# A Primer in Antitrust Law and Policy[1]

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## I. Building Blocks of Antitrust Law and Policy

### 1. A Thumbnail Sketch of the Economy

The "wealth of a nation," as we understand the concept today, consists of the goods and services ("goods") that fulfill the consumer's immediate and future wants. Increasing wealth means expanding the quantity, quality, and variety of consumer goods. As most goods do not exist in usable form (for example, bauxite or iron ore), they have to be transformed from raw materials to consumer goods in order to be usable. The basic purpose of economic activity is just that, turning unfinished, unusable goods into finished, usable goods. The actors performing that transformation are firms, defined as arrangements of production factors (land, labor, capital), organized by an entrepreneur for the purpose of bringing finished goods (one step closer) to the consumer. (The production factors derive their value from the value of the ultimate consumer good; therefore, ownership of production factors is also wealth, because land, labor, and capital contribute to fulfill future wants.) Most goods move through various stages of production before they reach the consumer, for example, prospecting, drilling, refining, manufacturing, wholesale, and retail. Each stage increases the value of the good, measured in units of currency (for example, dollars or euro), as it moves closer to a usable state. Once the good reaches the consumer, its value is quite literally *consumed* in the satisfaction of the consumer's wants, either immediately, for example, a slice of pizza, or over time, for example, a movie ticket or a car. (Note that while goods travel downstream, money travels upstream – and back to the consumer at every stage of the process in the form of wages.) The multi-layered economic transformation process requires cooperation and competition among the participating firms. Broadly speaking, firms

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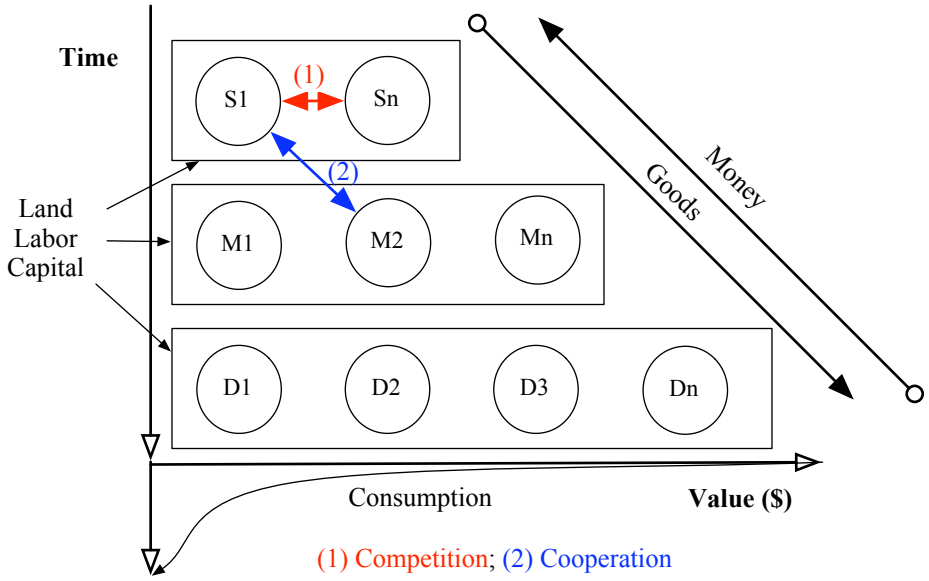
2. Comments or questions? Email me at hfk@mac.com.

cooperate vertically across stages of production and compete horizontally within stages of production. For example, manufacturers enter into distribution agreements with wholesalers (cooperation) and compete with other manufacturers. Competition and coordination are not unrelated as competition is often competition for cooperation, for example, manufacturers compete for the contracts with the best wholesalers, and retailers compete for sales to consumers.

Figure 1: Aggregate Production Structure




Based on M. Skousen, Economic Logic, 2000

At every stage of the process, firms seek to maximize profits. Profits are the best indication that a firm is supplying something that consumers want more of. As profits are revenues minus costs, firms have incentives to maximize revenues (that is, increase the quantity, quality, and variety of those products that consumers want) and decrease costs (that is, increase efficiency). Successful firms will earn above-average profits, which investors will reward with additional capital for expansion and innovation; by the same logic, unsuccessful firms will ultimately exit the marketplace, as profits dwindle and investors will transfer their capital to more promising ventures, that is, ventures that better serve the customer's wants.[3]

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3. This brief sketch of the economic transformation process owes to the Austrian school of economics. The introductory chapters of Mark Skousen's "Economic Logic" (2000) textbook provide an excellent

## 2. Competition

The model above is premised on a functioning market where prices correctly reveal preferences and competition is ubiquitous, that is, competition exists among firms (for example, retailer A competes with retailer B for customers), for factors of production (for example, retailer A competes with retailer B for venture-capital), and among factors of production (for example, labor competes with capital). The consumer experiences competition mainly as *freedom of choice* among substitute products.[4] The seller experiences competition as a restraint on the means by which the firm can grow its revenues. As long as firms are forced to compete with one another for a share of the consumer's wallet, no competitor can profitably decide to produce less, reduce quality, increase price, or decrease variety, because consumers have a choice and will switch their purchases to other suppliers (assuming that the other suppliers are not constrained by patent barriers, transaction costs, or lack of capacity). Competition forces firms to produce more, increase quality, lower prices, and add variety, that is, increase wealth, in order to ensure their long-term survival. Competition guarantees that profits are tied to increases in societal wealth and efficiency.

## 3. Monopoly

The customer experiences monopoly mainly as a *lack of choice*. The seller experiences monopoly as a lack of restraints. Not only can a monopolist increase its profits by expanding output or introducing new products (as is the case under competitive conditions), but also *by creating an artificial shortage*, that is, by reducing output below the competitive level and thereby raising price. (Reducing output raises price, because some customers, who would otherwise walk away empty-handed, will bid up the price.) Decreasing output and raising price not only transfers wealth from the customer to the monopolist, it also reduces societal wealth ("deadweight loss"). The bad news from a policy point is that every firm wants to be a monopolist, because monopolists earn supra-competitive profits; the good news is that as long as multiple firms are each striving to achieve monopoly, the result is usually competition, unless:

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overview of the basic points of the modern Austrian orthodoxy.

4. For example, if I don't like Microsoft Word, I am free to use Mellel, Nisus Writer Express, Mariner Write, Appleworks, Abi Word, Open Office, TexShop, or even BBEdit (on a Mac, that is). Product heterogeneity (not homogeneity!) is a good indicator for competitive markets.

(1) One firm wins so decisively by competing on the merits that it drives all other firms from the market; or
(2) The competitors agree not to compete and to share monopoly profits in form of a cartel; or
(3) One firm succeeds in eliminating its rivals using exclusionary strategies (that is, not through competition on the merits).

This is where the antitrust laws come into play. Broadly speaking, the antitrust laws:

- ◇ Acknowledge that (1) monopoly achieved through superior products or business acumen must remain lawful in order to provide sufficient incentives to compete;
- ◇ Outlaw (2) categorically and punish conspirators criminally; and
- ◇ Disfavor (3) to various degrees.

## 4. Market Power

The sketch above assumes a market structure somewhere in between monopolistic competition and oligopoly. In terms of economic theory, market structures fall between the extremes of perfect competition (infinite number of suppliers) and monopoly (one supplier). Perfect competition is characterized by an absence of market power, that is, each firm is facing infinitely elastic demand and therefore cannot raise prices profitably above cost;[5] monopoly is characterized by highly inelastic demand and a maximum of market power, that is, the monopolist has considerable freedom in profitably raising prices above cost.[6] Market power is

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5. If each and every customer has an unlimited number of suppliers to satisfy his or her demand for widgets, demand is infinitely elastic from a widget-supplier's (S) point of view, because if $S_1$ raises its price just a tiny little bit above the market price, all of its customers will switch their entire purchases to widget makers $S_{2..n}$. In other words, any price increase above the competitive price will result in zero sales, zero revenues, and zero profits.
6. If S is the only game in town in the sense that there are no available substitutes for a group of customers $C_{1...n}$, then S can raise its price for widgets without losing *all* of its sales. Of course, S will lose *some* of its sales as some customers will refuse to buy widgets at the higher price. But as long as the percentage increase in price is greater than the percentage loss in units sold, S will increase its revenues. (Why? Because revenue = price × units sold.)

the underlying concern of the antitrust laws.[7] From a public policy point of view, market power has negative and positive implications, which often makes antitrust policy ambiguous if not outright paradoxical. The negative implications of market power are:

- ◇ Wealth transfer from the consumers to the (shareholders of the) firm;[8]
- ◇ Loss of efficiency, specifically, allocative efficiency (no trades take place where the willingness to pay is below the supra-competitive price but above cost, even though such trades would be beneficial to both parties) and productive efficiency (lack of competition diminishes the incentives to reduce costs); and
- ◇ Rent seeking (that is, spending money to influence policymakers as opposed to spending it on production). According to some estimates, the welfare loss from rent seeking far outstrips the deadweight loss.[9]

The most significant positive implication of market power is the incentive to innovate. Without an opportunity to reap monopoly profits, at least for a while, certain innovation and risk-taking would be a losing strategy. Thus, market power also leads to:

- ◇ Dynamic efficiency (that is, technological progress) with respect to certain goods. The qualifier "certain goods" is warranted, because much of our cultural innovation is driven by curiosity, wonder, and a spirit of increasingly cooperative exploration that is not influenced by and is often outright incompatible with a commercial profit motive.[10]

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7. When I refer to the "antitrust laws," I focus only on the *core* antitrust laws, specifically Sections 1 and 2 of the Sherman Act, and Section 7 of the Clayton Act. There are other antitrust laws, for example the Robinson-Patman Act, whose goals are not (at least not primarily) to prevent or redress efficiency losses from the exercise of market power. These ancillary antitrust statutes are beyond the scope of this article.
8. Note that wealth transfer from the consumer to the firm is a policy problem only if one adopts a *consumer welfare* standard. Held against a *total welfare* standard (consumer surplus + producer surplus), the mere redistribution of wealth has no negative connotations.
9. The present struggle of certain content industries for legislative protection of their distribution models from more effective, low-cost competitors provides a vivid example of rent seeking.
10. An example on point is the open source software movement. It is hard to imagine a more dynamic, more innovative, more creative, and more collaborative process of software engineering that has provided us with better products than many proprietary developments (e.g., the Apache webserver) at

As indicated above, the present state of antitrust policy takes both aspects into account; having, obtaining, and increasing market power as such, even to the level of monopoly, is lawful, but certain means of achieving market power through collusion and exclusion are not. It follows that increasing market power is a necessary but not a sufficient condition of every (core) antitrust offense.[11]

In the following pages, we will explore some of the ways in which firms increase, use, and abuse market power. We will do so within a very bare-bones model of a highly stylized economy with only six players, two suppliers of raw materials (S1, S2), two manufacturers or retailers (M1, M2), and two consumers (C1, C2). In a state of competition, M1 and M2 compete for the business of C1 and C2, and S1 and S2 compete for the business of M1 and M2. The straight arrows indicate the flow of goods. The model further assumes (unless explicitly stated otherwise) that there is no new entry, no alternative products, and no additional suppliers, manufacturers, or consumers.[12] I have yet to come across an antitrust problem that cannot be conceptualized and analyzed within this relatively simple framework. Figure 2 shows the default position of uninhibited competition.

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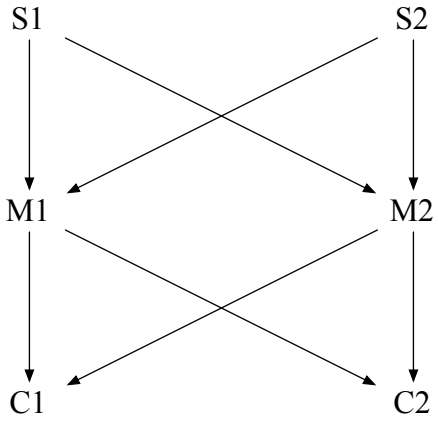
*no cost* for the user; at least, at no initial cost of purchase.

11. The harsh treatment of cartels results from their voluntary nature, that is, there is no technical reason for a cartel to exist other than the motivations of its participants.

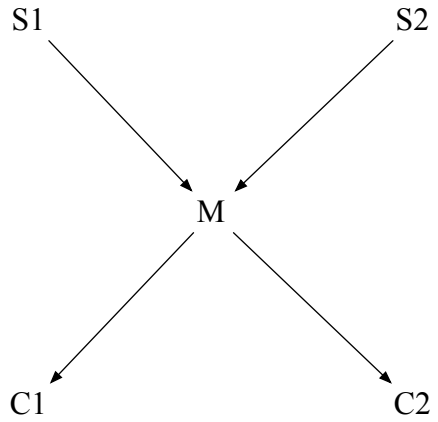
12. Note that these assumptions are different from the traditional model of perfect competition, which is characterized by homogenous products and prices, free and costless entry and exit, perfect information, and an infinite number of firms.

Figure 2: Competition
= M1 and M2 bid against each other




A monopoly at the manufacturer level, as shown in Figure 3, would result in fewer choices for C1 and C2 and for S1 and S2. The customers are now facing a single seller (monopoly) and the suppliers are facing a single buyer (monopsony).

Figure 3: Monopoly
= M is the only seller/buyer

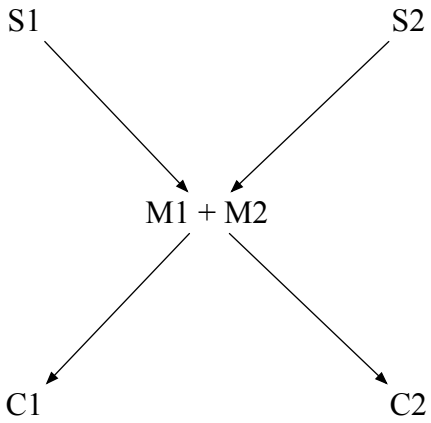



In our economic model, Figure 2 and Figure 3 are the end-points of what is really a continuum of market structures between competition and monopoly. Thus, every strategy that increases market power moves the market structure from competition (Figure 2) closer towards monopoly (Figure 3).

## 5. Collusion

If M1 and M2 enter into an agreement not to compete on price, quantity, and variety, then they effectively create a monopoly, the profits of which they share. Note that the monopoly is a direct and immediate consequence of the cartel agreement. (In practice, some cartels are unstable, because each party has an incentive to cheat.) Figure 4 illustrates the collusive effects of a cartel agreement.[13]

Figure 4: Cartel
= M1+M2 act as a monopolist

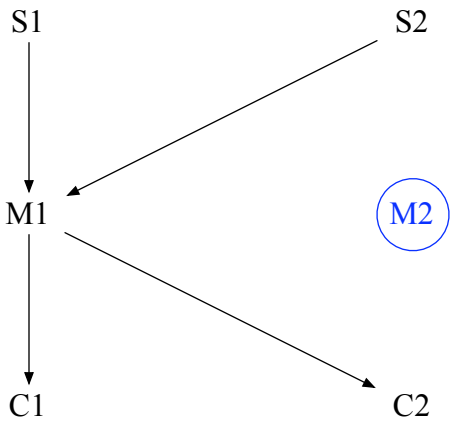



## 6. Exclusion

The goal of a successful exclusionary strategy is to isolate a competitor from its suppliers and/or its customers. The result, as shown in Figure 5, is an industry structure similar to that in Figure 3.

13. From a traditional welfare economics standpoint, *functioning* cartels are worse than monopolies, because one huge firm (monopoly) is more likely to realize efficiencies of scale than two large firms that merely agree not to compete (cartel). The potential for creating efficiencies is also the key rationale for the "merger privilege," that is, the rationale for the much more lenient treatment of corporate mergers, even though the result of a merger is total control of the buyer over the target.

Figure 5: Successful exclusion
= M1 is a monopolist

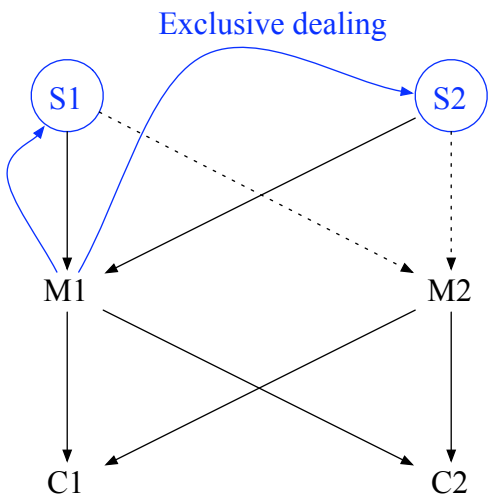



Unlike collusion there is no shared monopoly here; the winner, M1, takes all. In this sense, exclusion may lead to a more stable form of monopoly than a cartel, because there is no partner with an incentive to cheat. In some markets, however, successful exclusion is harder to achieve than a cartel agreement, because a competitor under attack is likely to fight back, and, as discussed above, that battle may in fact be (indistinguishable from) competition. As direct attacks on a competitor are likely to result in an all-out competitive war, exclusionary strategies generally take the form of indirect attacks, aimed at the competitor's supply lines or its customer base. *There is no successful exclusion without foreclosure*, either from essential supplies (upstream foreclosure) or from access to customers (downstream foreclosure).

**a. Upstream Foreclosure**

Suppose that M1 enters into exclusive supply contracts with S1 and S2, that is, S1 and S2 agree to only sell to M1; as a result, M2 is denied access to essential inputs and will exit the market once its inventories are depleted (Figure 6). Once M2 has left the picture, M1 enjoys monopoly power (Figure 5).

Figure 6: Upstream foreclosure

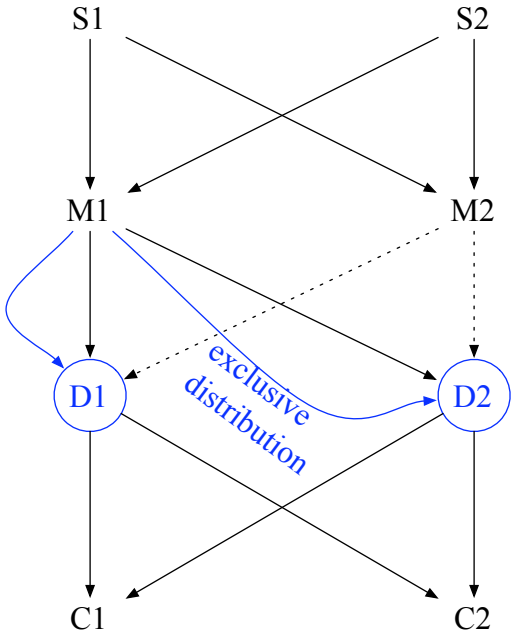



It is important to recall the assumptions made at the outset, in particular the absence of other firms at the supplier and the manufacturer level and the lack of entry. If any of these conditions fails, exclusion doesn't work. Specifically, in order for the exclusive supply arrangements to harm M2, there must be no other present or potential suppliers (S3...Sn); in order to harm the consumers, there must be no other present or potential manufacturers of the same or a close substitute good (M3...Mn). Thus, harm to competitors and harm to competition both depend on the existence of barriers to entry.

**b. Downstream Foreclosure**

Downstream foreclosure follows the same logic as upstream foreclosure. Suppose that M1 enters into exclusive distribution agreements with the only two available distributors D1 and D2, that is, D1 and D2 agree to only sell M1's goods. Here, M2 continues to have access to supplies and can still produce its goods, however, it has lost access to its customer base (Figure 7). Unable to generate revenues, M2 will exit the market and M1 will remain as a monopolist (Figure 5).

Figure 7: Downstream foreclosure




Of course, in the real world there will almost always be alternative channels of distribution, substitute supplies, and an abundance of caution on the part of the suppliers and the distributors, who have no incentives to support M1 in its quest for monopoly power. However, in a directional sense, the model is valid. Foreclose does not have to be absolute in order to slow the growth of a competitor, and to allow the market share leader to enjoy significant (yet not absolute) monopoly profits. In many instances, exclusionary conduct is not aimed at destroying competitors outright but rather at raising a rival's costs, for example, by forcing the rival to resort to more expensive or less efficient means of distribution. Raising a rival's cost is often sufficient to substantially increase a company's market power or to defend a market leadership position.

# II. Taxonomy of Antitrust Offenses

The primary organizing principle of the antitrust laws is the difference between coordinated and unilateral conduct.[14] Section 1 of the Sherman Act (§1) and Section 7 of the Clayton Act (§7) both require an agreement, that is, explicit coordination. In contrast, Section 2 of the Sherman Act (§2) merely requires unilateral conduct by a monopolist.

## 1. Section 1 of the Sherman Act

> *"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 declared to be illegal." (§1)*[15]

A violation of §1 requires:

(1) An *agreement* ("contract, combination … or conspiracy"); resulting in
(2) Anticompetitive *effects* ("in restraint of trade").

Violations of §1 may be prosecuted civilly by the government[16] or by injured parties for treble damages. Certain violations may also be prosecuted criminally by the Department of Justice. Depending on the parties to the agreement, we distinguish between horizontal agreements between competitors (for example, Figure 4) and vertical agreements between companies in a buyer-seller relationship (for example, Figures 6 and 7).

Over time, two distinct types of §1 inquiry into the legality of agreements (horizontal and vertical) in restraint of trade have evolved, rule of reason ("ROR") and per se illegality. The ROR is essentially a balancing test between the procompetitive (PE) and the anticompetitive effects (AE) of an agreement (A). If $PE(A) \geq AE(A)$, then the practice is lawful. If PE(A)

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14. Coordinated and unilateral *conduct* is not to be confused with coordinated and unilateral *effects* of coordinated conduct in the context of a merger.
15. Full text at http://assembler.law.cornell.edu/uscode/html/uscode15/usc_sec_15_00000001---000-.html
16. The Federal Trade Commission and the Department of Justice prosecute federal antitrust violations on behalf of the federal government. The State Attorneys' General prosecute state and federal antitrust offenses on behalf of the states.

$<$ AE(A), then the practice is unlawful. The anticompetitive effects from horizontal agreements are mostly collusive in nature, and the effects from vertical agreements are usually exclusionary in nature. The per se illegality concept bypasses the balancing test and outlaws certain agreements categorically, that is, irrespective of whether they are, in fact, anti- or procompetitive. In other words, if A falls into a category of agreements that have been identified as per se illegal, then A is unlawful; no further inquiry into the economic effects of A is required or permitted. As a practical matter, horizontal per se offenses are routinely prosecuted criminally and civilly; in contrast, ROR offenses are prosecuted civilly and only very rarely criminally.

## 2. Section 7 of the Clayton Act

> *"No person … shall acquire … any part of the stock … or any part of the assets of another person … where in any line of commerce or in any activity affecting commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly." (§7)*[17]

A violation of §7 requires:

(1) The acquisition of stock or assets of a company; resulting in
(2) A likelihood of a substantial lessening of competition ("SLC").

Violations of §7 may be prosecuted civilly by the government or by injured parties for treble damages. Given that any acquisition requires an acquisition *agreement*, §7 falls on the coordinated side of the coordinated/unilateral conduct divide. In theory, almost every corporate merger (the term "merger" is applied loosely to all kinds of corporate transactions) or joint venture, including minority investments, debt purchases, etc., is subject to scrutiny under §7. The SLC test is functionally and structurally similar to a ROR inquiry. If PE(merger) $\geq$ AE(merger), then the acquisition is lawful. If PE(merger) $<$ AE(merger), then the acquisition is unlawful. However, while the ROR inquiry requires proof of actual injury, that is, *present* anticompetitive effects, the SLC test only requires proof of a likelihood of *future* anticompetitive effects. Merger jurisprudence has spawned its own terminology, for example a distinction between unilateral and coordinated effects (not to be confused with unilateral and

17. Full text at http://assembler.law.cornell.edu/uscode/html/uscode15/usc_sec_15_00000018----000-.html

coordinated conduct as mergers are always the result of coordinated conduct), and certain tests to determine markets ("line of commerce … section of the country") and changes in market power that will be discussed below.

## 3. Section 2 of the Sherman Act

> *"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." (§2)*[18]

A violation of §2 requires:

(1) Monopoly power ("monopolize"); and
(2) Improper conduct ("monopolize, or attempt to monopolize").

Violations of §2 may be prosecuted civilly by the government or by injured parties for treble damages. Violations may also be prosecuted criminally by the Department of Justice. Monopolization under §2 (including attempted monopolization) is the only antitrust offense that can be committed unilaterally, provided that the perpetrator has monopoly power, that is, a significant degree of market power. The following table summarizes the two critical, conceptual differences between §1 and §2:

| A violation of ... / ... requires | §1 | §2 |
|---|---|---|
| An agreement | yes | no |
| Monopoly power | no | yes |

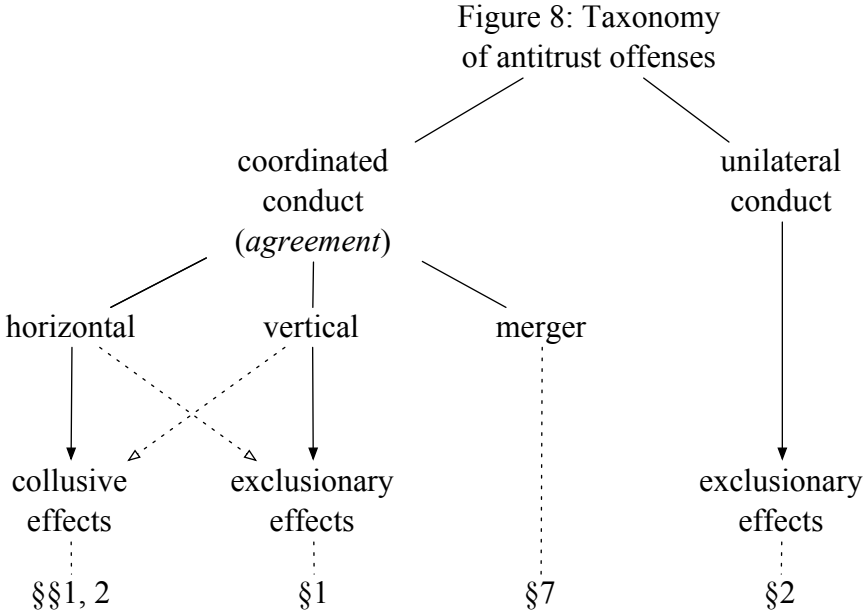
Consequently, *a firm without monopoly power, acting unilaterally, has nothing to fear from the antitrust laws.* By the same token, a monopolist, simply by virtue of its size and power, must refrain from certain behavior that would be perfectly lawful for a smaller firm. Note that §2 also applies to coordinated conduct ("combine or conspire … to monopolize"). If M1 and

18. Full text at http://assembler.law.cornell.edu/uscode/html/uscode15/usc_sec_15_00000002----000-.html

M2 gang up on S1 in order to exclude M3, and if M1 and M2 have significant market power, then their conduct may be unlawful under both §1 (because of the collusive and/or exclusionary agreement) and §2 (because M1 and M2 are ill-behaved monopolists). The effects from monopolization are always exclusionary in nature.

The chart below illustrates where the various antitrust prohibitions fall along the fundamental coordinated/unilateral conduct divide.

Figure 8: Taxonomy of antitrust offenses




## 4. Application of the Federal Antitrust Laws

To illustrate the application of the legal principles outlined above, let's take another look at some examples of collusive effects (for example, Figure 4) and foreclosure effects (for example, Figures 5, 6, and 7).

### a. Price Fixing and Competitor Collaborations

The agreement between M1 and M2 (Figure 4) to fix prices is per se illegal under §1. Agreements among competitors regarding price, quantity, quality, variety and the allocation of products, territories or customers are regular targets of criminal prosecution. Given that per se offenses do not require proof of competitive effects, it is irrelevant whether M1 and M2 are successful in achieving monopoly power (as is the case in our hypothetical in Figure 4, where

M1 and M2 together control the entire market). Price fixing is per se unlawful even if the attempt is doomed to failure, for example, if M1 and M2 are very small firms in a perfectly competitive market. Note that it doesn't take much to "fix" a price in a horizontal conspiracy. It is not required that the parties determine price as a fixed dollar amount (for example, M1 and M2 agree to both sell for $10/unit). Rather, *any agreement that influences price* may come under the per se ban. Moreover, "price" in a horizontal setting is an extremely broad concept that encompasses virtually every aspect contributing to the economic value of the trade, including, for example, terms of sale and credit.

The problem with a broad per se ban on price fixing, market allocation and similar agreements is overdeterrence, that is, the law does not only discourage firms from entering into economically harmful cartel agreements but it might also discourage economically beneficial forms of competitor collaborations. Suppose, for example, that M1 and M2 form a joint venture to produce an entirely New and Revolutionary Product ("NRP"). M1 and M2 further agree that M1 has the exclusive right to distribute NRPs east of the Mississippi and M2 has the exclusive right to distribute NRPs west of the Mississippi. Is this a per se unlawful market allocation agreement? Based on our discussion above, it certainly seems so. But what if neither M1 nor M2 by themselves would have been able to produce any NRPs at all, for example, because each company has necessary patents or because the cost of building a production facility would be too great for each company on its own? In that case, the consumers would clearly be worse off, because no one would be getting any NRPs, neither in the East nor in the West at any price. In these and similar situations, the law recognizes the shortcomings of the per se approach and analyzes certain "competitor collaborations" under the ROR. If, in our example, the market allocation agreement (which, by itself, would be per se illegal) is *ancillary* to the production joint venture in the sense that the market division is reasonably necessary to achieve the pro-competitive benefits of the joint venture (here, the production of NRPs), and as long as PE(venture) $\geq$ AE(venture/restraint), the entire arrangement is likely to be lawful.[19]

**b. Exclusive Dealing and the Jurisprudence of Vertical Restraints**

The exclusive dealing agreement between M1 and S1 and S2 in Figure 6 would be analyzed

19. A useful framework for the analysis of joint ventures and other horizontal agreements among competitors short of a merger is outlined in the Competitor Collaboration Guidelines: www.ftc.gov/os/2000/04/ftcdojguidelines.pdf

under §1. As the agreement is vertical in nature (and does not relate to price), it comes under the ROR, but given that M2 would be foreclosed from access to *all* of its supplies, the exclusionary effects would clearly outweigh the benefits so that the agreement would be unlawful. Broadly speaking, foreclosure of less than 30% of a market is generally lawful, 30-60% is a gray area, and foreclosure of more than 60% tends to be unlawful, barring exceptional circumstances.

As a general matter, vertical agreements are subdivided into "price restraints" and "non-price restraints." Non-price restraints, such as customer or territorial allocations, always come under the ROR.[20] With price restraints, the situation is somewhat more complicated, because minimum resale price maintenance ("RPM")[21] is per se unlawful, whereas maximum RPM comes under the ROR.[22]

There is no good economic reason to treat vertical price and non-price restraints differently. Both are designed to deal with the free rider problem. Consider the following example. D1 owns a high-end stereo equipment store, which is located across the street from D2, a large electronics discounter. D1 specializes in M1's high-end products, D2 carries both M1's and M2's products. M2's products are cheaper than M1's products and have a mass-market appeal. D1 spends many hours educating his customers about M1's stereo equipment, but loses many sales to D2, because after having made up their minds, a significant number of customers walk across the street and save 20% buying M1's products from D2.

In this situation, D2 is free-riding on D1's efforts. As a result, D1 has little incentive to continue his investment in customer service, which is troubling for M1, if M1 relies on high quality service at the retail level to move its products. Put differently, M1 enjoys higher profits if D1 keeps providing high-quality service, but D1 has no incentive to do so. What can M1 do?

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20. Recall that we are dealing with *vertical* restraints, that is, agreements between non-competitors such as manufacturers and resellers. Horizontal agreements between competitors to allocate customers (for example, M1 and M2 agree that M1 only sells to high-end stores and M2 only to discount stores) or territories (for example, M1 and M2 agree that M1 will only sell east and M2 will only sell west of the Mississippi) are per se illegal.
21. For example, in Figure 7 M1 agrees with D1 that D1 must not sell for less than $10.
22. For example, in Figure 7 M1 agrees with D1 that D1 must not sell for more than $10.

(1) M1 could grant D1 exclusive rights within a certain territory. If the customers can't buy M1's stereos across the street, D1 will capture a greater percentage of "his" sales. (Territorial restraint; ROR). The downside is that M1 loses the sales through D2.

(2) M1 could require its distributors to only sell to high-end boutique stores and not to discounters. (Customer restraint; ROR). The effect is similar to (1); the high-end boutiques (such as D1's store) capture a greater percentage of "their" sales, but M1 loses its sales from the discount channel.

(3) M1 could require D1 and D2 (and all other stores that carry M1's products) to adhere to a certain minimum RPM requirement, which would guarantee a profit margin for the retailer, sufficient to make investment in high quality customer service profitable. (Minimum RPM; *per se illegal*). Here, too, the effect is similar to that of (1) and (2). As price competition below the RPM floor between D1 and D2 is no longer permissible, whoever offers better service to the customer wins. This result is ideal from M1's point of view, because it provides D1 with proper incentives by eliminating D2's free riding, yet it allows M1 to continue its sales trough D2 (and other discounters).

From an economic point of view, (1), (2), and (3) are largely interchangeable. In many instances (3) is the most effective solution of the free rider problem and (1) and (2) are merely imperfect approximations to reach the same result.[23]

The following chart summarizes the distinctions discussed above. Its root connects to the "agreement" branch of Figure 8.

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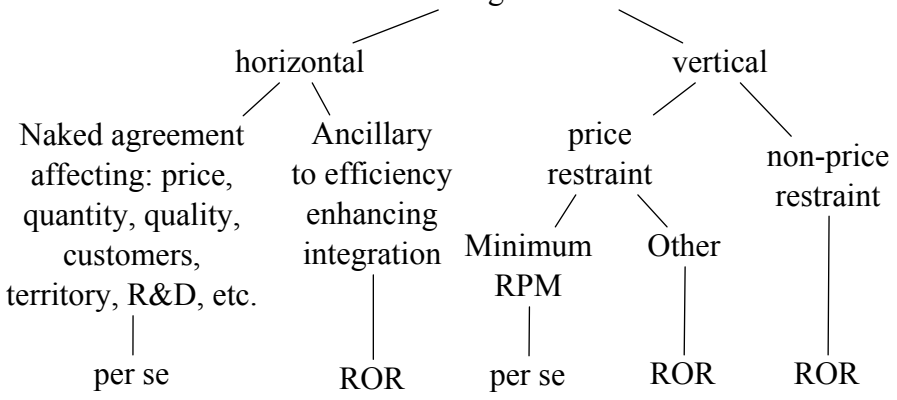
23. In order to minimize the practical effects of the anomaly of per se illegality for minimum RPM, the courts have created a strange web of legal theories to avoid a finding of minimum RPM. First, in order to "fix" prices in a vertical setting, parties generally have to be rather blunt and agree on a determinable dollar amount (for example, $10/unit or 10% above wholesale price); merely *influencing* the resale price is not sufficient. In that respect, vertical price fixing differs significantly from the hair-trigger standard of horizontal price fixing. Second, courts have been reluctant to find an "agreement" where M1 merely *suggests* a minimum resale price to D1, even if such suggestions are accompanied by an announced policy of immediate dealer termination in the event of non-compliance. Third, courts have created broad exemptions from RPM prohibitions for agency arrangements (for example, travel agents, selling airplane tickets) and consignment sales. The rationale for the exemption is that if D1 is an agent of M1 and does not bear the risk of non-sale, M1 may set D1's prices.

Figure 9: §1 of the Sherman Act



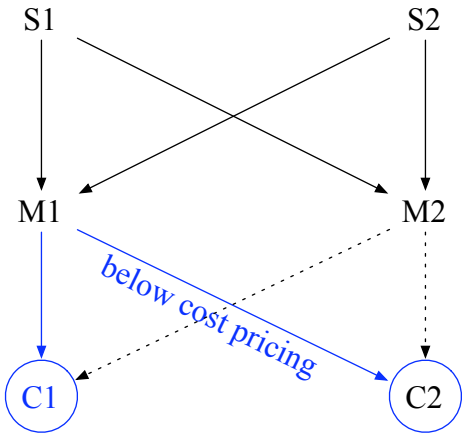

**c. Vertical Integration**

Vertical integration may also cause exclusionary effects. In Figure 7, for example, M1 entered into exclusive distribution agreements with D1 and D2. Alternatively, M1 could have acquired control over D1 and D2 by purchasing their stock and subsequently directed the management of D1 and D2 to terminate any agreements with M2. The effect on M2 (foreclosure of access to C1 and C2) would be the same in both instances. As discussed above, exclusive distribution agreements (vertical non-price restraints) would be analyzed within a §1 ROR framework and given that M2 would be entirely foreclosed from access to customers, the agreement would be unlawful. If M1 chooses to acquire D1 and D2, the acquisition would be subject to §7. (Section 1 remains applicable, however, in an acquisition context, §7 is normally *lex specialis*). The effect of the acquisition would be to "substantially lessen competition," because M1 would control 100% of the relevant market and M2 would be excluded from access to C1 and C2.

**d. Predatory Pricing**

One of the more clearly defined monopolization offenses is predatory pricing, which works as follows. Monopolist M1, the predator, consistently underprices M2, the prey. Consequently, C1 and C2 will purchase from M1, and M2 will go out of business. Once M2 has been driven from the market, M1 remains as the only seller of the product and and will raise price to the monopoly level.

Figure 10: Predatory Pricing
(*de facto* downstream foreclosure)




Structurally, predatory pricing is similar to downstream foreclosure. Through lower prices, M1 "monopolizes" the business of C1 and C2. Of course, the problem is to distinguish *bona fide* low prices (which are good for C1 and C2) from *predatorily* low prices (which are good for C1 and C2 in the short run, but bad in the long run). The line is drawn where M1 sells its goods below marginal cost, because such sales, by definition, diminish M1's profits.[24] The idea is that M1 would not be willing to incur short-term losses, *but for the prospect of being able to charge monopoly prices in the future*, that is, the ability to generate profits sufficient to recoup the losses from predation and to make some additional money on top.

In theory, predatory pricing makes sense. In practice, single market predatory pricing is (probably) rare to non-existent. Firms are usually not willing to deliberately incur certain losses toady for a highly contingent monopoly payoff tomorrow. The most significant problem for recoupment is keeping new entrants out once prices have increased to the monopoly level. Unless M1 has a means to deter entry, blocking patents for example, (single market) predatory pricing is a loser's bet.[25]

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24. If the cost of the marginal unit is $6 and M1 sells the unit for $5, M1 loses money, no matter what. Because it is difficult to observe marginal costs, courts have accepted average variable cost as a proxy.

25. If there are multiple geographic markets or separate product markets, predatory pricing is a more plausible strategy.

## 5. Market Power Revisited

The stylized examples above assume that there is a defined market with no alternative distribution channels, no new entry, and stagnant technology. Since there are only two players at each level, M1 and M2 both have significant market power, and after M2 exits the market, M1 enjoys a monopoly. In reality, questions of market definition and market power are rarely ever that simple and defining the relevant antitrust market and assessing the degree of actual or likely market power in that market is often the most critical issue for any ROR analysis under §1, the finding of monopoly power under §2, and the SLC test under §7. Many if not most antitrust cases turn on market definition questions, with the exception, of course, of per se offenses, for which the presence or absence of market power is immaterial. Frequently, the market definition inquiry (in the §§1, 2, and 7 context) is based on a variant of the following "hypothetical monopolist" thought-experiment, that is now part of the 1992 Horizontal Merger Guidelines.[26]

### a. Relevant Product Market Definition

Suppose that M, the seller of product P1, raises the price for P1 by 10% (for a significant period of time); would that price increase be profitable? If so, then we have a product market, consisting of P1. If not, for example because more than 10% of the P1 customers shift to P2 as a substitute for P1, then we have to expand the product market *as to include P2* (even if M, in reality, does not make P2). We then repeat the process and ask what happens if M were to raise prices for P1 and P2 by 10%. Would that price increase be profitable? If so, then we have a product market, consisting of P1 and P2. If not, then we have to expand the product market once more as to include P3, etc. At some point, customers are cornered, that is, they can no longer avoid the higher prices of some products by switching to substitute products.

Here is an example. Suppose that two towns, A and B, are connected by two bus operators, O1 and O2, and by railroad R. As O1 increases prices by 10%, it loses 40% of its customers to O2 and R. Thus, O1's product does not constitute a relevant market. Repeat the process with a product market consisting of O1's and O2's services. In response to a 10% price increase by O1 and O2, 20% of the customers would switch to R. Still, no product market. Repeat the process with a product market consisting of O1, O2, and R. In response to a 10% price increase, only 5% of the customers would switch to other means of transportation (or choose

26. www.ftc.gov/bc/docs/horizmer.htm

not to travel at all.) Now the price increase is profitable, and we have identified a relevant product market for "bus and rail transportation between A and B."

**b. Relevant Geographic Market Definition**

The methodology for determining the geographic boundaries of the market is similar to that used to define the relevant product market. Suppose that M is the only seller of the set of products that make up the relevant product market (P1…Pn), as defined above, in territory T1, and that M raises prices for P1…Pn by 10%; would that price increase be profitable? If not, expand T1 by adding T2…Tn, and repeat the 10% price increase until the price increase becomes profitable. All the territories (T1…Tn) for which the collective price increase would be profitable are part of the same geographic market.

**c. Market Power in the Relevant Antitrust Market**

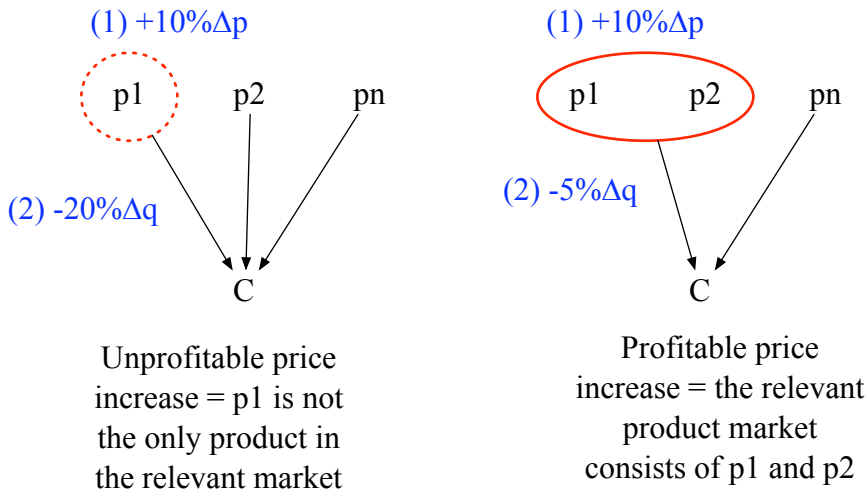
The relevant antitrust market is the combination of products (P1…Pn) and territories (T1…Tn) identified by the hypothetical monopolist test. Once the antitrust market is properly defined, ask how much of that market M controls with the products that it actually manufactures. (For example, if M only makes P1 but the relevant product market consists of P1-P5, M may only controls a small fraction of the relevant product market.) Control, or market share, is commonly measured in sales (that is, dollars/year) or capacity (that is, maximum output of units/year). If M controls $< 30\%$ of a relevant market, it has usually no significant market power for antitrust purposes, 30%-60% are a gray area, and anything $>$ 60% is considered an indication of significant market power. Monopoly power in the context of §2 usually requires a $> 60\%$ market share. Note that this sketch provides by no means a complete picture. The possibility of entry, the ease of supply-side substitution, and changes in technology may significantly alter the share-based estimate of market power. For modern courts, market share analysis is the starting point of the market power analysis, not the end.

**d. Basic Economics of Market Power**

The critical question at every step of the hypothetical monopolist thought-experiment is whether a price increase over a certain set of products and geographies would be profitable. Economically, this is an issue of the price elasticity of demand ("e"), that is, the ratio between the percent variation in quantity demanded ($\Delta q/q$) and the percent variation in price ($\Delta p/p$),

in other words, e = %Δq / %Δp.[27] For most practical purposes, it is sufficient to think of the price elasticity of demand as the percent change in quantity demanded in response to a 1% (or 10%) change in price, stated as a positive number. For example, if M1 raises the price for P1 by 10% and, as a consequence, customers buy 20% less, the price increase would *not* be profitable. Demand for P1 is elastic to changes in price (e = 2). If we include P2 in the product set and raise prices for both P1 and P2 by 10%, and, as a consequence, customers buy 5% less, then the price increase would be profitable. Demand for P1 + P2 is inelastic to changes in price (e = 0.5). Thus, P1 and P2 are in the same product market.

Figure 11: Market Definition




While theoretically appealing, it is very difficult (and sometimes impossible) to apply the hypothetical monopolist test in practice. Suppose, for example, a merger between the only two cable networks with dedicated Science Fiction subscription movie channels. Is there a market for "Science Fiction subscription movie channels?" For some people, romantic comedies or action films are unlikely to be acceptable substitutes for Stargate SG-1, Farscape, and the like. Thus, these viewers would be willing to pay a higher post-merger price, which leads to the conclusion that there *is* a relevant product market for "Science Fiction

27. Technically, that ratio is merely an approximation to the value of the derivative of quantity demanded with respect to price, multiplied by the ratio of price over quantity, which is the strict definition of price elasticity of demand.

subscription movie channels." But what if 95% of the viewer population doesn't care? What if these 95% are perfectly content to catch the occasional Star Wars rerun on any of the other channels? Which viewer group should serve as the benchmark to establish patterns of substitution (or the lack thereof)? The die-hard fans or the average customer? There is no principled way to answer this question, which comes up in virtually every differentiated product case. The hypothetical monopolist test works best with homogenous products, such as sugar, corn syrup, aluminum, oil, gas, coal, etc., where there are established patterns of industrial consumption and "natural experiments" that provide evidence for real-world substitution behavior (for example, a steep increase in the price of oil).

## III. Where to Go From Here?

I wrote this little primer so supply the "missing chapter one" to the textbooks that I am familiar with. Most textbooks do a good job of explaining the basic microeconomics of antitrust and, of course, the legal framework. But more often than not, the textbooks don't explain *how exactly* the antitrust laws fit into the broader picture of the economic process. Similarly, I have always found it helpful to analyze what incentives firms have to engage in conduct that is (i) anticompetitive; and (ii) has been classified by the antitrust laws as suspect or illegal. Starting the inquiry with the *legal classifications* doesn't always explain why and to what end firms would even want to engage in illegal behavior.[28]

That said, my pick for "best antitrust textbook" is "Antitrust Law in Perspective: Cases, Concepts and Problems in Competition Policy," 2003 (American Casebook Series) by Andrew I. Gavil, William E. Kovacic, and Jonathan B. Baker. The authors don't just throw excerpts of cases and questions at the reader, but rather use the cases as illustrations for a rigorous yet highly accessible discussion of changing legal and economic principles, an approach that should be immediately familiar to readers of European legal treatises. As to basic microeconomics textbooks, my favorite, David D. Friedman's "Price Theory", is available for free download at www.daviddfriedman.com.[29] Another excellent choice is Steven E. Landsburg's "Price Theory." Helpful internet resources are the ABA's antitrust online journal "Antitrust Source" (www. antitrustsource.com), the Federal Trade Commission's website at www.ftc.gov, and the Antitrust Institute (www.antitrustinstitute.org), which maintains a useful list of links, sorted by political affiliation.

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28. Moreover, using the model of perfect competition as the starting point is unhelpful. Perfect competition is a model of *price* competition, whereas in reality most competition takes place in the form of product differentiation. (Commodities markets or currency trade being the exception to the norm.) Against the standards of perfect competition, every differentiated products market, no matter how competitive, seems deficient, which – by implication – calls for government intervention in the form of antitrust laws. That default position seems unwarranted.

29. Specifically: http://www.daviddfriedman.com/Academic/Price_Theory/PThy_ToC.html