

Process Values, Perverse Information Impacts and Implications for Animal Products

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Abstract: Conventional wisdom holds that process is irrelevant to the demand function for a good if it cannot be observed in the final good's characteristics. Organizations promoting trade even promulgate regulations requiring that process information be thrown out as tariffs or barriers to trade. It is argued here that even if end products are physically identical, process is a relevant dimension of goods that can have a major impact on the demand function, particularly process elements related to the ethical dimensions of production.

Given the relevance of process, some interesting information economics implications are explored. In particular, there is the potential for perverse outcomes where increasing the information set of consumers decreases their utility. The proper valuation of this information is explored.

Implications of process values and its information implications are explored, particularly regarding animal products and the environment. It is concluded that institutional barriers currently provide consumers with insufficient process information. For markets to function optimally, additional information should be provided to consumers.

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Introduction

In general, economists assume the relevant attributes of a consumer product to be either directly or indirectly observable upon consumption or at the very least to be related to the effect of consumption on the consumer. Aspects of the production process that are not observable in the attributes of the final product are assumed to be irrelevant to demand. Although economists typically do not explicitly state that production process factors are *not* part of the relevant attributes of a good, this assumption is often implicitly made by exclusion when economists state what dimensions of a good *are* relevant . For example, when describing what qualities affect consumer demand for food products, Caswell and Mojduszka (1996) describe product quality as "a bundle of characteristics (attributes) that determine the product's performance". The authors are not alone: they draw their approach from a text on consumer demand (Lancaster, 1971). When discussing the validity of the contingent valuation methodology, multiple arguments are made in Hausman (1993) that ethical dimensions of value (which it is argued here make up many

if not most process attributes) should be excluded from total value (in part because they are dependent on the information set).

The one place rules regarding the relevance of process have been made very explicit is in trade organizations such as the WTO, NAFTA, and GATT. Rules within these organizations explicitly state that only final product attributes are relevant and production process is irrelevant. According to WTO rules, mandatory labeling for process and production method information is not legitimate unless it is related to product safety (Hobbs, et al., 2002). Conclusions of these trade organizations excluding ethical considerations and other process-related attributes have far reaching implications.

The discourse of the debate in the United States over both recombinant bovine growth hormone (rBGH) and genetically modified (GM) foods also implies an assumption that ethics and other process attributes unrelated to safety or final good characteristics is irrelevant. In the debate over rBGH, although there were legitimate animal welfare concerns and other ethical concerns at stake with the use of the technology, opponents of the technology focused on food safety, and the technology's proponents argued that labeling products would imply a safety hazard to the public that did not in reality exist (Buttel, 2000). Thus, the validity of labeling for non-safety issues appeared to have been pushed aside. GM foods also present possible environmental and moral issues aside from any safety issues (Giannakas and Fulton, 2002). Yet nevertheless, the debate regarding GM food labeling again focused on whether food safety concerns were scientifically legitimate (Scandizzo, 2002), thus once again marginalizing any ethical and environmental concerns. Interestingly, despite the lack of mandatory labeling or restriction as a final resolution in the United States, the majority of the American public was found to be opposed to the use of both rBGH and GM foods (Buttel, 2000 and Giannakas and Fulton, 2002). There is also strong evidence that the public is largely ignorant of the extent of the technology use, with only 43% of people in recent surveys even knowing that genetically modified food was available in U.S. supermarkets (Scandizzo, 2002).

The relevance of process to specific goods has been discussed before, primarily within the context of analyzing the policies of international trade organizations. Hobbs et al (2002) discusses animal welfare regulations in relation to the WTO. Gasiford et al (2001) acknowledges that product attributes that are ethical rather than utilitarian in nature have become more important lately. However, the concept of production process attributes embedded in goods as a general construct and the important implications this has on demand dynamics and public policy within a country has not been previously addressed. It will be argued here that such process-related attributes are relevant. Furthermore, these process-related attributes are particularly important for assessing ethical dimensions of goods such as environmental impacts of production and the level of animal exploitation in the production process. Both environmental issues and animal issues will be discussed here, with particular attention given to animal exploitation-related issues.

The remainder of this paper will be organized into three sections. The first section will go into more detail regarding the relevance of process attributes of goods. The second section will discuss some unusual properties of process attributes of goods, particularly relating to the

sensitivity of these attributes to information. The third section will then discuss public policy implications with particular attention paid to animal exploitation and environmental issues.

The Relevance of Process Attributes of Goods

It is proposed here that a product be thought of as a bundle of attributes embedded in the good and relevant to the purchaser. These attributes may either be related to product performance, or may be related to the process of production/distribution of that good. The key test for whether an attribute is relevant is whether it would affect demand in a perfect information environment (the importance of the perfect information assumption will be discussed further in the next section). "Process Attributes" are defined here as any attributes of the production process that are not related to good performance but that nevertheless would be relevant to some potential purchasers given perfect information.

If an attribute does not affect a good's performance, then why is it relevant? For consumer goods, the most common reason would be ethical considerations. For example, a can of tuna may be labeled "dolphin safe". Without the label, the product cannot be differentiated by the consumer from a non-dolphin safe can of tuna; yet nevertheless, the label has been found to be relevant to consumers (Teisl et al, 2002). Although the "dolphin-safe" attribute of the good cannot be observed without labeling or outside knowledge and though it does not effect performance (i.e. taste or nutrition), it is embedded in the good in the sense that it is associated with the process required to bring the good to market.

Economists have a long history of following the principle "De gustibus non est disputandum" (there is no disputing taste). Regardless of whether process attributes of consumer goods are observable in product performance, they are a relevant attribute for goods for the simple reason that consumers care about those attributes. Furthermore, they are also relevant because they are for practical purposes inseparable from the good itself. Process attributes of goods, particularly embedded ethical attributes, are much more common than generally realized. For any good in which at least some consumers change buying behavior based on ethics, the market price of that good is at least partially ethically determined. Consumers boycott brands based on where they advertise (for example, consumers from the religious right have boycotted goods that advertise on the Howard Stern radio show), based on dealings with certain other companies, based on union contracts or labor practices, based on environmental practices, based on testing of products on animals, based on country of origin, and countless other reasons. Of course, not all ethical attributes embedded in goods are negative. Consumers may be favorably disposed to a product because of charitable work done by the product's producer, or other ethically favored practices. Therefore, it is not unreasonable to say that the prices of the majority of goods contain an embedded ethical dimension. Not only can this ethical dimension not be separated, it *should* not be separated since it is a valid component of value and one heavily utilized by consumers.

A 1991 study by the Environmental Protection Agency (EPA) concluded that American consumers consider the environmental consequences of their purchase decisions (EPA, 1991). A USA Today poll found that 57 percent of people said they would pay 15 percent more for groceries package in recyclable material, and 52 percent of people said they had stopped buying from companies that they believed were polluting the environment (USA Today, 1990). More

recently, a RoperASW poll found that 33 percent of the population bases their spending in part on environmental values, and a survey by the Natural Marketing Institute categorized about 33 percent of the population as "LOHAS", people who take environmental and social issues into account when making purchases (Cortese, 2003). Animal exploitation is also relevant to consumers. A 1983 survey found that 15 percent of people said they had boycotted a company or product because they were believed to harm animals (DDB Needham, 1983). A recent Gallup poll found that 62% of people believe that there should be strict laws passed regarding the treatment of farm animals (Moore, 2003).

Clearly, process attributes related to the environment and animal exploitation are embedded in the product purchase decisions of many consumers. Therefore, it is important to understand the dynamics of these attributes and the resulting policy implications.

Properties of Process Attributes of Goods

An important aspect of process attributes of goods is that they are often directly tied to ethical belief systems. Good attributes related to ethical beliefs may exhibit unusual economic behavior when it comes to the change in price versus the quantity of that attribute. For example, take a producer of tuna that is not "dolphin safe". Assume the company kills 5,000 dolphins a year, but reduces that number to 2,000. Even if consumers are informed of the change they may not value this reduction even though they do value a change to a "dolphin safe" level. In other words, the price-quantity relationship for that attribute may be discontinuous and atypical of most good attributes. Regarding a similar outcome in a contingent valuation survey where valuations were insensitive to a change in the number of birds killed from 2,000 to 20,000 to 200,000, Hausman (1993) concludes that the methodology was invalid. However, if the value of the good or attribute is related to an ethical principle, then it is reasonable to expect the attribute to be insensitive to quantity as long as the outcome with respect to the ethical principle remains unchanged. Furthermore, price insensitivity to quantity changes is not a violation of classical economic properties for goods as long as reversal does not occur. In addition, regardless of whether traditional economic expectations are violated, as previously discussed, ethical attributes are embedded in many if not most goods, consumers value them, and they therefore directly impact the demand curve, making them valid dimensions of goods.

The most important property of process attributes is that they are unusually sensitive to the information environment. Production process is generally proprietary information that companies guard closely. In addition, consumers have little to no direct information regarding these attributes. By definition without labeling or other additional information they are unobservable in the final product.

Nelson (1970, 1974) separated good attributes into search attributes, experience attributes, and credence attributes. With search attributes, product quality can be determined before purchase. Experience attributes can only be determined once bought or used, which can lead to problems when there is imperfect information. Credence attributes cannot be determined even after consumption. Economic models hit a "dead end" when they come to discussion of credence attributes and markets simply do not function well (Caswell and Mojduszka, 1996), Credence attributes can at times be directly related to good performance if they are difficult to observe. For

example, the purity of bottled water may be unobservable even after consumption, though it may have long-term health consequences. The concept of credence attributes also applies to process attributes of goods. Process attributes are by definition credence attributes since they are unrelated to the final product's observable properties.

With traditional credence attributes, though there may be problems getting markets to function properly, the socially optimal result is clear. Specifically, it is optimal for consumers to have full information on all goods so that they can make choices that will maximize their long-term utility (e.g. full knowledge regarding the long-term health consequences of a certain food choice). However, with embedded ethical attributes of goods the situation is more ambiguous. Often, the ethical concerns will have little direct connection with the utility of economic agents. For example, concerns about wildlife habitat in remote regions, animal treatment on factory farms, or the consequences of current actions on generations in the distant future all are valid concerns yet they can lead to perverse economic consequences where "ignorance is bliss".

The Ignorance is Bliss Problem

The case of dolphin-safe demonstrates the potentially perverse consequences of information. Generally, a more complete information set is considered preferable in economics with the ideal being perfect information. However, consider the situation of a tuna consumer before the dolphin-tuna controversy became public. The ignorant consumer gets the best of both worlds enjoying a utility gain of U_T from a unit of tuna consumption while at the same time benefiting from lower prices from the use of production technology by suppliers that harms dolphins. Now assume the consumer learns of the killing of dolphins and suffers an additional loss in utility of U_K from this knowledge when consuming that same unit of tuna. If the cost of production for dolphin-killing technology is C_1 and the cost of dolphin safe technology is C_2 then the consumer has three choices.

If the consumer chooses to not change their buying habits then their utility is:

$$(1) U_{Net1} = U_T - U_K - U(C_1)$$

If the consumer chooses to switch to "dolphin-safe" tuna (assuming this option is available) then their utility is:

$$(2) U_{Net2} = U_T - U(C_2)$$

If the consumer chooses to stop consuming tuna then their utility is:

$$(3) U_{Net3} = 0$$

Where: $U(C)$ is the utility of the money spent on tuna in its next best use, $U_K > 0$, and $C_1 < C_2$

The optimal choice for the consumer depends on whether $U(C_2) - U(C_1) > U_K$ and whether U_{Net1} and U_{Net2} are greater than zero. If both (1) and (2) are less than zero, then it is optimal to stop tuna consumption. Otherwise, if $U(C_2) - U(C_1) > U_K$ then the increased production cost is greater

than the utility loss from knowingly consuming dolphin-killing tuna and it is optimal (for that consumer) to keep consuming the same product as before. However, if $U(C_2) - U(C_1) < U_K$ then it is optimal for the consumer to switch to dolphin-safe tuna. However, regardless of which option is optimal, the utility of the selected option after gaining knowledge, is less than the utility received when ignorant, which can be expressed by:

$$(4) U_{Net0} = U_T - U(C_1)$$

This can be demonstrated quite simply. Since $U_K > 0$, $U_{Net0} > U_{Net1}$. Since $C_1 < C_2$ and money is presumed to yield positive utility, it must be true that $U(C_1) < U(C_2)$ and therefore that $U_{Net0} > U_{Net2}$. And finally, since the consumer originally consumed tuna and assuming the consumer is rational, the original utility must have been greater than 0. Therefore, an increase in knowledge led to a decrease in utility. Of course, the dolphins presumably benefited from two of the three possible options available to the consumer after gaining knowledge, but according to traditional economic theory, the preferences of the dolphins have no direct value since they are not economic agents.

The principal can be applied to any situation where: (1) an ethical attribute concerns outcomes for non-economic agents only, (2) harm/exploitation of the non-economic agents reduces production costs, and (3) economic agents suffer a loss in utility when they are knowledgeable of the harm done to non-agents. When all three conditions hold, movement from a state of ignorance to a state of knowledge superficially leads to a decrease in the summed utility of economic agents. This is an interesting dilemma since it implies (superficially at least) that the preferred state is ignorance. It is also not an uncommon dilemma. To start with, it applies to most industrial animal exploitation, since animals are not considered economic agents and the harms are hidden from consumers (possibly precisely because consumers care about these harms).

In determining which information set is truly normatively optimal, there are three possible choices: 1) The current information level should be considered the "right" information set (i.e. default to the status quo), 2) The utility maximizing info is the optimal information set (i.e. ignorance really is bliss), or 3) Full information should always be considered optimal regardless of the superficial utility consequences.

The first option is easily dismissed. The status quo information set is arbitrary and institutionally determined. There is no reason to assume it has evolved to maximize anything socially beneficial and there is no reason to conclude it is the best information set. It is neither socially optimal, nor is it the "perfect information" set which is generally considered optimal in almost all economic situations. In addition, the status quo will tend towards ignorance since there are information asymmetries strongly favoring producers and since producers have a strong incentive to keep information that brings their production methods into question away from consumers.

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The "utility maximizing" information set is not as easily dismissed. It is first important to recognize that there are really two "utility maximizing" information sets. The first is the information set that maximizes individual utility while the second is the socially optimizing

information set. It is important to note that in both cases we are still only considering the utility of existing economic agents (i.e. we exclude animals, the ecosystem, and future generations). To clarify how the individually optimizing and the socially optimizing information set may differ, take an example of a power plant that produces pollution for residents of a different city. Some residents of the first city care about the pollution (i.e. experience a decline in utility upon learning of the pollution) even though it does not hurt them personally and will switch to a higher cost energy source. Thus, knowledge of the production process reduces their personal utility, but it also causes the reduction of a negative externality to economic agents in another city. Therefore, the information set that is utility maximizing for the individual can differ from the collective utility maximizing information set. It would be difficult to justify the individually maximizing information set as superior to the collective utility maximizing information set, therefore, the question becomes whether the collective utility maximizing information set is the optimal information set for society.

One problem with the collective utility maximizing information set is that it leads to a dictator problem. In free markets, agents cannot fully determine how ignorant they should be, particularly given that they are ignorant of the relevant information in the first place. Those closest to the information, generally the producers of the goods and services, clearly have a bias and cannot be relied upon to release a socially maximizing amount of information. Representative democracy also cannot be relied upon to consistently provide the correct amount of information since democratic institutions ultimately depend on voters who are reasonably informed. Entrusting the choice of public ignorance to the government or other institutions ultimately results in dictatorial power. Even with a dictator who is initially benevolent, self-interested parties with influence can co-opt the process. Therefore, the concept of the maximizing amount of ignorance relies on institutions which are impractical to say the least.

Another problem is the reliance of the utility maximization information set on a limited definition of economic agents. A growing number of philosophers such as Singer (1975) and Regan (1983) would argue that non-human animals deserve consideration independent of any human interests in them as long as they are sentient beings. Not only are animals and other non-human loci of value excluded, but so are humans who are without economic power (i.e. money) or who are yet to be born. To illustrate the problem, imagine an artificial food flavoring is invented that some people greatly enjoy (i.e. it gives people significant utility today). Now imagine this flavoring has a delayed birth defect that takes several generations to manifest itself. If one consumes this flavoring, all of one's great grandchildren will be sterile and die young (great grandchildren are chosen so that the current day people are unlikely to see the final effect and suffer any direct utility loss, even long-term). The government finds out about the flavoring's harmful effects yet decides to withhold the information from the public. Using the "utility maximizing information set" concept, the government reasons that people will lose utility today from the additional information, yet no existing economic agent will gain from the information. The reasoning is sound, yet clearly this result would not generally be considered optimal. Regardless of what mathematically leads to the maximum utility, people have right and duty to fully informed choices.

There are of course other issues that suggest the maximum utility ideal is faulty. Ecosystems, animals, and other non-participants in the economy arguably have intrinsic value independent of

the sympathetic consideration given them by economic agents. If these values cannot be fully incorporated into the market and sympathetic utility is used to at least partially account for their value, full information is necessary to account for their value with at least partial accuracy. In addition, information about negative consequences of consumption decisions may not actually utility decreasing—people may get "warm glow" utility by switching behavior for ethical reasons. Also, ignorance itself may be utility decreasing if people eventually get some inkling that they are ignorant. When examined closely, the maximum utility ideal has a variety of serious problems. The maximum information ideal is optimal.

Public Policy Implications

Moving towards the maximum (or perfect) information ideal for embedded ethical attributes of goods often requires regulatory intervention. As previously discussed, most of the relevant information lies in the hands of private parties who may have an interest in maintaining ignorance. It is not enough to say that intervention is required where the public demands it—the public must be informed regarding an issue before they know enough to demand additional information. Therefore, whenever market forces are not providing information and it is reasonably likely that the public would alter their decisions with additional information, public policy decision makers have a duty to make sure that information is provided.

In public health matters, government appears to have endorsed the view that they have a duty to inform the public regarding relevant information. Both labeling and public service advertising have been used to alert people to the health consequences of dietary choices, cigarettes, and the use of safety belts. Often this information has been provided based on a public policy decision that people should have the information rather than based on overwhelming public pressure leading to the provision of information. Generally the provision of information has been limited to issues of public health. But why should it stop there? A more appropriate general rule would be for public policy to promote the inclusion of information wherever markets fail to provide that information and it is expected the information will likely affect consumer behavior. This could be either through government provision of information or through laws requiring mandatory private disclosure of information.

Exploitation in the production of animal-related products and services is a perfect example of where the largest barrier to reform is ignorance. Ninety-six percent of Americans say that animals deserve at least some protection from harm and exploitation (Moore, 2003). Yet often this concern does not translate into behavior given the high level of animal exploitation in a variety of industries such as factory farming. There is strong anecdotal evidence from people who work to educate the public regarding animal issues that (1) the public is largely ignorant of the details of animal abuses and that (2) many members of the public do react strongly against such exploitation when they learn the full details of the harm to animals. In animal use industries, the public is kept far-removed from the details of the production process. From relabeling animal parts as something that does not resemble an animal to using euphemisms for killing and inflicting extreme suffering, the wording used in animal exploitation industries are designed to remove the public from the gory details of the production process (Dunayer, 2001). The public is generally not aware of the extreme level of confinement and sensory deprivation occurring in factory farms or animal laboratories, the high error rate in stunning animals resulting in them

being dismembered or boiled alive in slaughterhouses, the level of pain involved in many animal tests, the level of suffering inflicted by prevalent fur farming and trapping techniques nor the death and suffering involved when elephants or marine mammals are captured from the wild to perform at a circus or amusement park. Generally, the public is highly sensitive to all these issues and many others, but they have little access to the relevant information. Examples of negative public reactions when animal exploitation information becomes available include the decline in veal sales when at least part of the public gained partial awareness of the process, the decline in fur usage (though most of the public still had only a dim awareness of the process and fur sales have started to rise again), and the "dolphin-safe" tuna example previously discussed.

In factory farming, animal testing, fur production, animal entertainment, and other cases of animal use, information on the actual production process is in private hands and access is severely limited. General privacy laws limit the ability of the public to gain access to these facilities, and additional legislation adding very harsh criminal penalties for anybody attempting to trespass in particular at animal-related facilities was introduced in at least two states in 2003. Although government inspections are required at some types of animal facilities, the regulatory bodies are closely linked with the industry and may have a shared interest in maintaining the status quo. There is a strong case to be made that animal industries are an example of institutional lock-in (North, 1990 & 1991) with the industries strongly resisting change due to the self-interest of a variety of powerful constituents. The case for lock-in in animal research has been made more fully in Frank (2003). Individual "whistle-blowers" and pro-animal organizations give a long list of specific examples of information regarding animal cruelty and regulation violations being suppressed. For example, Fleshler (2003) cites an example of a whistle-blower allegedly being fired for complaining about animal cruelty, while SHAC (2003) cites an alleged example of USDA inspectors finding violations and reportedly being told by supervisors that "this is political" and that the alleged breaches should not be filed. Food producers have also been fighting an active campaign to suppress public information. "Food disparagement" laws have been passed in 13 states and there is an orchestrated campaign by food producers to pass similar laws in all 50 states (Lilliston and Cummins, 1997). These laws make free speech difficult by shifting the burden of proof onto the speaker for proving that their claims are scientifically sound. In addition, often the threat of legal action by a powerful industry is enough to suppress the speech of individuals who are not in a position to pay for a court battle. In fact the use of "SLAPP" (Strategic Lawsuits Against Public Participation) has been an ongoing strategy by animal industry organizations to suppress critics by intimidation rather than by winning actual monetary awards (Munro, 1999). If information that would affect consumer behavior is being suppressed in animal use industries, then the case for intervention to provide information to the public is quite compelling.

An important distinction needs to be drawn between simple labeling and more complex public education efforts. Labeling of dolphin-safe tuna would have had no effect if prior media coverage had not first given at least part of the public a sense of what the label implied. Mandatory nutrition labeling likewise is useless without educating the public as to the interpretation of those labels. Levy et al (1985) found that shelf pointers (that were "promotional" in nature) and information booklets as a supplement to standard nutritional labeling had an effect on buying behavior similar in magnitude to the effect of price changes.

Even when the public has been told a piece of information, advertisers for products know very well that it takes repeated exposure to information for it to be internalized by the receiver and expressed in altered consumer behavior. Certain public health campaigns have also acknowledged this in their execution; public campaigns to discourage smoking have not just stopped at labels on products but went on to include advertising that often was more marketing and promotional in nature than a pure information campaign.

In contingent valuation experiments Anderson (2003) demonstrates that the use of pictures can dramatically alter valuation amounts. Anderson hypothesizes that items without pictures may be discounted or dismissed. Among the examples he gives demonstrating the power of visual stimuli is the effect footage of seals being clubbed had on reducing the market for baby seal skins. Indeed it would be hard to imagine how the campaign could have been nearly as powerful without the images of seals actually being killed. While some may argue that such footage is emotive rather than information enhancing, it is probably closer to the truth that words like "baby seals were clubbed" simply cannot give a reader or listener the full impact of what is happening the way a simple photo or video clip can. In fact, this is true for most animal exploitation situations. Saying an animal was "severely confined", was "beaten into submission", "gnawed it own leg off in a steel-jawed trap", or "squealed while being cut up alive" simply cannot fully convey the reality of a situation. Only showing extreme suffering in photo or video images or other nonverbal stimuli can truly come close to bringing across the level of harm done. Even with a video, saturation with video violence and the general tendency towards protective denial suggests that, if anything, there will still be bias towards underestimating the harm done.

The same conclusion probably holds for other environmental harms. Oil spills, cutting of old growth forests, air or water pollution probably would be underestimated with a simple verbal description. Full and optimal provision of information to the consumer in these situations does not mean simply a written report by a government inspector stating that a specific violation was found. A fully informed public would receive all information that they would likely find relevant to their consumption decision. This may mean providing access to facilities by neutral third-parties to record anything that may be relevant and to make that information public as long as it does not pose a real risk of exposing key trade secrets of that particular business. If media sources do not show a willingness to present such information, then either public provision of the information, or labeling on products that includes details on where more information (including footage) can be found (such as on a non-profit organization's website) may be required.

Clearly this level of information provision is a significant departure from current practices and is likely to face stiff resistance in implementation. But the case that such information should be provided is quite compelling. Strong proponents of free market capitalism should be the first to recognize and encourage the provision of full information in markets. Why should consumers not make decisions based on all information that is relevant to them? Of course, in practically applying such a principle, information costs, reasonable issues of protecting business secrets from competitors (but not consumers), and the possibility of information overload needs to be considered. Experiments by Jacoby et al (1974a & 1974b) found that agents can make worse decisions if they get too much information and experience overload while an experiment by Grether and Wilde (1983) do not find this to be true. If information overload is a serious consideration, then this is a good argument for being scientific and thoughtful in how

information is provided; it is not an effective argument for leaving consumers uninformed regarding issues they find relevant.

A free market argument against public provision of any of the information discussed could be made based on the possibility of private party provision of information. These private parties could either be trusted standard providers (such as underwriter's laboratory) or the media. But there are serious problems with this. The media, just like any other third party, simply does not have access to much of this information. Furthermore, there are strong corporate interests that can exert influence to limit media reporting. Arguably, voluntary compliance based on corporate self-interest could allow third parties access to certify certain products (such as "cruelty free" certification). In fact, there is some effort currently going on in this area with "humanely produced" meat. Perhaps such institutions can have a positive role, but their role is likely to always be limited. First it should be noted that in the United States many of the "humane" producers of meat products are niche markets divisions of larger farming corporations that primarily use factory farming techniques. Therefore, there is a market structure problem, where a third party getting its revenue from these niche marketers is actually getting a large part of its revenue from large-scale factory farming corporations. The larger corporate interests will quite likely play an important role for these agents in how they seek to influence the third party monitor. For example, aggressive anti-factory farming marketing by such a third party monitor would likely not be tolerated by many of the monitoring organization's clients. Second, it is also important to note that what ethically heterogeneous consumers find acceptable cannot be summarized by one yes/no standard of "humane treatment". But perhaps most importantly, what is being sold in the label "humane treatment" is not what producers do, but rather what they do *not* do. As discussed previously, informing the public fully can be more complex than simply saying we do not do practices A, B, and C. The real issue the public needs information on is the details of the "inhumane" practices. Ultimately, the information the public needs to make a fully informed decision does not come from the humane producers, but rather from the "inhumane" producers. Therefore, a third party with the cooperation of only the humane producers cannot ever fully inform the public. Whenever the "good" companies are really selling the absence of "bad" practices, the public cannot be fully informed without full information from the companies using the "bad" practice. Because of self-interest, this will not occur without mandatory compliance and enforcement. This concept holds not just for the case of meat raised in a "humane" manner, but also for a variety of other embedded ethical attributes of goods, particularly those relating to animals and the environment.

Conclusion

This discussion has argued that process matters and is a valid dimension of the attributes of goods, even when process cannot be ascertained from the final good produced. However, process attributes of goods, particularly ethical attributes embedded in goods, are particularly sensitive to information issues. The optimal information set is "perfect information" for these goods, even when utility calculations suggest that ignorance may superficially raise utility. However providing full information is a dramatic (but appropriate) departure from current practices. Full information implies not just product labeling, but the provision of all information that would

alter consumer decisions in a significant way, including accessible video monitoring of the actual production process.

We are living in a time where process innovation can lead to increasing use of exploitive techniques (such as environmental degradation and factory farming). We are also living in a time of increasing separation between the production process and the consumer, due both to increasing physical separation and increasing scales of production. Therefore, the negative implications of incomplete information are more acute now than ever before and it is particularly important to address these issues now. Government and trade organizations have a mixed history on this issues, often acting to discourage the flow of information rather than encourage it (such as GMO foods, GBH in milk, and laws protecting animal slaughter from public scrutiny). From an economic perspective it seems quite clear that public policy on this issue should push for the full provision of relevant information to consumers.

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