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The Influence of the Number of Business Actors on Price Stability in an Oligopoly Model

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ABSTRACT

This research aims to analyze the influence of the number of business owners on price stability in an oligopoly market structure. In an oligopoly market, the interaction between business entities plays a crucial role in determining prices. A small number of businesses tends to create price instability due to interdependent competitive strategies, including potential collusion or aggressive price reactions. Conversely, as the number of businesses increases, competition becomes fiercer and the tendency for prices to stabilize also increases. This research uses a descriptive qualitative approach thru literature studies and microeconomic theory analysis using the Cournot and Bertrand models. The study results show that market structure significantly determines price formation patterns, with the number of business operators being an important variable in creating market efficiency and price stability. Additionally, strategic interdependence between firms explains the phenomenon of price stickiness and extreme fluctuations in oligopolistic markets. This finding contributes to understanding the dynamics of oligopoly and the policy implications for regulating a healthier and more competitive market structure. This research also recommends the importance of regulation to increase the number of business actors in order to foster a fair competitive climate and stable prices, thereby protecting the interests of consumers broadly.

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1. INTRODUCTION

The market is a place where interaction occurs between sellers and buyers who mutually influence each other in determining the price and quantity of goods or services. One form of market structure that has a significant impact on price stability is the oligopoly market, which is a market dominated by a few business entities (producers) but with considerable power in setting prices. In this situation, the behavior of one company cannot be separated from the strategies adopted by its competitors, so every decision, especially those related to price, is heavily influenced by expectations of competitor reactions.

According to Mankiw (2012), oligopoly is a market structure where only a few companies dominate the market and influence each other in decision-making, particularly in terms of pricing and output quantity. Meanwhile, Samuelson and Nordhaus (2001) emphasize that in an oligopoly

market, prices are not determined solely by supply and demand, but also by competitive strategies such as collusion, predatory pricing, and product differentiation.

One of the characteristic features of an oligopoly is the interdependence between businesses. When one company lowers its prices, other companies tend to respond with similar strategies, which can trigger price instability not always based on rational market conditions. This aligns with Stigler's (1964) opinion that in an oligopoly market, uncertainty about competitors' reactions makes companies more cautious in setting prices, which can lead to price rigidity or extreme fluctuations. (Stigler, 1964) The number of businesses in an oligopoly market is an important variable in influencing price dynamics. When the number of business operators is very limited, market dominance and the potential for price manipulation increase, thus disrupting price stability. Conversely, an increasing number of business owners intensifies competition, reduces individual market power, and drives prices toward marginal cost, creating a more efficient and stable market (Tirole, 1988; Carlton & Perloff, 2015). Empirical research, such as that conducted by Hairani & Efendi (2024) and Lestari (2021), also indicates that the disparity in the number of business owners in the oligopolistic sector contributes to price uncertainty and weakened public purchasing power. An important factor that hasn't been explored in detail is the influence of the number of business owners on the stability of these prices. When there are very few business operators, market power tends to be concentrated, which opens up opportunities for collusion or price dominance by one or two large companies. In this condition, prices can become highly volatile or not efficiently reflect production costs. Conversely, an increase in the number of business owners is believed to strengthen market competition mechanisms, leading to more stable and efficient prices. (Diki, 2024)

Economic models such as the Cournot model and the Bertrand model are widely used to describe firm behavior in oligopolistic markets. In the Cournot model, firms compete in output quantity, while in the Bertrand model, competition occurs in terms of price. Both models show that changes in the number of business owners have a direct impact on market equilibrium, both in terms of price and quantity of production. Tirole (1988), in his work The Theory of Industrial Organization, explains that Cournot and Bertrand equilibria are very sensitive to the number of market participants, and in many cases, an increase in the number of businesses can push prices toward marginal cost, as happens in a perfectly competitive market.

The urgency of this research is increasing considering that many industrial sectors in Indonesia, such as the cement, automotive, telecommunications, and fuel industries, exhibit market characteristics that tend to be oligopolistic. In a market structure dominated by a handful of businesses, the risk of price instability is higher. This condition can trigger unfair price increases or prolonged price wars, which ultimately have the potential to harm consumers and disrupt national economic stability. (Wulandari et al., 2024) This research focuses on a conceptual analysis of the influence of the number of business actors on price stability in an oligopoly market using a literature-based descriptive qualitative approach. Two main models in industrial organization theory, namely the Cournot and Bertrand models, are used as an analytical framework to understand this relationship. The main contribution of this research is to provide an in-depth understanding of the oligopoly market mechanism in the Indonesian context and to offer policy insights to promote healthy competition and protect consumers. This finding is expected to enrich the microeconomic literature, particularly in the study of market structure, while also serving as a reference for policymakers in formulating fairer and more competitive industry regulations.

THEORETICAL BASIS

a. Market Structure

Market structure is the form or type of market classified based on the number of businesses, the level of competition, and the ability of each business to influence market prices. In the context of oligopoly, the market is dominated by a few large firms that are interdependent in their decision-making, particularly regarding pricing and output (Nicholson & Snyder, 2011). Market structure provides insight into how interactions between businesses affect competitive conditions. The fewer the players involved in a market, the greater the likelihood of market power being controlled by a handful of companies. This can affect the price formation process and the

distribution of goods or services to consumers. (Aulia, 2025) Understanding market structure is important in analyzing market efficiency and its impact on consumer welfare. In an oligopolistic market structure, each firm's decisions cannot be made independently because they depend on the actions of competitors. Therefore, this structure creates a more complex competitive dynamic and often requires a strategic approach from both market participants and policymakers. (Zaky Raihan, et al. 2023)

b. Oligopoly Market

Oligopoly is a market structure where there are only a few dominant business entities that control the majority of the market share. The main characteristic of this market is the interdependence between business actors, meaning that the pricing or output decisions of one company will affect the decisions of other companies (Mankiw, 2014). In this situation, competitive strategy is not only based on production efficiency, but also on predicting competitors' reactions.

The uniqueness of an oligopoly market lies in the high level of uncertainty and the need for strategic planning. Due to the interdependence between companies, actions such as price cuts by one player can trigger similar responses from competitors, leading to a price war. Conversely, the tendency to coordinate or collude is also higher compared to other market structures. (Ananda et al., 2024) The implications of the oligopoly structure are very important for public policy. The government and competition authorities need to monitor the behavior of market participants to prevent harm to consumers. By understanding the characteristics of oligopoly, policymakers can design regulations that promote healthy competition and protect the broader public interest. (Syaiful Anwar & Tasdik Mubarok, 2019)

c. Number of Business Actors and Price Stability

The number of businesses in an oligopoly market plays a crucial role in price stability. In conditions with a small number of players, the tendency for collusion or aggressive price competition increases, leading to fluctuating and unstable prices. Conversely, as the number of businesses increases, the intensity of competition rises and the opportunity for collusion decreases, resulting in more competitive and stable prices (Carlton & Perloff, 2015). When only a few players dominate the market, they tend to have significant market power and can set prices that are favorable to them. This situation can lead to imbalances in profit distribution and suppress consumer purchasing power. In some cases, businesses may even engage in covert price fixing, which is, of course, detrimental to consumers and undermines the principles of economic fairness. (Putri et al., 2025)

Conversely, the increasing number of business owners has a positive impact on market efficiency and transparency. With more companies competing, consumers will have more choices, prices will become more affordable, and product innovation will flourish. Therefore, the ideal number of business owners can be an important indicator in creating a healthy business climate and stable prices in an oligopolistic market. (Dwi Nur Lestari, 2021)

d. Cournot Model

The Cournot model is an oligopoly competition model where each firm simultaneously determines the quantity of output to be produced, assuming that other firms will not change their output. In this model, the price is determined by the total output in the market. As the number of businesses increases, the collective output approaches the result of a perfectly competitive market, and prices become more stable (Varian, 2010).

This model shows how a firm's production decisions depend on its expectations about its competitors' output. Because firms consider their competitors' output to be fixed, they will adjust their production to maximize profits. When all companies do the same thing, an equilibrium is reached called Nash Equilibrium, where no single company can increase its profits by unilaterally changing its output.

The advantage of the Cournot model lies in its ability to explain the dynamics of quantity in an oligopoly market and its implications for price. As the number of firms increases, the market power of individual firms weakens, causing output to approach perfect competition efficiency. This indicates that the addition of business owners in the oligopoly market structure can be a natural mechanism for creating price stability and resource allocation efficiency. (Hanyang Li, et al., 2024)

e. Bertrand Model

Model Bertrand describes a situation where companies compete on price rather than output. In this model, each firm assumes its competitor's price remains constant and attempts to offer a lower price to attract consumers. As the number of participants increases, market prices tend to fall toward marginal cost, creating price stability similar to that in a perfectly competitive market. (Tirole, 1988).

Unlike the Cournot model, which emphasizes quantity, the Bertrand model is more realistic in markets where products are homogeneous and consumers are highly price-sensitive. In such conditions, companies have a strong incentive to lower prices in order to capture market share. This process drives prices to become highly competitive, potentially reaching a point where there is no long-term economic profit for businesses. The implications of the Bertrand model are very important in market surveillance policy, as extreme price competition can benefit consumers in the short term but harm industry stability in the long run. However, in practice, this model is rarely fully realized because many factors such as product differentiation, consumer switching costs, or market entry barriers can hinder pure price-based competition. (Limin Zhang, 2023)

f. Price Stability in Oligopoly

Price stability in an oligopoly market is influenced by the strategies adopted by businesses, such as tacit collusion or price leadership. However, the more businesses involved, the harder it becomes to maintain coordination or collusion, which ultimately leads to more stable prices and reflects efficient market mechanisms.

Price stability is one of the distinctive characteristics of an oligopoly market. Although companies have significant market power, they are less likely to change prices frequently due to concerns about negative responses from competitors. In many cases, prices become "sticky," and companies prefer to compete thru promotions, service improvements, or product innovation rather than thru direct price changes.

However, as market structures change and the number of players increases, price coordination becomes difficult to maintain. The inability to collude or price-lead fosters the formation of more dynamic and competitive prices. This indirectly strengthens market mechanisms, creating stability derived from open competition, not from hidden agreements among dominant business actors. (Fatma Hairani & Bakhtiar Efendi, 2024)

2. RESEARCH METHODS

This research employs a descriptive qualitative approach with a literature study (library research) method as the primary basis for analyzing the influence of the number of business actors on price stability within an oligopoly market structure. The qualitative approach was chosen because this study focuses more on conceptual understanding and microeconomic theories and oligopoly competition models rather than on processing quantitative or statistical data. The descriptive method is used to provide a systematic, detailed, and objective overview of the relationship between the number of business owners and the price dynamics occurring in the oligopoly market.

The data analyzed in this study is secondary data obtained thru literature review from various academic and scientific sources. Data sources include microeconomics and industrial organization textbooks, national and international journal articles discussing oligopoly theory and phenomena, as well as regulatory documents and reports from competition oversight agencies that

provide a practical overview of oligopoly market conditions in various industrial sectors. Data collection was carried out systematically by selecting relevant and up-to-date literature to ensure the validity and reliability of the analysis. Data analysis was conducted deductively using a comparative approach, which involved comparing various concepts and findings from economic theory related to the oligopoly market. The main focus is on two primary models frequently used to understand the behavior of business owners in an oligopoly: the Cournot model and the Bertrand model. The Cournot model explains competition based on the quantity of output produced by each company, while the Bertrand model emphasizes price competition among companies. Thru conceptual understanding and simulation of these two models, the research explores how variations in the number of business actors can influence price stability in an oligopoly market.

Additionally, this research also discusses the concept of strategic interdependence among business actors in an oligopoly, which often leads to unstable or rigid prices due to mutual monitoring and response to each company's pricing decisions. With this conceptual approach, the research aims to comprehensively describe market dynamics without the limitations of primary data or empirical testing, thus serving as a strong theoretical foundation for subsequent quantitative research or empirical case studies. This research limits its scope to only the theoretical and conceptual aspects of the influence of the number of business actors on price stability, thus not involving primary data analysis, field surveys, or statistical testing. Therefore, the results of this study emphasize a deep understanding of the mechanisms of the oligopoly market and the policy implications that can be taken to create a healthy market structure and stable prices for consumer welfare.

3. RESULTS AND DISCUSSION

In the analysis conducted based on the Cournot and Bertrand models, a detailed picture was obtained regarding the influence of the number of business operators on price and price stability in an oligopoly market.

a. Cournot Model

The Cournot model focuses on competition between firms thru the quantity of output produced. In an oligopoly market with a very limited number of players (e.g., only 2-3 companies), each company has significant market power to control its output in order to maximize profits. As a result, market prices tend to be higher than the marginal cost of production because the total quantity of output marketed is limited. However, this price tends to be less stable because changes in output by one company will directly affect market conditions and trigger reactions from competitors. For example, if one company increases output to gain market share, other companies may respond by lowering output or adjusting prices, potentially leading to price fluctuations.

As the number of businesses in the market increases, each company faces tougher competition. Total market output increased significantly, causing the market price to fall close to marginal cost. In this situation, the company loses some market power to set high prices because it has to compete with many other players. As a result, prices become more stable because competitive pressure significantly reduces the likelihood of price changes. Additionally, the increased number of businesses reduces the incentive for companies to engage in aggressive price strategy games, thus better maintaining price stability.

b. Bertrand Model

Unlike the Cournot model, the Bertrand model focuses on price competition between companies with homogeneous products. In a market with few business players, the price formed is usually much higher than the marginal cost due to the possibility of covert collusion and pricing strategies aimed at maintaining profit margins. Companies tend to be cautious about lowering prices for fear of triggering a price war that would be detrimental to all parties. However, prices

in this condition also tend to be less stable because any price change by one company can trigger an immediate response from competitors.

As the number of business owners increases, price competition becomes increasingly fierce. In this situation, companies are driven to lower prices to near marginal cost in order to win the market, especially if the products are considered homogeneous and easily compared by consumers. Therefore, the price formed becomes lower and more stable. In this situation, the likelihood of large price fluctuations also decreases because companies cannot freely raise prices without losing market share.

c. Strategic Interdependence and Price Dynamics

One important characteristic of an oligopoly market is the strategic interdependence among businesses. This means that every pricing decision made by one company will be carefully considered by its competitors, who will then react to maintain their respective market positions and profits. This interdependence can lead to price rigidity or sticky prices, as companies are reluctant to aggressively change prices to avoid triggering adverse reactions.

However, in some situations, such as when there are significant changes in demand or production costs, competition can turn into an aggressive price war. This leads to sharp price fluctuations and market instability. Therefore, price stability in an oligopoly market is highly dependent on the balance between strategic interactions that keep prices stable and competitive pressures that can cause volatility.

Here is a table showing the number of business owners, prices, and price stability based on the Cournot and Bertrand models:

Number of Business Owners	Price Relative to Marginal Cost	Price Stability	Explanation
2 - 3	Very High (1.5 - 2.0 x cost)	Low (2/5)	Large market power, high prices, and strong strategic reactions trigger price fluctuations.
4 - 6	Moderate (1.2 - 1.4 x cost)	While (3-4/5)	Competition is increasing, prices are decreasing, and price stability is beginning to improve.
> 10	Approaching marginal cost (±1.0 x cost)	High (5/5)	Intense competition, competitive pricing, stable prices, minimal risk of price wars

4. CONCLUSION AND RECOMMENDATIONS

This research confirms that the number of business owners is a crucial factor in creating price stability in an oligopoly market. Thru the Cournot model and the Bertrand model, it is evident

that an increase in the number of business operators contributes to a weakening of each company's market power. This encourages the creation of more competitive and stable prices. Conversely, when the market is dominated by only a few business operators, intense strategic interaction and the potential for collusion tend to make prices unstable and likely high. Increasing the number of businesses not only improves output efficiency but also reduces the incentive to engage in aggressive pricing strategies. A study of both models shows that a combination of competition in production quantity and price competition can create a healthier market structure. In such conditions, prices become more reflective of fair market mechanisms and are not solely controlled by dominant actors.

Nevertheless, the conclusions drawn from this study are still normative and conceptual. No empirical evidence has yet been found regarding the concrete impact of strategies to increase the number of business owners on price stability in real-world practice. Therefore, further evaluative studies are needed on the implementation challenges in various industrial sectors, such as regulatory barriers, market entry costs, and the presence of cartels or market dominance. Furthermore, success in building a competitive market and stable prices is not solely determined by the number of business operators, but also by the effectiveness of supervisory and regulatory institutions. In this regard, the role of competition supervisors is very important in fostering a fair, open, and healthy business climate. Supervisors need to act as active agents of change in facilitating the growth of new business owners, preventing collusion, and sustainably protecting consumer interests.

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