an infra-marginal negative externality. MEC_2 shows a much greater negative external cost. In this case, the negative externality is always relevant.

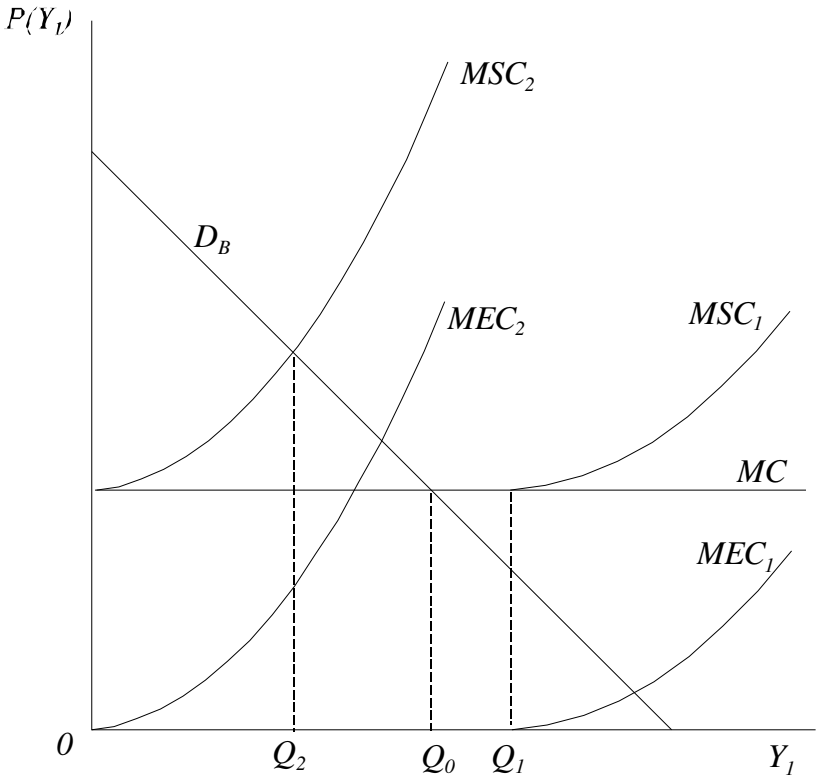

Figure 1
Marginal External Cost from Y_1

When the external cost is MEC_2, the efficient output is where $MSC_2=D_B$ and output is Q_2.

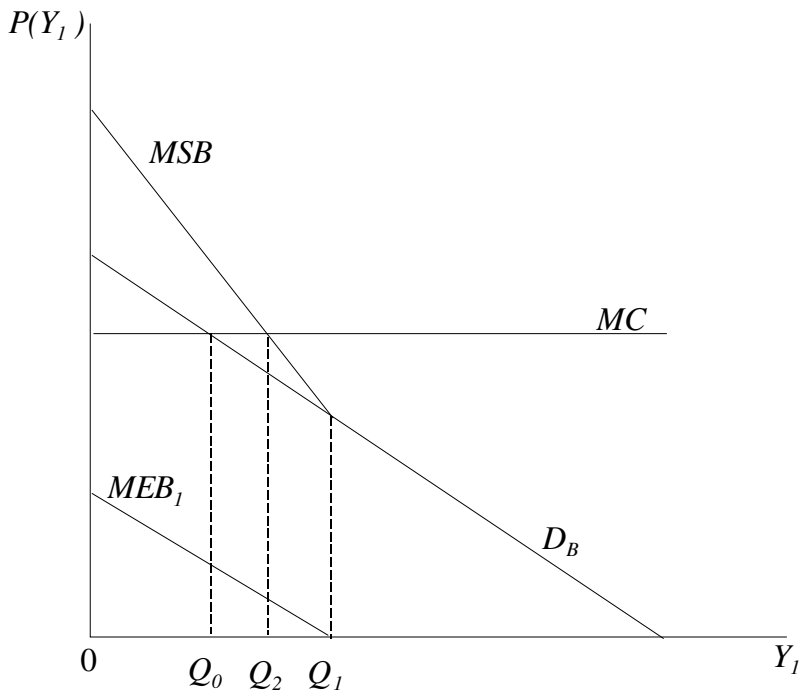

Figure 2
The marginal external benefit from Y_1

Figure 2 illustrates a positive externality. On the vertical axis is the price ($P(Y_1)$) and on the horizontal axis is Y_1. MC is the cost of an additional unit of Y_1. D_B represents B's demand for Y_1. MEB_1 represents A's marginal external benefit from B's consumption of good Y_1 and MSB represents the marginal social benefit, which is the vertical summation of MEB_1 and the D_B. Y_1 only creates a relevant externality to A and C between 0 and Q_1. Beyond Q_1, Y_1 creates an infra-marginal externality. Q_0 is the amount of Y_1 that individual B chooses to consume. The optimal amount is where $MSB=MC$ at Q_2.

Y_1^B is the amount of activity *1* that B engages in that generates a potential externality to A and C where $Y_1^B \geq 0$. When A and C evaluate Y_1^B, they must have a standard of comparison (S_1^B) where S_1^B is each person's standard of comparison or benchmark state. $(-)(Y_1^B - S_1^B)$ is A's and C's evaluation of Y_1^B. $S_1^B \geq 0$. The (-) sign is for externalities such as pollution where pollution creates a negative externality only when emissions, Y_1^B, are above some standard of comparison, S_1^B. The sign is positive for externalities such as poverty where poverty creates a negative externality only when income, Y_1^B, is below the poverty line, S_1^B.

In Equation 3, Y_1 measures the strength of *A*'s and *C*'s evaluation of how much Y_1^B affects them. Y_1 depends on (1) each person's comparison of their current situation (Y_1^B) with their benchmark state (S_1^B), i.e. $(-)(Y_1^B - S_1^B)$; (2) how informed (I_1^B) they are about Y_1^B; and (3) how important (w_1^B) they believe Y_1^B is.[3] I_1^B measures how informed each person is about Y_1^B and w_1^B is a weight that measures how important each person believes Y_1^B is.

(3) $$Y_1 = I_1^B w_1^B [(-)(Y_1^B - S_1^B)].$$

When potential externality Y_1 has more than one attribute, then equation 3 becomes:

(4) $$Y_1 = \sum_{j=1}^{n} I_{1j}^B w_{1j}^B \left[(-)\left(Y_{1j}^B - S_{1j}^B\right)\right].$$

$(-)(Y_{1j}^B - S_{1j}^B)$ is *A*'s evaluation of Y_1 with respect to characteristic *j*, I_{1j}^B measures how informed *A* is about Y_1 with respect to characteristic *j*, and w_{1j}^B is a weight that measures how important *A* believes Y_1 is with respect to characteristic *j*.

As mentioned above, equations (3) and (4), show that *A*'s and *C*'s evaluation of whether Y_1 is an externality depends on 1) their evaluation ($(-)(Y_{1j}^B - S_{1j}^B)$), 2) how informed they are (I_{1j}^B), and 3) how important (w_{1j}^B) they believe each attribute is. The remainder of this paper focuses on each of these three attributes.

3. How Evaluation Affects Externalities

An externality is more likely when there are higher standards (S_1^B). Courts in the 19th century had much higher standards of cleanliness for "old" industries such as soap, candles, and animal rendering than for "new" industries such as metal working, steam engines, and chemicals (Rosen, 2003). In the "old" industries, courts focused on the negative consequences of pollution on people's health while the focus in the "new" industries was on the economic growth generated by the industries and how that growth would be reduced if greater regulations were imposed. Over time, claim-makers persuaded the courts and the community that

[3] This is similar to Mundt and Houston's (2010) "determinancy", which is the ability to discern an externality, determine its characteristics and evaluate the characteristics.

the "new" industries should also be required to have higher standards of air quality.[4]

To illustrate the difference between the "old" and "new" industries in Figure 1, let MSC_2 represent the "old" industries and let MSC_1 represent the "new" industries. In the "new" industries there is an infra-marginal negative externality so the optimal output is Q_0, but in the "old" industries the external costs are viewed as much higher so the optimal output is Q_2. When people and the courts were persuaded that the discharge from the "new" industries was also dangerous, the marginal social cost increased and the optimal amount decreased.

The higher standards in the "old" vs. "new" industries were based on the ability to present or "frame" issues in different ways. Tversky and Kahneman (1981) found that when they told patients that 90 per cent of patients treated 5 years ago are still alive today, patients were more eager for a treatment than when it was framed as 10 per cent have died.

The framing effect is based on benchmarks. If public discourse codes pollution as a loss relative to a benchmark pristine state, then loss aversion comes into play. If public discourse codes pollution as having improved relative to a previous dirtier benchmark or other less pristine state, then pollution is evaluated less negatively and people are less likely to view pollution as a problem. Likewise, the likelihood of getting people to view Y_1 as an externality increases when victims are framed as morally superior people, who have major harm done to them through no fault of their own (Batson, 1998). On the other hand, the likelihood of getting people to view Y_1 as an externality decreases when victims are framed as bad people who brought minor harm on themselves.

A crucial part of evaluation is property rights. Property rights help form expectations of what people can reasonably expect when they deal with others (Demsetz, 1967). If *B* owns a property right, he possesses the consent of others to allow him to act in certain ways. *B* also expects the "community" to prevent people from interfering with his actions assuming his actions are not prohibited in the specification of his rights. These expectations are expressed in the laws, customs, ethics, and attitudes of a society.

In fact, every cost and benefit associated with social interdependencies is a potential externality (Demsetz, 1967). Externalities exist when some costs and

[4] "Old" vs. "new" industries may also apply to developing countries that may be willing to have more pollution to have faster economic growth.

benefits are not taken into account by users of resources. This is the case in Figure 1 when there are relevant marginal external costs that are not being taken into account or in Figure 2 when there are relevant marginal benefits that are not taken into account.

Getting people to take into account these external benefits or external costs is the process of "internalisation." When individuals *A* and *B* take into account all of the costs and benefits, output will be at the optimal amount. For example, in Figure 1, when all of the costs are internalised, the output will be at the optimal output Q_2 and in Figure 2, when all of the benefits are internalised, the output will also be Q_2. The main reason externalities are not internalised is because it is too costly to define and enforce private property rights (Coase, 1960 and Demsetz, 1967).

4. How Information Affects Externalities

What is optimal depends on the information that people have (I_{1j}^{B}).[5] If people are aware of the hazardous waste in certain sites but not in others, then it is optimal to have greater cleanup in the publicised sites. In the case of redistribution, Horowitz (2002) found that if the non-poor were not aware of the plight of the poor then redistribution was not a public good.

However, an externality may exist even when people are not informed, such as when a pollutant reduces a person's health. Suppose people are not aware that *A* is being injured by the pollution generated by *B*. In Figure 1, assume MEC_2 measures the actual amount of damage. If there is full knowledge, the optimal output is Q_2. However, since people are not aware of the externality, they don't believe that it is optimal to do anything about it. In the extreme, a pollutant may kill millions of people; there is an externality but until people become informed, they also believe that it is not optimal to do anything about it.

The information does not have to be truthful. Suppose a fraudulent charity encourages people to help starving children. After collecting donations, the charity has professional actors pose in "before and after" photos showing the great benefits produced by the donations, and distributes the photos to the donors.

If Pareto optimality is judged based on the information people had, then this fraud would be optimal: the givers benefit, the charity becomes rich, and the real

[5] More informed people are also more likely to be aware of externality Y_1 (Zaller, 1992).

starving children are not hurt.[6] When people's knowledge is wrong or they are not informed, Pareto optimality can lead to policies that the same people would not support if they were better informed. In other words, when people don't understand the relevant consequences or alternatives, Pareto optimality can lead to policies that are not "optimal."[7]

This problem would be reduced if what is optimal and what is an externality depends on what people would choose if they were fully informed. However, because of rational voter ignorance people will never be well informed so we can't know what people would want if they were well informed. On the other hand, Caplan (2003) argues that even if voters were well informed, voters may choose to be irrational especially when being irrational is privately costless. This means that even when they are better informed, voters may not choose policies that make society better off.

How informed someone is also depends on how easily something can be brought to mind. The more easily attributes can be recalled, the larger I_{1j}^{B}. How easily something can be brought to mind or recalled is called the availability heuristic (Tversky and Kahneman, 1981). The availability heuristic helps to economise on information but also causes people to underestimate the likelihood of risks that are not well publicised. To make information easier to recall, claim-makers often simplify and create "typical" examples (Best, 1989). This is called typification. This typification creates an image that quickly conveys the nature of the problem. Since reality is complex, claim-makers and the media use typification to communicate more information in a short amount of time.[8]

Also, because of information costs, people may base their view of whether Y_1 is an externality on whether other people seem to think it is (Kuran and Sunstein, 1999).[9] If A_1, A_2, and A_3 seem to believe Y_1 is an externality, then A_4 might change her belief since it is unlikely that the first three individuals are all wrong.

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[6] This story is commonly attributed to Gordon Tullock.

[7] However, seemingly irrational policies may be rational. For example, parents often go through various rituals such as chasing the "boogeyman" away to reduce the fears of their children. These rituals may be more efficient than taking time to teach the children that their fears are not based on reality.

[8] Unfortunately, typification can also create an over-simplified and preconceived view of the characteristics that typify a problem, which is known as stereotyping.

[9] People are more likely to believe those who they view as credible than those they don't find credible. If people believe government scientists, then the statements of the scientists will carry more weight. Others may discount the statements of the scientists because they view the scientists as having an incentive to over-regulate (Kuran and Sunstein, 1999).

Since people are often rationally ignorant and their judgments are often based on little information, judgments can be fragile. If one of A_1, A_2, and A_3 state that they disbelieve that Y_1 is an externality, then A_4 may also decide that it is not an externality. If A_1, A_2, and A_3 seem not to believe that Y_1 is an externality, then A_4 is also not likely to believe.

5. How People's Perception of an Attribute's Importance Affects Externalities

Claim-makers can increase the likelihood that Y_1 becomes an externality by publicising stories about villains causing extreme harm to innocent victims and implying that something should be done (Best, 1989).[10] These stories stress how low Y_{1j}^{B} is relative to S_{1j}^{B}, improve people's ability to recall information that increases I_{1j}^{B}, and stress danger, which increases w_{1j}^{B}.

These stories often foster hatred for the villain (Glaeser, 2005). According to Baumeister (1995), hatred comes from seeing oneself under attack. Hatred is encouraged when *A* receives "evidence" that *B* or some other villain may harm him or someone he cares about (Glaeser, 2005). These stories make *A* feel like he is in danger.[11] Because of the fight or flight response, *A* has an incentive to weaken or avoid the villain. Unfortunately, weakening or avoiding the "villain" raises transactions costs, which makes it more difficult to internalise the externality.

Glaeser (2005) argues that politicians fostered hatred of an "out-group" by recounting stories of atrocities committed by members of the "out-group." For example, in the postbellum South, hate was fostered by sensational stories of Negro atrocities against whites (Glaeser, 2005 and Woodward, 2002). On the other hand, the civil rights movement was able to reduce hatred towards blacks by publicising stories of the injustices committed by bigoted whites.

[10] Villains can be social structures, social forces, individuals, medical problems, and environmental risks. Social structures include capitalism, communism, the educational system, family, the church, or government. Social forces include racism, sexism, ethnic cleansing, and liberalism or conservatism. Individuals include sex offenders, wife abusers and drug pushers. Medical problems include disease, alcoholism, and learning disabilities, and environmental risks include pollution, earthquakes, and lightning.

[11] These stories are also often used to support positive externalities such as the dangers from disease to support public health.

Wildavsky (1995) illustrates how stories increase the likelihood that Y_1 becomes an externality. After studying aminotriazole on cranberries, dieldrin, saccharin, PCBs, DDT, dioxin, Love Canal, Superfund sites, alar on apples, arsenic in drinking water, and acid rain, Wildavsky (1995) wrote:

> The pattern - as we have painstakingly described in this book - is distressingly familiar. A study or observation spurs scare stories... Horror struck reporters and citizens demand stringent regulation of the chemical. Later on, articles containing criticisms of the original studies appear in scientific journals; the original authors retreat a bit but not much. New studies are undertaken, and the original charges are rebutted or the results are seen to be inconclusive. But the new studies do not keep pace with the publicity. The chemical has acquired a bad reputation. The chemical company becomes involved in costly lawsuits, while its product is likely to be withdrawn from the market. Production stops, lives are disrupted. There are no observable public health benefits, yet a victory for public health and the natural environment is declared (Wildavsky, 1995, page 430).

Wildavsky (1995) argues that scientific evidence shows that for each of these chemicals there is only a negative infra-marginal externality or at most a minor negative externality. In Figure 1, Wildavsky's (1995) position can be represented by MSC_1 where there is an infra-marginal externality. The "Horror struck reporters and citizens," such as A, believe that the chemicals are very dangerous and that the marginal social cost is much greater than MSC_1 such as MSC_2. A believes the optimal output is Q_2. If people believe that a situation is true, which in reality is fictitious, then it can create a negative externality.[12]

Repetition of stories also improves people's ability to recall information, which increases I_{1j}^{B}. After controlling for risk, Viscusi and Hamilton (1999) found that for hazardous waste cleanup, the more times a chemical was mentioned in the popular press, the more stringent the cleanup required by the Environmental Protection Agency (EPA) even though there may be other even more hazardous wastes at other sites.

[12] Fictitious stories that people believed to be true are illustrated by Washington Post reporter Janet Cooke who won the Pulitzer Prize in 1981 for a story about a 7- or 8-year-old inner-city heroin addict that was later shown to be false (Harwood, 1998), CNN producer April Oliver who aired a false story about the U.S. military using nerve gas in Laos (Sisk, 1998), and Michael J. Gartner who acknowledged that NBC rigged a General Motors truck to explode for a "Dateline NBC" report on how truck gas tanks can blow up in accidents (Harwood, 1998). An extreme example may be H. G. Wells' *War of the Worlds* (1938) where thousands of people believed that the world was being invaded by Martians.

w_{1j}^{B} is also affected by social approval. People are more likely to publically support Y_1 as an externality when they receive social approval and people are less likely to support Y_1 as an externality when they receive social disapproval (Kuran and Sunstein, 1999). Solomon Asch (1955) in a classic study on conformity asked students to judge which of three lines were equal in length to a standard line. When the students were by themselves, they had no problem evaluating which lines had the same length. However, when confederates of the experimenter unanimously expressed incorrect answers, many students publicly agreed with the group even when they knew that the group was wrong. When the number of unanimous confederates was varied, the percentage of people agreeing with obviously false answers reached its maximum when approximately five unanimous confederates were present.

Suppose that individuals A_1, A_2, A_3, A_4, and A_5 say publically that they believe that Y_1 is an externality but that A_6 does not believe or at least is not convinced. To gain social approval and to avoid public censure, A_6 might choose to agree with something that she does not believe or at least choose not to disagree publically. Now when A_7 comes into the group, he sees six people who seem to feel that Y_1 is an externality with no dissent. A_7 is also more likely to accept that Y_1 is an externality. If A_6 had information that Y_1 was not an externality and spoke up saying so, then A_7 would also be less likely to accept that Y_1 was an externality. If A_1, A_2, A_3, A_4, and A_5 are perceived as authority figures, then A_6 and A_7 may be especially likely to believe or remain silent (Milgram, 1963).

Claim-makers can use social approval to advance their agendas by expressing approval for their supporters and by expressing disapproval of their opponents. They can try to elevate the status of their supporters by calling them altruistic, virtuous or experts in the area and shaming their opponents by calling them selfish, vicious, uncaring, and ignorant (Kuran and Sunstein, 1999).

Kuran and Sunstein (1999) argued that if people expect that there is a possibility to be pressured in the future, they may not speak their minds. This is a form of insurance. An official who believes that a spill is not dangerous may state otherwise to avoid shame from environmentalists if the spill is later perceived as dangerous. If the spill is later shown not to be dangerous, the official gives up the possibility of being first to diagnose the situation correctly.

w_{1j}^{B} is also affected by people's underlying values. A person who values individual freedom also tends to fear regulation, a person who values hierarchy tends to fear social deviance, and a person who values equality tends to fear inequality, discrimination, and poverty (Douglas and Wildavsky, 1982). Claim-

makers can increase the likelihood that Y_1 is an externality by appealing to people's values.

People's evaluations, information and weights are also likely to be affected by the groups they are in. Sunstein (2009) notes that when people meet with like-minded people, the group's opinions become more polarised. For example, suppose A_1, A_2, and A_3 are liberal and A_4, A_5, and A_6 are conservative. If the liberals are grouped together and are surveyed before and after they discuss public policies, the opinions expressed privately after the discussion are likely to be more liberal than before the discussion. Likewise, if the conservatives are grouped together and surveyed before and after they discuss the same public policies, the opinions expressed privately after the discussion are likely to be more conservative than before. Claim-makers increase the likelihood that Y_1 is an externality by creating groups where people who hold unfavorable views are excluded so that only people who hold marginally favorable views or above remain. Then discussions are likely to polarise the discussion in favor of the externality.

6. Summary and Conclusion

Whether something is perceived as an externality depends on people's evaluations. A crucial part of evaluation is property rights. Property rights help form expectations of what people can reasonably expect when they deal with others (Demsetz, 1967). When potential polluters own a property right, they possess the consent of others to allow them to act in certain ways. The potential polluters also expect the "community" to prevent people from interfering with their actions, assuming their actions are not prohibited in the specification of their rights. These expectations are expressed in the laws, customs, ethics, and attitudes of a society. Externalities exist when some costs and benefits are not taken into account by users of resources. Getting people to take into account these external benefits or external costs is the process of "internalisation."

Claim-makers increase the likelihood that something becomes perceived as an externality by creating typical examples that quickly convey the nature of the externality, framing and publicising stories about villains causing extreme harm to innocent victims and implying that something should be done, and using social approval to advance their agendas by expressing approval for their supporters and by expressing disapproval of their opponents. Unfortunately, simple typical examples tend to create simplistic views about various externalities, horror stories tend to invoke fight or flight responses that raise transaction costs and increase the difficulty of internalising externalities, and seeking social approval may discourage opponents from expressing disagreement so that uninformed people

will assume that a false externality is true because there is little or no dissent. In other words, claim-makers attempts to increase the likelihood that something is perceived as an externality often reduces society's options and abilities to deal with the externality.

What people consider optimal depends on the information they possess. Unfortunately, when people's knowledge is wrong or they are not informed, Pareto optimality can lead to policies that the same people would not support if they were better informed. This implies that policymakers would choose better policies if they evaluated policies based on what people would choose if they were fully informed. However, because of rational voter ignorance people will never be well informed, so we can't know what people would want if they were well informed. And even if voters were well informed, voters may choose to be irrational, especially when being irrational is privately costless, which means even better informed voters may not choose policies that benefit society (Caplan, 2003).

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