

OLIGOPOLY BEHAVIOR AND PRICE FIXING: THEORETICAL INSIGHTS AND POLICY IMPLICATIONS

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Abstract

This article explores the dynamics of firms operating in oligopolistic markets, emphasizing the practice of price fixing. Price fixing, a form of collusion, involves firms agreeing to maintain artificially high prices, leading to maximized collective profits at the cost of reduced competition and consumer welfare. Through synthesizing key theoretical frameworks and empirical evidence, this paper outlines the mechanisms behind price fixing, its implications, and the effectiveness of regulatory interventions. Theoretical models, such as Stigler's theory of oligopoly and the kinked demand curve, are discussed to provide insights into firms' incentives to collude. Empirical studies highlight the prevalence of price-fixing conspiracies across industries, illustrating its negative effects on market efficiency and consumer choice. Finally, the role of government intervention and anti-trust enforcement in curbing this anti-competitive behavior is evaluated.

1. Introduction

Maintaining competitive balance and consumer welfare is particularly difficult in oligopolistic markets which are defined by a small number of dominant firms holding a sizable portion of the market share. In these markets interdependent behavior results from one firms' actions influencing the strategic choices of others. Due to this interdependence, there is a greater chance of engaging in anti-competitive behavior including price fixing one of the most harmful types of collusion. Price fixing is when businesses band together to set or regulate prices in order to maximize profits at the expense of consumer interests and competition. This practice hurts the overall economy by reducing price competition diminishing innovation and limiting product variety (Motta, 2004). Therefore, for policymakers' regulators and economists seeking to promote robust competitive and effective market environments it is essential to comprehend the dynamics of price fixing in oligopolistic markets. The small number of dominant firms that hold a sizable portion of the market share distinguishes oligopolistic markets from other market structures. These companies are able to control prices output and strategic choices without worrying about direct competition because they have significant market power.

Oligopolies exhibit interdependent decision-making where the actions of one firm affect the market position of others in contrast to perfectly competitive markets where many firms function independently. Lack of competition is the result of this dynamic which is a basic feature that makes price-fixing and collusion easier (Kreps & Scheinkman, 1983). The defining traits of oligopoly are present in a number of industries. Airlines telecommunications pharmaceuticals and autos are a few industries that are excellent examples of markets where a few companies control the majority of the market. Their strongholds are further cemented by high entry barriers like substantial capital

needs regulatory approvals and economies of scale. These obstacles deter new competitors lowering competition and enabling established businesses to keep prices high. A fundamental characteristic of oligopolistic markets is price rigidity which results from firms' strategic interdependence. In these markets competitors frequently react negatively to price changes which makes them reluctant to make big changes. Businesses deal with an inelastic demand above their current price and an elastic demand below it as demonstrated by the kinked demand curve theory. According to Miller and Reedy (1991) this dynamic deters businesses from making significant price adjustments promoting price stability even in the face of shifting production costs or market conditions.

Price fixing is the conscious effort either overtly or covertly by oligopolistic firms to stifle competition by coordinating pricing strategies. This practice distorts market efficiency by setting prices higher than those determined by supply and demand forces. Price fixing occurs when businesses band together to maintain or raise unnaturally high prices frequently through tacit understandings or collusive agreements. In addition to hurting consumers by reducing their access to reasonably priced goods such actions also lead to substantial welfare losses a decline in product diversity and a decrease in incentives for innovation (Schumpeter, 1942). Cartels are among the most obvious instances of price fixing as businesses formally agree to control pricing mechanisms divide markets and regulate output. Members of groups like the Organization of Petroleum

Exporting Countries (OPEC) whose members coordinate production levels to affect world oil prices are notable examples. Similar price-fixing scandals have affected consumers and the economy in significant ways in sectors like finance construction and pharmaceuticals. In addition to cartels other price-fixing tactics include bid rigging and parallel pricing. Parallel pricing which is essentially collusion happens when businesses change prices concurrently without clear coordination. Bid rigging on the other hand is when companies conspire to influence the results of bidding procedures especially in industries that depend on government contracts. By driving up the cost of both public and private projects these anti-competitive practices further erode market justice and transparency (Williamson, 1966). Gaining insight into the rationale behind price-fixing in oligopolistic markets requires an understanding of the theoretical foundations of the practice. Important frameworks for examining firm-level strategic behavior include game theory the kinked demand curve model the Cournot and Bertrand models and collusion theories. Game theory sheds light on how businesses interact strategically especially when their decisions have an immediate effect on competitors.

A key idea in game theory the Prisoners Dilemma illustrates how hard it is for businesses to collude and achieve the best results. Even though businesses may decide to work together for mutual gain the temptation to act selfishly frequently leads to competitive rather than cooperative outcomes with businesses vying for market share (Binmore, 1998). The kinked demand curve model shows how price rigidity occurs in oligopolies where businesses refrain from making big price adjustments because of the probable reaction of rivals. This theoretical model lessens the volatility that defines fiercely competitive markets by highlighting businesses propensity to keep prices steady in the face of changes in demand or production costs (Tirole, 1988). Further insights are offered by the Bertrand and Cournot models. While price competition and its effects on market dynamics are highlighted by the Bertrand model the Cournot model concentrates on output decisions and strategic interdependence. The complexity of oligopolistic decision-making

in which businesses weigh the risk of fierce price competition against the goal of maximizing profits is illustrated by both models (Salop & Stiglitz, 1977). The prevalence of price fixing in oligopolistic markets and its detrimental effects are further supported by empirical research. Numerous instances of firms colluding to manipulate prices resulting in market distortions and harm to consumers have been documented by studies. Price-fixing conspiracy occurrences have been common in industries like financial services pharmaceuticals and the automobile sector. For instance, collusion among suppliers has been discovered in the automotive sector which has resulted in artificially driven up part prices and consequently higher manufacturing and repair expenses. Price coordination in which the price of necessary medications is manipulated to maintain larger profit margins has also been linked to pharmaceutical companies (Connor, 2001).

In oligopolistic markets where a few strong companies have significant influence over market outcomes these cases demonstrate the systemic nature of price fixing. Further empirical research shows that despite their importance regulatory actions have a difficult time identifying and combating collusion particularly when the practices are complex and well-coordinated (Bernheim & Whinston, 1998). Regulators legislators and consumers all continue to have serious concerns about price fixing in oligopolistic markets. It stifles competition interferes with market efficiency and creates economic inefficiencies that have a significant impact on society. Empirical proof of price-fixing conspiracy and theoretical insights into oligopolistic behavior combine to offer a thorough understanding of the causes and effects of anti-competitive behavior. Going forward reducing the negative effects of price fixing and promoting a fair and competitive market environment will require strong regulatory frameworks improved enforcement tools and raised public awareness.

2. Characteristics of Oligopoly and Price Fixing

A market structure known as an oligopoly occurs when a few companies control a large portion of the market resulting in little competition and strategic interdependence. Especially when it comes to decisions about pricing and production the actions of one company have a big impact on how other companies behave (Perloff, 2019). Oligopolistic characteristics are commonly seen in industries like airlines telecommunications and automobiles. Oligopolies are characterized by a small number of dominant firms' high entry barriers interdependence between rivals' price rigidity reliance on non-price competition and a tendency toward collusion. The dominance of a small number of companies with a significant market share is one of the main characteristics of oligopolies. Compared to competitive markets they can have a greater impact on market outcomes due to their concentrated power (Stigler, 1964). Their strong market position is further reinforced by high barriers to entry which present formidable obstacles for new competitors including high capital needs economies of scale and regulatory barriers (Carlton and Perloff 2015). Businesses operating in oligopolistic markets also rely heavily on one another. For example, a price change by one company frequently results in a similar reaction from its rivals which makes strategic decision-making intricate and interdependent (Schmalensee, 1985).

In oligopolistic markets non-price competition is another distinguishing feature. Businesses concentrate on other competitive strategies like branding advertising and product differentiation because price wars can reduce profitability. In the smartphone sector for instance firms such as Apple and Samsung prioritize brand loyalty and innovation over aggressive pricing strategies (Sweezy, 1939). Moreover, price rigidity is a typical oligopoly feature. Because businesses understand that significant price changes could result in unfavorable market conditions as explained by the kinked demand curve theory they typically maintain prices steady (Sweezy,

1939). The propensity for collusion is one of the most worrisome aspects of oligopolistic markets. As seen in cartels like OPEC businesses may formally agree to divide markets limit output or set prices in order to avoid direct competition (Kohl 2002). As an alternative firm may engage in tacit collusion when they align their strategies without formally signing agreements which makes detection more difficult (Ivaldi et al., in 2003). Price fixing which damages consumers and erodes market competition is frequently the result of this behavior. Price fixing is a particular type of anti-competitive behavior in which businesses either overtly or covertly agree to set prices at specific levels. By doing this the natural forces of supply and demand are eliminated leading to artificially high prices that benefit colluding firms at the expense of consumers (Connor, 2001).

According to Carlton and Perloff (2015) price fixing is more likely to happen in markets with high industry concentration because it is easier for a small number of powerful players to coordinate. For example, the oligopolistic nature of the global airline industry and its reliance on coordinated pricing strategies have led to multiple accusations of price fixing (Schmalensee, 1985). Although price fixing techniques vary bid rigging parallel pricing and cartels are frequently used. Global markets are directly impacted by cartels like OPEC which are formal agreements between businesses to control prices and production levels (Kohl, 2002). Contrarily parallel pricing raises questions about tacit collusion when businesses change their prices at the same time without communicating explicitly (Ivaldi et al., 2003)). Another tactic is bid rigging which is especially common in sectors that depend on government contracts. In this scenario companies collude to predict the outcome of a bid frequently inflating the cost of public projects (Marshall & Marx 2012). Fixing prices has far-reaching and primarily detrimental effects. As evidenced by scandals like the manipulation of LIBOR rates which affected millions of people globally consumers suffer the most from artificially inflated prices and fewer options (Abrantes-Metz & Evans, 2012).

Price fixing also distorts resource allocation lowers market competitiveness and stifles innovation all of which lead to economic inefficiencies. Colluding firms become complacent when they are not pushed to innovate or increase efficiency which hinders industry growth and jeopardizes long-term economic prospects (Tirole, 1988). Globally regulatory frameworks and enforcement tools have been created to prevent price-fixing and encourage free markets. Legal instruments to prosecute collusion are provided by antitrust laws like the Competition Act in Canada and the Sherman Antitrust Act in the United States (Ivaldi et al., 2003). By offering firms a reduction in penalties for self-reporting anti-competitive behavior leniency programs have also proven successful in dismantling cartels (Abrantes-Metz & Evans, 2012). The capacity of regulatory bodies to keep an eye on and identify collusive activities has also improved due to developments in artificial intelligence and data analytics (Marshall & Marx 2012). The concentrated structure strategic interdependence and vulnerability to anti-competitive behaviors like price fixing are the hallmarks of oligopolistic markets to sum up. Although businesses in these markets might profit from less competition and increased profits the wider effects on consumers and economic efficiency are overwhelmingly detrimental. Hay and Kelley (1974), Kaplow (2011). In order to address these problems and maintain fair competitive and advantageous markets for society as a whole strong regulatory frameworks strict enforcement and public awareness are all equally important.

3. Theoretical Insights into Oligopolistic Behavior

A small number of dominant firms in a market create an oligopoly which results in interdependent decision-making where the actions of one firm have a significant impact on the

strategies of other firms. Examining a number of theoretical ideas such as game theory the kinked demand curves the Cournot and Bertrand models and collusion is necessary to comprehend how businesses behave within this framework. The analysis of how businesses collaborate compete and make strategic choices is made easier by these theories which frequently produce distinctive results in terms of output pricing and market dynamics.

Theory of Games and Strategic Relationships. Because it concentrates on the strategic interactions between firms whose decisions impact those of others game theory is essential to the analysis of oligopolistic behavior. Businesses in oligopolies anticipate and respond to the actions of their rivals rather than acting independently. Decisions about pricing production and output for example are heavily influenced by the actions of others when two or more firms control the market. The Prisoners Dilemma is a well-known illustration of game theory in this context highlighting the difficulty of reaching the best possible results through collaboration. The Prisoners Dilemma states that in order to increase their combined profits businesses can either decide to cooperate or engage in fierce competition. Nonetheless the temptation to act selfishly frequently results in a situation where both businesses lose money (Fudenberg & Tirole, 1991).

Businesses in a competitive oligopoly may decide to collude or work together to set output levels or prices in order to reduce the risks associated with intense competition. This may result in decreased output and increased prices which would be detrimental to consumer welfare. However, the game theory's Nash equilibrium frequently implies that absent clear agreements businesses will act strategically to preserve a steady market share free from intense price competition (Osborne & Rubinstein, 1994). **Demand Curve Kinked Model.** For comprehending price stability in oligopolistic markets the kinked demand curve theory is another essential model. This model states that a firm must contend with a demand curve that has a kink at the current price level. The demand is elastic below this point so if the company cuts prices rivals will do the same resulting in only slight gains in market share. Demand is inelastic above the current price which means that if a company raises prices its rivals won't follow suit which will cost them clients. Price rigidity results from this since businesses are hesitant to alter their prices (Stigler, 1947). Therefore, rather than engaging in fierce competition on this front businesses operating in an oligopoly typically stabilize prices. This model demonstrates why businesses refrain from making significant price changes in order to preserve market stability even in the face of shifting production costs or outside economic influences. **the Cournot Model.**

In the 19th century Antoine Augustin Cournot put forth the Cournot model which offers an additional theoretical framework for comprehending oligopolistic behavior. Under this model business compete by deciding on output levels presuming that their competitors will keep up their output levels. Due to the expectation that its rivals won't alter their production each company modifies its output creating an equilibrium in which no company has an incentive to stray from the quantity it has selected. According to the presumptions of rationality and perfect knowledge of competitors' decisions this result is efficient in terms of maximizing profits (Cournot). A stable output level is the outcome of a Cournot equilibrium in which businesses restrict the quantity of competitive output they generate in order to prevent price wars and make sure that their production choices benefit both parties. The Cournot model might however be less useful in actual markets when taking into account dynamic shifts in demand or other elements affecting firm behavior. **Model Bertrand.** Price competition in oligopolistic markets is the main focus of the Bertrand model as opposed to the Cournot model. In this case businesses set their prices in direct competition with one another expecting that their rivals will follow suit by

cutting prices if necessary.

Joseph Bertrand created the Bertrand model which contends that when businesses only compete on price the level of competition can rise to the point where prices are close to the marginal cost and profits are reduced (Bertrand, 1883). In a highly competitive market like these businesses constantly modify their prices in an effort to hold onto or increase their market share. Price wars and low profit margins are common outcomes of the Bertrand model which may not accurately represent real-world market conditions where differentiation is important even though it captures situations where price is the main competitive factor. Collusion and Fixing Prices. Collusion which is a type of cooperation between businesses frequently takes the form of price fixing in which businesses agree to fix prices at a predefined level in order to eliminate competition. Price fixing can result in significant market inefficiencies and raise prices for consumers. To avoid collusion and maintain a competitive market regulatory agencies including antitrust authorities keep an eye on these activities (Stigler, 1964).

Businesses that engage in collusion run the risk of facing fines and penalties from the law since it obstructs fair competition and consumer choice. Both explicit agreements to fix prices or output levels and tacit collusion in which firms adopt similar strategies without formal agreements are examples of collusion in oligopolistic markets. Both forms of collusion raise the possibility of monopolistic dominance limit innovation and diminish competition all of which negatively impact market dynamics. Consequences and Regulation. Understanding the intricacies of market dynamics requires a theoretical understanding of oligopolistic behavior. These models must be taken into account by regulators and policymakers when developing plans to uphold healthy competition stop monopolistic behavior and encourage economic expansion. Governments can guarantee that markets continue to be effective transparent and supportive of consumer welfare by acknowledging the strategic interactions that characterize oligopolies. To sum up the examination of oligopolistic behavior using game theory demand models and collusion offers important insights into how businesses function in markets that are both competitive and constrained. These revelations help to promote a balanced economic environment by deepening our understanding of market dynamics and the necessity of regulation to stop anti-competitive behavior.

4. Empirical Evidence of Price Fixing

In many different industries price fixing—the practice of businesses agreeing on prices to eliminate competition and maintain higher profit margins—has been thoroughly researched and documented. The study on price-fixing conspiracies by Hay and Kelley (1974) shows that collusion is a frequent occurrence in industries like consumer goods and transportation. According to these studies these kinds of practices are a systemic problem in oligopolistic markets where a small number of powerful companies have significant influence over pricing policies rather than isolated incidents. The prevalence of these practices is shown by real-world examples like pharmaceutical industry price coordination and airline fuel surcharge agreements. Agreements for airline fuel surcharges for example show how businesses work together to establish fuel cost surcharges and guarantee that rivals use comparable pricing tactics. This ultimately affects the efficiency of the market by putting consumers in the face of higher ticket prices less transparency and fewer options. Price-fixing scandals involving parts suppliers have also occurred in the automotive industry where companies have banded together to artificially raise the cost of necessary parts greatly increasing the cost of auto manufacturing and repairs.

These incidents demonstrate how price-fixing harms consumer welfare and market competition.

Adams and Williams (2019) go into further detail about zone pricing which is the practice of businesses setting different prices depending on their location and the degree of competition in that area. One example of how businesses manipulate competitive markets through strategic geographic pricing is zone pricing. Companies engage in anti-competitive behavior when they set prices differently in different regions limiting consumer choice and enabling price uniformity despite variations in production or distribution costs. Due to the fact that consumers in high-demand regions pay substantially more than those in low-demand regions this strategy frequently results in market inefficiency and exacerbates economic inequality. Price fixing has broad repercussions that affect not just consumers but also the markets overall structure according to empirical data. Inflationary prices which force consumers to pay more for goods and services are among the most important effects. When businesses band together to fix prices there is less of an incentive for competition which lowers product quality and inhibits innovation. As businesses put maintaining agreed-upon pricing above improving their offerings this stifles technological advancements and the launch of new services (Gal, 2001).

Price fixing also results in fewer options for consumers. Differentiation based on quality service or innovation is frequently eliminated when businesses work together to set prices. Without substantial improvements in product offerings consumers are forced to accept higher prices in a homogenized market with fewer options due to the lack of competition. Interventions and Regulatory Measures. Antitrust laws play a critical role in preserving competitive markets and averting collusion in order to mitigate the negative consequences of price fixing. Fair pricing innovation and safeguarding consumer rights against monopolistic and anti-competitive practices are the goals of these laws. However, it can be difficult to enforce anti-trust laws especially when there is covert collusion and unofficial agreements between businesses. Because price-fixing plots are frequently hidden it can be challenging to identify and bring charges against them. Gal (2001) stresses the value of encouraging competition by assisting upstart companies that can upend established market participants and break down collusion. For oligopolistic industries to remain competitive disruptive technologies and new market entrants are crucial because they push businesses to innovate and compete on grounds other than price.

According to Long et al (2024), ongoing supervision is also required, to keep an eye on oligopolistic sectors and effectively handle any indications of price-fixing. The negative impacts of price fixing have been successfully reduced by regulatory actions like price caps active monitoring and severe sanctions for collusive behavior. Regulatory agencies can guarantee a more robust market environment where consumers are shielded from exploitation by putting in place procedures for transparency and encouraging competitive practices. But keeping such an eye on things calls for a flexible strategy because market dynamics change as technology and the state of the world economy do. The widespread nature of collusion across industries and its profound effects on consumer welfare and market efficiency are highlighted by empirical evidence of price fixing to sum up. Anti-trust laws are crucial in stopping these practices but to protect competitive markets ongoing attention to detail and flexible regulatory strategies are necessary.

5. Conclusion

In conclusion, In oligopolistic markets price fixing is still a major problem that endangers

consumer welfare and market fairness. The negative consequences of collusion such as inflated prices diminished competition and stifled innovation are demonstrated by empirical data from a variety of industries including consumer goods pharmaceuticals and transportation. Zone pricing and airline fuel surcharges are two examples of real-world situations where businesses use price-fixing tactics to increase profits at the expense of customers. Price fixing has wide-ranging effects that affect both the pricing structure and the general health of markets. Customers must contend with increased prices fewer options and restricted availability of high-quality goods and services. Additionally, because businesses are motivated to maintain the status quo pricing rather than seek advancements in product offerings or operational efficiencies the absence of true competition stifles innovation.

Additional Study and Suggestions

To effectively combat price fixing more research is needed to create sophisticated market monitoring tools. Big data analytics and machine learning are two examples of technologies that offer creative ways to track market trends and help identify collusive activity early. Maintaining competitive markets requires strengthening antitrust laws and regulatory frameworks. Modern market complexity like global supply chains and digital marketplaces necessitates the adaptation of these laws. Governments and regulatory agencies can be extremely helpful in promoting accountability and transparency in collusion-prone industries. People can be empowered to reveal wrongdoing by supporting whistleblower protections and offering channels for anonymous reporting of anti-competitive behavior. Furthermore, the detrimental effects of long-standing oligopolistic practices can be mitigated by fostering competition through policies that assist new disruptive businesses. In summary price fixing is still a major problem in oligopolistic markets but its effects can be lessened by aggressive regulatory actions technology developments and an emphasis on creating competitive environments. Long-term market health and economic growth will be supported by ensuring that consumers have access to fair pricing and a range of options.

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