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Antitrust Treble Damages and Economic Efficiency

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Section 4 of the Clayton Act authorizes the private recovery of three times the amount of injuries sustained as a result of an antitrust violation.[1] The first third of these treble damages compensates the plaintiff for his actual injury. The subsequent two-thirds are a punitive largess, putatively to deter further violations and to encourage private enforcement of the antitrust laws.

Several lawyers and economists, however, contend that the treble damage suit is not an economically efficient instrument for antitrust enforcement. Both Richard Posner and Kenneth Dam argue that treble damages may *overdeter*.[2] William Breit and Kenneth Elzinga challenge the efficacy of treble

* Chairman, Criterion Economics, Inc. Email: jgsidak@criterioneconomics.com. At the age of 21, I wrote this paper, received helpful comments from John Shoven, Bruce Owen, and Oliver Williamson, and was given a prize by Stanford University. Over the next 49 years, I also learned much from Kenneth Elzinga and even more from Judge Richard Posner as his clerk.

[1] "Any person who shall be injured in his business or property by reason of anything forbidden in the antitrust laws may sue therefor . . . without respect to the amount in controversy, and shall recover threefold the damages by him sustained, and the cost of suit, including a reasonable attorney's fee." 15 U.S.C. § 15.

[2] RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 361 (Little, Brown & Co. 1st ed. 1972); RICHARD A. POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE 226–27 (Univ. of Chicago Press 1976); *Increasing Sherman Act Criminal Penalties: Hearing on S. 3036 Before the Subcomm. on Antitrust and Monopoly of the S. Comm. on the Judiciary*, 91st Cong. 25 (1970) (statement of Kenneth W. Dam, Professor of Law, University of Chicago School of Law). Posner claims in his first edition of *Economic Analysis of Law* that the treble damage remedy "overdeters in cases where the probability of punishment is higher than 33 percent and underdeters in cases where the probability is lower." POSNER, ECONOMIC ANALYSIS OF LAW, *supra*, at 361. In the 1976 edition of *Antitrust Law*, Posner elaborates:

> Admittedly, the estimation of such probabilities presents a formidable, perhaps impossible, task since we do not know how many antitrust violations escape detection. But it is clear that many antitrust violations are so difficult to conceal that the probability of detection is much greater than one-third. Mergers and most exclusionary practices, such as tying agreements (and even most predatory pricing), fall into this category. The provision of treble damages in such cases serves simply to draw excessive enforcement resources into attempts to discover and prosecute such violations and to expand the prohibitions of the law. Only single damages should be available in such cases.

POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE, *supra*, at 226–27. Dam also warns of "overdeterrence" but does not rely on this efficiency argument exclusively: "I see no reason why that

damage suits and conclude that private antitrust enforcement should be discarded altogether.[3] They identify three inefficiencies in the Clayton Act's treble damage provision. First, the prospect of collecting treble damages creates for the private party a "perverse incentive" to incur, rather than avoid, greater injury after it has recognized that a deleterious monopolistic practice exists.[4] Second, the private party may spuriously allege an antitrust violation in the hope that the defendant will settle out-of-court rather than risk losing a litigated nuisance suit. Third, treble damage cases, unlike public antitrust enforcement matters, consume legal resources to prove not only culpability, but also extent of injury.

These critiques of private antitrust enforcement overlook a more fundamental aspect of economic efficiency: the deterrent value of treble damages depends not on their *nominal* cost to the defendant, but on their *effective* cost. This paper shows that those two costs differ significantly. Consequently, the Posner-Dam "overdeterrence" argument loses credibility, and the Breit-Elzinga criticisms become ancillary. It is argued that the low effective reparations cost implied by the current treble damage provision underdeters, and may conceivably encourage, antitrust violations. Finally, proposed here are several specific reforms to increase the economic efficiency of the treble damage remedy.

I. The Effective Tax on Illegal Monopoly Overcharges

A private consumer whose property has been damaged by reason of higher prices paid for a monopolized or cartelized commodity effectively uses treble damages to tax those illegal overcharges. A second private party injured in his business by a monopolist's predatory pricing also uses treble damages as a tax, though clearly not one on overcharges since none have occurred. Yet the methodology that would be used in the first case to calculate the effective tax rate on overcharges would apply as well to damages from, say, predatory pricing. Under predatory pricing, treble damages would function no longer

portion of the total penalty beyond what is necessary to make particular, identifiable private parties whole should not go to the U.S. Treasury rather than redound as a windfall to those private parties and their lawyers." *Increasing Sherman Act Criminal Penalties: Hearing on S. 3036*, *supra*, at 25 (statement of Professor Dam).

[3] William Breit & Kenneth G. Elzinga, *Antitrust Enforcement and Economic Efficiency: The Uneasy Case for Treble Damages*, 17 J.L. & Econ. 329 (1974); William Breit & Kenneth G. Elzinga, *Antitrust, Penalties and Attitudes Toward Risk: An Economic Analysis*, 86 Harv. L. Rev. 693 (1973); Kenneth G. Elzinga & William Breit, The Antitrust Penalties: A Study in Law and Economics (Yale Univ. Press 1976).

[4] This "perverse incentive" implies that "a private party neglects to modify his behavior when the damage done to him by the monopolistic firm exceeds the cost to him of avoiding that damage or that the consumer modifies his behavior in order to increase the damage done to him by the anticompetitive activity. . . . This incentive would exist whenever the expected value of the reparations is greater than the amount of the damage." Elzinga & Breit, The Antitrust Penalties, *supra* note 3, at 84.

as a levy on overcharges, but instead as a levy on net income derived from the attempt to monopolize in violation of section 2 of the Sherman Act.[5] Nonetheless, the effective tax rate would yield in each case a relative measure of the defendant's effective reparations costs.

For simpler exposition, however, I regard treble damages as a 300-percent *ad valorem* tax on the defendant firm's net income derived from illegal monopoly, or cartel, overcharges.[6] The overcharge tax is imposed only on specific offending firms, and its revenues revert to the plaintiff instead of to the Treasury. Revenues revert to the Treasury when the government itself sues under section 4A of the Clayton Act[7] for damages incurred in the government's proprietary capacity, although the government may recover only *single* damages.[8]

The defendant, however, reduces that 300-percent *ad valorem* tax in three ways: by retaining real interest income derived while holding assets expropriated from consumers or other firms; by using inflated dollars to pay damages; and by deducting one-third or all of those damages from taxable corporate income. The courts have not required treble damages to include inflation adjustments or forgone interest accruing to overcharges.[9] Consequently, the antitrust offender receives from the injured party an interest-free loan not expiring until treble damages are surrendered, a loan repayable at a discount.

Tax deductions further reduce for the defendant the effective cost of treble damages. The Tax Reform Act of 1969 partially disallowed, through the addition of section 162(g) to the Internal Revenue Code (IRC), broader deductions upheld by prior Internal Revenue and Supreme Court decisions.[10] Under section 162(g) only one-third of damages may be deducted in a private civil suit premised on a government action that has demonstrated criminal negligence. Section 162(g) is actuated by a relevant federal criminal complaint resulting in a *nolo contedere* or guilty plea or a criminal conviction.[11] The

[5] 15 U.S.C. § 2.Treble damages can effectively tax other forms of monopoly injury than only predatory pricing and price-fixing. *See* Worth Rowley, *Proof of Damages in Antitrust Cases*, 32 Antitrust L.J. 75, 76–84 (1966) (discussing five Supreme Court decisions regarding allowable calculations of injury in treble damage suits).

[6] Section 4 of the Clayton Act also provides for the plaintiff's recovery of "the cost of suit, including a reasonable attorney's fee." *See supra* note 1. This provision certainly raises the defendant's cost of losing a treble damage suit. But inasmuch as attorney's fees are not directly a monopoly injury, they are excluded here from calculations of the defendant's effective cost of reparations.

[7] 15 U.S.C. § 15a.

[8] *See, e.g.*, Pfizer, Inc. v. Gov't of India, 434 U.S. 308, 317 & n.17 (1978) (Stewart, J.).

[9] *See* Alfred L. Parker, *The Deterrent Effect of Private Treble Damage Suits: Fact or Fantasy*, 3 N.M. L. Rev. 286 (1973). Posner argues that damages arising from tort feasance deserve compensation for forgone interest income and inflation. *See* Posner, Economic Analysis of Law, *supra* note 2, at 78–82.

[10] Revenue Ruling 64-224, 1964-2 Cumulative Bulletin 52; Commissioner v. Tellier, 383 U.S. 687 (1966) (Stewart, J.). Justice Stewart opined in *Tellier* that "the federal income tax is a tax on net income, not a sanction against wrongdoing. . . . Only where the allowance of a deduction would 'frustrate sharply defined national or state policies proscribing particular types of conduct' have we upheld its disallowance." *Id.* at 691, 694 (citing Commissioner v. Heininger, 320 U.S. 467, 473 (1943) (Black, J.)).

[11] I.R.C. § 162(g).

one-third deductibility provision is actually phrased as a disallowal of the deductibility of two-thirds of damage payments as "ordinary and necessary" business expenses otherwise proved under section 162(a). This disallowal extends to future out-of-court settlements as well as to litigated judgments. Treble damages lacking such a criminal premise continue to be completely deductible under section 162(a).

The essential parameters of this overcharge tax are:

- p = competitive price for the defendant firm's product
- M = monopoly markup as a percentage overcharge of competitive price
- q = defendant firm's quantity of annual output
- α = duration of monopoly overcharges in years
- β = years between cessation of overcharges and start of litigation
- γ = duration of litigation in years
- ω = corporate tax deductibility rate for treble damage payments
- T = tax rate on corporate net income
- r = annual real rate of return on capital
- i = annual rate of inflation

There elapse $(\alpha + \beta)$ years between termination of overcharges and actual payment of treble damages. The four-year statute of limitation in section 4B of the Clayton Act requires that β not exceed four years.[12] For simplicity, let the defendant firm's annual sales volume and monopoly markup be constant over the duration of the antitrust violation. Assume continuous compounding.

A. Effects of Inflation, Interest Income, and Tax Deductions

The stream of illegal monopoly overcharges has, at the end of year α, the nominal value

$$\int_{a=0}^{\alpha} Mpq\, e^{(r+i)a} da, \tag{1.1}$$

which is reduced by corporate taxes to

$$(1 - T)Mpq \int_{a=0}^{\alpha} e^{(r+i)a} da. \tag{1.2}$$

This stream ceases to accrue after α years but provides the principle for further interest income until the defendant actually surrenders damages in

[12] 15 U.S.C. § 15b.

($\beta + \gamma$) more years. The nominal, after-tax future value of the overcharges at time ($\alpha + \beta + \gamma$) is therefore

$$e^{(r+i)(\beta+\gamma)}(1-T)\,Mpq\int_{a=0}^{\alpha} e^{(r+i)a}\,da. \tag{1.3}$$

The gross income that accrues to this α-year-long overcharge stream during the entire ($\alpha + \beta + \gamma$) years until remittance of treble damages obtains from subtracting from Equation (1.3) the amount of overcharges retained after taxes during the life of the antitrust violation:

$$e^{(r+i)(\beta+\gamma)}(1-T)Mpq\int_{a=0}^{\alpha} e^{(r+i)a}da-(1-T)Mpq\alpha. \tag{1.4}$$

This interest income has an after-tax value I if realized by the defendant when damages are remitted:

$$I=(1-T)^2Mpq\left[e^{(r+i)(\beta+\gamma)}\int_{a=0}^{\alpha} e^{(r+i)a}da-\alpha\right]. \tag{1.5}$$

The payment of injuries in constant nominal terms during an inflationary period also reduces the defendant's effective cost of treble damages. The real value of trebled monopoly overcharges, when discounted for ($\alpha + \beta + \gamma$) years of inflation, is

$$3Mpq\,e^{-i(\beta+\gamma)}\int_{a=0}^{\alpha} e^{-ia}da. \tag{1.6}$$

The favorable tax deductibility treatment of antitrust damages under sections 162(a) and (g) of the IRC further reduces the cost of the actual treble damage award (D) to

$$D=(1-\omega T)3Mpq\,e^{-i(\beta+\gamma)}\int_{a=0}^{\alpha} e^{-ia}da, \tag{1.7}$$

where either $\omega = 1/3$ under section 162(g), when a successful federal criminal complaint had premised the private treble damage action; or $\omega = 1$ under section 162(a), when the private action lacks a criminal preface. The government's burden of proving criminal intent under section 2 of the Sherman Act renders full deductibility the more likely tax treatment.

The defendant's effective reparations cost (R) is an expression which incorporates both D and I:

$$R = (1-\omega T)3Mpq\,\mathrm{e}^{-i(\beta+\gamma)}\int_{a=0}^{\alpha}\mathrm{e}^{-ia}da - (1-T)^2Mpq\left[\mathrm{e}^{(r+i)(\beta+\gamma)}\int_{a=0}^{\alpha}\mathrm{e}^{(r+i)a}da-\alpha\right] - Mpq\alpha(1-T). \tag{1.8}$$

The first term in Equation (1.8) expresses the diminished value of trebled monopoly overcharges due to inflation and to the relevant deductions under section 162. This first term, furthermore, is uncompensated for the forgone real return to capital. The second term, from Equation (1.5), is the interest income, net of corporate taxes, which is earned from after-tax monopoly profits and which is never surrendered to the plaintiff—the "fruits" of the monopolist's "interest-free loan." The third term in Equation (1.8) is the net monopoly profit received during the α years when overcharges are taxed as legitimate income at rate T rather than at 300 percent. (Recall that annual sales are constant.)

Now the divergence of nominal and effective reparations costs can be measured by calculating from R the effective tax rate on illegal overcharges and contrasting that rate with the 300-percent nominal tax rate implied by section 4 of the Clayton Act.

B. Effective Tax Rate

The effective tax rate on illegal overcharges (τ) obtains when the effective reparations cost is measured relative to some specified tax base. The relevant tax base here is the nominal value of actual injuries ($Mpq\alpha$) which precisely comprises the "damage base," or single damages, from which treble damages are calculated. The effective tax rate T is therefore $R/Mpq\alpha$, or

$$\tau = \frac{3}{\alpha}(1-\omega T)\mathrm{e}^{-i(\beta+\gamma)}\int_{a=0}^{\alpha}\mathrm{e}^{-ia}da - (1-T)^2\left[\frac{1}{\alpha}\mathrm{e}^{(r+i)(\beta+\gamma)}\int_{a=0}^{\alpha}\mathrm{e}^{(r+i)a}da-1\right] - (1-T). \tag{1.9}$$

Stated differently, a treble damage judgement effectively taxes at rate τ (that is, at $(100\times\tau)$ percent) the defendant's net income illegally derived from monopoly overcharges.

Parameter M appears nowhere in Equation (1.9). Although M certainly influences effective reparations costs, it vanishes when τ is obtained from dividing R by $Mpq\alpha$. One can therefore verify, as I asserted in the opening paragraph of Part I, that the methodology that would be used to calculate the effective tax rate on overcharges would apply as well to damages, say, from predatory pricing. The precise nature of the antitrust injury denominating M is purely arbitrary.

The defendant's only available instrument for reducing τ is γ, the length of litigation. Partial differentiation of Equation (1.9) shows that τ decreases monotonically during all years of litigation, never attaining a local minimum for plausible parameter values:

$$\frac{\delta\tau}{\delta\gamma} = -\frac{3i}{\alpha}(1-\omega T)\mathrm{e}^{-i(\beta+\gamma)}\int_{a=0}^{\alpha}\mathrm{e}^{-ia}da - (1-T)^2\frac{(r+i)}{\alpha}\mathrm{e}^{(r+i)(\beta+\gamma)}\int_{a=0}^{\alpha}\mathrm{e}^{(r+i)a}da. \tag{1.10}$$

$$\frac{\delta\tau}{\delta\gamma} = \frac{3}{\alpha}(1-\omega T)\,\mathrm{e}^{-i(\beta+\gamma)}(\mathrm{e}^{-i\alpha}-1) - \frac{(1-T)^2}{\alpha}\,\mathrm{e}^{(r+i)(\beta+\gamma)}\left[\mathrm{e}^{(r+i)\alpha}-1\right] < 0. \tag{1.10′}$$

Only for corporate tax rates over 100 percent or for negative rates of inflation could $\delta\tau/\delta\gamma = 0$. In protracted litigation τ eventually becomes zero and then negative. However, no analytic solution exists for γ where, $\tau = 0$; the number of years of litigation necessary to effect a zero tax rate can only be calculated empirically.

Calculating the second partial derivative of τ with respect to γ and evaluating it at zero reveals an inflection point in the tax schedule when

$$\bar{\gamma} = -\beta + \frac{1}{(r+2i)}\ln\left[\frac{-3i(1-\omega T)(\mathrm{e}^{-i\alpha}-1)}{(1-T)^2(r+i)\left[\mathrm{e}^{(r+i)\alpha}-1\right]}\right]. \tag{1.11}$$

The inflection point is calculated by equating $\delta^2\tau/\delta\gamma^2$ to zero:

$$\frac{\delta^2\tau}{\delta\gamma^2} = \frac{3i^2}{\alpha}(1-\omega T)\,\mathrm{e}^{-i(\beta+\gamma)}\int_{a=0}^{\alpha}\mathrm{e}^{-ia}da - (1-T)^2\frac{(r+i)^2}{\alpha}\mathrm{e}^{(r+i)(\beta+\gamma)}\int_{a=0}^{\alpha}\mathrm{e}^{(r+i)a}da. \tag{1.12}$$

$$\frac{\delta^2\tau}{\delta\gamma^2} = \frac{-3i}{\alpha}(1-\omega T)\,e^{-i(\beta+\gamma)}(e^{-i\alpha}-1) - (1-T)^2\frac{(r+i)}{\alpha}\,e^{(r+i)(\beta+\gamma)}\left[e^{(r+i)\alpha}-1\right] = 0. \tag{1.12'}$$

Multiply by $\alpha e^{i(\beta+\gamma)}$ and transpose terms:

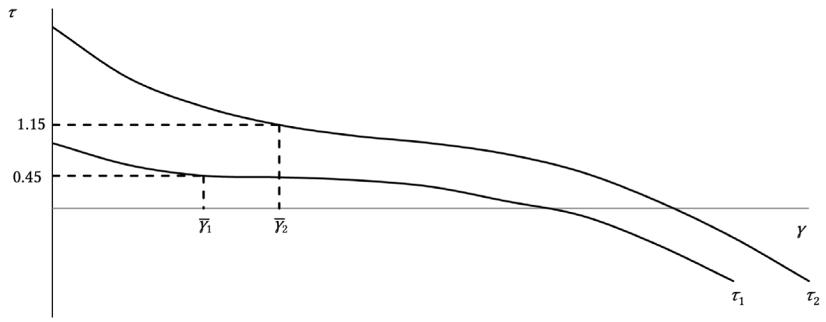
$$e^{(r+2i)(\beta+\gamma)} = \frac{-3i(1-\omega T)(e^{-i\alpha}-1)}{(1-T)^2(r+i)\left[e^{(r+i)\alpha}-1\right]}. \tag{1.13}$$

Take natural logarithms, divide by $(r+2i)$, and transpose terms again:

$$\bar{\gamma} = -\beta + \frac{1}{(r+2i)}\ln\left[\frac{-3i(1-\omega T)(e^{-i\alpha}-1)}{(1-T)^2(r+i)\left[e^{(r+i)\alpha}-1\right]}\right]. \tag{1.14}$$

Figure 1 graphically depicts this inflection in the effective tax schedule.

Figure 1: Effective Tax Rate on Overcharges



For $\gamma < \bar{\gamma}$ the tax schedule is convex and the effective tax rate decreases with respect to litigation time at a decreasing rate. For $\gamma > \bar{\gamma}$ the schedule becomes concave and tax rates decrease at an increasing rate. Figure 1 depicts this decline in the rate schedule during litigation. For schedule τ_1, $\omega = 1$; for schedule τ_2, $\omega = 1/3$. The inflection point is numerically estimated to occur for τ_1 at 45 percent and for τ_2 at 115 percent. Table 1 gives numerical examples of these tax rates for various values of α, β, and γ.

Table 1: Numerical Examples of the Effective Tax Rate on Illegal Overcharges

			Ex Post Rates		*Ex Ante* Rates	
α	β	γ	τ_1	τ_2	$\tilde{\tau}_1$	$\tilde{\tau}_2$
1	0	0	.99	1.93	.23	.70
1	1	2	.70	1.51	.05	.45
1	4	2	.42	1.12	−.14	.21
2	0	3	.66	1.44	.02	.41
2	2	3	.47	1.18	−.11	.25
2	4	4	.19	.80	−.31	.00
3	0	3	.61	1.38	−.01	.37
3	1	5	.33	.99	−.21	.12
3	4	5	.05	.62	−.42	−.13
4	0	2	.66	1.44	.02	.41
4	2	4	.28	.93	−.24	.08
4	4	5	.00	.55	−.45	−.18
5	1	2	.52	1.25	−.08	.29
5	2	3	.33	.99	−.21	.12
5	4	5	−.05	.49	−.49	−.22

Notes: The following parameter values are used: $i = 0.05$, $r = .03$, $T = .48$, $\varphi = .50$. For τ_1 and $\tilde{\tau}_1$, $\omega = 1$; for τ_2 and $\tilde{\tau}_2$, $\omega = 1/3$.

The tax rates in Table 1 fall far short of 300 percent and cannot support the Posner-Dam argument that treble damages frequently overdeter.

II. Antitrust Deterrence and the *Ex Ante* Cost of Treble Damages

A firm's decision to violate or not to violate antitrust laws is one made under uncertainty. There is no certainty that the violation will be detected. Nor, with respect to private treble damage cases, is there assurance that the actual damage settlement, whether in-court or out, will equal three times the alleged monopoly injuries, $3Mpq\alpha$. For example, the defendant might negotiate a smaller damage base, or the plaintiff might accept a settlement offer which less than triples the alleged injuries.

Consequently, the antitrust violator observes before discovery and litigation a potential tax on overcharges that differs from τ because of uncertainty. More specifically, the defendant projects the expected value of effective reparations costs and calculates from it an *ex ante* tax rate $\tilde{\tau}$:

$$\tilde{\tau} = \frac{3\phi}{\alpha}(1-\omega T)\,\mathrm{e}^{-i(\beta+\gamma)}\int_{a=0}^{\alpha}\mathrm{e}^{-ia}da - (1-T)^2\left[\frac{1}{\alpha}\mathrm{e}^{(r+i)(\beta+\gamma)}\int_{a=0}^{\alpha}\mathrm{e}^{(r+i)a}da - 1\right] - (1-T). \tag{2.1}$$

This new, lower tax rate discounts the first term in Equation (1.9) by φ, the probability that the antitrust violator will be detected and that the damage settlement will constitute full treble damages ($3Mpq\alpha$). The remaining terms in Equation (1.9) are unaffected by φ.

The *ex ante* tax rate has important implications for antitrust deterrence. Breit and Elzinga argue vigorously that American management is risk averse and that, consequently, "it is more efficient to deter antitrust violations by heavy reliance on the level of financial penalties than by heavy reliance on the probability of detection and conviction."[13] Suppose a firm possessing market power were contemplating violating antitrust laws and considered the probability of detection and of obligation of full treble damages to be 50 percent. The firm could calculate $\tilde{\tau}_1$ and $\tilde{\tau}_2$, the *ex ante* counterparts to τ_1 and τ_2, respectively. Table 1 gives several numerical examples of these expected tax rates.

The prospective antitrust violation would then resemble an investment whose total expected return to the firm (excluding legal fees and court costs) would be $(1 - \tilde{\tau})Mpq\alpha$. In any instance where τ were less than 100 percent, the offending firm would expect to reimburse effectively *only some fraction* of the actual monopoly injury. Stated differently, the firm would expect to retain after remittance of treble damages $[100 \times (1 - \tilde{\tau})]$ percent of the actual injury. If $\tilde{\tau}$ were less than 0, the firm would expect to pay effectively *no reparations at all* and retain after treble damages an amount exceeding the actual injury.

One can therefore conclude by Breit's and Elzinga's same reasoning that the *ex ante* tax rate on overcharges is not so harsh as to deter risk averse managers from monopolistic practices. A firm's risk aversion does not preclude its rational "investment" in an antitrust violation.

III. Making Antitrust Penalties More Efficient

Breit and Elzinga propose that "the efficient solution"[14] to the problem of antitrust enforcement would be to discard all existing public and private

[13] Breit & Elzinga, *Antitrust, Penalties and Attitudes Toward Risk*, *supra* note 3, at 713; *see also* Elzinga & Breit, The Antitrust Penalties, *supra* note 3, at 112–138.

[14] Elzinga & Breit, The Antitrust Penalties, *supra* note 3, at 112.

sanctions. In their place would be a single "mandatory fine of 25 percent of the firm's pre-tax profits for every year of anticompetitive activity."[15] The sole criterion underlying the Breit-Elzinga proposal is the economic efficiency of antitrust enforcement:

> The 25 percent figure, we stress, is not to be taken as either an estimate of the firm's profits attributable to its antitrust violation or an estimate of the misallocative damage done to society by the firm's anticompetitive activity. Rather than being concerned with compensation, our proposal is directed solely toward deterrence; the 25 percent figure would seem sufficient for this purpose.[16]

However, the Breit-Elzinga proposal is quickly shown to render antitrust penalties only more inefficient and inequitable. I show here, in sharp contrast to the Breit-Elzinga proposal, that several modest changes in the existing treble damage remedy would substantially improve the efficiency of antitrust enforcement.

A. The Breit-Elzinga Proposal

The Breit-Elzinga fine would have a nominal value of

$$.25[(1 - C) + M]pq\alpha, \tag{3.1}$$

where C is the defendant's average total cost as a percentage of his product's competitive price. Inflation and interest income effects, however, reduce the cost of the fine just as they reduce the cost of treble damages. The effective cost of the Breit-Elzinga fine (F), therefore, closely resembles the effective cost of reparations (R) presented in Equation (1.8):

$$\begin{aligned} F = .25(1 - \omega T)[(1 - C) + M]pq\,\mathrm{e}^{-i(\beta+\gamma)} \int_{a=0}^{\alpha} \mathrm{e}^{-ia}da \\ - (1 - T)^2 Mpq\left[\mathrm{e}^{(r+i)(\beta+\gamma)} \int_{a=0}^{\alpha} \mathrm{e}^{(r+i)a}da - \alpha\right] \\ - Mpq\alpha(1 - T). \end{aligned} \tag{3.2}$$

Breit and Elzinga do not say whether their fine could be deducted from taxable income. But their stipulation that the fine extract "25 percent of the

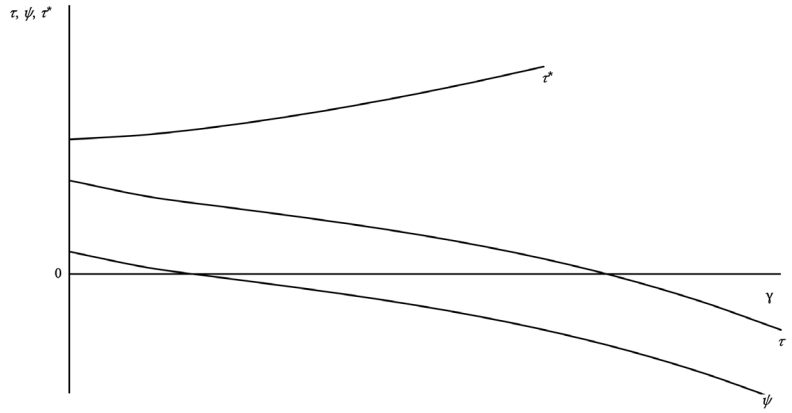
[15] Breit & Elzinga, *Antitrust, Penalties and Attitudes Toward Risk*, *supra* note 3, at 711; *see also* Elzinga & Breit, The Antitrust Penalties, *supra* note 3, at 134–37.

[16] Breit & Elzinga, *Antitrust, Penalties and Attitudes Toward Risk*, *supra* note 3, at 711.

firm's pre-tax profit" suggests that the penalty would be wholly deductible—and, therefore, subsidized by the Treasury.

Figure 2 graphically depicts the effective tax rate on overcharges pursuant to three regimes: (1) the treble damage remedy (τ), (2) the Breit-Elzinga fine (ψ), and (3) the modified treble damage remedy (τ^*).

Figure 2: Effective Tax Rates on Overcharges: Treble Damage Remedy, Breit-Elzinga Fine, and Modified Treble Damage Remedy



Calculation of the effective tax rate on overcharges under the Breit-Elzinga fine (ψ) uses the same damage base as τ. The effective tax rate in this case is therefore $F/Mpq\alpha$, or

$$\psi = .25(1-\omega T)\frac{[(1-C)+M]}{M\alpha}e^{-i(\beta+\gamma)}\int_{a=0}^{\alpha} e^{-ia}da - (1-T)^2\left[\frac{1}{\alpha}e^{(r+i)(\beta+\gamma)}\int_{a=0}^{\alpha} e^{(r+i)a}da - 1\right] - (1-T). \tag{3.3}$$

$$\psi = -.25(1-\omega T)\frac{[(1-C)+M]}{M\alpha i}e^{-i(\beta+\gamma)}(e^{-i\alpha}-1) - (1-T)^2\left[\frac{1}{\alpha(r+i)}e^{(r+i)(\beta+\gamma)}\left[e^{(r+i)\alpha}-1\right]-1\right] - (1-T). \tag{3.3′}$$

No minimum rate exists for ψ. The mathematical properties of the effective tax rate on overcharges under the Breit-Elzinga proposal show that ψ,

like τ, slopes downward monotonically over all years of litigation, first at a decreasing, and then an increasing, rate. Figure 2 above graphically depicts ψ in the general case, and Table 2 below gives numerical examples ofy for three different monopoly markups and tax treatments.

$$\frac{\delta\psi}{\delta\gamma} = .25i(1-\omega T)\frac{[(1-C)+M]}{M\alpha}\,\mathrm{e}^{-i(\beta+\gamma)}\int_{a=0}^{\alpha}\mathrm{e}^{-ia}da - (1-T)^2\frac{(r+i)}{\alpha}\mathrm{e}^{(r+i)(\beta+\gamma)}\int_{a=0}^{\alpha}\mathrm{e}^{(r+i)a}\,da. \tag{3.4}$$

$$\frac{\delta\psi}{\delta\gamma} = .25(1-\omega T)\frac{[(1-C)+M]}{M\alpha}\,\mathrm{e}^{-i(\beta+\gamma)}(\mathrm{e}^{-i\alpha}-1) - \frac{(1-T)^2}{\alpha}\mathrm{e}^{(r+i)(\beta+\gamma)}\left[\mathrm{e}^{(r+i)\alpha}-1\right] < 0. \tag{3.4′}$$

The tax schedule has an inflection point:

$$\frac{\delta^2\psi}{\delta\gamma^2} = -.25i(1-\omega T)\frac{[(1-C)+M]}{M\alpha}\mathrm{e}^{-i(\beta+\gamma)}(\mathrm{e}^{-i\alpha}-1) - (1-T)^2\frac{(r+i)}{\alpha}\mathrm{e}^{(r+i)(\beta+\gamma)}[\mathrm{e}^{(r+i)\alpha}-1] \gtrless 0. \tag{3.5}$$

Transpose terms and divide by $\alpha(1-T)^2\mathrm{e}^{-i(\beta+\gamma)}[\mathrm{e}^{(r+i)\alpha}-1]$:

$$\mathrm{e}^{(r+2i)(\beta+\gamma)} = \frac{-.25i(1-\omega T)[(1-C)+M](\mathrm{e}^{-i\alpha}-1)}{M(1-T)^2(r+i)[\mathrm{e}^{(r+i)\alpha}-1]}. \tag{3.6}$$

Take natural logarithms, divide by $(r+2i)$, and transpose terms again:

$$\bar{\gamma}_{\psi} = -\beta + \frac{1}{(r+2i)}\ln\left[\frac{-.25i(1-\omega T)[(1-C)+M](\mathrm{e}^{-i\alpha}-1)}{M(1-T)^2(r+i)[\mathrm{e}^{(r+i)\alpha}-1]}\right]. \tag{3.7}$$

The function ψ is convex when litigation has lasted fewer than $\overline{\gamma}_{\psi}$ years, and concave when litigation has surpassed $\overline{\gamma}_{\psi}$ years in duration.

Table 2: Numerical Examples of the Effective Tax Rate on Illegal Overcharges: Breit-Elzinga Fine and Modified Treble Damage Remedy

α	β	γ	ψ_{11}	ψ_{12}	ψ_{13}	ψ_{21}	ψ_{22}	ψ_{23}	ψ_{31}	ψ_{32}	ψ_{33}	τ^*_2	τ^*_3
1	0	0	−.15	−.28	−.35	.08	−.12	−.24	.20	−.04	−.19	2.03	2.51
1	1	2	−.28	−.40	−.45	−.08	−.25	−.36	.02	−.19	−.31	2.24	2.72
1	4	2	−.42	−.52	−.57	−.25	−.40	−.49	−.16	−.34	−.45	2.50	2.98
2	0	3	−.30	−.41	−.47	−.11	−.28	−.38	−.01	−.21	−.34	2.28	2.76
2	2	3	−.40	−.49	−.55	−.22	−.38	−.47	−.13	−.32	−.43	2.45	2.93
2	4	4	−.56	−.64	−.69	−.40	−.54	−.62	−.33	−.49	−.58	2.77	3.25
3	0	3	−.33	−.43	−.49	−.13	−.30	−.40	−.04	−.24	−.36	2.32	2.80
3	1	5	−.47	−.56	−.62	−.31	−.45	−.54	−.23	−.40	−.50	2.60	3.08
3	4	5	−.65	−.72	−.77	−.50	−.63	−.70	−.43	−.58	−.67	2.97	3.45
4	0	2	−.30	−.41	−.47	−.11	−.28	−.38	−.01	−.21	−.34	2.28	2.26
4	2	4	−.50	−.59	−.64	−.34	−.48	−.57	−.26	−.43	−.53	2.66	3.14
4	4	5	−.68	−.75	−.80	−.54	−.66	−.73	−.47	−.61	−.70	3.04	3.52
5	1	2	−.38	−.47	−.53	−.19	−.35	−.45	−.10	−.29	−.41	2.41	2.89
5	2	3	−.48	−.57	−.62	−.31	−.46	−.54	−.23	−.40	−.50	2.61	3.09
5	4	5	−.71	−.79	−.83	−.58	−.70	−.77	−.51	−.65	−.73	3.11	3.59

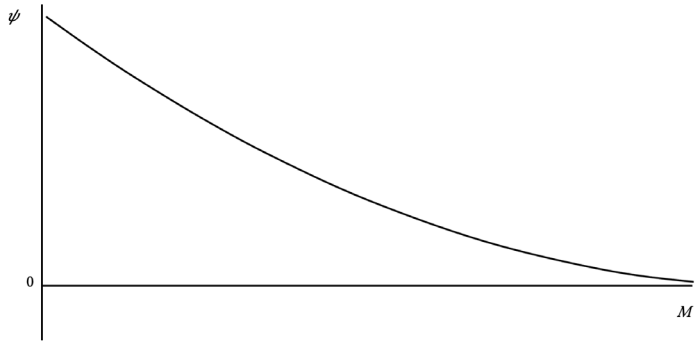
Notes: The first subscript for ψ (1, 2, 3) corresponds to ω = 1, 1/3, 0, respectively; the second subscript (1, 2, 3) corresponds to M = .05, .10, .25, respectively. For τ^*_2, $\omega = 1/3$; for τ^*_3, $\omega = 0$. The following parameter values are used: i = .05, r =.03, T = .48, C = .90.

Virtually all these tax rates are negative and would effectively encourage antitrust violation. Furthermore, unlike τ, ψ is distortionary with respect to M:

$$\frac{\delta\psi}{\delta M} = \frac{.25(1-\omega T)(1-C)(e^{-i\alpha}-1)}{M^2\alpha i e^{i(\beta+\gamma)}} < 0. \tag{3.8}$$

Figure 3 graphically depicts the distortion of the Breit-Elzinga fine with respect to monopoly markup.

Figure 3: Distortion of Breit-Elzinga Fine
with Respect to Monopoly Markup



The Breit-Elzinga fine consequently produces a second "perverse incentive" because the antitrust offender faces lower effective tax rates on his illegal income as he increases his monopoly markup. The second partial derivative of ψ with respect to M reveals that ψ is convex and forms the rectangular hyperbola, with no minimum or maximum tax rate, pictured in Figure 3:

$$\frac{\delta^2\psi}{\delta M^2} = \frac{-.50(1-\omega T)(1-C)(e^{-i\alpha}-1)}{M^3\alpha i e^{i(\beta+\gamma)}} > 0. \tag{3.9}$$

Adopting the Breit-Elzinga fine would create more problems than it would solve. How the elimination of 1000 private cases annually could enhance antitrust deterrence is unclear.[17] The Breit-Elzinga proposal and its resulting incentive structure offer no compelling answer.

B. A Simpler Proposal

In this paper, I have argued that the defendant's effective and nominal costs in a private antitrust suit diverge enough to attenuate significantly the deterrent value of the treble damage remedy. The disparity between nominal and effective costs has already been traced to the tax deductibility of the defendant's reparations costs, and to the absence of the plaintiff's compensation in the damage award for inflation and forgone interest income. To increase the economic efficiency of antitrust enforcement, I simply propose reversing the causes of those low effective reparations costs. After these modest reforms, treble damages would effectively impose on the antitrust violator nearly the 300-percent tax on overcharges nominally implied by section 4 of the Clayton Act.

[17] Posner, Antitrust Law: An Economic Perspective, *supra* note 2, at 34 tbl. 4, tabulates private cases from 1937 to 1974. Private antitrust suits first exceeded 1000 annually in 1971.

Treble damages should require compensation for inflation, so that the cost to the defendant of the actual damage award (D^*) is

$$D^* = (1 - \omega T)\, 3Mpq\alpha, \tag{3.10}$$

rather than the deflated amount in Equation (1.7). The Internal Revenue Service and the courts, furthermore, should reduce the deductibility of treble damage payments. If treble damages are compensatory and punitive in nature, why should the Treasury subsidize the defendant's payment of either that compensation or that penalty? Damages now one-third deductible should be disallowed entirely, and damages now completely deductible should be no more than one-third deductible. Finally, the defendant should be required to reimburse the plaintiff for the interest income that would have accrued to the assets expropriated from the latter by the monopolistic activity—that is,

$$e^{(r+i)(\beta+\gamma)} Mpq \int_{a=0}^{\alpha} e^{(r+i)a} da - Mpq\alpha. \tag{3.11}$$

The effective reparations cost that would obtain after these three reforms (R^*) would be

$$\begin{aligned} R^* = {} & (1 - \omega T)\, 3Mpq\alpha \\ & - (1 - T)^2 Mpq \left[e^{(r+i)(\beta+\gamma)} \int_{a=0}^{\alpha} e^{(r+i)a} da - \alpha \right] \\ & - Mpq\alpha (1 - T) \\ & + \left[e^{(r+i)(\beta+\gamma)} Mpq \int_{a=0}^{\alpha} e^{(r+i)a} da - Mpq\alpha \right]. \end{aligned} \tag{3.12}$$

$$\begin{aligned} R^* = {} & Mpq\alpha \left[2 + T(1 - 3\omega) \right] \\ & + \left[1 - (1 - T)^2 \right] Mpq \left[e^{(r+i)(\beta+\gamma)} \int_{a=0}^{\alpha} e^{(r+i)a} da - \alpha \right]. \end{aligned} \tag{3.12′}$$

The effective tax rate on overcharges under modified treble damages (τ^*) results when R^* is divided by the original damage base, $Mpq\alpha$:

$$\tau^* = 2 + T(1-3\omega) + \left[1-(1-T)^2\right]\left[\frac{1}{\alpha}e^{(r+i)(\beta+\gamma)}\int_{a=0}^{\alpha} e^{(r+i)a}da - 1\right]. \tag{3.13}$$

Unlike tax rates τ and ψ, this new levy τ^* *increases monotonically with respect to litigation time*:

$$\frac{\delta\tau^*}{\delta\gamma} = \left[1-(1-T)^2\right]\frac{1}{\alpha}e^{(r+i)(\beta+\gamma)}\left[e^{(r+i)\alpha}-1\right] > 0. \tag{3.14}$$

Furthermore, τ^* rises over litigation time at an increasing rate:

$$\frac{\delta^2\tau^*}{\delta\gamma^2} = \left[1-(1-T)^2\right]\frac{(r+i)}{\alpha}e^{(r+i)(\beta+\gamma)}\left[e^{(r+i)\alpha}-1\right] > 0. \tag{3.15}$$

Figure 2 graphically depicts τ^* alongside τ and ψ.

The economic significance of these results is that the defendant's effective cost of reparations does not diminish over the length of the antitrust suit as it does under the Breit-Elzinga proposal or the current treble damage remedy. The effective tax rate will always rise over time. One implication of this result is that the defendant under the modified treble damage remedy now has a distinct disincentive to protract litigation.

The high effective tax rates simulated for τ^*_2 and τ^*_3 in Table 2 show that this simple reform proposal would produce an antitrust sanction more efficient and more equitable than either the existing treble damage remedy or the Breit-Elzinga fine.

Conclusion

Treble damages, this paper concludes, cost the antitrust violator too little to efficiently deter monopolistic behavior. Recent commentators on the economic efficiency of antitrust enforcement have neglected the important distinction between the *nominal* and *effective* costs of antitrust sanctions. Instead, they have errantly conjectured that treble damages overdeter and that efficient antitrust enforcement would rely exclusively on a fine based on the defendant firm's pre-tax profits.

In this paper, I have measured how much treble damages effectively cost the antitrust violator. I have demonstrated that treble damages essentially tax a defendant's income derived from monopolistic activity, but at an effective rate much lower than the 300-percent rate nominally implied by section 4 of the Clayton Act. The uncertainty of antitrust enforcement further discounts

the tax rate observed by the potential antitrust violator and erodes the deterrent value of the treble damage remedy.

Finally, I have considered here two alternatives for increasing the economic efficiency of antitrust penalties. The Breit-Elzinga proposal to rely solely on a fine equaling 25 percent of the defendant's pre-tax profits has been shown not to be "the efficient solution" that its authors purport. In contrast, I advocate modifying the present treble damage remedy to limit stringently the deductibility of reparations costs from the defendant's net income, and to allow the plaintiff's recovery of lost purchasing power and forgone interest. These simple reforms would reduce the disparity between the nominal and effective costs of treble damages, a disparity which certainly confounds efficient antitrust enforcement.