

Antitrust Damages

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I. Introduction

Antitrust private actions have been an important component of civil enforcement in the United States since the passage of the Clayton Act.¹ Private actions have been seen, in combination with public enforcement, as a means of achieving an appropriate level of deterrence. However, they have also been viewed as a mechanism for compensating those who were injured by illegal anticompetitive activities.² In recent years, private antitrust enforcement has been growing outside the U.S. Such actions are now available in parts of Asia (e.g., Japan) and in England. Private actions will almost certainly grow throughout the European Union as well.³

To obtain a financial recovery in a private action, the plaintiff must prove three distinct elements: (1) an antitrust violation; (2) antitrust injury;⁴ and (3) damages – a measure of the extent of the injury. In this paper, I focus entirely on the important third element – antitrust damages. While much of the analysis is conceptual in nature, the analytical details do depend on

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¹ Section 4 of the Clayton Act provides for private actions with treble damages as a remedy. 15 U.S.C. § 15 (2009).

² For an insightful discussion of the objectives associated with the payment of antitrust damages, see Herbert Hovenkamp, *Damages*, in *FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE* (3d ed. 2005).

³ See, e.g., COMMISSION OF THE EUROPEAN COMMUNITIES, *Green Paper on Damages Actions for the Breach of EC Antitrust Rules*, (2005); COMMISSION OF THE EUROPEAN COMMUNITIES, *White Paper on Damages Actions for Breach of the EC Antitrust Rules*, (2008).

⁴ In *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477, 489 (1977), the Court ruled that damages can be recovered only for injuries that flow from the wrongful anticompetitive conduct.

the institutional context in which damages are applied. Therefore, unless otherwise noted it will be presumed that we are operating within the U.S. private civil litigation system.⁵

In order to pursue an antitrust case, the plaintiff must have been injured, i.e., have standing to sue. Under federal law, only direct purchasers have such standing.⁶ Direct purchaser suits can be brought through the class action mechanism or individually.⁷ When suits are brought as class actions, plaintiffs damage claims are based on alleged overcharges,⁸ which are trebled if liability is proven. Individual suits may claim either overcharges or lost profits. Indirect purchasers can sue, but only in states that have passed *Illinois Brick* “repealer” statutes. By 2008, thirty-five states had done so.⁹

Almost all damage awards are paid in dollars. However, the vast majority of antitrust cases that continue beyond summary judgment motions settle. Furthermore, a substantial number of those settlements involve coupon payments as well as cash.

Not surprisingly, the complexity of the U.S. system of private antitrust enforcement raises many important but difficult damages-related issues. This paper treats a number of those issues, some of which are explicitly normative and others of which are not. I begin in Section II with an analysis of antitrust overcharges. I describe the primary approaches to the analysis of overcharges and offer commentary on those methods. In Section III, I move to an analysis of lost profits as an alternative to overcharges. This leads naturally to a discussion of the deterrence as well as compensation goals of antitrust. Section IV focuses on indirect purchasers; I emphasize the importance of pass-through analysis in evaluating indirect purchaser damages.

⁵ We note that the U.S. Supreme Court has set a higher standard for proof of violation and causation than for proof of damages. *See* *Story Parchment Co. v. Paterson Parchment Paper Co.*, 282 U.S. 555, 562, (1931).

⁶ *See* *Illinois Brick Co. v. Illinois*, 431 U.S. 720, 746, (1977); *see also* *Hanover Shoe, Inc. v. United Shoe Mach. Corp.*, 392 U.S. 481, *rehearing denied*, 393 U.S. 901 (1968).

⁷ The first case supporting overcharges was *Chattanooga Foundry & Pipe Works v. Atlanta*, 203 U.S. 396 (1906).

⁸ *See* *Paper Sys. Inc. v. Mitsubishi Corp.*, 193 F.R.D. 601, 614 (D. Wis. 2000).

⁹ *See* ANTITRUST MODERNIZATION COMMISSION, REPORT AND RECOMMENDATIONS 18 (2007), p. 269, available at <http://govinfo.library.unt.edu/amc/>.

Finally, in Section V, I describe and evaluate the use of coupons in lieu of cash in the settlement of antitrust claims.

II. Overcharges

Overcharges are measures of overpayments by individual or businesses that have been injured as the result of an antitrust violation. Overcharges can result from price fixing and other restraints of trade or from illegal monopolizing behavior. To simplify the methodological issues to be discussed I will take as our prototypical case a price-fixing arrangement which leads to prices that are higher than they would be in a but-for world of no price fixing. The analysis of overcharges associated with exclusionary practices such as tying and exclusive dealing contracts can be more involved, since they often involve non-price restraints and they may also involve lost profit claims rather than claims for overcharges. Furthermore, most price-fixing cases arise under a per se rule, whereas most exclusionary practices are evaluated under a rule of reason standard. In rule of reason cases, proof of causality and the damages that are the result of the illegal behavior can be a significant hurdle for plaintiffs, especially when the some of all of the harm has yet to occur.¹⁰

I note in passing that overcharges may over- or under-compensate the direct purchasers of the product or products at issue in a case. Over-compensation would arise, for example, if the direct purchaser is able to pass on its higher costs to downstream customers. Under-compensation would arise if the purchaser would have increased the quantity purchased absent the wrongful behavior.

A number of approaches have been used by experts to evaluate overcharges in antitrust litigation. The two most common involve the use of *yardsticks* and *benchmarks*.¹¹ In a typical

¹⁰ See *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477, 487 (1977).

¹¹ Alternative approaches involve a comparison of rates of return and/or profit margins across industries. For a broad overview of the various approaches, see Daniel L. Rubinfeld, *Econometrics in the Courtroom*, 85 COLUM. L. REV. 1048 (1985); see also Franklin Fisher, *Multiple Regression in Legal Proceedings*, 80 COLUM. L. REV. 702 (1980).

yardstick approach, one compares prices, margins, or rates of return during the period in which the antitrust violation is believed to have had an effect (the “impact period”) to prices, margins, or rates of return in other markets that are deemed to be reasonably comparable to the market at issue. In contrast, the benchmark approach evaluates prices only in the market at issue, comparing prices in the impact period to available prices before and/or after the alleged period of impact (the “non-impact period”). I comment first on the yardstick approach, after which I consider benchmarks.¹²

A. Yardsticks

Under the yardstick approach, damages are measured by obtaining a “but-for price” from a market (the “comparable market”) that closely approximates the market in which the violation occurred.¹³ The “but-for price” is a measure of what the price of the product would be if the wrongful behavior had not occurred. A yardstick can come from a different, but related product market in the same or similar geographic market or from a different, but related geographic market in which the same product or products are sold.

Ideally, the comparable market product should reflect the same degree of competition, the same costs, and the same demand conditions that would have prevailed in the market at issue had there been no wrongful behavior. Of course, it is quite possible for there to be no suitable yardstick in some cases. If an appropriate yardstick is available, it is important to take into account any differences in costs and the extent of competition between the yardstick market and the market at issue in the but-for world.

Regression analysis offers one tool that can be useful in a yardstick analysis. To illustrate, suppose that there are available price data for the market at issue in a case and for the yardstick market. Suppose also that the yardstick market and the market at issue are both

¹² For a broad discussion of these alternative measures, see Hovenkamp, *supra* note 2.

¹³ The yardstick approach was first cited by the Supreme Court in *Bigelow v. RKO Radio Pictures, Inc.*, 327 U.S. 251, *rehearing denied*, 327 U.S. 817 (1946).

differentiated product markets subject to Bertrand competition. However, the yardstick market has fewer firms and a lesser degree of competition among those firms. Then, a regression analysis relating price in the yardstick market to one or more measures of the degree of competition could allow one to predict what prices in the yardstick market would be when the degree of competition was the same as in the market at issue. This “adjusted yardstick” price series could be used as the but-for price in the damages analysis in the case.¹⁴

B. Benchmarks¹⁵

In essence, the benchmark approach involves using the periods before and/or after the alleged wrongful behavior as a yardstick. As with the yardstick approach, it is essential that the non-impact period be as similar as possible to the impact period. This requires that one take into account any cost, demand, or competitive differences between the non-impact behavior and the impact period, but for the wrongful behavior. However, the benchmark approach does have one potentially important advantage in comparison to the yardstick approach. If sufficient data are available, regression analysis can be used to distinguish the effects of the alleged wrongful behavior on price from those effects that are not causally related to that behavior.

To be specific, when the time period or periods in which the alleged antitrust behavior impacted prices is sufficiently long and the necessary data are available, a standard approach to the evaluation of damages is to estimate a regression model for prices using only data for the non-impact period in which the market was unimpeded and to utilize that regression model to predict but-for prices in the impact period.¹⁶ This “forecasting” (or “before-after”) approach relies heavily on the assumption that the regression specification adequately characterizes the

¹⁴ A similar approach could be used if one were analyzing profit margins or rates of return. However, an appropriate margin analysis must account not only for pricing differences, but also for differences in costs between the two markets.

¹⁵ This section borrows heavily from Justin McCrary & Daniel L. Rubinfeld, *Measuring Benchmark Antitrust Damages*, (2009), (unpublished draft) (on file with authors).

¹⁶ There must be sufficiently variability to allow one to appropriately account for non-collusive variables that might have affected price in the impact period.

nature of competition in both the impact and control periods. An alternative approach, often utilized when there are not sufficient data to estimate with confidence a regression model in the non-impact period, estimates a regression model for the entire period for which data are available, and evaluates damages by looking at the statistical significance and magnitude of the coefficient on a dummy variable that distinguishes the impact period from the non-impact period.

With either the forecasting or the dummy variable approach, it is essential to account for the effects of non-collusive variables on price. If these variables are not taken into account, it is quite possible that damages will be biased and highly inaccurate. To illustrate the possibility of upward bias, suppose that one is using the forecasting approach but fails to account for the fact that input costs have increased due to independent supply shocks. Failure to account for these non-collusive costs is likely to lead the expert to understate but-for prices – in essence omitting the likely upward pressure on but-for prices resulting from the higher input costs. Alternatively, suppose one is using the dummy variable approach. The failure to include an appropriate measure of input costs will similarly cause one to underestimate but-for prices.

With either approach, it is also essential to evaluate whether any explanatory variables (“covariates”) included in the model to account for demand or cost changes be variables that are not causally affected to the alleged anticompetitive behavior. Failure to do so could lead one to mis-estimate the but-for price series and damages. This might arise, for example, if the anticompetitive behavior were to affect a key input price. Then, part of the influence of the wrongful behavior will have been accounted for by the input price variable itself, and this component will not be appropriately accounted for in the damages analysis.¹⁷ Alternatively, a cartel might be able to take advantage of shifts in demand and cost that occur outside the cartel. This might happen if demand or cost conditions are heavily affected by expectations, since the

¹⁷ See Halbert White, Robert Marshall, & Pauline Kennedy, *The Measurement of Economic Damages in Antitrust Civil Litigation*, 6 A.B.A. ANTITRUST SECTION, ECONOMIC COMMITTEE NEWSLETTER (2006).

cartel can heavily influence those expectations. As an example, Rubinfeld and Steiner explain how the uranium cartel was able to take advantage of an oil embargo to alter expectations about the likely price of uranium.¹⁸

When using the dummy variable approach, a secondary issue arises. Should one evaluate damages by assuming a constant price differential through the impact period (as suggested by the coefficient on the dummy variable) or should one allow for non-constant price differentials?

To evaluate these questions in greater detail, I utilize the most basic pricing model.¹⁹

Let P_t = a measure of the outcome of an alleged price-fixing arrangement (typically price)

X_t = a list (i.e., a vector) of exogenous covariates not causally affected by the price fixing (e.g., demand and cost variables)

D_t = a dummy variable indicating the period of the alleged price fix, i.e., the impact period

I assume for simplicity that the covariates are not causally related to the conspiracy and that the damage period and the conspiracy period are identical.²⁰ I focus first on what is to be done in the scenario where either approach might be appropriate. I therefore assume that there is no causal effect of the price fixing on the covariates in the impact period. Were this not the case, other econometric methods (e.g., instrumental variables) would be needed to estimate the model, but the discussion that follows would otherwise apply. Note that assuming no *causal* relationship between the covariates and the price fixing does not rule out the possibility that the covariates are *correlated* with the price fixing.

The model that characterizes the determination of the outcome of the alleged conspiracy is given by:

¹⁸ Daniel L. Rubinfeld & Peter O. Steiner, *Quantitative Methods in Antitrust Litigation*, 46 L. & CONTEMP. PROBS. 69, (1983).

¹⁹ A similar approach would apply if other wrongful activity was at issue.

²⁰ For the forecasting approach, the forecast is based on covariates and is tainted if the covariates are caused by the conspiracy. For the dummy variable approach, the covariates are endogenous, which requires a more complex econometric model. The forecasting approach will also require a more complex model that correctly specifies the values of the taint-free covariates in the impact period.

$$P_t = \alpha + X_t\beta + \theta D_t + \gamma D_t X_t + \varepsilon_t \quad (1)$$

This model takes into account the possibility that the alleged price fixing will affect price directly, as given by given by θD_t (e.g., through an increase in price at each point in time in the impact period). It also takes into account the possibility that the effect of the conspiracy will also be felt through one or more of the demand and cost variables, as given by the term $\gamma D_t X_t$. To be specific, this term represents the fact that collusion could change the relationship of the covariates to price.

To apply the dummy variable approach, we estimate equation (1) for the entire time period. Continuing to assume that the covariates are unaffected by the conspiracy, θ measures the “average” effect of the conspiracy on price per unit of time. However, if we now assume that the covariates themselves are reflective of the conspiracy, the effect of the conspiracy on price in each time period is given by $(\theta + \gamma X_t)$. If Q_t represents output, and all covariates are deemed to be associated with the alleged price fixing, then aggregate overcharges, OC_1 , are determined by the following formula:

$$OC_1 = \theta \sum D_t Q_t + \gamma \sum D_t Q_t X_t \quad (2)$$

where the summation signified by the Greek letter ‘ Σ ’ applies to all time periods, and θ and γ are regression estimates of the parameters.

For some purposes, it may be desirable to impose the restriction that $\gamma=0$. This presumes that none of the covariates are affected by the price fixing. In this case, we would obtain a different estimate of overcharge damages, given by

$$OC_2 = \theta_s \sum D_t Q_t \quad (3)$$

where the subscript “S” indicates that the θ parameter is obtained from the “short” regression that omits the interaction between covariates and the impact period dummy variable. Our main focus is on OC_1 , but I will offer brief comments about OC_2 as well.

The forecasting approach estimates the following model:

$$P_t = \alpha + X_t\beta + e_t \quad (4)$$

for the pre-conspiratorial period. Overcharges are then based on the difference between the predicted outcome (e.g., price) in the impact period and the actual outcome. Applying this approach to the case in which price is the outcome and Q represents quantity of sales, and P_t^f is the predicted price in the damage period, aggregate overcharge damages are given by:

$$OC_3 = \sum D_t(P_t - P_t^f)Q_t \quad (5)$$

As a general rule, the forecasting approach and the dummy variable approach will generate different damage estimates. How does one choose between the two? One way to think about this is to note that in Equation (1) $\alpha + X_t\beta + \theta D_t + \gamma D_t X_t$ represents a regression prediction of prices, and we can think of e_t as a price residual that reflects the cumulative effect of all omitted variables on price. The price residual will have zero correlation with the regression prediction of price, a result that follows directly from the fact that the regression model is estimated by least squares – it minimizes the residual sum of squares and by construction and in doing so assures that the residual is uncorrelated with all of the covariates in the model. Since the prediction is a weighted average of the covariates, it is also uncorrelated with the residual.

In a separate paper, McCrary and Rubinfeld have shown a number of results that allow for a comparison of the forecasting and dummy variable approaches.²¹ When the quantity of sales of the product is assumed to be constant over the price-fixing period, the forecasting and dummy variable approaches yield numerically identical overcharge estimates. When one takes into account the fact that the quantity varies over the price-fixing period, the forecasting and dummy variable approaches will differ, depending on whether or not the quantity is correlated with the residual during the conspiracy period.

How does one choose between the two approaches when the damage estimates vary? McCrary and Rubinfeld have also have shown that assuming quantity is not correlated with

²¹ McCrary & Rubinfeld, Measuring Benchmark Antitrust Damages.

omitted factors, the dummy variable and forecasting approaches generate econometrically consistent estimates (the estimates will tend to be the same as the data sample gets large).²² This provides important support for each of the two approaches. However, McCrary and Rubinfeld have also shown (assuming that the econometric specification of the model is the appropriate one) that the forecasting approach produces a noisier estimate of damages (having greater variability) than does the dummy variable approach.

While the dummy variable approach is more appealing on purely econometric grounds, a case can be made for the forecasting approach. Assuming that the underlying competitive structure that determines price in the but-for non-impact period has not changed substantially, a pricing model can be selected for the non-impact period using robust search methods.²³ By construction, the specification of that model will have been uncorrupted by the alleged anticompetitive behavior in the impact period.

If data during the impact period are used to choose the regression model, then there is a risk that the model will produce a biased damages estimate, perhaps inappropriately. In principle, it is always possible to use an in-sample model selection procedure to produce a damages estimate of zero, just by adding a sufficient number of irrelevant variables to the regression specification so that the model fully explains prices in the impact period. A forecasting approach that is based on an appropriate model selection methodology serves as a good disciplining device.²⁴

The disadvantage of the forecasting approach is that it may be too disciplining. In particular, it prevents the expert from selecting a model using his or her knowledge of the

²² McCrary & Rubinfeld, *Measuring Benchmark Antitrust Damages*.

²³ See, e.g., Halbert White, *Time Series Estimation of the Effect of Natural Experiments*, 135 J..ECONOMETRICS 527 (2006).

²⁴ The second advantage of the forecasting approach is more technical. If model selection is based purely on the non-impact, and one believes that observations before the price fixing are (approximately) independent of observations during the price-fixing period, then the model selection process does not affect the standard errors associated with the damages estimates.

economics of the problem. Particularly in dynamic markets, the relationship between covariates and prices may be so rapidly evolving that the pre-conspiracy period will not be a particularly good guide to model selection for the conspiracy period. In such a setting, prior knowledge may be of great value and the expert may want to use such knowledge. Suppose, for example, that the market at issue is a highly innovative one in which new technologies are developed on average every two years, but that the rate of innovation is growing over time. Suppose also that the conspiracy period is four years long. Then, the forecasting approach is likely to underestimate the extent of innovation that would likely have occurred in the but-for world during the impact period.

III. Lost Profits

A. Optimal Deterrence

As mentioned previously, overcharge damages (and lost profits damages) will not necessarily achieve optimal deterrence. This point is easily seen if we treat the hypothetical case in which an otherwise competitive market has been monopolized through illegal anticompetitive behavior. The higher monopolized price will result in a reduction in the quantity of the good that is purchased. For those actual purchasers, the monopolizing behavior will have led to higher prices; this involves a transfer of income from consumers to the monopolizing producer or producers. However, for those sales that did not occur – the difference between actual sales and the higher but-sales would occur had the price been competitive, consumers and producers have been harmed.

If optimal deterrence is to be achieved, the deadweight loss of both consumer surplus and producer surplus must be taken into account. Some consumers have been injured because they would have purchased the product had the price been lower. Unfortunately from an efficiency

perspective these individuals do not have standing to sue.²⁵ Moreover, some producers (not necessarily those involved in the monopolizing conduct) will have been injured to the extent that the additional production in the but-for world would have been undertaken at a cost that is less than the but-for price.²⁶

While deadweight loss ought to be accounted for in theory, it has not been in antitrust doctrine. This omission may be pragmatic. First, consumers who would have purchased the product in the but-for world but did not make purchases in the actual world do not have standing to sue.²⁷ Were standing to be extended to any person claiming that they would have purchased in the but-for world, the courts would face a difficult information problem, in that presumably many individuals who would not have purchased in the but-for world would falsely claim that they would have, in order to avail themselves of damages. Second, courts frequently use an overcharge damage methodology, which inherently rules out deadweight loss considerations. This may also be a pragmatic choice. Deadweight loss can be difficult to measure in practice, since it depends on the shape of the demand curve for the product as well as the nature of the incremental cost of producing the product.

These practical motivations notwithstanding, failure to account for deadweight loss will, in itself, lead to under-deterrence. However, most antitrust violations allow for treble damages recoveries (some criminal violations allow for criminal penalties as well). It is theoretically possible that the trebling of damages could increase deterrence sufficiently so as to counter the under-deterrence associated with deadweight loss. Such a balance would seem to be fortuitous at best. Indeed, there has been substantial debate as to whether treble damages leads to appropriate

²⁵ This restriction applies both to those customers who would have purchased the product at lower price had prices not been artificially high, but also to those suppliers that would have purchased more had there not been monopsonistic buying behavior. *See* *Associated Gen. Contractors of Cal., Inc. v. Carpenters*, 459 U.S. 519 (1983).

²⁶ For a nice overview of this and related deterrence issues, *see* Christopher R. Leslie, *Antitrust Damages and Deadweight Loss*, 51 ANTITRUST BULLETIN 521(2006). Leslie argues that there should be a remedy for deadweight loss.

²⁷ Those consumers who do have standing recover only for purchases made, not those that would have been made in the but-for world.

deterrence, with little resolution. Some have pointed to the social costs (including substantial litigation costs) that are created by the treble damages regime, while others have pointed to the likely under-enforcement of cartel activity.²⁸

In any case, the analysis of optimal deterrence is complicated further by the fact that direct purchasers will, in many cases, pass on some or all of the overcharges to downstream customers.²⁹ The ability of direct purchasers to pass on some or all of the higher costs associated with illegal monopolizing behavior can affect not only who is injured, but also the extent of injury and the resulting ideal level of deterrence. I turn to the complexities associated with pass-through in Section IV. First, however, I discuss the measurement of lost profits.

B. Measuring Lost Profits

Lost profits claims are typically made by businesses claiming that their sales (either actual or potential) have been adversely affected by the behavior of a defendant or defendants. In some cases the plaintiffs might be competitors that allegedly lost profits as the result of exclusionary behavior, while in other cases the plaintiffs might be downstream purchasers that were adversely affected by collusion. In either case, the basic principle associated with lost profits is relatively straightforward – the plaintiff should receive compensation that would put it in the same position as it would have been had the bad acts not occurred. In practice, however, the measurement of lost profits can be quite difficult.

²⁸ See, e.g., Jeffrey Perloff & Daniel L. Rubinfeld, *Settlements in Private Antitrust Litigation*, in PRIVATE ANTITRUST LITIGATION 149 (Lawrence J. White ed., MIT Press 2006); John M. Connor, *Forensic Economics: An Introduction with Special Emphasis on Price Fixing*, 4 J. COMPETITION L. & ECON. 31 (2008).

²⁹ It is also further complicated by the possibility that some consumers will have purchased the product in the expectation of obtaining damages (especially if this is an intermediate goods market). For an analysis of this point, see David Besanko and Daniel F. Spulber, *Delegated Law Enforcement and Noncooperative Behavior*, 5(1) J.LAW, ECON & ORG 25 (Spring, 1989). See also, Steven Salant, *Treble Damage Awards in Private Lawsuits for Price Fixing* 95(6), J. POLIT. ECON. 1326 (1987) and Jonathan Baker, *Private Information and the Deterrent Effect of Antitrust Damage Remedies*, 4(3) J. LAW, ECON & ORG 385 (1988).

To keep the discussion focused, assume that the plaintiff is a downstream customer. If the plaintiff has been in business throughout the period of alleged harm, then either the benchmark or yardstick overcharge method can be applied. Of course, there will be additional steps involved, since one must take into account that overcharges are not lost profits. To do so, it is essential to predict but-for prices. However, it is also essential to estimate a demand model that will allow one to estimate but-for quantities as well. Once prices and quantities are estimated for the but-for world, the final step involves an analysis of but-for costs, so that but-for revenues can be translated into but-for profits.

In addition to the benchmark and yardstick approaches to measuring lost profits, there is also a “market share method.” In its most general form, this methodology involves comparing the profits enjoyed by the plaintiff in the actual and but-for worlds. If there is a loss of market share that can reasonably be attributed to the defendant’s wrongful behavior, then the difference between the actual and but-for market shares can be translated into a measure of lost-profits damages.

One virtue of the market share approach is that it provides a means of controlling for (and thus not taking into account) economic shocks not associated with the anticompetitive behavior that affect the industry and the plaintiff. There are, however, a number of significant disadvantages. First, as a practical matter it can be very difficult to control for non-collusive factors that led plaintiff’s market share to decline from those factors that were legitimately associated with the anticompetitive behavior. Second, market shares often fluctuate in a manner that can only be attributed to noise (a confluence of many economic forces). If plaintiffs only sue when their market shares decline, the selection effect will tend to yield damages associated with declining market shares that are not causal in nature. Third, if the lost market share approach is applied to a relatively new entrant into an industry – an entrant whose market share was naturally increasing – the approach can generate highly unreliable projections of lost share.

The reason is that projections reasonably far into the future based on a short period of actual production and a small actual market share are likely to yield estimates of lost market share that are highly unreliable.³⁰

Consider one particularly striking example. In *Conwood*, the plaintiffs put forward a market share projection based solely on market share growth.³¹ However, plaintiffs failed to distinguish the alleged wrongful behavior from legitimate non-collusive behavior (including the entry of several firms into the industry). Furthermore, the plaintiffs' market share estimates were highly unstable; the removal of a single data point from the plaintiffs' expert's market share regression analysis reduced alleged damages from over \$1 billion to zero.³²

The likely unreliability of market share projections for firms that have not entered the industry presents a policy dilemma. Anticompetitive behavior can harm firms that have yet to enter the industry; what then is an appropriate damage remedy? I find a proposal by Herb Hovenkamp to be particularly intriguing.³³ Hovenkamp suggests that precluded entrants receive all sunk (unrecoverable) costs associated with the attempt at entry plus the fair market value of any contractual obligations which they have received but have not been able to perform. While this approach may underestimate damages in some cases, it is likely to be substantially more reliable than would market share calculations.

IV. Indirect Purchasers – Pass Through

A. The Complexities of Indirect Purchaser Cases

³⁰ If the plaintiff's entry into the industry had been blocked due to the alleged anticompetitive behavior then a market share approach based on business projections may be the plaintiff's only alternative. However, projections based on business plans must be evaluated with caution since such plans are often optimistic about future growth.

³¹ *Conwood, Co. v. U.S. Tobacco Co.*, 290 F.3d 768, 784 (6th Cir. 2002), *cert. denied*, 537 U.S. 1148 (2003).

³² Motion For Leave To File Brief and Brief of Washington Legal Foundation, Stephen E. Fienberg, Franklin M. Fisher, Daniel L. McFadden & Daniel L. Rubinfeld as Amici Curiae in Support Of Petitioners, *Conwood*, 537 U.S. 1148 (No. 02-603).

³³ Hovenkamp, *supra* note 2, at 689.

The analysis of anticompetitive injury and damages can be especially difficult when the plaintiffs are indirect purchasers. In such cases there is likely to be a relatively long supply chain. The prototypical case might involve an allegation of wrongful behavior by a manufacturer, which sells directly to wholesalers, which in turn sell to retailers, which in turn sell to the ultimate consumers. A higher price at the manufacturing level will likely lead to higher prices at the wholesale and retail levels, and ultimately higher prices to consumers. However, the extent to which a particular indirect purchaser is damaged will require analysis of the pass-through of the higher costs at each level in the supply chain.

Adding to the complexity of the indirect purchaser analysis is the fact that there may be multiple supply chains. To illustrate, the manufacturer might sell directly to some retailers and indirectly to others. Alternatively, some manufacturers might be vertically integrated (e.g., manufacturing and wholesaling) whereas others may not. Furthermore, the ultimate injury to final customers will in some cases depend on whether those customers had the opportunity to obtain insurance coverage. Consider, for example, the hypothetical injury caused by monopolizing conduct of a pharmaceutical company. Most individuals with health-care pharmaceutical coverage make a co-pay for covered drugs. In these situations, they will only be injured to the extent that the higher costs lead to higher insurance premiums.

The complications run even deeper. An analysis of pass-through along the supply chain will depend at each step on the extent to which the relevant market or markets are or are not competitive, and if not competitive, the nature of the strategic interaction among the competitors.³⁴ Each of these complicating factors increases the likelihood that the injuries suffered and the damages to be recovered by downstream customers will vary from individual to individual. This suggests that certification of a class of indirect purchasers may not be sensible in many indirect purchaser situations. It also suggests that it will likely be quite difficult to fully specify and estimate a structural model of demand and cost associated with the complete supply chain. Whether a class is certified or not certified, the use of non-structural empirical models

³⁴ For a recent analysis of these complexities, see Martijn A. Han, Maarten Pieter Schinkel & Jan Tuinstra, *The Overcharge as a Measure for Antitrust Damages*, (Amsterdam Center for Law & Economics, Working Paper No. 2008-08, 2009). See also, George Kosicki & Miles B. Cahill, *Economics of Cost Pass Through and Damages in Indirect Purchaser Cases*, 51 ANTITRUST BULLETIN 599 (2006).

may provide the most suitable means of analysis. I discuss these “reduced-form methods” in the following section.

B. Using Reduced-Form Methods to Measure Pass-Through

The pass-through rate is a building block for assessing the net effect of the transaction on prices paid by buyers.³⁵ For example, if a proposed merger appears likely to increase prices by 5% because of the loss of rivalry between the firms (that is based on considerations other than the possibility of cost savings accruing to the merging parties), and the merger will permit the parties to reduce marginal costs by 10%, price would still be expected to increase unless the pass-through rate for cost reductions is 50% or greater.³⁶

The most common statistical method employed to identify the rate at which a firm had historically passed through firm-specific cost changes to prices involves the estimation of *reduced-form* price equations.³⁷ This technique explains the variation in a particular price by variables related to cost, demand, and market structure, and a series of dummy variables that allow the intercept to differ among relevant groups of observations. The model is called “reduced form” because the price equation is thought of as derived from other, prior economic relationships, in this case the interaction of a demand function with a supply relation. The parameters of a reduced form equation are typically themselves functions of a number of the structural parameters (the parameters of the underlying economic relationships).

³⁵ The material in this section builds on the work of Baker and Rubinfeld; see Jonathan B. Baker & Daniel L. Rubinfeld, *Empirical Methods in Antitrust Litigation: Review and Critique*, 1 AM. L. & ECON. REV. 386(1999).

³⁶ The magnitude of the firm-specific pass-through rate depends upon the curvature (second derivative) of the demand curve faced by the firm. Intuitively, the rate is less than (greater than) one-half if the firm’s residual demand function grows more (less) elastic when price rises relative to the change in elasticity associated with linear demand. Because the curvature of demand is not constrained economic theory, the magnitude of the firm-specific pass-through rate must be determined empirically.

³⁷ Perhaps the best example came out of the FTC’s *Staples* litigation. See generally Orley Ashenfelter, David Ashmore, Jonathan B. Baker, & Signe-Mary McKernan, *Identifying the Firm-Specific Cost Pass-Through Rate* (Federal Trade Commission Working Paper No. 217, January 1998); see also A.B.A. ANTITRUST SECTION, *ECONOMETRICS: LEGAL, PRACTICAL, AND TECHNICAL ISSUES* (John Harkrider & Daniel L. Rubinfeld eds., 2005).

Inferences about the firm-specific pass-through rate can be made from estimating a reduced form price equation relating a firm's price (p) to its own costs (c) and its rival's costs (c_R) and a series of fixed effects dummy variables (D), as in the following equation (from which firm and time subscripts have been omitted):

$$p = \alpha + \beta_1 c + \beta_2 c_R + \lambda D + \varepsilon \quad (6)$$

The fixed effect variables are a collection of dummy variables that control for time-invariant firm-specific attributes, cross-section invariant time effects, and product-specific effects. In this model, the competitor's cost variable is thought of as a proxy for industry-wide costs. With industry-wide costs included, the cost variable would pick up only the effect of firm-specific cost variation on prices.³⁸

It is important to understand with respect to mergers that the firm-specific pass-through rate may not be the appropriate rate to apply to the efficiencies that would be achieved, given that the merger might change the extent to which the firms competed. In *Staples*, this did not turn out to be a problem, since the inclusion of variables related to market structure in the regression model did not substantively change the regression results.

³⁸ In *Staples*, for example, Professor Ashenfelter concluded that Staples had historically passed-through only 15% of firm-specific cost reductions to consumers, and the court accepted this figure rather than the two-thirds rate suggested by defendants in reaching its decision to enjoin the merger. *See Federal Trade Commission v. Staples*, 970 F. Supp. 1066, 1090 (D.D.C. 1997).

B. Welfare Implications of *Illinois Brick*

The mix of *Illinois Brick* in federal cases and *Illinois Brick* repealers in many states creates a complex of normative issues for those interested in designing a combined federal-state system that creates incentives for optimal deterrence. Fortunately, that is not our purpose here. Rather, I simply note that it seems likely that the current system both leads to excess deterrence and to excessive litigation costs.

The excess deterrence conclusion follows from the assumption (largely unsupported) that the federal treble damages rule was designed to generate optimal deterrence. To the extent that this is the case, the addition of indirect purchaser cases is likely to over-deter. I note, however, that the evidence concerning the optimality of treble damages is weak at best. A more reasonable characterization may be that the federal system has over-deterred certain types of alleged exclusionary practices such as bundled rebates, but has under-deterred classic price fixing.³⁹

The most recent evidence concerning the duplication of damages that results when both direct and indirect purchasers sue was presented recently to the U.S. Antitrust Modernization Commission (AMC). After hearing substantial testimony, the AMC recommended that direct purchasers continue to have standing, but that defendants be allowed to put forward a passing-on defense. The AMC also recommended that indirect purchasers be given standing to sue under federal law.⁴⁰ This proposed remedy would clearly remove the duplication of damages

³⁹ For a critique of the bundled rebate decision in *LePage's v. 3M*, see Daniel L. Rubinfeld, *3M's Bundled Rebates: An Economic Perspective*, 72 U. CHI. L. REV. 243 (2005). For empirical evidence that detection of cartels is difficult, see Peter G. Bryant & E. Woodrow Eckard, *Price Fixing: the Probability of Getting Caught*, 73 REV. ECON. & STAT. 531 (1991); see also John M. Connor, *Price Fixing Overcharges: Legal and Economic Evidence*, American Antitrust Institute Working Paper No 04-05 (2004).

⁴⁰ ANTITRUST MODERNIZATION COMMISSION, REPORT AND RECOMMENDATIONS 18 (2007), available at <http://govinfo.library.unt.edu/amc/>.

present under the current system. Whether the remedy would improve deterrence and efficiency more generally remains an open question.⁴¹

The European Commission has been leaning towards a different approach. In its 2008 White Paper, the Commission emphasized the goal of competition in the design of a system of private enforcement and therefore supported the use of overcharges and lost profits analysis for both direct and indirect purchasers.⁴²

V. Coupon Remedies

Damage awards are typically awarded by payment in dollars. However, consumers injured by price overcharges often are awarded coupons that can be used for a limited period of time to purchase the good at a price below that which prevails after the overcharge has been eliminated. In this section, I highlight some of the concerns raised by the use of coupon remedies and I point to the possible benefit of a remedy that mixes the use of coupons and cash.

Coupons have appropriately been criticized because they facilitate settlements in class action cases between the lawyers representing the consumer class and the defendant that are not in the interests of the consumers. The plaintiffs' attorneys have an incentive to convince the judge that the coupons are worth close to their face value, even though the actual redemption rate is likely to be small.⁴³ If the attorneys are successful, they will be well rewarded, while the

⁴¹ Han et. al, *supra* note 34, show that when there is a complex supply chain the direct purchaser overcharge provides a poor measure of antitrust harm. They suggest that the overcharge may underestimate the actual antitrust harm, with the extent of the under-deterrence depending on demand, competitive interactions, and the level of the supply chain in which the antitrust injury has occurred. In another interesting paper, Martin Hellwig shows that the deadweight loss resulting from a cartel is equivalent to the amount of the overcharge that a direct purchaser monopolist could pass on to its downstream customers and that the overcharge is a good measure of the harm suffered by the direct purchaser; the overcharge would, of course, lead to under-deterrence. See Martin Hellwig, *Private Damage Claims and the Passing-On Defense in Horizontal Price-Fixing Cases: An Economist's Perspective*, in PRIVATE ENFORCEMENT OF EC COMPETITION LAW 121, (J. Basedow ed., Kluwer Law International 2007).

⁴² COMMISSION OF THE EUROPEAN COMMUNITIES, *White Paper on Damages Actions for Breach of the EC Antitrust Rules*, (2008).

⁴³ According to Frederick Gramlich, the average coupon redemption rate for consumer plaintiffs is 13.1 percent. See Frederick Gramlich, *Scrip Damages in Antitrust Cases*, 31 THE ANTITRUST BULLETIN 261 (1986).

effective cost to the defendant will be relatively low and the actual compensation to consumers will be of relatively little value. There has been some effort to remedy this problem; the Class Action Fairness Act requires that coupon remedies be valued based on their redemption rate. However, the problem remains in non-class cases and it is likely to continue in class cases so long as the prediction as to the likely redemption rate is overly optimistic.⁴⁴

Coupon remedies can also distort consumption decisions and therefore create deadweight loss. In a recent article, Polinsky and Rubinfeld explain why.⁴⁵ Suppose that consumer demand varies over time. Now, consider a consumer whose demand when the coupons are awarded is substantially lower than his or her demand during the period in which the antitrust injury has occurred. This consumer will have a surplus of coupons and consequently will be encouraged to buy an excessive amount of the good at issue. In effect, the coupon remedy has lowered the price of the good below the price in the remedy period, which (assuming an effective remedy) is the but-for competitive price.⁴⁶ Of course, if the consumer's demand does not decline there will be no distortion; the consumer will purchase more of the good at the competitive price than he or she did during the period in which there was antitrust injury, and consequently will run out of coupons.

⁴⁴ Class Action Fairness Act of 2005, Pub. L. No. 109-2, 119 Stat. 4 (codified as amended in scattered sections of 28 U.S.C.) only allows the value of the coupons redeemed in calculating attorneys' fees. To be specific, U.S. Code, 28 USC 1712, states: "(a) Contingent fees in coupon settlements --If a proposed settlement in a class action provides for a recovery of coupons to a class member, the portion of any attorney's fee award to class counsel that is attributable to the award of the coupons shall be based on the value to class members of the coupons that are redeemed."

⁴⁵ The material in this section is based largely on the analysis in A. Mitchell Polinsky & Daniel L. Rubinfeld, *The Deadweight Loss of Coupon Remedies for Price Overcharges*, 56 J. INDUS. ECON. 402 (2008). For a broad overview, see Roger D. Blair & Christine A. Piette, *Coupon Settlements: Compensation and Deterrence*, 51 ANTITRUST BULLETIN 661 (2006).

⁴⁶ This model assumes that the equilibrium price is exogenous. For an analysis of the case in which price is endogenous, see Severin Borenstein, *Settling for Coupons: Discount Contracts as Compensation and Punishment in Antitrust Lawsuits*, 39(2) J. LAW & ECON, 379 (October 1996).

How large is the deadweight loss likely to be? Polinsky and Rubinfeld show that the deadweight loss from excessive consumption can be comparable to the magnitude of the deadweight loss that results from the price overcharge itself. The magnitude of the deadweight loss depends crucially on the variability of demand. It follows that as the variability of demand goes to zero, so does the deadweight loss.

It might seem sensible to extend the remedy period; the hope would be that the longer a consumer has to use coupons, the more likely the coupons will be used for purchases that would have been made anyway. However, Polinsky and Rubinfeld show that extending the remedy period does not eliminate the distortion because with a reasonably high discount rate consumers have an incentive to use coupons early to make purchases they would otherwise have not made. Moreover, the value of these distorting purchases will, in general, exceed the present value of the later inframarginal purchases.

Polinsky and Rubinfeld offer an example of how such a system might work.⁴⁷ Assume that drivers in urban areas have higher expected damages resulting from a faulty tire than do drivers in suburban areas. Assume also that it would be prohibitively expensive to determine the driving habits of the class of all drivers with faulty tires. Consider, then, a remedy of coupons good for the purchaser of four new tires during the next year with a \$1000 face value, or \$500 in cash. The coupon will be more valuable to individuals who drive mainly in urban areas, whereas the cash will be beneficial to those that drive in suburban areas. With this remedy, the costs to the defendant tire manufacturer will be a function of the driving habits of tire buyers and therefore the harm suffered by those drivers. The traditional cash remedy, however, would not

⁴⁷ The example is motivated by Notice of Pendency of Class Action, Proposed Settlement of Class Action, and Settlement Hearing, *Tuchman v. Volvo Cars of N. Am.*, No. BER-L-1808-97 (N.J. Super. Ct. App. Div. 1999), available at <http://www.gardencitygroup.com/cases/fullcase/1003> (last accessed September 16, 2009). The settlement offered a choice of: four new replacement tires, a \$1000 credit toward the purchase or lease of a new Volvo, or \$500 in cash.

enable to court to determine the harm suffered, which is likely to lead to an incorrect estimate of the damages suffered by putative class members.

While the case against coupon remedies is a strong one, there is one argument to be made in their favor. Polinsky and Rubinfeld show that giving plaintiffs the appropriately designed choice between coupons and cash can offer a damage remedy that is superior to cash alone.⁴⁸ The authors show that the optimal coupon-cash remedy offers a cash amount that is less than the value of the coupons to consumers who suffer relatively high harm. This induces these plaintiffs to choose coupons, whereas consumers who suffer relatively little harm choose cash. Sorting consumers in this way leads to improved deterrence because the costs borne by defendants (the cash payments and the cost of providing coupons) more closely approximate the harms that defendants have caused.

⁴⁸ A. Mitchell Polinsky & Daniel L. Rubinfeld, *A Damage-Revelation Rationale for Coupon Remedies*, 23 J.L. ECON. & ORG. 653 (2007).

