Using Economics to Measure Consumer Damages in Private Advertising Litigation

By Andrew E. Abere, Ph.D.[1]

Introduction

While consumers do not have standing to sue for false advertising under the federal Lanham Act, nearly every state provides consumers with a right of recovery of actual monetary damages for violations of unfair and deceptive acts and practices statutes. Since the purpose behind most deceptive practices, such as false advertising, is to induce consumers to purchase a product, monetary damages are most often measured by the amount spent by consumers on these products.[2]

It is easy to see the appeal of measuring monetary damages in such cases as the amount spent by consumers on a product. It is computationally simple. But it is also easy to see how this approach may overcompensate a consumer for the harm caused by the deceptive practice. Even if a consumer is deceived into making a purchase, she might still have obtained some value from the consumption of the product. She would have been willing to pay something for the product in the absence of the deceptive practice.[3] If the consumer recovers the full purchase price as damages, however, then she will have received this value for free.[4] Some states appear to recognize this. For example, for purposes of the Florida Deceptive and Unfair Trade Practices Act, actual damages are "'the difference in the market value of the product or service in the condition in which it was delivered and its market value in the condition in which it should have been delivered according to the contract of the parties.'"[5] In some cases, it may be easy to determine the former value if there is a market for what the consumer actually received. If so, the contemporaneous market price of that product might serve as an appropriate benchmark for the value of what she received.

In many cases, though, there may not have been a market for the product the consumer actually received, and therefore no contemporaneous market price exists to serve as a benchmark for value. In those cases, however, the tools of economics may allow one to estimate the value of what the consumer actually received, which in turn would allow one to estimate damages. In this article, I discuss two approaches that employ widely-used methodologies in economics. The first is the event study approach, and the second is the hedonic price approach. I begin by setting forth an example to motivate the discussion.

An Example: Acme Premium Gasoline

Suppose the fictional Acme gas station conducts a campaign that advertises the octane rating of the three grades of gasoline it sells: regular (87 octane); mid-grade (89 octane); and premium (93 octane). Suppose further that consumers view higher octane gasoline as higher quality and are willing to pay more for higher octane gasoline. Let us suppose that during the advertising campaign Acme sells regular gasoline for $2.80 per gallon, mid-grade for $2.90 per gallon, and premium for $3.00 per gallon. Now suppose a consumer buys a gallon of Acme premium gasoline, but later it is determined that the advertising about its octane rating was deceptive and this gasoline had an octane rating of less than 93, say only 91. If the consumer sues and recovers the full purchase price of $3.00 that she paid for the premium gasoline, then the consumer will have obtained the benefits of that gasoline, albeit with a lower octane (91), for free.[6]

The amount that would perfectly compensate the consumer would be the difference between what she paid (the $3.00 price of the premium gasoline) and the value of what she actually received (presumably something less, since consumers would not be willing to pay as much for gasoline with a lower octane rating). Suppose, however, that there was not a market for gasoline with a 91 octane rating during the period in which the deceptive advertising had an effect and, therefore, no market price exists to serve as a benchmark for value.[7] What is the value to the consumer of a gallon of gasoline with a 91 octane rating? Even without an explicit market price, the tools of economics may still allow one to use market transaction data to estimate the value of what the consumer actually received, which in turn would allow one to estimate damages. Below, I discuss two approaches to estimating this value: the event study approach and the hedonic price approach.[8]

The Event Study Approach

The event study approach is feasible in cases where there is an event that allows one to examine changes in a variable, such as price, before and after the event.[9] It has been widely used in securities fraud litigation to estimate the impact of the effect on the price of a security (such as common stock) of an event, such as a press release or a filing with the U.S. Securities and Exchange Commission by a public company.[10] In the context of consumer protection litigation, such an event might be the initiation of an advertising campaign or the disclosure that certain advertising was deceptive.[11] In the Acme gasoline example, such an event could be the disclosure that the product did not have as high an octane rating as was advertised.[12] Suppose the price of the Acme gasoline advertised as premium was $3.00

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per gallon before the disclosure, but after the disclosure it fell to $2.75 (this assumes Acme continued to sell the gasoline with a 91 octane rating after the disclosure and consumers were aware of the disclosure).[13] On the surface, this might suggest that consumers were only willing to pay $2.75 per gallon for gasoline with a 91 octane rating, and if a consumer sued Acme the amount of damages would be $0.25 per gallon (the difference between what she paid and the value of what she received). This might be an analytic mistake, however, if there are other factors that affected the price of Acme premium gasoline that have not been taken into account. For example, suppose the price of crude oil fell and led to lower gasoline prices around the time of the disclosure about the octane rating.

In the Acme example, the dependent variable would be the price of Acme premium gasoline and the independent variables might include variables thought to affect the demand for, and supply of, Acme premium gasoline. These might include the variable costs associated with dispensing Acme premium gasoline (such as the wholesale price of gasoline purchased by Acme, which would reflect changes in the price of crude oil), the price of substitute brands of gasoline, consumer disposable income, and seasonality (since demand may be higher in the summer driving season). The data for these variables would be obtained for a period of time before and after the disclosure. This model could be used to measure how the price of the Acme premium gasoline changed, if at all, after the disclosure while controlling for these other variables. One would expect that the disclosure would be followed by a reduction in the price paid for the gasoline (since consumers would view it as being of lower quality) after the price effects of other variables were taken into account.[15] For example, the model may indicate that prior to the disclosure consumers were willing to pay $3.00 for a gallon of Acme premium gasoline and after the disclosure they were only willing to pay $2.95, after accounting for other demand or supply factors that affect price. In this case, the model would yield damages of $0.05 per gallon.[16]

A more sound approach would involve developing an economic model, most likely using regression analysis, to relate the price for the premium gasoline in question to demand and supply variables thought to impact that price. Regression analy- sis is a statistical tool for understanding the relationship between two or more variables. A variable is anything that can take on two or more values, such as the price of a gallon of gasoline.[14] Regression analysis involves a variable to be explained, known as the "dependent variable," and additional variables that are thought to produce or be associated with changes in the dependent variable, known as "explanatory" or "independent" variables. Regression analysis may be useful in determining whether a particular effect is present, as well as in measuring the magnitude of a particular effect.

There are some issues to consider with the event study approach. One is the possibility that other events, which also impact price, may occur around the time of the disclosure. The effects of these so-called confounding events cannot be disentangled from the effect of the disclosure. For example, suppose there is a disclosure about concerns regard

ing engine damage from certain additives used in Acme premium gasoline at the same time as the disclosure regarding the octane rating of the gasoline. In this case, the price would likely decline after controlling for other factors but it may be impossible to determine how much of the decline was due to the disclosure about the octane rating as compared to the disclosure about the additives. The model may indicate that prior to the disclosures consumers were willing to pay $3.00 for a gallon of Acme premium gasoline and after the disclosures they were only willing to pay $2.90, after accounting for other demand or supply factors that affect price. In such a case, the aggregate effect of both disclosures is a $0.10 per gallon decrease in price but it is not possible to determine how much is attributable to one disclosure as opposed to the other. [17]

Another issue, which may render the event study approach unusable, occurs when there is no observable transaction price after the disclosure. For example, suppose that demand for Acme premium gasoline vanishes after the octane rating disclosure, as consumers decide to defect from Acme and purchase all of their premium gasoline at rival gas stations. Alternatively, the supply could vanish as well. Suppose Acme suspends its sales of premium gasoline with a 91 octane rating after the disclosure until it can replace its inventory with gasoline with a 93 octane rating. If there are no purchases being made at Acme, then there will be no market transaction data on the price of the premium gasoline after the disclosure to use in the event study.

<u>The Hedonic Price Approach</u>

Another approach is the hedonic price approach.[18] In this approach, the price of a product is viewed as a function of the product's characteristics during a specific period of time. Statistical techniques are used to estimate the implicit prices of product characteristics from observed transaction prices, and these implicit prices may then be used as measures of the value of observable differences in products to consumers. The U.S. Bureau of Labor Statistics uses the hedonic price approach to adjust the U.S. Consumer Price Index for quality changes in goods and services used to compute the index.[19] The approach is feasible in cases where the products in the industry in question are differentiated, meaning they are not perfect substitutes for one another, and their different characteristics are measurable. A familiar example is the automobile industry, where different models vary in terms of characteristics such as size, horsepower, fuel efficiency, reliability, safety, etc. The hedonic approach is likely to be applicable in consumer protection litigation since, in many consumer products industries, the various product offerings are often differentiated. For example, the U.S. Bureau of Labor Statistics has used the hedonic price methodology to adjust price indices for industries such as consumer electronics, appliances, housing, and apparel, all of which exhibit product differentiation.[20] Product differentiation occurs in the Acme gasoline example as well, as there are a number of grades of gasoline with different octane ratings.

The hedonic price approach involves developing an economic model, most likely using regression analysis, which relates the prices paid for different grades of gasoline to their octane ratings and other characteristics. In the Acme example, the dependent variable would be the price of different grades of Acme gasoline and the independent variables would include the different octane ratings of each grade and other characteristics

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thought to affect price, perhaps such as the presence or amount of other additives (since consumers may view certain additives as providing higher quality), the manner in which the gasoline is dispensed (full-serve versus self-serve, if this is relevant), or the payment method (cash versus credit card, if there are different prices for these). The data for these variables would be obtained for a period before the disclosure. This model would provide estimates of how much consumers value additional increments of the various characteristics. For example, suppose the model indicates that consumers are willing to pay $0.025 more per gallon for each additional one point increase in the octane rating, after controlling for other characteristics. In this case, consumers would be willing to pay $0.05 per gallon *less* for gasoline with a 91 octane rating than for gasoline with a 93 octane rating ($0.025 per gallon times 2 octane rating points). Therefore, the model would yield damages of $0.05 per gallon.[21]

An advantage of the hedonic price approach is that it can be utilized in cases for which an event study is not feasible, such as those that lack an observable transaction price after the event has occurred. There are, however, some issues to consider with the hedonic price approach as well. One is that it assumes all consumers value characteristics similarly between the product in question and the others in the sample used in the analysis. If this is not the case, then this approach may yield biased results. Suppose a certain set of consumers are drawn to premium Acme gasoline while another set are drawn to the other grades of Acme gasoline in the sample. If these two groups of consumers value additional octane differently, then the application of one group's valuation to the other group may lead to biased results.

Another issue with the hedonic price approach is that its modeling and data requirements may be more substantial than those for the event study approach. When using the hedonic price approach, one needs to select which characteristics to include in the model. These should be characteristics that are thought to be related to price. As a general matter, it is not a problem to include characteristics unrelated to price in the model, but it is a problem to omit characteristics that are related to price since this may yield biased results. Suppose gasoline with higher octane ratings also contains higher amounts of additives that consumers view as providing higher quality. Consequently, suppose that consumers are willing to pay more for gasoline with greater amounts of these additives, all else being equal. If the content level of these additives is omitted from the model, then its effect on price may attributed to that of the octane rating, leading to a biased estimate of the value consumers place on higher octane. In addition, suppose one might wish to obtain data on *other* brands of gasoline to use in the analysis. For the event study approach, one need only obtain prices for other brands of gasoline thought to be substitutes for Acme premium gasoline. For the hedonic price approach, though, one would need to obtain not only the prices of other brands, but also the measurements of their octane ratings and other characteristics related to their prices.[22]

Conclusion

In some cases, compensation for unfair and deceptive acts and practices can be measured as the difference between what the consumer paid and the presumably lower value of what she received. In these cases, providing there is a market for what the consumer actually received, the contemporaneous market price of that product might serve as an appropriate benchmark for the value of what was received. In some instances, however, there may not have been a market for the product she actually received and, therefore, no contemporaneous market price will exist to serve as a benchmark for its value. In those instances, the tools of economics still allow one to estimate the value of what the consumer actually received, which in turn would enable one to use market transaction data to estimate damages. In this article, I have discussed two such approaches to estimating damages: the event study approach and the hedonic price approach. The applicability of each approach depends on the facts and circumstances of the case at hand.

Dr. Abere is an economist at Princeton Economics.

ENDNOTES

1. The author is an economist with the Princeton Economics Group, Inc.
2. ABA SECTION OF ANTITRUST LAW, CONSUMER PROTECTION LAW DEVELOPMENTS (2009), 383, 609. The analyses in this article apply to services as well as products, but I will only refer to products in the interest of brevity.
3. Of course, a consumer may claim that she would not have been willing to pay anything for the product. This, however, may be difficult to verify *ex post*.
4. It is possible that requiring losing defendants to pay more than the harm caused by the deceptive practice serves to deter violations of the law, much in the same way treble damages may function in private antitrust litigation.
5. Stires v. Carnival Corp., 243 F.Supp.2d 1313, 1322 (M.D. Fla. 2002). At least one court has held that "'[a] notable exception to the rule may exist when the product is rendered valueless as a result of the defect—then the purchase price is the appropriate measure of actual damages.'" *Id*.
6. I assume here the lower octane level does not result in any additional costs to the consumer, say due to engine damage.
7. I say the period when the advertising had an effect as opposed to when the advertising occurred, as the effect of advertising may persist beyond the period during which the advertising occurred.
8. An alternative approach that does not use market transaction data is a consumer survey designed to generate data on how consumers value different product choices. A review of the advantages and disadvantages of the survey approach is beyond the scope of this article.
9. The event study approach has a long history as a widely-used tool in economics as well as in finance. Perhaps the first published event study is James Clay Dolley, "Characteristics and Procedure of Common Stock Split-Ups," *Harvard Business Review* 11, (April 1933): 316-26. For a review of event studies in general, see A. Craig MacKinlay, "Event Studies in Economics and Finance," *Journal of Economic Literature* 35, (March 1997): 13-39.

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10. See, for example, Bradford Cornell and R. Gregory Morgan, "Using Finance Theory to Measure Damages in Fraud on the Market Cases," *UCLA Law Review* 37, (1990): 883-924.
11. In the context of antitrust litigation, such an event might be a merger or the formation of a cartel.
12. For example, a consumer watchdog group or government agency might have made such a disclosure. Another event could be the initiation of an advertising campaign announcing a change in the formulation of premium gasoline from a 91 octane rating to 93.
13. Alternatively, this assumes Acme replaced the gasoline with the 91 octane rating with gasoline with a 93 rating, but could not credibly persuade consumers that it did not have a 91 rating.
14. For more information on regression analysis, see ABA SECTION OF ANTITRUST LAW, ECONOMETRICS (2005).
15. This assumes that there is not an increase in price due to an increase in demand from other consumers who now find the Acme premium gasoline more attractive for some reason.
16. While this approach allows one to estimate the impact on price associated with the disclosure, it does not allow one to conclude that the disclosure of the deceptive advertising *caused* the change in price.
17. The most that could be said in this case is that damages related to the false advertising alone are likely to be less than $0.10 per gallon. Of course, if consumers are suing over both the false advertising about the octane rating and the defective additives, this distinction may be inconsequential.
18. The hedonic price approach has a long history as a widely-used tool in economics. Perhaps the first published hedonic price study is Frederick V. Waugh, "Quality Factors Influencing Vegetable Prices," *Journal of Farm Economics* 10, no. 2 (April 1928): 185-96. For a review of hedonic price studies in general, see Ernst R. Berndt, *The Practice of Econometrics: Classic and Contemporary* (Reading, MA: Addison-Wesley Publishing Co., Inc., 1991), 102-149.
19. See, for example, David S. Johnson, Stephen B. Reed, and Kenneth J. Stewart, "Price measurement in the United States: a decade after the Boskin Report," *Monthly Labor Review*, (May 2006): 10-19.
20. *Id.*
21. I constructed the examples so that the event study and hedonic price approaches would yield identical estimates of the damages. This, however, need not be the case. In cases where both approaches are feasible, it might be useful to implement both approaches and compare the results.
22. This also raises the question of whether it is appropriate to assume consumers value characteristics similarly between the product in question (Acme premium gasoline) and the others in the sample (other brands of gasoline).