

Whinston, Michael D.

Working Paper

Lectures on Antitrust Economics, Chapter 1: Introduction

CSIO Working Paper, No. 0039

Provided in Cooperation with:

Department of Economics - Center for the Study of Industrial Organization (CSIO), Northwestern University

Suggested Citation: Whinston, Michael D. (2003) : Lectures on Antitrust Economics, Chapter 1: Introduction, CSIO Working Paper, No. 0039, Northwestern University, Center for the Study of Industrial Organization (CSIO), Evanston, IL

This Version is available at:

<https://hdl.handle.net/10419/23468>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

THE CENTER FOR THE STUDY
OF INDUSTRIAL ORGANIZATION
AT NORTHWESTERN UNIVERSITY

Working Paper #0039

Lectures on Antitrust Economics
Chapter 1: Introduction*

By

Michael D. Whinston
Northwestern University and NBER

* Copyright 2003, Michael D. Whinston.

Lectures on Antitrust Economics

Chapter 1: Introduction

Michael D. Whinston*

Draft – Comments Welcome.

Contents

1	Aims of the Lectures	2
2	Antitrust versus Regulation	4
3	Overview of the U.S. Antitrust Laws	5
3.1	Sanctions	9

*Northwestern University and NBER. Copyright 2003, Michael D. Whinston.

1 Aims of the Lectures

Antitrust laws play a prominent role in the business environment of many nations. Indeed, if one is a regular reader of the *New York Times* or *Wall Street Journal*, the chances are good of seeing in any given week at least one, and often several, articles devoted to some aspect of antitrust policy, whether about a recently announced merger of two large oil companies, a case alleging that an important software company has violated the antitrust laws by suppressing competition, or the revelation that a group of international firms producing an important feed additive have conspired to fix prices. The same can increasingly be said of newspapers in many capitals around the world.

These lectures are intended to serve as an introduction to the economics behind antitrust policies. The lectures do not strive to be comprehensive in their coverage. Rather, I focus selectively on some of the most recent developments in antitrust economics, and on some areas in which I believe there are important open issues requiring further research. As a result, I do not discuss several significant areas of antitrust economics, including — for example — predatory pricing and restrictions on intrabrand competition such as resale price maintenance.

In the first part of the lectures I discuss two topics — price-fixing and horizontal mergers — that involve *horizontal* collaboration among firms; that is, collaboration among firms at the same stage of the production/distribution

chain. In the second part I turn my attention to three potentially exclusionary practices – exclusive dealing, tying, and vertical integration – that involve contracts between entities located at different levels of the production/distribution chain; so-called *vertical* practices.

Although I typically will not discuss legal precedents in detail, I have found reading the case law a very useful way to gain appreciation both for the economic issues involved (even when the court may not have recognized them) and the difficulties involved in formulating an effective antitrust policy. Two excellent antitrust treatises that offer excerpts from major U.S. Supreme Court precedents, interesting discussions, and provocative questions are Areeda and Kaplow [1997] and Posner and Easterbrook [1981]. I also highly recommend reading two classic books on antitrust by leading legal scholars, Posner [1976] and Bork [1978], for interesting and often provocative discussions of many of the central issues in antitrust analysis.¹

Before we begin, I should provide two warnings. First, as may already be evident, the discussion that follows has a heavy bias toward the antitrust policies with which I am the most familiar, namely those of the United States.

Second, I should caution that although economics has greatly increased our understanding of many aspects of antitrust analysis, a careful reading of the existing economics literature on any given antitrust topic often leaves one less than fully satisfied. This is true for a number of reasons. First, in some cases the literature simply does not address the issue that we are interested in. Second, when it does, the literature often contains a number of distinct models. The problem in practice is to decide which (if any!) of these

¹A new and updated version of Posner's book is now available, Posner [2001].

models is applicable to a given case. The literature, however, tends to offer little guidance on this task: empirical evidence on the relevance of the various models is often scant, and one is left trying to compare the assumptions of the various models as best one can to the setting in question.² Third, the welfare criteria that is used in the literature may not correspond to the criteria that is applicable in the law (more on this below). Fourth, as we shall see in more detail in Chapter 2, a well-designed antitrust policy involves important issues of judicial administration, which the economics literature typically ignores entirely.

Of course, what disappoints us as consumers of a literature may offer opportunities for us as producers of research, and it is my hope that the present case will be no exception to this rule.

2 Antitrust versus Regulation

Antitrust law regulates economic activity. The law's operation, however, differs in important ways from what is traditionally referred to as "regulation". Regulation tends to be industry-specific and to involve the direct setting of prices, product characteristics, and entry, usually after regular and elaborate hearings. By contrast, antitrust law tends to apply quite broadly, and focuses on maintaining certain basic rules of competition that enable the competitive interaction among firms in the marketplace to produce "good" outcomes. Investigations and intervention are intended to be exceptional events, that

²I have often felt that antitrust commentators' extremely divergent views of a number of practices can in large part be attributed to this lack of empirical evidence: their posteriors are simply their priors. Of course, in fairness, the antitrust economics literature is far from the only literature sharing this shortcoming.

arise in response to cases in which these basic rules are not followed.

A commonly expressed view is that antitrust law is the preferred means of regulation in settings in which it is thought that competition can, with the less intrusive constraints supplied by such laws, result in socially desirable outcomes. It should be noted, however, that this is an argument that has been neither well articulated nor carefully studied in the economic and legal literatures. Ideally, we would have a better sense than we now do about what the benefits and costs of more complete regulation are relative to the type of regulation embodied in the antitrust law.³

3 Overview of the U.S. Antitrust Laws

As a prelude to our discussion, it is useful to begin with a brief overview of the history and content of U.S. antitrust law.⁴ The setting for the development of the U.S. antitrust laws was the post-civil war transformation of the U.S. economy. Two pressures for reform developed during this period. The first was a wave of discontent among farmers due to the combination of depressed prices for farm products and high rail rates for shipping farm products. The second was a discomfort with the rapidly growing size of modern business, due in part to a number of well-publicized business scandals. This led not only to passage of the Sherman Act in 1890, the United State's first antitrust act, but also to regulatory laws such as that which created the Interstate Commerce Commission in 1887 to regulate the railroads.

³See Laffont and Tirole [1993] for an introduction to the theory of economic regulation.

⁴For further reading see Areeda and Kaplow [1997, Chapter 1] and Posner and Easterbrook [1981, Chapter 1]. (The latter reference predates changes in the criminal penalties that I discuss below.)

Table 1.1 summarizes the most important provisions of the U.S. antitrust laws.

Table 1.1 Here

Sections 1 and 2 of the Sherman Act contain its main substantive sections. An instant's consideration reveals their most notable feature: they are very vague. Indeed, the Sherman Act's two central sections do little more than authorize the Courts to develop a common law of antitrust to fulfill the statute's intent. As it has been interpreted by the Courts, Section 1 applies to a wide range of agreements that may be deemed to reduce competition: price-fixing agreements, horizontal mergers, exclusive contracts, and resale price maintenance agreements. Section 2 applies to unilateral actions taken by a dominant firm that may further its market power, such as predatory pricing and product bundling.

The issue of how these provisions of the Sherman Act are to be applied by the courts clearly raises the question of the statute's intent. The Congressional debates leading to passage of the Sherman Act reflected a number of differing and inherently conflicting goals: promotion of healthy competition, concern for injured competitors, and a distrust of large concentrations of economic and political power all make appearances in the debates over the bill. As might therefore be suspected, these differing goals have continued to surface in its application ever since. However, in the last 25 years a number of scholars have made strong appeals for the first of these to be the only goal of antitrust policy (see, for example, Posner [1976] and Bork [1978] for two of the most influential discussions). With the development of a more

conservative judiciary and increasing infiltration of economics into antitrust analysis, this view seems to be winning the debate.

Even so, the precise formulation of even this economic prescription remains unsettled. Bork [1978], for example, argues vehemently that the appropriate standard is maximization of total surplus.⁵ Certainly to an economist, the thought of designing antitrust policy to maximize aggregate surplus comes naturally and, indeed, much of the economics literature implicitly has taken this to be the appropriate objective for antitrust policy. Nonetheless, in the absence of perfect lump-sum transfer policies, a distributional issue arises concerning the appropriate weight to be given to consumer versus producer surplus gains (e.g., should a merger of competitors that creates a perfectly discriminating monopolist and leads to a small increase in productive efficiency be allowed?⁶).⁷ As I shall note at several points in these lectures, which welfare standard is adopted can be critical to the evaluation of contested practices.

Although the U.S. courts have adopted varying and evolving standards in evaluating challenged practices (and are often not very clear on the exact test being applied), at present the U.S. courts seem closest to applying a consumer surplus welfare standard. As we shall discuss in Chapter 3, the U.S. enforcement agencies (U.S. Department of Justice and Federal Trade Com-

⁵Bork [1978] creates some confusion by actually referring to this as the “consumer welfare” standard, having in mind that both consumers of the product and shareholders of the firm are, ultimately, consumers (see, for example, Bork [1978, pp. 110-11]).

⁶Posner [1976, Chapter 2] and [1975] suggests that one might not approve of such a merger even under an aggregate welfare standard if allowing monopoly profits leads firms to spend money wastefully in an attempt to become a monopolist.

⁷More generally, one could weight each individual consumer and shareholder differently.

mission) adopt essentially this standard in their Horizontal Merger Guidelines (although even they are not explicit about it). Thus, for example, a merger that will increase market power but also increase productive efficiency will be challenged unless the efficiencies are sufficient to prevent any price increases.⁸

The vagueness of the Sherman Act created discontent: those concerned with monopoly power felt that the Act could allow businesses to get away with anticompetitive behavior, while businesses were concerned that they could not know precisely which behaviors would be illegal. These concerns were further exacerbated by the Court's ruling in the *Standard Oil* case [221 U.S. 1 (1911)] in which the Court announced the use of the "Rule of Reason" in evaluating business practices (the Rule of Reason said that a practice's benefits and costs had to be weighed in evaluating the practice). This discontent led, in 1914, to the passage of the Clayton Act and the Federal Trade Commission Act.

The Clayton Act named specific practices that would be considered illegal under certain circumstances: certain forms of price discrimination are banned in Section 2 of the Act (we will not discuss these issues), tying and exclusive dealing fall under Section 3 of the Act, and horizontal and vertical mergers fall under Section 7 of the Act. The Federal Trade Commission Act created the Federal Trade Commission (FTC) as a specialist agency to en-

⁸In contrast, Canada's Competition Act appeared until recently to explicitly adopt an aggregate welfare test for horizontal mergers, and the Canadian Competition Bureau's Merger Enforcement Guidelines adopted this stance as well. Very recently, however, the Canadian Federal Court of Appeal has held in the *Superior Propane* case (2001 FCA 104) that the Act should be interpreted as allowing for not only different weights on consumer and producer surplus, but also for other factors to be considered such as protection of small and medium sized businesses. The decision is currently under appeal.

force the antitrust laws. The central substantive provision guiding the FTC's enforcement actions is Section 5 of the Act. The Courts have come to interpret Section 5 as applying to anything that is a Sherman Act or Clayton Act violation, but also to somewhat "lesser" acts that violate the "spirit" of those laws.⁹ This broader interpretation often has been justified on the basis that the FTC is an administrative authority specializing in these issues (as compared with the judges and juries who must decide cases brought by the DOJ) and that the FTC can impose only what is known as equitable relief for antitrust violations (more on this below).

3.1 Sanctions

There are three types of sanctions that can be imposed in U.S. antitrust cases: criminal penalties, equitable relief, and money damages. Sherman Act offenses are felonies, and the DOJ (but not the FTC) can seek criminal penalties for them. (Violations of the Clayton Act and FTC Act are not crimes.) In practice, criminal penalties are sought only for the most flagrant offenses, which means overt price-fixing. These penalties can include both imprisonment and monetary fines. Currently, violation of the Sherman Act may lead to up to 3 years in jail for individuals. The monetary fines for Sherman Act violations were historically very small, but have recently increased dramatically. For example, prior to 1974, the maximum fine for corporations

⁹For example, several cases in the late 1970's that sought to broaden the application of the antitrust statutes in the collusion area (such as the ready-to-eat breakfast cereal case accusing the cereal oligopoly of jointly stifling competition through product proliferation, and the case against the makers of lead-based antiknock additives for certain price preannouncements and best-price provisions in their contracts) were brought by the FTC rather than the DOJ.

was \$50,000, at which time it was increased to \$1 Million. In 1990 the maximum fine was raised to \$10 Million. Equally or more important, since 1987 U.S. Sentencing Guidelines have allowed for an alternative fine of either (i) twice the convicted firms' pecuniary gains, or (ii) twice the victims' losses. This alternative was first employed by the DOJ in 1995, and is what led Archer-Daniels Midland to agree to pay a \$100 Million fine for its role in the recent lysine and citric acid price-fixing conspiracies.¹⁰

Equitable relief entails undoing the wrong that has occurred. Sometimes this involves forbidding certain actions, sometimes it can involve more affirmative moves to restore competitive conditions such as, for example, divestiture or making certain patents available for license. Both the government and private parties can sue in the federal courts for equitable relief for violations of either the Sherman or Clayton Acts. The result of such proceeding, should the plaintiff prevail, is a court issued *decree*.¹¹

The FTC can also seek equitable relief. Here the procedure is somewhat different and involves a quasi-judicial administrative proceeding within the agency in front of what is known as an "administrative law judge", in which the FTC staff and the accused firm(s) present evidence. The administrative law judge then issues an opinion, which is then reviewed by the Commission,

¹⁰Note that the DOJ must provide evidence about the size of the convicted firms' gains or victim's losses to impose such a fine, in contrast to the current \$10 Million maximum fine which requires only evidence that a violation has taken place.

¹¹Often settlement negotiations result instead in a *consent decree* prior to a court decision on the case. One feature of such decrees is that they cannot be used by later plaintiffs as evidence of the accused firm's guilt. Thus, private plaintiffs hoping to recover damages are significantly disadvantaged when the government agrees to a consent decree with an accused firm instead of successfully litigating the case. Under the *Tunney Act*, some judicial oversight occurs to help assure that consent decrees are in the public interest, but for a variety of reasons this oversight is very limited in scope.

consisting of five commissioners appointed by the President for seven year terms. The Commission can approve or change (in any way) the administrative law judge's decision, and is then empowered to issue a "cease and desist" order if it finds that violations have occurred. Like lower court rulings for the DOJ or private party suits, these cease and desist orders can be appealed by the firms to the appellate courts (specifically, to the Second Circuit Court of Appeals in the case of cease and desist orders).

Finally, private parties who prove in court that they were injured due to Sherman and Clayton Act offenses can recover treble damages. In addition to providing a means for compensating parties injured by antitrust violations, these penalties help to create an additional army of private enforcers of the antitrust laws (moreover, an army that is perhaps more aware of when violations are occurring than are the governmental enforcement agencies). For price-fixing violations, for example, damages are equal to the amount of the overcharge arising from the conspiracy.¹²

It is of interest to note that monetary damages for Sherman Act price-fixing violations may, in some circumstances, be much less effective at deterring illegal behavior than one might initially expect. The reason, as noted by Salant [1987] and Baker [1988], is that buyers who know that they might collect damages may factor this in when they calculate the effective price

¹²The Court ruled in the *Hanover Shoe* case [392 U.S. 481 (1968)] that a defendant cannot escape damages by showing that a plaintiff passed the overcharge on (e.g., in a competitive industry with constant marginal cost, the overcharge would be fully passed on and the immediate buyers would have no change in their profits), and went further in the *Illinois Brick* case [431 U.S. 720 (1977)] by ruling that only an immediate buyer can sue. Although these rulings may appear a strange way to assign damages, one possible justification is that since immediate buyers are the most likely to be able to detect a conspiracy, they should be the ones who are incented to do so.

they are paying. If so, this effectively increases buyers' willingness-to-pay, which counteracts — sometimes completely — the direct deterrence effect of damages on the sellers' pricing incentives.

To be more specific, suppose that we have a group of firms that, absent collusion, would set price equal to their marginal cost c . Let t denote the damage multiple, let $\phi(p, t)$ be the probability of successful detection and prosecution given p and t (we expect $\phi_p(p, t) \geq 0$ and $\phi_t(p, t) \geq 0$), and let $x(\cdot)$ be the demand function. The joint monopoly price p^m maximizes $(p - c)x(p)$.

We begin by considering a single period model in which firms first set prices and make sales, and then at the end of the period any collusive activity that occurred during the period may be detected and prosecuted. Suppose that the firms secretly collude and set price equal to $p > c$. Then the effective (net of damages) price to a (risk neutral) buyer who might collect damages equal to $t(p - c)$ is $p^*(p, t) = p - \phi(p, t)t(p - c)$. Such a buyer will therefore buy $x(p^*(p, t))$ units from the cartel, and so the cartel's expected profit is

$$\begin{aligned}\Pi(p, t) &= (p - c)x(p^*(p, t)) - \phi(p, t)t(p - c)x(p^*(p, t)) \\ &= (p^*(p, t) - c)x(p^*(p, t)).\end{aligned}$$

The cartel's profit maximizing choice is clearly to set p such that $p^*(p, t) = p^m$, the monopoly price, if this possible. Figure 1.1(a) depicts such a case. In such a circumstance, the cartel's output and expected profit are *completely unaffected* by the possibility of damages. In contrast, if there is no p such that $p^*(p, t) = p^m$, as in Figure 1.1(b), then the cartel chooses p to maximize the effective price $p^*(p, t)$. In this case, damages lower the effective price paid

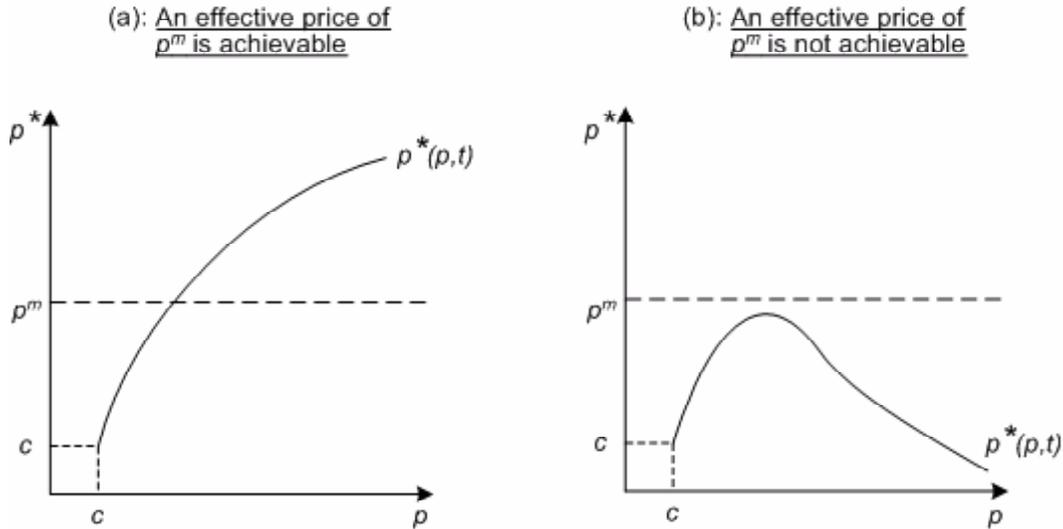
Figure 1.1

Figure 1:

by the consumers. In addition, by lowering the expected profit to colluding, in this case damages can reduce the likelihood of the cartel forming in the first place.¹³

As an example, suppose that $\phi(p, t)$ depends only on t and define t^* to be the value of t at which $t^*\phi(t^*) = 1$ (assume, for simplicity, that this is unique). Then for $t < t^*$, the cartel will set $p = [(p^m - \phi(t)tc)/(1 - \phi(t)t)]$ so that its effective price is p^m . In this case, monetary damages are irrelevant for

¹³Baker [1988] instead models the probability of detection ϕ as a function of the aggregate output x , which is equivalent to having ϕ depend on p^* rather than p . In this case, as long as $[1 - \phi(p^m, t)t] > 0$, it is always possible to generate an effective price equal to the monopoly price p^m by setting $p = [(p^m - \phi(p^m, t)tc)/(1 - \phi(p^m, t)t)$. More generally, one might expect both p and x to matter (or equivalently, p and p^*), since the aggregate damages to be paid will be $(p - c)x$.

the effective price consumers pay. In contrast, for $t > t^*$ the best the cartel can do is set p equal to c , so that damages fully deter inefficient pricing.

This simple model does omit some further ways in which private damages may lead to more efficient behavior. First, suppose that the cartel faces other penalties $K > 0$ (either fines or jail time) so that its payoff is $\Pi(p, t) + \phi(p, t)K$. In this case, if damages increase the responsiveness of the detection probability to price (i.e., if $\phi_{pt}(\cdot, \cdot) > 0$), then they will lead the cartel to set a lower effective price. Second, suppose that we instead consider a multi-period model. For example, imagine that there are two periods of potential collusion. Then because collusion in period 2 can occur only if collusion is not detected in period 1, the cartel will lower its period 1 effective price below p^m if $\phi_{pt}(\cdot, \cdot) > 0$. In addition, a new effect arises in the dynamic setting: here, as long as $\phi_t(\cdot, \cdot) > 0$, damages increase expected welfare by causing the cartel to end more quickly. Finally, in many cases of course, buyers may actually be unaware that collusion is taking place, in which case increasing t can be shown (even in the static model) to necessarily reduce the price charged while the cartel is active.¹⁴

In the next chapter, we begin our discussion of specific antitrust policies by considering in more detail antitrust policy toward price collusion by firms.

References

Areeda, P. and L. Kaplow [1997], *Antitrust Analysis: Problems, Text,*

¹⁴For example, if c is random with full support, both c and whether collusion is taking place are unobservable to consumers, and the probability of collusion is small, then consumer's belief that collusion is taking place will be small independent of the price charged by the cartel.

Cases, Fifth Edition, New York: Aspen Law & Business.

Baker, J. [1988], "Private Enforcement and the Deterrent Effect of Antitrust Damage Remedies," *Journal of Law, Economics, and Organization* (4), Fall, 385-408.

Bork, R. H. [1978], *The Antitrust Paradox: A Policy at War with Itself*, New York: Basic Books.

Laffont, J.-J. and J. Tirole [1993], *A Theory of Incentives in Procurement and Regulation*, Cambridge, MA: MIT Press.

Posner, R.A. [1975], "The Social Costs of Monopoly and Regulation," *Journal of Political Economy* (83), 812-20.

Posner, R.A. [1976], *Antitrust Law: An Economic Perspective*, Chicago: University of Chicago Press.

Posner, R.A. [2001], *Antitrust Law*, Chicago: University of Chicago Press.

Posner, R. A. and F. H. Easterbrook [1981], *Antitrust: Cases, Economic Notes, and Other Materials, Second Edition*, St. Paul, MN: West Publishing Co.

Salant, S.W. [1987], "Treble Damage Awards in Private Lawsuits for Price Fixing," *Journal of Political Economy* (95), December, 1326-36.

Table 1.1: U.S. Antitrust Statutes

Sherman Act (1890):

Section 1: “Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several states, or with foreign nations, is hereby declared illegal...”

Section 2: “Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several states, or with foreign nations, shall be deemed guilty of a felony...”

Clayton Act (1914):

Section 2: Prohibits some forms of price discrimination.

Section 3: Prohibits sales based on the condition that the buyer not buy from your competitor (gets applied to tying and exclusive dealing) where the effect may be “to substantially lesson competition or tend to create a monopoly in any line of commerce.”

Section 7: Prohibits mergers where “the effect of such acquisition may be substantially to lesson competition, or tend to create a monopoly” in any line of commerce.

FTC Act (1914):

Creates the Federal Trade Commission

Section 5: “Unfair methods of competition in or affecting commerce, and unfair or deceptive acts or practices in or affecting commerce, are hereby declared unlawful.”