32. Price Fixing and Conspiracy

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Introduction

Conspiracies that restrain trade are prohibited in most countries in most circumstances. In the United States, Section 1 of the Sherman Act (1890) states that "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] Of all anticompetitive conspiracies, perhaps the most well-known is naked price fixing, though the statue applies equally to production quota agreements, big-rigging, market division, and group boycotts, provided that such conspiracies restrain trade.

The "in restraint of trade" qualifier is important since plain old "conspiracies" are ubiquitous in every line of business in every industry on every day. Every contract, sale, hire, or transaction represents an agreement between two or more parties and is by definition a conspiracy, though the vast, vast majority of them are innocuous. In fact, the economy would not be able to function without agreements over the terms of sale. Even the term "restraint of trade" is arguably overzealous since every contract between firms restrains the trade options of the signing parties in some way. In more modern phrasing, one would say that Section 1, and similar statutes in other jurisdictions, prohibits conspiracies that harm competition.

Competition is itself a process – the process by which firms work and innovate and improve to win the business of consumers, whether it be through lower prices, better products, better selection, added convenience, or other similar pursuits. It is important to note that competition is not (and should not be) measured by the number of competitors, though there is a long history in which the distinction between competition and competitors has been lost.[2] Competition is inherently harmful to individual competitors and regularly causes less efficient, less innovative, or less motivated firms to fail. This means that

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[1] 15 U.S. Code Section 1.

[2] See Noel (2016) for a discussion. Even currently, the Federal Trade Commission, in its current guidance on the Robinson-Patman Act, comingles competition and competitors writing "there must be likely injury to *competition*, that is, a private plaintiff must also show actual harm to *his or her business*" (emphasis added), directly equating harm to competition with harm to a competitor (Federal Trade Commission, 2024).

competition can be strengthening even while the number of competitors is declining. Protecting competition should be about protecting the process by which competing firms vie for business and advance consumer outcomes, and Section 1 prohibits agreements that harm that process.

Express agreements relating to price fixing, production quotas, bid-rigging, or group boycotts, with some exceptions, fall under the category of "per se" violations of law. Courts consider these practices to be so inherently anti-competitive that only proof of an actual agreement is necessary to establish liability and any anti-competitive effects can be simply presumed. This is in contrast to other antitrust matters adjudicated under the "rule of reason" paradigm, where proof of the challenged practice and then proof of its likely anti-competitive effects are both necessary to establish liability. In the early part of the twentieth century, many more practices were considered "per se" illegal, but advances in economic theory and increased input from economic and legal scholars on sometimes complex effects of business strategies have moved most practices into the "rule of reason" category today.[3] Among the only practices still considered "per se" violations are those involving horizontal restraints, such as price fixing, and even then some exceptions have been carved out.

A conspiracy under Section 1 requires an actual agreement among firms – express or otherwise – but does not prohibit any one firm – or group of firms – from not competing very hard, as long as each has made its decisions in an unilateral fashion.[4] This gives rise to several interesting and closely related questions that have been at the center of the legal and academic debate surrounding Section 1 liability for many decades. First, what is the precise definition of an agreement and what actions meet the threshold for being considered an agreement? Second, if direct evidence of an actual agreement among alleged conspirators is not available, how, if at all, can one use circumstantial evidence to reliably infer that a secret agreement must have taken place? While these questions are conceptually distinct, they are often conflated into one in the literature, making the discussion murky at times.

The Concept of Agreement

Some actions clearly fit the definition of an agreement. A signed contract between two or more competing firms specifying a set of inflated prices they agree to charge consumers, or a set of restricted

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[3] For a good historical review, see Rooney et al. (2021).

[4] See, for example, In re Text Messaging Antitrust Litigation, No. 10-8037 (7th Cir. 2010), the Sherman Act "does not require sellers to compete; it just forbids their agreeing or conspiring not to compete."

production quotas they agree to maintain, would be an obvious example of an agreement. A discussion of the same immediately followed by an audible and affirmative "yes, I'm" or "let's do it" on both sides, or a shaking of hands to close the deal, would also be an agreement. A thumbs up or a wink of the eye in response to a conspiratorial proposal would almost surely be held as an agreement as well.

The U.S. Department of Justice (DOJ) states that a conspiracy "must comprise an agreement, understanding, or meeting of the minds between at least two competitors" and that is must "constitute some form of mutual understanding that the parties will combine their efforts for a common, unlawful, purpose."[5] This echoes the Court in *American Tobacco Co. v. U.S.* (1946) which wrote that "no formal agreement is necessary to constitute an unlawful conspiracy" but only "a unity or purpose or a common design and understanding, or a meeting of the minds in an unlawful arrangement."[6] An earlier Court in *Interstate Circuit, Inc. v. U.S.* (1939), evaluating a diffuse, alleged hub-and-spoke conspiracy, wrote that "acceptance by competitors, without previous agreement, of an invitation to participate in a plan, the necessary consequence of which, if carried out, is restraint of interstate commerce, is sufficient to establish an unlawful conspiracy."[7] These definitions all make reference to an understanding but inevitably leave a grey area at the boundary of what does and does not qualify as an "understanding" or a "meeting of the minds" or an "acceptance" of an invitation.

For an interesting international example of the grey area at the boundary of what is an "agreement", consider two recent gasoline price fixing cases in the cities of Ballarat and Geelong, Australia.[8] The Australian competition authority presented evidence of regular phone calls among retail station operators, especially on days when gasoline prices were rising. It was alleged that operators who already increased their prices or were planning to increase their prices would telephone other operators and inform them of the recent or upcoming price changes. In some but not all cases, the recipients of the calls would raise their prices shortly thereafter. The question in these cases was whether the exchange of information, followed by a potential price adjustment based on that information, itself constituted an agreement to raise prices. Interestingly, though the two cases involved the same alleged scheme and

[5] U.S. Department of Justice (1997).
[6] American Tobacco Co. v. United States, 328 US 781 (1946).
[7] Interstate Circuit, Inc. v. United States, 306 U.S. 208 (1939).
[8] See Australian Competition and Consumer Commission v. Leahy Petroleum Pry Ltd. [2004] FCA 1678 (Ballarat), and Australian Competition and Consumer Commission v. Leahy Petroleum Pty Ltd. [2007] FCA 794 (Geelong). One of the defendants in the Ballarat case appealed its conviction and won on the basis that agreement could not be inferred from the phone calls, Apco Service Stations Pty Ltd v. ACCC [2005] FCAFC 161. See Cantatore and Marshall (2015) for a good overview of the cases.

largely the same set of defendants, they ended in opposite decisions from different judges – a conspiracy in Ballarat but not a conspiracy in Geelong.

And what if there is no verbal communication at all? Can an "agreement" be communicated through price movements alone? In other words, can the price movements themselves be considered "talking"? In another Australian price fixing case involving five major retailers and a data collection company, it was alleged that the price movements of the firms themselves constituted the discussion and negotiation of an agreement, and ultimately the agreement itself.[9] In this case, retailers subscribed to the data collection company's price information service and received electronic information on other retailers' gasoline prices in almost real-time. The information allowed firms to react and respond to competitors very quickly, and as a result both price increases and decreases spread through a market quickly. The competition authority brought action against the retailers and the data collection company arguing that the pricing service was essentially a forum for non-verbal communication through prices. They characterized a price increase by one retailer as a "proposal" for others to raise prices, subsequent price increases by others as an "acceptance" of the proposal, a retraction of the original price increase (if others did not follow quickly enough) as a "punishment" for not accepting the initial price increase, and similar collusion-based language for each price movement. The case was ultimately settled out of court prior to trial.[10]

Characterizing responsive price movements as a negotiation and agreement *per se* is difficult to justify. As is well known, competitor actions and outcomes are necessarily interdependent.[11] The prices set by one firm in an industry necessarily impacts the outcomes of all other firms in that industry since they all compete for the same sets of consumers, and consumers make decisions based on the full spectrum of competitor prices they observe. This type of interdependence naturally leads to parallel pricing and other parallel behaviors having nothing to do with a narrative about "proposals", "acceptances", and "punishments". Simply put, firms must pay attention and react to competitors' actions – and any firm that does not begins on a sure path to eventual business failure.

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[9] Australian Competition and Consumer Commission v. Informed Sources Pty Ltd & Ors. (2015). "The ACCC alleges […] that retailers can propose a price increase to their competitors and monitor the response to it. If, for example, the response is not sufficient, they can quickly withdraw the proposal and may punish competitors that have not accepted the proposed increased price." Australian Competition and Consumer Commission (2014).
[10] The main concessions in the settlement were to make the almost-real-time pricing available to consumers for their local areas in an app, and to provide the data to third parties at reasonable terms.
[11] See Pepall et al. (2014) or any other textbook on game theory and oligopoly.

The interdependence is known in economics as “tacit collusion”. The name can cause some confusion since the colloquial use of the word “collusion” often envisions an express agreement. But tacit collusion here involves no such agreement. It is based on firms acting in their own best interest in recognition of the fact that unilateral actions by any one firm will naturally cause reactions by others. Since tacit collusion often takes the form of parallel price movements and other parallel behaviors, it is sometimes used synonymously with the term “conscious parallelism” in the legal literature.[12]

Whether tacit collusion (or conscious parallelism) by itself meets the definition of an “agreement” has been considered by U.S. courts. In *Theatre Enterprises v. Paramount Distributing* (1954), the Supreme Court wrote that “this Court has never held that proof of parallel business behavior conclusively establishes agreement or, phrased differently, that such behavior itself constitutes a Sherman Act offense”.[13] In *Brooke Group Ltd. v. Brown and Williamson Tobacco Corp. (1993)*, the Court further wrote that “[t]acit collusion, sometimes called oligopolistic price coordination or conscious parallelism” is “not in itself illegal”.[14]

More recently, the Court in *In re Text Messaging Antitrust Litigation* (2015) wrote that “some antitrust experts argue[…] that tacit collusion should be deemed a violation of the Sherman Act. That of course is not the law, and probably shouldn’t be. A seller must decide on a price; and if tacit collusion is forbidden, how does a seller […] decide what price to charge? If the seller charges the profit-maximizing price (and its ‘competitors’ do so as well), and tacit collusion is illegal, it is in trouble. […] Would it have to adopt cost-plus pricing and prove that its price just covered its costs?”[15]

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[12] Economically, tacit collusion is a more general concept than conscious parallelism. They are both rooted in the recognition that there is an interdependence in competitors’ actions, but tacit collusion need not be restricted to parallel behaviors. For example, in some economic models (e.g. Cournot), an action by a firm in one direction can lead to an action by the other firm in the opposite direction. Kittelle and Lamb (1950) trace the term “conscious parallelism” back to the Federal Trade Commission in 1948 in reference to the Rigid Steel (1948) Case.
[13] Theatre Enterprises v Paramount Distributing, 346 U.S. 537 (1954).
[14] Brooke Group Ltd. v. Brown and Williamson Tobacco Corp., 509 U.S. 209 (1993). The Court defined tacit collusion as the process by which “firms in a concentrated market might in effect share monopoly power, setting their prices at a profit-maximizing, supracompetitive level by recognizing their shared economic interests and their interdependence with respect to price and output decisions”. To the extent that the term tacit collusion is being used as a synonym for conscious parallelism, however, there is no economic requirement that it result in monopoly power or even supracompetitive prices.
[15] In re Text Messaging Antitrust Litigation, 782 F.3d 867 (7th Cir. 2016). Interestingly, the decision was written by Circuit Judge Richard Posner, who for many years supported a broader view of Section 1 that would prohibit tacit as well as express collusion. See Posner (1969). For an interesting discussion of the change in Posner’s views over time, see Hylton (2018).

In the dual Australian price fixing cases above, if one retailer calls another and informs it of price increases in the marketplace, is the latter retailer no longer permitted to raise its own prices because that would be considered an "agreement"? What if the latter retailer would have done it anyway once it saw that prices were rising, and what if it were in the retailer's own unilateral best interest to do so? If the retailer must wait, how long does it have to wait? Does it matter if the retailer is operating at a loss in the interim, e.g. if prices were rising because costs were rising? It would be a strange situation indeed for the retailer to be forced to choose between a price fixing accusation on one hand and a predatory pricing accusation on the other, all because it picked up the phone.

With firms acting unilaterally in their own best interest, tacit collusion should not be misconstrued as an agreement, and this remains true even if firms are acting with the full understanding of competitors' actions and reactions. It remains true even if we as consumers may not like the outcome. To prohibit tacit collusion is essentially to prohibit firms from paying attention to what their competitors are doing, and to prohibit them from acting in their own best interest given this awareness. Consistent with the *In re Text Messaging Antitrust Litigation* Court, it would create a vague form of *ex post* price regulation where firms would be exposed to lawsuits if they pay "too much" attention to what their competitors are doing and act on it.

Antitrust scholars Areeda and Hovenkamp (2003) summarize the record stating that "[t]he courts are nearly unanimous in saying that mere interdependent parallelism does not establish the contract, combination or conspiracy required by Sherman Act Section 1", echoing former DOJ Assistant Attorney General Turner (1962) who wrote that "mere independence of basic price decisions is not conspiracy."

Proof of an Agreement

Direct Evidence

Taking the current standard on what does and does not constitute an agreement as given, the next question is how to reliably prove that an actual agreement has taken place. The most reliable method (and the only reliable method according to some economists) is through direct evidence. An obvious example of direct evidence is evidence of a written contract specifying an anti-competitive agreement on prices or other outputs. Given that firms who knowingly enter into an illegal agreement are unlikely to

write anything down (the contract being unforceable anyway), this is rare.[16] Direct evidence is more commonly in the form of witness testimony or secret audio or video recordings made of the conspirators in the act of conspiring. *U.S. v Archer Daniels Midland* Co. (1996) is one particularly famous example of a case where prosecutors secretly recorded members of an alleged cartel as they discussed fixing prices, with the help of a whistleblower.[17]

Before authorities can gather direct evidence, they first need to know, or at least have a strong suspicion, that an actual cartel exists. One highly effective tool for identifying a secret cartel and subsequently gathering direct evidence is a so-called "leniency program". A leniency program, including those used by the U.S. Department of Justice, the European Commission, and many other jurisdictions, allows for reduced fines or reduced jail time – and in most cases outright immunity from prosecution – for the first organization or individual part of an illegal conspiracy to alert the authorities of the conspiracy and cooperate with them in prosecuting the remaining conspirators.[18] In the historic series of price fixing cases relating to the "Vitamins, Inc." conspiracy, Rhone Poulenc – one of the three big international vitamin suppliers and a member of the "giant price-fixing phalanx" as the government described it – was accepted into the U.S. leniency program and received immunity from prosecution in exchange for its cooperation in prosecuting the other major vitamin suppliers, such as Hoffman La Roche and BASF.[19] Since even a well-functioning cartel eventually forms cracks in their partnership (and becomes even more fragile when company personnel with knowledge of the cartel come and go), a leniency program is a highly effective tool for triggering the proverbial "race to the courthouse".

Circumstantial Evidence and Plus Factors

But what if direct evidence is not available? To what extent can one can reliably prove the existence of a secret underlying conspiracy from circumstantial evidence alone? In other words, to what extent can information and data on prices, quantities, market shares, and other economic and non-economic

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[16] Written contracts more commonly exist when parties have a legitimate belief that their agreement is complaint with the Section 1 and other laws but is then called into question. For example, see Dr. Miles Medical Co. v. John D. Park & Sons Co., 220 U.S. 373 (1911) or Leegin Creative Leather Products, Inc. v. PSKS, Inc., 551 U.S. 877 (2007), with respect to resale price maintenance clause disputes.

[17] U.S. v. Archer Daniel Midland Co. 96-CR-00640 (N.D. Ill. 1996).

[18] See Department of Justice (2022) and European Commission (2024).

[19] U.S. v. F. Hoffmann-LaRoche, Ltd., (N.D. Tex. 1999); U.S. v. BASF AG, (N.D. Tex. 1999). Also see U.S. Department of Justice (1999) and Barboza (1999), and for an excellent general overview, Connor (2008).

factors reliably separate a tacitly collusive outcome based on unilateral actions and competitive interdependence, from an explicitly collusive one based on secret cooperation and agreement?

There are significant differences of opinion on the reliability and usefulness of "circumstantial evidence" in conspiracy matters. At one extreme, a few economists may need little more than very close parallel pricing to be convinced of an underlying conspiracy. Other economists are cautiously more open to circumstantial evidence if it is plentiful and goes substantially beyond just parallel behaviors. There is much disagreement, however, on how much weight should be attached to any one piece of evidence or combinations of evidence. Other economists, citing the Folk Theorem, argue that circumstantial evidence is too easily misinterpreted as conspiratorial when it is just as likely to be competitive or oligopolistic, and is unreliable generally.

The Folk Theorem states that *any* set of economic outcomes – prices, outputs, market shares, etc. – that might result from a secret conspiratorial agreement can also result from the unilateral behavior of competing firms simply through competitive interdependence – i.e. by firms being aware that their actions can lead to competitor reactions they may or may not like, and act accordingly.[20] Because consumers ultimately select firms' products based on factors such as prices and quality, consumers themselves create this competitive interdependence. The interdependence is often stronger – rather than weaker – in more competitive industries but is present in all. As a result, due caution is advised in interpreting circumstantial evidence, especially in the form of economic outputs, as meaningful evidence of an underlying secret conspiracy.

There is actually a long history of overreliance on circumstantial evidence in conspiracy matters. Adam Smith famously wrote that if "people of the same trade […] meet together, […] the conversation ends in a conspiracy against the public, or in some contrivance to raise prices."[21] If he were correct, the implication would be that any physical contact among competitors, e.g. at a trade conference or common physical marketplace, necessarily ends in a conspiracy and should be sufficient circumstantial evidence on its own to convict the competitors of a conspiracy, regardless of what if anything was known to be said, and regardless of what if anything was known to be done. Few to no scholars today would sign on to this proposition.

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[20] See, for example, Friedman (1971).

[21] Smith, Adam. 1776. "The Wealth of Nations." London: W. Strahan and T. Cadell.

The most common type of circumstantial evidence offered as proof of a secret conspiratorial agreement continues to be parallel prices and other parallel behaviors. This is the weakest form of circumstantial evidence, and its faults are well documented. The argument for its use is that when conspiring firms agree on prices or other outputs to increase prices, they are likely to do so a simple manner, and this naturally leads to very similar prices, similar price movements, similar outputs and similar output movements, and other parallel behaviors.

While that may true with many conspiracies, we also fully expect to see parallel behaviors among firms that are not conspiratorial at all, and for two key reasons. The first is that firms in the same industry face the same or very similar market shocks – very similar demand shocks and very similar cost shocks – so it should be no surprise that prices would move up and down together in a parallel way when these shocks occur. The second reason is again competitive interdependence. A price change by one firm – due to a demand or cost shock or from any other reason at all – impacts the outcomes of other competing firms, since they all compete for the same consumers and consumers make decisions based on all the prices they observe. This naturally leads to parallel outcomes across firms even in the most 'competitive' of economic models.[22] It is too easy to misconstrue parallel outcomes as mysterious or suspicious when they are neither mysterious nor suspicious.

Conscious parallelism was given substantial weight in the early days of antitrust. It played an important role in the landmark *American Tobacco* (1946) decision, where the Court found the then big-three cigarette companies guilty of conspiracy and monopolization charges in part based on parallel behaviors. It was argued that when one of the companies changed its wholesale prices, the other two followed in short order, and when one attended a wholesale tobacco auction, generally the other two attended the same auction as well. Since the companies all competed for the same customers and would have similar input needs, parallel behaviors such as these, on their own, would not be surprising.

Courts have since reduced and arguably eliminated reliance on parallel behaviors on their own as circumstantial evidence of an underlying conspiracy. The Court in *Theatre Enterprises* (1954) famously wrote that "Circumstantial evidence of consciously parallel behavior may have made heavy inroads into

[22] Economists model these pricing interrelationships through "best response functions".

the traditional judicial attitude toward conspiracy, but conscious parallelism has not yet read conspiracy out of the Sherman Act entirely."[23]

The *Monsanto v. Spray-Rite* (1984) Court wrote that "[t]he correct standard is that there must be evidence that tends to exclude the possibility of independent action by the manufacturer and distributor. That is, there must be direct or circumstantial evidence that reasonably tends to prove that the manufacturer and others had a conscious commitment to a common scheme designed to achieve an unlawful objective."[24]

The *Matsushita Electrical Industrial Co., Ltd. v. Zenith Radio Corp.* (1986) Court wrote (in reference to its Monsanto decision) that "we held that conduct as consistent with permissible competition as with illegal conspiracy does not, standing alone, support an inference of antitrust conspiracy".[25]

In *Twombly v. Bell Atlantic Corp.* (2007), the Circuit Court went further to say that mere parallel behaviors were not only insufficient to prove a conspiracy, but also insufficient to state an antitrust claim.[26] The Court wrote that "parallel business conduct allegations, taken alone, do not state a claim under Section 1; plaintiffs must allege additional facts tending to exclude independent self-interested conduct as an explanation for the parallel actions." The Court in *In re Text Messaging Antitrust Litigation* (2010), referencing Twombly, noted that Section 1 "does not require sellers to compete; it just forbids their agreeing or conspiring not to compete."[27]

Even with the added guidance, cases largely based on circumstantial evidence of parallel behaviors continue. In *In Re Chocolate Confectionary Antitrust Litigation* (2015), the main evidence specific to the defendants was that when one of the big three chocolate bar manufacturers changed its wholesale prices, the other two followed with wholesale price changes of their own in short order, similar in spirit to the *American Tobacco* case.[28] In *William White et al. v R.M. Packer Co.* (2011), the circumstantial evidence was largely that gasoline prices in Martha's Vineyard were higher than on the mainland and

[23] Theatre Enterprises v Paramount Distributing, 346 U.S. 537 (1954).
[24] Monsanto Co. v. Spray-Rite Svc. Corp. 465 U.S. 752, (1984).
[25] Matsushita Electrical Industrial Co., Ltd v. Zenith Radio Corp., 475 U.S. 574 (1986).
[26] Twombly v. Bell Atlantic Corp., 313 F. Supp. 2d 174 (S.D.N.Y. 2003).
[27] In re Text Messaging Antitrust Litigation, No. 10-8037 (7th Cir. 2010).
[28] In re Chocolate Confectionary Antitrust Litigation, 801 F.3d 383 (3rd Cir. 2015).

that they moved up and down together.[29] The Australian price fixing case discussed above involving the data collection company was all about highly parallel price movements in a highly competitive industry.

Plaintiffs need to go beyond mere conscious parallelism to a wider set of circumstantial evidence that, taken together, would arguably distinguish between prohibited conspiracy and permissible unilateral behavior, and tip the balance of evidence towards conspiracy. These have become known as "plus factors". The idea is that if a plus factor were meaningfully more associated with conspiracy rather than unilateral behavior, and there were numerous such plus factors, they may provide sufficient evidence of an underlying secret conspiracy. The Court in *Blomkest Fertilizer, Inc. v. Potash Corporation of Saskatchewan* (1999) wrote that the plaintiff has a "burden to present evidence of consciously paralleled pricing supplemented with one or more 'plus factors'" while the Court in *Quality Auto Body, Inc. v. Allstate Insurance Co.* (1981) similarly wrote that "parallel behavior without more (a 'plus factor') is not enough."[30]

There are significant differences in opinion across legal and economic scholars, however, in how much weight, if any, to place on any one plus factor or combination of plus factors. There are two primary concerns. First, many purported plus factors do a very poor job distinguishing between conspiracy and unilateral behavior, for similar reasons to those in the above discussion about parallel pricing. Some so-called plus factors are just repackaged statements of parallel behaviors. Second, many purported plus factors are not independent of one another, so the finding of many plus factors may not be any more informative than the finding of one, and if the finding of one has little evidentiary value on its own, the finding of many plus factors has little evidentiary value on the whole.

Some scholars list examples of potential plus factors. Judge Posner (2001) lists fourteen plus factors that he argues could be considered as circumstantial evidence, though almost all of them are general in nature and related to ambiguous economic outcomes such as prices, outputs, and market shares. They include things such as "amplitude and fluctuation of price changes", "regional price variations", "marketwide price discrimination", "industry-wide resale price maintenance", or "market price inversely related with the number of firms or elasticity of demand", all of which are fully consistent with competition. The last one just says that, all else equal, prices are lower when there are more competing

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[29] White et al. v. R. M. Packer Co., Inc. et al., 635 F.3d 571 (1st Cir. 2011).
[30] Blomkest Fertilizer, Inc. v. Potash Corporation of Saskatchewan, 203 F.3d 1028 (8th Cir. 2000). Quality Auto Body, Inc. v. Allstate Insurance Co., 660 F.2d 1195 (7th Cir. 1981)

firms and more price sensitive customers, which has little to do with conspiracy specifically. All but one of his plus factors are arguably as consistent with competition as conspiracy due to simple competitive interdependence. The one exception is "price, output, and capacity changes at the formation of the cartel" but it is only an exception because it explicitly presumes there is a cartel with knowledge of its start date. If such a cartel is already known to exist from direct evidence, plus factors are unnecessary. With respect to the rest of the quote, changes in the economic values of price, output, and capacity, even parallel ones, happen for very many competitive reasons all the time.

Leslie (2020) lists a different set of plus factors, many of which surround issues of communication. These include the "opportunity to conspire", "communication among competitors", "information exchange", "invitation to collude", and "possession of competitors pricing plans". The first is just the Adam Smith plus factor discussed above and is true of essentially any modern day firm, so is of little value. The second and third are not uncommon and *ex ante* are arguably as consistent with competitive motivations as collusive ones. Collusive firms need to monitor their co-conspirators if they are going to successfully collude just as competitive firms need to monitor their competitors if they are going to successfully compete. The fourth presupposes an explicit invitation to collude which – assuming there is direct evidence of the invitation and that it is not an assumed invitation – would establish the first part of an agreement. All that remains is proof of the second part of the agreement, the acceptance. The *Alakayak v B.C. Packers* (2002) Court wrote that "evidence of both an invitation to collude, as well as acceptance" are needed.[31] The fifth factor may or may not be interesting, keeping in mind that gathering evidence of competitor intentions is expected in competitive markets with sophisticated firms.

The Court in *In re Baby Food Antitrust Litigation (1999)* wrote that "communications between competitors do not permit an inference of an agreement to fix prices unless those communications rise to the level of an agreement." That of course takes us back to the original question of what qualifies as an agreement (and an invitation and acceptance). This continues to be an interesting area of discussion (e.g. *Interstate Circuit*, 1939).

Leslie's main point is that, even if any one has little evidentiary value on its own, many of them in combination can tip the balance of the evidence toward conspiracy. The concern here is that many of the proffered plus factors are not independent of one another, so that the combined value of many may not

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[31] Alakayak v. British Columbia Packers, Ltd., 48 P.3d 432 (Alaska 2002).

meaningfully exceed the value of one. As an example, if a firm conducting its market research received pricing information from another firm, that automatically implies all of “opportunity to conspire”, “communication among competitors”, “information exchange”, and “possession of competitors’ pricing plans”, hitting four of Leslie’s five communication-based plus factors with a single potentially competitive action.

Leslie lists some other potential plus factors as well, including “artificial standards” and “stable market shares”. With respect to the first, since collectively-agreed-upon standards are ubiquitous in the economy and generally consistent with efficiency motives, the question here would be whether the standard was “artificial”, and then what artificial means. In such an inquiry, it would be important to evaluate the standard based on potential collusive intent rather than just on it being a bad or ineffective idea, as many ideas can be. With respect to the second, I discussed “stable market shares” above which is essentially an implication of parallel price movements and not independent of that. The textbook model of perfect competition, as well as other textbook models of oligopoly, for example, routinely exhibit stable market shares because of tight competition for consumers.

An interesting plus factor in Leslie’s list is “evidence of foreign price fixing”. Obviously, evidence of price fixing abroad is not evidence of price fixing domestically but would surely warrant further investigation. The issue here is whether the evidence of foreign price fixing itself be used as a piece of circumstantial evidence that a secret cartel may be operating in the home country. Caution is advised in such a case, even if the same companies and same individuals are involved. The stronger version of this plus factor would consist of transparent (or transferable) direct evidence of price fixing among the same or related individuals in the foreign country. Much more problematic would be a ruling based on more circumstantial evidence evaluated under that country’s own interpretation of circumstantial evidence (e.g., parallel pricing) and its own standard of proof. Given the active debate in the U.S. and other countries as to what degree of circumstantial evidence can or cannot be used to prove conspiracy, it would seem bad policy to default this important decision to the standards of a foreign jurisdiction. On the same note, guilty pleas must be taken with a grain of salt as there are many legal and strategic reasons a firm or individual might accept a plea deal and avoid a trial.

This was a key issue in the *In re Chocolate Confectionary Antitrust Litigation* (2015) case, where plaintiffs’ evidence essentially consisted of three parallel wholesale price changes over a five year period, plus the existence of an ongoing price fixing case in a Canadian Court involving subsidiaries of the same three

manufacturers. Plaintiffs argued that the Canadian foreign price fixing claim was a plus factor in the U.S. case and should survive summary judgement. However, the judge noted that there was no evidence that the individuals involved were ever in contact with their U.S. (or in one case Swiss) counterparts about the scheme, and what was left was essentially three parallel price changes.

Kovacic et al. (2011) lists eight plus factors, some of which they dub “super plus factors”. These include “price elevation”, “quantity restrictions”, “internal incentive shifts”, “allocation of collusive gains”, “redistribution of gains and loss”, “communication and monitoring”, “enforcement”, “dominant-firm conduct by cartels”, and “cartel response to factors identified as super plus”. Some of these already have cartel language pre-attached to them (“elevation”, “restrictions”, “collusive”, “enforcement”, “conduct by cartels”, “cartel response”, etc.) that would only be applicable if there were an actual cartel.

Setting the cartel language aside, the question is always about whether a plus factor, or set of plus factors, can meaningfully distinguish between conspiracy and competition and to what degree.[32] The first, price elevation, simply means higher prices and the second, quantity restrictions, simply means lower quantities (presumably due to higher prices). Internal incentive shifts (e.g. instructing sales staff not to undercut or be as aggressive) is consistent with higher prices and lower quantities. The three are likely highly correlated if they are not one and the same thing.

Redistribution of gains and losses – if this means side payments – always need to be investigated, noting that firms often have complex horizontal and vertical relationships with other firms, and what might seem to be a collusive side-payment may or may not be nefarious. Communication itself is not uncommon, as discussed above, and monitoring what other firms are doing is just as important in a competitive market as in a collusive one. Enforcement, or in less collusive language, readiness to respond to price cuts or other aggressive competitive actions, is consistent with all of competition, tacit collusion, and explicit collusion. A dominant firm, or price leadership by a firm, is also not uncommon in competitive and oligopolistic industries. The last one – cartel response to factors identified as super plus – appears to suggest that the presence of no super plus factors at all (and efforts to avoid them) is itself a plus factor.

[32] In examples provided in the study, the authors state that a super plus factor can be ten times more likely to point to collusion than competition, with other plus factors being two to four times more likely. As a result, they suggest one could uncover a secret conspiracy with as little as one super plus factor or two other plus factors. “Higher than expected” prices is an example they give of one super plus factor.

As evidenced by the above discussion, there is no master list of potential plus factors, and those proffered can vary from case to case. There is a type of confirmation bias that comes with this approach as a plaintiff is expected to introduce the plus factors they find that fit their case and ignore other plus factors (including those deemed important in other cases) that they do not find and that do not fit their case. There is no equivalent discussion in the literature of what I might call "minus factors", things that would arguably be more consistent with competition than with conspiracy. As a result, the discussion – of "plus factors" instead of "plus and minus factors" – can be imbalanced. Moreover, when plus factors are argued using specific "collusive" language, as they often are, even relatively innocuous economic phenomena can suddenly sound nefarious when they are not.

Efficiency Defenses

Efficiency defenses have rarely been successful in price fixing and other (non-merger) conspiracy matters, but there is an increasing number of situations where efficiencies are likely to matter, in particular with respect to platform industries.

Broadcast Music Inc. v. CBS. Inc. (1979) is an early example. It involved a music licensing clearinghouse in which licensees paid a set fee for a blanket license to play music from a large library of popular music.[33] Those fees were then distributed to the artists and distribution companies that contributed to that library, according to their estimated playtime percentage. While economically speaking this is price fixing on the part of BMI, the Court recognized the cost efficiencies that came with blanket licensing, as it pre-empted the need for thousands of bilateral negotiations between potential licensees and licensors. The Court wrote that the blanket licenses "cannot automatically be declared illegal in all of its many manifestations. Rather, it should be subjected to a more discriminating examination under the rule of reason."

The Court in *National Bancard Corp. v. Visa USA* (1986) similarly recognized that the centralized fixing of the interchange fee within the Visa credit card platform (the interchange fee being the fee that merchant-serving member banks must transfer to cardholder-serving member banks when processing a credit card transaction) had efficiency benefits for two major reasons. First, it enabled Visa to balance its fee structure across the consumer and merchant sides to maximize usage of the Visa card, since consumers were more inclined to use credit cards absent surcharges. Second, it is ensured universality of

[33] Broadcast Music, Inc. v. CBS, Inc., 441 U.S. 1 (1979).

acceptance of Visa cards by Visa merchants, which would not be possible if individual bilateral negotiations between merchant and cardholder banks over this fee were to break down. The Court wrote that the interchange fee centrally set by the platform was "procompetitive" and "not clearly erroneous". [34]

BMI and Visa are both examples of platforms that bring two distinct groups of people together into a marketplace and that need to exert some degree of oversight over the interaction of the two groups to maximize the value of their service. Amazon, Google (Alphabet), eBay, PayPal, Facebook (Meta), and Uber are a few of the many examples of modern internet-based platform firms that do the same. While antitrust lawsuits against these firms are well known, these cases often highlight the challenges of interpreting laws and past court decisions written with traditional industries in mind and applying them to modern platform businesses.

An interesting example is Uber. Uber provides an online marketplace that brings riders and drivers together and it is Uber itself that sets the price that its (independent-contractor) drivers are paid for each ride-share. Economically speaking, this is price fixing, but as Uber drivers will quickly attest, prices are hardly being set to maximize the collective profits of the drivers. Rather, they are set to equate supply and demand for rides in real time while simultaneously eliminating the need for uncomfortable and uncertain price negotiations between a driver and a rider at the side of the road, as is common with taxicabs in many parts of the world. This was in fact a goal with U.S. taxicab regulation when set up in the early part of the twentieth century. But as the relative prices of Uber and traditional cab companies show, Uber's competition model vastly outperforms the taxicab authorities' regulation model, and it is difficult to argue that Uber's entry in the car-and-driver-for-hire business restrained trade in that business.[35]

Sports leagues are interesting cases. A league has a bona fide interest in ensuring that its teams are competitive with one other on the playing field (or surface), which necessarily requires the league to impose restrictions on individual team operations.[36] As a result, antitrust complaints involving leagues

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[34] National Bancard Corp. v. Visa USA, 779 F.2d 592 (11th Cir. 1986)
[35] In *Meyer v. Uber Technologies* (2017), Uber was accused by a rider of price fixing but the claim was dismissed on technical grounds, namely that the user agreement bound the parties to arbitration. Meyer v. Uber Technologies, No. 16-2750 (2nd Cir. 2017). Uber has also been accused of price fixing by drivers. Uber as a technology platform takes a commission on each ride, and competes with other ride services, including taxis, on the fee that it takes.
[36] See Farzin (2015) for a history.

are generally evaluated under the rule of reason. Major League Baseball, one of the four major sports leagues in the U.S. (in addition to football, basketball, and hockey), enjoys a strange federal antitrust exemption altogether, dating back to *Federal Baseball* (1922).[37] The same does not exist for the three other major sports. Major League Soccer is unique in that it is set up as a single-entity in which the league owns the teams, and has claimed a *Copperweld* exemption (see below) against any lawsuits stemming from its restrictions and practices.[38]

Antitrust Exemptions

Aside from efficiencies defenses, there are several other exemptions applied to Section 1. Labor unions negotiate wages collectively on behalf of employees of third-party employers, and are by economic definition wage-fixing conspiracies, but exempt from Section 1 under the Norris-La Guardia Act (1932) and the National Labor Relations Act (1935). Cartels set up under law and administered by or with the permission of the government, such as agricultural marketing boards, are exempt from legally prescribed activities.[39] For a time, the Webb-Pomerene Act of 1919 allowed qualified exporters to collectively negotiate price terms, i.e. price fix, to foreign buyers. The *Copperweld* doctrine exempts a wholly owned subsidiary and its parent from Section 1 scrutiny, even if separate corporations, because they are not considered to constitute economically meaningfully distinct businesses.[40] Sovereign foreign nations are also generally exempt from antitrust prosecution under the Foreign Sovereign Immunities Act (1976) and the Act of State Doctrine, though Congress has initiated dozens of efforts over the past twenty-five years to pass a so-called "NOPEC" bill that would explicitly remove this exemption.[41]

A Few More Interesting Situations

Pay for Delay or Reverse Payment Cases

A unique conspiracy-related issue arises in so-called "pay for delay" or "reverse payment" antitrust cases in the pharmaceutical industry. In a pay for delay antitrust case, the conspiracy in question is an out-of-

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[37] Federal Baseball Club v. National League, 259 U.S. 200 (1922). The Supreme Court decided that the Major League Baseball was not engaged in interstate commerce in spite of having teams in eight states.
[38] See MacMillan (2018).
[39] See Dohlman and Livezey (2005) for a history of the U.S.-government-administered peanut marketing quota system, that put in place quotas for grandfathered peanut farmers.
[40] Copperweld Corporation v. Independence Tube Corp., 467 U.S. 752 (1984).
[41] See First and Bush (2019) for a good review.

court settlement in a previous patent infringement lawsuit between a branded pharmaceutical company and a generic pharmaceutical company. The settlement is by definition a conspiracy, as all settlements are, but the specific concern is that the settlement itself may be anti-competitive.

As background, it has long been recognized that the very busy U.S. Patent and Trademark office (USPTO) can make mistakes in issuing patents to branded pharmaceutical manufacturers.[42] It has also long been recognized that generic pharmaceutical manufacturers, given their industry knowledge, are in one of the best positions to identify any potential problems that may exist with respect to the validity of a branded manufacturer's patent. However, generic manufacturers had little incentive to pursue any such invalidity claims, since the option available to them was to start producing and selling the drug and wait for the expensive and sure-to-be-coming patent infringement lawsuit. If the generic manufacturer lost, it would be liable for significant monetary damages. If it won, it had little to gain since the patent was simply voided and all competing generic manufacturers would be free to start selling the drug in competition with it.

The Hatch-Waxman Act of 1984 attempted to remedy this in two ways. First, it enabled the generic company to trigger a patent infringement lawsuit before it actually started selling the drug and began accruing potential damages, simply by submitting a form stating its intention to do so. Second, if successful in the lawsuit, the generic pharmaceutical company would be given a six-month exclusivity period in which it would be the sole generic manufacturer allowed to sell the drug. Once a lawsuit was triggered, a thirty month stay prevented other generic manufacturers from producing the drug or starting a competing lawsuit.

The antitrust problem is unique. If the patent were truly invalid, the branded manufacturer would naturally benefit from delaying and dragging out the case as long as possible, and then settling with the plaintiff for a large sum of money in exchange for the plaintiff dropping its claims. Since the patent was invalid in this scenario, this would potentially harm competition because the settlement prevented the plaintiff and other competitors from learning that the patent was invalid, and thus prevented competition from entering the market for a while.

[42] A patent must meet the standards of novelty, non-obviousness, and usefulness. The patent examiner relies in large part on the materials provided to her by the applicant, including lists of related patented inventions.

If instead the patent were truly valid, the branded manufacturer would still benefit from delaying and dragging out the case as long as possible, and still settling with the plaintiff, especially if the drug were a very profitable drug and especially if the manufacturer were concerned about potential judicial error in what could potentially be a technically-oriented case. Since the patent was valid in this scenario, the settlement cannot harm competition because the patentholder of a valid patent has the right to exclude competition by law.

So how can one know if the settlement is anti-competitive without knowing what the outcome would have been absent the settlement? One option would be to force the trial to go to completion, but this would be contrary to the longstanding judicial precedent of encouraging settlements. Another option would be to prohibit cash payments and force settlements to include a period where the generic challenger can produce the drug, but this is essentially the same as requiring the branded manufacturer to forfeit its patent rights to some degree.

Putting aside such alternatives and simply evaluating the competitiveness of the settlement in its own right, there are two main schools of thought. One argument is that competitive harm from a settlement could inferred from the size of the reverse payment, given that the size of the payment should depend on the patentholder's subjective probability of losing the case (i.e., of the patent being invalid). This approach usually discounts the potential for judicial error or other strategic or risk-aversive motivations that may be present, however. The other argument is simply that no such settlement can be anti-competitive because the patent is presumptively valid and a defendant has the right to defend its presumptively-valid intellectual property, including via settlements, as long as the settlement is within the "scope of the patent".

Appellate courts in the U.S. were split on the legality of reverse payment settlements.[43] The Court in *In Re K-Dur Antitrust Litigation* (2012) wrote that "a reverse payment is prima facie evidence of an unreasonable restraint of trade" and, quoting the Court in *In Re Schering-Plough Corp.* (2003), "it is logical to conclude that the quid pro quo for the payment was an agreement by the generic to defer entry beyond the date that represents an otherwise reasonable litigation compromise."[44] In contrast, the Circuit Court in *In re Ciprofloxacin Hydrochloride Antitrust Litigation* (2005) wrote that absent fraud,

[43] See Stoltz (2014).
[44] In re K-Dur Antitrust Litigation, 686 F.3d 197 (3rd Cir. 2012) and In re Schering-Plough Corp., Final Order, 136 FTC 956 (2003).

"there is no injury to the market cognizable under existing antitrust law, as long as competition is restrained only within the scope of the patent".[45] The Supreme Court settled the dispute in *FTC v. Actavis, Inc.* (2013) – sort of – by writing that "reverse payment settlements […] can sometimes violate the antitrust laws" and must be evaluated under the rule of reason.[46]

Conspiracies with Vertical Elements

Another interesting situation pertains to purely vertical conspiracies and so-called "hub and spoke conspiracies", which involve both horizontal and vertical elements.

A purely vertical conspiracy in one in which an upstream firm (supplier) and a downstream firm (buyer) conspire together. Vertical conspiracies are fundamentally different than horizontal ones since firms at different levels of the same vertical supply chain must naturally work together to produce a single product for sale to the end consumer. They must agree on the terms of any sale between them, including the price between them, and this is rarely an antitrust problem since such agreements are necessary to the functioning of the supply chain.

The critical economic difference between pure vertical conspiracies and pure horizontal conspiracies lies in the fact that firms on the same vertical supply chain contribute complementary inputs to create a single product, whereas firms on the same horizontal level produce substitute products or services that compete with each other. The complementarity rather than substitutability of their outputs reverses the standard economic effects often associated with horizontal conspiracies. Simple economic profit-maximization analysis shows that while horizontal conspirators have an incentive to raise prices, all else equal, vertical conspirators have an incentive to lower them. A well-known result in economics but contrary to the intuition of many non-economists, price fixing among purely vertical firms actually *benefits* consumers through lower prices, absent any horizontal elements or other unusual circumstances.[47]

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[45] In re Ciprofloxacin Hydrochloride Antitrust Litigation, 363 F. Supp.2d 514 (E.D.N.Y. 2005).

[46] The FTC sued under Section 5 of FTC Act, which prohibits the vaguely worded "unfair methods of competition", rather than under Section 1 of the Sherman Act. It sought to make reverse payment settlements presumptive illegal under a "quick look" analysis.

[47] The coordination of price decisions eliminates what economists call "double marginalization" and leads to better outcomes for both firms and consumers.

Things are more interesting and complex when both horizontal and vertical elements are involved. A hub and spoke conspiracy is one in which an upstream firm administers a downstream conspiracy on behalf of downstream firms, generally through wholesale prices or contractual restrictions.[48] In order for such a hub and spoke conspiracy to be plausible, it is necessary for the upstream firm to receive a benefit in exchange for its creation of downstream market power. Normally downstream market power hurts, rather than helps, the upstream firm by putting it in an inferior negotiating position and by reducing its sales (due to the higher downstream prices kept by the downstream firms). But relationships involving horizontal and vertical elements can be complex and produce a variety of different outcomes, so alleged hub-and-spoke conspiracies are well suited to rule of reason analysis.

A few well-known examples of matters involving both horizontal and vertical elements include *Dr. Miles Medical Co. v. John D. Park & Sons Co. (1911)*, *Interstate Circuit (1939)*, and *Leegin Creative Leather Products, Inc. v. PSKS Inc. (2007)* on resale price maintenance,[49] *United States v. Apple Inc. (2013)* on Most Favored Nations clauses,[50] and the many cases involving Microsoft, Amazon, AT&T, and Google on a variety of "foreclosure" type claims. These are discussed in more detail elsewhere in this volume.

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[48] Similarly, a downstream firm could coordinate a conspiracy among upstream firms, with all the same caveats.
[49] Dr. Miles Medical Co. v. John D. Park & Sons Co., 220 U.S. 373 (1911). Leegin Creative Leather Products, Inc. v. PSKS, Inc., 551 U.S. 877 (2007).
[50] United States v. Apple Inc et al., 791 F.3d 290 (2nd Cir. 2015).

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